Press freedom, market information, and international trade

Christian Bjørnskov [a,b,*], Philipp J.H. Schröder [c]

[a] *Department of Economics and Business Economics, Aarhus University, Aarhus, Denmark*
[b] *Research Institute of Industrial Economics (IFN), P.O. Box 55665, 102 15, Stockholm, Sweden*
[c] *FIND – Research Centre for Firms and Industry Dynamics, Department of Economics and Business Economics, Aarhus University, Aarhus, Denmark*

ARTICLE INFO

ABSTRACT

We consider a framework in which freedom of the media can alleviate barriers to trade, while in the absence of trustworthy market information, firms optimally withhold part of their export activity and opt for testing-the-waters strategies. We employ data on export flows among a large group of Western and Latin American countries combined with the Freedom House measure of press freedom to examine the main theoretical implication. In a standard set-up of gravity equations, we find evidence that the effects are partially conditional on the political institutions of the importing country: press freedom is strongly associated with trade with autocracies.

1. Introduction

A vast literature documents the importance of trade costs, tariffs and institutional differences to international trade flows (Anderson and Douglas, 2002; Anderson and van Wincoop, 2004; Acemoglu et al., 2005; Levchenko, 2007; Yu et al., 2015). Yet, in order to take advantage of potential opportunities in foreign markets and to justify the potentially sizable sunk costs associated with starting export sales in a given destination, firms need to have sufficiently credible and precise information about those opportunities. Previous studies have touched upon this question in the context of assessing the influence of democracy on trade and hypothesised that regime type determines the quality of market information (see Milner and Mukherjee, 2009 or Aidt and Martin, 2010). However, the literature on exporting has at least since Rauch (1999) identified information frictions as an important barrier to firms' export activity. While the lion's share of the literature that followed is driven by advances in, and availability of, micro and firm-level data, much less is known about how such information frictions (or the alleviation of such frictions by a well-functioning press) affect overall trade flows between countries, which is the subject of the present paper.

We therefore hypothesise that when market information is curtailed, i.e. it may be unavailable, uncertain or biased due to government restrictions on the freedom of the media or information is otherwise of low quality, foreign firms are likely to withhold their export activity. In terms of framing our question, we follow related formulations that highlight the role of incomplete information – often in the form of search frictions – for firms' export decisions. Rauch's (1999) work on networks features importantly in this literature while Arkolakis (2010) focusses on advertising as a means of overcoming information deficits and other studies explore the effects of learning from exporting (Albornoz et al., 2012; Allen, 2014). Similarly, our paper is related to the role of institutions, which is the topic in Araujo et al. (2016) who focus on institutions for contract enforcement in helping firms to overcome information asymmetries that else have to be tackled by reputation.

While the present paper is the first to examine the nexus of press freedom and international trade, previous literature has established various channels by which freedom of the media may affect economic activity, through for example its effect on corruption levels (Chowdhury 2004; Escresa and Picci, 2020) or entrepreneurship (Yeganegi et al., 2021). Moreover, economic freedom more generally affects trade flows (Sonora, 2014), foreign direct investments (e.g. Singh and Gal, 2020; Seyoum and Juan Ramirez, 2019) and other economic variables (inter alia entrepreneurship, Nyström, 2008).

An interesting parallel to the present paper comes from a recent study by Cotterlaz and Fize (2021). They document, based on historic data, that the emergence of global news agencies (facilitated by telegraph technology) that cover bilateral market information and news spurred trade between those markets. However, the present paper develops a different aspect, as our point is that not only information per se – as represented by news and media - but more precisely the reliability of such information matters for firms to tackle information frictions. In short, we hypothesise that press freedom reduces uncertainty and by this channel facilitates international trade.[1] We consider a framework based on Albornoz et al. (2012) to illustrate this point. We examine how firms in the absence of reliable information about potential export markets revert to a testing-the-waters strategy, where small initial shipments provide information with the option value of disclosing favourable export conditions on the market in question. Contrasting this framework with a scenario where uncertainty is resolved due to a free press that ensures reliable and trustworthy information on market conditions and developments and relevant policy information highlights the mechanism at the heart of our argument. The driver for such effects works both at the extensive and the intensive margins of trade.

We test the overall predictions of our theoretical consideration for cross-country export flows in a standard set-up of gravity equations, in which we also test for potential effects of overall institutional quality and trade freedom and whether the effects depend on the political institutions of the importing country. This set-up is augmented by the Freedom House measure of Press Freedom available between 1993 and 2016 (which becomes our sample period) to test the main theoretical implication: that improved formal access to unbiased information furthers international trade.

Previewing the results, we find that press freedom in destination countries influences export flows, but that the average effect is relatively small and of negligible economic importance. However, as hypothesised, when separating the effects in democracies and electoral autocracies, we find a strongly negative effect on exports to autocracies. We consider this our central result. Moreover, the negative effect is mainly driven by the sensitivity of exports of industrial products and textiles. We finally report corroborating evidence that at least part of these effects are driven by action on the extensive margin.

The rest of the paper is structured as follows. In Section 2, we consider a framework to illustrate the importance of access to precise, unbiased information for the export decisions of private firms. Section 3 outlines the data and estimation strategy we employ in Section 4, in which we test the basic implication of the model. In Section 5, we explore whether the political regime matters to the effects of information while Section 6 concludes.

2. Framing the issue

Theoretically, press freedom could affect international trade through multiple mechanisms. Our main hypothesis, which we develop in the following, is that when market information is unavailable or of low quality, foreign firms will rationally withhold part of their export activity. This situation can be due to either uncertainty when information in general is scarce, that information is unavailable due to government restrictions on the freedom of the media, or that relevant information on market opportunities or institutional and regulatory characteristics is potentially biased due to government influence on the media.[2] While firms that already trade regularly with a given country have experience and information through, for example, recurrent contact with trade partners in the country, firms that do not trade with the country lack such sources of information.[3]

In general, firms need to assess their longer-term export potential to justify for example sunk costs associated with export market development, say building up distribution networks abroad; see e.g. Anderson and van Wincoop (2004). Our approach follows Albornoz et al. (2012), where firms in light of uncertainty have to learn about foreign markets and their own export potential on those markets by experimentation. In our set-up – departing from Albornoz et al. (2012) – we include the possibility that press freedom, i.e. the availability of trustworthy and unbiased information, can resolve the uncertainty that firms face and contrast this situation with the case where restrictions on press freedom persist and accordingly reliable information is unavailable.

---

[1] More recently, and outside the scope of the present paper, information flows on social media play an increasingly important role and may in part augment or substitute for press freedom. Obviously, for social media information exchange, there are many other issues, such as data gathering by providers and privacy-related concerns, which add new complexities; see Dughera et al. (2021).

[2] Obviously, actual information flows relevant to prospective export activity rarely will come from the media directly, yet will be composed from a multitude of sources, including official communication and data. Still, the watchdog function of a free press ensures also in this case a certain information quality (cf. Strömberg 2004, 2015).

[3] The extensive margin is more important than most people realise. Besedes and Prusa (2008) were among the first to clearly document how often firms move in or out of exporting to specific destinations. More recently, Geishecker et al. (2019) show in Danish firm-level transactions data that approximately a third of all firm-product-destination export spells are due to one-off export events where a firm has not exported the same product to the destination the past four years and will not do so for the next four years.

2.1. Basic set-up

Consider a risk-neutral producer – out of a continuum of potential entrants – who has to decide on entering and serving a given foreign market.[4] Without loss of generality, we set unit trade costs $\tau = 0$ and focus on a firm-specific one-time sunk fixed cost of exporting $F_e > 0$. The latter captures the costs of dealing with foreign formalities, setting up a distribution network, observing foreign product standards, etc. Moreover, the firm incurs variable per unit production costs that are known and normalised to zero ($c = 0$), and an initially unknown per unit export cost $c_e > 0$.[5] The firm faces the following demand on the export destination:

$$q(p) = a - p \tag{1}$$

We allow uncertainty to originate both in the demand and supply parameters. Thus the firm-specific parameters a and c_e can be thought of as reduced forms of uncertain demand and supply conditions for the export market that may be resolved in the presence of a free press or due to learning from export experience. For example, parameter a captures foreign willingness to pay, which will depend on items such as actual national income, exchange rate manoeuvres, availability of rival products and expenditure shares for the product in question, all of which may or may not be represented truthfully in the information available to the firm prior to export entry. Similarly, c_e captures the variable costs incurred when serving foreign customers, which include shipping and marketing costs, insurance fees, potential tariff risks and corruption costs. Again, firms can gain insights on the size of c_e either by experience or deduce them a priori in case of well-functioning free media.

We next denote the measure of export profitability by the random variable

$$\mu \equiv a - c_e, \tag{2}$$

With the known and common across all firms continuous cumulative distribution function $G(.)$ on support $\left[\underline{\mu}, \overline{\mu}\right]$, i.e. where the worst outcome $\underline{\mu}$ occurs at the lowest possible demand intercept $\underline{a}$ and highest possible exporting variable costs $\overline{c}_e$, while the opposite situation results in $\overline{\mu}$. Moreover, we denote by $E\mu$ the ex ante expected export profitability, whereby $E\mu < 2a$ ensures positive equilibrium prices. In order for uncertainty to make a difference for the export decision of the firm, we assume that $\underline{\mu} < 0$, i.e. even with $F_e = 0$ exporting can result in a loss, and that $\overline{\mu} > 2\sqrt[2]{F_e}$, i.e. exporting can generate positive profit.

2.2. Timing and information assumptions

Since our main goal is to understand differences in export strategies depending on the absence and presence of reliable information, respectively, we evaluate all profits from an ex ante perspective, that is at their expected values prior to entry at $t = 0$ and when parameters a and c_e are time-invariant. We denote by e_t^i the firm's decision to enter the export market at time $t = 1, 2$ and under an information situation with either press freedom, $i = P$, or no press freedom, $i = N$. Thus, $e_t^i = 1$ if the firm exports at time t, and $e_t^i = 0$ otherwise, where we denote by q_t^i the export quantity sold.

Press freedom affects the availability and timing of information, such that uncertainty is resolved before the firm has to make its export decision. While press freedom in principle is a continuous variable we are here interested in the effects of the availability of information, i.e. a dichotomous state. Accordingly, we focus on the availability, precision and completeness of information, and not on whether it is biased.[6]

The timing of the model is such that at time $t = 0$ the firm either learns $G(.)$ and μ (with press freedom) or only learns $G(.)$ (no press freedom). At time $t = 1$ the firm decides to start exporting conditional on paying export entry cost F_e and chooses the export volume q_1^i after which export profits are realised. Note that even with a small $q_1^i > \varepsilon$, the firm can infer its time invariant μ from realised profits. In period 2 a firm that has exported in $t = 1$ chooses how much to sell, q_2^i. In case the firm has not entered in the previous period, it decides whether to enter the market at time $t = 2$. If the firm enters in period 2, it pays F_e and chooses q_2^i.

2.3. Export decisions with press freedom

Given press freedom, a firm's export profitability for the market in question is directly observed at time $t = 0$ and accordingly the firm's decision variables are $e_1^P = e_2^P$ and $q_1^P = q_2^P$. If export entry occurs, it will occur in period 1 and last for both periods. Focusing on period 1, the firm's profit maximising problem is simply:

---

[4] We simplify notation and omit firm and destination identifiers. Note also that risk aversion would amplify the mechanisms we are presenting here.

[5] It would be straightforward to include differences in productivity, i.e. heterogeneity in c, and thus obtain the familiar cut-off values telling us which potential entrant firms (high productivity) that choose to enter the market in question, and which abstain from exporting to the destination. Since we are only interested in the effects from the availability of information on the export decision of firms – and since our data is not firm-level data, we do not pursue this aspect of the model.

[6] As emphasised by, e.g., Dixit and Pindyck (1994), the sheer uncertainty of that information can affect market entry decisions, as outlined in a series of studies in the real options literature. For any risk averse firm, as well as any firm that may be credit or liquidity constrained, more and higher quality information reduces the assessed risk of future trade relations. Adding informational bias tends to exacerbate such effects.

$$\max_{q_1^P \geq 0} \left\{ \left(\mu - q_1^P \right) q_1^P \right\} \tag{3}$$

which gives $\widehat{q}_1^P = 1_{\{\mu > 0\}} \frac{1}{2} \mu$, where $1_{\{.\}}$ is an indicator function denoting whether exporting is profitable or not. Accordingly, per period profit (when $\mu > 0$) computes to $\left(\frac{1}{2} \mu \right)^2$, such that the combined profits across the two periods conditional on entry are simply $\pi^P = 1_{\{\mu > 0\}} \frac{\mu^2}{2}$ and zero for the case of $\mu < 0$. Moreover, it follows that the entry decision is $e_1^P = e_2^P = 1 \Leftrightarrow \pi^P \geq F_e$, i.e. the firm compares the sunk cost of export entry to the profits generated from exporting. Put differently, not all firms will enter the destination in question (they act on the extensive margin), but if they enter, they export the optimal export volume (intensive margin) and export in both periods.

2.4. Export decisions without press freedom

In the absence of a free press, firms still have the opportunity to infer their export profitability from first period profits. To learn their true μ, firms must nevertheless pay the fixed export entry costs and export a small but strictly positive amount ε to 'test the waters'.[7] Other more realistic formulations with, for example, smaller F_e for smaller shipments are possible; similarly, settings with multiple markets and learning across markets can be examined. Still, for the purpose of the current paper the above assumptions capture in a simple way the idea that while it is costly for the firm to identify its export profitability on a market with information frictions (i.e. the lack of trustworthy information due to the absence of a free press), it is not impossible.

We solve for the firm's decision variables $\{e_1^N, e_2^N, q_1^N, q_2^N\}$ by backwards induction. At time $t = 2$, the output decision depends on whether the firm has already exported and learned its export profitability. If $e_1^N = 1$, the firm has entered and exported at time $t = 1$, and it solves at time $t = 2$:

$$\max_{q_2^N \geq 0} \left\{ \left(\mu - q_2^N \right) q_2^N \right\}, \tag{4}$$

which gives $\widehat{q}_2^N = 1_{\{\mu > 0\}} \frac{1}{2} \mu$. For $\mu < 0$, second period output is zero and $e_2^N = 0$. Period 2 profits in expected terms (expected at time $t = 0$) can thus be expressed as

$$V = \int_0^{\overline{\mu}} \left(\frac{1}{2} \mu \right)^2 dG(\mu), \tag{5}$$

and represent the option value of continuing to export while not having to pay the sunk fixed costs, F_e. The first period export experience thus discloses the firm's profitability on the export market. If the market does not generate positive profits, the firm abstains from period 2 sales, otherwise it increases its export sales in period two to maximise profits.[8]

Turning to period 1, a firm that starts exporting maximises total profit across both periods

$$\pi^N \left(q_1^N \right) \equiv \int_{\underline{\mu}}^{\overline{\mu}} \left(\mu - q_1^N \right) q_1^N dG(\mu) + 1_{\left\{ q_1^N > 0 \right\}} V. \tag{6}$$

The first term in (6) is the expected period 1 operating profit, whereas the second term captures period 2 expected profits, depending on whether entry has occurred in period 1. Maximisation gives $\widehat{q}_1^N = 1_{\{E\mu > 0\}} \frac{1}{2} E\mu + 1_{\{E\mu < 0\}} \varepsilon$, where $\varepsilon > 0$ is the arbitrarily small 'testing the waters' export sales volume. Plugging $\widehat{q}_1^N$ into (6) gives profits conditional on entry as $\pi^N = 1_{\{E\mu > 0\}} \left(\frac{1}{2} \mu \right)^2 + V$, and it follows that the entry decision in the absence of press freedom is $e_1^N = 1 \Leftrightarrow \pi^N \geq F_e$, i.e. as in the previous case the firm chooses to enter when its sunk costs are sufficiently low. Accordingly, also with uncertainty (in our model due to the absence of free media) exporting takes place. Again, not all firms will enter the destination in question, and when entering exporting may be discontinued (extensive margin) and smaller export volumes (intensive margin) may occur in order to test the waters.

2.5. Testable implications

A full comparison of the above cases will inter alia depend on $G(.), E\mu$, the firms specific μ (and F_e) as well as other characteristics of the population of potential entrants (and all alternative export destinations). For example, a destination with high a priori expected export profits might attract entrants even in the absence of reliable information, while a destination with press freedom might attract few exports when economic fundamentals of the destination are unattractive, hence press freedom would in the later case demote firms

---

[7] This approach follows Albornoz et al. (2012) and mirrors settings such as Aghion et al. (1991), where a Bayesian decision maker engages in costly experiments, if experiments generate enough information.

[8] We can ignore the strategy of late entry $\{e_1^N = 0, e_2^N = 1\}$. Late entry is dominated by the two early entry strategies $\{e_1^N = 1, e_2^N = 1\}$, $\{e_1^N = 1, e_2^N = 0\}$, because the value of learning is always positive.

export entry to the destination in question. Similarly, if export profitability, represented by the firm specific random variable μ and the known and common cumulative distribution function $G(.)$ increases, the population of potential entrants and hence realised exports will increase independent of the current status in press freedom.

We do not provide results and comparative statics that explore these complexities further since they require considerably more structure and are ultimately an empirical question. Instead we focus on the central and general insights from the above exercise that can guide our empirical strategy. First, ceteris paribus with press freedom, entry occurs always at full sales volume compared to a situation without a free press, where smaller scale testing-the-water exporting will take place. Second, ceteris paribus with press freedom, full export volumes occur sooner rather than later and export market exit is less likely.

As such, the above theoretical framework suggests that for else identical market opportunities exports increase with the availability of reliable information (press freedom) both at the intensive and extensive margin. The availability of information due to free and independent media reporting is thus likely to trigger additional persistent export entry and thereby both lead to more and more diversified trade.[9]

How the above theoretical effects combine with actual market fundamentals is by definition an empirical question. However, before proceeding to the data and empirical part, we nevertheless also note that the importance of information frictions to firm-level export decisions may be aggravated by known institutional deficiencies. We specifically note two sources of additional uncertainty: the quality of judicial and bureaucratic institutions, and the lack of democratic political institutions. First, even if information on the reputation or competence of specific market actors may be dubious or lacking, well-functioning judicial institutions can provide protection against contract breach and additional claims, and thereby partially protect exporting firms against direct losses (Anderson and Douglas, 2002; Beugelsdijk et al., 2015). Similarly, democracies typically provide stronger checks and balances on government power, and thereby also protect exporters from the potential consequences of unforeseen policy changes, non-tariff barriers, corruption and preferential treatment of certain firms or sectors. Intuitively, although outside the above theoretical framework, we thus expect the consequences of access to unbiased and relatively precise market information through the media to be more pronounced when the destination country is not democratic or is characterised by weak judicial institutions.

3. Data and estimation strategy

In order to test the main theoretical idea linking press freedom and international trade, we draw data from a number of different sources. Our dependent variables throughout are based on trade flows in the form of exports among relatively rich and middle-income countries in the 'West' and Latin America. We first employ the logarithm to the full set of export trade flows to assess the full effects of press freedom. In a second set of tests, we disaggregate the trade flows into five main categories, based on the two-digit HS categories: all agricultural products (animal products, vegetables, food, and raw hides), all chemical products (chemical products, allied industries, and plastic/rubber), all textile products including shoes (textile products and footwear/headgear), all manufacturing industry (metals, machinery, and transportation), and all exports of minerals. Finally, we count all zero trade flows at the HS six-digit level and aggregate them to our two-digit categories. We do so, as changes in total trade flows consist of changes at both the intensive and extensive margins and measure them at the six-digit level as there are practically no zero flows at the two-digit level of aggregation. Estimating the share of zero trade flows in total flows thus provides us with a way to assess the degree to which effects occur, as theorised, at the extensive margin. We provide a list of all exporting countries in the appendix. The data on trade flows derive from the United Nations Comtrade database, as reported in United Nations (2017).

Our hypothesis is that these trade flows are affected by the availability and reliability of information from the destination countries. Availability and reliability, in turn, are affected by the degree to which the press and remaining media are free to report any news despite contrary political or economic interests. As the measure of informational quality, we therefore use the index of press freedom developed by Freedom House (2018) and available on an annual basis since 1993. The index is distributed between 0 and 100, with lower scores indicating more freedom – it is therefore a measure of the absence of press freedom – and is composed of sub-indices capturing restrictions due to legislation and regulations, the political environment and the economic environment. Even though most exporting countries in our sample are fully democratic, the press freedom index in recent years varies between about 10 in Belgium, the Netherlands, and the Nordic countries and approximately 65 in Mexico, Ecuador and Honduras; the average of 33 is approximately the situation of Italy or Poland.

However, press freedom tends to be associated with other aspects of the institutional and policy framework of a country, and in particular tends to react to broad institutional changes (Bjørnskov, 2012, 2018). In addition, good institutions could affect trade by inter alia affecting the certainty of payments and delivery (cf., Anderson and Douglas, 2002; Milner and Mukherjee, 2009; Aidt and Martin, 2010; Seyoum and Juan Ramirez, 2019; Singh and Gal, 2020). Moreover, press freedom may also affect directly relevant factors such as entrepreneurship (Yeganegi et al., 2021) and corruption (Freille et al., 2007) and in particular cross-border corruption (Escresa and Picci, 2020).[10] Although the correlation between press freedom and other institutional measures in our sample is limited,

---

[9] It is obvious that some firms may have prior knowledge and experience with an export market. In order to keep the framework transparent, we have refrained from dealing with accumulated knowledge. However, as we explore *changes* in trade in the following, we believe the above framework fits the situation. In addition, even experienced firms may find themselves in similar circumstances if policies or political institutions in destination markets change substantially, thereby rendering their prior experiences irrelevant.

[10] Importantly, perceived corruption (in contrast to actual corruption) may also depend on media coverage and not least the availability of corruption opportunities; see Olmos et al. (2020) for results in the context of countries hosting mega-events.

we therefore control for the quality of bureaucratic and judicial institutions by including the Heritage Foundation (2018) rule of law index, which is distributed between 0 and 100. From the same source, we add a measure of trade freedom, which captures the degree to which trade is restricted by tariffs as well as non-tariff barriers. In further tests in Section 5, we also control for the type of political regime, as categorised in Cheibub et al. (2010). We use the recent update by Bjørnskov and Rode (2020), which provides a dichotomous indicator of democracy and further separates regimes into parliamentary, mixed and presidential democracies, and civilian autocracies and military dictatorships.[11] Democracies are defined as societies with multi-party elections conducted at regular intervals, which are free and fair, respected by all parties, and thus can lead to de facto changes of power. We pool all democracies into one group and in further tests distinguish civilian autocracies from other non-democracies without multi-party elections.

Apart from institutional features, we proxy the policy openness of destination countries by including two indices capturing the degree to which policies restrict trade openness and the degree of openness to international investments, respectively; both are from the Heritage Foundation (2018). We further follow the gravity literature by including the logarithm to GDP per capita and the logarithm to population size, both of which derive from the Penn World Tables, mark 9 (Feenstra et al., 2015).

To estimate the potential effects of press freedom, we employ a standard gravity equation framework. The gravity equation approach was pioneered by Tinbergen (1962) and has been used extensively in economics since then. It is the standard tool with which to assess the effects of common borders, tariff policy and distance on bilateral trade flows, but also on investment flows (Anderson and van Wincoop, 2003; Guiso et al., 2009; Lamell et al., 2015). We thus estimate regressions of the form in (7) where $X_{i, j, t}$ is (the logarithm to) exports in country i to country j in year t. Y denotes a set of economic controls in countries i and j, P denotes press freedom in countries i and j, Z denotes institutional factors in countries i and j, W is a vector of geographical factors (common borders, geographical distance); and F is a set of sender-destination pair and annual fixed effects. These sender-destination pair fixed effects thus capture a plethora of factors other than trade policy affecting trade costs such as the geographical distance, common borders, common or similar languages and similarities in culture and preferences (cf. Egger and Nigai, 2015).

$$X_{i,j,t} = \alpha + \beta_1 Y_{i,t} + \beta_2 Y_{j,t} + \gamma_1 P_{i,t} + \gamma_2 P_{j,t} + \delta_1 Z_{i,t} + \delta_2 Z_{j,t} + \omega W_{i,t} + \omega_{i,t} \; F. \tag{7}$$

We focus on the exports from 37 OECD countries to each other as well as to 27 other countries in the 'Western' political hemisphere, including Latin America, all of which are summarised in Appendix Table A1. As such, we do not consider trade with Africa or most parts of Asia, but only with countries that in some sense share formally similar political, judicial and bureaucratic institutions. In Asia, that includes Japan, Korea, Singapore and Taiwan. We observe these countries from 1993, when our main data on press freedom and institutions are first available, to 2016.

While all sample selection must include an ad hoc element, we aim to minimise that element by being transparent. The rationale for restricting the sample to the Western world and Latin America is that our main theoretical arguments only apply in societies that are fundamentally different in specific ways. First, our arguments do not apply to single-party regimes as well as single-export societies where firms essentially trade with the central government or single large firms. While there are major de facto differences between the countries in our sample, and in particular the destination countries, they are therefore all similar at the constitutional level. In other words, all of these countries have formal multi-party electoral democracy, even though not all governments respect the rules.

Second, our arguments require that all countries included have literate populations, and a long history of non-government media and a national language ensuring the existence of a common public. Both Western countries as well as the Latin American region has a long history of newspapers and media, and several daily newspapers are older than most equivalents in Europe: the Brazilian *Diário de Pernambuco* and the Chilean *El Mercurio* have for example been in constant circulation since 1825 and 1827, respectively. Most populations have also been broadly literate since at least the early 1950s (Statesmans 'Yearbook, 1950). Variations in press freedom thus cannot be due to illiteracy or restricted supply of media, all of which would be of practical concern when including additional countries from Africa and Asia.[12]

Our sample restrictions thus imply that central features are common to most countries and all main estimates are likely to be conservative. This yields 2330 different sender-destination pairs and a potential sample of 55,944 observations observed between 1993 and 2016. However, the maximum sample size with full data is 38,722 observations, for which we summarise the data in Table 1. In the following, we estimate all effects using OLS with sender-destination pair and annual fixed effects, and standard errors clustered at the exporting country level.[13]

---

[11] The DD dataset also includes a sixth category, absolutist monarchies. However, this type is only prevalent in the Middle East and North Africa, and no country in our dataset belongs to the category.

[12] Applying these criteria, we could potentially have included a few countries outside the present sample as, for example, India, Malaysia and South Africa that also have broadly Western constitutional institutions and old media traditions. However, literacy rates in Malaysia and South Africa have only in recent years approached those of Latin America and remain comparatively low in India. Additionally, doing so would make our sample selection less transparent and raise further questions as, for example, whether one might include Namibia and Tunisia?.

[13] Much new research on gravity equations uses Poisson pseudo maximum likelihood (PPML) estimators to assess effects. Santos Silva and Tenreyro (2006) for example argue that OLS yields biased coefficients on geographical distance. We nevertheless prefer to report OLS estimates for two reasons. First, preliminary analysis suggested that our main estimates are similar with fixed effects OLS and PPML. This is not surprising since we have no zero flows in the overall trade data and practically none when disaggregating at the two-digit HS level. The particular problem that is alleviated by PPML is thus not an issue in the present data. Second, we deal with the basic censoring problem directly, as our theoretical considerations suggest that the extensive margin is particularly important. Using PPML would blur the distinction between the intensive and extensive margins and prevent us from separating these margins.

Table 1
Descriptive statistics.

Variable	Mean	Standard deviation	Observations
Log export flows	17.683	3.294	46,589
Log export flows, agriculture	16.109	3.057	32,238
Log export flows, chemical	16.610	3.188	33,219
Log export flows, textiles	15.060	3.198	31,550
Log export flows, industry	17.649	3.251	33,611
Log export flows, minerals	14.884	3.640	28,305
Zero shares, agriculture	.843	.208	32,238
Zero shares, chemical	.800	.234	33,219
Zero shares, textiles	.799	.246	31,550
Zero shares, industry	.722	.269	33,611
Zero shares, minerals	.897	.161	28,305
Log GDP sender	12.639	1.691	51,284
Log GDP destination	11.909	1.932	49,656
Log population sender	2.398	1.607	51,284
Log population destination	2.047	1.785	49,656
Log press freedom sender	2.965	.551	55,944
Log press freedom destination	3.233	.625	54,723
Log trade freedom sender	4.394	.086	50,441
Log trade freedom destination	4.320	.204	47,573
Log rule of law sender	4.244	.259	50,441
Log rule of law destination	2.002	.488	47,425
Democracy sender	.991	.094	55,944
Democracy destination	.937	.242	55,944
Log distance	8.396	2.082	55,920
Common border	.026	.187	55,944
Common language	.073	.261	55,944

4. Main results

We report our main results in Table 2 below, where the first results conform to standard findings in the gravity equations literature. Richer economies export more to other rich economies while countries with large populations export substantially less. We also find that democracies export more and that countries export more to destinations with better rule of law and democracy (cf. Mansfield et al., 2000; Anderson and Douglas, 2002; Aidt and Martin, 2010). Finally, we find that countries with policies that are overall more open to trade also tend to export more.

Turning to our main aim of the paper, the simple results in Table 2 suggest that Western countries export *more* to destinations with less press freedom. This finding is not driven by countries with common borders, which we exclude in column 4, or countries in the same free trade area, which we exclude in column 5.[14] While this finding is contrary to our theoretical expectations, we note two reasons not to overemphasise it. First, a democratisation – which is typically also accompanied by a substantial increase in press freedom – on average results in approximately 50 percent larger import flows from Western democracies. Conversely, even a 50 percent decrease in press freedom as assessed by the Freedom House measure, which on average would move a destination country from being categorised as 'free' to 'partially free', only results in an average expansion of trade of about four percent. The statistically significant finding in Table 2 is thus of doubtful economic significance and dwarfed by other major institutional changes. Second, we are estimating an average effect whereas our theoretical considerations on information frictions will differ with institutional heterogeneity such that the effects of restrictions on market information and press freedom would be substantially different in combination with other institutional deficiencies.

In Table 3, we therefore implement two interaction terms between press freedom and democracy and the rule of law, respectively. We keep the results from Table 2, column 3, as a visible baseline in column 1 of the new table. As noted above, the baseline category in the democracy interactions is electoral autocracy and the interaction term thus illustrates that *additional* effect in democratic destinations.[15] In the rule of law interactions, we note that the coefficients cannot be interpreted directly, as the uninteracted estimate represents the non-existent case in which the press freedom index takes the value of 0, and the interaction term represents the additional effect of doubling the index value of rule of law (Brambor et al., 2006).

Table 3 exhibits no evidence for the rule of law interaction, as the interaction is far from significant and clearly only adds noise to

---

[14] The background for these two types of exclusion is that countries with similar press freedom tend to form free trade areas. This is particularly the case for Mercosur, the Latin American free trade agreement, which consists of some of the countries in our sample with the least press freedom. Restricting the sample to only country pairs within the same FTA thus informs whether changes to multilateral trade agreements systematically bias our overall results in any direction.

[15] Bjørnskov and Rode (2020) define electoral autocracy as a regime with regular multi-party elections that nonetheless are not likely to lead to a change in government. In most cases, such as Peru in the early 1990s, these regimes are formally democratic but rig the election act or prevent other parties from either participating in the election or campaigning prior to the election.

Table 2
Main results.

Variable	1	2	3	4	5
Log GDP sender	1.563***	1.566***	1.532***	1.559***	1.639***
	(.262)	(.259)	(.251)	(.255)	(.319)
Log GDP destination	1.549***	1.538***	1.571***	1.585***	1.593***
	(.097)	(.097)	(.096)	(.099)	(.123)
Log population sender	−2.619***	−2.76***	−2.721***	−2.687***	−2.749***
	(.579)	(.557)	(.571)	(.587)	(.763)
Log population destination	-.4272*	-.454**	-.514**	-.456**	-.117
	(.227)	(.227)	(.223)	(.228)	(.333)
Log trade freedom sender	.771***	.732***	.732***	.739***	.506*
	(.222)	(.227)	(.230)	(.237)	(.271)
Log trade freedom destination	.038	.037	.029	.026	-.001
	(.123)	(.123)	(.123)	(.125)	(.131)
Log rule of law sender	.129	.148	.159	.169	.234*
	(.124)	(.126)	(.123)	(.125)	(.136)
Log rule of law destination	.089**	.097**	.111***	.114**	.154***
	(.037)	(.037)	(.039)	(.041)	(.046)
Democracy sender		.446***	.438***	.443***	.461***
		(.074)	(.079)	(.081)	(.101)
Democracy destination		.181***	.197***	.209***	.216***
		(.041)	(.040)	(.039)	(.038)
Log press freedom sender			-.065	-.067	-.092
			(.090)	(.090)	(.106)
Log press freedom destination			.072**	.079***	.107**
			(.028)	(.029)	(.043)
Sample restriction	None	None	None	Common borders	Common FTA
Observations	38,722	38,722	38,722	37,347	29,263
Sender-destination pairs	2050	2050	2050	1977	1756
Within R squared	.353	.355	.355	.347	.301
F statistic	213.35	–	–	.	–

Note: *** (**) [*] denote significant at $p < .01$ ($p < .05$) [$p < .10$]; numbers in parentheses are standard errors clustered at the country level.

the estimates.[16] Conversely, we find very substantial differences between exporting to democracies and electoral autocracies. While we continue to find a significant, but very small negative effect of increased press freedom in destinations with democracy, we observe a large and economically substantial effect on exports to electoral autocracies. This is not driven by apparent commonalities in countries belonging to the same free trade area (columns 4 and 5), or many other additional robustness tests (not shown).[17]

As the estimates can be interpreted as quasi-elasticities, the implication is that a ten percent decrease in press freedom, as measured by Freedom House, in a non-democratic destination country is on average associated with a ten percent decrease in exports from Western countries, all other things being equal. This is a substantial decrease, yet it may be misestimated as the measure of press freedom is necessarily an index. As we do not know the 'correct' specification, a log-log estimator may lead to biased estimates of the true effect. On the other hand, the choice of a log-log specification implies that very large values of the index, i.e. egregious violations of press freedom, are unlikely to drive the main results. The particular choice of specification nevertheless appears relatively innocuous, as we find (not shown) that entering the press freedom measure in a linear way yields slightly smaller, but qualitatively identical results.

5. Disaggregated flows and the extensive margin

However, it remains an open question if trade flows in some product groups are more sensitive to information frictions than others. We therefore disaggregate total flows into trade in agriculture, chemical products, textiles, industrial products, and minerals in Table 4. We first observe some differences in the extent to which specific trade flows are sensitive to economic development, trade freedom and the rule of law although the only type of goods that appear somewhat different are minerals, i.e. exports of point resources (cf. Andersen and Aslaksen, 2013).

Focusing on the influence of press freedom, we find that restrictions of press freedom in destination countries lead to *larger* exports of agricultural goods and substantially smaller export flows of textiles and industrial goods. As in previous tables, these effects only

---

[16] It may be worth noting that we have also used interactions with the other elements of the Heritage Foundation index of economic freedom. While we find some indications or heterogeneity in the degree to which the economy is politically regulated, none of these interactions are robustly significant. We also note that although using the alternative indicators of economic freedom from the Fraser Institute requires imputing a substantial number of observations because annual coverage only starts in 2000, our main results remain unchanged. These results are available upon request.

[17] We for example exclude Singapore – the only high-income autocracy in the sample – and exclude exporters and destinations with common borders or common languages (the former in column 4 in Tables 2 and 3). None of these robustness tests change the estimates to any noticeable degree. The tests are available upon request.

Table 3
Conditional results.

Variable	1	2	3	4	5
Log GDP sender	1.532***	1.534***	1.532***	1.638***	1.632***
	(.251)	(.251)	(.251)	(.319)	(.321)
Log GDP destination	1.571***	1.614***	1.566***	1.655***	1.584***
	(.096)	(.093)	(.095)	(.122)	(.126)
Log population sender	−2.721***	−2.725***	−2.721***	−2.729***	−2.740***
	(.571)	(.572)	(.571)	(.768)	(.767)
Log population destination	-.514**	-.609**	-.513**	-.217	-.080
	(.223)	(.229)	(.224)	(.329)	(.323)
Log trade freedom sender	.732***	.731***	.732**	.511*	.516*
	(.230)	(.230)	(.230)	(.272)	(.273)
Log trade freedom destination	.029	.018	.032	-.011	.000
	(.123)	(.123)	(.123)	(.131)	(.128)
Log rule of law sender	.159	.160	.160	.235*	.237*
	(.123)	(.123)	(.123)	(.136)	(.136)
Log rule of law destination	.111***	.094**	.168	.135***	.149
	(.039)	(.039)	(.254)	(.046)	(.297)
Democracy sender	.438***	.439***	.438***	.463***	.461***
	(.079)	(.079)	(.079)	(.101)	(.101)
Democracy destination	.197***	−3.506***	.198***	−3.679***	.215***
	(.040)	(.915)	(.041)	(1.016)	(.038)
Log press freedom sender	-.065	-.064	-.065	-.088	-.091
	(.090)	(.090)	(.090)	(.106)	(.107)
Log press freedom destination	.072**	-.837***	.132	-.836***	.101
	(.028)	(.231)	(.269)	(.247)	(.292)
Press destination * democracy destination		.954***		1.004***	
		(.236)		(.263)	
Press destination * rule of law destination			-.015		.001
			(.067)		(.076)
Sample restriction	None	None	None	Common FTA	Common FTA
Observations	38,722	38,722	38,722	29,282	29,282
Sender-destination pairs	2050	2050	2050	1757	1757
Within R squared	.355	.356	.355	.302	.301
F statistic	–	–	–	.	.

Note: *** (**) [*] denote significant at $p < .01$ ($p < .05$) [$p < .10$]; numbers in parentheses are standard errors clustered at the country level.

occur in autocracies while the marginal effects are insignificant and close to zero for trade flows to democracies. While somewhat puzzling, our disaggregated results are thus consistent with a situation in which the institutional environment affects the comparative advantages of countries.[18]

We find that textile exports are particularly sensitive with a quasi-elasticity well above one, but that it also affects the average sensitivity relatively little: textile exports only constitute about four percent of the total export flows in our sample. The elasticities for industry and agriculture – although the latter exhibits the 'wrong' sign – are about the average of 0.8, but the former constitutes more than half of the total export flows while the latter is only about ten percent of total flows. We also find that the elasticity of exports of chemical products is substantially smaller and only borderline significant.

Finally, the theoretical considerations in Section 2 suggest that a part of the effect of access to trustworthy information is likely to occur on the extensive margin. While we cannot directly estimate the effects at the extensive margin, as we do not have destination-specific firm-level export data, we are able to gain an informed impression of the importance of firm-level actions at this margin (see for example Besedes and Prusa (2006)). We do so by estimating the effects of press freedom in destination countries on the share of all product lines at the six-digit HS level within each two-digit category for which there are no reported exports. We report these findings in Table 5.

We first observe, without surprise, that the zero shares are smaller in larger markets, which holds for both large sender and destination countries. For agriculture, chemical products and textiles, we also see larger zero shares in sender countries with more trade freedom, consistent with specialisation effects of trade. We observe similar effects of rule of law for agriculture, chemical products and minerals. Most importantly, we find effects of press freedom that match those in Table 4 for the export flows. Restrictions on press freedom are positively associated with overall export flows of agricultural products and negatively with zero shares while press restrictions are negatively associated with trade in industrial products and textiles and appear to cause substantially more zero

---

[18] As a reviewer pointed out to us, the magnitude of a reallocation effect as this may depend on relative comparative advantage, as one would expect from a comparative advantage story of dynamic reallocation. However, delving empirically into this prospect and into whether this particular result is indeed evidence of reallocation would require a set of time-variant measures of relative comparative advantage, which we do not have for the present sample. We consider this an interesting topic for future research.

Table 4
Specific product groups.

Variable	Agriculture	Chemical	Textiles	Industry	Minerals
	1	2	3	4	5
Log GDP sender	1.053***	1.481***	.461***	1.912***	.280**
	(.065)	(.059)	(.069)	(.065)	(.136)
Log GDP destination	.974***	1.097***	1.584***	1.983***	1.433***
	(.053)	(.049)	(.056)	(.053)	(.112)
Log population sender	−3.237***	−2.491***	−1.303***	−3.412***	-.877***
	(.128)	(.116)	(.134)	(.125)	(.264)
Log population destination	-.773***	−1.108***	-.650***	−1.675***	−1.320***
	(.117)	(.108)	(.125)	(.118)	(.250)
Log trade freedom sender	.750***	.808***	1.125***	.604***	-.058
	(.105)	(.094)	(.110)	(.102)	(.231)
Log trade freedom destination	-.127**	-.298***	.005	.038	-.147
	(.055)	(.049)	(.060)	(.053)	(.124)
Log rule of law sender	.209***	.108*	-.026	-.461***	.118
	(.071)	(.065)	(.075)	(.069)	(.152)
Log rule of law destination	.473***	.033	.202***	.214***	.239***
	(.038)	(.034)	(.040)	(.037)	(.082)
Democracy sender	.367***	.185***	.254***	.841***	-.395***
	(.076)	(.071)	(.079)	(.077)	(.151)
Democracy destination	3.042***	1.236**	−5.347***	−2.711***	2.581*
	(.642)	(.581)	(.734)	(.616)	(1.538)
Log press freedom sender	.121***	.168***	-.152***	-.019	-.309***
	(.031)	(.029)	(.033)	(.031)	(.067)
Log press freedom destination	.702***	.248*	−1.455***	-.757***	.531
	(.159)	(.144)	(.182)	(.152)	(.385)
Press destination * democracy destination	-.812***	-.305**	1.472***	.738***	-.571
	(.165)	(.149)	(.188)	(.158)	(.396)
Sample restriction	None	None	None	None	None
Observations	32,238	33,219	31,550	33,611	28,305
Sender-destination pairs	2050	2050	2050	2013	1951
Within R squared	.300	.403	.081	.322	.182
F statistic	–	–	–	.	.

Note: *** (**) [*] denote significant at p < .01 (p < .05) [p < .10]; numbers in parentheses are standard errors clustered at the country level.

flows in these product groups.

In all cases, all significant effects occur only in trade with autocracies while the conditional marginal effects are always small and insignificant when exporting to democracies. Hence, while we cannot claim that the full effects of press freedom on exports to autocracies are driven by firm-level reactions on the extensive margin, the additional results in Table 5 arguably justify the validity of this interpretation. Restrictions on press freedom in autocracies are accompanied by reduced trade with Western countries, and at least some of the reduction occurs as these countries export fewer types of goods and, presumably, fewer Western firms engage in trade with autocracies.

6. Conclusions

The empirical trade literature has emphasised the importance of trade barriers to international trade and has in more recent years also stressed the importance of having relatively well-functioning institutions. Low or entirely absent tariffs and non-tariff barriers reduce the costs of exporting to a destination and institutions providing predictable contract enforcement reduce the uncertainty associated with trade. Yet, while most of the literature has implicitly assumed that all relevant market actors have access to unbiased and reasonably complete market information in all potential destinations prior to entry, the role of information frictions has also been emphasised. We argue that limited access to trustworthy information, brought about by restrictions on the freedom of the press and other media, is likely to have similar effects as more visible trade barriers.

We first hypothesise that the availability of reliable market information is important at both the intensive and extensive margin of trade at the firm level: Firms with a history of exporting to destination *x* will have accumulated experience-based knowledge of the destination. In contrast, other firms deciding whether or not to start exporting to *x* take that decision (and the sunk costs associated with export market development) not on the basis of actual market opportunities, trade barriers and institutional factors, but on the available information on these factors. They may therefore choose to stay entirely out of the market or engage in potentially costly 'testing the waters' strategies in the absence of any direct and precise information or firm-specific experience. Restrictions on press freedom may thus reduce trade, effectively making strategic control of media an alternative policy instrument for rent-seeking and rent-creation (cf. Tullock, 1967; Laband and Sophocleus, 2018).

In order to test the general implications of our theoretical consideration, we employ a dyadic panel consisting of all export flows

Table 5
Zero shares, specific product groups.

Variable	Agriculture	Chemical	Textiles	Industry	Minerals
	1	2	3	4	5
Log GDP sender	.001	-.069***	-.053***	-.116***	-.009***
	(.003)	(.002)	(.003)	(.003)	(002)
Log GDP destination	-.011***	-.331**	-.083***	-.110***	-.024***
	(.002)	(.002)	(.002)	(.002)	(.002)
Log population sender	.177***	.079***	.044***	.091***	.024***
	(.005)	(.004)	(.005)	(.005)	(.002)
Log population destination	.196***	−5115**	.119***	.094***	.082***
	(.005)	(.004)	(.005)	(.005)	(.003)
Log trade freedom sender	-.024***	-.042***	-.051***	-.075***	-.008***
	(.004)	(.003)	(.004)	(.004)	(.003)
Log trade freedom destination	.005**	-.002	-.005**	-.006***	-.001
	(.002)	(.002)	(.002)	(.002)	(.001)
Log rule of law sender	.042***	.042***	.019***	.065***	.023***
	(.003)	(.002)	(.003)	(.003)	(.002)
Log rule of law destination	.-.022**	-.014***	-.016***	-.019***	-.007***
	(.001)	(.001)	(.01)	(.001)	(.001)
Democracy sender	-.002	-.023***	.01	-.045***	-.001
	(.003)	(.002)	(.003)	(.003)	(.002)
Democracy destination	-.132***	.013	.046*	.082***	-.000
	(.0024)	(.018)	(.024)	(.024)	(.016)
Log press freedom sender	.008***	-.001	-.002*	-.001	.002***
	(.001)	(.001)	(.001)	(.001)	(.001)
Log press freedom destination	-.028***	-.002	.011*	.015***	.000
	(.006)	(.003)	(.006)	(.006)	(.004)
Press destination * democracy destination	.037***	.003	-.012*	-.022***	.000
	(.006)	(.005)	(.006)	(.06)	(.004)
Sample restriction	None	None	None	None	None
Observations	34,328	34,328	34,328	34,328	34,328
Sender-destination pairs	2014	2014	2014	2014	2014
Within R squared	.317	.265	.109	.311	.119
F statistic	–	–	–	.	.

Note: *** (**) [*] denote significant at $p < .01$ ($p < .05$) [$p < .10$]; numbers in parentheses are standard errors clustered at the country level.

from 37 OECD countries to all of the other OECD countries as well as 27 other countries in the Western political hemisphere. Estimating a set of gravity equations, we find that press freedom in destination countries affects export flows. Yet, these effects are mediated by differences in political and judicial institutions, such that restrictions on the freedom of the press – and by extension its ability to provide unbiased and reliable information – mainly reduce exports to countries that are also characterised by de facto autocratic political institutions. Our findings thereby shed new light on the question why autocratic states tend to engage less in international trade and direct investments than democracies (Mansfield et al., 2000; Milner and Mukherjee, 2009; Aidt and Martin, 2010). The question arises why press freedom mainly affects exports to autocracies and therefore whether their restrictions on the press are somehow different and more economically harmful than those implemented by some democracies.

We first note that the trade effects, if known by political actors, provide an additional cost to society of controlling the media, as restrictions on press freedom have consequences that are equivalent to a non-tariff barrier (cf. Strömberg, 2015; Arrese, 2017). Egorov et al. (2009) hypothesise that allowing some degree of press freedom in a dictatorship provides the government with a way to incentivise bureaucrats and therefore to improve the quality of government. As a consequence of our results, we provide another positive rationale for governments, regardless whether they are democratic or not, to consider press freedom as part of the framework of trade policy on par with trade promotion schemes and non-tariff barriers. Should political actors find it desirable that the country has substantial trade connections with the rest of the world, allowing potential business partners in the rest of the world access to reliable market information through the press may be necessary. Conversely, for governments and other political actors that either have protectionist preferences or are substantially influenced by import-competing industrial interests, restrictions on press freedom are likely to be more attractive than if they merely helped the government stay in power. Theoretically, restrictions on press freedom thus constitute an alternative margin on which to lobby for protectionist special interests that otherwise lobby for either formal tariff protection, non-tariff barriers or regulatory activity biased in favour of domestic producers.

Yet, whether governments and special interests are aware of the effects on trade, and whether there are parallel effects on investment flows, must remain a question for future research. To what extent the trade effects of restrictions on press freedom are actually due to firms acting on the extensive margin, as illustrated in our theoretical framework, is another question, which requires future research at the firm level. Finally, these effects would appear more likely to occur for trade in heterogeneous and high-value added products, for which more information may be needed and commercial contracts are less complete, and less so for exports of relatively simple goods. As such, the present paper merely indicates that restricted access to reliable market information, due to

politically motivated restrictions on press freedom in autocracies, negatively affects international trade flows. We believe that this insight, and the questions raised by our results, provide avenues for future research.

Declarations

Availability of data and material

All data used in this study are available from publicly available sources. The manuscript cites all data sources.

Code availability/ethics approval/consent to participate

Not applicable.

Data availability

Data will be made available on request.

APPENDIX

Table A1
Countries in the sample

Country		Country			
Antigua and Barbuda	-D 24	Finland	SD 24	Nicaragua	-D 24
Argentina	-D	France	SD 24	Norway	SD 24
Australia	SD 24	Germany	SD 24	Panama	-D 24
Austria	SD 24	Greece	SD 24	Paraguay	-D 24
Bahamas	-D 24	Guatemala	-D 24	Peru	-D 16
Barbados	-D 24	Haiti	-D 0	Poland	SD 24
Belgium	SD 24	Honduras	-D 24	Portugal	SD 24
Bermuda	-D 24	Hungary	SD 24	Singapore	SD 0
Bolivia	-D 24	Iceland	SD 24	Slovakia	SD 24
Brazil	-D 24	Ireland	SD 24	Slovenia	SD 24
Canada	SD 24	Israel	SD 24	Spain	SD 24
Chile	-D 24	Italy	SD 24	Sweden	SD 24
Colombia	-D 24	Japan	SD 24	Switzerland	SD 24
Costa Rica	-D 24	Korea	SD 24	Taiwan	-D 21
Cyprus	-D 24	Latvia	SD 24	Trinidad and Tobago	-D 24
Czech Rep.	SD 24	Lithuania	SD 24	Turkey	SD 23
Denmark	SD 24	Luxembourg	SD 24	United Kingdom	SD 24
Dominican Rep.	-D 24	Malta	SD 24	United States	SD 24
Ecuador	-D 22	Mexico	SD 17	Uruguay	-D 24
El Salvador	-D 24	Netherlands	SD 24	Venezuela	-D 22
Estonia	SD 24	New Zealand	SD 24		

References

Acemoglu, Daron, Johnson, Simon, Robinson, James, 2005. The rise of Europe: Atlantic trade, institutional change, and economic growth. Am. Econ. Rev. 95, 546–579.
Aghion, Philippe, Bolton, Patrick, Harris, Christopher, Bruno, Jullien, 1991. Optimal learning by experimentation. Rev. Econ. Stud. 58 (4), 621–654.
Aidt, Toke S., Martin, Gassebner, 2010. Do autocratic states trade less? World Bank Econ. Rev. 24 (1), 38–76.

Albornoz, Facundo, Pardo, Héctor F. Calvo, Corcos, Gregory, Ornelas, Emanuel, 2012. Sequential exporting. J. Int. Econ. 88 (1), 17–31.

Allen, Treb, 2014. Information frictions in trade. Econometrica 86 (6), 2041–2083.

Andersen, Jørgen Juel, Aslaksen, Silje, 2013. Oil and political survival. J. Dev. Econ. 100, 89–106.

Anderson, James E., Douglas, Marcouiller, 2002. Insecurity and the Pattern of trade: an empirical investigation. Rev. Econ. Stat. 84, 342–352.

Anderson, James E., van Wincoop, Eric, 2003. Gravity with Gravitas: a solution to the border puzzle. Am. Econ. Rev. 93, 170–192.

Anderson, James E., van Wincoop, Eric, 2004. Trade costs. J. Econ. Lit. 42, 691–751.

Araujo, Luis, Giordano, Mion, Ornelas, Emanuel, 2016. Institutions and export dynamics. J. Int. Econ. 98 (1), 2–20.

Arkolakis, Costas, 2010. Market penetration costs and the new consumers margin in international trade. J. Polit. Econ. 118 (6), 1151–1199.

Arrese, Ángel, 2017. The role of economic journalism in political transitions. Journalism 18, 368–383.

Besedes, Tibor, Prusa, Thomas J., 2006. Ins, outs, and the duration of trade. Can. J. Econ. 39, 266–295.

Beugelsdijk, Sjoerd, de Haan, Jakob, Shu, Yu, 2015. Trade, trust and the rule of law. Eur. J. Polit. Econ. 37, 102–115.

Bjørnskov, Christian, 2012. Can bribes buy protection against international competition? Rev. World Econ. 148, 751–775.

Bjørnskov, Christian, 2018. The Hayek-Friedman Hypothesis on the press: is there an association between economic freedom and press freedom? J. Inst. Econ. 14 (3), 617–638.

Bjørnskov, Christian, Rode, Martin, 2020. Regime types and regime change: a new dataset on democracy, coups, and political institutions. Rev. Int. Org. 15 (1), 531–551.

Brambor, Thomas, Clark, William, Golder, Matt, 2006. Understanding interaction models: improving empirical analyses. Polit. Anal. 14 (1), 63–82.

Cheibub, José Antonio, Gandhi, Jennifer, Vreeland, James R., 2010. Democracy and dictatorship revisited. Publ. Choice 143 (1–2), 67–101.

Chowdhury, S.K., 2004. The effect of democracy and press freedom on corruption: an empirical test. Econ. Lett. 85 (1), 93–101.

Cotterlaz, Pierre, Fize, Etienne, 2021. Information in the First Globalization: News Agencies and Trade. CEPII Working Paper. N°2021-02.

Dixit, Avinash K., Pindyck, Robert S., 1994. Investment under Uncertainty. Princeton University Press, Princeton.

Dughera, Stefano, Giraudo, Marco, Marco, 2021. Privacy rights in online interactions and litigation dynamics: a social custom view. Eur. J. Polit. Econ. 67, 101967.

Egger, Peter, Nigai, Sergey, 2015. Structural gravity with dummies only: constrained ANOVA-type estimation of gravity models. J. Int. Econ. 97 (1), 86–99.

Egorov, Gregory, Guriev, Sergei, Sonin, Konstantin, 2009. Why resource-poor dictators allow freer media: a theory and evidence from panel data. Am. Polit. Sci. Rev. 103 (4), 645–668.

Escresa, Laarni, Picci, Lucio, 2020. The determinants of cross-border corruption. Publ. Choice 184 (3–4), 351–378.

Feenstra, Robert C., Robert Inklaar, Timmer, Marcel P., 2015. The next generation of the Penn world table. Am. Econ. Rev. 105 (10), 3150–3182.

Freille, Sebastian, Haquebc, Emranul, Kneller, Richard, 2007. A contribution to the empirics of press freedom and corruption. Eur. J. Polit. Econ. 23 (4), 838–862.

Geishecker, Ingo, Schröder, Philipp J.H., Allan, Sørensen, 2019. One-off export events. Can. J. Econ. 52 (1), 93–131.

Guiso, Luigi, Paola, Sapienza, Zingales, Luigi, 2009. Cultural biases in economic exchange. Q. J. Econ. 124, 1095–1131.

Heritage Foundation, 2018. 2018 Index of Economic Freedom. The Heritage Foundation and the Wall Street Journal, Washington, DC.

House, Freedom, 2018. Freedom of the Press 2018. Freedom House, Washington DC.

Laband, David N., Sophocleus, John P., 2018. Measuring rent-seeking. Publ. Choice 181, 49–69.

Lamell, Alfred, Nitsch, Volker, Südekum, Jens, Wolf, Nikolaus, 2015. Same same but different: dialects and trade. Ger. Econ. Rev. 16, 290–306.

Levchenko, Andrei A., 2007. Institutional quality and international trade. Rev. Econ. Stud. 74, 791–819.

Mansfield, Edward D., Milner, Helen V., Peter Rosendorff, B., 2000. Free to trade: democracies, autocracies, and international trade. Am. Polit. Sci. Rev. 94 (2), 305–321.

Milner, Helen V., Mukherjee, Bumba, 2009. Democratization and economic globalization. Annu. Rev. Polit. Sci. 12, 163–181.

Nyström, Kristina, 2008. The institutions of economic freedom and entrepreneurship: evidence from panel data. Publ. Choice 136 (3–4), 269–282.

Olmos, Lorena, Bellido, Hector, Román-Aso, Juan A., 2020. The effects of mega-events on perceived corruption. Eur. J. Polit. Econ. 61, 101826.

Rauch, James E., 1999. Networks versus markets in international trade. J. Int. Econ. 48 (1), 7–35.

Seyoum, Belay, Juan Ramirez, 2019. Economic freedom and trade flows A moderated mediation model of inward foreign direct investment (FDI) and government stability. J. Econ. Stud. 46 (4), 985–1006.

Silva, J.M.C., Silvana, Tenreyro, 2006. The log of gravity. Rev. Econ. Stat. 88, 641–658.

Singh, Devesh, Gal, Zoltan, 2020. Economic freedom and its impact on foreign direct investment: global overview. Rev. Econ. Perspect. 20 (1), 73–90.

Sonora, Robert J., 2014. All economic freedom is not created equal: evidence from a gravity model. Contemp. Econ. Pol. 32 (1), 30–41.

Strömberg, David, 2004. Mass media competition, political competition, and public policy. Rev. Econ. Stud. 71, 265–284.

Strömberg, David, 2015. Media and politics. Ann. Rev. Econ. 7, 173–205.

Tinbergen, Jan, 1962. Shaping the World Economy: Suggestions for an International Economic Policy. Twentieth Century Fund, New York.

Tullock, Gordon, 1967. The welfare costs of tariffs, monopolies, and theft. West. Econ. J. 5, 224–232.

United Nations, 2017. UN Comtrade Database. Online Database. United Nations, New York. Available at: http://comtrade.un.org/. (Accessed October 2017).

Yearbook, Statesman's, 1950. The Statesman's Yearbook: Statistical and Historical Annual of the States of the World for the Year. MacMillan, London.

Yeganegi, Sepideh, Laplume, André O., Dass, Parshotam, 2021. The role of information availability: a longitudinal analysis of technology entrepreneurship. Technol. Forecast. Soc. Change 170. Article 120910.

Yu, Shu, Beugelsdijk, Sjoerd, de Haan, Jacob, 2015. Trade, trust and the rule of law. Eur. J. Polit. Econ. 37, 102–115.