Chinese Transport Infrastructure Projects and Firms' Export Probability

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In recent decades, China has emerged as a crucial provider of transport infrastructure in developing countries. In fact, the 2018 Infrastructure Consortium for Africa report highlights that China's funding for infrastructure in Africa over the past decade has exceeded the combined contributions of all G8 countries. In light of this information, it becomes worthwhile to investigate the impact of China's transport infrastructure on firm-level development, particularly its role in enhancing firms' export probability. To explore the potential effects of these projects, I matched firm-level data from the World Bank Enterprise Survey with geo-located Chinese-funded projects between 2000 and 2019. I employ an instrumental variable strategy where the interaction between the region's probability to receive transport projects and labor unrest in China is as a source of aid exogeneity. On average, There seems to be no significant effect of Chinese transport infrastructure on firms' probability to export. Further heterogeneity analyses at regional, sector, and company levels are conducted, and firms located in low-population density regions would benefit from Chinese transport projects.

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1 Introduction

In 2001, the China Communications Construction Company started to build a deep water port in the city of Gwadar in Pakistan. This Chinese-funded project is a section of the China-Pakistan Economic Corridor, one of the major components of the Belt and Road Initiative. The port's construction was finalized in 2007 and is anticipated to substantially decrease freight time and transportation costs between Pakistan and the rest of the world. Projects of this nature represent a substantial share of China's overseas economic intervention and may have multiple consequences on development outcomes, notably on the market access and trade performance of firms situated in regions influenced by these constructions. One could therefore question the impact of Chinese-funded transport infrastructure[1] on firms' development in recipient countries, and more precisely the effect of Chinese transport projects on enterprises' probability to export (*i.e.* selling their products or services in another country).

The focus on transport infrastructure, rather than other aid project categories, is made because the impact of such projects on firms' export activity (both the extensive and intensive margins[2]) is straightforward and largely documented in the literature. Bougheas et al. (1999) were the first to model the theoretical impact of infrastructure on trade. The creation of infrastructure would decrease the "iceberg" variable cost for transport, as defined by Samuelson (1954) and Krugman (1991), which ultimately leads to an increase in traded volumes (*i.e.* the intensive margin). They however precise that additional infrastructure must be large enough in order to preserve positive marginal effects. The construction of transport infrastructure can also expand the probability of exporting (*i.e.* the extensive margin). In a Melitz (2003) framework, a reduction of the variable cost would increase the expected profit from entering the export market, making it easier to cover the fixed sunk costs of exporting and ultimately fostering firms' export probability. The impact of infrastructure on both the intensive and the extensive margin has been demonstrated empirically. First, Limao and Venables (2001), Portugal-Perez and Wilson (2012), Coşar and Demir (2016), Donaldson (2018) and Martincus and Blyde (2013) highlighted empirical evidence (at respectively country, sub-national region, district and firm levels) of transport infrastructure's impact on both trade costs and volume exported in a quite substantial magnitude. Then, several empirical studies (Djankov et al., 2010; Coşar and Demir, 2016; Albarran et al., 2013) have investigated the influence of infrastructure on the likelihood of exporting at different levels – coun-

[1] In this study, transport projects or transport infrastructure corresponds to the construction of roads, rail, ports, or airports.

[2] At the firm level, the extensive margin is defined as the firm participation to the export market (whether the firm exports part of its production or not), while the intensive margin reflects the volumes exported.

try, region, and firm. Their findings suggest that improved transport infrastructure contributes to an increase in the probability of exporting.

The focus on transport infrastructure built by China can be explained for several reasons. First, China emerged as a major provider of transport infrastructure to developing countries during the 2000s, as reported in the ICA annual report of 2018 and by Bluhm et al. (2018). Second, a significant portion of China's foreign economic intervention involves the construction of transport infrastructure, making up almost a third of Chinese overseas economic involvement. Third, China is willing to finance large and expensive projects at a time when multilateral and Western donors are less enthusiastic about this "Big Push" approach (Brautigam, 2010; Swedlund, 2017; Gehring et al., 2019; Boucher, 2022). Lastly, according to Horigoshi et al. (2022), African leaders show a preference for China as a development partner when it comes to the construction of transport infrastructure.

Considering export probability as our primary firm-level outcome is also motivated by the context of our study, which focuses only on firms in developing countries. In line with export-led growth models (Adelman, 1984), an increasing number of exporting firms would foster economic development. According to the literature, exporting firms indeed facilitate the adoption of skilled-biased foreign technology (Bas, 2012), sustain employment in case of recession (Das et al., 2007) increase households' real income and reduce the severity of poverty (Minot and Goletti, 1998).

Using the World Bank Enterprise Survey[3], combined with AidData's Geocoded Global Chinese Official Finance Dataset (Version 1.1.1)[4] (Bluhm et al., 2018; Dreher et al., 2022), I investigate the impact of China-financed transport infrastructure on firms' probability to export. Specifically, I assess whether the presence of a Chinese transport infrastructure project in a firm's region leads to a higher export probability compared to firms located in regions that did not receive similar projects.

However, concerns regarding endogeneity may emerge from various sources, which can introduce estimation biases and potentially lead to misinterpretations. To address and mitigate these biases, and based on Mueller (2022) findings, I employ a shift-share instrumental variable strategy that relies on an interaction between the regions' probability of receiving Chinese-funded transport projects (calculated as the ratio of years with at least one transport project to the total number of years in the sample) and instances of labor unrest in China. Considering that Chinese aid projects exclusively involve Chinese companies, it is plausible to suggest that China utilizes its aid as a means to alleviate labor unrest. By awarding large aid contracts to domestic companies, this

[3]Source: Enterprise Surveys, The World Bank, http://www.enterprisesurveys.org

[4]AidData Research and Evaluation Unit, (2017), Geocoding Methodology, https://www.aiddata.org/data/geocoded-chinese-global-official-finance-dataset

approach could potentially lead to enhanced working conditions and increased employment, thereby contributing to the resolution of labor-related disputes. The mechanism explored by Mueller (2022) can provide an exogenous source of variation in order to explain the construction of Chinese transport projects.

I find that, on average, Chinese transport projects do not have a significant impact on firms' probability to export. This lack of effect could potentially be attributed to insufficient additional investment in infrastructure, as underlined in the Bougheas et al. (1999) framework, or suboptimal placement of transport networks, as suggested by Graff (2019). However, further heterogeneity analyses suggest that Chinese transport projects have a positive impact on the extensive margins for firms in regions with low population density.

This research contributes to two literature strands: the effects of Chinese aid and the influence of infrastructure on firms' export activities.

For the first one, the developmental impact of Chinese aid has been recently investigated at the country Dreher et al. (2021), sub-national region (Bluhm et al., 2018; Gehring et al., 2018), local (Isaksson and Kotsadam, 2018a; Guo and Jiang, 2020; Isaksson and Kotsadam, 2018b), and household levels (Martorano et al., 2020; Perrot, 2022). Chinese foreign economic intervention seems to have an overall positive impact on development, as it would enhance growth measured by nightlight, reduce within-country inequality, reduce the occurrence of conflict, generate jobs, and improve household welfare, even though it seems to foster local corruption. However, firm-level development impact has been under-studied and this paper aims to complete the literature. To the best of my knowledge, the study conducted by Marchesi et al. (2021) is the only existing analysis that seeks to assess the impact of Chinese aid at the firm level. Their study examines the effects across all sectors of Chinese and World Bank aid projects, thereby capturing the impacts of various mechanisms, exploiting the regional-sectoral heterogeneity, and exploring the impact on firms' sales growth. In contrast, the present analysis specifically zooms in on the realm of Chinese transport infrastructure, consequently focusing on the mechanism presented by Bougheas et al. (1999), and examining the impact on firms' export probability. Drawing on the findings of Dreher et al. (2021) and Marchesi et al. (2021), it appears that World Bank aid, unlike China's assistance, does not exhibit a significant impact on growth or firm performance. As a result, I chose to not compare Chinese transport projects with those funded by the World Bank but instead focus solely on the former.

I also contribute to the Chinese aid literature by testing the instrument proposed by Mueller (2022) at the subnational level. Mueller (2022) found that China, as so-called traditional donors, appears to allocate aid based on local political motives. More precisely, they tend to provide more aid in years when there is increased labor unrest within

China. Since China directs its aid exclusively to firms from its own country, the Chinese government's aid contracts with these firms are used to address social tensions by creating jobs and improving working conditions. In Mueller (2022)'s approach, this finding is employed as an instrument to gauge Chinese aid allocation in recipient countries. The instrument involves an interaction between local labor unrest shocks in a particular Chinese prefecture and the likelihood of a recipient country receiving Chinese aid projects contracted by a firm originating from that prefecture. However, in this study, I use the instrument in a slightly different manner. Instead of focusing on the prefecture of origin of the contracting Chinese firm, I aggregate the number of labor unrest incidents in China at the yearly level.

For the second one, this paper contributes to the literature on infrastructure and trade by conducting a more granular analysis. Most of the studies in this domain are conducted at the country or sub-national level (Limao and Venables, 2001; Portugal-Perez and Wilson, 2012; Coşar and Demir, 2016; Donaldson, 2018). To the best of my knowledge, only Albarran et al. (2013) and Martincus and Blyde (2013) examine the effect of infrastructure on trade at the firm level. They however both focus on firms coming from one country (respectively Spain and Chile), as this analysis would encompass a wider and more heterogeneous sample. The lack of a significant impact observed in this study regarding Chinese transport projects may serve as further empirical evidence supporting the predictions of the Bougheas et al. (1999) model. In fact, this model suggests that without reaching a certain threshold of infrastructure stock, the construction of new infrastructure may not effectively reduce trade costs[5].

The paper is organized as follows: Section 2 introduces the data. Section 3 discusses the empirical strategy used in order to estimate the effect of Chinese transport infrastructure projects on firms' export probability. Section 4 presents the main results and robustness checks. Section 5 explores heterogeneity at the project, region, sector, and firm levels. Section 6 concludes.

2 Data

2.1 Firm level data

In line with previous works investigating the impact of aid on firm-level development (Chauvet and Ehrhart, 2018; Marchesi et al., 2021), this paper relies on the World Bank Enterprise Survey. This database provides various information for a sample of firms

[5] In their model, infrastructure can have no effect on variable trade costs if $\lambda * D < k$, with λ as the total amount of input allocated to infrastructure development, D an index of geographic factors and k the importance of the infrastructure projects

representative of an economy's manufacturing and services sector. Data were retrieved through repeated face-to-face interviews with business owners thanks to a standardized questionnaire, which allowed for the creation of a detailed dataset that includes both firm panels and repeated cross-sections. It contains information such as interviews' year, sub-national region of location[6], sector (4 digits ISIC code), sales, percentage of sales exported, number of employees, foreign ownership, and other various characteristics. Overall, there is information for 147,270 firms (20,750 observed in panel data and 126,520 observed in cross-section), located in 133 developing countries, 711 sub-national regions, operating in 30 two-digit ISIC sectors, and interviewed either once or twice between 2001 and 2019. As Table A1 in the appendix presents, this sample includes both exporting and non-exporting firms. More precisely, the dataset includes information on firms categorized into different groups: firms that always exported, never exported, started, or stopped exporting between two interviews. Table A2, which shows the distribution of our sample in terms of sector, and indicates that a large majority of firms perform either in the manufacturing or service sectors (94.8% of the sample). Firms operating in mining or construction represent a minor share of the sample. Table A3 presents the share of exporters by sector.

From this raw data, I constructed a dummy taking the value one if firm f located in the country c, sub-national region r, operating in sector s exported during the year t. The latter is going to be the dependent variable in the main analysis, enabling us to investigate the extensive margin. The intensive margin could be explored thanks to the amount exported, constructed through sales multiplied to the percentage of sales exported. I converted the sales expressed in local currency to 2014 USD using World Bank data on exchange rates and GDP deflator[7]. As a large majority of firms constituting my sample are not exporters (80%), the distribution of the amount exported is right skewed. I consequently performed an inverse hyperbolic sine transformation on the amount exported, as described by Bellemare and Wichman (2020). But as Table 1 shows, this measure needs to be used with caution due to its abnormally high values (even after taking away the top 1% values), its non-negligible share of missing values (14.4%), and the possibility of measurement errors in sales or the proportion of sales exported. Consequently, results for the intensive margin must be interpreted with caution, and it is preferable to focus the main analysis exclusively on the extensive margin.

[6] Most of the cases, the sub-national region available is at the first administrative level (ADM1), but WBES has sometimes provided aggregated sub-national regions, such as Western Kazakhstan, which corresponds to the current Mangistau, Atyrau, Aktyubin and Zapadno regions (ADM1) of the country.

[7] While being careful if the amount of sales reported corresponds to the year t, t-1, or t-2 in order to apply the correct exchange rate. Check the page https://www.enterprisesurveys.org/en/survey-datasets and download the sample description for more information.

2.2 Aid level data

The variable of interest was constructed thanks to AidData's Geocoded Global Chinese Official Finance Dataset (Version 1.1.1). Since China is a so-called non-traditional donor, they do not participate in the global reporting systems and do not provide extensive official information about their aid. But Custer et al. (2021) provided a Tracking Underreported Financial Flows (TUFF) methodology that enables the collection of information on projects financed by China, resulting in the creation of this database. More precisely, AidData relies on publicly available information provided by the Chinese government, which may not encompass the complete range of Chinese aid activities. Hence, there is no guarantee that this dataset is representative of Chinese overseas interventions. However, to the best of my knowledge, AidData remains the sole available data source on this subject. The latter reports the development projects' precise location, OECD aid sector classification, flow type, and amount committed in 2014 USD. Since this study focuses on the potential effects of transport infrastructure, only Transport and Storage (210) projects were kept.

Since the most precise level of firm location is the ADM1 region, it was not possible to retain the geolocation information of aid projects, which prevented the use of more refined analyses such as spatial regression discontinuity design. Consequently, the ADM1 region where the infrastructure projects were implemented became the spatial dimension of the aid dataset. Overall, there is information on 244 Chinese projects, allocated toward 68 countries, 236 regions, and completed between 2000 and 2019.

As the estimated amount for Chinese projects is only available for commitment and may occasionally be missing, the main variable of interest is the number of Chinese transport infrastructure projects conducted in country c, region r completed during the last four years (*i.e.* between t and $t-4$). Taking into account this time gap instead of using the number of projects completed during year t seems appropriate for the firm-level dataset, mainly because transport infrastructure projects are expected to have lasting effects, and because the WBES interviews are not repeated every year[8]. Since there are on average four years between two WBES waves, this variable of interest can therefore be interpreted as the number of completed Chinese transport infrastructure projects in the region since the last WBES interview.

Having information on completed infrastructure projects over the last four years in a given ADM1 region, the aid dataset was then merged with the World Bank Enterprise Survey at the region year level.

Table 1 below presents some descriptive statistics for the main variables. Tables A1,

[8]A transport project may have been completed in a given region but may not be finished the same year as a WBES survey.

A4, and A5 in the appendix present more precise descriptions of firms' export status, region treatment status regarding Chinese projects, and Chinese transport project categories. Maps A1, A2, and A3 in the appendix show the ADM1 region observed in the WBES, the number of firm-level observations per country, and the locations of Chinese transport infrastructure projects.

Table 1: Descriptive Statistics - Main Variables

	Observations	Mean	Std. Dev.	Min	Max
Exporter	168,020	0.20	0.40	0	1
Amount Exported	143,812	724,430.6	3,460,204	0	44,391,596
Amount Exported (IHT)	143,812	3.00	5.79	0	18.30
Chinese Aid	168,020	0.12	0.52	0	4

3 Empirical Strategy

3.1 Main regression

In order to measure the impact of Chinese transport infrastructure on firms' export probability, I resort to a shift-share instrumental variable approach. The equation below displays the second stage of this strategy:

$$Exporter_{f,s,c,r,t} = \alpha + \beta Aid_{c,r,t,t-4} + \gamma X_{c,r,t} + \sigma H_{f,s,c,r,t} + \mu_{s,t} + \phi_{c,t} + \theta_f or \theta_r + \varepsilon_{f,s,c,r,t}$$

The variable $Exporter_{f,s,c,r,t}$ captures the extensive margin and is a dummy taking the value one if the firm f, located in the country c, sub-national region r, operating in sector s participates in the export market during year t. As presented in Table 1, a significant share of firms do not participate in the export market. Following the work of Berman and Héricourt (2010), the characteristics of the sample of firms that do not export versus those that engage in exporting are presented in Table A6. Exporters are as expected larger, more productive, and more foreign-owned.

The effect of transport infrastructure is captured by the $Aid_{c,r,t}$ variable, which is the number of Chinese transport projects completed during the last four years in country c, sub-national region r, and year t. Ideally, it would be preferable to exploit the heterogeneity in terms of project size, as it is reasonable to assume that larger transport projects could have a more substantial impact on firms' export probability. As the provided amount is an estimation of the commitment rather than the actual disbursement, and since this imperfect information was missing for approximately 10%

of Chinese projects, I opted for the number of completed projects as it represents the most reliable variable of interest, and as it still allows to exploit the heterogeneity in terms of the number of infrastructure received.

Concerns may arise regarding the staggered nature of the treatment since these projects are implemented at different times for different regions within the sample. According to Callaway and Sant'Anna (2021), such settings can complicate the analysis because the treatment effect may vary over time and across different regions, potentially resulting in estimations with an opposite sign to the Average Treatment Effect on Treated (ATT). To address this, I have chosen to focus my analysis on firms' first and last observations (in the case of firms observed in panel data), hence excluding the intermediate periods. The attrition caused by this solution should not be of great concern, as the observations between the first and last ones account for only 1.6% of the sample. It is reasonable to assume that the first and last observations of firms should be representative and that excluding the intermediate periods is unlikely to introduce bias into the estimates. Robustness checks will be conducted to examine the results when including the intermediate observations.

Another potential issue in this model may arise due to the presence of endogeneity. Numerous factors can simultaneously explain 1) a firm's f participation in the export market; and 2) the number of Chinese transport infrastructure received in a given region r. There could be time-varying economic or political shocks at the country level, such as the emergence of a conflict, natural disaster (Martincus and Blyde, 2013), ending the recognition of Taiwan (Dreher et al., 2018) or even welcoming the Dalai-Lama (Fuchs and Klann, 2013); Time-varying sector factors, such as the dynamics within specific industries, can also potentially influence both firms' decisions to export and donors' motivations to invest (Dreher et al., 2018; Hochman et al., 2013); and even time-invariant region characteristics, such as one region's remoteness or distance to the coast (Moore, 2018). These biases can however be contained thanks to the inclusion of fixed effects.

Tackling first the country and sector time variant heterogeneity, and following the empirical strategy of Berman and Héricourt (2010), a set of country-year and sector-year fixed effects $\phi_{c,t}$ and $\mu_{s,t}$ are included to the specification, which allows controlling for factors impacting similarly firms operating within the same country and year, or the same sector and time group.

The fixed effect θ_f aims to control for time-invariant firm characteristics that may explain a different level of performance in the export market. As only 1.31% of the firms in the sample changed their region of establishment between waves, the latter were excluded from the analysis. By adding this restriction, the variability of regions across enterprises is eliminated, and the firm fixed effect controls for time-invariant region-specific characteristics. The inclusion of this fixed effect however restrains the sample to a panel dimension, since firms observed only once are absorbed. Only firms that have been interviewed at least twice are retained in this specification. Consequently, in order to preserve the information provided by the cross-section dimension of this dataset, this specification will be complemented by a second one with a region fixed effect θ_r instead of the firm one.

By including this set of fixed effects, the reverse causality bias is relatively addressed, as it is difficult to imagine the time-varying characteristics of a given firm influencing aid allocation at the regional level. But this specification still remains subject to endogeneity threats, such as omitted variable issues. Indeed, there may be time-varying regional factors that are correlated with both the dependent variable and the variable of interest. For instance, the discovery of a mineral deposit may impact both the region's aid received and the firms' international business environment. Lastly, since the number of Chinese projects is not officially reported but estimated, the main independent variable may not fully capture the Chinese foreign intervention, consequently making the specification sensitive to measurement errors.

Given the inability to add a time-varying region fixed effect (as it would absorb the variable of interest), I attempt to reduce these biases as much as possible by including controls in the specification. First, time-varying region controls $X_{c,r,t}$ are included. They intend to grasp one region's ability to attract Chinese infrastructure projects, and the potential regional economic dynamic explaining a different proportion of exporting firms. They encompass the GDP estimated by night light data (log)[9], and the estimated population (log)[10]. Second, time-varying firm controls $H_{f,s,c,r,t}$ are also included. They aim to explain a given firm's participation in the export market during a given year. Following the findings of the firm-level trade literature (Idson and Oi, 1999; Melitz, 2003; Bernard and Jensen, 2004), firm foreign ownership and size are therefore included. They are respectively a dummy equal to one if the firm is owned by a foreigner, and a categorical value equal to one, two, or three if the firm has less than 20, between 20 and 100, or more than 100 employees. Table A7 displays the descriptive statistics of all variables included in the main specification. Given the inability to add a time-varying region fixed effect (as it would absorb the variable of interest), I attempt to reduce these biases as much as possible by including controls in the specification. First, time-varying region controls $X_{c,r,t}$ are included. They intend to grasp one region's ability to attract

[9] 30 arcs second DMSP-VIIRS stable nightlight data from 2001 to 2013 (source: https://www.ngdc.noaa.gov/eog/dmsp/downloadV4composites.html), and Li et al. (2020) harmonized nightlight for years post-2013

[10] Center for International Earth Science Information Network - CIESIN - Columbia University. 2018. Gridded Population of the World, Version 4 (GPWv4): Population Density, Revision 11. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/H49C6VHW. Accessed 10/12/2020.

Chinese infrastructure projects, and the potential regional economic dynamic explaining a different proportion of exporting firms. They encompass the GDP estimated by night light data (log)[11], and the estimated population (log)[12]. Second, time-varying firm controls $H_{f,s,c,r,t}$ are also included. They aim to explain a given firm's participation in the export market during a given year. Following the findings of the firm-level trade literature (Idson and Oi, 1999; Melitz, 2003; Bernard and Jensen, 2004), firm foreign ownership and size are therefore included. They are respectively a dummy equal to one if the firm is owned by a foreigner, and a categorical value equal to one, two, or three if the firm has less than 20, between 20 and 100, or more than 100 employees. Table A7 displays the descriptive statistics of all variables included in the main specification.

Weights provided by the WBES are applied in the specification so the sample is representative at the country and sector level.

Finally, to address potential heteroskedasticity within regions and over time, standard errors are clustered at the region-year level. This clustering allows for the correction of potential correlation within those groups in the error term. As underlined by Moulton (1990), standard errors should indeed be clustered at the variable of interest's level in case one attempts to measure the impact of an aggregated shock on a smaller unit.

Including this supplementary set of controls can partially account for time-varying region factors that may influence both firms' export probability and the allocation of transport infrastructure projects. However, as endogeneity concerns may persist, the safest option is to instrument the number of transport projects funded by China. The following subsection will outline the instrumentation strategy.

3.2 Instrumenting Chinese transport infrastructure projects

The equation presented below illustrates the first stage regression, which aims to estimate the construction of Chinese transport infrastructure:

$$Aid_{CHN,c,r,t,t-4} = \beta ProbaCHN_r * LaborUnrest_{t-3} + +\gamma X_{c,r,t}$$
$$+\sigma H_{f,s,c,r,t} + \mu_{c,s,t} + \theta_f + \varepsilon_{f,s,c,r,t}$$

The number of Chinese transport infrastructure completed during the last four years in a given country c, sub-national region r, and year t is estimated thanks to a Bartik

[11] 30 arcs second DMSP-VIIRS stable nightlight data from 2001 to 2013 (source: https://www.ngdc.noaa.gov/eog/dmsp/downloadV4composites.html), and Li et al. (2020) harmonized nightlight for years post-2013

[12] Center for International Earth Science Information Network - CIESIN - Columbia University. 2018. Gridded Population of the World, Version 4 (GPWv4): Population Density, Revision 11. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/H49C6VHW. Accessed 10/12/2020.

instrument (Goldsmith-Pinkham et al., 2020). The latter is an interaction between the region r's probability to receive transport projects from China; measured as the number of years when the region receives at least one transport project from China divided by the total number of years in the sample; and the number of labor unrest events, such as strikes or workers protest, that occurred in China in a given year t. A three-year lag is applied since what matters here is the number of labor unrest incidents in the year preceding the project's decision, which occurs on average two years before its completion.

The intuition of this instrument relies on the following findings of Mueller (2022): As Chinese aid projects are carried out exclusively by domestic companies, the Chinese government uses its aid to stimulate employment and improve working conditions in the country, helping to calm labor-related social tensions in China. Like Mueller (2022), the number of labor unrest was retrieved from two unofficial sources, *China Strikes Crowdmap* and the *China Labor Bulletin*[13]. This shift dimension is multiplied by the share dimension that is commonly employed in the existing literature (Dreher et al. (2021), *i.e.* the regions' probability to receive Chinese transport projects. In other words, regions favored by China would receive a higher number of transport projects when China seeks to temper labor unrest within its own borders. For example, in 2012, employees of the Jiuha Aluminum Corporation in Foshan staged a protest demanding the return of their social security funds[14]. This protest, possibly along with other similar events, might have influenced the Chinese government's decision to sign contracts the following year, such as the Addis Ababa-Djibouti railway project signed in 2013. Such contracts would boost the order books of companies like Jiuha Aluminum Corporation, hence leading to potential improvements in working conditions and a reduction in social tensions.

When considering the specific emphasis placed on transport infrastructure, this instrument may be better suited than instruments more commonly employed in the literature, like steel production or raw materials production in China (Bluhm et al., 2018; Dreher et al., 2021). This is because large infrastructure projects can potentially have supply-side effects on raw materials production in China. For instance, the construction of massive transport infrastructure might directly impact the production of raw materials in China (such as steel), thereby potentially adding endogeneity to the analysis.

There could be doubts regarding the satisfaction of the exclusion restriction with the current instruments. First, the probability of receiving Chinese-financed transport infrastructure could be correlated with unobserved regional characteristics that directly influence firms' export probability. The inclusion of either firm and region fixed effects[15]

[13] *Available at*: https://chinastrikes.crowdmap.com/ and https://clb.org.hk/en

[14] https://chinastrikes.crowdmap.com/reports/view/815

[15] The firm fixed effect being equal to a region one since moving firms are dismissed

should take into account the impact of one region's time-invariant characteristics on the outcome variable. Second, labor unrest in China may be correlated with periods of global economic recession, thereby explaining both the emergence of labor-related social conflicts within China and firms' export probability in developing countries. However, by including country-year fixed effects, the impact of global events is captured.

As Dreher et al. (2021) mentioned, this strategy is comparable to a difference-in-difference approach. The occurrence of a shock, in this case, the emergence of labor unrest in China, is compared between two groups: treated regions with a probability greater than zero; and untreated regions, with a probability equal to zero. One must ensure that treated and control regions had similar trends in the share of exporters before the start of the treatment. Figure A4 presents the variation of labor unrest in China, the variation in the number of Chinese transport projects, and the share of exporters[16] for the two groups. The evolution of the exporter variable before the treatment (*i.e.* prior 2005) gives little reason to believe that treated and control regions followed non-parallel trajectories.

In summary, potential endogeneity concerns are mitigated with an instrumentation strategy based on Chinese local political motives. The effect of labor unrest in China is compared between treated and control regions, hence providing an exogenous source of variation for Chinese transport projects.

Table 2: Instruments Statistics

	Observations	Mean	Std. Dev.	Min	Max
Proba CHN	168,020	0.03	0.07	0	0.53
Labor Unrest (log)	168,020	3.94	2.38	0	7.94
Proba CHN x Labor Unrest	168,020	0.14	0.35	0	2.91

4 Results

4.1 Baseline results

The following section displays the results of the specifications exposed above. Table 3 presents the estimated impact of Chinese transport infrastructure on firms' probability to export.

Results presented in columns (1) and (2) display the estimation outcomes when the model includes a firm fixed effect (*i.e.* with panel data only, hence explaining the smaller number of observations); and columns (3) and (4) demonstrate the results obtained

[16] Three years moving average since WBES interviews are not conducted every year.

Table 3: Chinese Transport Infrastructure on Firms' Export Probability

Second Stages: Dep. Var.:	(1)	(2)	(3)	(4)
	Firm FE		Region FE	
$Exporter_{f,s,c,r,t}$	No IV	IV	No IV	IV
Aid $_{c,r,t}$	-0.088	-0.096	-0.039	-0.036
	(0.056)	(0.080)	(0.021)	(0.045)
Population (log) $_{c,r,t}$	0.049	0.050	0.012	0.012
	(0.055)	(0.056)	(0.025)	(0.026)
GDP (log) $_{c,r,t}$	-0.035	-0.037	-0.007	-0.006
	(0.042)	(0.046)	(0.016)	(0.017)
Foreign Owned f,s,c,r,t	-0.012	-0.012	0.146	0.146
	(0.043)	(0.043)	(0.018)***	(0.018)***
Size f,s,c,r,t	0.083	0.083	0.099	0.099
	(0.021)***	(0.021)***	(0.006)***	(0.006)***
N	37,516	37,516	151,577	151,577
R^2	0.85	0.01	0.23	0.04
Country x Year FE	Yes	Yes	Yes	Yes
Sector x Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	No	No
Region FE	No	No	Yes	Yes
Weights	Yes	Yes	Yes	Yes
N region year (clusters)	1,324	1,324	1,595	1,595
Kleibergen-Paap LM stat (p-value)		0.000		0.000
Kleibergen-Paap F-stat		27.29		73.46
First Stages: Dep. Var:	Firm FE		Region FE	
$Aid_{c,r,t}$		(a)		(b)
Proba CHN x Labor Unrest $_{c,r,t}$		2.389		1.654
		(0.457)***		(0.193)***
R^2		0.97		0.97
Controls		Yes		Yes
Country x Year FE		Yes		Yes
Sector x Year FE		Yes		Yes
Firm FE		Yes		No
Region FE		Yes		No
Weights		Yes		Yes

Standard errors in parentheses, clustered at the region-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

when the model incorporates a region fixed effect (*i.e.* with both panel and cross-section data). Columns (1) and (3) display results when running simple Ordinary Least Square regressions, as columns (2) and (4) present the estimations when instrumenting the variable of interest. Columns (a) and (b) below columns (2) and (4) report the first stages.

Focusing first on columns (1) and (3), Chinese transport infrastructure seem to have no significant impact on firms' extensive margin. However, as specified in the previous section, these estimations may be influenced by endogeneity biases.

In columns (a) and (b), representing the first stages, the instrument appears to be a significant and substantial predictor of Chinese transport infrastructure. The robustness of these instruments is reflected in the Kleibergen-Paap F-statistics (Kleibergen, 2007), which exceed the threshold of 15[17]. The $ProbaCHN * LaborUnrest_{c,r,t-3}$ coefficient exhibits the expected sign: the recipient regions favored by China would receive significantly more Chinese transport infrastructure during the years when there were relatively more labor-related social conflicts in China. On average, as displayed by Figure A5, regions relatively favored by China (*i.e.* the top quartile in terms of $ProbaCHN_r$) would receive from 0.4 to 4.9 additional transport projects financed by China in years when China experiences an average number of social conflicts [18].

Focusing on columns (2) and (4) displaying the second stages, Chinese transport infrastructure seem to have overall no significant effect on firms' extensive margins. Relying on Bougheas et al. (1999) framework, Chinese investment in transport infrastructure would not be sufficient in order to reduce transport costs and foster firms' export probability. It is worth noting that the coefficients are quite similar between columns (1) and (2), as well as between columns (3) and (4), indicating that the potential endogeneity bias may be relatively minor. Yet, the absence of significant and positive outcomes might still raise questions.

To investigate this absence of impact, one can examine whether Chinese transport projects have any influence on transportation as a declared obstacle for operations, sales, and sales growth. These variables would logically be affected first before potentially resulting in an increase in export market participation. Table A8 presents results with alternative dependent variables: transport obstacle, which is a categorical value ranging from 0 (if the firm's owner stated that transport is not an obstacle to their operations) to 4 (if it is considered a very severe obstacle to their business); sales (log)[19]; and sales

[17] The 1st stage F-test had the same values.

[18] As the mean number of transport projects funded by China is 0.12, favored regions would receive 3 to 41 times more transport infrastructure projects from China in years when China experiences an average number of social conflicts.

[19] With the top 1% being removed as they reported abnormally high values.

growth (inverse hyperbolic sine transformation)[20]. Similar to results in Table 3, Chinese transport projects would have no impact on transport as an obstacle to operations, or sales. The last columns even suggest that Chinese projects would have a negative impact on firms' sales growth. But this result must be taken with great care since the attrition due to missings in sales growth is not negligible (almost a third of the sample).

Following the absence of significant impact, one can check whether Chinese transport projects have an effect on other variables that could capture an improvement in international market access. Tables A9, A10, and A11 present results when using alternative dependent variables capturing other measures of trade activity, respectively the amount exported (i.e. the intensive margin), a dummy variable taking the value one if the firm imports foreign input, and the percentage of imported inputs. Alternative measures of trade activities seem to indicate that Chinese transport infrastructure do not seem to impulse firms' export or import. Chinese projects (in the region fixed effect specification of Tables A9 and A11) would actually have a negative and significant effect on the amount exported and the amount of foreign input used, which is difficult to explain based on the Bougheas et al. (1999) framework. Once again, these results must be interpreted with great caution since the sample is affected by the non-negligible share of missing values in the dependent variables.

4.2 Robustness checks

Before conducting heterogeneity analysis, it is essential to verify the validity of the instruments and rule out the possibility that the lack of significant results is due to sample dependence, confounding factors, or misspecification.

4.2.1 First stage

One may legitimately worry that instruments' quality could be entirely driven by a small pool of countries. Robustness checks are consequently required for the first stages. First, Figures A6 and A7 exhibit the first stages when countries are dropped one by one. The instruments' coefficient always remains significant at a 5% level. Second, Following the approach of Burnside and Dollar (2000), Figure A8 presents the instrument's coefficient variation when dropping each country-year pair one by one in the first stage. Once again, there is not a particular country-year outlying combination that entirely explains the instruments' quality[21].

[20] Constructed as the difference between sales and sales three years ago. The top 1% fastest-growing firms were removed.

[21] The two observations around -1 in Figure A8 represent the changes in coefficients when Turkey is excluded from the sample. While these observations may initially appear problematic, it is worth noting that even when excluding these firms, the k-Paap statistics remain at a high level.

Dubious readers may still worry about the external validity of the instruments, hence raising concerns about the genuine efficiency of these first stages. To address this concern, several tests are conducted. First, a test of plausible exogeneity, as defined by Conley et al. (2012) and van Kippersluis and Rietveld (2018), is performed. The latter consists of the following: first-stage regressions are run country by country. The sample is then restrained to countries for which the instrument is not a significant determinant of Chinese transport projects. In other words, it is a sample for which there is no correlation between the instrument and the instrumented variable. A regression with the main dependent variable is computed with both the instrument and the instrumented variable on the right-hand side. As Table A12 exhibits, $ProbaCHN * LaborUnrest$ is non-significant on a sub-sample where the instrument is not correlated to Aid (*i.e.* a subset where the results should not be driven by collinearity).

In addition to this test of plausible exogeneity, Table A13 presents results when time-varying country factors that may act as confounders between transport projects and firms' exports are added to the controls. More precisely, received remittances, net FDI inflows, total imports, total exports, aid received from the World Bank, and trade with China at the country level are added; since these variables could be correlated to Chinese transport projects and could explain firms' export probability. Because the country-year fixed effect would absorb them, the potential confounding factors are interacted with the share dimension of the instrument (i.e. $ProbaCHN_r$). It seems that adding these potential confounders does not change the coefficients or the quality of the instrument.

The absence of significance in the plausible exogeneity test and the stability of the coefficients when confounders are added suggests that the instrument does not explain directly or indirectly the dependent variable. It can therefore be considered plausibly exogenous.

4.2.2 Second stage

Similar to what was done for the first stage of the specification, one should ensure that the results of the second stage are not influenced by sample dependence or misspecification.

Addressing first the potential sample dependence, one concern with the WBES is the potential survivor bias. In fact, the survey can only recontact firms that survived, which can potentially affect the results. Such a phenomenon would be an issue if firms' age distribution between panel and cross-section (i.e. observed at least twice or only once) is significantly different. Figure A9 shows that the two distributions are very similar. Another possible issue with the WBES is the important variation in the number of firms across countries (as illustrated in Figure A2), leading to some regions being over-represented in the sample. To mitigate this bias, and as other studies using the same firm data (Chauvet and Ehrhart, 2018; Marchesi et al., 2021), I conduct a randomization of the sample. 50 or 250 firms[22] by region were randomly picked, thus giving equal weight for each region. This process is repeated 500 times. The coefficients reported in Table A14 do not vary much compared to those in Table 3. More than 90% of the time, the *Aid* coefficient is not significant. Additionally, it is worth noting that the instrument's quality remains satisfactory. Another concern regarding sample dependence resides in the influence of post-conflict countries, since the latter capture an important part of aid and are rapidly growing. Table A15 shows the results when excluding these countries from the sample[23]. The coefficient remains relatively stable.

Addressing now the potential misspecification concern, it is important to verify that 1) the current model is not too sensitive to modifications; and 2) that alternative specifications yield similar results. First, Table A16 exhibits similar results when employing alternative lags for the variable of interest and the instrument. Specifically, a more conventional two-year lag is used for the *Aid* variable(similar to Dreher et al. (2021) and Marchesi et al. (2021) studies), and the mean labor unrest in China between year $t-3$ and $t-7$ is considered (representing the timing of project decisions for projects implemented between years t and $t-4$). Then, Table A17 displays similar results when using alternative measures of aid, respectively a dummy taking the value one if a given region received at least one project in the last four years and the estimated amount of commitment received on the last four years (inverse hyperbolic sine transformation). Finally, Results remain consistent when incorporating the intermediate observations (Table A18), when adding firms that changed regions (Table A19), and they are not influenced by bad controls (Table A20). results presented in Table A21 indicate a significant negative impact when adding additional controls (such as state ownership and sales from three years ago). However, this result should be cautiously interpreted because the presence of missing variables in sales leads to a substantial reduction in the sample size.

Tackling then alternative strategies, one may wonder whether the results differ when employing more conventional instruments, such as $ProbaCHN*Steel_{c,r,t-3}$, $ProbaCHN*Factor_{c,r,t-3}$, and $ProbaCHN*Reserves_{c,r,t-3}$, Table A22 indicates either the same absence of effects or a negative effect entirely driven by one country[24]. Additionally, Tables A23 presents an absence of significant results when employing an alternative approach employed by Isaksson and Kotsadam (2018a) and Isaksson and Kotsadam (2018b), which involves comparing treated observations to yet-to-be-treated observations in order to address selection bias.

In summary, Chinese transport projects would have in overall no impact on firms'

[22]For respectively the firm and region fixed effect analyses
[23]Afghanistan, Bangladesh, Burundi, Colombia, Nigeria, Philippines, Sri Lanka, and Uganda
[24]significant results, as well as the strength of the instruments, are driven by Turkey.

export probability. Instruments seem to be robust and exogenous, and 2nd stage results are robust to modification and consistent across methods.

5 Heterogeneity analysis

Chinese transport projects are diverse in terms of financial flow and categories; as much as enterprises composing the sample are widely heterogeneous in terms of region, sectors, and individual characteristics. One needs to investigate whether the effect differs in terms of projects, region, sector, and firm characteristics.

5.1 Chinese transport projects heterogeneity

Since China is not part of the Development Assistance Committee (DAC) donor group, the financial flow rules of the OECD do not apply to its foreign economic interventions. Consequently, the OECD's guideline regarding the grant element, which requires a loan to have a grant element of under 25% to be considered concessional enough for aid, does not apply to Chinese economic overseas interventions. Therefore, it is necessary to differentiate between transport projects that are considered ODA-like (with a grant element under 25%) and those classified as Other Official Finance (OOF, where the grant element exceeds 25%). This distinction is important because ODA-like projects may be more development-oriented and potentially offer greater benefits to local firms. Table 4 presents results with either the number of ODA-like or OOF transport projects. Both flow types have no significant impact on firms' export probability.

It is also worth considering, as shown in Table A5, whether different infrastructure categories within transport projects have distinct impacts. Table 5 shows results where the variable of interest denotes either the number of roads, rail, or port and airport constructed within a given region during the last four years. None of these types of projects appear to have a different impact on firms' export probability.

5.2 Regions' population density

The impact of Chinese infrastructure may differ regarding the initial characteristics of the recipient regions, notably in terms of existing infrastructure. Firms located in regions with relatively scarce transport networks may indeed benefit more from the construction of transport infrastructure. Therefore, the heterogeneous impact of Chinese projects can be estimated thanks to an interaction with initial population density as a proxy for existing infrastructure. One can safely assume that relatively uninhabited and rural regions will consequently lack infrastructure. The region's initial population density $Density_r$ is constructed thanks to the estimated population (Gridded population of the

Table 4: Chinese Transport Infrastructure on Firms' Export Probability - By type of financial flow

Dep. Var.:	Firm FE		Region FE	
$Exporter_{f,s,c,r,t}$	ODA	OOF	ODA	OOF
Aid $_{c,r,t}$	-0.367	-0.131	-0.116	-0.051
	(0.342)	(0.107)	(0.145)	(0.067)
N	37,516	37,516	151,577	151,577
R^2	0.00	0.01	0.04	0.04
Country x Year FE	Yes	Yes	Yes	Yes
Sector x Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	No	No
Region FE	No	No	Yes	Yes
Weights	Yes	Yes	Yes	Yes
N region year (clusters)	1,324	1,324	1,595	1,595
Kleibergen-Paap LM stat (p-value)	0.000	0.000	0.000	0.000
Kleibergen-Paap F-stat	10.29	14.32	13.72	39.97

Standard errors in parentheses, clustered at the region-year level.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

Table 5: Chinese Transport Infrastructure on Firms' Export Probability - By category

Dep. Var.:	Firm FE			Region FE		
$Exporter_{f,s,c,r,t}$	Road	Rail	Port/airport	Road	Rail	Port/airport
Aid $_{c,r,t}$	-0.567	-0.158	-3.011	-0.149	-0.068	-2.157
	(0.535)	(0.129)	(3.501)	(0.190)	(0.089)	(2.902)
N	37,516	37,516	37,516	151,577	151,577	150,870
R^2	0.02	0.01	0.08	0.04	0.04	0.03
Country x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	No	No	No
Region FE	No	No	No	Yes	Yes	Yes
Weights	Yes	Yes	Yes	Yes	Yes	Yes
N region year (clusters)	1,324	1,324	1,324	1,595	1,595	1,595
Kleibergen-Paap LM stat (p-value)	0.000	0.000	0.050	0.000	0.000	0.000
Kleibergen-Paap F-stat	7.76	9.41	1.77	13.51	22.49	3.36

Standard errors in parentheses, clustered at the region-year level.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

world); and with the regions' area in square kilometers, computed thanks to the ADM1 shapefiles (GADM). Table 6 below presents the results when interacting $Aid_{c,r,t}$ and the instrument with $Density_r$:

Table 6: Chinese Transport Infrastructure on Firms' Export Probability - Interaction with Regions' Population Density

Dep. Var.: $Exporter_{f,s,c,r,t}$	(1) Firm FE	(2) Region FE
Aid $_{c,r,t}$	-0.197	0.056
	(0.149)	(0.070)
Aid $_{c,r,t}$ x Density r	0.017	-0.016
	(0.015)	(0.007)**
N	37,516	151,577
R^2	0.01	0.04
Country x Year FE	Yes	Yes
Sector x Year FE	Yes	Yes
Firm FE	Yes	No
Region FE	No	Yes
Weights	Yes	Yes
Controls	Yes	Yes
N region year (clusters)	1,324	1,595
Kleibergen-Paap LM stat (p-value)	0.000	0.000
Kleibergen-Paap F-stat	18.29	38.08

Standard errors in parentheses, clustered at the region-year level.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

Columns (1) and (2) present the estimated impact of Chinese transport infrastructure on firms' probability to export, with respectively firm and region-fixed effects. Results in column (1) suggest that Chinese projects have no impact on firms' export probability, no matter the region's population density. However, results are different when applying a region-fixed effect in column (2), since Chinese projects would have a positive impact on firms' export probability if they are located in regions with low population density (i.e. areas with supposedly few transport infrastructure). On average, one additional Chinese transport infrastructure project would increase the probability of exporting from 0.1% to 5% for firms located in the 10% least densely populated regions. This result seems intuitive, as new infrastructure are expected to have a greater impact in areas with the lowest market access.

5.3 Sector structural needs in transports

The effect of Chinese transport infrastructure may also differ in terms of the sector's structural needs, more precisely in terms of transport infrastructure requirements. Firms operating in sectors that disproportionately depend on transport should indeed gain the most with the construction of new transport infrastructure. Following the work of Chauvet and Ferry (2021), the sector's intensity in transport is defined as the share of transportation expenses (inland, water, rail, and transportation support activities) over the total intermediate consumption. As stated by Rajan and Zingales (1996), the US economy can be considered a frictionless market, and sectors are expected to exhibit high transport intensity due to structural factors rather than imperfect transport provision. Therefore, the intensity index is derived from the 2014 input-output table for US industries[25]. This $TransportIntensity_s$ is then multiplied with the $Aid_{c,r,t}$ variable and the instrument. Table 7 presents the estimated interactions of these variables[26]:

Table 7: Chinese Transport Infrastructure on Firms' Export Probability - Interaction with Sectors' Intensity in Transport

Dep. Var.: $Exporter_{f,s,c,r,t}$	(1) Firm FE	(2) Region FE
Aid $_{c,r,t}$	-0.113	-0.024
	(0.111)	(0.049)
Aid $_{c,r,t}$ x Transport s	0.024	-0.063
	(0.134)	(0.037)*
N	24,302	136,975
R^2	0.01	0.04
Country x Year FE	Yes	Yes
Sector x Year FE	Yes	Yes
Firm FE	Yes	No
Region FE	No	Yes
Weights	Yes	Yes
Controls	Yes	Yes
N region year (clusters)	1,210	1,528
Kleibergen-Paap LM stat (p-value)	0.000	0.000
Kleibergen-Paap F-stat	25.83	33.56

Standard errors in parentheses, clustered at the region-year level.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

[25] From the World Input-Output Database, Timmer et al. (2015).
[26] the sample size for these estimations is smaller due to the removal of firms that changed sectors in order to reduce noise in the estimation.

This table follows the same organization as the previous one. Surprisingly, Chinese transport infrastructure would have no impact on firms' extensive margin, no matter the sectors' transport dependence. Column (2) even suggests a negative impact of Chinese transport projects over firms' export probability if the latter operates in transport-intensive sectors. However, one should exercise great caution when interpreting this result since coefficients with a 10% significance level in large samples are generally not considered reliable for interpretation.

5.4 Firm labor productivity

Chinese projects may also have a differentiated impact on firms' export probability depending on individual characteristics. in a Melitz (2003) framework, non-exporting firms with high productivity (*i.e.* near the productivity cutoff) may indeed see their probability to enter the export market increase, as the infrastructure lead to a reduction in variable costs, hence making the entrance in the export market less costly. Table 8 below displays the effect of $Aid_{c,r,t}$ interacted with firms' initial labor productivity $LaborProductivity_{f,s,c,r}$[27]

Results in column (2) suggest that Chinese transport projects would increase firms' export probability if they have relatively high labor productivity, which is in line with Melitz (2003) theory. However, this result should be taken with great caution since the export probability would increase for a very small sample of highly productive firms (less than 1% most productive firms).

6 Conclusion

Using a shift-share instrumental variables strategy, this study suggests that, on average, Chinese projects seem to have no effect on firms' export probability. This result could be theoretically explained by insufficient investment in infrastructure or sub-optimal placement of transport networks. Exploiting the project, region, sector, and firm dimensions of this database, results suggest that Chinese transport infrastructure increases firms' probability to export if companies are located in regions with low population density. Future research should consider utilizing datasets that provide more precise firm information, such as location data or details on transportation spending. This would allow for the investigation of two key aspects: 1) assessing whether Chinese transport infrastructure truly have no impact on firms' trade costs, and 2) examining whether enterprises located in proximity to these projects exhibit no significant effects on their export performances.

[27] Labor productivity is estimated as the sales per employee in 2014 USD (log).

Table 8: Chinese Transport Infrastructure on Firms' Export Probability - Interaction with Firms' Labor Productivity

Dep. Var.: $Exporter_{f,s,c,r,t}$	(1) Firm FE	(2) Region FE
Aid $_{c,r,t}$	-0.097	-0.193
	(0.358)	(0.084)**
Aid $_{c,r,t}$ x Productivity f	-0.000	0.011
	(0.027)	(0.007)
N	36,414	134,490
R^2	0.01	0.05
Country x Year FE	Yes	Yes
Sector x Year FE	Yes	Yes
Firm FE	Yes	No
Region FE	No	Yes
Weights	Yes	Yes
Controls	Yes	Yes
N region year (clusters)	1,313	1,576
Kleibergen-Paap LM stat (p-value)	0.000	0.000
Kleibergen-Paap F-stat	13.08	40.46

Standard errors in parentheses, clustered at the region-year level.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

Appendix

Table A1: Export Status Statistics

	Never Exports	Always Exports	Starters	Stoppers	Total
N	130,904	29,306	4,164	3,646	168,020
Percent	77.91%	17.44%	2.48%	2.17%	100%
Cumulative %	77.91%	95.35%	97.83%	100%	

Table A2: Sector Distribution Statistics

Sector	Obs.	Percent	Cumulative %
Manufacture	**86,839**	**53.90**	**53.90**
Food	18,294	21.07	21.07
Garments	10,618	12.23	33.30
Fabricated metal products	7,969	9.18	42.48
Metallic and non-metallic mineral products	7,757	8.93	51.41
Chemicals	6,077	7.00	58.41
Textile	5,54	6.38	64.79
Furniture	5,270	6.07	70.86
Machinery equipment	5,106	5.88	76.74
Rubber and plastics	4,795	5.52	82.26
Publishing	3,354	3.86	86.12
Electronics	3,330	3.83	89.95
Wood	2,916	3.36	93.31
Leather	2,036	2.34	95.65
Motor vehicles	1,877	2.16	97.81
Paper	1,147	1.32	99.13
Tobacco	296	0.34	99.47
Refined Petroleum	229	0.27	99.74
Recycling	227	0.26	100
Services	**65,893**	**40.90**	**94.80**
Wholesales	22,479	34.11	34.11
Other services	11,559	17.54	51.66
Retail	10,559	16.02	67.68
Hotel	7,437	11.29	78.97
Transport and communication	6,265	9.51	88.48
Sales of motor vehicles	5,086	7.72	96.19
IT	2,408	3.65	99.85
Energy and water supply	59	0.09	99.94
Financial services	41	0.06	100
Construction	**7,917**	**4.91**	**99.72**
Mining	**449**	**0.28**	**100**
Mining	415	92.43	92.43
Petroleum and gas extraction	34	7.57	100
Total	161,098	100	100

Table A3: Sector Statistics - Share of exporters

Sector	Obs.	Exporter (%)	Non exporter (%)
Manufacture	**86,839**	**28.37**	**71.63**
Food	18,294	22.23	77.77
Garments	10,618	35.68	64.32
Fabricated metal products	7,969	27.36	72.64
Metallic and non-metallic mineral products	7,757	19.67	80.33
Chemicals	6,077	33.47	66.53
Textile	5,54	37.88	62.12
Furniture	5,270	20.34	79.66
Machinery equipment	5,106	36.70	63.30
Rubber and plastics	4,795	30.03	69.97
Publishing	3,354	16.40	83.60
Electronics	3,330	38.14	61.86
Wood	2,916	27.91	72.09
Leather	2,036	39.69	60.31
Motor vehicles	1,877	32.18	67.82
Paper	1,147	26.42	73.58
Tobacco	296	32.43	67.57
Refined Petroleum	229	28.82	71.18
Recycling	227	20.70	79.30
Services	**65,893**	**11.64**	**88.36**
Wholesales	22,479	7.43	92.57
Other services	11,559	10.72	89.28
Retail	10,559	17.30	82.70
Hotel	7,437	9.14	90.86
Transport and communication	6,265	22.09	77.91
Sales of motor vehicles	5,086	7.61	92.39
IT	2,408	20.02	79.98
Energy and water supply	59	5.08	94.92
Financial services	41	0	100
Construction	**7,917**	**6.47**	**93.53**
Mining	**449**	**38.75**	**61.25**
Mining	415	40.72	59.28
Petroleum and gas extraction	34	14.71	85.29
Total	161,098	19.77	80.23

Table A4: Region Treatment Status Statistics

	Never Treated	Always Treated	No to Yes	Yes to No	Total
Chinese Aid					
N	1,554	25	120	17	1,716
Percent	90.56%	1.46%	6.99%	0.99%	100%
Cumulative %	90.56%	92.02%	99.01%	100%	

Table A5: Chinese transport project - category

Categories:	Road, Bridge or Tunnel	Rail	Airport	Port	Other	Total
Number of projects						
N	721	289	29	26	34	1,099
Percent	65.61%	26.3%	2.61%	2.37%	3.09%	100%
Cumulative %	65.61%	91.91%	94.54%	96.91%	100%	
Amount						
Amount (billion USD)	22.35	25.66	3.57	5.11	1.32	58.01
Percent amount	38.52%	44.23%	6.16%	8.80%	2.29%	100%
Cumulative % amount	38.52%	82.75%	88.91%	97.71%	100%	

Chinese aid database before merging to the WBES.

Other projects encompass donation of aircraft, construction of collective transport, donation of road signs, and road maintenance.

Table A6: Export Status Statistics

Variable	Obs.	Mean	Std. Dev.	Q1	Med.	Q3
Continuous Exporters						
State Owned	28,487	0.03	0.18	0	0	0
Foreign Owned	28,955	0.22	0.42	0	0	0
Size	28,973	2.15	0.79	2	2	3
Labor Pdty (log)	28,666	10.22	2.78	9.43	10.59	11.55
Starters						
State Owned	4,161	0.05	0.22	0	0	0
Foreign Owned	4,159	0.15	0.36	0	0	0
Size	4,103	1.86	0.78	1	2	2
Labor Pdty (log)	4,122	10.18	1.89	9.21	10.29	11.30
Continuous Non-Exporters						
State Owned	124,135	0.02	0.13	0	0	0
Foreign Owned	128,032	0.07	0.25	0	0	0
Size	124,744	1.51	0.69	1	1	2
Labor Pdty (log)	106,998	9.73	2.17	8.77	9.86	10.91
Stoppers						
State Owned	3,644	0.03	0.16	0	0	0
Foreign Owned	3,645	0.15	0.36	0	0	0
Size	3,623	1.89	0.78	1	2	3
Labor Pdty (log)	3,204	10.11	2.92	9.29	10.46	11.41
All Observations						
State Owned	160,427	0.02	0.14	0	0	0
Foreign Owned	164,791	0.10	0.30	0	0	0
Size	161,443	1.64	0.75	1	1	2
Labor Pdty (log)	138,758	9.79	2.53	8.85	10.01	11.07

Table A7: Descriptive Statistics - All Variables

Variable	Obs.	Mean	Std. Dev.	Min	Mex
Dependent Variables					
Exporter	168,020	0.20	0.40	0	1
Amount Exported (IHT)	168,020	3.00	5.79	0	18.30
Obstacle Transport	159,078	1.21	1.27	0	4
Sales (log)	143,772	12.85	3.1	-19.07	20
Sales growth (IHT)	117,900	0.044	4.22	-5.23	10.95
Importer	168,020	0.18	0.38	0	1
Import (% input)	168,020	18.54	32.40	0	100
Variable of Interest					
Chinese Aid	168,020	0.12	0.52	0	4
Region-Year Controls					
GDP (log)	167,598	1.63	1.60	-6.01	4.25
Population (log)	167,902	15.06	1.52	9.19	19.15
Firm-Year Controls					
Foreign Owned	164,791	0.10	0.30	0	1
Size	161,443	1.64	0.75	1	3

Figure A1: Sub-national regions interviewed in the World Bank enterprise survey

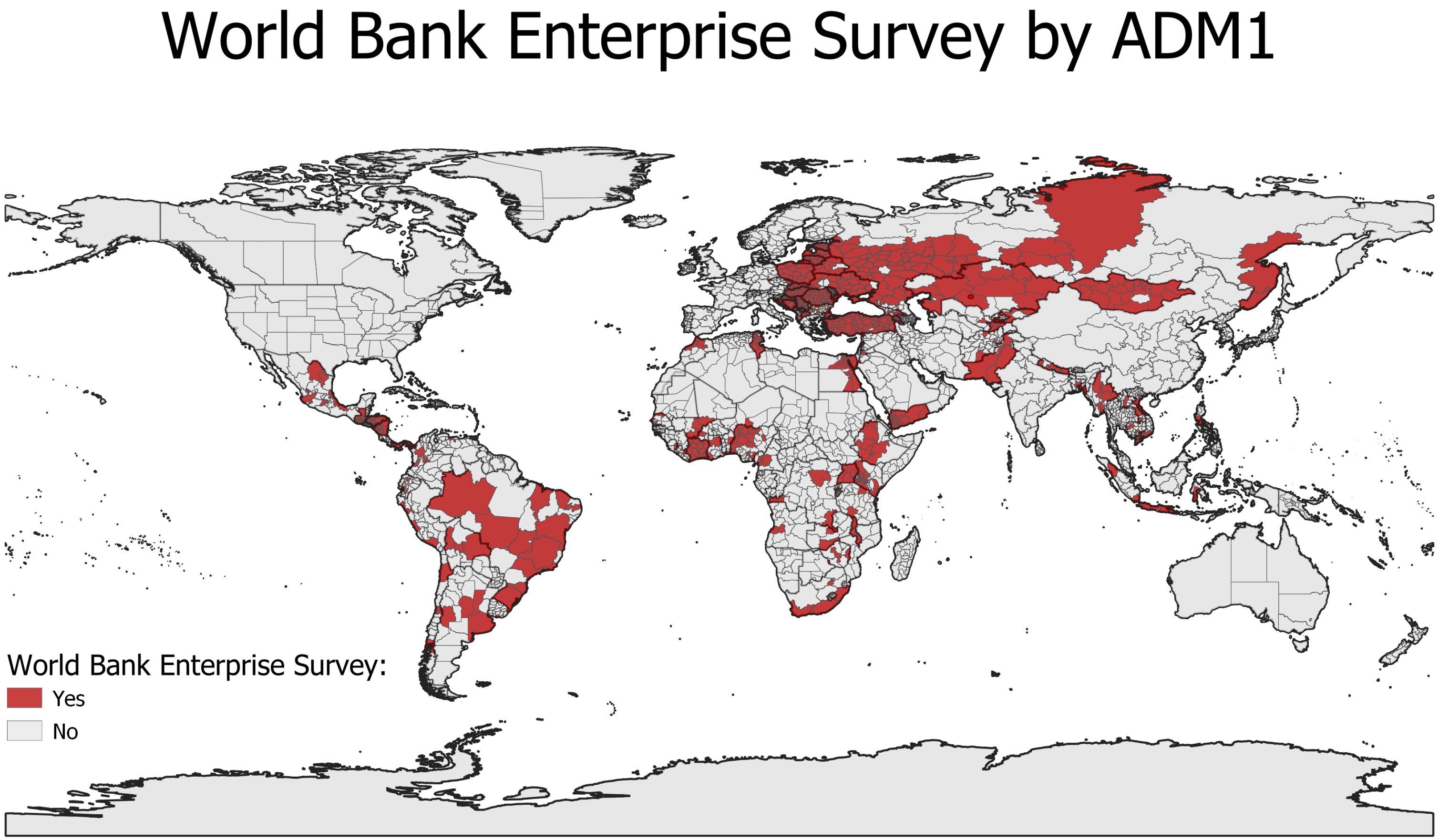


Figure A2: Number of firms observed in the World Bank enterprise survey by country

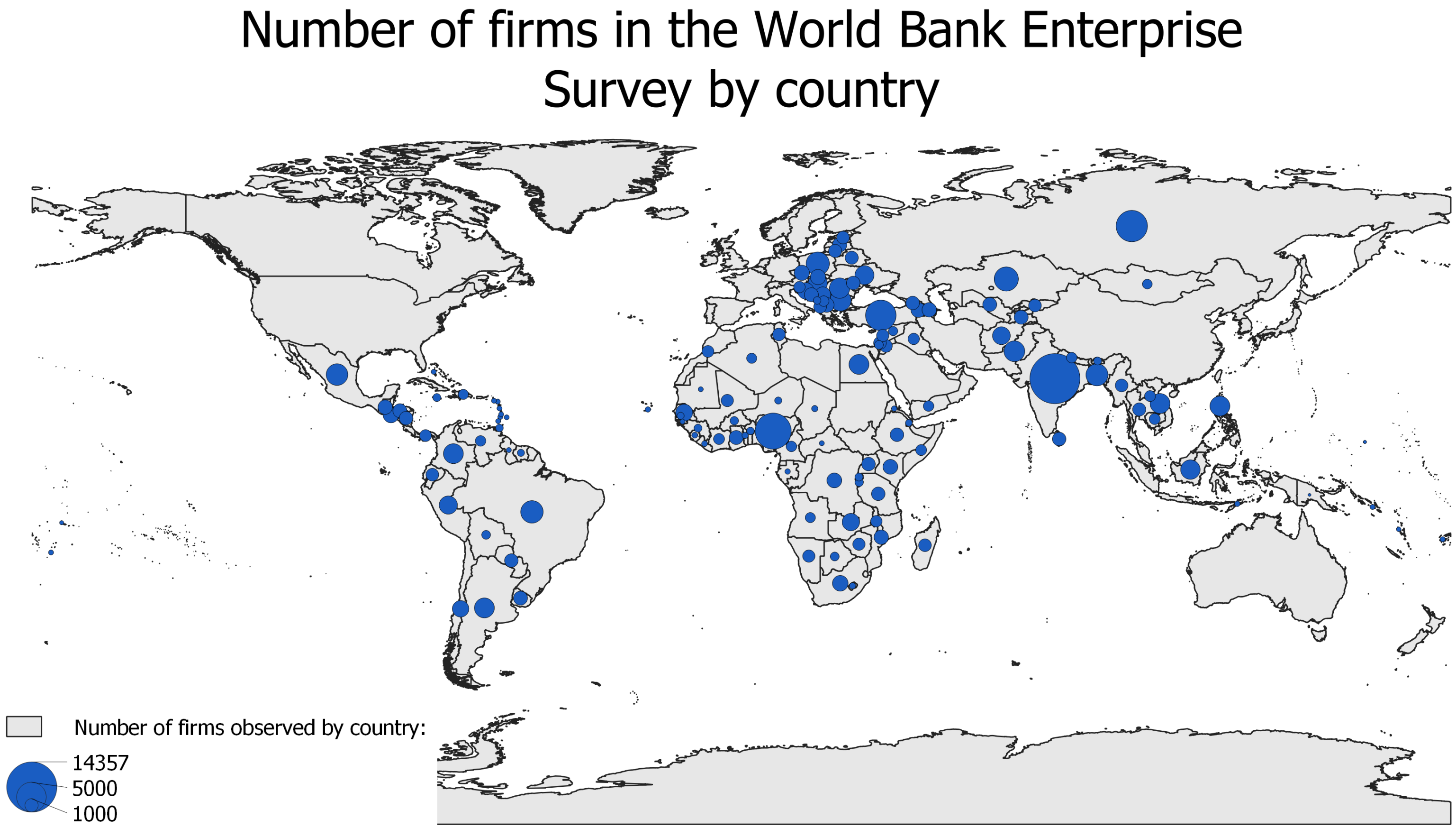


Figure A3: Sub-national regions interviewed in the WBES and Chinese connective infrastructure projects

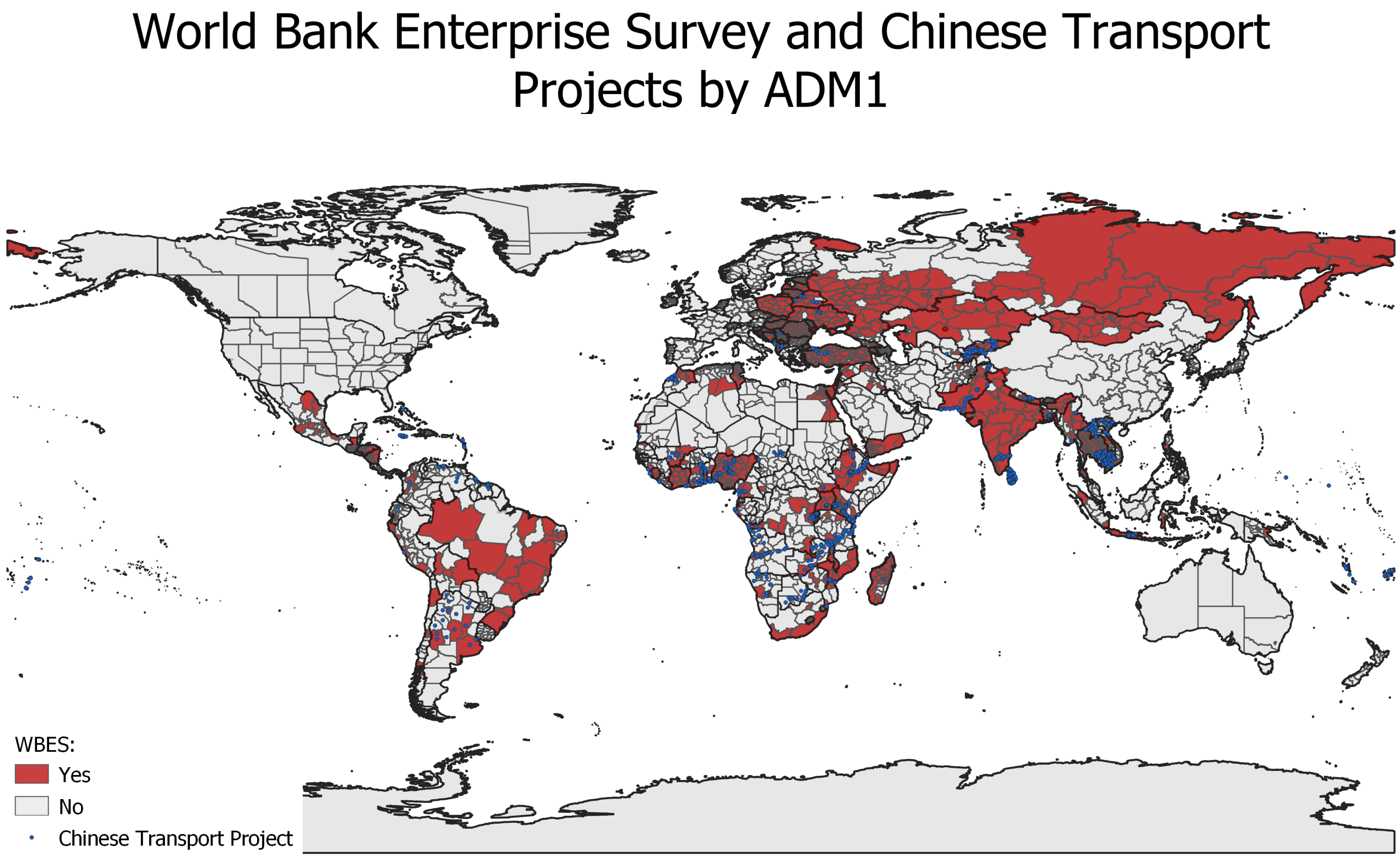


Figure A4: Parallel trends: labor unrest and Chinese transport projects

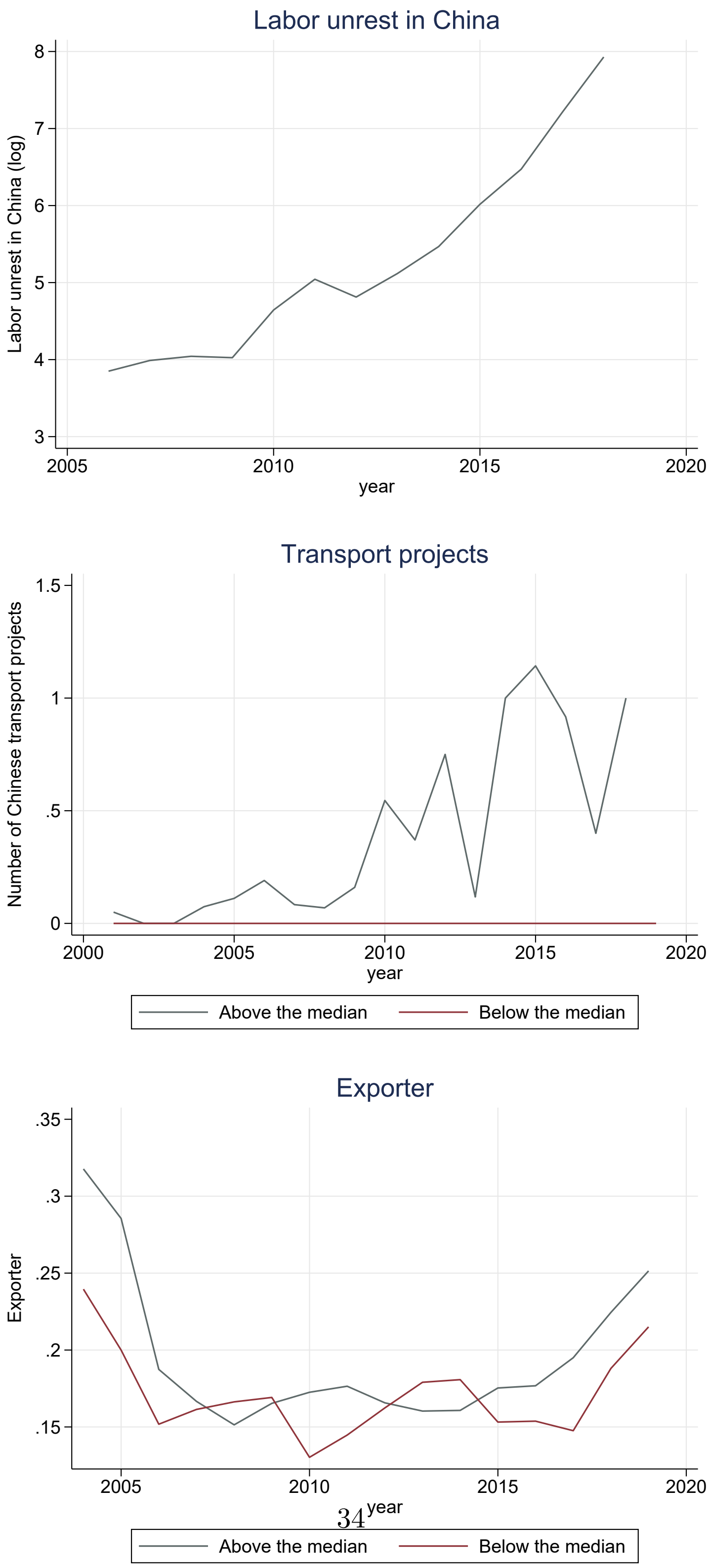


Figure A5: First stage marginal effects

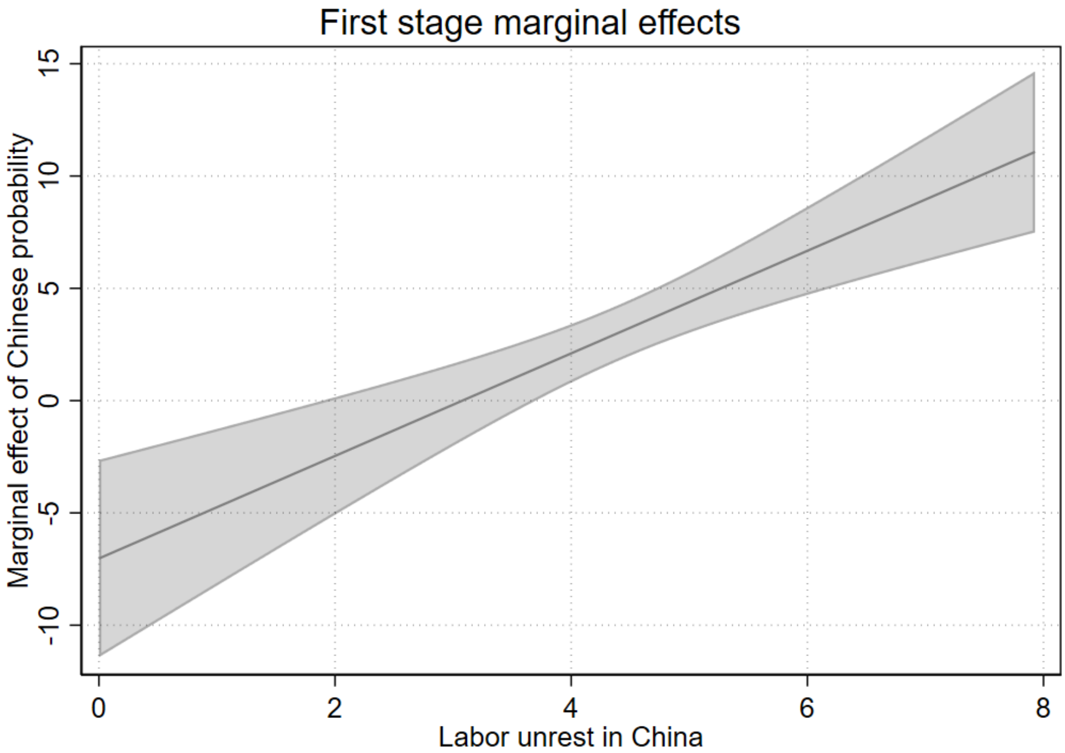


Table A8: Chinese Transport Infrastructure on various Firms' Outcomes

Dep. Var.:	Firm FE			Region FE		
$Exporter_{f,s,c,r,t}$	Transport Obst.	Sales (log)	Sales growth (IHT)	Transport Obst.	Sales (log)	Sales growth (IHT)
Aid $_{c,r,t}$	0.197	-0.180	-0.962	0.074	0.076	-1.712
	(0.271)	(0.510)	(0.866)	(0.218)	(0.244)	(0.581)***
N	37,498	29,002	20,308	149,540	130,323	107,388
R^2	0.00	0.09	0.00	0.00	0.29	0.00
Country x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	No	No	No
Region FE	No	No	No	Yes	Yes	Yes
Weights	Yes	Yes	Yes	Yes	Yes	Yes
N region year (clusters)	1,324	1,266	1,177	1,590	1,558	1,508
Kleibergen-Paap LM stat (p-value)	0.000	0.000	0.000	0.000	0.000	0.000
Kleibergen-Paap F-stat	27.27	37.49	44.96	75.60	77.82	52.47

Standard errors in parentheses, clustered at the region-year level.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

Table A9: Chinese Transport Infrastructure on Firms' Amout Exported

Dep. Var.: $Export_{f,s,c,r,t}$	(1) Firm FE	(2) Region FE
Aid $_{c,r,t}$	-0.638	-1.295
	(1.249)	(0.447)***
N	29,016	130,175
R^2	0.01	0.07
Country x Year FE	Yes	Yes
Sector x Year FE	Yes	Yes
Firm FE	Yes	No
Region FE	No	Yes
Weights	Yes	Yes
Controls	Yes	Yes
N region year (clusters)	1,282	1,571
Kleibergen-Paap LM stat (p-value)	0.000	0.000
Kleibergen-Paap F-stat	37.63	78.39

Standard errors in parentheses, clustered at the region-year level.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

Table A10: Chinese Transport Infrastructure on Firms' Import Probability

Dep. Var.: $Importer_{f,s,c,r,t}$	(1) Firm FE	(2) Region FE
Aid $_{c,r,t}$	0.081	-0.014
	(0.062)	(0.022)
N	37,516	151,577
R^2	0.00	0.03
Country x Year FE	Yes	Yes
Sector x Year FE	Yes	Yes
Firm FE	Yes	No
Region FE	No	Yes
Weights	Yes	Yes
Controls	Yes	Yes
N region year (clusters)	1,324	1,595
Kleibergen-Paap LM stat (p-value)	0.000	0.000
Kleibergen-Paap F-stat	27.29	73.46

Standard errors in parentheses, clustered at the region-year level.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

Table A11: Chinese Transport Infrastructure on Firms' Imported Input (%)

Dep. Var.: $Import_{f,s,c,r,t}$	(1) Firm FE	(2) Region FE
Aid $_{c,r,t}$	-2.077	-6.194
	(5.646)	(2.507)**
N	37,516	151,577
R^2	0.00	0.01
Country x Year FE	Yes	Yes
Sector x Year FE	Yes	Yes
Firm FE	Yes	No
Region FE	No	Yes
Weights	Yes	Yes
Controls	Yes	Yes
N region year (clusters)	1,324	1,595
Kleibergen-Paap LM stat (p-value)	0.000	0.000
Kleibergen-Paap F-stat	27.29	73.46

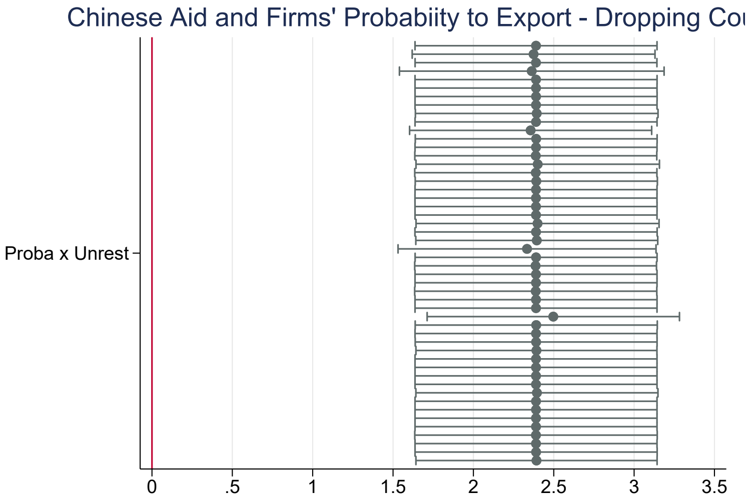
Standard errors in parentheses, clustered at the region-year level.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

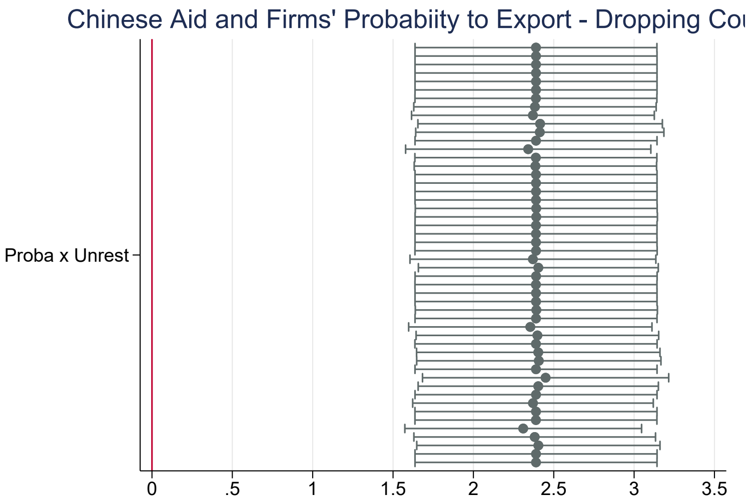
Table A12: Chinese Projects - Test of Plausible Exogeneity

Dep. Var.: $Exporter_{f,s,c,r,t}$	(1) Firm FE	(2) Region FE
Aid $_{c,r,t}$	-0.169	-0.061
	(0.121)	(0.036)*
Proba CHN x Labor Unrest $_{c,r,t}$	0.153	-0.143
	(0.115)	(0.099)
N	26,658	119,937
R^2	0.87	0.23
Country x Year FE	Yes	Yes
Sector x Year FE	Yes	Yes
Firm FE	Yes	No
Region FE	No	Yes
Weights	Yes	Yes
Controls	Yes	Yes
N region year (clusters)	1,037	1,271

Standard errors in parentheses, clustered at the region-year level.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

Figure A6: Robustness check for the first stage of Chinese projects, firm fixed effect





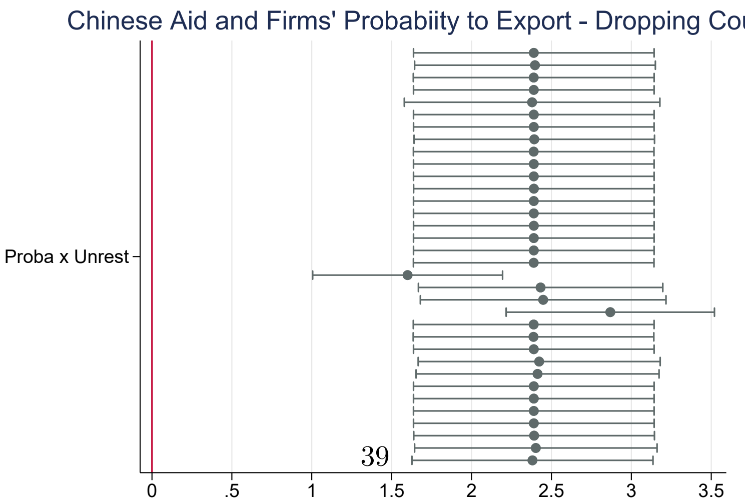


Figure A7: Robustness check for the first stage of Chinese projects, region fixed effect

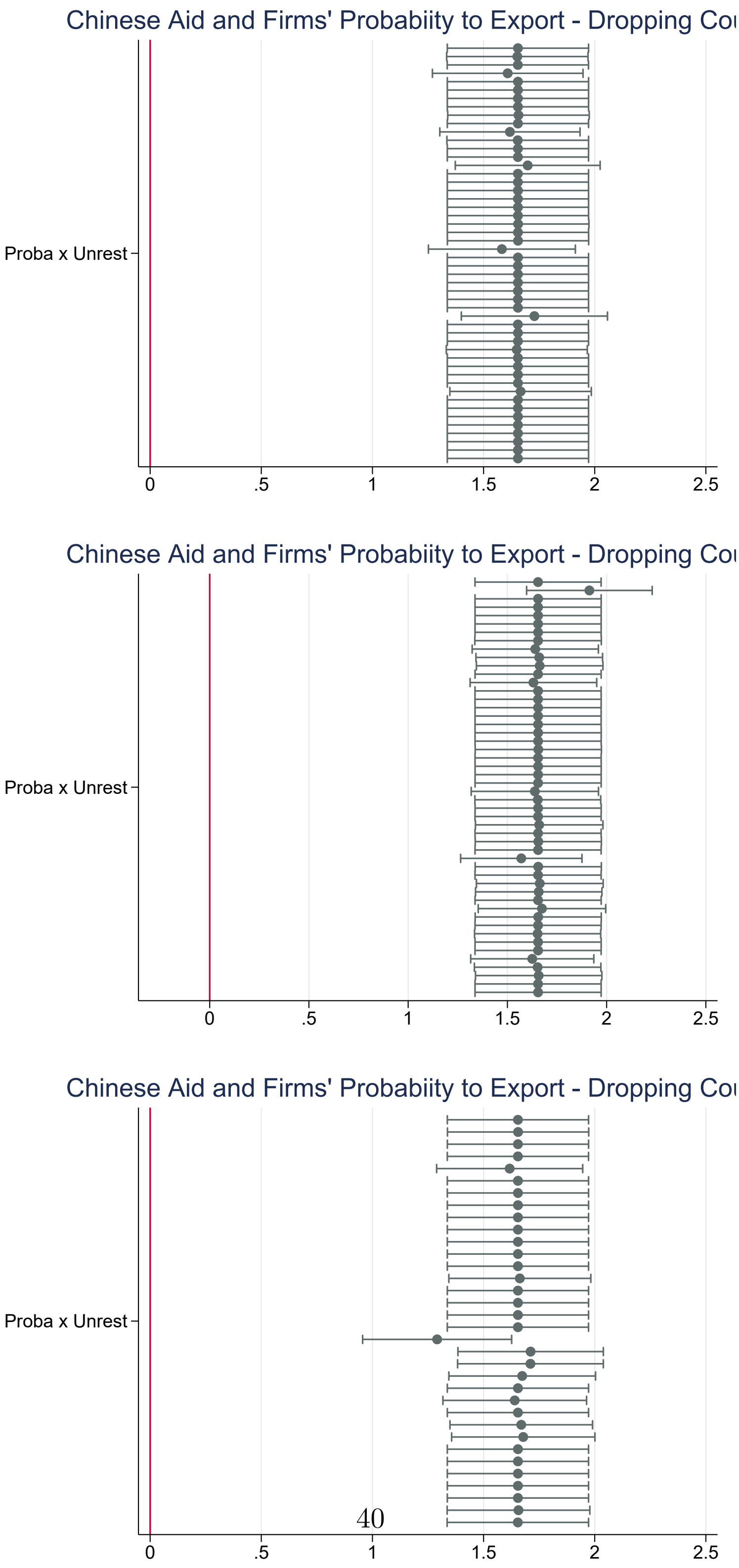
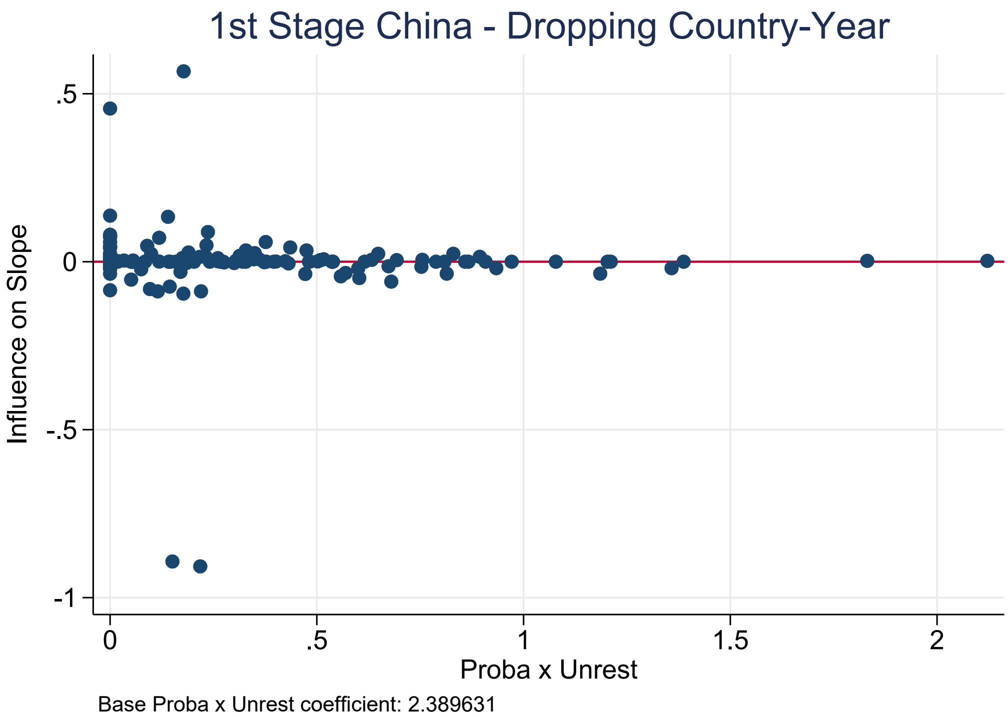


Figure A8: Robustness check for the first stage of Chinese projects: Country-Year influence on instrument's coefficient (firm and region fixed effects)



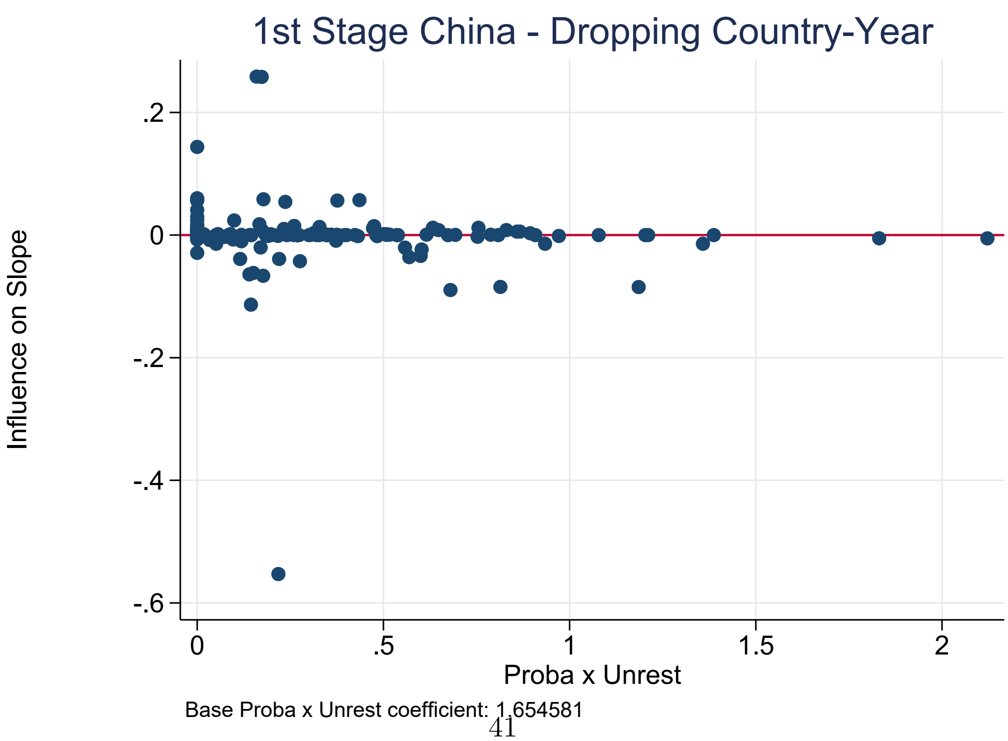


Table A13: Chinese projects - Exclusion restrictions

Dep. Var.: $Exporter_{f,s,c,r,t}$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	Firm fixed effect							Region fixed effect						
Aid $_{c,r,t}$	-0.087	-0.083	-0.096	-0.095	-0.094	-0.113	-0.215	-0.022	-0.042	-0.037	-0.036	-0.026	-0.028	0.026
	(0.079)	(0.081)	(0.079)	(0.078)	(0.079	(0.095)	(0.199)	(0.043)	(0.048)	(0.044)	(0.045)	(0.041)	(0.052)	(0.085)
Remittances $_{c,t}$ x Proba CHN $_r$	0.480						0.598	0.309						0.280
	(0.242)*						(0.672)	(0.116)**						(0.176)
FDI $_{c,t}$ x Proba CHN $_r$		-0.081					-0.036		0.032					0.005
		(0.041)*					(0.066)		(0.024)					(0.036)
Import $_{c,t}$ x Proba CHN $_r$			0.342				-7.790			0.049				0.201
			(0.581)				(5.265)			(0.401)				(1.954)
Export $_{c,t}$ x Proba CHN $_r$				0.202			3.250				0.138			0.166
				(0.323)			(2.212)				(0.209)			(0.746)
WB Aid $_{c,t}$ x Proba CHN $_r$					-0.084		-0.061					0.088		0.080
					(0.069)		(0.103)					(0.029)***		(0.031)**
Import CHN $_{c,t}$ x Proba CHN $_r$						0.097	1.949						-0.231	-0.457
						(0.387)	(1.726)						(0.264)	(0.549)
Export CHN $_{c,t}$ x Proba CHN $_r$						0.465	0.862						0.258	0.169
						(0.236)**	(0.546)						0.164	(0.196)
N	37,048	37,408	37,516	37,516	37,516	36,778	36,418	150,839	151,263	151,577	151,577	151,577	149,038	148,614
R^2	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Country x Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Sector x Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
Region FE	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Weights	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N region year (clusters)	1,308	1,314	1,324	1,324	1,324	1,270	1,264	1,587	1,590	1,595	1,595	1,595	1,548	1,545
Kleibergen-Paap LM stat (p-value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Kleibergen-Paap F-stat	37.36	29.69	38.40	27.94	28.55	77.47	11.48	65.00	70.58	106.00	78.91	76.33	49.54	14.40

Standard errors in parentheses, clustered at the region-year level.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure A9: Survivor bias

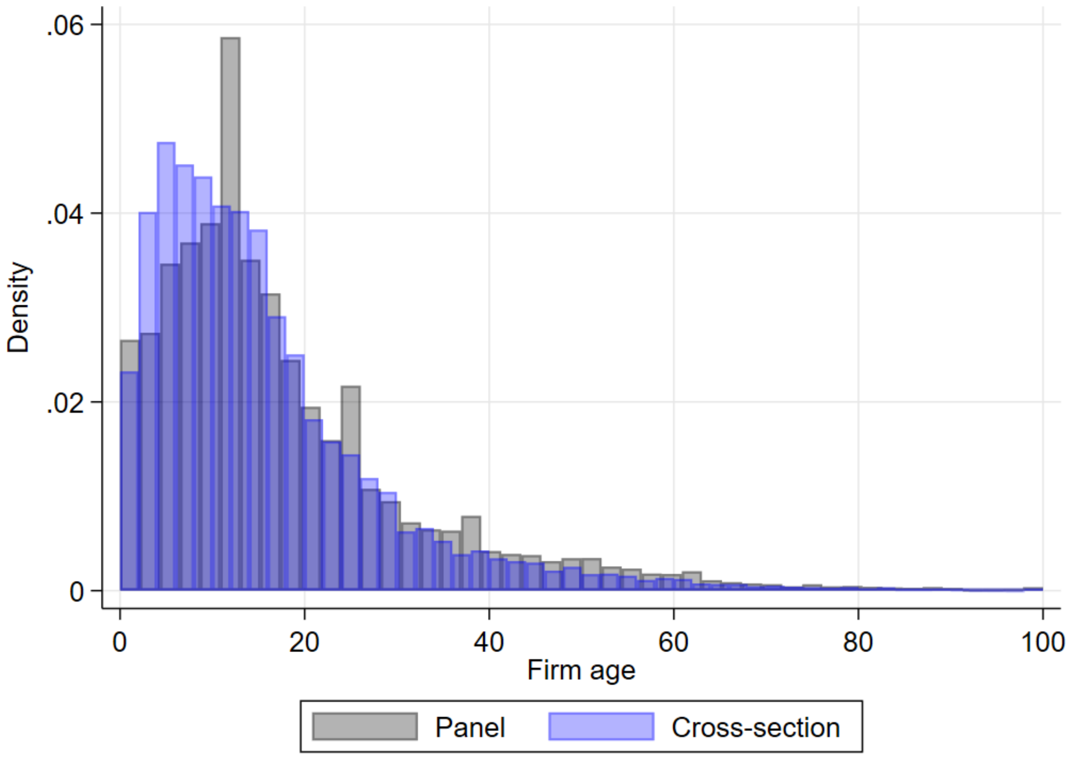


Table A14: Randomization of firms

$Exporter_{f,s,c,r,t}$	(1) Firm FE	(2) Region FE
Aid Coefficient, 500 replications:		
Mean	-0.036	-0.049
Standard deviation	0.168	0.010
% not significant	94.8	98.8
Number of firms randomly drawn	50	250
Country x Year FE	Yes	Yes
Sector x Year FE	Yes	Yes
Firm FE	Yes	No
Region FE	No	Yes
Weights	Yes	Yes
Mean K-Paap F-stat	16.76	71.98
sd K-Paap F-Stat	7.38	0.61

Table A15: Chinese Transport Infrastructure on Firms' Export Probability - Without countries in conflict

Dep. Var.:	Firm FE		Region FE	
$Exporter_{f,s,c,r,t}$	Baseline	No conflict	Baseline	No conflict
Aid $_{c,r,t}$	-0.096	-0.105	-0.036	-0.022
	(0.080)	(0.089)	(0.045)	(0.052)
N	37,516	33,412	151,577	132,852
R^2	0.01	0.01	0.04	0.04
Country x Year FE	Yes	Yes	Yes	Yes
Sector x Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	No	No
Region FE	No	No	Yes	Yes
Weights	Yes	Yes	Yes	Yes
N region year (clusters)	1,324	1,232	1,595	1,470
Kleibergen-Paap LM stat (p-value)	0.000	0.000	0.000	0.000
Kleibergen-Paap F-stat	27.29	22.96	73.46	60.40

Standard errors in parentheses, clustered at the region-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A16: Chinese Transport Infrastructure on Firms' Export Probability - Alternative lags

Dep. Var.:	Firm FE			Region FE		
$Exporter_{f,s,c,r,t}$	Baseline	Unrest t-3 to t-7	Aid t-2	Baseline	Unrest t-3 to t-7	Aid t-2
Aid $_{c,r,t}$	-0.096	-0.103	-0.963	-0.036	-0.032	-0.269
	(0.080)	(0.083)	(1.019)	(0.045)	(0.046)	(0.347)
N	37,516	37,516	37,516	151,577	151,577	151,577
R^2	0.01	0.01	-0.03	0.04	0.04	0.04
Country x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	No	No	No
Region FE	No	No	No	Yes	Yes	Yes
Weights	Yes	Yes	Yes	Yes	Yes	Yes
N region year (clusters)	1,324	1,324	1,324	1,595	1,595	1,595
Kleibergen-Paap LM stat (p-value)	0.000	0.000	0.001	0.000	0.000	0.003
Kleibergen-Paap F-stat	27.29	21.07	3.62	73.46	72.78	5.03
Aid lags	t to t-4	t to t-4	t-2	t to t-4	t to t-4	t-2
Unrest lags	t-3	t-3 to t-7	t-3	t-3	t-3 to t-7	t-3

Standard errors in parentheses, clustered at the region-year level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A17: Chinese Transport Infrastructure on Firms' Export Probability - Alternative variables of interest

Dep. Var.:	Aid dummy		Aid amount	
$Exporter_{f,s,c,r,t}$	Firm FE	Region FE	Firm FE	Region FE
Aid $_{c,r,t}$	-0.118	-0.043	-0.006	-0.003
	(0.097)	(0.056)	(0.005)	(0.003)
N	37,516	151,577	37,516	151,577
R^2	0.01	0.04	0.01	0.04
Country x Year FE	Yes	Yes	Yes	Yes
Sector x Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	No	Yes	No
Region FE	No	Yes	No	Yes
Weights	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N region year (clusters)	1,324	1,595	1,324	1,595
Kleibergen-Paap LM stat (p-value)	0.000	0.000	0.000	0.000
Kleibergen-Paap F-stat	16.99	52.81	13.83	38.18

Standard errors in parentheses, clustered at the region-year level.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

Table A18: Chinese Transport projects - With intermediate observations

Second Stages: Dep. Var.:	Firm FE		Region FE	
$Exporter_{f,s,c,r,t}$	No Inter. obs.	Inter. Obs.	No Inter. obs.	Inter. Obs.
Aid $_{c,r,t}$	-0.096	-0.080	-0.036	-0.036
	(0.080)	(0.079)	(0.045)	(0.045)
N	37,516	40,285	151,577	153,962
R^2	0.01	0.01	0.04	0.04
Country x Year FE	Yes	Yes	Yes	Yes
Sector x Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	No	No
Region FE	No	No	Yes	Yes
Weights	Yes	Yes	Yes	Yes
N region year (clusters)	1,324	1,332	1,595	1,597
Kleibergen-Paap LM stat (p-value)	0.000	0.000	0.000	0.000
Kleibergen-Paap F-stat	27.29	25.25	73.46	73.09

Standard errors in parentheses, clustered at the region-year level.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

Table A19: China Transport Infrastructure on Firms' Export Probability - With firm that changed regions

Dep. Var.:	Firm FE		Region FE	
$Exporter_{f,s,c,r,t}$	Baseline	With moving	Baseline	With moving
Aid $_{c,r,t}$	-0.096	-0.064	-0.036	-0.038
	(0.080)	(0.062)	(0.045)	(0.045)
N	37,516	39,502	151,577	153,769
R^2	0.01	0.01	0.04	0.04
Country x Year FE	Yes	Yes	Yes	Yes
Sector x Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	No	No
Region FE	No	No	Yes	Yes
Weights	Yes	Yes	Yes	Yes
N region year (clusters)	1,324	1,370	1,595	1,617
Kleibergen-Paap LM stat (p-value)	0.000	0.000	0.000	0.000
Kleibergen-Paap F-stat	27.29	39.31	73.46	74.12

Standard errors in parentheses, clustered at the region-year level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

Table A20: Chinese Transport Infrastructure on Firms' Export Probability - Dropping controls

Dep. Var.:	Firm FE					Region FE				
$Exporter_{f,s,c,r,t}$	Baseline	No GDP	No pop.	No size	No Foreign	Baseline	No GDP	No pop.	No size	No Foreign
Aid $_{c,r,t}$	-0.096	-0.081	-0.092	-0.089	-0.097	-0.036	-0.032	-0.035	-0.030	-0.043
	(0.080)	(0.070)	(0.079)	(0.082)	(0.079)	(0.045)	(0.042)	(0.045)	(0.046)	(0.046)
N	37,516	37,516	37,516	37,976	37,536	151,577	151,577	151,577	152,546	153,735
R^2	0.01	0.01	0.01	0.00	0.01	0.04	0.04	0.04	0.01	0.03
Country x Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector x Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
Region FE	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Weights	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N region year (clusters)	1,324	1,324	1,324	1,326	1,324	1,595	1,595	1,595	1,596	1,602
Kleibergen-Paap LM stat (p-value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Kleibergen-Paap F-stat	27.29	29.64	27.43	27.81	27.34	73.46	77.97	73.26	74.11	72.99

Standard errors in parentheses, clustered at the region-year level.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A21: China Transport Infrastructure on Firms' Export Probability - More controls

Dep. Var.:	Firm FE		Region FE	
$Exporter_{f,s,c,r,t}$	Baseline	More Ctrls	Baseline	More Ctrls
Aid $_{c,r,t}$	-0.096	-0.187	-0.036	-0.143
	(0.080)	(0.084)**	(0.045)	(0.052)***
Population (log) $_{c,r,t}$	0.050	0.039	0.012	-0.017
	(0.056)	(0.057)	(0.026)	(0.029)
GDP (log) $_{c,r,t}$	-0.037	-0.042	-0.006	-0.011
	(0.046)	(0.048)	(0.017)	(0.021)
Foreign Owned f,s,c,r,t	-0.012	-0.045	0.146	0.158
	(0.043)	(0.073)	(0.018)***	(0.017)***
Size f,s,c,r,t	0.083	0.038	0.099	0.093
	(0.021)***	(0.027)	(0.006)***	(0.007)***
Sales $f,s,c,r,t-3$		0.009		0.012
		(0.004)**		(0.002)***
State Owned f,s,c,r,t		0.049		-0.064
		(0.126)		(0.026)**
N	37,516	22,454	151,577	109,497
R^2	0.01	0.01	0.04	0.06
Country x Year FE	Yes	Yes	Yes	Yes
Sector x Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	No	No
Region FE	No	No	Yes	Yes
Weights	Yes	Yes	Yes	Yes
N region year (clusters)	1,324	1,207	1,595	1,510
Kleibergen-Paap LM stat (p-value)	0.000	0.000	0.000	0.000
Kleibergen-Paap F-stat	27.29	36.16	73.46	53.33

Standard errors in parentheses, clustered at the region-year level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

Table A22: Chinese Transport projects - Alternative Instruments

Dep. Var.:	Proba x Steel		Proba x Factor		Proba x Reserves	
$Exporter_{f,s,c,r,t}$	Firm FE	Region FE	Firm FE	Region FE	Firm FE	Region FE
Aid $_{c,r,t}$	-0.156 (0.104)	-0.160 (0.074)***	-0.160 (0.105)	-0.132 (0.070)*	-0.021 (0.066)	-0.070 (0.059)
N	37,516	151,577	37,516	151,577	37,516	151,577
R^2	0.01	0.04	0.01	0.04	0.01	0.04
Country x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	No	Yes	No	Yes	No
Region FE	No	Yes	No	Yes	No	Yes
Weights	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
N region year (clusters)	1,324	1,595	1,324	1,595	1,324	1,595
Kleibergen-Paap LM stat (p-value)	0.000	0.000	0.000	0.000	0.000	0.000
Kleibergen-Paap F-stat	35.74	21.88	43.07	21.70	31.09	23.76
First Stages: Dep. Var: $Aid_{c,r,t}$						
Proba CHN x Steel $_{c,r,t}$	-22.391 (3.745)***	-0.159 (0.073)**				
Proba CHN x Factor $_{c,r,t}$			-3.769 (0.574)***	-2.648 (0.568)***		
Proba CHN x Reserves $_{c,r,t}$					3.682 (0.660)***	2.290 (0.470)***
R^2	0.97	0.96	0.98	0.96	0.97	0.96
Country x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	No	Yes	No	Yes	No
Region FE	No	Yes	No	Yes	No	Yes
Weights	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses, clustered at the region-year level.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A23: Chinese Projects on Firms' Export Probability - Active Inactive difference

Dep. Var.: $Exporter_{f,s,c,r,t}$	(1) Firm FE	(2) Region FE
Active $_{c,r,t}$	-0.032	-0.008
	(0.062)	(0.026)
Inactive $_{c,r,t}$	0.114	0.081
	(0.054)**	(0.019)***
N	37,516	151,577
R^2	0.85	0.23
Country x Year FE	Yes	Yes
Sector x Year FE	Yes	Yes
Firm FE	Yes	No
Region FE	No	Yes
Weights	Yes	Yes
Controls	Yes	Yes
N region year (clusters)	1,324	1,595
Active - Inactive	-0.145	-0.088
F test: Active-Inactive=0	3.19	8.32
p-value	0.07	0.00

Standard errors in parentheses, clustered at the region-year level.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

Table A24: China Transport Infrastructure on Firms' Export Probability - By macro regions

Dep. Var.:	Firm FE					Region FE				
$Exporter_{f,s,c,r,t}$	Asia	Sub-Sah. Africa	Europe	Latin America	MENA	Asia	Sub-Sah. Africa	Europe	Latin America	MENA
Aid $_{c,r,t}$	0.192	0.318	0.013	-0.012	-0.325	-0.241	-0.006	0.039	-0.033	0.006
	(0.138)	(0.501)	(0.150)	(0.071)	(0.106)***	(0.172)	(0.201)	(0.090)	(0.047)	(0.125)
N	6,104	8,288	8,408	10,818	3,732	37,359	34,698	34,505	31,061	13,886
R^2	0.05	0.03	0.01	0.01	0.07	0.05	0.05	0.03	0.07	0.06
Country x Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector x Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
Region FE	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Weights	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N region year (clusters)	248	207	646	157	66	328	296	707	178	86
Kleibergen-Paap LM stat (p-value)	0.000	0.112	0.000	0.000	0.002	0.003	0.044	0.000	0.008	0.006
Kleibergen-Paap F-stat	9.37	0.97	4.48	22.31	27.69	6.49	3.47	21.42	27.23	14.28

Standard errors in parentheses, clustered at the region-year level.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

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