International Trade, Top Earners and Stock Market Wealth

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Abstract

This paper proposes a novel channel through which international trade influences inequality: the propagation of stock market wealth. Corporate top earners receive a substantial portion of their compensation through stock ownership. Globalization impacts their stock market wealth both via capital gains from equity price appreciations and through new equity grants. These adjustments shift compensation from labor income towards capital income at the top of the income distribution. Exploiting variation in individual stock market wealth of US and UK executives in their firms and an instrumental variable strategy based on foreign input supply shocks, I provide evidence for this channel. I develop a general equilibrium trade model with heterogeneous firms, where managers are compensated with labor income and stock ownership to mitigate agency frictions. The model rationalizes that rising input imports have concentrated stock market wealth more strongly than labor incomes at the top.

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1 Introduction

Most industrialized economies have experienced significant growth in labor and capital incomes at the top of the income distribution over the last decades. Corporate top earners, such as executives, make up a substantial share of this group. Unlike salaried employees, their compensation structure is characterized by the accumulation of stock market wealth. As a result, a significant portion of their income originates from business profits through their ownership stakes in the employing firms.[1]

While previous research has examined the impact of international trade on top income inequality (Ma and Ruzic 2021, Keller and Olney 2021, Cuñat and Guadalupe 2009), this paper identifies trade-induced stock market wealth as a primary driver of top inequality, surpassing the dispersion in trade-induced labor income changes. This paper contributes to the literature in two key ways. First, I provide empirical evidence that input imports significantly influence the stock market wealth of corporate top earners. Using matched manager-firm data and a shift-share instrumental variable strategy based on input-output shares and foreign input supply shocks, I demonstrate that firm-related stock wealth responds more elastically to input import shocks than labor incomes. Second, I develop a model of heterogeneous firms and agency frictions to rationalize these empirical findings.

In the empirical analysis, I leverage matched employer-employee data on executives and their employing firms in the US and the UK. This dataset tracks the careers of over 40,000 corporate top earners working at more than 4,000 corporations. It includes detailled information on managers' firm-related stock market wealth, such as stocks, stock options and retirement-plan contributions tied to the stock prices of their employing firms. The sample firms are listed on the main US and UK stock indices and are economically significant, controlling approximately half of the corporate assets in the US and three-fourths in the UK.

The empirical analysis focuses on the rise in global value chains during the sample period from 2000 to 2014, during which intermediate imports grew faster than exports in both the US and the UK. Focusing on input imports helps address potential endogeneity concerns stemming from unobserved productivity or demand shocks in the industries employing top earners. I construct shift-share instruments that exploit shocks to transport costs and regional trade agreement coverage. These instruments are based on the exposure of downstream producers

[1] Among others, Atkinson et al. (2011) and Alvaredo et al. (2013) document rising top income shares in Anglo-Saxon economies over the last thirty years. Eisfeldt et al. (2022) and Smith et al. (2019) provide evidence for the importance of stock market wealth for human capital in the US. Piketty and Saez (2003) report a declining share of labor income and an increasing share of capital income as one moves up within the top decile and the top percentile of the income distribution.

to input-supplying countries and industries. The analysis reveals that increases in industry-level input imports boost stock prices for large, importing firms, while smaller, domestic firms experience stock price declines.[2] This divergence in valuation has significant implications for the stock market wealth of corporate top earners. Specifically, trade shocks disproportionately impact stock market wealth for individuals in larger, importing firms. In these firms, compensation shifts away from labor income toward capital income, whereas the opposite trend occurs in smaller, domestic firms.[3] Consequently, the heterogeneity in capital gains driven by input supply shocks exceeds the corresponding heterogeneity in top labor incomes. This higher elasticity of stock market wealth is explained by both the appreciation of stock prices and the issuance of new equity to individuals.

The paper proceeds with a model of heterogeneous firms and agency frictions, where managers are compensated with monetary transfers and equity claims. The model combines a stylized incentive contracting problem, as in Edmans et al. (2009), with an assignment framework based on firm heterogeneity, similar to Melitz (2003). The model replicates adjustments in compensation structures observed in the empirical analysis following trade shocks. Specifically, trade liberalization influences reservation earnings through labor market adjustments, leading to cross-firm variation in compensation structures. In larger, international firms, individuals receive a higher proportion of equity ownership relative to labor income, consistent with the data. The model explains this by introducing heterogeneity in managerial labor supply tied to reservation earnings, reflecting stylized facts documented by Bick et al. (2018) and Boppart and Krusell (2020). These studies show that labor supply declines with income, both across countries and within individuals as wages increase, with income effects outweighing substitution effects over time. To induce managerial labor supply in response to rising equilibrium earnings in larger firms, the equity-to-labor-income ratio must increase to provide sufficient incentives. Stock market wealth changes in the model occur through both direct pass-through from equity price changes (modeled as profits) and shifts in compensation structures. I analyze the quantitative implications of these mechanisms by calibrating the model to match macroeconomic and microeconomic moments for the US and the UK. Finally, I conduct a counterfactual analysis of an import trade shock to evaluate its impact.

The paper contributes to two strands of literature. The first is research on top income inequality and executive compensation. Piketty and Saez (2003), Piketty and Saez (2013), Atkinson et al.

[2]This finding aligns with the notion of trade-induced reallocation à la Melitz (2003). It also complements Breinlich (2014) who documents heterogeneous stock-price responses in an event study around the Canada–US FTA of 1989 in accordance with expected intra-industry reallocation of economic activity.

[3]This finding aligns with Song et al. (2019) who document that a significant portion of the rise in US income inequality occurred across firms due to a widening gap of firms' employee composition, likely also driven by outsourcing parts of the production process.

(2011) and Alvaredo et al. (2013) document a general trend of increasing top 1% income shares for Anglo-Saxon countries. Bakija et al. (2008) report that executives roughly account for one-third of the top 1% in the US income distribution such that their incomes contribute substantially to top income inequality. Talent assignment models by Gabaix and Landier (2008), Edmans et al. (2009), Falato and Kadyrzhanova (2012), Baranchuk et al. (2011) and Terviö (2008) explore the relationship between CEO pay and product market size. However, these models consider an exogenous mass of firms and thus do not account for adjustments in compensation structures resulting from trade shocks, the focus of this paper. The second strand relates to international trade and inequality. Most closely, Ma and Ruzic (2021), Keller and Olney (2021) and Cuñat and Guadalupe (2009) examine the impact of trade integration on US corporate executives' incomes. Monte (2011) and Sampson (2014) develop assignment models with firm heterogeneity to understand the role of trade on the dispersion of incomes across firms. Pupato (2017) develops a model of performance pay and trade to study the impact of trade liberalization on inequality between homogeneous workers. Burstein and Vogel (2017) quantify changes in the skill premium within a Ricardian trade model. Grossman and Rossi-Hansberg (2008) investigate how offshoring affects skill premia in a model of global production. Feenstra and Hanson (1999) report that trade in inputs explains around 40% of the US skill premium between 1979 and 1990. Becker et al. (2013) find that offshoring shifted the wage bill towards more non-routine and more interactive tasks. Furthermore, Hummels et al. (2014) and Baumgarten et al. (2013) estimate varying wage effects of offshoring across task characteristics.

The remainder of the paper is organized as follows. The next Section presents data and the empirical analysis. Sections 3 and 4 present the model and analyze its quantitative implications. Finally, Section 5 concludes.

2 Empirical Analysis

This section studies empirically how input imports affect the stock market wealth of corporate top earners, using a Bartik shift-share instrumentation strategy to identify shifts in input sourcing.

2.1 Data

2.1.1 Data on Top Earners' Stock Market Wealth

The empirical analysis uses data for individual top earners of publicly quoted firms in the US and the UK, spanning the period from 2000 to 2014. Stock companies in the US and UK report directors' share and option holdings in annual proxy statements, enabling the computation of individual stock market wealth within their respective employing firm.[4] In the US, share ownership is disclosed in proxy statements submitted to the Securities Exchange Commission. In the UK, regulation requires a register of directors' interests in the employing firm's shares as part of the Companies Act 1985. I obtain information on US managers from S&P Compustat ExecuComp and information on British managers from BoardEx. These sources gather information on renumeration and biographical details of business leaders from regulatory entities.

Stock market wealth comprises the value of shares owned by the manager (acquired through exercised stock options or direct grants) along with the market value of outstanding equity options. For managers employed by US companies, I follow the approach suggested by Coles et al. (2006). The value of the stock portfolio is the product of the number of shares that an individual holds and the year-end stock price. Prior to the revision of Federal Accounting Standard 123 in 2006, the value of the option portfolio includes newly-granted options, as well as previously-granted unvested and vested options. From 2006 onwards, options are reported at the option-tranche level, and the value of the option portfolio is obtained by aggregating values across tranches. For managers employed by British firms, I obtain stock market wealth directly from BoardEx, following the same principle of summing the value of shares and the estimated options value.

Overall, the panel includes more than 40,000 directors employed by over 4,000 firms. About one fourth of these are employed by British firms while the remaining ones are employed by US firms. Compared to World Bank data on the market capitalization of listed firms across countries, the sample firms comprise approximately 80% of the US and 60% of the UK market capitalization. Compared to total nation-wide assets from aggregate KLEMS data, the sample firms control approximately half of the US corporate assets and three fourths of British corporate assets. Based on data from the World Inequality Database for the pre-recession year 2006, for more than 15% of the US-based managers and more than 5% of the UK-based managers in the sample, the firm-related value of stock market wealth is above the threshold to be in the top 1% of the net personal wealth distribution (including financial and non-financial assets).

2.1.2 Data on Firms and Industries

I match individuals in the sample to their employers using firm-level information from Compustat US or Compustat Global. Additionally, I use Dun&Bradstreet WorldBase data (D&B WorldBase) to classify firms as importers or exporters. To assess the exposure of individuals to

[4]Sometimes, this measure of stock market wealth is referred to as "inside equity". See Appendix A for more details on the data construction.

foreign input markets, I link the sample firms to industry data from the World Input Output Database (WIOD, 2016 release) based on the firms' primary industries. WIOD tracks the flow of intermediate and final goods and services across countries and industries over time, covering 56 sectors based on ISIC Rev. 4.

The exposure of individuals to foreign inputs is measured by calculating the value of imported inputs relative to the total input consumption within each country-industry-year cell. Alternatively, I use a more disaggregated I-O table for manufacturing industries based on the 1992 US Benchmark I-O table from the US Bureau of Economic Analysis and import data from the UN Comtrade database. I also construct an offshorability measure based on the task composition within occupations and the occupational composition within industries.[5] Table 1 presents selected summary statistics on individuals, firms and industries.

Table 1: Summary Statistics

Variable	Obs.	Mean	Std. Dev.	25th Pct.	Median	75th Pct.
Manager-Year Level						
Labor Income (in Thd. USD)	201,009	2,410	11,040	433	940	2,207
Stock Market Wealth (in Thd. USD)	165,071	24,150	392,265	870	2,926	9,208
Firm-Year Level						
Nb. of Managers in Sample	43,712	4.7	1.7	3	5	6
Assets (in Mio. USD)	42,704	7,976	25,498	196	937	4,060
Employment (in Thd.)	40,292	12.4	27.9	0.5	2.6	9.8
Sales (in Mio. USD)	40,536	3,698	8,942	179	743	2,670
Country-Industry-Year Level						
Imported Inputs (Expenditure Share)	1,431	0.16	0.10	0.08	0.13	0.20
Output (in Mio. USD)	1,431	257,977	360,530	41,585	125,572	315,866
Imports (in Mio. USD)	1,431	25,368	42,949	3,289	9,003	27,360
Exports (in Mio. USD)	1,431	19,069	26,002	3,174	10,056	23,949

2.2 Stylized Facts on Firm-Related Stock Market Wealth of Top Earners

Before turning to the empirical analysis, I present four stylized facts on stock market wealth of corporate top earners based on the data.

[5] This proxy has been used by Acemoglu and Autor (2011), Blinder (2009) and Bretscher (2019) (see Appendix A).

Fact #1: Firm-related stock market wealth of top earners is higher in international and large firms: Top earners in international firms – defined as multinationals, importers, or exporters – have higher firm-related stock market wealth, as shown in the upper panel of Table 2 (panel a). This pattern is also observed for managers in larger firms, measured by sales or employment.

Table 2: Correlations with Firm-Related Stock Market Wealth

(a) Firm Covariates

	Sales (log)	Employment (log)	Capital Intensity (log)	Multinational	Importer	Exporter
Stock Market Wealth (log)	0.393***	0.353***	0.265***	0.823***	0.640***	0.667***
Stock Market Wealth Share △	0.0174***	0.0133***	0.0240***	0.0428***	0.0168**	0.0242***

(b) Industry Covariates

	Offshorability (S.D.)	TFP (log)	Output (log)	Exports (log)
Stock Market Wealth (log)	0.148***	0.601***	0.189***	0.0352***
Stock Market Wealth Share △	0.0111***	0.109***	0.0128***	0.0103***

Notes: The cells are coefficient estimates of univariate regressions, whose dependent variables are down the rows and regressors are along the columns. Specifications additionally control for tenure and include country-year fixed effects and in Table (a) also industry fixed effects. The dependent variables are *Stock Market Wealth* (in logs) and the *Stock Market Wealth Share* △ (*Stock Market Wealth* relative to the sum of *Stock Market Wealth* and the present value of previous labor-income payments). Standard errors are cluster-robust at the firm level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

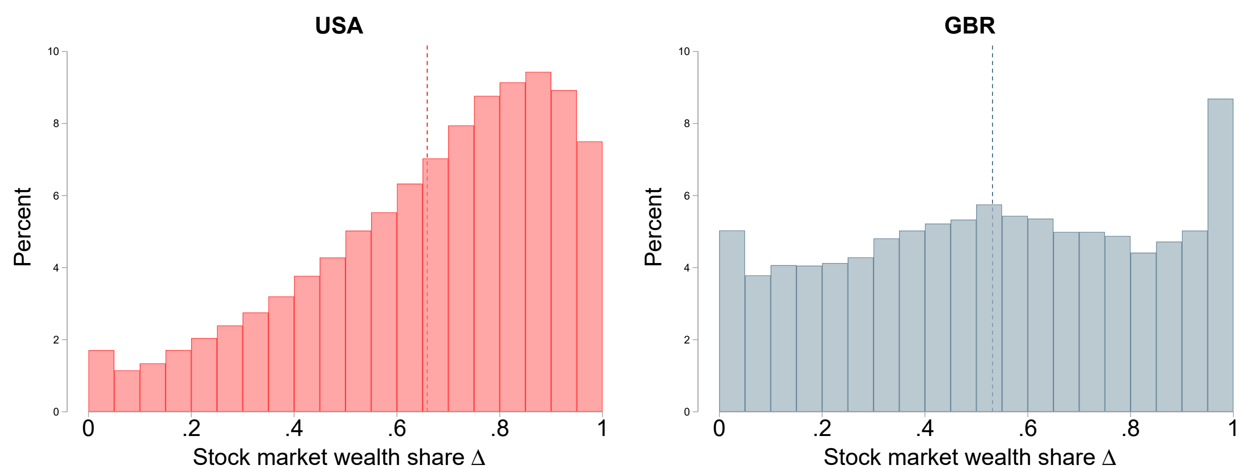
Fact #2: Firm-related stock market wealth of top earners is higher in more international, larger and productive industries: Firm-related stock market wealth of top earners is positively correlated with industry-level characteristics, as highlighted in the bottom panel of Table 2 (panel b). These include higher total factor productivity (TFP), output, exports, and the offshorability of tasks within the industry.

Fact #3: Incorporated firms are more likely to be international firms: Incorporated firms are significantly more likely to engage in international activities. Within the D&B WorldBase sample, 1.7% of incorporated firms are multinationals, 5.6% are importers, and 4.0% are exporters. By contrast, the proportions for unincorporated firms are much smaller:

0.1% multinationals, 0.4% importers, and 0.3% exporters.[6]

Fact #4: Firm-related stock market wealth matters for top earners: Firm-related stock market wealth is a significant component of top earners' compensation. I compute the ratio of firm-related stock market wealth to the sum of stock market wealth and the present value of labor incomes. Figure 1 shows the distribution of this ratio, which varies substantially across individuals. On average, top earners in the US have a ratio of 0.66, while in the UK, this ratio averages 0.53.

Figure 1: Distribution of Firm-Related Stock Market Wealth



Notes: The Figure plots the distribution of *Stock Market Wealth Shares* △ in the data. The *Stock Market Wealth Share* △ is calculated as *Stock Market Wealth* relative to the sum of *Stock Market Wealth* and the present value of previous labor-income payments.

2.3 Empirical Strategy

2.3.1 Baseline Specification

I estimate the following specification to quantify how input imports affect stock market wealth of corporate top earners:

$$I_{mfict} = \alpha_1 \times q_f \times imp_{ict} + \alpha_2 \times q_f \times exp_{ict} + \Gamma_{mfict} + \mu_{mf} + \mu_{ct} + \varepsilon_{mfict}. \tag{1}$$

[6]Note that these numbers comprise firms across all industries and that not all incorporated firms are publicly listed.

The outcome of interest is denoted by I_{mfict} (mostly stock market wealth in logs) of a manager m, employed in firm f, that is active in industry i and based in country $c \in \{US, UK\}$ during year t. The potentially endogenous regressor imp_{ict} is the industry-level expenditure share on imported intermediates:

$$imp_{ict} = \frac{\text{expenditures on imported inputs } (i, c, t)}{\text{expenditures on all inputs } (i, c, t)}, \tag{2}$$

which measures the extent of input imports in a country-industry cell over time. I interact imp_{ict} with a dummy vector of firm characteristics q_f to allow the effect of industry input imports to vary across firms. To assess how input imports affect top earners across firms of different size, I interact imp_{ict} with five size quintile dummies which place each firm into its size bin within the sample firm-size distribution. Alternativelly, I differentiate the effect between importing and non-importing firms by interacting imp_{ict} with a dummy that indicates the firms' importer status.[7] The vector Γ_{mfict} includes control variables. These are the firms' capital intensity, the domestic absorption rate of the industry (output plus imports net of exports) and a TFP index for the industry. In some specifications, I additionally control for the firms' export exposure $q_f \times exp_{ict}$, where exp_{ict} is industry-level log exports and q_f are either the same firm-size dummies or a dummy for the firms' exporter status. I further include country-year fixed effects μ_{ct} and match fixed effects μ_{mf} for manager-firm pairs. While the former control for aggregate macroeconomic trends, the latter absorb differences in top earners' tenure in the firm or skill levels. Following Abadie et al. (2023), I correct for clustering of standard errors at the firm level.

2.3.2 Endogeneity Bias and Instrumental Variable Approach

The empirical analysis links individuals' stock market wealth to industry-specific time variation in input imports. The identification challenge arises from the potential influence of unobserved firm- or industry-level supply or demand shocks, which could simultaneously affect top earners' stock market wealth and firms' input importing patterns. For instance, changes in production technologies might impact both importing decisions and top earners' wealth.

To address this endogeneity, I construct and use two Bartik shift-share instruments: international transport costs (tc_{ict}) and RTA coverage (rta_{ict}). Following Borusyak et al. 2022, I adopt a hypothetical shift-level experiment that assumes that variation in transport costs and RTA

[7] I construct the time-invariant firm-size quintiles by sorting firms by their sales or employment levels within each country. In order to prevent endogeneity issues driven by firms changing their position within the firm-size distribution over time, I base the measure on average firm size during the first 3 sample years 2000 - 2002. I plot transition probabilities of firms across size quintiles in Table A5 of the Appendix.

coverage is as good as randomly assigned across countries and industries producing production inputs. Countries and industries with lower transport costs or covered by RTAs are expected to increase their global input supply, leading to higher imports for firms reliant on these inputs.[8] Input reliance is captured by input-output shares of firms' industries.

This idealized natural shift-level experiment could be violated if trade costs or RTA coverage change in non-random ways across producing countries and industries that are correlated with the error term. I address this concern at various levels. First, I control for characteristics of the firms' industries such as their absorption rate and their productivity to address demand-side effects that might violate the quasi-natural shift-level experiment. Second, as transport costs and RTA coverage might be affected by the size of input-producing industries, I control for the share-weighted size of input-supplying industries' (measured as log output) as suggested by Borusyak et al. 2022. Third, instead of using realized transport costs, which may be endogenously determined partly on the import side, I construct tc_{ict} based on predicted transport costs, derived from oil price variation, bilateral distances and their interaction over time, similar to Hummels et al. (2014). Fourth, as I have two instrumental variables at hand, I perform tests for overidentification to assess the validity of the instruments. Lastly, I provide descriptive statistics to ensure a sufficiently large number of effective shocks and confirm that the shocks are not excessively concentrated.

2.3.3 Construction of the Instrumental Variables

To construct the Bartik shift-share instruments, I first obtain a set of weighting shares $\theta^{ic}(i', c')_{2000}$, using WIOD data for the initial sample year 2000. These shares are the direct expenditures of industry i in country c spent on inputs sourced from industry i' in country c' (excluding domestically sourced inputs) relative to total direct expenditures on imported inputs of industry i in country c. By construction, the shares sum up to one for each sample observation.

Transport Costs: Identification from transport costs comes from shocks to the delivered price of imported inputs over time. WIOD provides transport margins as part of their international use tables across (input) industries i' and country pairs $c'c$. These margins are defined as wedges between f.o.b. and c.i.f. prices. In a first step, I obtain predicted transport costs $\widehat{tc}_{i'c'ct}$ by regressing the ad-valorem transport margins[9] on log distance, log oil prices and their

[8] Figure A1 in the Appendix plots the relevance of the two instruments.

[9] To obtain ad-valorem transport margins, I divide the total margins relative to total use.

interactions:

$$\widehat{tc}_{i'c'ct} = 0.014675 + 0.067386 \times goods_{i'} - 0.011203 \times \ln oil\ price_t + 0.000946 \times \ln dist_{c'c} \times \ln oil\ price_t, \quad (3)$$

where the R^2 of this prediction is 0.58 and the correlation coefficient between predicted and observed margins equals 0.78. In a second step, I average these predicted transport costs, using the instrument shares $\theta^{ic}(i', c')_{2000}$:

$$tc_{ict} = \sum_{i',c'} \theta^{ic}(i', c')_{2000} \times \widehat{tc}_{i'c'ct}. \quad (4)$$

RTA Coverage: The second instrument is the share of RTA coverage across input suppliers (rta_{ict}). It captures the degree of trade integration between the output-producing economy c and input-supplying countries c' over time. I use data from the CEPII gravity database to obtain information on RTA coverage. CEPII data provide a dummy that indicates whether two countries have a regional trade agreement in place in year t. Furthermore, CEPII provides information on whether these RTAs cover goods, services or both. Using this information, I first construct the dummy $rta_{i'c'ct}$, that indicates whether trade between countries c and c' for goods in input industry i' are covered by an RTA. Using the same shares $\theta^{ic}(i', c')_{2000}$, I obtain the RTA instrument:

$$rta_{ict} = \sum_{i',c'} \theta^{ic}(i', c')_{2000} \times rta_{i'c'ct}. \quad (5)$$

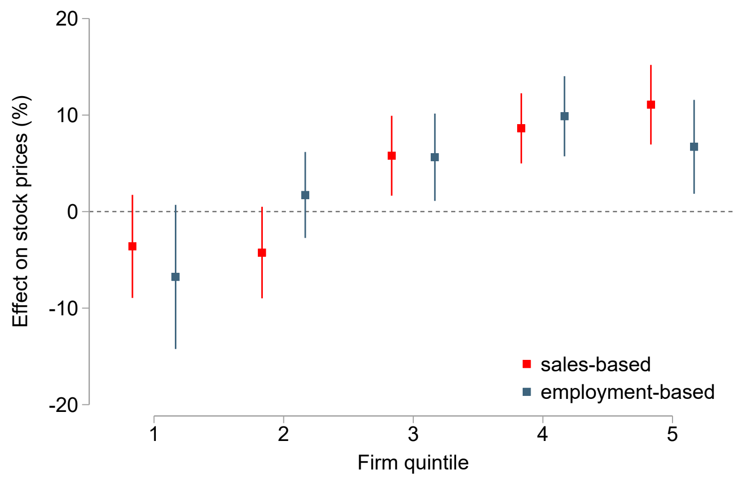
Shock-Level Descriptives: WIOD includes coverage of 44 countries and 56 industries, such that the shift-share instruments are a weighted average over a total number of 2,464 shifts for each sample year t. I calculate the inverse Herfindahl-Hirschman concentration index of importance weights for each of these shifts as the distribution of exposure shares might be concentrated on few individual shifts as suggested by Borusyak et al. 2022. The inverse Herfindahl-Hirschman index suggests that the effective number of shifts is about 84 per period.

2.4 Results

2.4.1 Stock Prices

I begin by analyzing how input imports influence stock prices across firms to assess the capital-market response to input trade shocks. Since top earners' capital gains are directly tied to

Figure 2: Input Imports and Stock Prices



Notes: The Figure depicts the IV coefficients of importing on stock prices for individual firm-size quintiles (either sales-based or employment-based). The estimates are based on columns (4) and (5) from Table 3. Individual coefficients capture the effect of a percentage-point increase in the industry-level share of imported inputs on equity prices in percent. The lines correspond to 95% confidence intervals.

stock price appreciations, one potential adjustment channel is the direct pass-through from price changes to stock market wealth. When firms become more productive due to increased imports, and the market incorporates this into stock valuations, these gains ultimately pass through to top earners. I regress the average annual price of each firm's main security in logs on the interaction between input imports and firm-size quintile dummies including firm fixed effects and control variables. Stock prices are adjusted to account for dividends and stock splits. The coefficients of interest are semi-elasticities, which measure the percentage change in stock prices associated with a one-percentage-point increase in the industry-level share of imported inputs.

Figure 2 illustrates the instrumental-variable estimates and the full regression results are presented in Table 3. The findings reveal that stock prices respond heterogeneously across firms, with the largest firms experiencing the most pronounced effects. For firms in the top size quintile, stock prices increase by approximately 10% in response to a one-percentage-point rise in industry-level intermediate imports. This result aligns with Smith et al. (2019), who document that growth in pass-through business profits are a key driver of US top incomes. The null hypothesis of uniform effects across firm-size bins is rejected at the one-percent significance level.

In Table 4, I compare the stock price effects for importing versus non-importing firms and find similar patterns.[10] The estimated semi-elasticities in Table 4 indicate that stock prices appreciate in response to input imports by between 6% to 16% relative to non-importers for each percentage-point increase in the import share. These results further highlight the heterogeneity in stock price responses to trade shocks and underscore the importance of input imports for firm valuation.[11]

2.4.2 Stock Market Wealth of Top Earners

Next, I analyze how input imports influence the stock market wealth of top earners. Table 5 presents semi-elasticity estimates of input imports by firm-size quintiles. Specifications (1) to (5) rely on size quintiles based on sales, specification (6) relies on employment-based size quintiles. Figure 3 visualizes the baseline instrumental-variable estimates for specifications (4) and (6). The results reveal significant heterogeneity across firms. Although the sample includes relatively large firms,[12] the effects of input imports are small or even negative for top earners in firms within the bottom size quintiles. In contrast, stock market wealth for top earners in the largest firms (top quintile) appreciates by about 8% in response to a one-percentage-point increase in industry-level input imports. The appreciation is slightly higher for the top earners in the subsample of CEOs. Specifications (2) and (4) to (6) also include interaction terms between firm-size dummies and exports. Exports also seem to appreciate stock market wealth only for those top earners that are employed by the largest firms. Overall, the absolute magnitudes of IV estimates are larger in magnitude than the OLS counterparts. The null hypothesis of equal effects across all size quintiles is rejected at the one-percent level in all specifications. Furthermore, null hypotheses of equal effects between the bottom and top firm quintiles or the second and fourth quintiles are also rejected at the one-percent level.

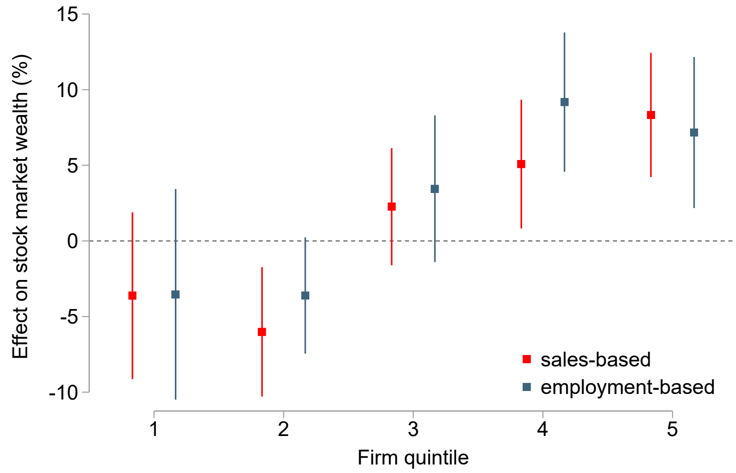
To further investigate the link between stock market wealth and importing, Table 6 differentiates the effects for top earners employed by importing firms. In this analysis, I interact the import share with an importer dummy and include country-industry-year fixed effects. The results show that top earners in importing firms experience significantly larger capital gains, with stock market wealth appreciating by 4 to 10% per percentage-point increase in the import share.

[10] I classify importers or exporters as those firms that have at least one establishment that is classified as an importer or exporter in WorldBase.

[11] The results also comply with Breinlich (2014) who provides evidence that stock prices respond heterogeneously to trade liberalization due to intra-industry reallocation.

[12] The median level of sales equals 740 Mio. $ and 2,600 employees, see Table 1.

Figure 3: Input Imports and Stock Market Wealth



Notes: The Figure depicts the IV coefficients of importing on the stock market wealth of corporate top earners for individual firm-size quintiles (either sales-based or employment-based). The estimates are based on columns (4) and (6) from Table 5. Individual coefficients capture the effect of a percentage-point increase in the industry-level share of imported inputs on stock market wealth in percent. The lines correspond to 95% confidence intervals.

2.4.3 Changing Compensation Structure of Top Earners

Stock market wealth can adjust through two channels: the pass-through from stock prices and the accumulation of newly granted equity. To disentangle these mechanisms, I analyze new equity grants to top earners in specification (1) of Table 7. The dependent variable here is the proportion of new equity-linked compensation relative to the sum of direct income (salary and bonuses) and new equity. The results indicate that the largest firms shift compensation structures toward equity in response to a trade shock, granting relatively more equity relative to cash payments. In contrast, smaller firms increase the share of direct cash compensation relative to new equity grants. These findings suggest that both channels – adjustments in compensation structures and pass-through gains from stock price revaluations – contribute to the accumulation of stock market wealth for top earners. The first channel, compensation structure adjustments, can be explained by shareholders' need to maintain managerial incentives in response to trade shocks. Trade integration not only affects firm value but also alters agency frictions and the elasticity of stock portfolios, thereby reshaping managerial incentives under existing contracts.

Specifications (2) to (5) of Table 7 then examine how stock market wealth shares for top earners adjust. As before, stock market wealth shares are calculated as the ratio of an individual's stock market wealth to the sum of stock market wealth and the present value of labor-income payments. The results show that stock market wealth responds more elastically than labor incomes to input imports. Consequently, stock market wealth becomes more prominent in the compensation structures of top earners employed by large firms. These findings highlight how international trade can drive the increasing prevalence of capital income relative to labor income for top earners, consistent with trends documented by Piketty and Saez (2003).

2.4.4 Robustness and Additional Results

Rent distribution within firms: Studies by Autor et al. (2019) and De Loecker et al. (2020) highlight the role of increasing market concentration on falling aggregate labor shares, attributing this trend to the concentration of economic activity among top firms. In Table 8, I examine how reallocation affects rent distribution within firms by using the firm-level average of top earners' stock market wealth relative to aggregate firm-level labor expenses as the outcome variable. The results show that increased input imports shift the rent distribution toward aggregate labor expenses for smaller firms (bottom size quintiles), while top earners gain disproportionately in larger firms.

Controlling for final-goods imports: A typical feature of an economy's input-output structure is that a substantial share of inputs originates within the same industry. If input imports and final-goods imports are not precisely distinguished, this may obscure the measure of input imports. To address this, Table A2 in the Appendix includes controls for interactions between firm-size quintiles and import competition. The results demonstrate that the heterogeneity of effects on stock market wealth remains robust even when accounting for import competition.

Using a more granular input-output table for US manufacturing: The WIOD input-output tables, while comprehensive across industries, are relatively aggregated, covering fewer than 60 industries to ensure comparability across countries and time. In order to assess the robustness of my results using a more disaggregated input-output table, I employ the 1992 US Benchmark input-output table from the US Bureau of Economic Analysis, transformed to the 3-digit SIC industry level.[13] Based on this input-output table, I calculate an alternative measure of exposure to imported inputs: $\tilde{imp}_{cit} = \sum_{i'} \theta^i(i')_{BEA} \times \ln(\text{total imports}_{i'ct})$, where $\theta^i(i')_{BEA}$ are input-output coefficients from the BEA table and $\ln(\text{total imports}_{i'ct})$ is the logarithm of total imports in country c during year t. Table A3 presents the robustness results for top earners in manufacturing firms. The findings confirm a positive association between top earners' stock market wealth and input imports, with the observed heterogeneity across firm-size quintiles

[13] This table has been used extensively in previous studies of intermediate-goods trade (Alfaro et al. 2019, Alfaro et al. 2016, Conconi et al. 2018) and I use the version from Alfaro et al. (2019) who transform this table to the SIC industry level.

remaining consistent.

Omitting the Great Recession years: The global recession of 2008-2009 saw an international trade collapse by approximately 15% – four times the contraction of real global GDP (Bems et al. 2013) – alongside significant stock price depreciation. To ensure that the observed effects are not driven entirely by the volatility of the recession years, I re-estimate the results, excluding 2008-2009. Table A4 demonstrates that the key findings hold even after omitting these years, confirming the robustness of the results.

3 Model

I present a model of international trade with heterogeneous firms that hire a manager and are subject to a moral-hazard problem. The distribution of stock market wealth and labor incomes across firms is shaped by the interplay between product and labor markets and contracts between firms and managers. Furthermore, wealthier individuals exhibit a higher preference for leisure, endogenizing variations in equilibrium compensation structures. Trade liberalization reallocates economic activity toward larger firms, ultimately shifting the compensation structures of top earners and influencing the observed distribution of stock market wealth and labor income.[14]

3.1 Setup

Preferences and Endowments: The economy accommodates a set of industries I. Each industry $i \in I$ is endowed with a mass of agents N_i and blueprints Q_i. Agents live for one period and either work as a production worker in any industry or become a manager within industry i. The mass of blueprints in each industry represents the potential mass of firms entering that industry. Knowledge and quality of blueprints vary in efficiency. The measure of blueprints with an efficiency level above $q \in [1, \infty)$ is denoted as $Q_i(q) = Q_i/q$. Similarly, $N_i(k) = N_i/k$ is the measure of agents in industry i with knowledge above $k \in [1, \infty)$.[15] Preferences are characterized by a multiplicative utility function over consumption C and leisure G:

$$U = C \cdot G, \;\text{ with } C = \prod_{i=1}^{I} \left[\left(\int_{\omega} x_{\omega}^{\frac{\sigma-1}{\sigma}} d\omega \right)^{\frac{\sigma}{\sigma-1}} \right]^{\beta_i}. \tag{6}$$

[14] The model is presented briefly for conciseness. For a more detailed derivation, refer to Appendix B.

[15] As the shape of the equilibrium earnings distribution will not only be determined by the shape of these distributions but also by the contribution of blueprints and knowledge to firm productivity, the assumption of unity shape parameters is without loss of generality for the earnings distribution.

Consumption utility C is a Cobb-Douglas aggregate over CES industry bundles containing individual varieties ω. Sectoral expenditure shares are denoted by β_i and σ is the elasticity of substitution across varieties within each industry. Production workers earn a numéraire wage. Given the uncertainty of equity value at the individual firm level, a distinction is made between expected and realized compensation. The expected compensation for an agent with knowledge level k employed in industry i is denoted by $r_i(k) = E[w_i(k)] = 1 + \Psi_i(k)$. Here, $w_i(k)$ represents realized compensation and $\Psi_i(k)$ denotes a compensation premium above the numéraire worker wage.

Managerial Labor Supply: Managers face a binary choice regarding their labor supply, exerting either high effort ($\overline{e}$) or low effort ($\underline{e}$), necessitating firms to write incentive contracts. Managerial effort levels are normalized to $-1 < \underline{e} < \overline{e} = 0$. Low effort destroys a fraction $(1 + \underline{e})$ of firm surplus. I abstract from agency frictions in production work. Leisure utility G is given as:

$$G = \frac{1}{1 - \lambda(e, \Psi_i)} \geq 1, \quad \lambda(e, \Psi_i) \in \begin{cases} [0, 1) & \text{if } e = \underline{e} \\ 0 & \text{if } e = \overline{e} \end{cases}, \quad \frac{d\lambda(\underline{e}, \Psi_i)}{d\Psi_i} \geq 0. \tag{7}$$

The function $\lambda(e, \Psi_i)$ captures private benefits of leisure. While high effort does not entail leisure benefits ($\lambda(\overline{e}, \Psi_i) = 0$), low effort increases utility by $\lambda(e, \Psi_i)$. The model assumes that leisure benefits grow with compensation levels. Unlike Edmans et al. (2009), who assume that income and substitution effects exactly cancel out such that labor supply remains constant when agents become richer, this model suggests that income effects outweigh substitution effects, leading richer agents to value leisure more. This is consistent with Boppart and Krusell (2020) who document that most countries experienced declining labor supplies over time suggesting that income effects outweigh substitution effects.[16] The assumption of increasing leisure benefits with income is crucial, as it explains why stock market wealth shares rise with compensation levels. Other explanations, such as increased agency conflicts with firm size, could also account for a higher stock market wealth share, with λ reflecting the utility gains from managerial empire building.

Production, Entry and International Activity: The mass of blueprints comprises the mass of potential entrants into each industry.[17] Firms originate from the matching of a man-

[16]Similarly, Bick et al. (2018) document empirically that labor supply decreases with income, both at the aggregate level across countries and also per worker with increasing individual wages.

[17]Similar to Chaney (2008), blueprints are owned by some mutual fund which maximizes firm profits that redistributes residual profits in some way that is exogenous to the model.

ager to a blueprint and operate on a monopolistically competitive product market. Each firm faces a demand per variety equal to $A_i p^{-\sigma}$. The term $A_i \equiv X_i P_i^{\sigma-1}$ is an aggregate demand shifter that captures the market size from the perspective of individual firms in the industry. Here, X_i corresponds to industry size and P_i is the price index of the industry. To ensure that managerial effort is not directly observable from firm output, each firm produces a mass of varieties $\eta(1+e)$. That mass depends on managerial effort e and luck, captured by an idiosyncratic unobservable stochastic noise term $\eta \geq 0$ with a mean of one. Each variety generates a monopolistic-competition profit stream π such that a firm's realized ex-post surplus is $\Pi = \eta(1+e)\pi$. In the aggregate, there is no uncertainty since $E[\Pi|\bar{e}] = \pi$.

Firms can choose to import parts of their inputs. Importing inputs from abroad lowers firms' unit-labor requirements by a factor $z_{is} \geq 1$ and requires firms to spend fixed costs F_{is}.[18] Firms can also spend fixed costs F_{ix} to export goods to a symmetric foreign economy. Exporting firms need to produce τ_{ix} units of output for one unit to reach the foreign destination. Fixed costs F_{is} and F_{ix} are expressed in units of production labor. Without loss of generality, I assume that the export choice is more restrictive than the import choice such that less productive firms find it worthwhile to import inputs relative to the firms that select into exporting.[19] Productivity of each firm is determined by the match quality and the firm's importing choice. Unit costs of production for a firm with a blueprint q and a manager with knowledge k are given as follows:

$$\varphi(k,q) = \begin{cases} \left(z_{is} k^{\mu_i} q^{\kappa_i}\right)^{-1} & \text{if importer} \\ \left(k^{\mu_i} q^{\kappa_i}\right)^{-1} & \text{if non-importer.} \end{cases} \tag{8}$$

The parameters $\mu_i > 0$ and $\kappa_i > 0$ measure the influence of knowledge and blueprints for firm productivity. The surplus per variety π thus equals

$$\pi = \frac{1}{\sigma}\left(\frac{\sigma}{\sigma-1}\right)^{1-\sigma} A_i \left[1 + \mathbb{I}_s\left(z_{is}^{\sigma-1} - 1\right) + \mathbb{I}_x\left(\left(1+\tau_{ix}^{1-\sigma}\right) z_{is}^{\sigma-1} - 1\right)\right] \left(k^{\mu_i} q^{\kappa_i}\right)^{\sigma-1}, \tag{9}$$

where $\mathbb{I}_s$ is an indicator for firms that import and $\mathbb{I}_x$ is an indicator for firms that export. Note, that high effort implies $E[\Pi|\bar{e}] = \pi$ and low effort implies $E[\Pi|\underline{e}] < \pi$. As more knowledgeable agents have a comparative advantage in managing firms with better blueprints, there is positive assignment and individual firms balance the marginal benefit of higher knowledge with the marginal increase in expected compensation. The marginal manager in the industry with knowledge level $\underline{k}_i$ is indifferent between management or production work such that $r_i(\underline{k}_i) = 1$.

[18] I offer a microfoundation for the productivity gains from importing in Appendix B.

[19] As the share of importing firms is larger than the share of exporting firms in my empirical sample, this is supported by the data.

Incentive Contracts: Firms offer contracts that provide sufficient incentives for the manager to forego private leisure benefits from low effort. Contracts specify a level of income transfers f and an equity portfolio with value $V(\Pi)$. The elasticity of the equity portfolio with respect to firm surplus is denoted by ε_V. The capital market is outside of the model and stock market wealth can comprise any portfolio of stocks and stock options on a firm's realized surplus Π. Since agents are risk-neutral, there exists a continuum of incentive-compatible contracts that induce $\overline{e}$. Following Edmans et al. (2009), I restrict attention to contracts that satisfy individual rationality and minimize equity grants. These contracts would also be the optimal ones under marginally positive risk aversion.

3.2 Equilibrium and Comparative Statics

Timing of Events: At the beginning of the period, firms pair with managers and make a take-it-or-leave-it contract offer. Agents select their occupation based on expected compensation: those expecting to earn more than the numéraire wage become managers, while the other agents become production workers. After contracts are signed and roles are chosen, managers decide on their effort level, and production takes place. At the end of each period, payments are made, consumption occurs, and the current generation of agents is replaced by a new one of similar size. Trade liberalization can occur either between periods or within a period. If a shock happens between periods, it affects the contracts between agents and firms. If it occurs within a period, there can be pass-through capital gains, as managers' stock market wealth depends on firm profits.

Equilibrium Definition: An equilibrium in the model satisfies the following properties: *(i)* only firms with non-negative expected profits enter each industry (zero-cutoff condition); *(ii)* firms select optimally into importing and exporting based on their productivity; *(iii)* labor markets clear such that demand for production workers equals production-labor supply (labor-market condition); *(iv)* there is positive assignment of managers to blueprints and managers are compensated according to their marginal product; *(v)* firms offer contracts that are incentive-compatible and minimize the level of managerial ownership.

Solving the Model: The zero-cutoff condition for each industry i and the labor-market clearing condition for the aggregate economy jointly pin down the cutoff knowledge and output levels for each industry:

$$X_i(\underline{k}_i) = \frac{\sigma N_i (1+\delta_i)}{\xi_i} \underline{k}_i^{-1} \tag{10}$$

$$X = \frac{\sigma}{\sigma - 1 + \sum_{i=1}^{I} \beta_i \xi_i} \sum_{i=1}^{I} N_i, \tag{11}$$

where $X_i = \beta_i X$. To shorten the notation, I introduce $\xi_i \equiv 1 - (\kappa_i + \mu_i)(\sigma - 1) \in (0,1)$. The index δ_i is an index of trade integration which is defined as follows:

$$\delta_i \equiv \left(z_{is}^{\sigma-1} - 1\right)^{\frac{1}{1-\xi_i}} F_{is}^{-\frac{\xi_i}{1-\xi_i}} + z_{is}^{\frac{\sigma-1}{1-\xi_i}} \tau_{ix}^{-\frac{\sigma-1}{1-\xi_i}} F_{ix}^{-\frac{\xi_i}{1-\xi_i}}. \tag{12}$$

Trade integration increases with higher productivity gains from importing, lower fixed costs of importing and exporting and lower iceberg trade costs. The zero-cutoff condition exhibits a negative relation between the size of a market X_i and the cutoff knowledge $\underline{k}_i$. Intuitivelly, the marginal firm has to be less productive when the size of the market increases to ensure zero profits. Since there is positive assignment of blueprints to managers, firm productivity can be expressed as a function of managerial knowledge, as the upper tails of the blueprint and knowledge distributions need to have equal mass: $q = \frac{Q_i}{N_i} k$. The cutoff level $\underline{k}_i$ for the marginal entrant into the industry also determines the marginal importer k_{is} and the marginal exporter k_{ix}:

$$k_{is} = \left(z_{is}^{\sigma-1} - 1\right)^{-\frac{1}{1-\xi_i}} F_{is}^{\frac{1}{1-\xi_i}} \underline{k}_i \tag{13}$$

$$k_{ix} = z_{is}^{\frac{1-\sigma}{1-\xi_i}} \tau_{ix}^{\frac{\sigma-1}{1-\xi_i}} F_{ix}^{\frac{1}{1-\xi_i}} \underline{k}_i. \tag{14}$$

The compensation premium $\Psi_i(k)$ that a manager with knowledge level k can expect to earn in industry i on top of the worker wage rate is given by

$$\Psi_i(k) = \begin{cases} \frac{\mu_i}{\kappa_i+\mu_i} \left[z_{is}^{\sigma-1} \left(1 + \tau_{ix}^{1-\sigma}\right) \left(\frac{k}{\underline{k}_i}\right)^{1-\xi_i} - F_{is} - F_{ix} - 1 \right] & \text{if } k_{ix} \leq k \\ \frac{\mu_i}{\kappa_i+\mu_i} \left[z_{is}^{\sigma-1} \left(\frac{k}{\underline{k}_i}\right)^{1-\xi_i} - F_{is} - 1 \right] & \text{if } k_{iS} \leq k < k_{ix} \\ \frac{\mu_i}{\kappa_i+\mu_i} \left[\left(\frac{k}{\underline{k}_i}\right)^{1-\xi_i} - 1 \right] & \text{if } \underline{k}_i \leq k < k_{is}. \end{cases} \tag{15}$$

The incentive-compatible contract that minimizes capital grants and satisfies individual rationality compensates the manager with a stock market wealth share $\triangle$ of the expected compensation $r_i(k)$ and pays the remainder $(1-\triangle)r_i(k)$ as labor income:

$$\begin{aligned} \textit{Stock Market Wealth} &= E[V(\Pi)] = \triangle r_i(k), \\ \textit{Labor Income} &= f = (1-\triangle) r_i(k), \end{aligned} \tag{16}$$

where the share of stock market wealth $\triangle$ is given by

$$\triangle = \frac{\lambda(e, \Psi_i)}{|\underline{e}|^{\varepsilon_V}} \in (0,1]. \tag{17}$$

The stock market wealth share is increasing in the cross section with the size of the firm as managers of larger firms also obtain a higher compensation level. Stock market wealth shares also depend on the elasticity of stock market wealth with respect to changes in the firm surplus $\varepsilon_V = \frac{dV}{d\Pi}\frac{\Pi}{V}$.

There are two distinct margins of adjustment for the stock market wealth share $\triangle$ when the expected firm surplus changes. First, private benefits $\lambda(\underline{e}, \Psi_i)$ increase with the compensation premium Ψ_i. This makes stronger financial incentives necessary in larger firms to induce the manager to provide high effort. Additionally, the elasticity of the equity portfolio with respect to changes in the firm surplus ε_V falls when the expected surplus increases in the case of stock options. Both margins, $\lambda(\underline{e}, \Psi_i) \uparrow$ and $\varepsilon_V \downarrow$ let $\triangle$ increase.

Comparative Statics: In the following, I consider a shock that raises the productivity benefits from importing ($dz_{is} > 0$). This input-trade integration causes a reallocation of economic activity towards larger firms as in heterogeneous-firm models like Melitz (2003). The industry price index falls which leads to a higher cutoff $\underline{k}_i$ in equilibrium. Furthermore, the cutoff k_{is} for the marginal importing firm falls such that the fraction of importers in the industry increases. This has the following effects on managers and their stock market wealth:

When input trade shock occurs in an industry i ($dz_i > 0$):

1. *The value of large and importing firms (with $k > k_{is}$) appreciates while the value of small and non-importing firms (with $k < k_{is}$) falls.*

2. *Top earners of large and importing firms (with $k > k_{is}$) experience gains in stock market wealth while top earners of small and non-importing firms (with $k < k_{is}$) experience losses in stock market wealth.*

3. *The compensation structure shifts towards stock market wealth and away from labor income for top earners of large and importing firms (with $k > k_{is}$). The compensation*

structure shifts away from stock market wealth and towards labor income for top earners of small and non-importing firms (with $k < k_{is}$).

4. *Adjustments in stock market wealth are caused by a labor-market effect and a contracting effect. These adjustments can occur via a direct pass-through of stock market wealth or newly issued equity:*

$$\hat{\triangle}\hat{r}_i(k) = \underbrace{\frac{r_i'(k)}{r_i(k)}}_{\text{labor market}} \times \underbrace{\frac{\triangle'}{\triangle}}_{\text{contract}} = \underbrace{\frac{V(\Pi')}{V(\Pi)}}_{\text{pass-through}} \times \underbrace{\frac{V'(\Pi')}{V(\Pi')}}_{\text{new equity}}. \tag{18}$$

A formal proof of the empirical predictions is relegated to Subsection B.8 in the Appendix.

4 Quantitative Exercise

In this Section, I conduct a quantitative exercise of the model and to illustrate the quantitative importance of variation in stock market wealth in response to input import trade liberalization.

4.1 Parameterization

I specialize the model to separately match moments of the US and the UK economy in the year 2006 before the financial crisis. This requires values for the following set of parameters: $\{\sigma,\, \theta,\, \triangle(\Psi_i),\, N_i,\, \mu_i,\, \kappa_i,\, \beta_i,\, z_{is},\, F_{is},\, \tau_{ix},\, F_{ix}\}$, where I distinguish between three broad sectors i: manufacturing, services and all other economic activities. Mapping stock market wealth and labor-income streams from the data to the model is not straightforward. Analogously to the following empirical Section, I compute stock market wealth shares $\triangle$ as the present value of stock market wealth relative to the sum of stock market wealth and the present value of previous labor income streams. Accordingly, compensation premia express this number in units of average domestic wages averaged over a managers' tenure years.

For the values of σ and θ, I use reference values from the literature and set the elasticity of substitution across varieties to 2.29 for the US and to 2.38 for the UK based on median elasticities reported by Broda and Weinstein (2006)[20] and the elasticity of substitution between domestic and foreign inputs to 4.006 based on estimates from Halpern et al. (2015). To obtain sectoral

[20]See http://www.columbia.edu/~dew35/TradeElasticities/TradeElasticities.html for the data.

expenditure shares β_i, I rely on the WIOD socio-economic accounts. Since private leisure benefits G are not directly observable, I directly discipline the distribution of stock market wealth shares $\triangle$ across the firm-size distribution to match its relation to the compensation premium Ψ_i in the data. Specifically, I fit the exponential function $\frac{B_2 \Psi_i^{B_3}}{B_1 + B_2 \Psi_i^{B_3}}$ to match values for $\triangle$ in the data.

The remaining parameters N_i, μ_i, κ_i, z_{is}, F_{is}, τ_{ix} and F_{ix} are calibrated to target 15 macro and micro moments for the US and the UK economy. The macro moments are the sector-specific expenditure shares on imported inputs, export openness and the mass of firms in the economy.[21] Import shares are mainly responsible for the calibration of the fixed cost of importing F_{is} and the productivity gains from importing z_{is} and export openness for the fixed and variable exporting costs F_{ix} and τ_{ix}. The mass of firms loosely determines N_i for given cutoff values $\underline{k}_i$. For the remaining micro moments, I focus on the 500 largest firms within each economy and match the logarithm of the 50th percentile of the compensation premium and the logarithm of the 50th percentile of firm sales within each sector for this group of firms. Since individual knowledge levels k and firm blueprints q are unobservable, I restate the terms for the compensation premia and firm sales as a function of each individual firm's market share which I can observe in the data. All these moments are expressed in units of the country-specific average (numéraire) wage rate that I compute from the WIOD socio-economic accounts by dividing the economy-wide compensation of employees by total employment.[22]

The calibration searches over the parameter space to match the discussed moments using a weighted sum of squared relative differences between the model and the data as a loss function. To ensure that the calibrated expenditure shares on imported inputs and the export openness match the data well enough to consider a realistic degree of openness in the counterfactual, I give these moments a tenfold weight compared to the other targeted moments.[23]

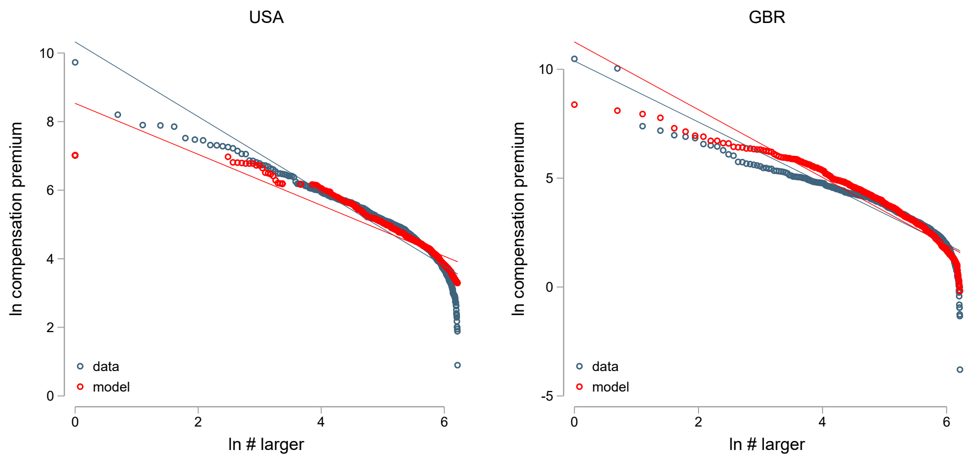
I list the calibrated parameter values in Table 9. Compared to the influence of technologies κ_i on firm productivity, the contribution of managerial knowledge μ_i is fairly small which is identified by the share of rents $\frac{\mu_i}{\kappa_i + \mu_i}$ that accrue to managers. Moreover, the calibration suggests higher fixed costs of importing for the US relative to the UK since the expenditure share on imported inputs is lower in the US. Table 10 lists the calibrated moments and their data counterparts. Since the calibration puts a large weight on the trade moments, expenditure

[21] Statistics on the number of firms per sector in each economy are obtained from the OECD Structural Business Statistics. The expenditure share on imported inputs and exports relative to gross output are obtained from WIOD data.

[22] $w = \frac{\sum_i \texttt{COMP}_i}{\sum_i \texttt{EMP}_i}$

[23] To search for the parameter values, I first use a simulated annealing algorithm. Then, starting from the parameter set suggested by the algorithm outcome, I run a minimization limited BFGS algorithm that incorporates parameter bound constraints. The calibration uses the "basin-hopping" routine in Scipy Python.

Figure 4: Quantitative Exercise - Shape of the Earnings Distribution



Notes: The Figure depicts the shape of the earnings distribution for the US (left graph) and the UK (right graph).

shares on imported inputs and export openness match the data very closely. Most calibrated moments are within less than 10% deviation from the data. The correlation coefficient for the calibrated and observed stock market wealth shares $\triangle$ across firms is 0.61 for the UK and 0.64 for the US economy.

With the help of Figure 4, I evaluate how well the calibration exercise fits the power law of the earnings distribution suggested by the data. The shape of the earnings distribution is not targeted in the calibration itself. The Figure plots the log knowledge distribution and the log number of firms whose top earners own stock market wealth above this threshold.[24] The shape of the observed and calibrated distributions fit very well for both economies.

4.2 Counterfactual

I consider a switch from autarky (with $\delta_i \to 0$) to an open economy with the calibrated levels of δ_i. This counterfactual switch from autarky to an open economy corresponds to an average economy-wide increase in the expenditure share on imported inputs of 12 p.p. in the US and 16 p.p. in the UK. Correspondingly, the switch from autarky to an open economy corresponds to an 21 percent reduction in the US price index, while the UK price index falls by 28 percent.

I compute relative changes in stock market wealth and labor income for corporate top earners

[24] This approach is similar to what other researchers have done to illustrate the shape of the firm-size distribution (see e.g. Luttmer 2007).

across the three sectors. Table 11 presents the results for selected percentiles. As predicted by the model, trade liberalization has a larger impact for top earners employed by larger firms. More importantly, increases in stock market wealth exceed increases in labor incomes at the top of the earnings distribution such that the increase in inequality of stock market wealth exceeds the increase in top income inequality.[25] Quantitatively, the counterfactual increases in stock market wealth due to trade are notably larger than the calibrated trade-induced skill premia from Burstein and Vogel (2017). Specifically, their model estimates the trade-induced skill premium to be approximately 2% for the US and 4% for the UK for levels of openness in 2006 in comparison to autarky.

5 Conclusion

This paper introduces the propagation of stock market wealth as a novel channel through which international trade affects top inequality. Corporate top earners receive a substantial part of their compensation in the form of stock market wealth. Using matched employer-employee data on corporate top earners in the US and the UK, I demonstrate that input imports reshape the compensation structure for top earners, increasing the prevalence of stock market wealth relative to labor income. To explain these empirical findings, I develop an assignment model of heterogeneous firms where managers are compensated through both income streams and stock market wealth. The model highlights how trade-induced reallocations of economic activity toward larger firms drive changes in compensation structures.

[25] In Appendix C.2, I additionally use the model to discuss how large taxes on top earners would need to be to restore their earnings to autarky levels and how distortive such a tax would be.

Table 3: Input Imports and Stock Prices across Firms

	Stock Price				
	(1)	(2)	(3)	(4)	(5)
	By Sales				*By Empl.*
Import Share by Firm-Size Quintile					
Import Share × Q1	-4.098***	-2.708*	-6.250***	-3.607	-6.769*
	(1.307)	(1.448)	(2.326)	(2.723)	(3.808)
Import Share × Q2	-1.252	-1.672	-0.878	-4.244*	1.723
	(1.041)	(1.078)	(2.163)	(2.419)	(2.271)
Import Share × Q3	1.528*	1.823**	4.191**	5.788***	5.632**
	(0.872)	(0.860)	(1.958)	(2.110)	(2.307)
Import Share × Q4	2.810***	2.187***	8.810***	8.624***	9.877***
	(0.793)	(0.822)	(1.729)	(1.853)	(2.118)
Import Share × Q5	3.169***	2.311***	11.28***	11.08***	6.709***
	(0.729)	(0.729)	(1.918)	(2.102)	(2.480)
Log Exports by Firm-Size Quintile					
Exports × Q1		-0.382***		-0.179	0.00659
		(0.108)		(0.124)	(0.108)
Exports × Q2		-0.117		0.119	-0.110
		(0.0886)		(0.0974)	(0.0865)
Exports × Q3		-0.219***		-0.131	-0.0605
		(0.0827)		(0.0887)	(0.0884)
Exports × Q4		-0.0765		-0.0327	-0.105
		(0.0617)		(0.0706)	(0.0668)
Exports × Q5		-0.0359		-0.0296	-0.0437
		(0.0531)		(0.0573)	(0.0712)
Firm F.E.	×	×	×	×	×
Country-Year F.E.	×	×	×	×	×
Controls	×	×	×	×	×
First Stage					
KP F-test			161.1	136.7	58.04
Overident. (p-value)			0.177	0.164	0.0104
Observations	32,713	32,713	32,713	32,713	31,404
Firms	3,222	3,222	3,222	3,222	2,935

Notes: The dependent variable *Stock Price* is the end-of-year closing price of the firms' main security adjusted for splits and dividends (in logs). *Import Share* is the expenditure share on foreign inputs. *Import Share* and *Exports* (in logs) are measured at the country-industry-year level based on WIOD data. All specifications include the following additional controls (output suppressed): firm-level *Capital Intensity,* country-industry-year level *Domestic Absorption* and a *TFP* index. All estimations include fixed effects for firms and country-years. Instrumental variables are international transport costs and RTA coverage described in Subsection 2.3. Firm-size quintiles are based on the average firm sales or employment during the first 3 sample years and order the sample firms within the same country. Standard errors are cluster-robust at the firm level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 4: Input Imports and Stock Prices by Firm Import Status

	Stock Price			
	(1)	(2)	(3)	(4)
Import Share × Importer	6.574***	5.727***	16.39***	14.25***
	(1.413)	(1.378)	(3.425)	(3.499)
Exports × Exporter		0.200**		0.127
		(0.0834)		(0.0849)
Firm F.E.	×	×	×	×
Country-Industry-Year F.E.	×	×	×	×
First Stage				
KP F-test			256.3	225.1
Overident. (p-value)			0.182	0.148
Observations	31,431	31,431	31,431	31,431
Firms	3,079	3,079	3,079	3,079

Notes: The dependent variable *Stock Price* is the end-of-year closing price of the firms' main security adjusted for splits and dividends (in logs). *Import Share* is the expenditure share on foreign inputs. *Import Share* and *Exports* (in logs) are measured at the country-industry-year level based on WIOD data. *Importer* and *Exporter* are time-invariant firm dummy variables obtained from WorldBase data (see description in main text). All specifications include the following additional controls (output suppressed): firm-level *Capital Intensity,* country-industry-year level *Domestic Absorption*, a *TFP* index and shift-share weighted output (in logs) as well as fixed effects for individual firms and country-industry-years. Instrumental variables are international transport costs and RTA coverage described in Subsection 2.3. Standard errors are cluster-robust at the firm level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 5: Input Imports and Stock Market Wealth

	Stock Market Wealth					
	(1)	(2)	(3)	(4)	(5)	(6)
			By Sales			*By Empl.*
Import Share by Firm-Size Quintile						
Import Share × Q1	-3.547***	-2.223	-6.766***	-3.621	-5.070	-3.533
	(1.257)	(1.386)	(2.199)	(2.811)	(3.507)	(3.552)
Import Share × Q2	-1.349	-1.526	-3.416*	-6.009***	-4.154	-3.609*
	(0.989)	(1.006)	(2.035)	(2.182)	(2.831)	(1.961)
Import Share × Q3	-0.177	0.181	0.537	2.263	4.731**	3.450
	(0.868)	(0.910)	(1.766)	(1.975)	(2.299)	(2.474)
Import Share × Q4	1.764***	1.802**	4.121**	5.078**	4.063	9.178***
	(0.676)	(0.738)	(1.894)	(2.172)	(2.618)	(2.349)
Import Share × Q5	4.095***	2.933***	11.16***	8.330***	10.59***	7.168***
	(0.751)	(0.744)	(1.979)	(2.095)	(2.693)	(2.547)
Log Exports by Firm-Size Quintile						
Exports × Q1		-0.386***		-0.284**	-0.151	-0.135
		(0.101)		(0.120)	(0.153)	(0.0934)
Exports × Q2		-0.124*		0.0214	-0.0117	-0.0754
		(0.0748)		(0.0856)	(0.105)	(0.0786)
Exports × Q3		-0.228***		-0.211***	-0.225**	-0.195*
		(0.0679)		(0.0741)	(0.104)	(0.106)
Exports × Q4		-0.158*		-0.157	-0.159	-0.154*
		(0.0910)		(0.101)	(0.131)	(0.0897)
Exports × Q5		0.0678		0.0268	0.0307	0.0662
		(0.0515)		(0.0568)	(0.0713)	(0.0706)
Match F.E.	×	×	×	×	×	×
Country-Year F.E.	×	×	×	×	×	×
Controls	×	×	×	×	×	×
First Stage						
KP F-test			161.9	122.7	70.68	55.99
Overident. (p-value)			0.656	0.729	0.386	0.0417
Observations	130,175	130,175	130,175	130,175	25,896	127,253
Firms	3,071	3,071	3,071	3,071	2,921	2,792
Individuals	24,295	24,295	24,295	24,295	5,294	23,454

Notes: The dependent variable *Stock Market Wealth* is an individual manager's total ownership of equity (in logs) linked to the employer's stock price. *Import Share* is the expenditure share on foreign inputs. *Import Share* and *Exports* (in logs) are measured at the country-industry-year level based on WIOD data. All specifications include the following additional controls (output suppressed): firm-level *Capital Intensity,* country-industry-year level *Domestic Absorption*, a *TFP* index and shift-share weighted output (in logs) as well as fixed effects for individual manager-firm matches and country-years. Instrumental variables are international transport costs and RTA coverage described in Subsection 2.3. Firm-size quintiles are based on the average firm sales or employment during the first 3 sample years and order the sample firms within the same country. Standard errors are cluster-robust at the firm level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 6: Input Imports and Stock Market Wealth by Firm Import Status

	Stock Market Wealth				
	(1)	(2)	(3)	(4)	(5)
Import Share × Importer	4.085***	3.593***	6.976**	4.476	10.15**
	(1.380)	(1.354)	(3.334)	(3.265)	(4.275)
Exports × Exporter		0.144**		0.138*	0.103
		(0.0727)		(0.0734)	(0.0906)
Match F.E.	×	×	×	×	×
Country-Industry-Year F.E.	×	×	×	×	×
First Stage					
KP F-test			228.8	230.0	191.3
Overident. (p-value)			0.0541	0.0455	0.285
Observations	125,644	125,644	125,644	125,644	125,644
Firms	2,877	2,877	2,877	2,877	2,877
Individuals	23,210	23,210	23,210	23,210	23,210

Notes: The dependent variable *Stock Market Wealth* is an individual manager's total ownership of equity (in logs) linked to the employer's stock price. *Import Share* is the expenditure share on foreign inputs. *Import Share* and *Exports* (in logs) are measured at the country-industry-year level based on WIOD data. *Importer* and *Exporter* are time-invariant firm dummy variables obtained from WorldBase data (see description in main text). All specifications include the following additional controls (output suppressed): firm-level *Capital Intensity,* country-industry-year level *Domestic Absorption*, a *TFP* index and shift-share weighted output (in logs) as well as fixed effects for individual firm-manager matches and country-industry-years. Instrumental variables are international transport costs and RTA coverage interacted with importer, respectively exporter status described in Subsection 2.3. Standard errors are cluster-robust at the firm level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 7: Input Imports and Changing Compensation Structures

	New Equity	Stock Market Wealth Share			
	(1)	(2)	(3)	(4)	(5)
Import Share by Firm-Size Quintile					
Import Share × Q1	-1.146	-1.107***	-0.539**	-2.421***	-0.994**
	(0.707)	(0.209)	(0.226)	(0.414)	(0.475)
Import Share × Q2	-1.450**	-0.308*	-0.279	-0.968***	-1.383***
	(0.564)	(0.177)	(0.188)	(0.365)	(0.404)
Import Share × Q3	-0.174	-0.0471	-0.0156	0.163	0.233
	(0.474)	(0.136)	(0.144)	(0.303)	(0.337)
Import Share × Q4	1.839***	0.355***	0.317**	1.105***	1.076***
	(0.481)	(0.127)	(0.136)	(0.321)	(0.358)
Import Share × Q5	2.126***	0.686***	0.448***	2.291***	1.691***
	(0.439)	(0.119)	(0.119)	(0.322)	(0.343)
Log Exports by Firm-Size Quintile					
Exports × Q1	-0.0425*		-0.125***		-0.1000***
	(0.0230)		(0.0185)		(0.0211)
Exports × Q2	-0.0169		-0.0314**		0.00101
	(0.0215)		(0.0157)		(0.0161)
Exports × Q3	0.000515		-0.0317**		-0.0246*
	(0.0201)		(0.0131)		(0.0144)
Exports × Q4	-0.0315		-0.0162		-0.0183
	(0.0202)		(0.0150)		(0.0174)
Exports × Q5	-0.00443		0.0203**		0.00851
	(0.0118)		(0.00908)		(0.00965)
Match F.E.	×	×	×	×	×
Country-Year F.E.	×	×	×	×	×
Controls	×	×	×	×	×
First Stage					
KP F-test	124.2			162.3	122.6
Overident. (p-value)	0.00251			0.457	0.434
Observations	151,822	130,784	130,784	130,784	130,784
Firms	3,056	3,071	3,071	3,071	3,071
Individuals	27,120	24,419	24,419	24,419	24,419

Notes: The dependent variable *Stock Market Wealth Share* is calculated as *Stock Market Wealth* relative to the sum of *Stock Market Wealth* and the present value of previous labor-income payments. The dependent variable *New Equity* is the fraction of *Equity-Linked Income* relative to the sum of the *Salary*, *Bonuses* and *Equity-Linked Income*. *Import Share* is the expenditure share on foreign inputs. *Import Share* and *Exports* (in logs) are measured at the country-industry-year level based on WIOD data. All specifications include the following additional controls (output suppressed): firm-level *Capital Intensity,* country-industry-year level *Domestic Absorption*, a *TFP* index and shift-share weighted output (in logs) as well as fixed effects for individual manager-firm matches and country-years. Instrumental variables are international trade and transport margins and RTA coverage described in Subsection 2.3. Firm-size quintiles are based on the average firm sales during the first 3 sample years and order the sample firms within the same country. Standard errors are cluster-robust at the firm level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 8: Input Imports and the Within-Firm Rent Distribution

	∅ Stock Market Wealth / Labor Expenses		
	(1)	(2)	(3)
Import Share by Firm-Size Quintile			
Import Share × Q1	-5.109	-4.859	-6.210
	(3.560)	(3.645)	(8.151)
Import Share × Q2	0.648	1.183	4.735
	(2.294)	(2.265)	(6.568)
Import Share × Q3	-1.486	-0.486	3.489
	(1.746)	(1.733)	(4.793)
Import Share × Q4	5.039***	4.932***	12.07**
	(1.479)	(1.506)	(4.830)
Import Share × Q5	6.651***	5.756***	18.62***
	(1.396)	(1.374)	(5.039)
Log Exports by Firm-Size Quintile			
Exports × Q1		-0.102	0.180
		(0.227)	(0.273)
Exports × Q2		-0.316*	-0.141
		(0.190)	(0.198)
Exports × Q3		-0.359**	-0.170
		(0.155)	(0.167)
Exports × Q4		-0.00646	0.139
		(0.120)	(0.136)
Exports × Q5		0.149*	0.217**
		(0.0817)	(0.108)
Firm F.E.	×	×	×
Country-Year F.E.	×	×	×
Controls	×	×	×
First Stage			
KP F-test			24.25
Overident. (p-value)			0.754
Observations	10,801	10,801	10,801
Firms	1,240	1,240	1,240

Notes: The dependent variable *∅ Stock Market Wealth / Labor Expenses* is the average firm-level managerial value of stock market wealth relative to the firm-level labor expenses (in logs). *Import Share* is the expenditure share on foreign inputs. *Import Share* and *Exports* (in logs) are measured at the country-industry-year level based on WIOD data. All specifications include the following additional controls (output suppressed): firm-level *Capital Intensity,* country-industry-year level *Domestic Absorption*, a *TFP* index and shift-share weighted output (in logs) as well as fixed effects for firms and country-years. Instrumental variables are international transport costs and RTA coverage described in Subsection 2.3. Firm-size quintiles are based on the average firm sales during the first 3 sample years and order the sample firms within the same country. Standard errors are cluster-robust at the firm level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 9: Quantitative Exercise - Calibrated Parameter Values

	Industry-Wide Parameters								*Economy-Wide Parameters*				
	μ_i	κ_i	z_{is}	F_{is}	τ_{ix}	F_{ix}	$N_i{\times}10^8$	β_i	σ	θ	B_1	B_2	B_3
							Parameters USA						
Manuf.	0.0027	0.73	1.23	0.79	2.01	1.41	0.37	0.20					
Serv.	0.0057	0.66	1.13	0.73	3.07	1.95	0.24	0.59	2.29	4.006	10.15	1.85	0.62
Oth.	0.0022	0.59	1.19	0.72	3.21	1.11	0.18	0.21					
							Parameters GBR						
Manuf.	0.0095	0.65	1.15	0.27	1.33	1.21	0.02	0.17					
Serv.	0.0121	0.61	1.24	0.98	2.16	1.40	0.03	0.58	2.38	4.006	12.66	4.13	0.52
Oth.	0.0024	0.52	1.48	2.12	2.38	2.05	0.23	0.25					

Table 10: Quantitative Exercise - Calibrated Moments

Moment		USA			GBR		
		Manuf.	*Serv.*	*Oth.*	*Manuf.*	*Serv.*	*Oth.*
Expenditure share	Model	0.17	0.05	0.10	0.28	0.14	0.16
on imported inputs	Data	0.18	0.05	0.10	0.28	0.14	0.15
	Deviation	*-0.6%*	*-0.9%*	*-0.1%*	*-0.4%*	*-0.1%*	*0.2%*
Export share	Model	0.14	0.02	0.04	0.44	0.09	0.04
in gross output	Data	0.14	0.02	0.04	0.44	0.09	0.04
	Rel. Deviation	*0.9%*	*1.8%*	*-1.0%*	*0.7%*	*-0.5%*	*0.6%*
Compensation premium,	Model	4.27	5.03	4.26	2.88	3.05	2.80
50th pct.	Data	4.37	5.00	4.39	2.92	3.10	2.96
	Deviation	*-2.4%*	*0.6%*	*-3.0%*	*-1.4%*	*-1.8%*	*-5.5%*
Sales,	Model	10.71	10.62	10.69	7.99	7.85	9.06
50th pct.	Data	12.11	12.03	12.09	8.84	8.70	9.91
	Deviation	*-11.6%*	*-11.7%*	*-11.6%*	*-9.6%*	*-9.7%*	*-8.6%*
Number	Model	371,273	3,422,697	1,940,085	133,765	913,419	706,467
of firms	Data	371,275	3,162,206	1,879,471	131,817	921,780	671,111
	Deviation	*0.0%*	*8.2%*	*3.2%*	*1.5%*	*-0.9%*	*5.3%*

Table 11: Quantitative Exercise - Counterfactual Impact on Top Earners

	p90			p99			p99.9		
	Total	Stock Market Wealth	Labor Income	Total	Stock Market Wealth	Labor Income	Total	Stock Market Wealth	Labor Income
USA									
Manuf.	102	139	101	118	165	114	160	209	144
Serv.	100	105	100	112	134	110	133	155	125
Oth.	100	115	100	105	133	104	122	152	118
GBR									
Manuf.	109	150	105	150	196	135	192	228	157
Serv.	106	130	103	138	172	127	170	198	145
Oth.	101	126	100	112	159	107	148	203	134

Notes: The Table shows in changes of top earners' earnings at selected percentiles from autarky to the level of trade openness in 2006. Changes are measured as $\frac{value_{2006}}{value_{aut}} \times 100\%$.

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Internet Appendix

Contents

A Empirical Appendix

A.1 Variable Descriptions

- *Stock Market Wealth:* see A.2.1 for details on stock market wealth; variable `TotalWealth` from BoardEx UK or variable `firm_related_wealth` from Coles et al. (2006) using ExecuComp for the US in nominal Thd. $ (in logs); Source: BoardEx, ExecuComp, Coles et al. (2006)

- *Stock Market Wealth Share:* calculated as *Stock Market Wealth* relative to the sum of *Stock Market Wealth* and the present value of previous labor-income payments, the present value of previous labor-income payments is calculated as $PV_{Labor}(T) = \sum_{t=1,..,T} (1+r)^{T-t} \, income\,(t)$, where T is the current and t the t^{th} year of employment within the firm, income comprises salaries and bonuses and r is the real interest rates from the World Bank World Development Indicators; Source: BoardEx, ExecuComp, Coles et al. (2006), World Bank WDI

- *Stock Price:* end-of-year closing price of the firms' main security adjusted for splits and dividends calculated as `(prccd / ajexdi)`×`trfd` in nominal $ (in logs); Source: Compustat North America, Compustat Global (Security Daily Files)

- *New Equity:* variable `TotalEquityLinkedCompensation` from BoardEx UK or variable `tdc2` from ExecuComp net of `salary` and `bonus` for the US in nominal Thd. $ (in logs); Source: BoardEx, ExecuComp

- *Labor Expenses:* variable `xlr` from Compustat in nominal Thd. $, winsorized at the 99th percentile (in logs); Source: Compustat North America, Compustat Global

- *Sales:* variable `sale` from Compustat in nominal Mio. $, winsorized at the 99th percentile (in logs); Source: Compustat North America, Compustat Global

- *Employment:* variable `emp` from Compustat in Thd., winsorized at the 99th percentile (in logs); Source: Compustat North America, Compustat Global

- *Capital Intensity:* ratio of variables `at` and `emp`, both winsorized at the 99th percentile (in logs); Source: Compustat North America, Compustat Global

- *Multinational:* dummy that indicates if the headquarter owns subsidiaries in a foreign country (time invariant); Source: Dun&Bradstreet WorldBase, 2018 vintage

- *Importer:* dummy that indicates if at least one establishment within the firm imports from a foreign country (time invariant); Source: Dun&Bradstreet WorldBase, 2018 vintage

- *Exporter:* dummy that indicates if at least one establishment within the firm exports to a foreign country (time invariant); Source: Dun&Bradstreet WorldBase, 2018 vintage

- *Firm-Size Quintiles:* order firms into quintiles by their average sales or employment during the years 2000 to 2002 within their country of location; Source: Compustat North America, Compustat Global

- *Import Share:* expenditure on imported intermediates relative to total expenditures on intermediate inputs for a country-industry-year, industries matched to firms' main SIC industry; Source: WIOD

- *International Transport Costs:* input import trade margins defined as in Equation (4) using the variable `IntTTM` in WIOD and input level country-industry specific input coefficients based on WIOD in the year 2000; Source: WIOD and estimation

- *RTA Coverage:* fraction of inputs covered by an RTA defined as in Equation (5) using input level country-industry specific input coefficients based on WIOD in the year 2000; Source: WIOD, CEPII

- *Industry Exports:* Exports for a country-industry-year (in logs), industries matched to firms' main SIC industry; Source: WIOD

- *Industry Domestic Absorption:* gross output net of exports plus imports in nominal Mio. $ for a country-industry-year (in logs), industries matched to firms' main SIC industry; Source: WIOD Socio-Economic Accounts

- *Industry TFP:* TFP index for a country-industry-year, year 2000 is normalized to 100 (in logs), industries matched to firms' main SIC industry; Source: WIOD Socio-Economic Accounts

- *Industry Import Penetration:* imports relative to domestic absorption in nominal Mio. $ for a country-industry-year (in logs), industries matched to firms' main SIC industry; Source: WIOD

- *Offshorability:* measures prevalence of occupations that do not involve face-to-face interaction and can be done off site for an industry (see A.2 for details), standardized (s.d. = 1) at the industry level, industries matched to firms' primary 3-digit SIC level industry; Source: O*NET version 20.3, BLS OES from the year 2000, Acemoglu and Autor (2011), Blinder (2009), Bretscher (2019)

A.2 Details on the Data

A.2.1 Calculating Stock Market Wealth

Stock market wealth measures how much firm-related equity an individual manager in the sample owns. It includes the value of stocks that a manager owns in the employing firm's stocks - either obtained from exercised stock options or directly - and the market value of outstanding equity options. Firms in the sample are required to report information on share ownership and options as part of their proxy statements or annual reports.

In the US, stock ownership of directors is disclosed in firms' proxy statements filed to the Securities Exchange Commission. In the UK, a register of directors' interests in shares of the employing firm was required under the Companies Act 1985. Even though companies no longer need to maintain such a register since 2006 as there is no equivalent requirement in the

Companies Act 2006, public companies are in practice likely to maintain disclosure of stock ownership.

For managers employed by US companies, I follow the data method suggested by Coles et al. (2006). The value of the stock portfolio is the product of the number of shares that an individual holds and the year-end stock price (`prccf`). The calculation of the value of a managers' firm-related option portfolio depends on the respective year as there has been a change in reporting rules (the revision of accounting rule FAS 123R). Before 2006, the value of the option portfolio held by an individual manager is the sum of three sub-portfolios in ExecuComp: (i) the value of newly-granted options during the current year, (ii) the value of previously-granted options that have not yet vested and (iii) the value of vested options. From 2006 onwards, all options are reported at the option-tranch level such that the value of the option portfolio is calculated by aggregating values of outstanding options across tranches. Stock market wealth for managers employed by UK firms comes directly from BoardEx and follows the same principle. It also equals the sum of the estimated value of options held plus the value of shares held. In both subsamples, a valuation of options is based on the year-end stock price and a generalized Black-Scholes pricing formula.

A.2.2 Calculating Offshorability

I use data from the US Department of Labor O*NET program on occupational task contents and the US BLS Occupational Employment Statistics to calculate offshorability.[26] O*NET provides information about the tools, technology, knowledge, skills, work values, education, experience and training needed for various occupations. Following Acemoglu and Autor (2011), I calculate an offshorability score at the occupation level in the first step which aims to capture how well each individual occupation is offshorable. Acemoglu and Autor (2011) argue that occupations requiring a lot of face-to-face interactions and that need to be carried out on site are less likely to be offshorable. They conclude to focus on the seven occupational characteristics listed in Table A1 to determine offshorability at the occupation level. The first six of these work are listed as "activities" and provide values for their respective "importance" "level" while there is no "importance" score for the work context characteristic "Face-to-Face Discussions". Following Blinder (2009) and Bretscher (2019), I assign a Cobb-Douglas weight of 2/3 to "importance" and 1/3 to "level" and multiply the relative frequency for "Face-to-Face Discussions" by the level to obtain the offshorability score at the occupation level j:

$$off_j = \frac{1}{\sum_{a=1}^{6} I_{aj}^{2/3} L_{aj}^{1/3} + I_{cj} L_{cj}}. \tag{19}$$

In a second step, I aggregate the scores off_j at the industry level according to industry-specific employment shares:

$$OFF_i = \sum_j off_j \times \frac{emp_{j,i}}{\sum_{j,i} emp_{j,i}}, \tag{20}$$

which I standardize at the industry level such that it is centered around a zero mean and has a

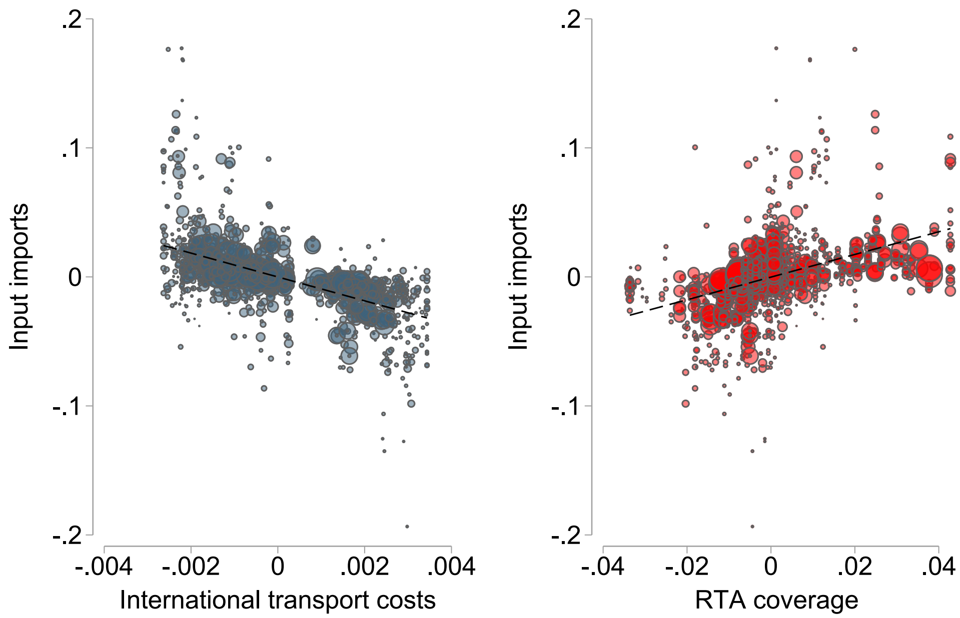
[26] I use version O*NET 20.3 available from https://www.onetonline.org and the BLS OES from the year 2000.

standard deviation equal to one. Generally, high values for OFF_i indicate that there are many employees within industry i whose occupations do not involve face-to-face interaction and can be done off site.

Table A1: Occupational Characteristics in O*Net Defining Offshorability

Task	*Description*
4.A.4.a.5	Assisting and Caring for Others
4.A.4.a.8	Performing for or Working Directly with the Public
4.A.1.b.2	Inspecting Equipment, Structures, or Material
4.A.3.a.2	Handling and Moving Objects
4.A.3.b.4	Repairing and Maintaining Mechanical Equipment (*0.5)
4.A.3.b.5	Repairing and Maintaining Electronic Equipment (*0.5)
4.C.1.a.2.l	Face-to-Face Discussions

Figure A1: Relevance of Instruments



Notes: The Figure depicts a scatter plot of the two residualized instrumental variables with input import shares. Observations show variation within country-industry pairs and the size of the markers indicates the frequency of each country-industry pair in the regressions. For optical reasons, the graph omits outliers of both instruments and just plots the 1st to the 99th percentile of both instruments.

A.3 Additional Results and Robustness

Table A2: Robustness: Controlling for Import Competition

	Stock Market Wealth		Stock Market Wealth Share	
	(1)	(2)	(3)	(4)
Import Share by Firm-Size Quintile				
Import Share × Q1	-0.875	-7.053**	-0.750***	-3.585***
	(1.670)	(3.589)	(0.271)	(0.717)
Import Share × Q2	-0.246	-4.917	-0.141	-1.653***
	(1.177)	(3.135)	(0.193)	(0.570)
Import Share × Q3	-0.366	-0.534	-0.126	-0.0140
	(0.885)	(2.719)	(0.158)	(0.497)
Import Share × Q4	1.436*	4.240*	0.314**	1.361***
	(0.745)	(2.432)	(0.144)	(0.417)
Import Share × Q5	4.112***	15.04***	0.585***	3.080***
	(0.822)	(2.669)	(0.137)	(0.450)
Import Penetration by Firm-Size Quintile				
IP × Q1	-2.583**	0.312	-0.342**	0.884***
	(1.071)	(1.640)	(0.173)	(0.316)
IP × Q2	-1.361	1.024	-0.201	0.527**
	(0.854)	(1.327)	(0.150)	(0.248)
IP × Q3	0.142	0.679	0.0855	0.148
	(0.602)	(1.147)	(0.102)	(0.205)
IP × Q4	0.367	-0.237	0.0520	-0.229
	(0.702)	(0.967)	(0.118)	(0.158)
IP × Q5	-0.149	-4.599***	0.149	-0.862***
	(0.805)	(1.241)	(0.118)	(0.196)
Match F.E.	×	×	×	×
Country-Year F.E.	×	×	×	×
Controls	×	×	×	×
First Stage				
KP F-test		93.30		93.79
Overident. (p-value)		0.712		0.886
Observations	130,175	130,175	130,784	130,784
Firms	3,071	3,071	3,071	3,071
Individuals	24,295	24,295	24,419	24,419

Notes: The dependent variable *Stock Market Wealth* is an individual manager's total ownership of equity (in logs) linked to the employer's stock price. The dependent variable *Stock Market Wealth Share* is calculated as *Stock Market Wealth* relative to the sum of *Stock Market Wealth* and the present value of previous labor-income payments. *Import Share* is the expenditure share on foreign inputs. *Import Penetration (IP)* is imports over domestic absorption. *Import Share* and *Import Penetration* are measured at the country-industry-year level based on WIOD data. All specifications include the following additional controls (output suppressed): firm-level *Capital Intensity,* country-industry-year level *Domestic Absorption*, a *TFP* index and shift-share weighted output (in logs) as well as fixed effects for individual manager-firm matches and country-years. Instrumental variables are international transport costs and RTA coverage described in Subsection 2.3. Firm-size quintiles are based on the average firm sales during the first 3 sample years and order the sample firms within the same country. Standard errors are cluster-robust at the firm level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A3: Robustness: More Granular I-O Table for Manufacturing Industries

	Stock Market Wealth			Stock Market Wealth Share
	(1)	(2)	(3)	(4)
		By Sales	*By Empl.*	*By Sales*
Imports	0.730***			
	(0.102)			
Imports by Firm-Size Quintile				
Imports × Q1		0.220	0.231	-0.0521
		(0.181)	(0.183)	(0.0352)
Imports × Q2		0.545***	0.537***	0.0172
		(0.152)	(0.155)	(0.0280)
Imports × Q3		0.825***	0.728***	0.0713***
		(0.131)	(0.139)	(0.0227)
Imports × Q4		0.742***	0.943***	0.0739***
		(0.128)	(0.115)	(0.0207)
Imports × Q5		0.914***	0.955***	0.108***
		(0.125)	(0.135)	(0.0217)
Match F.E.	×	×	×	×
Country-Year F.E.	×	×	×	×
Sample	Manuf.	Manuf.	Manuf.	Manuf.
Observations	55,052	52,015	50,410	52,202
Firms	1,332	1,161	1,068	1,161
Individuals	10,434	9,728	9,362	9,772

Notes: The dependent variable *Stock Market Wealth* is an individual manager's total ownership of equity (in logs) linked to the employer's stock price. The dependent variable *Stock Market Wealth Share* is calculated as *Stock Market Wealth* relative to the sum of *Stock Market Wealth* and the present value of previous labor-income payments. *Imports* is the log industry expenditure on foreign inputs measured at the country-industry-year level based on Comtrade import data and the 1992 US Benchmark I-O table from the US Bureau of Economic Analysis transposed at the 3-digit SIC level. Estimations include firms with primary industries in manufacturing only. All specifications include firm level *Capital Intensity*. All estimations include fixed effects for individual manager-firm matches and country-years. Firm-size quintiles are based on the average firm sales or employment during the first 3 sample years and order the sample firms within the same country. Standard errors are cluster-robust at the firm level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A4: Robustness: Recession Years

	Stock Market Wealth		Stock Market Wealth Share	
	(1)	(2)	(3)	(4)
Import Share by Firm-Size Quintile				
Import Share × Q1	-2.519*	-5.077*	-0.661***	-1.248**
	(1.489)	(2.991)	(0.244)	(0.505)
Import Share × Q2	-2.456**	-6.832***	-0.485**	-1.521***
	(1.034)	(2.208)	(0.189)	(0.416)
Import Share × Q3	-0.249	2.623	-0.0820	0.346
	(0.952)	(2.036)	(0.148)	(0.348)
Import Share × Q4	1.459*	5.993***	0.300**	1.223***
	(0.776)	(2.243)	(0.140)	(0.368)
Import Share × Q5	2.623***	10.19***	0.392***	2.112***
	(0.792)	(2.206)	(0.128)	(0.362)
Log Exports by Firm-Size Quintile				
Exports × Q1	-0.391***	-0.217*	-0.130***	-0.0933***
	(0.108)	(0.130)	(0.0201)	(0.0228)
Exports × Q2	-0.125	0.0505	-0.0319**	0.00595
	(0.0784)	(0.0873)	(0.0158)	(0.0160)
Exports × Q3	-0.235***	-0.198***	-0.0323**	-0.0216
	(0.0698)	(0.0756)	(0.0134)	(0.0149)
Exports × Q4	-0.164	-0.151	-0.0150	-0.0128
	(0.102)	(0.115)	(0.0161)	(0.0186)
Exports × Q5	0.0791	0.0353	0.0239**	0.0109
	(0.0538)	(0.0589)	(0.00958)	(0.0101)
Match F.E.	×	×	×	×
Country-Year F.E.	×	×	×	×
First Stage				
KP F-test		126.9		127.0
Overident. (p-value)		0.636		0.939
Observations	109,749	109,749	110,267	110,267
Firms	3,044	3,044	3,045	3,045
Individuals	23,011	23,011	23,134	23,134

Notes: The dependent variable *Stock Market Wealth* is an individual manager's total ownership of equity (in logs) linked to the employer's stock price. The dependent variable *Stock Market Wealth Share* is calculated as *Stock Market Wealth* relative to the sum of *Stock Market Wealth* and the present value of previous labor-income payments. Observations from 2008 and 2009 are omitted from the estimation sample. *Import Share* is the expenditure share on foreign inputs. *Import Share* and *Exports* (in logs) are measured at the country-industry-year level based on WIOD data. *Equity Price* is the end-of-year closing price of the firms' main security adjusted for splits and dividends (in logs). All specifications include the following additional controls (output suppressed): firm-level *Capital Intensity,* country-industry-year level *Domestic Absorption*, a *TFP* index and shift-share weighted output (in logs) as well as fixed effects for individual manager-firm matches and country-years. Instrumental variables are international transport costs and RTA coverage described in Subsection 2.3. Firm-size quintiles are based on the average firm sales during the first 3 sample years and order the sample firms within the same country. Standard errors are cluster-robust at the firm level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A5: Annual Transition Matrix across Firm-Size Quintiles

Size Quintile in t	*Size Quintile in t+1*				
	1	2	3	4	5
	By Sales				
1	**88.08**	11.54	0.25	0.10	0.03
2	5.86	**80.50**	13.43	0.20	0.01
3	0.19	7.17	**81.69**	10.90	0.04
4	0.04	0.18	6.29	**87.22**	6.27
5	0.03	0.00	0.12	4.27	**95.58**
	By Employment				
1	**90.20**	9.47	0.25	0.06	0.03
2	5.28	**83.99**	10.43	0.29	0.01
3	0.17	5.91	**85.02**	8.85	0.04
4	0.03	0.21	5.36	**89.23**	5.16
5	0	0.04	0.1	3.34	**96.53**

B Model Appendix

B.1 Indirect Utility and Multiplicative Preferences

Consider an agent with multiplicative upper-tier preferences $U = C \cdot G$ and an expected compensation level $r(k)$. Plugging in the consumption sub-utility C and replacing the consumption amount for each individual variety with the agent's individual demand $x_\omega = r(k) p_\omega^{-\sigma} P_i^{\sigma-1}$ yields

$$\begin{aligned} U &= \prod_{i=1}^{I} \left[\left(\int_\omega \left(r(k) p_\omega^{-\sigma} P_i^{\sigma-1} \right)^{\frac{\sigma-1}{\sigma}} d\omega \right)^{\frac{\sigma}{\sigma-1}} \right]^{\beta_i} \cdot G = \prod_{i=1}^{I} \left[P_i^{\sigma-1} \left(\int_\omega p_\omega^{1-\sigma} d\omega \right)^{\frac{\sigma}{\sigma-1}} \right]^{\beta_i} \cdot r(k) \cdot G \\ &= \prod_{i=1}^{I} \left[P_i^{\beta_i} \right]^{-1} \cdot r(k) \cdot G = r(k) P^{-1} \cdot G = W(k), \end{aligned}$$

where $P \equiv \prod_{i=1}^{I} \left[P_i^{\beta_i} \right]$ is a price index for the aggregate economy.

B.2 Productivity Benefits of Input Imports

To endogenize the productivity benefits of importing z_{is}, I borrow from Halpern et al. (2015) and assume that production of output requires a task bundle S_i that is produced in terms of production labor. The production function of a firm is thus given by $q_\omega = S_i / \left(k^{\mu_i} q^{\kappa_i} \right)$. The task bundle itself is assembled according to a c.e.s. technology such that

$$S_i = \left[S_{ih}^{\frac{\theta-1}{\theta}} + \left(B_{is} S_{is} \right)^{\frac{\theta-1}{\theta}} \right]^{\frac{\theta}{\theta-1}},$$

where S_{is} is the fraction of imported tasks and S_{ih} is the fraction of tasks produced with domestic labor such that $S_{is} + S_{ih} = 1$. The parameter θ is the elasticity of substitution across tasks and B_{is} is the quality of imported tasks. The prices of the foreign tasks are denoted P_{is} and firms are price takers in foreign input markets. The quality-adjusted price advantage of foreign tasks is thus $\Omega_i = B_{is}/P_{is}$ and measures the advantage of a dollar spent on a foreign relative to a domestic task. The effective price of the composite bundle stated in terms of Ω_i is then the analogue to a c.e.s. price index and captures the productivity benefits of importing:

$$z_{is} = \left(1 + \Omega_i^{\theta-1}\right)^{\frac{1}{\theta-1}} \geq 1.$$

It can be seen that z_{is} is increasing in Ω_i and if there is no sourcing from abroad ($\Omega_i = 0$), then z_{is} equals the unit wage rate of one. From this, I get the following unit costs $\varphi(k, q)$ which are equivalent to domestic labor demand per unit of output since the wage rate is used as the numéraire:

$$\varphi(k,q) = \begin{cases} \left(z_{is} k^{\mu_i} q^{\kappa_i}\right)^{-1} & \text{if importer} \\ \left(k^{\mu_i} q^{\kappa_i}\right)^{-1} & \text{if domestic.} \end{cases}$$

Because of imperfect substitutability across foreign and domestic inputs, importing firms use domestic and foreign inputs and an importer's expenditure share on foreign inputs in total expenditure on inputs equals $\frac{\Omega_i^{\theta-1}}{1+\Omega_i^{\theta-1}}$.

B.3 Optimal Contracts

Consider the following proof for (17). In equilibrium, the manager requires to receive an expected compensation level of $r(k)$ to satisfy individual rationality which yields expected indirect utility $r(k) P^{-1} G(\overline{e}) = r(k) P^{-1}$. Low effort $\underline{e}$ yields utility

$$\begin{aligned} E\left[w(k) P^{-1} G(\underline{e}) \,|\underline{e}\right] &= E\left[f + V((1-|\underline{e}|)\Pi)\right] P^{-1} G(\underline{e}) \\ &= E\left[f + V(\Pi) - |\underline{e}|^{\varepsilon_V} E\left[V(\Pi)\right]\right] P^{-1} \frac{1}{1-\lambda(e,\Psi)}. \end{aligned}$$

Hence, the contract is incentive compatible and the manager exerts effort if $E\left[w(k) P^{-1} G(\overline{e}) \,|\overline{e}\right] \geq E\left[w(k) P^{-1} G(\underline{e}) \,|\underline{e}\right]$, i.e. when

$$r(k) \geq \frac{r(k) - |\underline{e}|^{\varepsilon_V} E\left[V(\Pi)\right]}{1-\lambda(e,\Psi)} \Leftrightarrow \frac{E\left[V(\Pi)\right]}{r(k)} \geq \frac{\lambda(e,\Psi)}{|\underline{e}|^{\varepsilon_V}} = \triangle. \blacksquare$$

B.3.1 Relation Between Firm Size and Stock Market Wealth

There are two distinct margins of adjustment for the stock market wealth share $\triangle$ when the expected firm surplus changes. First, private benefits $\lambda(\underline{e}, \Psi_i)$ increase with the compensation premium Ψ_i. This makes stronger financial incentives necessary in larger firms to induce the manager to provide high effort. Additionally, the elasticity of the equity portfolio with respect to changes in the firm surplus ε_V falls when the expected surplus increases in the case of stock options. Both margins, $\lambda(\underline{e}, \Psi_i) \uparrow$ and $\varepsilon_V \downarrow$ let $\triangle$ increase.

Consider the relation between ε_V and the firm surplus Π. Suppose a manager's equity portfolio consists of a call option on the firm surplus Π (with $E[\Pi] = \pi$) with a strike price of S. Denote the standard deviation of realized firm surpluses by σ_Π. According to the Black-Scholes formula, the value V of that option is $V = \Pi\phi(d_1) - S_n\phi(d_2)$, where $\phi(.)$ is the cumulative distribution function of a standard normal variable and the terms d_1 and d_2 are defined as

$$\begin{aligned} d_1 &\equiv \frac{\ln(\Pi/S) + \sigma_\Pi^2/2}{\sigma_\Pi} \\ d_2 &\equiv \frac{\ln(\Pi/S) - \sigma_\Pi^2/2}{\sigma_\Pi}. \end{aligned}$$

The "delta" of the option (i.e. the derivative of V with respect to firm surplus Π) is given by $\frac{dV}{d\Pi} = \phi(d_1) > 0$ and an individual option's elasticity with respect to the firm's surplus equals

$$\varepsilon_V = \frac{dV}{d\Pi}\frac{\Pi}{V} = \frac{\Pi\phi(d_1)}{\Pi\phi(d_1) - S\phi(d_2)} > 1.$$

This elasticity is falling in the firm surplus Π and converges to one when the firm surplus approaches infinity:

$$\frac{d\varepsilon_V}{d\Pi} < 0, \quad \lim_{\Pi\to\infty} \varepsilon_V = 1.$$

Equivalently, the same argument can be made when the manager's stock market wealth consists of $1, ..., n$ European call options on parts of the firm surplus such that ε_V becomes a weighted sum of individual elasticities each falling in firm surpluses. ■

B.4 Industry Price Index and Effective Industry Size A_i

Since firms face identical demand elasticities, the operating profit ratio of a marginal importer and the cutoff firm can be stated as follows:

$$\frac{\left(z_{is}^{\sigma-1} - 1\right) k_{is}^{1-\xi_i}}{\underline{k}_i^{1-\xi_i}} = \frac{F_{is}}{1} \Leftrightarrow k_{is} = \left(z_{is}^{\sigma-1} - 1\right)^{-\frac{1}{1-\xi_i}} F_{is}^{\frac{1}{1-\xi_i}} \underline{k}_i.$$

Furthermore, the operating profit ratio of a marginal exporter and the cutoff firm can be stated as follows:

$$\frac{\tau^{1-\sigma} z_{is}^{\sigma-1} k_{ix}^{1-\xi_i}}{\underline{k}_i^{1-\xi_i}} = \frac{F_{ix}}{1} \Leftrightarrow k_{ix} = z_{is}^{\frac{1-\sigma}{1-\xi_i}} \tau_{ix}^{\frac{\sigma-1}{1-\xi_i}} F_{ix}^{\frac{1}{1-\xi_i}} \underline{k}_i.$$

Plugging the firms' pricing decision

$$p_\omega = \begin{cases} \frac{\sigma}{\sigma-1}\left(\frac{Q_i}{N_i}\right)^{-\kappa_i} \tau z_{is}^{-1} k^{-(\kappa_i+\mu_i)} & \text{if exporter} \\ \frac{\sigma}{\sigma-1}\left(\frac{Q_i}{N_i}\right)^{-\kappa_i} z_{is}^{-1} k^{-(\kappa_i+\mu_i)} & \text{if importer} \\ \frac{\sigma}{\sigma-1}\left(\frac{Q_i}{N_i}\right)^{-\kappa_i} k^{-(\kappa_i+\mu_i)} & \text{if domestic,} \end{cases}$$

into the c.e.s. industry price index $P_i = \left[\int_{\underline{k}_i}^{\infty} p_\omega^{1-\sigma} d\omega\right]^{1/(1-\sigma)}$ and integrating over the knowledge distribution, this price index can be written as

$$\begin{aligned}
P_i &= \frac{\sigma}{\sigma-1}\left(\frac{Q_i}{N_i}\right)^{-\kappa_i}\left[\int_{\underline{k}_i}^{k_{is}}\left(k^{-(\kappa_i+\mu_i)}\right)^{1-\sigma} dN_i\left(1-k^{-1}\right).\right. \\
&\quad + z_{is}^{\sigma-1}\int_{k_{is}}^{k_{ix}}\left(k^{-(\kappa_i+\mu_i)}\right)^{1-\sigma} dN_i\left(1-k^{-1}\right) \\
&\quad \left. + \left(1+\tau_{ix}^{1-\sigma}\right) z_{is}^{\sigma-1}\int_{k_{ix}}^{\infty}\left(k^{-(\kappa_i+\mu_i)}\right)^{1-\sigma} dN_i\left(1-k^{-1}\right)\right]^{1/(1-\sigma)}.
\end{aligned}$$

Substituting $dN_i(1-k^{-1}) = N_i k^{-2} dk$ and solving for the integrals in the price index leads to

$$\begin{aligned}
P_i &= \frac{\sigma}{\sigma-1}\left(\frac{Q_i}{N_i}\right)^{-\kappa_i} N_i^{1/(1-\sigma)}\left[\int_{\underline{k}_i}^{k_{is}} k^{-\xi_i-1}dk + z_{is}^{\sigma-1}\int_{k_{is}}^{k_{ix}} k^{-\xi_i-1}dk + \left(1+\tau_{ix}^{1-\sigma}\right) z_{is}^{\sigma-1}\int_{k_{ix}}^{\infty} k^{-\xi_i-1}dk\right]^{1/(1-\sigma)} \\
&= \frac{\sigma}{\sigma-1}\left(\frac{Q_i}{N_i}\right)^{-\kappa_i}\left(\frac{\xi_i}{N_i}\right)^{1/(\sigma-1)}\left[\underline{k}_i^{-\xi_i} + \left(z_{is}^{\sigma-1}-1\right) k_{is}^{-\xi_i} + \tau_{ix}^{1-\sigma} z_{is}^{\sigma-1} k_{ix}^{-\xi_i}\right]^{1/(1-\sigma)}.
\end{aligned}$$

Using the relations between the cutoffs k_{is}, k_{ix} and $\underline{k}_i$ and the index of trade integration $\delta_i \equiv \left(z_{is}^{\sigma-1}-1\right)^{\frac{1}{1-\xi_i}} F_{is}^{-\frac{\xi_i}{1-\xi_i}} + z_{is}^{\frac{\sigma-1}{1-\xi_i}} \tau_{ix}^{-\frac{\sigma-1}{1-\xi_i}} F_{ix}^{-\frac{\xi_i}{1-\xi_i}}$ gives

$$P_i = \frac{\sigma}{\sigma-1}\left(\frac{Q_i}{N_i}\right)^{-\kappa_i}\left(\frac{\xi_i}{N_i}\right)^{1/(\sigma-1)}(1+\delta_i)^{\frac{1}{1-\sigma}}\,\underline{k}_i^{\frac{\xi_i}{\sigma-1}}.\ \blacksquare$$

Using the zero-cutoff condition and the industry price index from above, the effective industry size $A_i = X_i P_i^{\sigma-1}$ can be stated as

$$\begin{aligned}
A_i &= \left(\frac{\sigma N_i\left(1+\delta_i\right)}{\xi_i}\underline{k}_i^{-1}\right)\left(\frac{\sigma}{\sigma-1}\left(\frac{Q_i}{N_i}\right)^{-\kappa_i}\left(\frac{\xi_i}{N_i}\right)^{1/(\sigma-1)}(1+\delta_i)^{\frac{1}{1-\sigma}}\,\underline{k}_i^{\frac{\xi_i}{\sigma-1}}\right)^{\sigma-1} \\
&= \sigma\left(\frac{\sigma}{\sigma-1}\right)^{\sigma-1}\left(\frac{Q_i}{N_i}\right)^{-\kappa_i(\sigma-1)}\underline{k}_i^{\xi_i-1}.\ \blacksquare
\end{aligned}$$

B.5 Zero Cutoff Earnings

The marginal firm in an industry employs the marginal manager with knowledge level $\underline{k}_i$. This firm will just break even and the marginal manager will receive an expected compensation equal to the numéraire wage. Assuming that the marginal firm does not import, this indifference condition can be stated as follows:

$$\frac{1}{\sigma}\left(\frac{\sigma}{\sigma-1}\right)^{1-\sigma} A_i\left(\left(\frac{Q_i}{N_i}\right)^{\kappa}\underline{k}_i^{\kappa_i+\mu_i}\right)^{\sigma-1} = 1. \tag{21}$$

Using (21), the price index of the industry P_i can be denoted as

$$P_i = \frac{\sigma}{\sigma-1}\left(\frac{Q_i}{N_i}\right)^{-\kappa_i}\left(\frac{\xi_i}{N_i}\right)^{1/(\sigma-1)}(1+\delta_i)^{\frac{1}{1-\sigma}}\,\underline{k}_i^{\frac{\xi_i}{\sigma-1}}, \tag{22}$$

where I define $\xi_i \equiv 1-(\kappa_i+\mu_i)(\sigma-1) \in (0,1)$ to shorten the notation. Further, δ_i is an index of trade integration which is defined as follows:

$$\delta_i \equiv \left(z_{is}^{\sigma-1}-1\right)^{\frac{1}{1-\xi_i}} F_{is}^{-\frac{\xi_i}{1-\xi_i}} + z_{is}^{\frac{\sigma-1}{1-\xi_i}} \tau_{ix}^{-\frac{\sigma-1}{1-\xi_i}} F_{ix}^{-\frac{\xi_i}{1-\xi_i}}. \tag{23}$$

This index captures how strongly the industry is integrated with international input and output markets. It increases with productivity gains from importing z_{is} and falls with fixed costs of importing or exporting F_{is} and F_{ix} as well as variable exporting costs τ_{ix}. Using the price index, the zero-cutoff condition for an individual industry i can be stated as

$$X_i(\underline{k}_i) = \frac{\sigma N_i \left(1+\delta_i\right)}{\xi_i} \underline{k}_i^{-1}. \blacksquare \tag{24}$$

Furthermore, the effective industry size shrinks with the cutoff:

$$A_i = \sigma \left(\frac{\sigma}{\sigma-1}\right)^{\sigma-1} \left(\frac{Q_i}{N_i}\right)^{-\kappa_i(\sigma-1)} \underline{k}_i^{\xi_i-1}. \tag{25}$$

B.6 Labor-Market Clearing

As the supply of production workers depends on the occupational choice between managerial and production work, production-labor supply is endogenous.[27] Supply is given by $\sum_{i=1}^{I} N_i \left(1-\underline{k}_i^{-1}\right)$. Labor demand is comprised of labor demand to produce for the domestic and the export market and labor demand to cover the fixed costs of importing and exporting. Integrating the production-labor demand over all firms and including demand to cover the fixed costs of importing and exporting yields aggregate labor demand. Setting labor demand and supply equal yields

$$\sum_{i=1}^{I} \left[\frac{\sigma-1}{\sigma} X_i + F_{is} N_i k_{is}^{-1} + F_{ix} N_i k_{ix}^{-1}\right] = \sum_{i=1}^{I} N_i \left(1-\underline{k}_i^{-1}\right). \tag{26}$$

Simplifying this expression yields the labor-market clearing condition as a function of the cutoff $\underline{k}_i$:

$$\frac{\sigma-1}{\sigma} X = \sum_{i=1}^{I} N_i \left(1-\left(1+\delta_i\right) \underline{k}_i^{-1}\right). \tag{27}$$

Intuitively, the labor-market clearing is upward sloping in the $X\left(\underline{k}_i\right)$ space. Increases in $\underline{k}_i$ imply a larger supply of production labor. To keep the labor market balanced, labor demand needs to increase which is ensured by a larger GDP X. Plugging in the $\underline{k}_i^{-1}$ from the zero-cutoff condition (24) then yields aggregate GDP X in equilibrium:

$$X = \frac{\sigma}{\sigma-1+\sum_{i=1}^{I} \beta_i \xi_i} \sum_{i=1}^{I} N_i. \tag{28}$$

An equilibrium on the product market is thus pinned down by a set of $I+1$ equations: the labor-market condition (28) and the zero-cutoff conditions (24) for each individual industry i.

To obtain (26), consider the following steps. When a firm produces q_ω units of output, its variable labor demand is $q_\omega \varphi(k, q)$. This can be restated using the c.e.s. pricing rule $p_\omega = \frac{\sigma}{\sigma-1}\varphi(k, q)$ (or $p_\omega = \frac{\sigma}{\sigma-1}\tau_i \varphi(k, q)$ abroad) and the c.e.s. demand function $q_\omega = A_i p_\omega^{-\sigma} =$

[27] This is in contrast to Melitz (2003). Other assignment models share the same feature are Chen (2019), Wu (2011) or Monte (2011).

$X_i P_i^{\sigma-1} p_\omega^{-\sigma}$:

$$q_\omega \varphi(k,q) = \frac{\sigma-1}{\sigma} X_i P_i^{\sigma-1} p_\omega^{1-\sigma}.$$

Variable labor demand for domestic and exported output is thus

$$\frac{\sigma-1}{\sigma}\sum_{i=1}^I X_i P_i^{\sigma-1}\left(\frac{\sigma}{\sigma-1}\right)^{1-\sigma}\left(\frac{Q_i}{N_i}\right)^{\kappa(\sigma-1)}\times$$
$$\left[\int_{\underline{k}_i}^{k_{is}} k^{1-\xi_i} dN_i\left(1-k^{-1}\right)+\int_{k_{is}}^{k_{ix}} z_{is}^{\sigma-1} k^{1-\xi_i} dN_i\left(1-k^{-1}\right)+\left(1+\tau^{1-\sigma}\right)\int_{k_{ix}}^{\infty} z_{is}^{\sigma-1} k^{1-\xi_i} dN_i\left(1-k^{-1}\right)\right],$$

which can be simplified to

$$\frac{\sigma-1}{\sigma}\sum_{i=1}^I X_i P_i^{\sigma-1}\left(\frac{\sigma}{\sigma-1}\right)^{1-\sigma}\left(\frac{Q_i}{N_i}\right)^{\kappa(\sigma-1)}\frac{N_i}{\xi_i}\left[\underline{k}_i^{-\xi_i}+\left(z_{is}^{\sigma-1}-1\right)k_{is}^{-\xi_i}+\tau^{1-\sigma} z_{is}^{\sigma-1} k_{ix}^{-\xi_i}\right]=\frac{\sigma-1}{\sigma}\sum_{i=1}^I X_i.$$

As there are $\sum_{i=1}^I N_i k_{is}^{-1}$ importers and $\sum_{i=1}^I N_i k_{ix}^{-1}$ exporters, fixed labor demand equals $\sum_{i=1}^I F_{is} N_i k_{is}^{-1}+\sum_{i=1}^I F_{ix} N_i k_{ix}^{-1}$. Together, this yields the (26).
Using the relation between the cutoffs yields

$$\begin{aligned}
\frac{\sigma-1}{\sigma}\sum_{i=1}^I X_i+\sum_{i=1}^I N_i \underline{k}_i^{-1} z_{is}^{\frac{\sigma-1}{1-\xi_i}} \tau_{ix}^{\frac{1-\sigma}{1-\xi_i}} F_{ix}^{\frac{-\xi_i}{1-\xi_i}}+\sum_{i=1}^I N_i \underline{k}_i^{-1}\left(z_{is}^{\sigma-1}-1\right)^{\frac{1}{1-\xi_i}} F_{is}^{-\frac{\xi_i}{1-\xi_i}} &= \sum_{i=1}^I N_i\left(1-\underline{k}_i^{-1}\right)\\
&\Leftrightarrow\\
\frac{\sigma-1}{\sigma}\sum_{i=1}^I X_i+\sum_{i=1}^I N_i \delta_i \underline{k}_i^{-1} &= \sum_{i=1}^I N_i\left(1-\underline{k}_i^{-1}\right)\\
&\Leftrightarrow\\
\frac{\sigma-1}{\sigma}\sum_{i=1}^I X_i &= \sum_{i=1}^I N_i\left(1-\left(1+\delta_i\right)\underline{k}_i^{-1}\right).
\end{aligned}$$

Plugging the zero-cutoff conditions $\underline{k}_i^{-1}=X_i\frac{\xi_i}{\sigma N_i(1+\delta_i)}$ into this expression and using the fact that $\sum_{i=1}^I X_i=\sum_{i=1}^I \beta_i X=X$ gives

$$\begin{aligned}
\frac{\sigma-1}{\sigma}\sum_{i=1}^I X_i &= \sum_{i=1}^I N_i\left(1-\left(1+\delta_i\right)\underline{k}_i^{-1}\right)\\
&\Leftrightarrow\\
\frac{\sigma-1}{\sigma}\sum_{i=1}^I X_i &= \sum_{i=1}^I N_i\left(1-\left(1+\delta_i\right)X_i\frac{\xi_i}{\sigma N_i\left(1+\delta_i\right)}\right)\\
&\Leftrightarrow\\
\frac{\sigma-1}{\sigma}\sum_{i=1}^I X_i &= \sum_{i=1}^I N_i-\sum_{i=1}^I N_i X_i\frac{\xi_i}{\sigma N_i}\\
&\Leftrightarrow\\
X &= \frac{\sigma}{\sigma-1+\sum_{i=1}^I \beta_i\xi_i}\sum_{i=1}^I N_i. \blacksquare
\end{aligned}$$

B.7 Assignment

Equation (15) relates compensation differences across managers to differences across firms driven by positive assignment. Compensation inequality across firms is larger among international and larger firms since the slope of $\Psi_i(k)$ is steeper for $k \geq k_{is}$ and even more so for $k \geq k_{ix}$. Furthermore, (15) suggests that compensation levels are higher in sectors that are more integrated.

To derive (15), differentiate expected profits $E[\Pi(k,q)]$ with respect to knowledge k and then substitute $q = \frac{Q_i}{N_i}k$:

$$\frac{dE[\Pi(k,q)]}{dk}_{|q=q(k)} = \begin{cases} \mu_i \frac{\sigma-1}{\sigma}\left(\frac{\sigma}{\sigma-1}\right)^{1-\sigma} A_i \left(1+\tau_{ix}^{1-\sigma}\right) z_{is}^{\sigma-1}\left(\frac{Q_i}{N_i}\right)^{\kappa_i(\sigma-1)} k^{-\xi_i} & \text{if } k_{ix} \leq k \\ \mu_i \frac{\sigma-1}{\sigma}\left(\frac{\sigma}{\sigma-1}\right)^{1-\sigma} A_i z_{is}^{\sigma-1}\left(\frac{Q_i}{N_i}\right)^{\kappa_i(\sigma-1)} k^{-\xi_i} & \text{if } k_{is} \leq k < k_{ix} \\ \mu_i \frac{\sigma-1}{\sigma}\left(\frac{\sigma}{\sigma-1}\right)^{1-\sigma} A_i \left(\frac{Q_i}{N_i}\right)^{\kappa_i(\sigma-1)} k^{-\xi_i} & \text{if } \underline{k}_i \leq k < k_{is}. \end{cases}$$

Integrating this expression over k and using the occupational indifference of the marginal manager yields the (partial-equilibrium version of the) compensation premium $\Psi_i(k)$:

$$\begin{aligned} \Psi_i(k) &= \frac{\mu_i}{\kappa_i+\mu_i}\frac{1}{\sigma}\left(\frac{\sigma}{\sigma-1}\right)^{1-\sigma} A_i \left(\frac{Q_i}{N_i}\right)^{\kappa_i(\sigma-1)} \times \\ &\begin{cases} \left[\left(k_{is}^{1-\xi_i} - \underline{k}_i^{1-\xi_i}\right) + z_{is}^{\sigma-1}\left(k_{ix}^{1-\xi_i} - k_{is}^{1-\xi_i}\right) + z_{is}^{\sigma-1}\left(1+\tau_{ix}^{1-\sigma}\right)\left(k^{1-\xi_i} - k_{ix}^{1-\xi_i}\right)\right] & \text{if } k_{ix} \leq k \\ \left[\left(k_{is}^{1-\xi_i} - \underline{k}_i^{1-\xi_i}\right) + z_{is}^{\sigma-1}\left(k^{1-\xi_i} - k_{is}^{1-\xi_i}\right)\right] & \text{if } k_{iS} \leq k < k_{ix} \\ \left(k^{1-\xi_i} - \underline{k}_i^{1-\xi_i}\right) & \text{if } \underline{k}_i \leq k < k_{iS}. \end{cases} \end{aligned}$$

For all managers within the industry, the compensation premium scales with aggregate variables such as the industry-specific market size A_i, the technological intensity of the industry $\frac{Q_i}{N_i}$ and the relative importance of knowledge in the production process $\frac{\mu_i}{\kappa_i+\mu_i}$. Besides, there is a match-specific component to $\Psi_i(k)$ given by $k^{1-\xi_i} - \underline{k}_i^{1-\xi_i}$ for domestic firms, by $k_{is}^{1-\xi_i} - \underline{k}_i^{1-\xi_i} + z_{is}^{\sigma-1}(k^{1-\xi_i} - k_{is}^{1-\xi_i})$ for importers and $\left(k_{is}^{1-\xi_i} - \underline{k}_i^{1-\xi_i}\right) + z_{is}^{\sigma-1}\left(k_{ix}^{1-\xi_i} - k_{is}^{1-\xi_i}\right) + z_{is}^{\sigma-1}\left(1+\tau_{ix}^{1-\sigma}\right)\left(k^{1-\xi_i} - k_{ix}^{1-\xi_i}\right)$ for importer-exporters. This match-specific factor relates the knowledge level k relative to the knowledge of the marginal manager in the industry $\underline{k}_i$.

Since the cutoffs and the industry-specific market size A_i are equilibrium objects, the expected compensation stated above can be regarded as the partial-equilibrium expression of expected compensation. It closely matches the distribution of executive pay in assignment models with an exogenous firm mass and market size such as Gabaix and Landier (2008). Equilibrium pay levels are increasing with the size of a "reference firm" in the economy (here $\underline{k}_i$) and the aggregate market size (here A_i). In this model, both objects are equilibrium outcomes to study comparative exercises of a globalization shock.

Plugging in A_i and simplifying yields

$$\Psi_i(k) = \begin{cases} \frac{\mu_i}{\kappa_i+\mu_i}\left[z_{is}^{\sigma-1}\left(1+\tau_{ix}^{1-\sigma}\right)\left(\frac{k}{\underline{k}_i}\right)^{1-\xi_i} - F_{is} - F_{ix} - 1\right] & \text{if } k_{ix} \leq k \\ \frac{\mu_i}{\kappa_i+\mu_i}\left[z_{is}^{\sigma-1}\left(\frac{k}{\underline{k}_i}\right)^{1-\xi_i} - F_{is} - 1\right] & \text{if } k_{iS} \leq k < k_{ix} \\ \frac{\mu_i}{\kappa_i+\mu_i}\left(\left(\frac{k}{\underline{k}_i}\right)^{1-\xi_i} - 1\right) & \text{if } \underline{k}_i \leq k < k_{iS}. \blacksquare \end{cases}$$

B.8 Comparative Static with $dz_{is} > 0$

Consider how an increase in z_{is} affects the compensation premium of a manager. The derivative of $\Psi_i(k)$ with respect to z_{is} can be written as

$$\frac{d\Psi_i(k)}{dz_{is}} = \begin{cases} \frac{\mu_i}{\kappa_i+\mu_i}\left(1+\tau_{ix}^{1-\sigma}\right) z_{is}^{\sigma-1}\left(\frac{k}{\underline{k}_i}\right)^{1-\xi_i}\left[(\sigma-1) z_{is}^{-1}-(1-\xi_i)\,\underline{k}_i^{-1}\frac{d\underline{k}_i}{z_{is}}\right] & \text{if } k_{ix} \leq k \\ \frac{\mu_i}{\kappa_i+\mu_i} z_{is}^{\sigma-1}\left(\frac{k}{\underline{k}_i}\right)^{1-\xi_i}\left[(\sigma-1) z_{is}^{-1}-(1-\xi_i)\,\underline{k}_i^{-1}\frac{d\underline{k}_i}{z_{is}}\right] & \text{if } k_{iS} \leq k < k_{ix} \\ \frac{\mu_i}{\kappa_i+\mu_i}\left(\frac{k}{\underline{k}_i}\right)^{1-\xi_i}(1-\xi_i)\,\underline{k}_i^{-1}\frac{d\underline{k}_i}{z_{is}} & \text{if } \underline{k}_i \leq k < k_{iS}. \end{cases}$$

Next, consider the derivative $\frac{d\underline{k}_i}{dz_{is}}$, which is $\frac{d\underline{k}_i}{dz_{is}} = \frac{d\underline{k}_i}{d\delta_i}\frac{d\delta_i}{dz_{is}}$. First,

$$\frac{d\underline{k}_i}{d\delta_i} = \frac{\sigma N_i}{\xi_i} X_i^{-1} = \frac{\underline{k}_i}{1+\delta_i}.$$

Second, consider

$$\frac{d\delta_i}{dz_{is}} = d\left(\left(z_{is}^{\sigma-1}-1\right)^{\frac{1}{1-\xi_i}} F_{is}^{-\frac{\xi_i}{1-\xi_i}} + z_{is}^{\frac{\sigma-1}{1-\xi_i}}\tau_{ix}^{\frac{-(\sigma-1)}{1-\xi_i}} F_{ix}^{-\frac{\xi_i}{1-\xi_i}}\right)\frac{1}{dz_{is}} = \frac{\sigma-1}{1-\xi_i} z_{is}^{-1}\left(\left(z_{is}^{\sigma-1}-1\right)^{\frac{\xi_i}{1-\xi_i}} F_{is}^{-\frac{\xi_i}{1-\xi_i}} + \delta_i\right).$$

Lastly, since $\left(z_{is}^{\sigma-1}-1\right) < F_{is}$ (because $\underline{k}_i < k_{is}$), we have

$$(\sigma-1) z_{is}^{-1} - (1-\xi_i)\,\underline{k}_i^{-1}\frac{d\underline{k}_i}{z_{is}} = (\sigma-1) z_{is}^{-1}\left(1-\frac{\left(z_{is}^{\sigma-1}-1\right)^{\frac{\xi_i}{1-\xi_i}} F_{is}^{-\frac{\xi_i}{1-\xi_i}}+\delta_i}{1+\delta_i}\right) > 0,$$

such that the compensation premium increases for managers of importing firms. Since $\frac{d\underline{k}_i}{z_{is}} < 0$, it falls for managers of domestic firms. Furthermore, this implies that stock market wealth shares $\triangle$ increase (fall) for managers of importers (domestic firms) given Assumption 1 and the optimal contracting (17). ■

B.9 Invariance of the Earnings Distribution

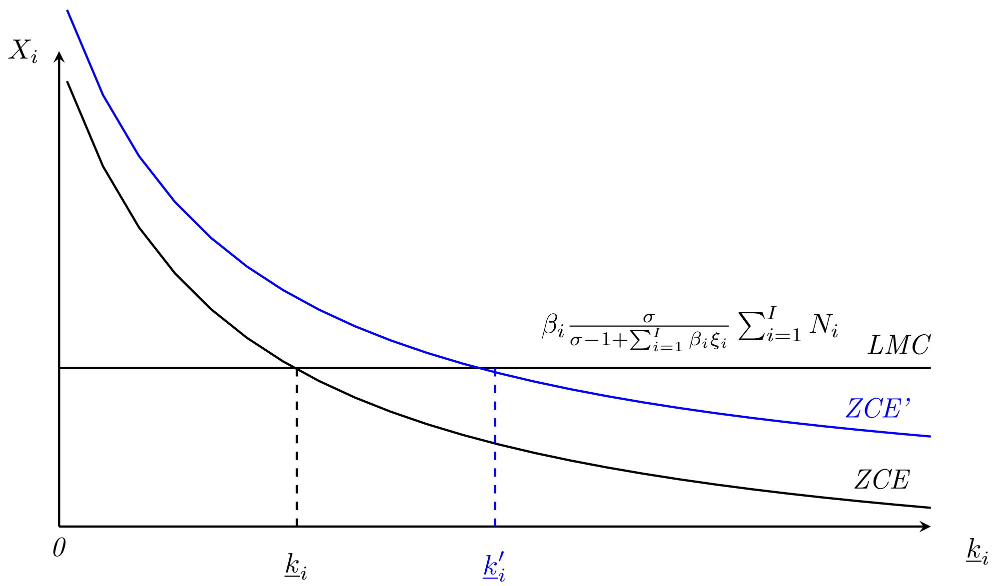
To show that the assumption of a unity shape parameter on the Pareto distribution of blueprints and managers is without loss of generality, suppose that knowledge and blueprints are Pareto-distributed with general shape parameters s_k and s_q and redefine $Q_i' = Q_i^{s_k}$ and $N_i' = N_i^{s_k}$ such that $Q_i(q) = Q_i' q^{-s_q}$ is the mass of blueprints that are at least as good as the blueprint with efficiency q and $N_i(k) = N_i' k^{-s_k}$ is the mass of agents with knowledge of at least k. Due to positive assignment, both masses need to be equal for each matched pair (k, q):

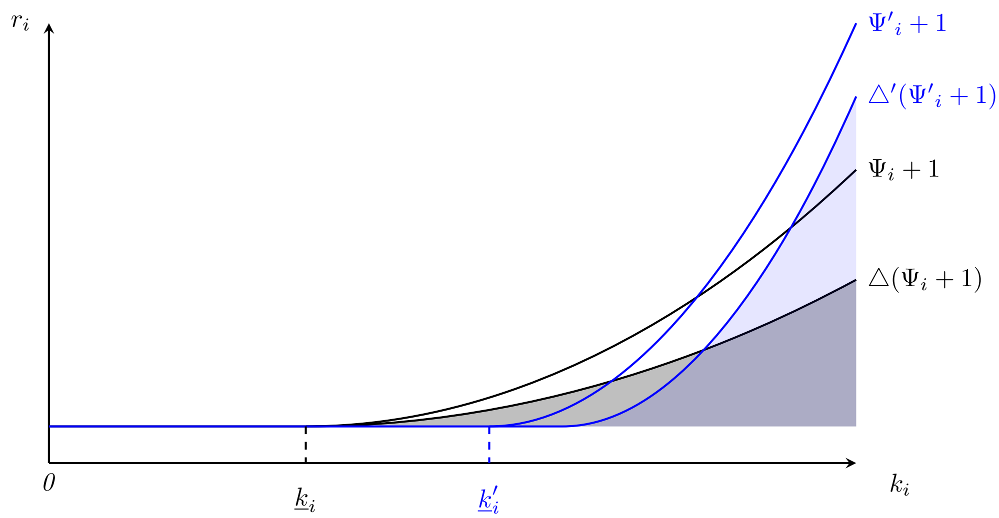
$$\frac{N_i'}{k^{s_k}} = \frac{Q_i'}{q^{s_q}} \Longleftrightarrow q = \left(\frac{Q_i'}{N_i'}\right)^{1/s_q} k^{s_k/s_q}.$$

Differentiating expected operating profits $E\left[\Pi(k,q)\right] = \frac{1}{\sigma}\left(\frac{\sigma}{\sigma-1}\right)^{1-\sigma} A_i \left(k^{\mu_i} q^{\kappa_i}\right)^{\sigma-1}$ with respect to knowledge k and then substituting $q = \left(\frac{Q_i'}{N_i'}\right)^{1/s_q} k^{s_k/s_q}$ yields (consider for brevity a domestic

Figure B1: Effects of Trade Liberalization ($d\delta_i > 0$)

(a) Industry Equilibrium





(b) Compensation Premia and Stock Market Wealth firm):

$$\frac{dE\left[\Pi\left(k,q\right)\right]}{dk}_{|q=q(k)} = \mu_i \left(\frac{\sigma}{\sigma-1}\right)^{-\sigma} A_i \left(\frac{Q_i'}{N_i'}\right)^{\kappa_i(\sigma-1)/s_q} k^{(\mu_i+\kappa_i s_k/s_q)(\sigma-1)-1}.$$

Integrating this expression over k and using the occupational indifference of the marginal manager yields the compensation premium $\Psi_i\left(k\right)$:

$$\Psi_i\left(k\right) = \frac{\mu_i}{\mu_i+\kappa_i\frac{s_k}{s_q}} \left(\frac{\sigma}{\sigma-1}\right)^{-\sigma} A_i \left(\frac{Q_i}{N_i}\right)^{\kappa_i\frac{s_k}{s_q}(\sigma-1)} \left(k^{(\kappa_i\frac{s_k}{s_q}+\mu_i)(\sigma-1)} - \underline{k}_i^{(\kappa_i\frac{s_k}{s_q}+\mu_i)(\sigma-1)}\right),$$

such that the compensation premium is identical after redefining parameter κ_i from the model to $\kappa_i\frac{s_k}{s_q}$, here. ■

C Quantification Appendix

C.1 Derivations

Stating Firm Sales and Compensation Premia in Terms of Market Shares $\mathcal{M}$: Assuming that firms within the list of top 500 firms are importers and exporters,[28] firm sales are

$$p_\omega x_\omega = X_i P^{\sigma-1} p_\omega^{1-\sigma}\left(1+\tau_{ix}^{1-\sigma}\right) = \sigma z_{is}^{\sigma-1}\left(1+\tau_{ix}^{1-\sigma}\right)\left(\frac{k}{\underline{k}_i}\right)^{1-\xi_i},$$

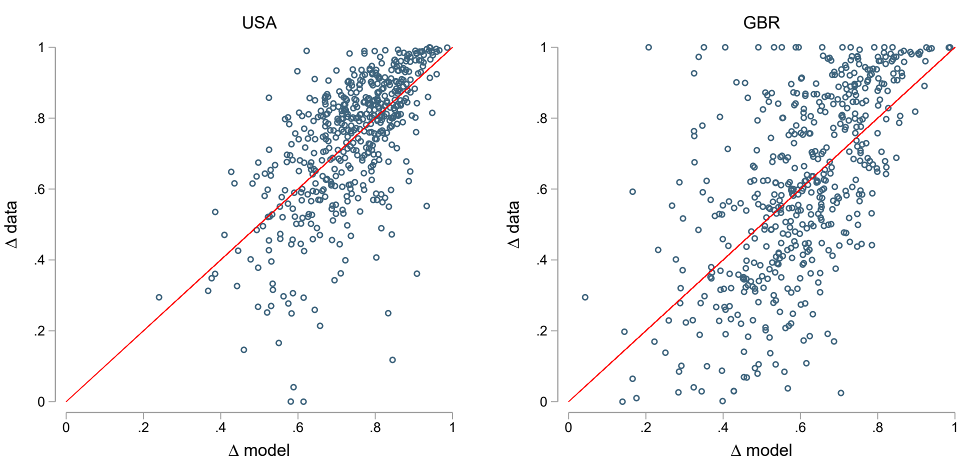
where the term $\frac{k}{\underline{k}_i}$ is unobservable. This term can be backed out from the market share of an individual firm using the industry market share $\mathcal{M} \equiv \sigma z_{is}^{\sigma-1}\left(1+\tau_{ix}^{1-\sigma}\right)\left(\frac{k}{\underline{k}_i}\right)^{1-\xi_i} X_i^{-1}$ which is observable in the data:

$$\mathcal{M} = \left(\frac{k}{\underline{k}_i}\right)^{1-\xi_i} z_{is}^{\sigma-1}\left(1+\tau_{ix}^{1-\sigma}\right)\left(\frac{\underline{k}_i\xi_i}{N_i\left(1+\delta_i\right)}\right) \Leftrightarrow \left(\frac{k}{\underline{k}_i}\right)^{1-\xi_i} = \mathcal{M}\frac{N_i\left(1+\delta_i\right)}{\underline{k}_i\xi_i z_{is}^{\sigma-1}\left(1+\tau_{ix}^{1-\sigma}\right)} \Leftrightarrow k = \left(\mathcal{M}\frac{N_i\left(1+\delta_i\right)}{\underline{k}_i^{\xi_i}\xi_i z_{is}^{\sigma-1}\left(1+\tau_{ix}^{1-\sigma}\right)}\right)^{1/(1-\xi_i)}.$$

Stating the compensation premium and sales as functions of $\mathcal{M}$ yields:

$$\begin{aligned} sales &= \sigma\mathcal{M}\frac{N_i\left(1+\delta_i\right)}{\underline{k}_i\xi_i} \\ compensation\,premium &= \frac{\mu_i}{\kappa_i+\mu_i}\left[\mathcal{M}\frac{N_i\left(1+\delta_i\right)}{\underline{k}_i\xi_i} - F_{is} - F_{ix} - 1\right]. \end{aligned}$$

Figure C1: Stock Market Wealth in the Model and the Data



Notes: The Figure shows scatter plots of calibrated versus observed stock market wealth shares $\triangle$ for the US (left graph) and the UK (right graph).

[28]This can be verified ex post by comparing the computed values for k with the calibrated value for k_{iS}.

Trade Shares The share of import expenditures can be expressed as

$$import\ share = \frac{k_i}{k_{is}} \times \frac{\Omega_i^{\theta-1}}{1+\Omega_i^{\theta-1}} = \left(\left(z_{is}^{\sigma-1} - 1\right)^{\frac{1}{1-\xi_i}} F_{is}^{-\frac{1}{1-\xi_i}} \right) \times \frac{z_{is}^{\theta-1} - 1}{z_{is}^{\theta-1}}$$

The share of exports in sales is given by

$$export\ share = \frac{k_i}{k_{ix}} \times \tau^{1-\sigma} = \left(z_{is}^{\frac{\sigma-1}{1-\xi_i}} \tau_{ix}^{\frac{1-\sigma}{1-\xi_i}} F_{ix}^{\frac{-1}{1-\xi_i}} \right) \times \tau^{1-\sigma} = z_{is}^{\frac{\sigma-1}{1-\xi_i}} \tau_{ix}^{\frac{(1-\sigma)(2-\xi_i)}{1-\xi_i}} F_{ix}^{\frac{-1}{1-\xi_i}}$$

C.2 Taxing Top Earners

How distortive is the introduction of a tax on top earners to restore top earnings to autarky levels? The mechanism described in the model suggests that the increase in top earners' compensation in response to globalization contributes to inequality but at the same time this increase is efficient as compensation of productive managers allows more productive firms to expand more. Suppose that a fiscal authority wants to introduce a tax on corporate top earners that aims to restore earnings at certain percentiles of the earnings distribution back to counterfactual autarky levels. This tax is distortive for both, zero-cutoff earnings and labor-market clearing. First, the tax makes entry more costly and the marginal firm needs to be more productive such that less firms enter. Second, a larger fraction of firms are active internationally as the importer and exporter cutoffs move closer to the domestic entry cutoff such that a larger fraction of labor is used for fixed entry costs. Table C1 reports the average tax rates that are required to restore earning gains back to autarky levels and the effect on consumer prices. Naturally, the higher the percentile that the tax targets, the larger is the required tax rate and the more distortive it is. A 24 (29) percent tax rate is necessary to remove the trade-induced benefits at the 99.9 percentile of the earnings distribution in the US (UK). The distortion that such a tax rate would create according to the model is reflected in a 2 percent higher price index in the US, respectively a 3 percent higher price index in the UK.

Table C1: Taxation of Corporate Top Earners

	p90	p99	p99.9	p90	p99	p99.9
	USA			*GBR*		
Price index change	100	101	102	100	102	103
Required average tax rate	1	9	24	1	10	29

Notes: The Table shows required tax rates to bring earnings at selected percentiles back to autarky levels and the associated increase in consumer prices. Changes in the price index are measured as $\frac{value_{2006}}{value_{aut}} \times 100\%$.