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GLOBALIZATION, GOVERNMENT POPULARITY, AND THE GREAT SKILL  
DIVIDE

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**ABSTRACT**

How does international trade affect the popularity of governments and leaders? We provide the first large-scale, systematic evidence that the divide between skilled and unskilled workers worldwide is producing corresponding differences in the response of political preferences to trade shocks. Using a unique data set including 118 countries and nearly 450,000 individuals, we find that growth in high skill intensive exports (of goods and services) increases approval of the leader and incumbent government among skilled individuals. Growth in high skill intensive imports has the opposite effect. High skill intensive trade has no such effect among the unskilled. To identify exogenous variation in international trade, we exploit the time-varying effects of air and sea distances on bilateral trade flows. Our findings suggest that the political effects of international trade differ with skill intensity and that skilled individuals respond differently from their unskilled counterparts to trade shocks.

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## 1 Introduction

The politics of trade has recently dominated headlines. A US presidential election turned in large part on one candidate's promise to get tough against imports from China and Mexico. Across Eastern Europe, populist leaders have taken stands against EU integration, and in the UK a majority recently voted to leave the EU. Although anxiety about immigration and weakened sovereignty are common themes in the discontent, anger at the perceived loss of jobs to international competition is also highly salient.

Some argue that attitudes toward globalization have emerged as a new dimension of political alignment, alongside the traditional left-right redistribution axis. "The new divide," according to the *Economist* magazine (2016) "is not between left and right but between open and closed."<sup>2</sup> If that is true, current political turbulence may foreshadow lasting changes.

Yet, although some scholars have explored implications of classic trade theories for preferences on trade policy (Scheve and Slaughter 2001, O'Rourke and Sinnott 2001, Mayda and Rodrik 2005), until very recently there has been little systematic empirical analysis of the links between global trade and mass politics. A few papers have examined whether import competition in the US has affected voting patterns in national elections (Margalit 2011, Autor et al. 2016, Jensen et al. 2017), while some others examine voting in Europe (Dippel, Gold, and Hebllich 2015, Colantone and Stanig 2016, 2017). The general finding has been that sharp import shocks increase partisan polarization or voting for populist parties.

We contribute to this literature by examining whether international trade affects not just voting at periodic elections but also the approval ratings of governments and political leaders in between. Using annual data from the Gallup World Poll for

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<sup>2</sup> See also De Vries (2017) on the cosmopolitan-parochial divide in recent Dutch elections.

2005-15, we provide the first large-scale, systematic evidence on this issue. In line with the factor endowment theory, we argue that attitudes toward globalization will depend on both individuals' skill levels and the skill-intensity of the country's exports and imports.<sup>3</sup> To address the endogeneity of trade patterns, we use instruments based on the time-varying bilateral air and sea transport costs, originally proposed by Feyrer (2009) and later used by other trade scholars. The panel structure of the data also allows us to control for country and year fixed effects.

Our results reveal a causal impact of changing trade flows on approval of political leaders. We find that the effects of trade shocks depend on the interaction between individuals' characteristics and their country's trade structure. Highly skilled workers respond to trade in high skill intensive goods and services differently than do unskilled workers. This is true even though skilled and unskilled workers do not respond differently to *total* trade. Specifically, highly skilled individuals approve of their leader and government more when exports of high skill intensive goods and services increase but approve of them less when imports of high skill intensive items rise. The magnitudes are substantial: a 10 percent increase in skill-intensive exports results in a 1.17 percentage point increase in the leader's approval among skilled individuals, while a 10 percent increase in skill-intensive imports prompts a 1.65 percentage point decrease in the leader's approval among the skilled. Given the closeness of certain recent elections, such changes could decide electoral outcomes.

Our analysis offers the broadest cross-national evidence to date on the relationship between trade and political attitudes. Whereas previous papers have mostly looked at individual countries or smaller samples, our data cover 118 countries, both

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<sup>3</sup> Throughout the paper, we use the term 'skilled' or 'highly skilled' to refer to individuals with at least tertiary education. Individuals with less than tertiary education are referred to as 'unskilled'.

developed and developing, over an 11-year period. This allows greater confidence in the generality of the findings. It also makes it possible to investigate heterogeneity of responses to trade shocks based on various individual and country-level characteristics. Furthermore, by incorporating country and year fixed effects and country-specific linear time trends and by instrumenting for changes in skill-intensive trade, we address many potential concerns related to endogeneity and reverse causality.<sup>4</sup>

The paper proceeds as follows. Section 2 discusses related literature and motivates our hypotheses. Section 3 describes the data. Section 4 outlines our empirical approach and instrumentation strategy. Section 5 presents the results. Section 6 concludes.

## **2 Trade and Politics**

Classic theories of trade suggest that how international openness affects different groups depends on their factor endowments. The Heckscher-Ohlin and Stolper-Samuelson theorems show that assuming perfect competition, constant returns to scale, and costless factor mobility across sectors, openness benefits owners of each country's abundant factors and hurts owners of scarce factors. In particular, free trade should raise the wages of skilled workers in developed countries, where such workers are plentiful, and the wages of unskilled workers in poor countries, where

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<sup>4</sup> Our identification strategy is only suitable for instrumenting high skill intensive trade, and does not work for low skill intensive trade. In fact, when we construct instruments for low skill intensive exports and imports following Feyrer (2009), we consistently find that first stage F-statistics are below 4 in all models. This is expected given that low skill intensive goods are less likely to travel by air and, accordingly, less likely to benefit from decreases in the cost of air transportation. In ordinary least squares specifications (see Appendix Tables 9 and 10), we found no relationship between low skill intensive exports and imports and differences in political approval between unskilled and skilled individuals.

skilled labor is scarce. The main rival theory, the Ricardo-Viner specific factors model, assumes certain factors are immobile between sectors. In this case, all workers in a given industry—whether skilled or unskilled—have similar interests. They do better under openness if their country has a comparative advantage in their industry, and worse if it does not.

Economic interests imply policy preferences. In a Heckscher-Ohlin world, skilled workers should favor free trade if they live in skill-rich countries, but protection if they live in skill-poor ones.<sup>5</sup> The opposite holds for unskilled workers. In a world of specific factors, workers in internationally competitive industries should favor open borders, while those in uncompetitive ones should demand high tariffs.

Empirical studies testing these hypotheses against survey data have found some support for the Heckscher-Ohlin predictions, but less for Ricardo-Viner. In the US, highly skilled workers—as proxied by education—are more likely to favor openness, consistent with the factor endowment story (Scheve and Slaughter 2001). However, education could affect policy preferences by many other pathways—for instance, by inculcating greater tolerance toward foreigners, encouraging risk acceptance, and increasing understanding of the benefits of commerce. Studies that use other measures of skills such as the occupational wage have found no effect on trade attitudes (Mansfield and Mutz 2009, p.429).

Two papers use cross-national surveys to investigate the interaction between skill levels of the individual and the country more precisely. O'Rourke and Sinnott (2001) and Rodrik and Mayda (2005) both found that, while highly skilled individuals supported free trade in richer countries (where high skills are more abundant), they *opposed* it in poorer countries. This evidence, consistent with Heckscher-Ohlin, is somewhat surprising given that the assumptions of the model

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<sup>5</sup> For a classic investigation of the role of such factors in history, see Rogowski (1989).

are clearly not met in reality. Besides the lack of perfect competition in many countries and the importance of economies of scale, observed patterns of trade do not fit the expectation Heckscher-Ohlin theory generates of predominantly North-South flows. As Baldwin (2008, p.8) notes, empirical tests have “revealed little support for the HO [Heckscher-Ohlin] proposition that countries export their relatively abundant factors (embodied in goods) and import their relatively scarce productive factors.”

This research provides evidence on the link between skill levels and attitudes towards trade. But it does not examine whether such attitudes influence political preferences and behavior. It is natural to assume the material losers from increased openness will not only favor protection but also vote and protest against incumbents who fail to protect their markets. A small but growing literature looks for such political effects.

Three recent papers evaluate the impact of international trade on voting in the US. Margalit (2011) shows that job losses from import competition depressed the vote share of the incumbent president in 2004 and 2008. Jensen et al. (2017) also find that trade-related losses in manufacturing cost incumbents votes. They show, also, that rising employment in high-skill export industries led to higher incumbent support. Autor et al. (2016) examine the polarization of U.S. politics and find that congressional districts exposed to greater increases in import penetration (due to the “China import shock” following China’s accession to the World Trade Organization) disproportionately removed moderate politicians from office in the 2000s.

Fewer papers have looked for political consequences of trade in a cross-national context. One exception is Colantone and Stanig (2017), who examine how globalization has affected electoral outcomes in 15 West European countries in 1988-2007. They find that greater exposure to the shock of Chinese import

competition predicts a shift to the right in voting, including greater support for nationalist parties and the radical right. Margalit (2017), using data from the ISSP survey, finds that those in advanced economies who feel they have suffered from international trade tend to support parties that favor economic protection but socio-cultural conservatism.

We build on both strands of this literature. Following the Heckscher-Ohlin-inspired studies of policy preferences, we hypothesize that attitudes will depend on the interaction between an individual's skill level and the skill-intensity of the country's imports and exports. We disaggregate individuals and trade flows by skills. As in the recent papers on political consequences, we reach beyond self-reported attitudes towards trade, which may be superficial for many citizens and unlinked to political behavior, to study support for incumbent officials, which has clearer consequences. At the same time, rather than assuming a particular pattern of trade flows based on countries' factor endowments—a pattern known to be at best only partly accurate—we use a direct measure of trade disaggregated on the basis of skill-intensity. Our main hypothesis is that skilled workers are more likely to support the incumbent national leadership if high skill-intensive imports are falling and skill-intensive exports are growing.

### **3 Data**

The data used in this paper come from the Gallup World Polls, the United Nations International Trade Statistics Database (COMTRADE), CEPII, the World Bank's World Development Indicators (WDI), the Integrated Network for Societal Conflict Research Database, Polity IV, and Freedom House. The level of analysis is the individual level, and the details on how the dataset was constructed are provided below.



### 3.1 Individual Level Data from Gallup World Polls

Our primary data on individual characteristics and outcome variables come from the 2005-2015 Gallup World Polls (GWP). These nationally representative surveys are fielded every year in over 120 countries and interview approximately 1,000 individuals in each country on a wide range of topics. Our main sample includes nearly 450,000 respondents, aged 25 to 64, from 118 countries.<sup>6</sup> We restrict attention to those aged 25 to 64 to focus on economically active individuals who have most likely completed their education.<sup>7</sup>

The key outcome variables in this paper come from questions asked to all Gallup respondents about the job performance of the ruling leader and confidence in national government: (i) “Do you approve or disapprove of the job performance of the leadership of this country?”; (ii) “In (this country), do you have confidence in each of the following, or not: ... How about national government?” We also examine responses to four parallel questions, as placebo outcomes, about whether the respondents have confidence in: (iii) the military; (iv) honesty of elections; (v) the judicial system; and (vi) media (freedom).<sup>8</sup>

The GWP also provides detailed information on individuals’ demographic characteristics (age, gender, educational attainment, marital status, religion, and urban/rural residence), labor market outcomes, and income. Controlling for employment status and income allows us to measure the impact of trade on political approval beyond trade’s direct effect on households’ material well-being.

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<sup>6</sup> We do not include observations for Nagorno-Karabakh, Northern Cyprus, Somaliland, and Puerto Rico.

<sup>7</sup> We tried lowering the minimum age to 18 years and found no qualitative change in the results.

<sup>8</sup> These questions are part of a Gallup ‘national institutions index’. Note that if a respondent asks for clarification or interpretation of the question, Gallup surveyors are trained to answer “However *you* interpret the question,” or “It is whatever the question means to *you*.” If a respondent asks whether there is a more neutral response option than “yes” or “no,” surveyors are trained to ask whether “there is one that you lean more towards.”

The GWP’s main advantage for our purposes is that the poll allows us to assess the effect of international trade on political approval across a broad spectrum of countries over the past decade. This is important since, as noted, existing research has mostly provided evidence on individual countries.

### 3.2 International Trade Data

We obtained product-level export and import data on goods and services from the UN COMTRADE database for the years 2005-2015. More specifically, we use the 3-digit Standard International Trade Classification (SITC – revision 3) to categorize manufactured goods by their skill intensity (that is, labor-intensive, low-skill intensive, medium-skill intensive, and high-skill intensive).<sup>9</sup> The data on exports and imports of services employ the EBOPS classification. We use correspondence tables provided by the Manual on Statistics of International Trade in Services (2002) to classify trade in services by their skill intensity. In both datasets, values are reported in nominal U.S. dollars. We adjust these values to 2011 dollars using the consumer price index. Using these data, we calculate the variable *Total Volume of High Skill Intensive Exports (Imports)*. Some examples of high skill intensive goods and services include electronics, parts and components for electronics, medical and chemical products, optical goods, and auditing, financial, and legal services. Goods such as cutlery, fencing grills, metal containers for storage or transport, and office supplies are classified as low-skill intensive products. We provide detailed information about the skill classification in the appendix.<sup>10</sup>

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<sup>9</sup> In what follows, we focus on high-skill intensive goods and services and describe other goods and services as “low-skilled” (thus grouping together labor-intensive, low-skill intensive, and medium-skill intensive ones). Detailed information on product grouping of goods and services can be found at: <http://unctadstat.unctad.org/EN/Classifications.html>.

<sup>10</sup> Of course, some low-skilled as well as high-skilled individuals work in sectors such as electronics, so these classifications rank sectors by the *average* level of skill-intensity.

To construct our instruments, we mainly use two datasets. The first is the special license version of the UN COMTRADE data, which provides bilateral trade flows between countries at the product and service level. The raw dataset includes more than 250 million year-country-pair (exporter-importer) observations. We first classify each trade flow based on its skill intensity. We then calculate the sum of trade values by year-country-trade-partner for each country. The second dataset comes from the CEPII. More specifically, we use the Historical Bilateral Trade and Gravity Dataset (TRADHIST) that was compiled by Fouquin and Hugot (2016) to obtain information on bilateral trade characteristics, including geographical distance, common borders, and colonial and linguistic links. There are three main measures of bilateral distance: a city population-weighted mean of the great-circle distance between each pair of countries; the great-circle distance between the two largest cities of each country pair; and the shortest maritime distance between two countries (for landlocked countries, Fouquin and Hugot (2016) choose the closest foreign port and report the distance accordingly).<sup>11</sup>

### **3.3 Time-Varying Country Characteristics**

We also control for several time-varying country characteristics in our main specification, including the country's political regime (from the Polity IV dataset) and population, Freedom House's Press Freedom Index, GDP per capita, the import to GDP ratio, and the export to GDP ratio obtained from the World Bank's World Development Indicators database. As a robustness check, we also control for leaders' tenure (i.e., the number of consecutive years served in the top office). The

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<sup>11</sup> Fouquin and Hugot (2016) obtained information on all maritime distances from vesseltracker.com (2014). They first identified the largest port in each country (two ports if the country was bordered by two different seas or oceans) and chose the shortest maritime distance between any of the ports of both countries.

data on this variable come from the Database of Political Institutions, with our updates (Cruz, Keefer, and Scartascini 2016).

### 3.4 Descriptive Statistics

Table 1 presents descriptive statistics for the outcome variables, country characteristics, and individual demographic characteristics. Several patterns are notable. First, nearly 50 per cent of respondents report that they approve of the performance of the leader or have confidence in the national government. These figures mask substantial heterogeneity within and across countries. For example, over the sample period, the lowest approval ratings for leaders were recorded in Bosnia and Herzegovina (17 per cent), Angola (21 per cent), Romania (22 per cent), Ukraine (23 per cent), and Peru (23 per cent). At the other end of the scale, Bhutan (95 per cent), Singapore (94 per cent), Vietnam (92 per cent), Azerbaijan (88 per cent), and Kazakhstan (87 per cent) have the highest approval ratings in the sample.

Similar patterns emerge, perhaps not surprisingly, when we look at the figures about confidence in national government. Respondents in Ukraine, Romania, Peru, Moldova and Bosnia and Herzegovina report the lowest levels of confidence in their national governments, ranging from 19 to 23 per cent. By contrast, more than 80 per cent of respondents report having confidence in their national government in Namibia, Azerbaijan, Sri Lanka, Ethiopia, Singapore, Vietnam, and Bhutan. These figures suggest that: (i) the two outcome variables (approval of leaders and confidence in national government) are highly correlated; and (ii) respondents in democratic countries tend to report lower levels of government approval.<sup>12</sup> On average, 47 per cent of skilled individuals report confidence in government and 49 per cent of skilled individuals approve the job performance of their leader.

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<sup>12</sup> This is consistent with Guriev and Treisman (2017).

The patterns of high skill intensive exports and imports vary substantially. Luxembourg (52 per cent), Ireland (46 per cent), and Singapore (45 per cent) have the highest shares of skill intensive exports (as a percentage of total exports of goods and services), and China, the United States, and Germany have the highest total volume of high skill intensive exports. By contrast, the shares are lowest in Venezuela (1.1 per cent), Azerbaijan (0.8 per cent) and Nigeria (0.6 per cent) and the volumes are lowest in Burundi, Rwanda, and Zimbabwe.

The shares of high-skill-intensive imports (as a percentage of total imports of goods and services) range from highs of 50 to 72 per cent in Rwanda, Lebanon, Malawi, Nepal and Burundi to lows of 5 to 10 per cent in Azerbaijan, Trinidad and Tobago, Qatar, Oman, and Bahrain. When it comes to the volumes, the United States, China and Germany are the top importing countries of high skill intensive goods and services, while Burundi, Niger, and Togo have the lowest import volume of high skill intensive goods and services in our sample. Looking at placebo outcomes, we see that people tend to have confidence in the armed forces (72 per cent for the military), while only about half of respondents worldwide have confidence in the honesty of elections, the judicial system, and media. Moreover, differences in these are very large, with about 20-50 percentage point gaps between democracies and non-democracies.

## **4 Estimation Methodology**

### **4.1 Empirical Strategy**

To assess the effect of international trade on approval of the leader and confidence in the national government, we start by estimating ordinary least squares models. We use the following specification:

$$\begin{aligned}
Y_{ict} = & \beta_0 + \beta_1 X_{ict} + \beta_2 \text{Skilled}_{ict} * (\text{Log High Skill Intensive Exports})_{ct} & (1) \\
& + \beta_3 \text{Skilled}_{ict} * (\text{Log High Skill Intensive Imports})_{ct} + \beta_4 \text{Skilled}_{ict} + \\
& + \beta_5 * (\text{Log High Skill Intensive Exports})_{ct} + \\
& + \beta_6 * (\text{Log High Skill Intensive Imports})_{ct} + \\
& + \beta_7 Z_{ct} + \beta_8 C_c + \beta_9 T_t + \beta_{10} C_c * t + \varepsilon_{ict}
\end{aligned}$$

where  $Y_{ict}$  is a dummy variable indicating that the respondent approves of “the job performance of the leadership of their country” or the respondent has “confidence in national government” depending on the model, for individual  $i$  in country  $c$  at time  $t$ . We estimate linear probability models for ease of interpretation.

To adjust for the effect of demographic and labor market structure on the outcome variables, we directly control for time-varying, observable individual characteristics. More specifically,  $X_{ict}$  is a vector of demographic variables that (depending on the model) include: a male dummy; age and age squared; dummy variables for marital status (married/civil partnership and divorced/separated); a dummy variable for the presence of children in the household (any child under 15); and a dummy variable for living in an urban area. To account for pro-cyclical variation in labor market outcomes, we control for the log of household income.<sup>13</sup> Note that we do not control for individual-level unemployment in our baseline specification since this information is only available in the GWP from 2009. Below we show that our results are robust to this choice.

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<sup>13</sup> Gallup converts local income to International Dollars using the World Bank’s individual consumption PPP conversion factor. This makes income estimates comparable across all countries.

*Skilled* is an indicator variable equal to one for individuals with at least tertiary education.<sup>14</sup> The excluded category for education in all models consists of individuals who report less than tertiary education, which we label *unskilled*. *Log High Skill Intensive Exports (Imports)* is the natural log of the total volume of high skill intensive exports (imports) of good and services. The main coefficients of interest are the interaction terms  $\beta_2$  and  $\beta_3$ , which capture the impact of growth in the total volume of high skill intensive exports and imports on the approval levels of high-skilled (relative to unskilled) individuals. The coefficients  $\beta_5$  and  $\beta_6$  measure the impact of growth in the total volume of high skill intensive exports and imports on approval levels of unskilled individuals.  $Z_{ct}$  is a vector of other potentially relevant country-time varying characteristics that could be correlated with political approval. These include political regime characteristics of a country (Polity IV), the Freedom House Press Freedom Index, the log of GDP per capita, the log of country population, the import to GDP ratio, and the export to GDP ratio.

To account for other unobservable characteristics, we include a full set of country ( $C_c$ ) and year ( $T_t$ ) dummies. The country dummies control for all time-invariant variation in the outcome variable caused by factors that vary cross-nationally. Year dummies capture the impact of global shocks that affect all countries simultaneously. We also include multiple language and interview type dummies throughout, though we do not report them in equation 1. In addition, we control for country-specific linear time trends,  $C_c*t$ , thus removing distinctive trends in opinion in various countries that might otherwise bias our estimates if they accidentally coincided with trade-related changes. In the fully saturated models, the estimates are identified by exploiting within-country variation that has been

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<sup>14</sup> Gallup harmonized education variables and created a worldwide dataset with standardized individual level education data. All responses regarding education are coded into the following categories for global comparison: Elementary (up to 8 years of basic education); Secondary (9 to 15 years of education); and Tertiary (completed 4 years of education beyond “high school” and/or received a four-year college degree).

stripped of any influence of constant and linearly changing country characteristics.<sup>15</sup> Finally, we cluster standard errors by country and use sample weights provided by Gallup to make the data representative at the country level.

## 4.2 Instrumentation Strategy

To identify the causal effects of international trade on political approval, we need to address the issues of omitted variables bias and reverse causality. If individuals do not approve of the performance of their leader or do not have confidence in the government, that might affect economic activity and eventually influence the volume and composition of trade. Trade and political outcomes may also be jointly affected by omitted variables (such as a change in institutions). Furthermore, measurement error in high skill intensive exports (imports) may result in attenuation bias. To tackle these issues, we use two-stage least squares (2SLS) methodology with instrumental variables that affect high skill intensive exports (imports) but are unrelated to the approval of or confidence in the incumbents.

To find a valid instrument, we focus on exogenous determinants of trade flows that predict each country's high skill intensive exports and imports. Specifically, we use the changes in high skill intensive bilateral trade flows that have resulted from advances in transportation technology.<sup>16</sup> As documented in Hummels (2007), substantial improvements in technology have sharply cut the cost of air shipping relative to that of sea shipping. Put differently, a weight/value ratio of trade for air transport has been declining much faster than a weight/value ratio of trade for sea transport. Trade costs have therefore changed differently for country pairs with different sea-distance-to-air-distance ratios. This means, for instance, that countries

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<sup>15</sup> Our results are also robust to inclusion of country-year fixed effects.

<sup>16</sup> In a similar way, Pascali (2017) uses the adoption of the steamship in the late 19<sup>th</sup> century to establish a causal relationship between trade and development, exploiting the differential impact of this new technology on trade between countries separated by larger or smaller distances.



located far from their major export markets have a comparative advantage in lightweight goods due to air shipping (Harrigan 2010).

According to annual global statistics from ICAO (2015), total air freight traffic, expressed in terms of scheduled total freight tonne-kilometers performed, increased sharply to 199 billion in 2015 from 152 billion in 2005, registering a 31 per cent increase over our sample period. This shift in the mode of transport is particularly important in our case given that the majority of high-value goods, which are likely to be high skill intensive exports (imports), travel by air (Feyrer, 2009). In other words, our instrumentation approach exploits the time-varying effects of air and sea distances on the relative transportation costs of different types of products to identify exogenous variation in bilateral trade flows. Our predicted measures of trade flows (being a function of only geography and time) are exogenous with respect to political approval and therefore allow us to identify causal effects. Following Feyrer (2009), our key identification assumption is that advances in air transportation technology are independent of any particular country and therefore contain no information about government approval in specific countries.

Our approach is based on the gravity model (Anderson, 2011 and Anderson and van Wincoop, 2003) and closely follows Feyrer (2009) and Blanchard and Olney (2017). We interact bilateral sea and air distances with year fixed effects to identify the impact of enhanced aircraft technology over the sample period. Formally, we estimate the following equation:

$$\log(X_{ijt}) = \beta_{sea,t} \log(seadistance_{ij}) + \beta_{air,t} \log(airdistance_{ij}) + Y_t + Y_{ij} + \varepsilon_{ijt} \quad (2)$$

where  $X_{ijt}$  is the bilateral flow of high skill intensive exports from exporter  $i$  to importer  $j$  in year  $t$ .  $Y_t$  indicates year dummies and  $Y_{ij}$  represents bilateral pair fixed

effects;  $seadistance_{ij}$  is the shortest bilateral sea trade distance, and  $airdistance_{ij}$  is the weighted great circle distance between countries  $i$  and  $j$ .<sup>17</sup>

Using Equation (2), we calculate predicted bilateral trade flows for each country pair, based on their exogenous sea and air distances. We sum these across trading partners to construct our two instruments: the total predicted volume of high skill intensive exports (imports) of goods and services for each country.<sup>18</sup> We use these two instruments (the total predicted volume of high skill intensive exports and the total predicted volume of high skill intensive imports) to create two predicted interaction terms: “the total predicted volume of high skill intensive exports\*tertiary education” and “the total predicted volume of high skill intensive imports\*tertiary education”. In the final regression, we include these four variables. Importantly, Figure 1 demonstrates that our instruments are good predictors of actual high skill intensive exports and imports.<sup>19</sup>

## 5 Results

This section presents three sets of results. We first show Ordinary Least Squares (OLS) estimates. We then present IV results following the methodology introduced in section 4.2 and conduct a counterfactual analysis to illustrate the quantitative

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<sup>17</sup> We also constructed alternative instruments by controlling for country fixed effects and bilateral controls (whether the two countries are contiguous, share a common language, have ever had a colonial link, are currently in a colonial relationship, share a common language). IV specifications using these alternative measures also produce qualitatively similar results reports. These results are not reported but available upon request.

<sup>18</sup> Since in our regressions the dependent variable is logged, we delog the estimates before summing them across trading partners and then take the log of the total for subsequent analysis. Our main models also include zero trade values. In models not reported, we tried excluding zero trade values and found qualitatively similar results.

<sup>19</sup> Appendix Table 6 (includes country-pair dummies) and Appendix Table 7 (includes country fixed effects and bilateral controls) report the full set of coefficients on elasticity of trade with regards to air and sea distance between 2005 and 2015. Corresponding estimates for low-skill intensive trade are presented in Appendix Table 8.

implications of our results. We also investigate heterogeneity by socio-economic subgroups and country income levels. Finally, we present a set of robustness checks.

## 5.1 Ordinary Least Squares Specifications

In this subsection, we start by analysing the effects of international trade on political approval among skilled workers relative to unskilled workers. Table 2 presents the results from the OLS estimation where the dependent variable is a dummy variable indicating that the respondent approves of “the job performance of the leadership of his or her country” and Table 3 presents the results from the OLS estimation where the dependent variable is a dummy variable indicating that the respondent has “confidence in national government.”

In both tables, Column 1 reports the estimation with country and year fixed effects and country level controls (Polity 2 scores, press freedom index, the log of country population, and the log of GDP per capita) included; column 2 adds demographic characteristics; column 3 adds the logarithm of household income; column 4 adds country-specific linear time trends.

In all columns of Table 2, there is a positive relationship, marginally significant at  $p < .01$ , between total imports (which here captures the effect among the *unskilled*) and approval of the leader. Total imports are also positively related to approval of the government (among unskilled respondents) in all columns of Table 3, though these estimates are not statistically significant. Contrary to the conventional wisdom, we find no evidence that unskilled workers oppose imports and blame their leaders for failing to protect markets—rather the reverse. There is no sign that growth in total exports affects political approval one way or the other.

Although the association between increased total imports and higher approval is only significant among unskilled respondents, Tables 2 and 3 provide no evidence

that skilled and unskilled individuals react differently to such growth. Nor do they respond differently to growth in total exports—none of the interaction terms is significant. When skilled and unskilled respondents are combined, the average effect of imports on approval is not significant (see Column 1 of Appendix Table 2). Nor are either high skill intensive imports or high skill intensive exports significantly associated with approval if respondents are not disaggregated by skill level (see Column 2 of Appendix Table 2). These results highlight the need for a more granular approach analyzing the *composition* of trade.

Tables 4 and 5 present OLS estimates of the relationship between the total volume of high skill intensive exports (imports) and political approval among skilled individuals.<sup>20</sup> In Table 4 we report results for approval of the leader's performance. The coefficients at the skill-intensive exports and imports variables are small and statistically insignificant; this implies no effect of skill-intensive trade on unskilled individuals. The interaction term between the tertiary education dummy and the logarithm of total high skill intensive exports in the first column is positive and statistically significant (with a magnitude of 0.045), and the interaction term between the tertiary education dummy and the log of total high skill intensive imports is negative and statistically significant (with a magnitude of -0.051). The former is the estimated impact of growth in high skill intensive exports on political approval among skilled individuals (relative to unskilled ones), and the latter is the estimated effect of growth in high skill intensive imports on political approval among skilled individuals (relative to unskilled ones). Columns 2 to 4 show that the estimated effects are similar, and remain significant, as additional controls are added. In our fully saturated regression (Column 4), a 10 percent increase in high skill intensive exports leads to a 0.46 percentage point rise in confidence in the country's leader among the skilled relative to the unskilled. A 10 percent increase

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<sup>20</sup> In column 1, we add the same country level controls as in Tables 2 and 3 plus the log of the imports to GDP ratio and the log of the exports to GDP ratio.

in high skill intensive imports results in a 0.53 percentage point fall in approval of the leader among skilled individuals (relative to unskilled ones). Table 5 reports the results for confidence in national government. The results have the same sign, statistical significance, and similar magnitudes.

## 5.2 Instrumental Variables Specifications

In this section, we present the IV estimates of the relationship between the composition of trade and political approval. We use *the total predicted volume of high skill intensive exports (imports)* as instrument for the total actual volume of high skill intensive exports (imports).

We first discuss the validity and the power of the instrument. Tables 6 and 7 present the first stage estimates, which show a strong relationship between the total predicted volume of skill intensive exports (imports) and the actual total volume of high skill intensive exports (imports). This relationship is robust to the inclusion of individual-level covariates as well as country-level controls. Overall, the instruments are highly correlated with the relevant endogenous variables and have predictive power. The results for the first stage F-test also show that the first-stage relationships are strong for both individual regressions and joint significance of the instruments. The Kleiberberg-Paap F-statistic is 26 in the sample for which data on approval of the leader are available; for the sample with data on confidence in the national government, the F-statistic is 25.

Tables 8 and 9 present the second-stage estimates, in which we replicate the OLS specifications from Tables 4 and 5. We only report coefficients on the main variables of interest. Column 4 of Table 8 presents the IV results with country and year fixed effects, country-specific linear time trends, household income and demographic characteristics, as well as time-varying country-level characteristics. The impact of skill intensive exports on approval of the leader among skilled

individuals is positive and significant, with a point estimate of 0.117, while that of skill intensive imports is negative and significant, with the point estimate -0.165.<sup>21</sup>

The magnitudes imply that a 10 percent increase in skill-intensive exports results in a 1.2 percentage point increase in political approval among the skilled individuals (relative to the unskilled). The respective decrease for skill-intensive imports is 1.7 percentage points. In our dataset, the maximum deviation of skill-intensive exports from the country specific trend (averaged across all countries) was +3.4 percent; the minimum deviation was -3.0 percent. The numbers for skill-intensive imports are +3.0 and -2.6 percent respectively. Therefore, if we compare a year with maximum skill-intensive exports (in terms of deviation from the country trend) and minimum skill-intensive imports with a year with minimum skill-intensive exports and maximum skill-intensive imports, the difference in approval comes to  $0.117*(3.4+3.0)+0.165*(3.0+2.6)=1.7$  percentage points. This is substantial: the average absolute value of the deviation of approval from its country-specific trend is 2.9 percentage points.

Our results also show that skilled individuals are on average more likely to approve of their countries' leaders (controlling for trade). The coefficient at tertiary education is 1.22, so an increase of the share of skilled individuals in the population by 10 percentage points should (on average) increase political approval by 12 percentage points.

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<sup>21</sup> One possible threat to identification might occur if changing fuel prices cause changes in exports and imports of high skill intensive products between given country pairs in a way that depends on their air and sea distances, *and* changing fuel prices also affect government approval through some other channel. We checked, however, that our results are robust to controlling for per capita oil revenue, oil prices, oil exports, oil production and their interactions with the high skilled dummy (Appendix Table 12 reports the results while controlling for per capita oil revenue. Other estimates are not reported but available upon request). The estimated effects are qualitatively and quantitatively similar to the baseline results in Column 4 of Tables 8 and 9.

We find similar results in Table 9, where the dependent variable is confidence in the national government. The impact of high skill intensive exports on confidence in national government among skilled individuals (relative to the unskilled) is positive and significant, with a magnitude of 0.113 (column 4). That of high skill intensive imports is negative and significant, with a point estimate of -0.152. In each specification, the IV coefficients are larger than the OLS estimates.<sup>22</sup>

In Table 10, we provide examples to develop a better understanding of the quantitative implications of our results. Specifically, we choose four countries with relatively large increases in skill-intensive exports and four with large increases in skill-intensive imports over the sample period 2005-2015. Using the regression coefficients from our preferred 2SLS specification (Column 4 of Table 8), we predict the impact of these changes in trade on the approval rates of the country's leader among skilled respondents in the given country. We compare the predicted changes in approval to the actual changes in approval among the skilled over the same period. We find that for the countries with large increases in skill intensive exports (Bulgaria, Lithuania, Nigeria, and Slovakia) trade effects explain a quarter of the increase in political approval among high skill individuals on average. For the countries with large increases in skill intensive imports (Chile, Paraguay, South Korea, and Turkey) trade effects explain from one half to two thirds of the actual decrease in political approval among high skill individuals.

To understand the heterogeneity of the effects, we consider the IV estimations for various subsamples. First-stage F-statistics for heterogeneity estimates are above

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<sup>22</sup> There is no strong correlation between our instrument and low skill intensive exports and imports. This is not surprising as our instrument is based on the idea that skill intensive goods are more likely to be transported by air. This, however, makes it impossible to identify the causal effect of low-skilled trade on political approval. On the other hand, these results might suggest that Feyrer's (2009) instrument for total trade mainly relies on the variation generated by high skill intensive trade. The raw correlation between high skill and low skill intensive exports (0.54) and imports (0.65) - following UNCTAD definitions - is also relatively low in our sample.

10 in all models, though to conserve space we do not report these. Table 11, which reruns the baseline specification in column 4 of Tables 8 and 9 for different subgroups, shows that there are no meaningful differences in responses between men and women and between younger and older cohorts. One might expect to find stronger effects in rural areas, where labor markets are less competitive and so workers have more to fear from trade shocks.<sup>23</sup> Columns 1 and 2 in Table 12 confirm that this is, indeed, the case. Columns 3 through 5 show that low-income and middle-income households are more responsive to trade shocks and that the average results are mostly driven by these groups. For high-income households, coefficients have the same signs and are statistically significant, but the effects are smaller.<sup>24</sup> The smaller effects for high-income individuals may be explained by the fact that our indicator for skilled workers (i.e. tertiary education) de facto includes the occupational dummies for professionals and executives, who are less likely to be hurt by the labour market effects of trade shocks.

We also estimate the relationship between trade and political approval separately for richer and poorer countries. Columns 1 and 2 of Table 13 show that the effect of high skill intensive exports on high skilled workers in developed countries is .077. While the corresponding effect in less developed countries could not be estimated precisely, it must be considerably larger to produce an estimate across all countries of .117 (Table 8, column 4).

In Columns 3 and 4 of Table 13, we split the sample by the level of democracy. Specifically, Column 3 reports the estimates for non-democracies (i.e. polity2 score -10 to 5) and Column 4 presents results for democracies (polity2 score 6 to +10).

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<sup>23</sup> The share of skilled individuals living in rural areas in our estimation sample is 19 percent in developed countries and 7 percent in developing ones.

<sup>24</sup> The share of skilled individuals by income-groups in our estimation sample is as follows: (i) for less developed countries: .03 in low-income tercile, .15 in middle-income tercile, .29 in upper-income tercile; (ii) for developed countries: .05 in low-income tercile, .14 in middle-income tercile, .33 in upper-income tercile.



The effects seem to be slightly smaller in democracies than in the full sample. Although we cannot estimate the effects precisely in the non-democracies subsample, they appear to be somewhat larger than among the democracies. Given the country's trade profile, skilled individuals have higher political approval than the unskilled in democracies. Although estimated imprecisely, the opposite appears to be true for non-democracies. This is consistent with Guriev and Treisman (2017). In addition, we rank countries by returns to education (i.e. by estimating within-country Mincer equations) in Appendix Table 11. The findings suggest that the middle-tercile group mostly drives the average results.

### **5.3 Placebo and Robustness Checks**

Table 14 presents our placebo analysis. We examine responses to four parallel questions that should not, in theory, be affected directly by a change in trade flows—whether the respondent had confidence in the military, the judicial system, freedom of media, and honesty of elections. The results confirm that the significant relationships documented in Tables 8 and 9 are specific to political approval. We find no economically or statistically meaningful association between growth in high skill intensive exports (imports) and confidence in any of the other institutions.

Tables 15 and 16 present additional robustness checks. The top panel of Table 15 controls for individual unemployment — at the cost of restricting the sample to years after 2009. Notably, we find that unemployment leads to a 4.1 percentage point fall in confidence in the national government and 4.7 percentage point fall in approval of the leader. The bottom panel of Table 15 excludes election years to investigate whether strategic respondents distort the polls. The top panel of Table 16 controls for leaders' continuous tenure (since time in office can affect approval ratings) and the bottom panel of Table 16 lowers the minimum age in the sample to 15 years. The results remain qualitatively the same.

We also test our results in a sample of countries that are the main recipients of outsourcing business from developed nations. Outsourcing might be expected to change the pattern of attitudes towards international openness. Political approval among highly skilled workers in countries that benefit from considerable outsourcing may be less sensitive to the level of exports and imports of high skill-intensive products. Indeed, outsourcing and participation in global value chains involves higher volumes of both exports and imports. In such countries, increases in imports may be perceived as essential to subsequent increases in exports and therefore need not be politically unpopular.

We use the AT Kearney Global Services Location Index (2017) to determine the top 35 destination countries (excluding developed nations). The IV results are shown in Table 17. As expected, the coefficient on the interaction between tertiary education and high-skill imports (and exports) is no longer statistically significant in the destination countries and now has the “wrong” sign. This is consistent with the view that receiving outsourced jobs can insulate the educated population in developing countries against the costs of freer trade.<sup>25</sup> The second column of Table 17 shows that the coefficients for the subsample of non-outsourcing developing countries are large and statistically significant.

In Table 18, we consider unemployment and individual income as economic outcomes to investigate a potential link between trade, labour market outcomes and political approval. OLS estimates in Column 1 suggest that increases in high skill intensive exports lead to a fall in unemployment among skilled individuals and growth in high skill intensive imports has the opposite effect. However, while the coefficients are similar in IV specifications (Column 2), they are no longer statistically significant. When it comes to individual income, we find that growth

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<sup>25</sup> As a robustness check, we also tried using an alternative definition of “high-skilled individuals” in this estimation, including those with at least secondary education. The results do not change.

in high skill intensive exports increases income among skilled individuals, whereas growth in high skill intensive imports reduces income (Columns 3 and 4). These results provide suggestive evidence that labor market related shocks due to changes in trade structure do—as we have hypothesized—influence political approval.

It is also important to note that our findings do not change: (i) when we use the *share* of high skill intensive exports (imports) as a percentage of total exports (imports) instead of the log of *total volume* of high skill intensive export (imports) – reported in Appendix Tables 4 and 5 (the first stage F-statistics are above 26 in all specifications); (ii) when we define skilled as “secondary education or above” (Appendix Table 5); (iii) and when we exclude the top one per cent income group.<sup>26</sup>

## 6 Conclusions

How does international openness influence political attitudes and behavior? This paper shows that the effect of openness on the popularity of incumbents depends on the skill composition of trade. Analyzing data from 118 countries in 2005-15, we used an instrument based on geography to estimate the causal impact of changes in the skill-intensity of imports and exports. Our results suggest that growth in high skill intensive exports increases both the incumbent government’s and the leader’s approval among skilled individuals while growth in high skill intensive imports has a negative effect. We find no effects of high skill intensive trade on political approval among unskilled individuals. The effects are very similar when we split the samples by age or gender. As expected, the results are stronger for rural residents, who often have fewer alternatives when local firms are forced to close.

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<sup>26</sup> These results are not reported here but are available upon request.

We also find that outsourcing of jobs to developing countries may blunt the impact of openness on attitudes of the skilled individuals in those countries.

Our results have different implications for countries with different skill-intensity profiles of exports and imports; by definition, not all countries can export more skill intensive products than they import. As education levels rise, political approval should tend to increase in countries with faster growth of skill-intensive exports than imports – but to trend lower in other countries. In democracies, rising education levels have a direct positive effect on approval that will often offset any negative effect of skill-intensive imports. However, no such countervailing effect is evident in authoritarian states.

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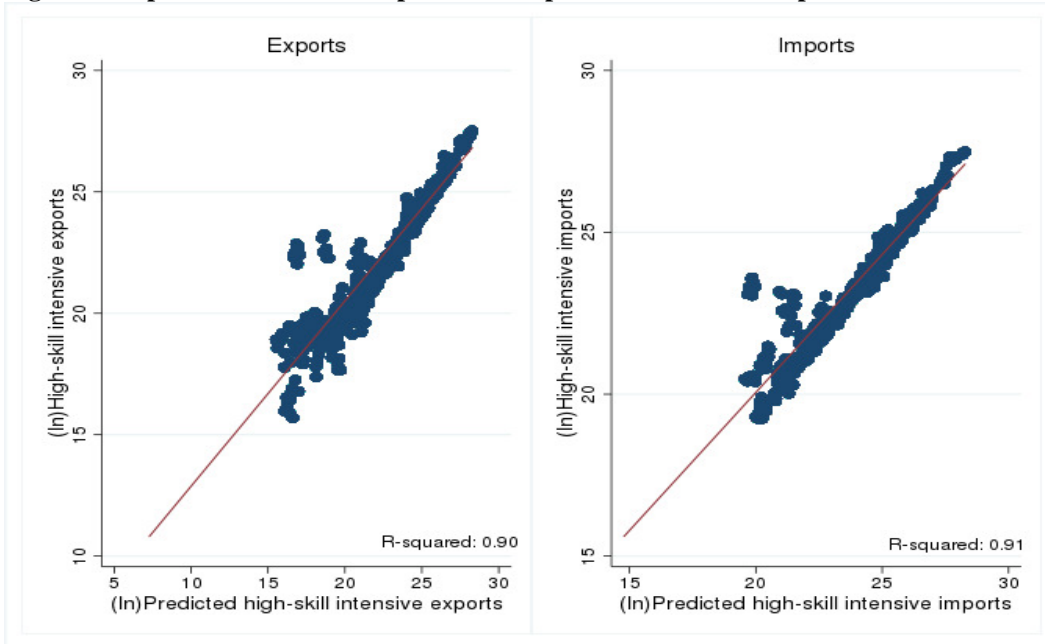
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**Figure 1: Exports vs. Predicted Exports and Imports vs. Predicted Imports**



Notes: The left panel plots actual high-skill intensive exports against predicted high-skill intensive exports. The right panel plots actual high-skill intensive imports against predicted high-skill intensive imports.



**Table 1: Sample Characteristics - 2005-2015 Gallup World Poll Data**

Variables	(1) Mean (Standard deviation)
<i>Dependent variables</i>	
Approval of the leader	0.49 (0.49) – N: 426132
Confidence in national government	0.48 (0.49) – N: 459986
<i>International trade characteristics</i>	
Ln (Total High Skill Intensive Exports)	22.75 (2.80)
Ln (Total High Skill Intensive Imports)	23.50 (2.08)
<i>Placebo outcomes</i>	
Have confidence in the military	0.72 (0.44) – N: 440141
Have confidence in the honesty of elections	0.49 (0.49) – N: 445397
Have confidence in the judicial system	0.50 (0.49) – N: 446528
Have confidence in the media	0.53 (0.49) – N: 190270
<i>Individual level characteristics</i>	
Age	42.57 (11.30)
Male	0.45 (0.49)
Tertiary education	0.19 (0.39)
Partnered	0.71 (0.45)
Urban	0.53 (0.49)
Household income	27,836 (119,324)
<i>Country characteristics</i>	
Polity 2	5.54 (5.72)
Press freedom index	45.86 (22.43)
Import to GDP Ratio	0.43 (0.26)
Export to GDP Ratio	0.41 (0.29)
GDP Per Capita	16,721 (19,435)
Ln (Country Population)	17.03 (1.77)
N	598100

Notes: Means (standard deviations). This table provides individual and aggregate level variables averaged across the 11 years (2005-2015) used in the analysis. The sample sizes for some variables are different either due to missing data or because they were not asked in every year.

**Table 2: OLS Estimates with Aggregate Exports (Imports) and Tertiary Education Interactions**

	(1) OLS	(2) OLS	(3) OLS	(4) OLS
<b>Outcome: Approval of the leader</b>				
TertiaryEducation*LogTotalExports	0.010 (0.017)	0.008 (0.016)	0.009 (0.016)	0.010 (0.016)
Log Total Exports	0.023 (0.022)	0.022 (0.022)	0.022 (0.022)	0.016 (0.036)
TertiaryEducation*LogTotalImports	-0.004 (0.019)	-0.003 (0.019)	-0.003 (0.019)	-0.005 (0.019)
Log Total Imports	0.120* (0.066)	0.120* (0.066)	0.120* (0.066)	0.166* (0.087)
Tertiary Education	-0.144 (0.117)	-0.129 (0.114)	-0.136 (0.114)	-0.116 (0.114)
R-squared	0.113	0.114	0.114	0.131
N	426132	426132	426132	426132
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country level characteristics	Yes	Yes	Yes	Yes
Demographic characteristics	No	Yes	Yes	Yes
Household income	No	No	Yes	Yes
Country-specific linear time trends	No	No	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. All specifications include multiple language and interview type dummies, though we do not report them above. Country characteristics include: Polity 2, press freedom index, the log of country population, and the log of GDP per capita. Demographic characteristics include: a male dummy, age and its square, dummy variables for marital status (married/civil partnership and divorced/separated), a dummy variable for living in an urban area and presence of children in the household (any child under 15). Household income includes all wages and salaries in the household, remittances from family members living elsewhere, and all other sources before taxes. Gallup converts local income to International Dollars using the World Bank's individual consumption PPP conversion factor, which makes it comparable across all countries. Results use the Gallup sampling weights and robust standard errors are clustered at the country level.

**Table 3: OLS Estimates with Aggregate Exports (Imports) and Tertiary Education Interactions**

	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	OLS
<b>Outcome: Confidence in Government</b>				
TertiaryEducation*LogTotalExports	0.013 (0.017)	0.012 (0.017)	0.012 (0.017)	0.010 (0.017)
Log Total Exports	0.014 (0.019)	0.016 (0.019)	0.016 (0.019)	0.048 (0.032)
TertiaryEducation*LogTotalImports	0.001 (0.020)	0.002 (0.019)	0.002 (0.019)	0.004 (0.019)
Log Total Imports	0.052 (0.054)	0.052 (0.054)	0.052 (0.054)	0.092 (0.073)
Tertiary Education	-0.353*** (0.129)	-0.325** (0.127)	-0.323*** (0.127)	-0.317*** (0.120)
R-squared	0.127	0.130	0.130	0.142
N	459986	459986	459986	459986
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country level characteristics	Yes	Yes	Yes	Yes
Demographic characteristics	No	Yes	Yes	Yes
Household income	No	No	Yes	Yes
Country-specific linear time trends	No	No	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. All specifications include multiple language and interview type dummies, though we do not report them above. Country characteristics include: Polity 2, press freedom index, the log of country population, and the log of GDP per capita. Demographic characteristics include: a male dummy, age and its square, dummy variables for marital status (married/civil partnership and divorced/separated), a dummy variable for living in an urban area and presence of children in the household (any child under 15). Household income includes all wages and salaries in the household, remittances from family members living elsewhere, and all other sources before taxes. Gallup converts local income to International Dollars using the World Bank's individual consumption PPP conversion factor, which makes it comparable across all countries. Results use the Gallup sampling weights and robust standard errors are clustered at the country level.

**Table 4: OLS Estimates with High-skill Intensive Exports (Imports) and Tertiary Education Interactions**

	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	OLS
<b>Outcome: Approval of the leader</b>				
TertiaryEducation*LogHighSkillIntensiveExports	0.045*** (0.007)	0.044*** (0.007)	0.045*** (0.007)	0.046*** (0.007)
Log High Skill Intensive Exports	-0.020 (0.019)	-0.021 (0.019)	-0.021 (0.019)	-0.011 (0.025)
TertiaryEducation*LogHighSkillIntensiveImports	-0.051*** (0.010)	-0.050*** (0.010)	-0.051*** (0.010)	-0.053*** (0.009)
Log High Skill Intensive Imports	0.020 (0.044)	0.021 (0.044)	0.021 (0.044)	0.013 (0.049)
Tertiary Education	0.162** (0.079)	0.177** (0.078)	0.171* (0.078)	0.197** (0.076)
R-squared	0.113	0.115	0.115	0.131
N	426132	426132	426132	426132
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country level characteristics	Yes	Yes	Yes	Yes
Demographic characteristics	No	Yes	Yes	Yes
Household income	No	No	Yes	Yes
Country-specific linear time trends	No	No	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. All specifications include multiple language and interview type dummies, though we do not report them above. Country characteristics include: Polity 2, press freedom index, the log of country population, the log of import to GDP ratio, the log of export to GDP ratio and the log of GDP per capita. Demographic characteristics include: a male dummy, age and its square, dummy variables for marital status (married/civil partnership and divorced/separated), a dummy variable for living in an urban area and presence of children in the household (any child under 15). Household income includes all wages and salaries in the household, remittances from family members living elsewhere, and all other sources before taxes. Gallup converts local income to International Dollars using the World Bank's individual consumption PPP conversion factor, which makes it comparable across all countries. Results use the Gallup sampling weights and robust standard errors are clustered at the country level.

**Table 5: OLS Estimates with High-skill Intensive Exports (Imports) and Tertiary Education Interactions**

	(1) OLS	(2) OLS	(3) OLS	(4) OLS
<b>Outcome: Confidence in Government</b>				
TertiaryEducation*LogHighSkillIntensiveExports	0.037*** (0.007)	0.036*** (0.007)	0.036*** (0.007)	0.034*** (0.007)
Log High Skill Intensive Exports	-0.011 (0.016)	-0.011 (0.016)	-0.011 (0.016)	0.010 (0.021)
TertiaryEducation*LogHighSkillIntensiveImports	-0.033*** (0.009)	-0.032*** (0.009)	-0.032*** (0.009)	-0.030*** (0.009)
Log High Skill Intensive Imports	0.026 (0.035)	0.027 (0.035)	0.027 (0.035)	0.002 (0.037)
Tertiary Education	-0.089 (0.079)	-0.063 (0.078)	-0.062 (0.078)	-0.065 (0.075)
R-squared	0.138	0.141	0.141	0.142
N	459986	459986	459986	459986
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country level characteristics	Yes	Yes	Yes	Yes
Demographic characteristics	No	Yes	Yes	Yes
Household income	No	No	Yes	Yes
Country-specific linear time trends	No	No	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. For details on control variables, see notes to Table 4.

**Table 6: IV First Stage Results for Approval of the Leader Outcome**

<b>Outcome →</b>	(1) High-skill Intensive Exports	(2) High-skill Intensive Imports	(3) TertiaryEduc* High-skill Intensive Exports	(4) TertiaryEduc* High-skill Intensive Imports
Predicted High-skill Intensive Exports	2.068*** (0.556)	--	--	--
<b>First Stage F statistics</b>	15.70			
Predicted High-skill Intensive Imports	--	1.631*** (0.291)	--	--
<b>First Stage F statistics</b>		10.50		
TertiaryEduc.*PredictedHighSkillIntensiveExports	--	--	6.155*** (0.294)	--
<b>First Stage F statistics</b>			51.23	
TertiaryEduc.*PredictedHighSkillIntensiveImports	--	--	--	3.866*** (0.225)
<b>First Stage F statistics</b>				47.88
Observations	426132	426132	426132	426132
First Stage F Statistics for joint significance of the instruments for Column 4 of Table 8	26.83	26.83	26.83	26.83

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. For details on control variables, see notes to column 4 of Table 4. Since the country-year coverage for the two dependent variables (approval of the leader and the confidence in government) have slightly different country-year coverage, we run the first stage regressions separately for Table 8 (for approval of the leader) and Table 9 (for confidence in government). Results use the Gallup sampling weights and robust standard errors are clustered at the country level.

**Table 7: IV First Stage Results for Confidence in Government Outcome**

<b>Outcome →</b>	(1) High-skill Intensive Exports	(2) High-skill Intensive Imports	(3) TertiaryEduc* High-skill Intensive Exports	(4) TertiaryEduc* High-skill Intensive Exports
Predicted High-skill Intensive Exports	2.132*** (0.541)	--	--	--
<b>First Stage F stat</b>	12.93			
Predicted High-skill Intensive Imports	--	1.703*** (0.296)	--	--
<b>First Stage F stat</b>		14.34		
TertiaryEduc.*PredictedHighSkillIntensiveExports	--	--	6.045*** (0.320)	--
<b>First Stage F stat</b>			61.75	
TertiaryEduc.*PredictedHighSkillIntensiveImports	--	--	--	3.797*** (0.240)
<b>First Stage F stat</b>				54.47
Observations	459986	459986	459986	459986
First Stage F Statistics for joint significance of the instruments for Column 4 of Table 9	25.21	25.21	25.21	25.21

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. For details on control variables, see notes to column 4 of Table 4. Since the country-year coverage for the two dependent variables (approval of the leader and the confidence in government) have slightly different country-year coverage, we run the first stage regressions separately for Table 8 (for approval of the leader) and Table 9 (for confidence in government). Results use the Gallup sampling weights and robust standard errors are clustered at the country level.

**Table 8: IV Estimates with High-skill Intensive Exports (Imports) and Tertiary Education Interactions**

	(1)	(2)	(3)	(4)
	IV	IV	IV	IV
<b>Outcome: Approval of the leader</b>				
TertiaryEducation*LogHighSkillIntensiveExports	0.123*** (0.037)	0.119*** (0.036)	0.122*** (0.036)	0.117*** (0.035)
Log High Skill Intensive Exports	-0.027 (0.021)	-0.027 (0.021)	-0.027 (0.021)	-0.017 (0.030)
TertiaryEducation*LogHighSkillIntensiveImports	-0.172*** (0.055)	-0.167*** (0.053)	-0.171*** (0.054)	-0.165*** (0.052)
Log High Skill Intensive Imports	0.033 (0.049)	0.033 (0.049)	0.033 (0.049)	0.023 (0.063)
Tertiary Education	1.251*** (0.476)	1.231*** (0.458)	1.256*** (0.466)	1.220*** (0.455)
KP First Stage F-Stat	26.68	26.84	26.84	26.83
N	426132	426132	426132	426132
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country level characteristics	Yes	Yes	Yes	Yes
Demographic characteristics	No	Yes	Yes	Yes
Household income	No	No	Yes	Yes
Country-specific linear time trends	No	No	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. For details on control variables, see notes to Table 4.



**Table 9: IV Estimates with High-skill Intensive Exports (Imports) and Tertiary Education Interaction**

	(1)	(2)	(3)	(4)
	IV	IV	IV	IV
<b>Outcome: Confidence in Government</b>				
TertiaryEducation*LogHighSkillIntensiveExports	0.127*** (0.042)	0.123*** (0.041)	0.122*** (0.040)	0.113*** (0.039)
Log High Skill Intensive Exports	-0.018 (0.022)	-0.018 (0.022)	-0.020 (0.022)	-0.003 (0.025)
TertiaryEducation*LogHighSkillIntensiveImports	-0.171*** (0.062)	-0.165*** (0.060)	-0.165*** (0.059)	-0.152*** (0.058)
Log High Skill Intensive Imports	0.040 (0.041)	0.045 (0.041)	0.040 (0.041)	0.014 (0.049)
Tertiary Education	1.116** (0.532)	1.097** (0.508)	1.093** (0.502)	1.000** (0.489)
KP First Stage F-Stat	25.06	25.59	25.22	25.21
N	459986	459986	459986	459986
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country level characteristics	Yes	Yes	Yes	Yes
Demographic characteristics	No	Yes	Yes	Yes
Household income	No	No	Yes	Yes
Country-specific linear time trends	No	No	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. For details on control variables, see notes to Table 4.

**Table 10: Predicted and Actual Effects**

Country	% Change in high skill exports	% Change in high skill imports	Predicted effects due to change in high skill exports	Predicted effects due to change in high skill imports	Total predicted trade effects	Actual change in approval of the leader among high skill individuals	Proportion explained
<i>Positive effect</i>							
Bulgaria	143.52	66.75	16.79	-11.02	5.77	20.92	0.28
Lithuania	156.99	88.53	18.36	-14.60	3.76	16.32	0.23
Nigeria	75.44	45.75	8.82	-7.54	1.28	9.18	0.14
Slovakia	270.98	172.84	31.70	-28.52	3.18	10.65	0.30
<i>Negative effect</i>							
Chile	60.59	114.93	7.09	-18.96	-11.87	-21.97	0.54
Paraguay	157.57	199.83	18.44	-32.97	-14.53	-25.88	0.56
South Korea	74.94	97.94	8.77	-16.16	-7.39	-11.14	0.66
Turkey	120.43	100.23	14.09	-16.53	-2.44	-3.88	0.63

Notes: Counterfactual estimates are calculated using the point estimates from the baseline IV specification (Column 4 of Table 7). *% Change in high skill exports (imports)* is the percentage change in high skill-intensive exports (imports) between the earliest and the latest available data points from the UN COMTRADE dataset. *Actual change in approval of the leader* is the population-weighted difference in approval of the leader among skilled individuals between the earliest and latest available data points from Gallup World Polls. *Proportion explained* reflects how much change in approval of the leader among skilled individuals can be attributed to the change in skill composition of trade.

**Table 11: IV Estimates - Sub-sample Analysis by Gender and Age**

	(1) IV Male	(2) IV Female	(3) IV 25-44	(4) IV 45-64
<b>Outcome: Approval of the leader</b>				
TertiaryEducation*LogHighSkillIntensiveExports	0.121*** (0.025)	0.109*** (0.024)	0.125*** (0.025)	0.108*** (0.026)
Log High Skill Intensive Exports	-0.014 (0.027)	-0.020 (0.024)	-0.009 (0.025)	-0.035 (0.026)
TertiaryEducation*LogHighSkillIntensiveImports	-0.171*** (0.037)	-0.154*** (0.036)	-0.178*** (0.037)	-0.150*** (0.038)
Log High Skill Intensive Imports	0.035 (0.050)	0.013 (0.049)	0.029 (0.050)	0.022 (0.050)
Tertiary Education	1.274*** (0.305)	1.129*** (0.313)	1.346*** (0.318)	1.069*** (0.303)
N	193590	232542	242572	183560
<b>Outcome: Confidence in Government</b>				
TertiaryEducation*LogHighSkillIntensiveExports	0.107*** (0.024)	0.116*** (0.026)	0.117*** (0.025)	0.118*** (0.027)
Log High Skill Intensive Exports	-0.004 (0.023)	0.009 (0.020)	0.004 (0.021)	0.004 (0.023)
TertiaryEducation*LogHighSkillIntensiveImports	-0.140*** (0.036)	-0.160*** (0.040)	-0.159*** (0.038)	-0.156*** (0.038)
Log High Skill Intensive Imports	0.006 (0.039)	0.022 (0.037)	0.025 (0.037)	-0.002 (0.039)
Tertiary Education	0.882*** (0.304)	1.108*** (0.341)	1.082*** (0.335)	0.984*** (0.310)
N	208811	251175	259980	200006

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. For details on control variables, see notes to column 4 of Table 4.

**Table 12: IV Estimates - Sub-sample Analysis by Urbanity Status and Household Income**

	(1) IV Urban	(2) IV Rural	(3) IV Low-income HH (bottom tercile)	(4) IV Middle-income HH (middle tercile)	(5) IV High-income HH (top tercile)
<b>Outcome: Approval of the leader</b>					
TertiaryEducation*LogHighSkillIntensiveExports	0.097*** (0.023)	0.164*** (0.031)	0.127* (0.067)	0.124*** (0.031)	0.038** (0.018)
Log High Skill Intensive Exports	-0.038 (0.034)	-0.010 (0.025)	0.008 (0.025)	-0.021 (0.031)	-0.005 (0.051)
TertiaryEducation*LogHighSkillIntensiveImports	-0.144*** (0.034)	-0.228*** (0.046)	-0.185* (0.100)	-0.185*** (0.048)	-0.058** (0.026)
Log High Skill Intensive Imports	0.070 (0.064)	-0.005 (0.047)	0.006 (0.057)	0.065 (0.056)	-0.008 (0.081)
Tertiary Education	1.175*** (0.300)	1.631*** (0.383)	1.409* (0.827)	1.517*** (0.430)	0.512** (0.233)
N	183335	242797	120404	138273	155550
<b>Outcome: Confidence in Government</b>					
TertiaryEducation*LogHighSkillIntensiveExports	0.084*** (0.022)	0.174*** (0.035)	0.173** (0.083)	0.103*** (0.028)	0.050*** (0.018)
Log High Skill Intensive Exports	0.008 (0.025)	-0.001 (0.022)	0.009 (0.023)	0.021 (0.024)	0.025 (0.048)
TertiaryEducation*LogHighSkillIntensiveImports	-0.114*** (0.032)	-0.239*** (0.051)	-0.257** (0.125)	-0.150*** (0.044)	-0.063** (0.027)
Log High Skill Intensive Imports	0.020 (0.044)	0.007 (0.038)	0.037 (0.043)	0.004 (0.043)	-0.069 (0.063)
Tertiary Education	0.772*** (0.284)	1.651*** (0.424)	2.052** (1.035)	1.166*** (0.408)	0.362 (0.242)
N	197817	262169	125191	144288	170936

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. For details on control variables, see notes to column 4 of Table 4.

**Table 13: IV Estimates - Sub-sample Analysis by Country Income Levels and Political Regime by Country**

	(1) IV Less-developed countries	(2) IV Developed countries	(3) IV Non-democracies	(4) IV Democracies
<b>Outcome: Approval of the leader</b>				
TertiaryEducation*LogHighSkillIntensiveExports	0.377 (0.251)	0.077*** (0.018)	0.199 (0.189)	0.102*** (0.027)
Log High Skill Intensive Exports	0.004 (0.028)	-0.059 (0.049)	0.046 (0.031)	-0.054 (0.057)
TertiaryEducation*LogHighSkillIntensiveImports	-0.571 (0.402)	-0.114*** (0.026)	-0.346 (0.316)	-0.135*** (0.037)
Log High Skill Intensive Imports	-0.042 (0.073)	0.120 (0.078)	-0.030 (0.077)	0.062 (0.097)
Tertiary Education	4.724 (3.647)	0.913*** (0.224)	-3.631 (3.222)	0.843*** (0.280)
N	166246	259886	112363	313769
<b>Outcome: Confidence in Government</b>				
TertiaryEducation*LogHighSkillIntensiveExports	0.388 (0.242)	0.067*** (0.017)	0.200 (0.135)	0.101*** (0.033)
Log High Skill Intensive Exports	0.005 (0.025)	0.023 (0.037)	0.041 (0.028)	-0.029 (0.047)
TertiaryEducation*LogHighSkillIntensiveImports	-0.601 (0.390)	-0.087*** (0.025)	-0.337 (0.221)	-0.127*** (0.045)
Log High Skill Intensive Imports	0.065 (0.054)	-0.028 (0.057)	-0.015 (0.063)	0.054 (0.073)
Tertiary Education	5.169 (3.590)	0.532** (0.222)	-3.403 (2.233)	0.691*** (0.347)
N	178900	281086	122311	337765

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. World Bank country-income group definitions used in this analysis. Countries with Polity2 score of 5 or below classified as non-democracies and countries with Polity2 score of 6 or higher classified as democracies.

**Table 14: IV Estimates - Placebo Outcomes**

	(1) IV		(2) IV
<b>Outcome: Confidence in the military</b>		<b>Outcome: Confidence in the judicial system</b>	
TertiaryEducation*LogHighSkillIntensiveExports	-0.001 (0.098)	TertiaryEducation* LogHighSkillIntensiveExports	0.118 (0.128)
Log High Skill Intensive Exports	-0.006 (0.013)	Log High Skill Intensive Exports	-0.010 (0.017)
TertiaryEducation*LogHighSkillIntensiveImports	0.008 (0.133)	TertiaryEducation*LogHighSkillIntensiveImports	-0.122 (0.176)
Log High Skill Intensive Imports	-0.008 (0.026)	Log High Skill Intensive Imports	0.039 (0.031)
Tertiary Education	-0.184 (0.904)	Tertiary Education	0.177 (0.211)
N	408206	N	413780
<b>Outcome: Confidence in honesty of elections</b>		<b>Outcome: Confidence in media (freedom)</b>	
TertiaryEducation*LogHighSkillIntensiveExports	0.332 (0.263)	TertiaryEducation*LogHighSkillIntensiveExports	0.149 (0.230)
Log High Skill Intensive Exports	-0.026 (0.022)	Log High Skill Intensive Exports	0.023 (0.030)
TertiaryEducation*LogHighSkillIntensiveImports	-0.420 (0.365)	TertiaryEducation*LogHighSkillIntensiveImports	-0.194 (0.312)
Log High Skill Intensive Imports	0.096 (0.086)	Log High Skill Intensive Imports	-0.054 (0.054)
Tertiary Education	-0.695 (1.155)	Tertiary Education	1.103 (2.061)
N	415654	N	179432

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. For details on control variables, see notes to Column 4 of Table 4.

**Table 15: IV Estimates – Robustness**

<b>Outcome is →</b>	(1) IV	(2) IV
<b>Controls for individual unemployment</b>	Approval of the leader	Confidence in government
TertiaryEducation*LogHighSkillIntensiveExports	0.119*** (0.023)	0.132*** (0.026)
Log High Skill Intensive Exports	-0.006 (0.025)	0.001 (0.024)
TertiaryEducation*LogHighSkillIntensiveImports	-0.169*** (0.035)	-0.180*** (0.039)
Log High Skill Intensive Imports	-0.118** (0.048)	-0.068* (0.040)
Tertiary Education	1.215*** (0.301)	1.218*** (0.336)
Unemployed	-0.047*** (0.005)	-0.041*** (0.005)
N	348306	371620
<b>Excluding election years</b>		
TertiaryEducation*LogHighSkillIntensiveExports	0.130*** (0.038)	0.120*** (0.046)
Log High Skill Intensive Exports	-0.038 (0.044)	0.001 (0.034)
TertiaryEducation*LogHighSkillIntensiveImports	-0.188*** (0.058)	-0.166*** (0.069)
Log High Skill Intensive Imports	0.066 (0.075)	0.029 (0.056)
Tertiary Education	1.451*** (0.503)	1.182** (0.601)
N	302148	324805

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. For details on control variables, see notes to Column 4 of Table 4. A respondent is defined as unemployed if he/she reports not being employed in the last seven days, either for an employer or for himself or herself. The respondent must also report actively looking for a job in the past four weeks and being able to begin work in the last four weeks. Election years refer to having a parliamentary or presidential election in a given calendar year.

**Table 16: IV Estimates - Robustness**

Outcome is →	(1) IV	(2) IV
Controls for leaders' continuous tenure	Approval of the leader	Confidence in Government
TertiaryEducation*LogHighSkillIntensiveExports	0.114*** (0.022)	0.109*** (0.023)
Log High Skill Intensive Exports	-0.010 (0.000)	0.008 (0.021)
TertiaryEducation*LogHighSkillIntensiveImports	-0.162*** (0.034)	-0.146*** (0.034)
Log High Skill Intensive Imports	0.034 (0.048)	0.022 (0.035)
Tertiary Education	1.191*** (0.294)	0.954*** (0.294)
N	416121	452476
<b>Lowering minimum age in the sample to 15</b>		
TertiaryEducation*LogHighSkillIntensiveExports	0.109*** (0.021)	0.116*** (0.022)
Log High Skill Intensive Exports	-0.011 (0.024)	0.003 (0.021)
TertiaryEducation*LogHighSkillIntensiveImports	-0.157*** (0.032)	-0.161*** (0.033)
Log High Skill Intensive Imports	0.027 (0.048)	0.028 (0.036)
Tertiary Education	1.200*** (0.272)	1.126*** (0.289)
N	545361	586075

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. For details on control variables, see notes to Column 4 of Table 4.



**Table 17: IV Estimates for Outsourcing Destination Countries**

	(1) IV	(2) IV	(3) IV
<b>Sample is →</b>	Outsourcing destination countries	Non-outsourcing developing countries	Other upper- middle or high income countries
<b>Outcome: Approval of the leader</b>			
TertiaryEducation*LogHighSkillIntensiveExports	-0.501 (1.068)	0.219* (0.120)	0.050*** (0.017)
Log High Skill Intensive Exports	-0.183* (0.101)	0.010 (0.024)	0.059 (0.052)
TertiaryEducation*LogHighSkillIntensiveImports	1.254 (2.581)	-0.292* (0.173)	-0.066*** (0.023)
Log High Skill Intensive Imports	-0.117 (0.292)	-0.102 (0.069)	-0.017 (0.079)
Tertiary Education	-18.18 (36.63)	1.862 (1.335)	0.422** (0.173)
N	160669	94247	171216
<b>Outcome: Confidence in Government</b>			
TertiaryEducation*LogHighSkillIntensiveExports	-0.544 (1.715)	0.262** (0.118)	0.031* (0.017)
Log High Skill Intensive Exports	-0.078 (0.111)	0.003 (0.022)	0.100*** (0.044)
TertiaryEducation*LogHighSkillIntensiveImports	1.330 (4.162)	-0.349** (0.172)	-0.030 (0.023)
Log High Skill Intensive Imports	-0.151 (0.420)	0.022 (0.060)	-0.102 (0.064)
Tertiary Education	-18.980 (59.147)	2.229* (1.344)	0.022 (0.177)
N	176001	97619	186366

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. For details on control variables, see notes to Column 4 of Table 4. Outsourcing destination countries (35) are as follows (based on A.T. Kearney Global Services Location Index): Argentina, Bangladesh, Brazil, Bulgaria, Chile, China, Colombia, Costa Rica, Czech Republic, Egypt, Estonia, Ghana, Hungary, India, Indonesia, Kenya, Latvia, Lithuania, Malaysia, Mauritius, Mexico, Morocco, Pakistan, Peru, Philippines, Poland, Portugal, Romania, Russia, Sri Lanka, Ukraine, Thailand, Tunisia, Turkey, Vietnam.

**Table 18: Estimates for Individual Economic Outcomes**

<b>Outcome →</b>	(1) OLS Unemployed	(2) IV Unemployed	(3) OLS (ln) Income	(4) IV (ln) Income
TertiaryEducation*LogHighSkillIntensiveExports	-0.007*** (0.002)	-0.007 (0.012)	0.090*** (0.019)	0.587*** (0.205)
Share of high skill intensive exports	0.007 (0.006)	0.007 (0.008)	0.014 (0.037)	0.054 (0.050)
TertiaryEducation*LogHighSkillIntensiveImports	0.011*** (0.003)	0.009 (0.018)	-0.066*** (0.025)	-0.842*** (0.318)
Share of high skill intensive imports	0.015 (0.014)	0.017 (0.019)	0.122 (0.088)	0.054 (0.122)
Tertiary Education	-0.122*** (0.033)	-0.040 (0.149)	1.036*** (0.197)	5.912** (2.920)
N	323486	323486	397036	397036
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country-specific linear time trends	Yes	Yes	Yes	Yes
Demographic characteristics	Yes	Yes	Yes	Yes
Country-level characteristics	Yes	Yes	Yes	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. For details on control variables, see notes to Table 4. The estimation sample includes observations with no missing responses for both “approval of the leader” and “confidence in national government” variables.

**Appendix Table 1: Expanded Set of Coefficients, Fully Saturated Model (i.e. Column 4 of Table 7 and 8)**

	(1) IV	(2) IV
Outcome is →	Approval of the leader	Confidence in Government
TertiaryEducation*LogHighSkillIntensiveExports	0.117*** (0.035)	0.113*** (0.039)
TertiaryEducation*LogHighSkillIntensiveImports	-0.165*** (0.052)	-0.152*** (0.058)
Log High Skill Intensive Exports	-0.017 (0.030)	0.003 (0.025)
Log High Skill Intensive Imports	0.023 (0.063)	0.014 (0.049)
Tertiary Education	1.220*** (0.455)	1.000** (0.489)
Male	-0.009*** (0.003)	-0.006 (0.004)
Age	-0.002*** (0.001)	-0.001 (0.0001)
Age-squared	0.000*** (0.000)	0.000*** (0.000)
Married/CP	0.014*** (0.003)	0.014*** (0.003)
Divorced or Separated	-0.017*** (0.004)	-0.029*** (0.004)
Presence of Children Under 15	0.008** (0.003)	0.016*** (0.003)
Urban	-0.031*** (0.005)	-0.037*** (0.006)
Log of Household Income	0.005 (0.003)	-0.001 (0.003)
Country fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Country-specific linear time trends	Yes	Yes
Country characteristics	Yes	Yes
N	426132	459986

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. For details on control variables, see notes to Column 4 of Table 4.

**Appendix Table 2: OLS Estimates with Aggregate and High-skill Exports and Imports without Interactions**

	(1) OLS		(2) OLS
<b>Outcome: Approval of the leader</b>		<b>Outcome: Approval of the leader</b>	
Log Total Exports	0.017 (0.040)	Log High Skill Intensive Exports	-0.009 (0.031)
Log Total Imports	0.126 (0.087)	Log High Skill Intensive Imports	0.019 (0.062)
R-squared	0.133	R-squared	0.130
N	426,132	N	426,132
<b>Outcome: Confidence in Government</b>		<b>Outcome: Confidence in Government</b>	
Log Total Exports	0.049 (0.035)	Log High Skill Intensive Exports	0.010 (0.026)
Log Total Imports	0.057 (0.075)	Log High Skill Intensive Imports	0.009 (0.051)
R-squared	0.144	R-squared	0.142
N	459,986	N	459,986

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. All specifications include multiple language and interview type dummies and control for the log of household income throughout, though we do not report them above. Demographic characteristics include: a male dummy, age and its square, dummy variables for marital status (married/civil partnership and divorced/separated), educational attainment (tertiary and secondary), a dummy variable for living in an urban area and presence of children in the household (any child under 15). Country characteristics include: Polity 2, press freedom index, the log of country population, and the log of GDP per capita. Results use the Gallup sampling weights and robust standard errors are clustered at the country level.

**Appendix Table 3: IV Estimates with Share of High-skill Intensive Exports (Imports) as a Percentage of Total Exports (Imports)**

	(1) IV	(2) IV	(3) IV	(4) IV
<b>Outcome: Approval of the leader</b>				
TertiaryEducation*ShareofHighSkillIntensiveExports	0.280*** (0.045)	0.268*** (0.044)	0.273*** (0.044)	0.274*** (0.044)
Share of high skill intensive exports	0.007 (0.245)	0.007 (0.245)	0.011 (0.245)	0.043 (0.247)
TertiaryEducation*ShareofHighSkillIntensiveImports	-0.657*** (0.128)	-0.636*** (0.126)	-0.656*** (0.128)	-0.656*** (0.128)
Share of high skill intensive imports	0.095 (0.143)	0.098 (0.143)	0.097 (0.143)	0.039 (0.144)
Tertiary Education	0.139*** (0.034)	0.145*** (0.033)	0.146*** (0.034)	0.146*** (0.034)
KP First Stage F-Stat	28.62	28.10	28.26	28.28
N	426132	426132	426132	426132
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country-specific linear time trends	Yes	Yes	Yes	Yes
Demographic characteristics	No	Yes	Yes	Yes
Household income	No	No	Yes	Yes
Country-level characteristics	No	No	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. For details on control variables, see notes to Table 4.

**Appendix Table 4: IV Estimates with Share of High-skill Intensive Exports (Imports) as a Percentage of Total Exports (Imports)**

	(1) IV	(2) IV	(3) IV	(4) IV
<b>Outcome: Confidence in Government</b>				
TertiaryEducation*ShareofHighSkillIntensiveExports	0.370*** (0.047)	0.353*** (0.046)	0.353*** (0.046)	0.354*** (0.046)
Share of high skill intensive exports	0.079 (0.166)	0.076 (0.166)	0.076 (0.166)	0.096 (0.168)
TertiaryEducation*ShareofHighSkillIntensiveImports	-0.565*** (0.119)	-0.542*** (0.117)	-0.542*** (0.117)	-0.543*** (0.117)
Share of high skill intensive imports	0.0738 (0.110)	0.078 (0.110)	0.078 (0.110)	0.045 (0.110)
Tertiary Education	0.095*** (0.032)	0.106*** (0.032)	0.106*** (0.032)	0.106*** (0.032)
KP First Stage F-Stat	26.92	26.78	26.66	26.79
N	459986	459986	459986	459986
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country-specific linear time trends	Yes	Yes	Yes	Yes
Demographic characteristics	No	Yes	Yes	Yes
Household income	No	No	Yes	Yes
Country-level characteristics	No	No	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. For details on control variables, see notes to Table 4.

**Appendix Table 5: IV Estimates with Alternative Skilled Definition (Secondary education or above)**

	(1) OLS	(2) IV
<b>Outcome: Approval of the leader</b>		
Secondary educ. or above*LogHighSkillIntensiveExports	0.026*** (0.006)	0.113*** (0.033)
Log High Skill Intensive Exports	-0.018 (0.025)	-0.054 (0.028)
Secondary educ. or above*LogHighSkillIntensiveImports	-0.033*** (0.009)	-0.172*** (0.051)
Log High Skill Intensive Imports	0.018 (0.050)	0.078 (0.051)
Secondary educ. or above	0.147* (0.079)	1.432*** (0.454)
N	426132	426132
<b>Outcome: Confidence in Government</b>		
Secondary educ. or above*LogHighSkillIntensiveExports	0.017*** (0.005)	0.136*** (0.039)
Log High Skill Intensive Exports	0.007 (0.021)	-0.045 (0.026)
Secondary educ. or above*LogHighSkillIntensiveImports	-0.020*** (0.008)	-0.207*** (0.061)
Log High Skill Intensive Imports	0.004 (0.038)	0.088** (0.042)
Secondary educ. or above	0.029 (0.069)	1.724*** (0.553)
N	459986	459986

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.. For details on control variables, see notes to Column 4 of Table 4.

**Appendix Table 6: The Changing Elasticity of Sea and Air Distance Over Time within Country Pairs (High-skill trade)**

Outcome →	(1)	(2)
	(ln) High-skill intensive exports	(ln) High-skill intensive imports
ln(Sea Distance)*2006	0.037 (0.034)	-0.036 (0.045)
ln(Sea Distance)*2007	0.062 (0.038)	0.070 (0.043)
ln(Sea Distance)*2008	0.038 (0.039)	0.038 (0.043)
ln(Sea Distance)*2009	0.088** (0.041)	0.088 (0.043)
ln(Sea Distance)*2010	0.076* (0.043)	0.060 (0.042)
ln(Sea Distance)*2011	0.074 (0.046)	0.039 (0.043)
ln(Sea Distance)*2012	0.074 (0.047)	0.046 (0.042)
ln(Sea Distance)*2013	0.101** (0.048)	0.040 (0.043)
ln(Sea Distance)*2014	0.103** (0.048)	0.050 (0.044)
ln(Sea Distance)*2015	0.089* (0.049)	0.080* (0.044)
ln(Air Distance)*2006	-0.064* (0.034)	0.032 (0.045)
ln(Air Distance)*2007	-0.120*** (0.039)	-0.092** (0.043)
ln(Air Distance)*2008	-0.082** (0.041)	-0.075* (0.042)
ln(Air Distance)*2009	-0.153*** (0.042)	-0.105** (0.042)
ln(Air Distance)*2010	-0.076* (0.045)	-0.043 (0.042)
ln(Air Distance)*2011	-0.096** (0.047)	-0.048 (0.043)
ln(Air Distance)*2012	-0.022 (0.048)	-0.006 (0.043)
ln(Air Distance)*2013	-0.087* (0.050)	-0.018 (0.044)
ln(Air Distance)*2014	-0.087* (0.050)	-0.001 (0.044)
ln(Air Distance)*2015	-0.045* (0.022)	-0.016 (0.045)
Country pair fixed effects	Yes	Yes
R-squared	0.610	0.749
N	96,887	103,743

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. Regressions on yearly data, 2005-2015. Robust standard errors are clustered at the county pair level.



**Appendix Table 7: The Changing Elasticity of Sea and Air Distance Over Time - Controlling for Bilateral Factors (High-skill trade)**

	(1)	(2)
Outcome →	(ln) High-skill intensive exports	(ln) High-skill intensive imports
ln(Sea Distance)*2005	-0.014 (0.069)	0.313*** (0.104)
ln(Sea Distance)*2006	0.027 (0.069)	0.300*** (0.104)
ln(Sea Distance)*2007	0.048 (0.068)	0.460*** (0.105)
ln(Sea Distance)*2008	0.024 (0.068)	0.381*** (0.104)
ln(Sea Distance)*2009	0.042 (0.067)	0.397*** (0.102)
ln(Sea Distance)*2010	0.050 (0.067)	0.365*** (0.105)
ln(Sea Distance)*2011	0.062 (0.069)	0.418*** (0.106)
ln(Sea Distance)*2012	0.039 (0.068)	0.363*** (0.106)
ln(Sea Distance)*2013	0.063 (0.067)	0.392*** (0.106)
ln(Sea Distance)*2014	0.092 (0.067)	0.360*** (0.107)
ln(Sea Distance)*2015	0.066 (0.067)	0.360*** (0.105)
ln(Air Distance)*2005	-1.526*** (0.072)	-1.726*** (0.104)
ln(Air Distance)*2006	-1.601*** (0.071)	-1.736*** (0.104)
ln(Air Distance)*2007	-1.659*** (0.071)	-1.880*** (0.104)
ln(Air Distance)*2008	-1.162*** (0.071)	-1.846*** (0.103)
ln(Air Distance)*2009	-1.659*** (0.070)	-1.860*** (0.102)
ln(Air Distance)*2010	-1.618*** (0.071)	-1.779*** (0.105)
ln(Air Distance)*2011	-1.649*** (0.071)	-1.905*** (0.105)
ln(Air Distance)*2012	-1.571*** (0.070)	-1.793*** (0.106)
ln(Air Distance)*2013	-1.640*** (0.069)	-1.816*** (0.105)
ln(Air Distance)*2014	-1.669*** (0.070)	-1.848*** (0.105)
ln(Air Distance)*2015	-1.163*** (0.069)	-1.857*** (0.104)
Country fixed effects	Yes	Yes
R-squared	0.520	0.673
N	96,887	103,743

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. Regressions on yearly data, 2005-2015. Robust standard errors are clustered at the county pair level. All specifications include dummy variables for: speaking a common language, being contiguous, being in a colonial relationship at present, being in a colonial relationship in the past.

**Appendix Table 8: The Changing Elasticity of Sea and Air Distance Over Time within Country Pairs (Low-skill Trade)**

Outcome →	(1)	(2)
	(ln) Low-skill intensive exports	(ln) Low-skill intensive imports
ln(Sea Distance)*2006	-0.022 (0.033)	0.003 (0.032)
ln(Sea Distance)*2007	0.032 (0.036)	0.014 (0.036)
ln(Sea Distance)*2008	-0.022 (0.038)	0.026 (0.037)
ln(Sea Distance)*2009	0.034 (0.040)	0.035 (0.041)
ln(Sea Distance)*2010	0.074 (0.041)	-0.010 (0.042)
ln(Sea Distance)*2011	0.071 (0.042)	-0.059 (0.043)
ln(Sea Distance)*2012	0.012 (0.047)	-0.021 (0.044)
ln(Sea Distance)*2013	0.093** (0.046)	0.008 (0.045)
ln(Sea Distance)*2014	0.068 (0.047)	0.019 (0.047)
ln(Sea Distance)*2015	0.128** (0.046)	0.006 (0.046)
ln(Air Distance)*2006	0.011 (0.032)	0.031 (0.034)
ln(Air Distance)*2007	-0.048 (0.035)	-0.010 (0.037)
ln(Air Distance)*2008	-0.037 (0.037)	-0.009 (0.038)
ln(Air Distance)*2009	-0.086* (0.039)	-0.017 (0.041)
ln(Air Distance)*2010	-0.059 (0.040)	0.052 (0.043)
ln(Air Distance)*2011	-0.038 (0.041)	0.090** (0.043)
ln(Air Distance)*2012	-0.028 (0.044)	0.095** (0.044)
ln(Air Distance)*2013	-0.017 (0.044)	0.077* (0.046)
ln(Air Distance)*2014	-0.005 (0.045)	0.080* (0.048)
ln(Air Distance)*2015	-0.047 (0.045)	0.133** (0.047)
Country pair fixed effects	Yes	Yes
R-squared	0.916	0.919
N	102,801	110,705

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. Regressions on yearly data, 2005-2015. Robust standard errors are clustered at the county pair level. Low skill intensive trade is defined as the sum of labour intensive, low skill intensive and medium skill intensive trade.

**Appendix Table 9: OLS Estimates with Low-skill Intensive Exports (Imports) and Secondary Education or Less Interactions**

	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	OLS
<b>Outcome: Approval of the Leader</b>				
SeconEduc. or Less*LogLowSkillIntensiveExports	0.012 (0.009)	0.013 (0.009)	0.013 (0.009)	0.014 (0.009)
Log Low Skill Intensive Exports	0.029 (0.020)	0.030 (0.020)	0.030 (0.020)	0.010 (0.015)
SeconEduc. or Less*LogLowSkillIntensiveImports	0.007 (0.010)	0.008 (0.010)	0.008 (0.010)	0.009 (0.010)
Log Low Skill Intensive Imports	0.082* (0.047)	0.081* (0.047)	0.080* (0.047)	0.169** (0.069)
Secondary Education or Less	0.131 (0.069)	0.103 (0.093)	0.112 (0.092)	0.095 (0.090)
R-squared	0.113	0.115	0.115	0.131
N	426132	426132	426132	426132
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country level characteristics	Yes	Yes	Yes	Yes
Demographic characteristics	No	Yes	Yes	Yes
Household income	No	No	Yes	Yes
Country-specific linear time trends	No	No	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. For details on control variables, see notes to Table 4. Low skill intensive exports (imports) is defined as sum of labour intensive exports (imports), low skill intensive exports (imports) and medium skill intensive exports (imports).

**Appendix Table 10: OLS Estimates with Low-skill Intensive Exports (Imports) and Secondary Education or Less Interactions**

	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	OLS
<b>Outcome: Confidence in Government</b>				
SeconEduc. or Less*LogLowSkillIntensiveExports	-0.000 (0.006)	-0.002 (0.006)	-0.002 (0.006)	-0.002 (0.006)
Log Low Skill Intensive Exports	0.030* (0.011)	0.031*** (0.011)	0.031*** (0.011)	0.022* (0.012)
SeconEduc. or Less*LogLowSkillIntensiveImports	-0.016** (0.008)	-0.014* (0.008)	-0.014* (0.008)	-0.012 (0.007)
Log Low Skill Intensive Imports	0.047 (0.029)	0.044 (0.029)	0.044 (0.029)	0.116*** (0.036)
Secondary Education or Less	0.410*** (0.074)	0.367*** (0.073)	0.365*** (0.073)	0.349*** (0.069)
R-squared	0.127	0.131	0.131	0.142
N	459986	459986	459986	459986
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country level characteristics	Yes	Yes	Yes	Yes
Demographic characteristics	No	Yes	Yes	Yes
Household income	No	No	Yes	Yes
Country-specific linear time trends	No	No	No	Yes

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. For details on control variables, see notes to Table 4. Low skill intensive exports (imports) is defined as sum of labour intensive exports (imports), low skill intensive exports (imports) and medium skill intensive exports (imports).

**Appendix Table 11: IV Estimates - Sub-sample Analysis by Returns to Education by Country**

	(1) IV Returns to educ.: bottom tercile	(2) IV Returns to educ.: middle tercile	(3) IV Returns to educ.: top tercile
<b>Outcome: Approval of the leader</b>			
TertiaryEducation*LogHighSkillIntensiveExports	-0.048 (0.083)	0.136*** (0.043)	0.501 (3.308)
Log High Skill Intensive Exports	-0.062 (0.117)	-0.010 (0.057)	0.024 (0.130)
TertiaryEducation*LogHighSkillIntensiveImports	0.066 (0.117)	-0.177*** (0.061)	-0.856 (5.694)
Log High Skill Intensive Imports	0.100 (0.141)	0.063 (0.111)	-0.043 (0.405)
Tertiary Education	-0.428 (0.875)	1.042** (0.467)	-8.751 (8.493)
N	128115	154310	143707
<b>Outcome: Confidence in Government</b>			
TertiaryEducation*LogHighSkillIntensiveExports	-0.084 (0.105)	0.153*** (0.042)	0.646 (4.368)
Log High Skill Intensive Exports	-0.021 (0.088)	0.021 (0.042)	0.029 (0.171)
TertiaryEducation*LogHighSkillIntensiveImports	0.139 (0.146)	-0.196*** (0.060)	-1.084 (7.492)
Log High Skill Intensive Imports	-0.123 (0.088)	0.069 (0.088)	-0.041 (0.526)
Tertiary Education	-1.324 (1.080)	1.117** (0.475)	-10.840 (6.603)
N	145965	165630	148391

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. In bottom tercile wage premia ranges from .08 to .39 with a mean of .28, in middle tercile wage premia ranges from .39 to .78 with a mean of .57, and in top tercile wage premia ranges from .78 to 2.44 with a mean of 1.03.

**Appendix Table 12: IV Estimates - Controlling for Oil Revenue**

	(1)	(2)
	IV	IV
Outcome is →	Approval of the leader	Confidence in Government
TertiaryEducation*LogHighSkillIntensiveExports	0.117*** (0.032)	0.111*** (0.037)
Log High Skill Intensive Exports	-0.003 (0.030)	0.012 (0.026)
TertiaryEducation*LogHighSkillIntensiveImports	-0.163*** (0.047)	-0.147*** (0.053)
Log High Skill Intensive Imports	0.028 (0.067)	0.035 (0.047)
Tertiary Education	1.152*** (0.398)	0.916** (0.449)
Log Oil Revenue	0.000 (0.000)	0.000 (0.000)
TertiaryEducation* LogOilRevenue	0.000 (0.000)	-0.000 (0.000)
N	395127	428177

Notes: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. For details on control variables, see notes to Column 4 of Table 4.

**Appendix Table 13: Classification of High-Skill Intensive Goods (SITC Rev. 3)**

<b>TDRE1</b>	<b>High-skill: Electronics (excluding parts and components)</b>
751	Office machines
752	Automatic data processing machines, n.e.s.
761	Television receivers, whether or not combined
762	Radio-broadcast receivers, whether or not combined
763	Sound recorders or reproducers
<b>TDRE2</b>	<b>High-skill: Parts and components for electrical and electronic goods</b>
759	Parts, accessories for machines of groups 751, 752
764	Telecommunication equipment, n.e.s.; & parts, n.e.s.
776	Cathode valves & tubes
<b>TDRE3</b>	<b>High-skill: Other, excluding electronics</b>
511	Hydrocarbons, n.e.s., & halogenated, nitr. derivative
512	Alcohols, phenols, halogenat., sulfonat., nitrat. der.
513	Carboxylic acids, anhydrides, halides, per.; derivati.
514	Nitrogen-function compounds
515	Organo-inorganic, heterocycl. compounds, nucl. acids
516	Other organic chemicals
522	Inorganic chemical elements, oxides & halogen salts
523	Metallic salts & peroxy salts, of inorganic acids
524	Other inorganic chemicals
525	Radio-actives and associated materials
531	Synth. organic colouring matter & colouring lakes
532	Dyeing & tanning extracts, synth. tanning materials
533	Pigments, paints, varnishes and related materials
541	Medicinal and pharmaceutical products, excluding 542
542	Medicaments (incl. veterinary medicaments)
551	Essential oils, perfume & flavour materials
553	Perfumery, cosmetics or toilet prepar. (excluding soaps)
554	Soaps, cleansing and polishing preparations
562	Fertilizers (other than those of group 272)
571	Polymers of ethylene, in primary forms
572	Polymers of styrene, in primary forms
573	Polymers of vinyl chloride or halogenated olefins
574	Polyethers, epoxide resins; polycarbonat., polyesters

575	Other plastics, in primary forms
579	Waste, parings and scrap, of plastics
581	Tubes, pipes and hoses of plastics
582	Plates, sheets, films, foil & strip, of plastics
583	Monofilaments, of plastics, cross-section > 1mm
591	Insectides & similar products, for retail sale
592	Starche, wheat gluten; albuminoidal substances; glues
593	Explosives and pyrotechnic products
597	Prepared addit. for miner. oils; lubricat., de-icing
598	Miscellaneous chemical products, n.e.s.
792	Aircraft & associated equipment; spacecraft, etc.
871	Optical instruments & apparatus, n.e.s.
872	Instruments & appliances, n.e.s., for medical, etc.
873	Meters & counters, n.e.s.
874	Measuring, analysing & controlling apparatus, n.e.s.
881	Photographic apparatus & equipment, n.e.s.
882	Cinematographic & photographic supplies
883	Cinematograph films, exposed & developed
884	Optical goods, n.e.s.
885	Watches & clocks
891	Arms & ammunition
892	Printed matter
896	Works of art, collectors' pieces & antiques
897	Jewellery & articles of precious materia., n.e.s.
898	Musical instruments, parts; records, tapes & similar

Note: The Standard International Trade Classification (SITC) is a statistical classification of the commodities entering external trade, which is provided by UNCTADstat. The current international standard is the SITC, Revision 3.



**Appendix Table 14: Classification of High-Knowledge Intensive Services**

ISIC Code	EBOPS Code	Service Industry
642	247	Telecommunications services
65	260	Financial services
66	253, 254, 255, 256, 257, 258	Insurance services  Life insurance and pension funding  Freight insurance  Other direct insurance  Reinsurance  Auxiliary services
72	263	Computer services
73	279	Research and development
74	275, 276, 277, 278, 280, 284	Legal services  Business and management consulting and public relations services  Accounting, auditing, bookkeeping, and tax consulting services  Advertising, market research, and public opinion polling  Architectural, engineering, and other technical services  Other business service

Notes: EBOPS data from UN COMTRADE do not classify exports and imports of services by skills. Therefore, we use ISIC-EBOPS conversion tables to identify “high-knowledge intensive services” using the definitions provided by the United Nations Manual on Statistics of International Trade in Services (2002).