Income Inequality and the Quality of Imports

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Abstract

This paper investigates how income inequality affects the quality of imported products. In a heterogeneous-firms trade model, I show that higher inequality increases total expenditure leading to a reduction in unit value and quality of imported goods. To test this prediction, I employ detailed firm-level trade data for the period 2001-2006. I empirically document that higher inequality is associated with lower unit value and lower quality of imported products. This negative relation is due to firm-level heterogeneous responses to variations in total expenditure. Incumbent firms react to an increase in total expenditure caused by higher inequality lowering unit values, while firms entering the same market for the first time supply goods of lower quality.

JEL classification: F14, L11, L15, O15.

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1 Introduction

Demand characteristics have a considerable effect on trade flows. Empirical evidence shows that rich countries import more from countries that produce goods of higher value (Hallak, 2006; Hummels and Lugovskyy, 2009), while firms export their most expensive products to destinations with high per-capita income (Manova and Zhang, 2012; Fieler, 2012; Simonovska, 2015; Dingel, 2016). In a context of rising earning disparities (Chen and Ravallion, 2007; IMF, 2015), it is important to assess whether income inequality influences the characteristics of imported products and firm performance through its impact on demand. So far, the literature has mainly investigated whether inequality is affected by international trade.[1] Yet, Matsuyama (2000) and Fajgelbaum, Grossman, and Helpman (2011) assess the relevance of the effect working in the opposite direction: income disparities within countries influence trade patterns. Understanding the role of income inequality as a demand determinant is crucial for the optimal pricing strategy of the firm and for policy makers, whose actions affecting inequality might influence international trade.

This is the first work employing time-varying firm-level data to determine how income inequality in the importing country influences the quality of imported products. The unit value is widely considered in the literature a reliable proxy for quality (Schott, 2004; Feenstra and Romalis, 2014), although it might be affected by variations in manufacturing costs or markups. Khandelwal (2010) relaxes the quality equals unit value assumption assigning higher quality to imports with higher market shares, conditional on price. The first objective of this study is to determine whether import unit value and product quality are similarly affected by variations of income inequality.[2]

This paper is motivated by empirical regularities found on trade data at the product-destination level. Evidence suggests that destinations with higher income inequality have higher import demand, while the average price of imports decreases with import demand. These stylized facts inspire the organizing framework guiding the empirical analysis. I rely on the quality heterogeneous-firms trade model (QHFT) proposed by Baldwin and Harrigan (2011) in order to consider income inequality a determinant of market-size. Non-homothetic preferences for manufactured products lead to an increase in demand after a rise in income inequality. As a consequence, total expenditure increases leading to a reduction in the price

[1] See Yeaple (2005), Verhoogen (2008), Jaimovich and Merella (2012), among others. Refer to Goldberg and Pavcnik (2007; 2016) for a survey of the literature.

[2] From now on, I refer to the proxy obtained following Khandelwal (2010) as "product quality".

and quality cutoff for imported manufactured products. Exporting firms might differently adapt to this change given their performance in the foreign markets (Rodrigue and Tan, 2016). Indeed, the second aim of this study is to assess whether firms react heterogeneously to a change in income inequality given the length of their presence in the importing country.[3]

This work brings several contributions to the literature. I lay out a variant of the QHFT model discussing the role of income inequality for firm's profit maximization. I empirically disentangle the effect of inequality on unit values and product quality taking into consideration endogeneity concerns. I also study how firm-level export dynamics shape the relationship between the variables of interest. Detailed trade data enable me to account for factors affecting the pricing strategy of the firm, such as market power and different product characteristics.

This empirical analysis relies on Bulgarian firm-level export data for the period 2001-2006 obtained from the Exporter Dynamics Database (Fernandes, Freund, and Pierola, 2016). Bulgaria, in the years under observation, was liberalizing both its trade and investment regimes in view of becoming a member of the European Union in January 2007. During this period the country experienced fast economic growth accompanied by a relevant increase in exports.

Empirical evidence, accounting for time-varying firm-product factors, shows that income inequality in the importing country is negatively correlated with the free on board (f.o.b.) unit value and the quality of imported manufactured products. A 10 units increase in the interdecile ratio is associated with 0.7% lower unit value and 0.8% lower quality. When considering trade dynamics, the importance to distinguish between unit value and product quality becomes apparent. Incumbent firms react to an increase in total expenditure caused by higher inequality lowering unit values without changing the quality of exported products, while firms entering the same market for the first time supply goods of lower quality. Incumbent firms respond to fiercer competition decreasing prices while entrants, being less productive, are less likely to supply high-quality goods. Interestingly, I observe that large exporting firms and trade flows in final products drive results. In accordance with important studies in the literature, findings also show that per-capita income in the importing country is positively correlated with unit value and quality.[4]

[3]Bernard et al. (2011) find that incumbent exporters react differently than entrants to variations in important characteristics of the destination market.

[4]Hallak (2006) finds a positive relation between per capita income in the importing country and the unit value of imported products. Manova and Zhang (2012) observe that across destinations within a firm-product

Reverse causality could lead to biased estimates. Indeed, imports of high-quality products might stimulate technological upgrading and, as a result, might raise inequality. I address this concern relying on instrumental variables estimation. The instruments are two indices on newspapers availability in the importing country ten years before each trade flow occurs (Buehlmann et al., 2011). The amount, and the diversity, of information available to the individual on the tax system and on the efficiency of public expenditure influences her voting behavior, thus inspiring policies implemented in the following years (Petrova; 2008). Both instruments are negatively associated with income inequality while not being affected by the quality and the price of products imported ten years after. Estimates show that inequality impacts negatively on both dependent variables.

I assess the robustness of my results on several alternative specifications. Findings are confirmed on a different proxy for income inequality, the Gini Index. I study how the length of the quality ladder, as estimated in Khandewal (2010), drives the correlation between inequality and unit value: income inequality reports a higher negative correlation with unit value when the scope of quality differentiation is larger. Furthermore, I find that the negative correlation between income inequality and unit value is larger in richer destinations. Following Flach and Janeba (2017), I introduce several proxies for firm market power in a product-destination pair (Brambilla et al., 2012; Martin, 2012; Flach, 2016; Simonovska, 2015) in order to consider within-firm adjustments in markups. Findings hold when controlling for market shares (Amiti et al. 2014) and for product-level demand elasticities in the importing country (Broda et al., 2006). The alternative measure of product quality proposed in Khandelwal et al. (2013) reports, as well, a negative correlation with income inequality.

This paper contributes to the literature on unit values and importing country characteristics. Bekkers et al. (2012), employing time-varying aggregate data for products traded among country pairs find that richer countries import goods of higher unit value, while the more unequal import goods of lower unit value. Results presented in this work corroborate empirical findings discussed in Bekkers et al. (2012). Yet, this study relies on an extension of the demand for quality framework predicting a negative relation between income inequality and unit value. I separately assess the impact of inequality on unit value and product quality. Moreover, the availability of firm-level trade data allows to take into account the

pair, Chinese exporters set higher prices in richer markets. This result is confirmed by Fieler (2012), and by Feenstra and Romalis (2014). Simonovska (2015), using data from a large apparel manufacturer, finds that doubling a destination's per-capita income results in an 18% increase in the price of identical items sold there. Bertoletti et al. (2016) rationalize this result relying on indirectly additive preferences.

role of market power for the pricing strategy of the firm in each destination.

Flach and Janeba (2017) provide firm-level evidence on the link between unit values and income inequality in the importing country. Using data on Brazilian exporting firms for a single year, they estimate a positive correlation, conditional on average income, between unit values and income inequality.[5] This positive correlation is found on trade flows to middle-income destinations, while it disappears when considering rich importers. My findings actually show that inequality is strongly negatively associated with unit value when firms export to rich destinations, suggesting an inverted u-shaped relation between the effect of inequality on unit value and average income in the importing country. Contrary to Flach and Janeba (2017), the framework proposed in the present study treats inequality as a component of total expenditure rather than as a determinant of the demand for high-quality goods. Moreover, focusing on trade dynamics, I can take into account firm-level heterogeneous responses to variations in import demand.

This study also adds to the literature investigating how the size of the importing market affects the characteristics of imported products. Hummels and Lugovskyy (2009) find that declining marginal utility of new varieties results in lower prices in large markets and higher prices in rich destinations. Desmet and Parente (2010) show that firms operating in large markets obtain lower markups because of tougher competition. I study the role of income inequality as a determinant of market size in a model exhibiting non-homothetic preferences for manufactured products, and take into account how a firm's performance in the destination market drives its pricing strategy.

Lastly, this work relates to studies focusing on the linkages between income inequality and the quality of exported products. Fajgelbaum, Grossman and Helpman (2011) develop a nested-logit demand system based on a non-homothetic aggregate demand function.[6] This demand system is such that the fraction of domestic consumers buying products of higher quality increases with income, raising the average willingness to pay for high-quality products.[7] Their model predicts that when a country exports goods of a given quality to two

[5] Garcia-Marin (2014), employing data on Chilean wine exports, finds that firms tend to export proportionally more high-quality products to countries with higher levels of income dispersion.

[6] Flam and Helpman (1987) is the first study introducing non-homothetic preferences to investigate the relation between product quality and household income. Schott (2004), Hummels and Klenow (2005), Hallak and Schott (2011) show that prices increase with exporter income per capita.

[7] Using data from EU-25 member countries, Latzer and Mayneris (2014) show that income inequality has an heterogeneous impact on the quality content of exported output, positively affecting the unit value of exports mainly in rich exporting countries.

different markets of similar size, the largest quantity is shipped to the importer whose income ranking is more similar to the one of the exporter. This result is confirmed by Choi, Hummels, and Xiang (2009), showing that country-pairs with similar income distributions report similar distributions of import unit values. Findings discussed in the present work suggest that income inequality influences the quality of traded products not only affecting the average willingness to pay for high-quality goods but also by altering total expenditure.

The rest of the paper unfolds as follows. Section 2 reports stylized facts on aggregate data motivating this study. Section 3 illustrates the organizing framework based on the QHFT model. Section 4 describes the firm-level data at my disposal. Section 5 reports and discusses the baseline results. Section 6 reviews the robustness checks. Section 7 concludes the paper.

2 Stylized Facts

Before presenting the organizing framework, I describe some interesting empirical regularities found on aggregate trade data. As a first step, I investigate how income inequality is associated with the total amount of resources devoted to the consumption of goods by households across countries. If, among the other variables usually employed in the literature as proxies for market size, income inequality is a determinant of the total expenditure on consumption goods, it might also influence the demand for quality-differentiated products.[8]

I employ data on expenditure for consumption goods, average income, population, and two proxies for income inequality: the Gini index, and the Interdecile ratio. The dataset reports information for a heterogeneous group of countries in the period 1960-2008.[9] I regress expenditure on consumption goods, deflated by the price index in each country, on average income, population and, alternatively, on the two proxies for income inequality. In both regressions, I introduce year fixed-effects. The Gini index and the Interdecile ratio enter specifications reported in Table 1 with a positive significant coefficient, suggesting that higher income inequality is associated with higher expenditure on consumption goods.

[Table 1 here]

[8] GDP and population are the variables usually employed as proxies for market size in the international trade literature.

[9] Data available from the World Bank database. The indicator "Household final consumption expenditure" defined as the market value of all goods and services including durable products, purchased by the household, is used in this section as a proxy for household expenditure on consumption goods. Total expenditure on manufactured goods, which we consider in the theoretical framework, would be a fraction of this measure.

It is important to stress that total expenditure on consumption goods is computed summing household expenditures on all type of products, without distinguishing among resources devoted to the consumption of manufactured products or to the consumption of necessities, therefore it might be an imprecise proxy for import demand. Moreover, this variable includes household expenditures on services which are not taken into consideration in this study. Given this, I now consider the value of imports in manufactured products over total merchandise imports and the value of imports in food products over total merchandise imports as two components of an importing country's market size. Similarly to the previous regressions, the proxies for income inequality, average income, population, and the price index are the explicative variables. Findings, reported in Table 2, show that the two components of market size are differently associated with control variables.

[Table 2 here]

Focusing on the proxies for income inequality, estimates show that the Gini index and the Interdecile ratio are positively and significantly correlated with the share of manufactured products over total imports, while they are negatively and significantly correlated with the share of food products over total imports. The same holds for per-capita income. Rich and unequal countries import more manufactured products and less necessities.

Turning to the cross-sectional dimension, I now regress the share of manufactured products over total imports on GDP per capita, population, and the price index for the same group of countries in year 2004. Residuals from this specification are then regressed on the Gini Index. Figure 1 shows that, once controlling for other explanatory variables, the share of manufactured products over total imports is positively correlated with the Gini index. Income inequality can then be considered as an additional factor positively associated with import demand for manufactured products, together with per-capita income and population.

[Figure 1 here]

Results reported in Table 2 show that the share of food products on total imports is negatively correlated with income inequality. To further investigate on this, I regress the share of food products over total imports on GDP per capita, population, and the price index in year 2004. Residuals from this regression are then fitted on the Gini index. Contrary to what seen in Figure 1, Figure 2 shows that residuals are not positively correlated with income

inequality: countries with high income inequality do not import more necessities. This descriptive evidence partially confirms Francois and Kaplan (1996), finding that in developing countries the share of imports from rich countries increases with income inequality. Given that manufactured products account for the majority of imports in developing countries, their result implies that higher inequality should increase imports of manufactured products in those countries.

[Figure 2 here]

The second channel devoting attention is the one relating the unit value of imported products with the size of the importing market. Baldwin and Harrigan (2011) find that market size and the unit value of imported products are negatively correlated. I provide evidence on this, employing data on unit values of HS96 6-digits manufactured products traded among country-dyads in year 2004.[10] The first proxy for market size taken into consideration is the household expenditure on consumption goods in each importing country. I compute the median unit value of products weighted by import quantity in each destination. Figure 3 shows that the median unit value of imported products is negatively correlated with household final expenditure on consumption goods. The larger is the importing market, in terms of expenditure on consumption goods, the lower is the median unit value of imported products.

[Figure 3 here]

I then consider the second proxy for market size: the share of manufactured products over total imports. Figure 4 reports the fitted line obtained when regressing the median unit value of imported products on the share of manufactured products over total imports. This graph confirms evidence described in Figure 3: the median unit value of imported products and import demand for manufactured products are negatively correlated.

[Figure 4 here]

Since we previously observed that market size and income inequality are positively correlated, it follows that inequality should be negatively correlated with the unit value of

[10] Data obtained from the BACI dataset (Gaulier and Zignago; 2010). The unit-value is equal to the total monetary amount (thousands of dollars) divided by total quantity (tons) of each HS96 6-digits product traded between a country pair in a specific year.

imported products given its positive relation with market size. Indeed, as shown in Figure 5, the Gini index in the importing country and the average unit value of imported products are negatively correlated.

[Figure 5 here]

The following section proposes a theoretical framework inspired by this descriptive evidence on aggregate data. The empirical analysis carried out in the second part of the paper has the aim to study the relationship among the variables of interest employing detailed firm-level trade data.

3 Theoretical framework

In this section, I lay out a framework describing the relation between income inequality in the importing country, z, the price, $p_{j,z}$, and the quality, $q_{j,z}$, of the good exported by firm j to z. The quality-heterogeneous firms trade model (QHFT), proposed by Baldwin and Harrigan (2011), is here extended in order to derive partial equilibrium implications.

3.1 The Consumer

The representative individual i, in the importing country z, maximizes the following utility function:

$$U_{i,z} = M_{i,z}^{\Phi_{M,i}(I_{i,z})} N_{i,z}^{\left(1-\Phi_{M,i}(I_{i,z})\right)}. \tag{1}$$

Where, $M_{i,z} = \left(\int_{j\epsilon\Omega} \left(q_{j,z}c_{j,z}\right)^{\frac{\sigma-1}{\sigma}} dj\right)^{\frac{\sigma}{\sigma-1}}$, represents the utility from consuming manufactured goods, while I_i is the income of individual i.[11] Manufactured products are vertically and horizontally differentiated, every variety j has quality $q_{j,z}$ and is consumed in quantity $c_{j,z}$. Each individual increases utility obtained from consuming manufactured goods either buying a product of higher quality or consuming more units. The term $N_{i,z}$ represents the amount of necessities consumed by i; necessities are nor vertically, neither horizontally differentiated. Each individual in z allocates a share of her income, $\Phi_{M,i,z}(I_{i,z})$, to the consumption of manufactured products, while the remaining share $(1 - \Phi_{M,i,z}(I_{i,z}))$ is allocated to necessities.[12]

[11] With $\sigma > 1$.

[12] For tractability, I assume that the price of necessities, p_N, is equal to 1, as a consequence $N_{i,z} = (1 - \phi_{M,i}(I_{i,z}))I_{i,z}$. Refer to Dalgin et al. (2008).

Individual i's demand for variety j is equal to:

$$c_{j,z,i} = \frac{(p_{j,z})^{-\sigma}\left(\frac{1}{q_{j,z}}\right)^{1-\sigma}\Phi_{M,i}(I_{i,z})I_{i,z}}{P_z^{1-\sigma}}. \tag{2}$$

Here P_z=$\left[\int_{j\epsilon\Omega}\left(\frac{p_{j,z}}{q_{j,z}}\right)^{1-\sigma}dj\right]^{\frac{1}{1-\sigma}}$, is the price index aggregating quality-adjusted prices, $\frac{p_{j,z}}{q_{j,z}}$, for every variety j.

3.1.1 Non-Homotheticity and Income Inequality

Following Mitra and Trindade (2005), I assume that the income share devoted to the consumption of manufactured goods is increasing in income, i.e. $\frac{\partial\Phi_{M,i,z}(I_{i,z})}{\partial I_{i,z}} > 0$. This peculiarity introduces non-homotheticity in the upper tier of the utility function: individual's demands for necessities and manufactured goods react differently to an increase in income. As the income of individual i raises, her consumption of manufactured goods augments more than her consumption of necessities, $\frac{\partial\left(\frac{M_{i,z}}{N_{i,z}}\right)}{\partial I_{i,z}} > 0$: the income expansion path is convex in M.

Given that preferences are non-homothetic, total demand for manufactured goods and necessities depends on how income is distributed in z. Following Latzer and Mayneris (2014), I divide z's population in two groups of different, constant, numerosity: a fraction γ_z of the population is poor, p, while the remaining part, $(1-\gamma_z)$, is rich, r.[13] The rich individual in country z earns income $I_{r,z}$, while the poor earns $I_{p,z}$. If $\widetilde{I}_z$ is average income in country z, we have $I_{p,z} = \eta_z\widetilde{I}_z$ and $I_{r,z} = \left[\frac{1-\gamma\eta_z}{1-\gamma}\right]\widetilde{I}_z$. When $\eta_z\epsilon[0,1]$ is closer to 1 income inequality is lower, since the income of the poor individual is closer to the average income.[14] Inequality increases when income is transferred from poor to rich individuals. An increase in income inequality (i.e. a reduction of η_z), reduces the income of the poor individual and increases the income of the rich by the same amount. What matters for import demand is how this change alters total expenditure. Indeed, the income share, $\Phi_{M,i}(I_i)$, devoted to manufactured goods is also a function of income inequality. After the increase in income inequality, the income share devoted by rich individuals to manufactured products increases, while the opposite occurs to poor individuals. Total expenditure on manufactured products in country z_z, $E_{tot,z} = [L_z\gamma\Phi_{M,r,z}(I_{r,z})I_{r,z} + L_z(1-\gamma)\Phi_{M,p,z}(I_{p,z})I_{p,z}]$, increases after a rise in inequal-

[13] The threshold splitting country z's population in these two groups is exogenously determined. The two groups are homogeneous within themselves.

[14] Given this definition of income, average income does not vary after a change in income inequality.

ity if the expenditure increase of rich individuals more than compensates the concurrent expenditure drop of the poor.[15] This happens when the following inequality holds:

$$\left[\frac{\partial \Phi_{M,r,z}\left(I_{r,z}\right)}{\partial \eta_z}\frac{\gamma_z\left(1-\gamma_z\eta_z\right)}{\left(1-\gamma_z\right)^2}+\Phi_{M,r,z}\left(\frac{\gamma_z}{1-\gamma_z}\right)^2\right] > \left[\frac{\partial \Phi_{M,p,z}\left(I_{p,z}\right)}{\partial \eta_z}\left(\eta_z\right)+\Phi_{M,p,z}\right]. \quad (3)$$

Proposition 1 *A decrease in η_z (i.e. an increase in income inequality) leads to an increase in Rich individuals' expenditure on manufactured goods that more than compensates the reduction in Poors' expenditure when (3) holds. Total expenditure on manufactured goods, $E_{tot,z}$, increases after an increase in income inequality.*

When income inequality increases, the net-effect on total expenditure depends on the relation between $\Phi_{M,r,z}\left(I_{r,z}\right)$ and $\Phi_{M,p,z}\left(I_{p,z}\right)$. Total expenditure on manufactured products in country z augments when the expenditure increase by rich individuals is larger than the contemporaneous reduction in poors' expenditure.

3.2 Firm Side

I assume that country z imports manufactured products. Quality, q_j, is chosen by the representative firm producing variety j in country d. Higher quality is produced at higher marginal cost, $q_j = \left(a_j^{1+\theta}\right)$, with $\theta > 0$, where a_j is the firm's marginal cost. This relation implies that firms producing high-quality goods employ more costly inputs, as found in the recent literature.[16] As in Baldwin and Harrigan (2011), firms producing high-quality goods have a lower quality-adjusted price and therefore are more competitive.

Following Arkolakis (2010), I assume that each exporting firm decides the fraction of consumers it wants to reach in country z, n_z, using advertisements. In order to do that, the firm employs labor in the importing market, l_z, and in the domestic market, l_d, to produce advertisements through the following production function: $S{=}l_z^{\kappa}l_d^{1-\kappa}$. Under decreasing returns to scale of advertising with respect to country z's population, L_z, the amount of advertising that is necessary for a firm willing to reach a fraction n_z of consumers in z, is

[15] L_z represents total population in country z. Refer to the appendix for derivations.

[16] Kugler and Verhoogen (2012), using data on Colombian firms, find that firms producing high quality output employ more costly inputs, having a higher marginal cost.

$f(n_z,\ L_z)=\frac{L_z^{\alpha}(1-(1-n_z)^{1-\beta})}{\psi(1-\beta)}$, where $\alpha, \beta \epsilon [0;1]$. The term $\frac{1}{\psi}$ represents the labor requirement for each advertisement.[17] Therefore, if the cost of labor in z and d is w_z and w_d respectively, the fixed cost for firm j exporting to z is equal to: $w_z^{\kappa} w_d^{1-\kappa} \frac{L_z^{\alpha}(1-(1-n_z)^{1-\beta})}{\psi(1-\beta)}$.

3.3 Trade

I now maximize the profit of the representative firm exporting to country z. This enables me to obtain predictions on how income inequality is associated with both the unit value and the quality of products exported to z.

Given the advertising technology employed by firm j to export in country z, a fraction n_z of population is going to buy its output. Therefore total demand in country z for variety j is:

$$c_{j,z,tot} = \frac{n_z L_z \left(p_{j.z}\right)^{-\sigma} \left(\frac{1}{q_{j,z}}\right)^{1-\sigma} E_{tot,z}}{P_z^{1-\sigma}}. \tag{4}$$

The firm maximizes its profit choosing n_z and $p_{j.z}$ given the production function $q_{j,z} = \left(a_j^{1+\theta}\right)$. The term $\tau_{d,z}>1$ represents the iceberg cost for shipping one unit of product from d to z. The firm's profit function reads as follows:

$$\pi_z(p_j, n_z) = \left[\frac{n_z L_z \left(\frac{p_{j.z}}{q_{j,z}}\right)^{1-\sigma} E_{tot,z}}{P_z^{1-\sigma}}\right] - \left[\frac{n_z L_z \left(p_{j.z}\right)^{-\sigma} \left(\frac{1}{q_{j,z}}\right)^{1-\sigma} E_{tot,z}\tau_{d,z}}{P_z^{1-\sigma}}\right](a_j) - \\ - \left[w_z^{\kappa} w_d^{1-\kappa} \frac{L_z^{\alpha}(1-(1-n_z)^{1-\beta})}{\psi(1-\beta)}\right].$$

Maximizing firm's profit with respect to $p_{j.z}$, it is possible to find that export price is a markup over marginal cost: $p_{j.z} = \frac{\sigma}{\sigma-1}\tau_{d,z} a_j$.

[17] For the derivation of this function refer to Arkolakis (2010).

Using this result in the first order condition with respect to n_z, the fraction of consumers reached in country z, gives the following equality:

$$\frac{E_{tot,z}}{\sigma P_z^{1-\sigma}}\left(\frac{\frac{\sigma}{\sigma-1}\tau_{d,z}a_j}{q_{j,z}}\right)^{1-\sigma} = w_z^{\kappa}w_d^{1-\kappa}\frac{L_z^{\alpha-1}(1-n_z)^{-\beta})}{\psi}. \tag{5}$$

Substituting for $q_{j,z} = \left(a_j^{1+\theta}\right)$ and setting $n_z = 0$, as in Arkolakis (2010), we obtain the entry-threshold marginal cost for firms exporting to country z.

$$a_{j,z}^{*} = \left[\frac{\sigma P_z^{1-\sigma}\left[\frac{\sigma\tau_{d,z}}{\sigma-1}\right]^{\sigma-1}w_z^{\kappa}w_d^{1-\kappa}L_z^{\alpha-1}}{E_{tot,z}\psi}\right]^{\frac{1}{\theta(\sigma-1)}}.$$

Given $I_{p,z} = \eta_z\widetilde{I}_z$ and $I_{r,z} = \left[\frac{1-\gamma_z\eta_z}{1-\gamma_z}\right]\widetilde{I}_z$, the threshold price in country z is equal to:

$$p_{j.z}^{*} = \frac{\sigma}{\sigma-1}\tau_{d,z}\left[\frac{\sigma P_z^{1-\sigma}\left[\frac{\sigma\tau_{d,z}}{\sigma-1}\right]^{\sigma-1}w_z^{\kappa}w_d^{1-\kappa}L_z^{\alpha-1}}{E_{tot,z}\psi}\right]^{\frac{1}{\theta(\sigma-1)}}, \tag{6}$$

with $\frac{\sigma}{\sigma-1}\tau_{d,z}>0$. Using $q_{j,z} = \left(a_j^{1+\theta}\right)$, it is possible to obtain:

$$q_{j,z}^{*} = \left[\frac{\sigma P_z^{1-\sigma}\left[\frac{\sigma\tau_{d,z}}{\sigma-1}\right]^{\sigma-1}w_z^{\kappa}w_d^{1-\kappa}L_z^{\alpha-1}}{E_{tot,z}\psi}\right]^{\frac{(1+\theta)}{\theta(\sigma-1)}}. \tag{7}$$

Given that $(1+\theta) > 0$, implications on price are isomorphic to those on quality. Define $\frac{\sigma P_z^{1-\sigma}\left[\frac{\sigma\tau_{d,z}}{\sigma-1}\right]^{\sigma-1}w_z^{\kappa}w_d^{1-\kappa}L_z^{\alpha-1}}{E_{tot,z}\psi} \equiv \Lambda > 0$ to have,

$$\frac{\partial q_{j,z}^{*}}{\partial E_{tot,z}} = \left[\frac{(1+\theta)}{\theta(\sigma-1)}(\Lambda)^{\frac{(1+\theta)}{\theta(\sigma-1)}-1}\right]\frac{\partial\Lambda}{\partial E_{tot,z}}. \tag{8}$$

Recall that $E_{tot,z} = \left[\gamma_z\Phi_{M,r,z}(I_{r,z})I_{r,z} + (1-\gamma_z)\Phi_{M,p,z}(I_{p,z})I_{p,z}\right]$. Since $\frac{(1+\theta)}{\theta(\sigma-1)} > 0$, the sign of (7) depends on $\frac{\partial\Lambda}{\partial E_{tot,z}}$, which is negative. In addition, if (3) holds, when income inequality in the importing country increases (η_z decreases), $E_{tot,z}$ augments and, consequently, the quality cutoff, $q_{j,z}^{*}$, is reduced. The increase in demand for manufactured goods by rich individuals more than compensates the demand reduction by poor individuals. This increase in total expenditure on manufactured products in country z lowers competition. Less competitive, low-quality, firms can enter the market since the quality cutoff is lower.

Proposition 2 *When Proposition (1) holds, a decrease in η_z (an increase in income inequality) leads to a reduction in the quality (and price) cutoff through an increase in the total expenditure on manufactured products.*

Figure 6 plots the negative relationship between the quality cutoff, $q^*_{j,z}$, and income inequality in the importing country. The curve shifts to the left for higher values of θ : quality is lower when the marginal cost responds more to any change in quality.

[Figure 6 here]

Other considerations are in order on (7). Trade liberalization, a reduction in $\tau_{d,z}$, decreases the price charged to consumers together with quality. On the contrary, an increase in trade costs leads to an increase in price and quality suggesting that goods of higher quality have to be produced in order to reach more distant markets. This result implies that only sufficiently high quality (price) producers find it profitable to export to distant markets, confirming the Alchian-Allen effect (1964).[18] Moreover, when population increases, the quality cutoff is reduced.

The cost of labor in the importing country, w_z, is positively correlated with average income, $w_z = \left[f(\widetilde{I}_z)\right]$. Following (7), any increase in w_z raises the quality cutoff.[19] Inserting country z labor cost in firm j's fixed cost function, gives then an alternative explanation for the positive relation between the quality of imported products and average income in the importing country. Finally, it is important to stress that average income, $\widetilde{I}_z$, also enters the denominator of equation (7) since it determines total expenditure. The following empirical analysis will then assess the net-effect of this variable on the dependent variables.

4 Data

The empirical investigation carried out in the following sections is based on data from the Exporter Dynamics Database (EDD) compiled by the World Bank (Fernandes et al., 2016). I employ data on Bulgarian exporting firms during the period 2001-2006. Bulgaria, in the years under observation, was liberalizing both its trade and investment regimes in view of

[18] In this framework we assume that the iceberg trade-cost is proportional to distance, as in Baldwin and Harrigan (2011). Following Hummels and Skiba (2004) and Martin (2012), inserting a per-unit specific trade cost as a proxy for distance might be an alternative assumption. In this case, however, it would complicate this theoretical framework without adding any insight on the mechanism under analysis.

[19] f is a monotone, strictly increasing, function.

becoming a member of the European Union in January 2007. This period was characterized by fast economic growth accompanied by a drastic increase in exports and a sizable inflow of foreign direct investments (FDIs).[20] This database was assembled from customs data reporting yearly observations on the identification code of exporting firms, HS96 6-digits product codes, export destinations, total value, and quantity of trade flows. The monetary value of export flows is measured in Free on Board (f.o.b.) US Dollars (USD), therefore it does not include any cost associated with shipping and freights. Export quantities are measured in kilograms. I focus on exports of manufactured products by relying on trade flows of goods belonging to the HS 2-digits sectors 28 to 98. Data on transactions reporting unit-values above the 95^{th} percentile and below the 5^{th} percentile are discarded, this amounts to dropping 10 percent of observations in the sample. I consider only trade flows in differentiated products according to the Rauch (1999) conservative classification.

4.1 Unit Values and Product Quality

The first objective of this study is to assess how income inequality is associated with two variables: unit value and product quality. The unit value is the ratio between total export value, v, and total export quantity, q. This variable is available at the firm, j, product, p, destination, z, and year, t, level: $uv_{j,p,z,t}$.

I apply the following empirical procedure based on Khandelwal (2010) to obtain a proxy for the quality of imported products. This methodology infers product quality as the market share of a single imported variety over a destination's total import of a specific product that is not due to its price in that market. The market share in the importing country is explained by the following specification:

$$\ln(s_{j,p,z,t}) - \ln(s_{0p,z,t}) = \lambda_{1,t} + \lambda_{2,z,t} + \beta_1 \ln p_{j,p,z,t} + \beta_2(ns_{j,p,z,t}) + \lambda_{j,p,z,t}. \tag{4.1}$$

Where $s_{j,p,z,t} = \frac{x_{j,p,z,t}}{MKT_{z,t}}$ is the market's share of a product p supplied by firm j in the importing country z at time t; $x_{j,p,z,t}$ represents the quantity of product exported in country z at time t by firm j, and $MKT_{z,t} = \sum_p \frac{x_{j,p,z,t}}{1-s_{0t}}$, is a measure of market size. The term s_{0t} represents the market share in country z of non-Bulgarian competitors supplying product p.[21] This term is set equal to 1 minus import penetration of Bulgarian varieties in each

[20] WTO (2003) and Bulgarian National Bank (2007).

[21] Product level data on imports from other countries are obtained from the CEPII-BACI database, refer to Gaulier and Zignago (2010).

sector-destination pair. The price at which firm j sells product p in z is represented by $p_{j,p,z,t}$.[22] The nest share, $ns_{j,p,z,t} = \frac{x_{j,p,z,t}}{\sum_p x_{p,t}}$, is the ratio between the imported quantity of product p supplied by j, and total import quantity of varieties in country z within the HS 6-digit product category. I introduce a time trend component, $\lambda_{1,t}$, and a quality component varying over time within the importing country z, $\lambda_{2,z,t}$.[23] Sectors are defined at the HS 4-digits classification.

I run regressions, as specified in equation (4.1), for each of the 1019 HS 4-digit product categories. In order to take into account the endogeneity of $p_{j,p,z,t}$ and $ns_{p,z,t}$, due to omitted variable bias and reverse causality, I estimate (4.1) using a 2SLS procedure. If the price is higher due to higher unobserved quality, and quality is positively associated with market shares, the omitted variable bias leads to underestimate the negative impact of prices on demand. Following Bernini and Tomasi (2015), $p_{j,p,z,t}$ is instrumented by the average unit value of Bulgarian exporters computed for each product, destination, and year, while $ns_{p,z,t}$ is instrumented by the number of Bulgarian exporters in a specific destination for a given HS 6-digit product category. As expected, the median of the instrumented coefficient for price, $\widehat{\beta_1}$, is negative and equal to -0.307, while $\widehat{\beta_2}$ reports a positive median coefficient, equal to 0.764. The median OLS coefficient for price is -0.209, confirming the unobservable variable bias.

Product quality is defined as the sum of the time-trend component of quality, $\lambda_{1,t}$, common across varieties, the time-varying quality component within the importing country z, $\lambda_{2,z,t}$, and the residuals, $\lambda_{j,p,z,t}$: $q_{j,p,z,t} \equiv \widehat{\lambda}_{1,t} + \widehat{\lambda}_{2,z,t} + \widehat{\lambda}_{j,p,z,t}$. I discard estimates below the 1^{st} percentile and the 99^{th} percentile of the quality distribution. This measure is then standardized by subtracting the mean and dividing by the standard deviation at the 6-digit product-destination level to obtain a consistent ranking of quality measures across destinations and products.

[22] The unit value is used as a proxy for a variety's export price. Constructing an equivalent proxy for the consumer import price would require information on distribution costs and on the exchange rate between the Bulgarian Lev and the currency in each importing country.

[23] The model estimated in Khandelwal (2010) includes a time-invariant product level component of quality. Given the fixed-effect strategy employed in the following empirical specifications, I do not introduce this term at this stage but rather standardize quality estimates at the product-destination level.

4.2 Control Variables

Income inequality in the importing country. The proxy for income inequality most closely related to the theoretical framework is the Interdecile ratio, obtained as the ratio between the income share earned by the top 10% of the income distribution and the income share earned by the bottom 10%. The Gini index is the alternative proxy for income inequality employed in some robustness checks. I obtain these proxies for income inequality from the UN-WIDER database. When available, data on inequality based on disposable income are preferred.

Other features of the importing country. Data on per capita PPP income,[24] total population, the share of population enrolled in secondary education are available in the World Bank WDI database. Data on the participation to the GATT agreement and other regional trade agreements for each importing country are obtained from the CEPII data-set.[25]

Bilateral controls. Data on distance from Bulgaria and a dummy for common legal origin between the importing market and Bulgaria are also accessible in the CEPII gravity database.[26]

Descriptive statistics. Table 3 reports descriptive statistics for the variables of interest in 2004. Focusing on the characteristics of the countries in this sample, the mean of the interdecile ratio is larger than 10, spanning from 2.82 in Azerbaijan to 198.27 in Venezuela. The mean Gini Index is 32.71, varying from 22.8 to 64.3. Mean per-capita income is 18,965 PPP dollars per year, ranging from a minimum of 102 Dollars in Liberia to a maximum of 53,114 Dollars in Luxembourg. The mean distance between Bulgaria and its trading partners is 2,101 kilometers, while the mean and the median of population in the countries importing from Bulgaria are equal to 42 and 11 million, respectively.

[Table 3 here]

As shown in Figure 7 and 8, the sample of countries importing manufactured products from Bulgarian firms is rather heterogeneous in terms of inequality and per-capita income. Importing countries with a per-capita income higher than the mean are present both among

[24] We use per-capita PPP gross national income, instead of per-capita PPP gross domestic product. Per-capita income rather than per capita GDP is considered to be a more reliable proxy for the income devoted to consumption.

[25] Gaulier and Zignago (2010).

[26] Geodesic distances are computed by CEPII employing the great circle formula based on latitudes and longitudes of the most important cities/agglomerations in the trading partners.

the less unequal and the more unequal in the sample. Nevertheless, countries with per-capita income below the mean turn out over the entire range of the two proxies for inequality.

[Figure 7 here]
[Figure 8 here]

5 Empirical Analysis

5.1 Main Specification

In this section, I estimate the following empirical specification:

$$Y_{j,z,p,t}= \alpha_{j,t} + \gamma_{p,t} + \mu(\omega_{z,t}) + \beta(X_{z,t}) + \chi(B_{e,z}) + \varepsilon_{j,z,p,t}. \tag{5.1}$$

The dependent variable, $Y_{j,z,p,t}$, represents either the logarithm of the unit value at which product, p, is imported by country z from firm j at time t, $\ln(uv)_{j,z,p,t}$; or the proxy for product quality, $q_{j,z,p,t}$, obtained in (4.1). The term $\alpha_{j,t}$ is a firm-time fixed effect, introduced to consider firm-level characteristics varying over time, such as firm productivity and total revenues across products and destinations. The product-time fixed effect, $\gamma_{p,t}$, allows to control for unknowns varying over time at the product-level. Indeed, common shocks affecting the production of a good might influence unit values and product quality. This fixed-effect strategy enables to employ variation across products and destinations while considering supply side factors affecting products and firms.

The term, $\omega_{z,t}$, represents income inequality. Recalling the notation employed in the theoretical framework: $\omega_{z,t} = 1-\eta_{z,t}$. In the following estimations, I employ the Interdecile Ratio and the Gini index as proxies for income inequality. The theoretical framework predicts that, if income inequality acts as a component of total expenditure, it should be negatively associated with both unit value and quality, therefore $\widehat{\mu}$ should report a negative sign. The vector $X_{z,t}$ includes several importing country characteristics, such as the logarithm of population, the logarithm of per-capita income, education, proxied by the share of students enrolled in secondary education, and two dummies for the participation of the importing country to the GATT agreement or to other regional trade-agreements. Following predictions in the model, population should be negatively associated with both dependent variables, while per-capita income should report a positive coefficient if the positive effect due to the assumption on the fixed-cost is larger than the negative impact due to the role of per-capita income as a

determinant of total expenditure. The two dummies for the participation of the importing country in a regional trade agreement or in the GATT can be considered as proxies for trade costs not related to distance: they should enter these specifications with a positive coefficient. The share of students enrolled in secondary education, a proxy for human capital in the importing country, could report either a positive or a negative coefficient. A higher human capital in the importing country might encourage Bulgarian firms to increase the quality of exported products. Alternatively, a higher degree of cost competition, due to the technological level of domestic firms in the importing country, could lead firms to reduce the quality, and the unit value of exported products. It is important to consider this variable since the proxy for income inequality might capture variation in unit value and quality due to human capital. $B_{z,d}$ is a vector of bilateral variables including the logarithm of distance between Bulgaria and the trade partner, as well as a dummy equal to one if the two countries have a common legal origin. Given the prediction in the organizing framework, I expect to find a positive correlation between distance and the two dependent variables under analysis. In all of the following regressions, standard errors are clustered at the importer-year level.

5.2 Main Results

Table 4 reports results obtained estimating specification (5.1). In column (1) I regress the logarithm of unit value on the proxy for income inequality: the interdecile ratio. I control for other characteristics of the importing destination such as per-capita income, population, education, and distance from Bulgaria. In this specification, and in the following three, I consider time-varying firm-level determinants affecting unit value and quality by employing firm-year fixed effects. In addition, I introduce product-year fixed effects to control for common factors varying over time within HS 6-digits products. In column (2), I insert the dummy for countries being part of the Gatt agreement, the one for regional trade agreements, and the one for countries sharing the same legal origin. Specifications (3) and (4) employ the same set of controls as (1) and (2), respectively, to explain variation in the second dependent variable: product quality.

[Table 4 here]

These first regressions show that the Interdecile Ratio in the importing market is negatively and significantly associated with the unit value and the quality of products shipped to that market by Bulgarian firms. Coefficients, estimated in columns (2) and (4), show that

a 10 units increase in the interdecile ratio is associated with a 0.7% reduction in unit value and a 0.8% decrease in product quality. Keeping other factors constant, Bulgarian exporters to the United Kingdom, reporting an interdecile ratio equal to 11 in 2004, were charging a 0.7% higher unit value and exporting a 0.8% higher quality than firms exporting to Uruguay, reporting an interdecile ratio equal to 21 in the same year.

Specifications (5) to (8) employ an alternative set of fixed effects. I introduce firm-product-year fixed effects to consider factors influencing unit values and quality varying within firm-product-year. It is important to stress that now a larger number of singletons is dropped when running estimations. This is mainly due to the presence in the data-set of several firms exporting a product to a single destination for a single year.

Results confirm that the interdecile ratio is negatively associated with both the unit value and the quality of imported products. Estimated coefficients are significant at the 1% in those regressions employing unit value as a dependent variable, while column (8) reports a, non-significant, negative estimate. The fact that this coefficient becomes not significant can be due to several factors. The negative correlation between income inequality and quality could be driven by firms exporting a product to a single destination for a single year. According to the theoretical framework, these firms should be new firms in the market (entrants) and therefore should be more likely to enter a destination with a low-quality product. Incumbent firms, on the contrary, should be more likely to vary the price of products rather than changing quality after a variation in market conditions. Findings reported in Table 4 confirm that per-capita income in the importing country is positively and significantly associated with the unit value and the quality of imported products as in Hummels and Lugovskyy (2009) and Simonovska (2015). This result is consistent with the theoretical framework in which I assume that the fixed cost of exporting is proportional to the average income in the destination market. Recent literature (Hallak, 2006; Crinò and Epifani, 2012), assuming non-homothetic preferences for quality, corroborates this result. Population enters with a negative significant coefficient those regressions employing unit value as a dependent variable. The unit value of imported products is lower in more populated importing countries.[27]

Distance between Bulgaria and the importing market enters specifications from (1) to (6) with a positive significant coefficient. The more distant is an importing country, the higher are the unit value and the quality of products exported to that destination. Only Bulgarian

[27] Results do not change if we consider GDP as a proxy for market size instead of population. Results are available on request.

firms producing high-quality goods can profitably export to distant markets, confirming the Alchian-Allen effect (1964), as in Hummels and Skiba (2004), Martin (2012), Mayneris and Martin (2015), and Flach and Janeba (2017).

Endogeneity. Even if the fixed-effects introduced in all specifications potentially control for several unobservable factors, estimates might still be affected by the endogeneity of income inequality due to reverse causality. Imports of high-quality products might stimulate technological upgrading in the destination country therefore raising income inequality (Fieler et al., 2016). If a higher unit value, and a higher quality of imported products have a positive effect on income inequality, estimates reported in Table 4 are upward biased. To address this concern I now estimate a 2SLS model. This specification relies on two instruments for income inequality:

- the import value of newspapers, journals, and periodicals as a percentage of GDP in current US dollars

- the number of (paid and free) daily newspapers per 1 million inhabitants in each importing country.

Both variables are measured ten years before trade flows occur.[28] Information availability can have a sizeable effect on income inequality which is ultimately shaped by government policies on public expenditure and taxation, technological progress, and trade openness (Petrova, 2008). A wider offer of media indicates a higher awareness of the public opinion regarding the decision process on policies involving income inequality.[29] A larger diffusion of foreign newspaper shows how open an economy is to foreign individuals and foreign companies. Besley and Burgess (2002) as well as Reinikka and Svensson (2005) find that the availability of alternative external sources of information can significantly determine policy outcomes.

The two instruments are strongly negatively associated with the proxy for income inequality, as confirmed by the first-stage regressions reported in columns (1) and (4) of Table 5. Columns (2) and (3) report second stage coefficients obtained when employing firm-year and product-year fixed effects, while (5) and (6) show estimates with firm-product-year fixed effects.

[Table 5 here]

[28] Data available on "The democracy barometer" website. Refer to Buehlmann et al. (2011).

[29] Bartels (2005) finds that most people with low and middle incomes supported the estate tax repeal in the US even if it was not in their interest. Their support for the estate tax repeal was negatively associated with access to information.

Results in (2) and (3) confirm that the interdecile ratio impacts negatively on the unit value and the quality of imported products. Estimated coefficients are negative, and larger in magnitude than the ones reported in Table 4, confirming that reverse causality leads us to obtain upward biased OLS estimates. As shown in columns (5) and (6), the negative impact of income inequality on unit value and quality is confirmed when employing firm-product-year fixed effects. It is possible to observe that the effect of income inequality on quality is larger in magnitude than the one on unit-value in all regressions. The Kleibergeen-Paap Wald F-statistic is always higher than 10, while the LM statistic is larger than the Stock-Yogo weak-ID 10 percent critical value. The Hansen J-statistic on overidentifying restrictions reports, for all specifications, a p-value preventing to reject the null hypothesis that the instruments are valid. Coefficients for the other covariates are similar in magnitude and sign to those reported in the previous Table.

Results discussed in this section show that income inequality is negatively associated with the unit value, and the quality of imported products. IV estimates confirm that the interdecile ratio has a negative impact on the two dependent variables. Yet, these findings report on the average relation between income inequality, unit value, and quality across heterogeneous exporting firms. In the following section, I investigate whether exporters respond differently to a change in income inequality given the length of their presence in the importing market.

5.3 Trade Dynamics

The framework illustrated in section 3 rationalizes a negative effect of income inequality on unit value and quality. This result is confirmed by empirical results described in the previous section. Nevertheless, the fact that a firm has been exporting to a specific market for several years might lead it to respond differently to the increase of market-size due to the rise in income inequality, with respect to a firm that starts exporting a product when this feature of the market is changing. The data-set at hand gives the possibility to study how firm-level trade dynamics in the destination market are related to a firm's choices regarding product quality and unit value. More precisely, I can investigate if the negative effect of income inequality is mainly due to incumbent firms or to new exporting firms. The following statistics confirm that firm heterogeneity in market presence is an important feature of the data.

[Table 6 here]

Each year, the 69 percent of trade flows at the firm, product, destination level are due to firms that entered a specific product-destination pair during the current or in the previous year (Entrant, t-1), while the 39 percent of trade flows are due to firms entering a market for only one year (Entrant, t). Given the characteristics of this data-set, entrant firms are either firms appearing in the database for the first time or firms that were present in the database but start exporting to a new destination. On average, 33 Bulgarian exporters supply a specific product to an importing country, while more than 43 products are supplied in each importing market. A single firm supplies, on average, a specific HS product to 3 different importing markets while the median number of products per firm is 33.

I estimate the following econometric model, where the dummy for firms that just entered a product-destination pair (Entrant, t) and the one for firms that entered the market (product-destination pair) in the current or the previous year (Entrant, t-1) are, alternatively, interacted with income inequality.

$$Y_{j,z,p,t}= \alpha_{j,t}+\gamma_{p,t}+\vartheta Entrant_{j,z,p,t}+\mu(\omega_{z,t})+\gamma Entrant_{j,z,p,t}*(\omega_{z,t})+\beta(X_{z,t})+\chi(B_{e,z}) + \varepsilon_{p,d,z,t}. \tag{5.2}$$

The dependent variable, $Y_{j,p,z,t}$, represents either the logarithm of the unit value of a product, p, imported by country z from firm j at time t, $\ln(uv)_{j,p,z,t}$, or the quality of this product, estimated in (4.1), $q_{j,p,z,t}$. The term $\alpha_{j,t}$ is a firm-time fixed effect, introduced in order to consider how firm-level characteristics varying over time, such as labor productivity and total revenues affect the dependent variable. The product-time fixed effect, $\gamma_{p,t}$, gives instead the possibility to consider how product-level time-varying determinants affect the dependent variable. In the last four specifications of this Table, I control for firm-product-time fixed effects, $\alpha_{j,p,t}$, to control for factors affecting unit value and quality that vary within firm-product pairs over time. In all regressions reported in panel (a) of Table 7 standard errors are two-way clustered at the firm-importer and at the importer-year level.

[Table 7 here]

Specifications (1a) and (2a) show that the negative correlation between unit value, quality, and income inequality is confirmed when introducing the dummy variable for firms entering the market in the current year (Entrant, t). The interpretation of this coefficient is however

different, it shows that the quality and the unit value of incumbent firms in a product-destination pair are negatively correlated with income inequality. The coefficient for entrant firms is negative, as well, suggesting that firms entering the market supply goods of lower quality at a lower unit value. In columns (5a) and (6a), I estimate the same model with firm-product-year fixed effects in order to exploit only variation across importing markets. Coefficients estimated in (5a) confirm the negative relation between the interdecile ratio and the unit value for incumbent firms. Yet, the negative coefficient for the entrant dummy is obtained only when quality is the dependent variable, suggesting that firms entering a destination market in a specific year supply goods of lower quality while the unit value of their products is not influenced. I further investigate on this, considering as entrant firms in a specific product-destination pair those firms that entered either in the current or in the previous year (Entrant, t-1), in order not to wrongly identify as incumbents firms exporting for only two years. Findings reported in (3a) and (4a), confirm the negative correlation between income inequality and unit value for incumbent firms, while a negative coefficient is found for entrant firms when employing quality as a dependent variable. Specifications (7a) and (8a), relying on variation across destinations within firm-product-year, confirm that the interdecile ratio is negatively associated with the unit value charged by incumbent firms while entrant firms supply goods of lower quality. Controlling for time-varying factors at the firm-product level and exploiting variation across destinations, I find that the quality of products is lower for entrants. Reassuringly, coefficients for the other covariates considered in these regressions are in line with the ones reported in Table 4.

Summing up, estimates suggest that the effect of income inequality on unit value and product quality depends on market competition faced by the firm in each destination. Indeed, incumbent firms react to an increase in market size due to income inequality by lowering unit values, while entrant firms tend to supply goods of lower quality.

Firm Dynamics, Large and Small Exporters. Starting from Bernard et al. (2007), large attention has been devoted to the study of the relationship between firm heterogeneity and trade outcomes. In order to partially address this point, I distinguish firms with respect to their total export revenues. I obtain total revenues across the various destinations and rank firms with respect to their quintile in the frequency distribution. Firms reporting revenues in the first, second, and the third quintile are labelled as "Small Exporters", while "Large Exporters" are those firms belonging to the fourth or the fifth quintile of the distribution.

I run specification (5.2) for the two group of firms employing firm-year and product-year fixed effects in the first four regressions, while firm-product-year fixed effects are considered in the last four. Results in columns (1b), (2b), (5b), and (6b) in panel (b) of Table 7 show that findings are mainly driven by large exporting firms. A higher income inequality in the importing country is associated with a lower unit value for products supplied by large incumbent firms, while large exporters tend to supply goods of lower quality when entering a new destination market. On the contrary, the unit value and the quality supplied by small exporters is not significantly associated with income inequality in the destination market.

6 Robustness checks

The robustness of the findings discussed above is here assessed on various alternative specifications. First, as in Flach and Janeba (2017), I consider several proxies for firm market-power in a product-destination pair (Brambilla et al., 2012; Martin, 2012; Flach, 2016; Simonovska, 2015). The main result holds when controlling for different measures of market shares (Amiti et al. 2014) and for product-level demand elasticities in the importing country (Broda et al., 2006). I show that results hold when considering a different proxy for income inequality, the Gini Index. Furthermore, I find that the negative correlation between income inequality and unit value is larger in richer destinations. Results also confirm that income inequality reports a higher negative correlation with unit value when the scope of quality differentiation is larger. Lastly, findings are confirmed when employing the alternative procedure to estimate product quality employed in Khandelwal et al. (2013).

Market Shares and Demand Elasticities. Following Flach and Janeba (2017), I now focus on unit values and consider the role of several proxies for firm's market power in the destination market. The aim here is to control for markups when estimating the effect of inequality on unit value. Following Amiti et al. (2014), I consider the market share a sufficient statistic for markups. Evidently, it would not be sensible to introduce product quality as a dependent variable in these regressions since that measure is itself obtained using market shares in the destination market. I first compute a firm's market share in each product-destination pair with respect to other Bulgarian firms exporting the same product to the same destination, *Share Firm over Other Bulg., Same Prod/Dest.* I also obtain the firm's total market share in each destination with respect to other Bulgarian firms exporting to the same destination, *Share Firm over Other Bulg., Same Dest.* I then compute the ratio between firm revenues in all destinations different from the one to which the observed

unit value refers, and total firm revenues across destinations so to obtain a proxy for the relative importance of other importing destinations for each Bulgarian firm, *M. Share Other Dest.* Taking the ratio between a firm's total revenue in a specific product-destination and total imports for that product in the same destination-year, available from the BACI-CEPII data-set, it is possible to obtain the variable *Share Bulg. F. over Tot. Imports, Prod.* In addition, I proxy competition faced by Bulgarian firms in each importing market with the total number of firms exporting from Bulgaria to that destination each year, *Number of Exporters*. I then merge to this rich database the estimates of *Import Demand Elasticities* reported in Broda et al. (2006) at the HS 3-digit product-level for 73 importing countries. By controlling for demand elasticity in the importing country, I should be able to consider the role of average markups, at the country-sector level.

Table 8, showing estimates obtained employing firm-year and product-year fixed effects, confirms the negative relation between the interdecile ratio and unit value when controlling for market shares in the importing market. Importantly, the size of the estimated coefficient is slightly smaller than the one reported in Table 4 for a less conservative specification. The interdecile ratio reports, in almost all regressions, a coefficient equal to -0.0004, significant at the 1%. Per-capita income and distance to the importing country enter all estimations with a positive significant coefficient. Furthermore, I find that firms controlling a large share of the market with respect to other Bulgarian firms exporting the same product to the same destination report a higher unit value. On the contrary, firms accounting for a large share of Bulgarian exports to a specific destination report lower unit values, the same holds for the ratio between firm's revenues in all other destinations and total export revenues. The less "important" is a specific importing market with respect to other destinations, i.e. the higher this index, the lower the unit value of products supplied there.

[Table 8 here]

In the following Table, I introduce firm-product-year fixed effects to employ variation across destinations when estimating the same specification. Results confirm the negative correlation between income inequality and unit value. The magnitude of the coefficient of interest is equal to the one obtained in the previous table. The coefficient is significant at the 5 percent in all regressions reported in this Table. Comparing these results with the ones reported in Table 4, we can then claim that controlling for market power in the importing market reduces the size of the negative correlation between unit value and inequality,

nevertheless the effect remains significantly robust.

[Table 9 here]

Gini Index, Market Shares and Demand Elasticities. Table 10 reports estimates obtained when employing the Gini index as a proxy for income inequality. In all of the following regressions, I rely on variation across import destinations and time by employing firm-year and product-year fixed effects. In columns (1) and (2), I report estimates for the main specification employing quality and unit value as dependent variables. Coefficients reported in these two specifications confirm that a higher Gini index is associated with a lower unit value and a lower product quality. Interestingly, the magnitude of the estimated coefficients is larger than the one obtained when employing the Interdecile ratio. From regression (3) onwards, I control for the various proxies of market power described in the previous paragraph. The Gini index enters all of these specifications with a negative significant coefficient. The other control variables report estimates comparable to the ones obtained when considering the Interdecile ratio as a proxy for income inequality, the only exception being the share of Bulgarian firms in the imports of a specific product to a destination, entering column (6) with a negative coefficient, significant at the 1 percent. The larger is the relative share of imports from Bulgaria in each destination, the more stringent is the competitive pressure leading a firm to reduce the unit value of goods supplied to that market.

Overall, it is possible to conclude that considering different proxies for market power in the importing country to account for the role of markups does not change the main result.

[Table 10 here]

Interactions, Average Income, and Quality Ladders. As shown in equation (7) of the theoretical model, average income and income inequality might jointly impact on product quality and unit values. Flach and Janeba (2017) and Bekkers et al. (2012) find that the effect of income inequality strongly depends on average income in the importing country. To address this point, in columns (1a) and (2a) of Table 11, I interact the logarithm of per-capita income with the Interdecile ratio and the Gini index to explain variation in unit value. Estimated coefficients show that this interaction term reports a negative magnitude in both regressions. The negative correlation between income inequality and unit value is larger in rich destinations. As shown in Figure 9, the higher is per-capita income, the larger is the

negative correlation between the interdecile ratio and unit value. The estimated interaction effect becomes negative and significant when per capita income is higher than 2,980 USD per year. To further investigate on this, in panels (b) and (c) of Table 11, I split the sample in two groups according to per-capita income in the importing country. I rely on the income threshold employed by the World Bank to define high-income countries. In 2001, the first year under observation, this threshold was set at 9,250 USD per year. Estimates strongly support the findings described in Figure 8. Indeed, the negative correlation of income inequality with unit value, and product quality holds for exports to rich destinations, while this finding is not confirmed on trade flows to destinations reporting an average income lower than 9,250 US per year. Interestingly, when employing the Gini index as a proxy for inequality, I find a positive correlation between income inequality and unit value for Not-Rich importers. These results strongly confirm that income inequality acts a determinant of market size when per capita income in the destination market is relatively high. On the contrary, higher inequality increases the willingness to pay for high-quality products in middle-income destinations, as in Flach and Janeba (2017).

[Figure 9 here]

Khandelwal (2010) estimates the length of quality ladders at the sectoral level using data on US imports. I introduce this variable in order to estimate the correlation between income inequality and unit values, given the scope for quality differentiation. I rely on specifications where the length of the quality ladder for each product category is interacted with the two proxies for income inequality. Inequality should have a more negative impact on products belonging to long quality ladders since these products are the ones for which quality differentiation has a prominent role.

[Table 11 here]

As reported in Table 11, this interaction term reports a negative, significant, coefficient. The higher is quality differentiation across products, the larger is the negative correlation between income inequality and unit value.

Different Products. I now rely on the UNCTAD-SpO product classification in order to determine whether results discussed in this empirical analysis are driven by trade flows in final products, or to trade in intermediates and raw materials. The UNCTAD-SpO database

classifies HS92 products into four categories: capital goods, consumer goods, intermediate goods and raw materials. Using a concordance table from the HS92 to the HS96 product classification, I can then classify products in this data-set with respect to the four categories. This classification gives the possibility to verify whether findings obtained in the main specification are mainly due to trade flows in final goods, as implicitly assumed in the theoretical framework. As expected, I find that the coefficient for the interdecile ratio is negative and significant only in regressions (1a) and (2a) reported in panel (a) of Table 12, where data on capital goods and consumer goods are employed. On the contrary, income inequality does not play any role to explain variation in the unit value of intermediate products and raw materials.

[Table 12 here]

Different groups of Countries. Importing countries belonging to the European Union (EU) or to the OECD account for the majority of trade flows from Bulgarian exporting firms in the period 2001-2006. To determine whether results are mainly due to exports directed to EU countries, I estimate model (5.1) relying on export data to EU members (1.b), while in (2.b) I restrict the sample to trading partners not belonging to the EU. I repeat the same exercise using data on exports to OECD members and countries not part of the OECD, in columns (3b) and (4b), respectively. Estimates show that income inequality reports a negative significant correlation when considering trade flows to all groups. Nevertheless, coefficients are larger in magnitude when considering exports to EU and OECD destinations. The importance of the EU market for Bulgarian exporters confirms the role of inequality even for EU destinations, where income inequality does not significantly vary across time. At the same time, the remarkable increases in inequality experienced by several OECD members not part of the EU during the last decades seem to have influenced the pricing strategy of Bulgarian exporters: the magnitude of the coefficient obtained in this specification more than doubles the one for EU destinations.[30]

Khandelwal-Schott-Wei proxies for Quality. Estimates for product quality employed in the previous regressions are obtained relying on an instrumental variable approach. In particular, the instrument for unit value is the average unit value of Bulgarian exporters in the same destination. Even if the procedure employed to standardize the quality estimates

[30] Mexico, United States, Israel, and Japan were the OECD members experiencing the largest increases in income inequality during the period 1985-2010 (OECD, 2011).

should reduce concerns, coefficients obtained following this methodology might still be affected by endogeneity if few Bulgarian firms export a product to the same destination. In order to address this issue, I rely on the alternative proxy for quality proposed by Khandelwal, Schott, and Wei (2013). This measure does not rely on instrumental variable estimation while, being based on a CES framework, assumes constant demand elasticity at the product level within destination. The following econometric model is now estimated:

$$\ln q_{j,z,p,t} + \sigma_{z,p-3digit} \ln(uv)_{j,p,z,t} = \alpha_p + \beta_{z,t} + \xi_{j,z,p,t}. \tag{6.1}$$

Here $q_{j,z,p,t}$ and $uv_{j,p,z,t}$ represent the quantity and the price of a 6-digit HS96 product p, sold by firm j in destination z at year t, while $\sigma_{z,p-3digit}$ is the elasticity of substitution at the 3-digit HS96 level, estimated for product-importer dyads by Broda et al. (2006). The terms α_p and $\beta_{z,t}$ represent product and country-year fixed effects introduced in order to capture variation across products as well as yearly country-specific demand changes. I then compute the natural log of quality for each product p sold by firm j in destination z:

$$\ln\lambda_{j,z,p,t} = \widehat{\xi}_{j,z,p,t} / \left(\sigma_{z,p} - 1\right). \tag{6.2}$$

Table 13 reports estimates obtained when employing this new proxy for quality as a dependent variable in (5.1). The interdecile ratio enters all specifications with a negative and significant coefficient. The magnitude of this coefficient is larger than the one reported in Table 4, ranging from -0.0017 to -0.0023. The negative correlation between income inequality and quality is confirmed, as well, when employing firm-product-year fixed effects, as shown by the estimates reported in columns (3) and (4).

[Table 13 here]

To conclude, results reported in this table show that the main finding is confirmed when relying on the alternative procedure to estimate product quality in the destination market.

7 Conclusion

I investigated the relation between income inequality and two important characteristics of imported products: unit value and quality. Predictions are drawn from an extension of the quality heterogeneous-firms trade model. Under a demand side perspective, income inequality increases the size of the importing market because of non-homothetic preferences for manufactured products. This increase in market-size reduces the quality cutoff for exporting firm. Given this mechanism, higher inequality leads to lower quality and unit value of imported products.

Empirical findings confirm that income inequality should be considered as an important determinant of import demand. Results accounting for time-varying firm-product characteristics, show that income inequality in the importing country is negatively correlated with the unit value and the quality of imported products. A 10 units increase in the interdecile ratio is associated with 0.7% lower unit value and 0.8% lower quality. By influencing the unit value and the quality of imported products, this feature of the income distribution determines the characteristics of imported varieties and, consequently, future technological developments of the domestic manufacturing sector.

This study disentangles the correlation between income inequality and firm-level outcomes employing dynamic trade data. I consider firm-level heterogeneous responses to a change in total expenditure given a firm's stance in the importing market. Results show that higher inequality reduces the unit value of products exported by incumbent firms, while entrants supply goods of lower quality.

This work provides firm-level evidence on the role of income inequality as a determinant of import demand. Findings suggest that further research is needed to develop frameworks capable to assess under which conditions income inequality alters demand either by enlarging the size of the destination market or by increasing the willingness to pay for high-quality products.

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Appendix: Income Inequality and Total Expenditure

Total expenditure on manufactured products in country z is equal to:

$$E_{tot,z} = \left[\gamma_z L_z \Phi_{M,r,z}(I_{r,z}) I_{r,z} + (1-\gamma_z) L_z \Phi_{M,p,z}(I_{p,z}) I_{p,z}\right]. \tag{A.1}$$

Since $I_{p,z} = \eta_z \widetilde{I}_z$ and $I_{r,z} = \left[\frac{1-\gamma_z\eta_z}{1-\gamma_z}\right] \widetilde{I}_z$:

$$E_{tot,z} = \left\{\gamma_z L_z \Phi_{M,r,z}\left(I_{r,z}\right)\left[\left(\frac{1-\gamma_z\eta_z}{1-\gamma_z}\right)\widetilde{I}_z\right] + (1-\gamma_z) L_z \Phi_{M,p,z}(I_{p,z})\left[\eta_z \widetilde{I}_z\right]\right\}. \tag{A.2}$$

Taking the partial derivative with respect to η_z :

$$\begin{aligned}\frac{\partial E_{tot,z}}{\partial \eta_z} = & \gamma_z L_z \widetilde{I}_z \left[\frac{\partial \Phi_{M,r,z}\left(I_{r,z}\right)}{\partial \eta_z}\left(\frac{1-\gamma_z\eta_z}{1-\gamma_z}\right) + \Phi_{M,r,z}\left(\frac{-\gamma_z}{1-\gamma_z}\right)\right] \\ & + (1-\gamma_z) L_z \widetilde{I}_z \left[\frac{\partial \Phi_{M,p,z}\left(I_{p,z}\right)}{\partial \eta_z}\left(\eta_z\right) + \Phi_{M,p,z}\right].\end{aligned} \tag{A.3}$$

Total expenditure on manufactured goods, $E_{tot,z}$, increases when income inequality rises if $\frac{\partial E_{tot,z}}{\partial \eta_z} < 0$. This happens when the following inequality holds:

$$\begin{aligned}& \gamma_z \left[-\frac{\partial \Phi_{M,r,z}\left(I_{r,z}\right)}{\partial \eta_z}\left(\frac{1-\gamma_z\eta_z}{1-\gamma_z}\right) + \Phi_{M,r,z}\left(\frac{\gamma_z}{1-\gamma_z}\right)\right] \\ & > (1-\gamma_z)\left[\frac{\partial \Phi_{M,p,z}\left(I_{p,z}\right)}{\partial \eta_z}\left(\eta_z\right) + \Phi_{M,p,z}\right].\end{aligned} \tag{A.4}$$

That can be re-written as:

$$\begin{aligned}& \frac{\gamma_z}{(1-\gamma_z)}\left[-\frac{\partial \Phi_{M,r,z}\left(I_{r,z}\right)}{\partial \eta_z}\left(1-\gamma_z\eta_z\right) + \Phi_{M,r,z}\left(\gamma_z\right)\right] \\ & > (1-\gamma_z)\left[\frac{\partial \Phi_{M,p,z}\left(I_{p,z}\right)}{\partial \eta_z}\left(\eta_z\right) + \Phi_{M,p,z}\right].\end{aligned} \tag{A.5}$$

The income share devoted by rich individuals to manufactured products is increasing in income inequality, $\frac{\partial \Phi_{M,r,z}(I_{r,z})}{\partial \eta_z} < 0$, therefore $-\frac{\partial \Phi_{M,r,z}(I_{r,z})}{\partial \eta_z} > 0$. It is then possible to observe that total expenditure on manufactured products increases once inequality increases, $\frac{\partial E_{tot,z}}{\partial \eta_z} < 0$, if:

$$\left[-\frac{\partial \Phi_{M,r,z}\left(I_{r,z}\right)}{\partial \eta_z}\left(\frac{\gamma_z\left(1-\gamma_z\eta_z\right)}{\left(1-\gamma_z\right)^2}\right)+\Phi_{M,r,z}\left(\frac{\gamma_z}{1-\gamma_z}\right)^2\right]$$
$$>\left[\frac{\partial \Phi_{M,p,z}\left(I_{p,z}\right)}{\partial \eta_z}\left(\eta_z\right)+\Phi_{M,p,z}\right]. \tag{A.6}$$

Assume now that $\gamma_z > \frac{1}{2}$: the share of poor individuals in the population is higher than the share of rich individuals so that $\left(\frac{\gamma_z}{1-\gamma_z}\right)^2 > 1$. Since $\Phi_{M,r,z} > \Phi_{M,p,z}$, given $I_{r,z} > I_{p,z}$ and $\frac{\partial \Phi_{M,i,z}}{\partial I_{i,z}} > 0$; consequently, $\Phi_{M,r,z}\left(\frac{\gamma_z}{1-\gamma_z}\right)^2 > \Phi_{M,p,z}$. Furthermore, $-\frac{\partial \Phi_{M,r,z}(I_{r,z})}{\partial \eta_z} > 0$, $\frac{\gamma_z(1-\gamma_z\eta_z)}{(1-\gamma_z)^2} < 1$, and $\frac{\partial \Phi_{M,p,z}(I_{p,z})}{\partial \eta_z}\left(\eta_z\right) > 0$. A sufficient condition for (A.6) to hold is then:

$$-\frac{\partial \Phi_{M,r,z}\left(I_{r,z}\right)}{\partial \eta_z}\left(\frac{\gamma_z\left(1-\gamma_z\eta_z\right)}{\left(1-\gamma_z\right)^2}\right) > \frac{\partial \Phi_{M,p,z}\left(I_{p,z}\right)}{\partial \eta_z}\left(\eta_z\right). \tag{A.7}$$

Rearranging (A.7) it possible to obtain:

$$\frac{-\frac{\partial \Phi_{M,r,z}(I_{r,z})}{\partial \eta_z}}{\frac{\partial \Phi_{M,p,z}(I_{p,z})}{\partial \eta_z}} > \frac{\eta_z\left(1-\gamma_z\right)^2}{\gamma_z\left(1-\gamma_z\eta_z\right)}.$$

Total expenditure on manufactured products increases after an increase in income inequality if the change in the income share devoted by rich individuals to manufactured products is sufficiently larger than the change in the income share of poor individuals.

8 Figures

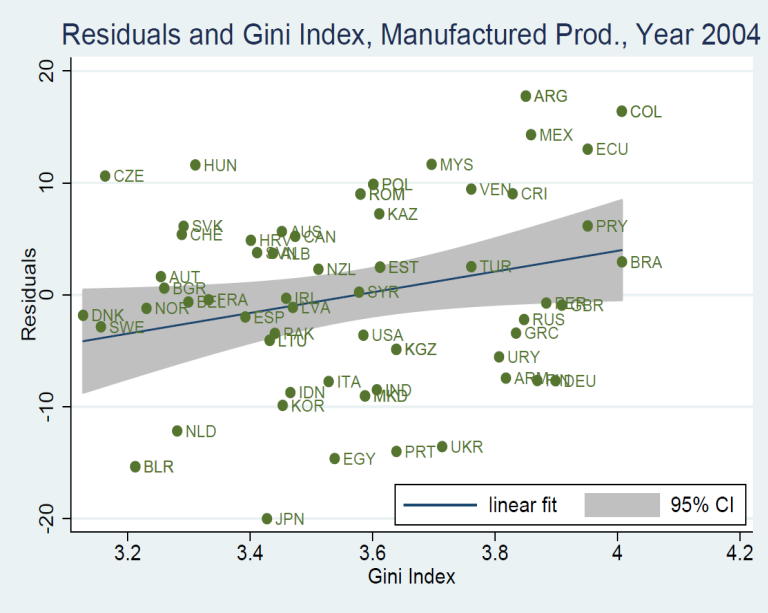

Figure 1. Source: Own Results on World Bank Data, 2017.

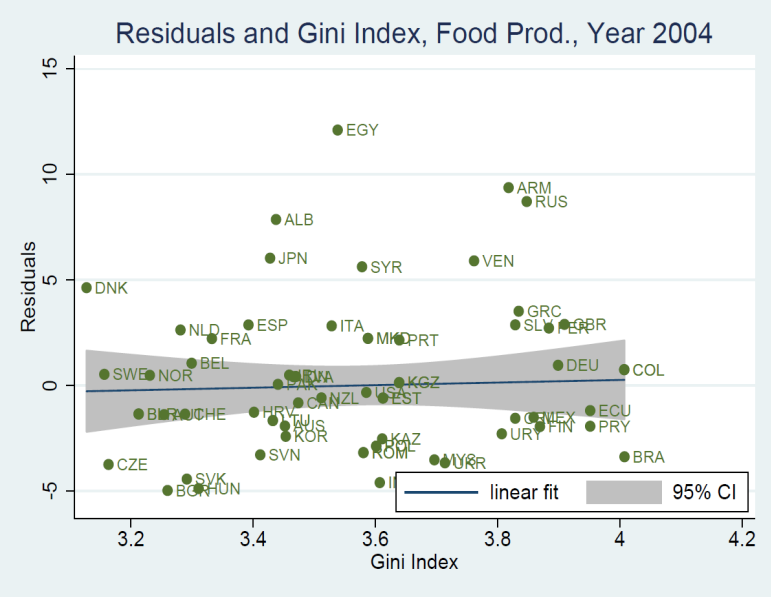

Figure 2. Source: Own Results on World Bank Data, 2016.

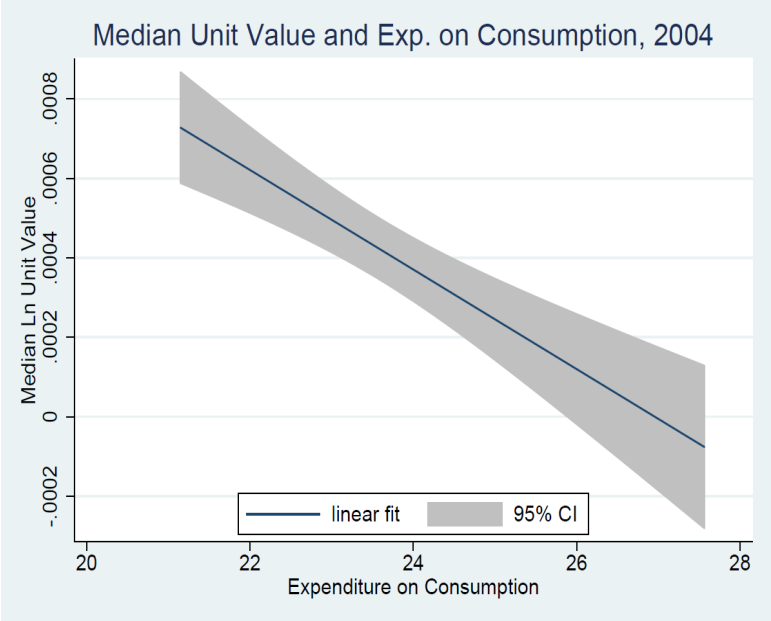

Figure 3. Source: Own Results on World Bank and CEPII Data, 2016.

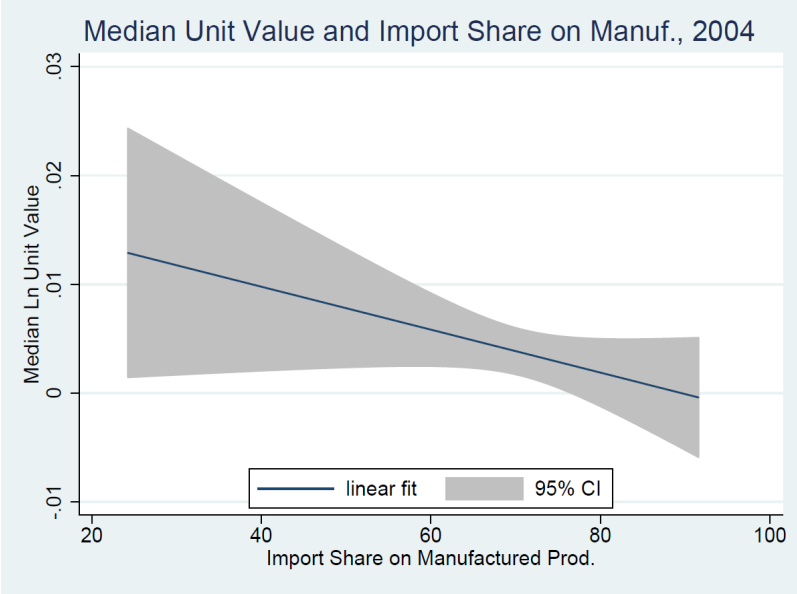

Figure 4. Source: Own Results on World Bank Data and CEPII Data, 2016.

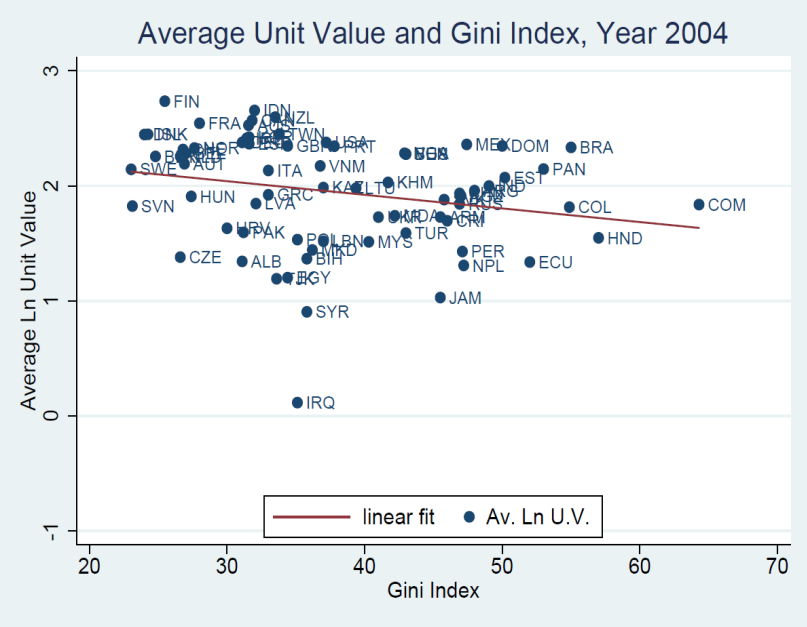

Figure 5. Source: Own Results on World Bank Data and CEPII Data, 2017.

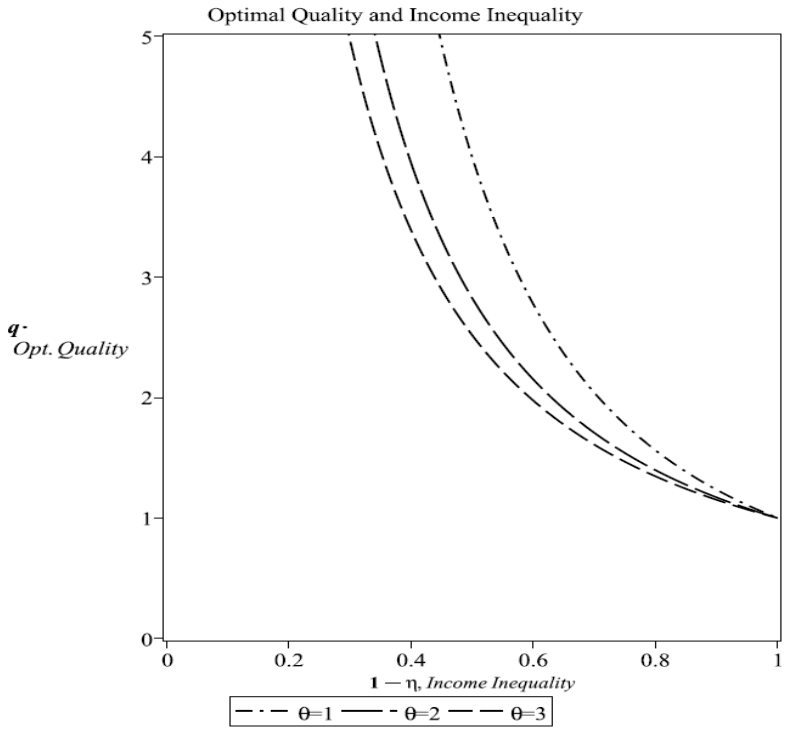

Figure 6: Relationship between Quality Cutoff and Income Inequality, different levels of θ.

Figure 7. Source: Exporter Dynamics Database - World Bank, 2017.

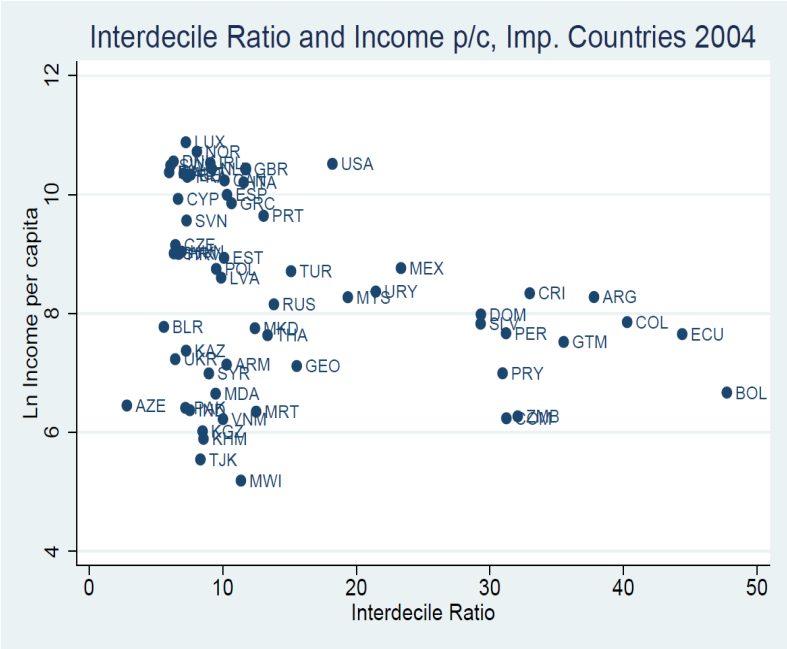

Figure 8. Source: Exporter Dynamics Database - World Bank, 2017.

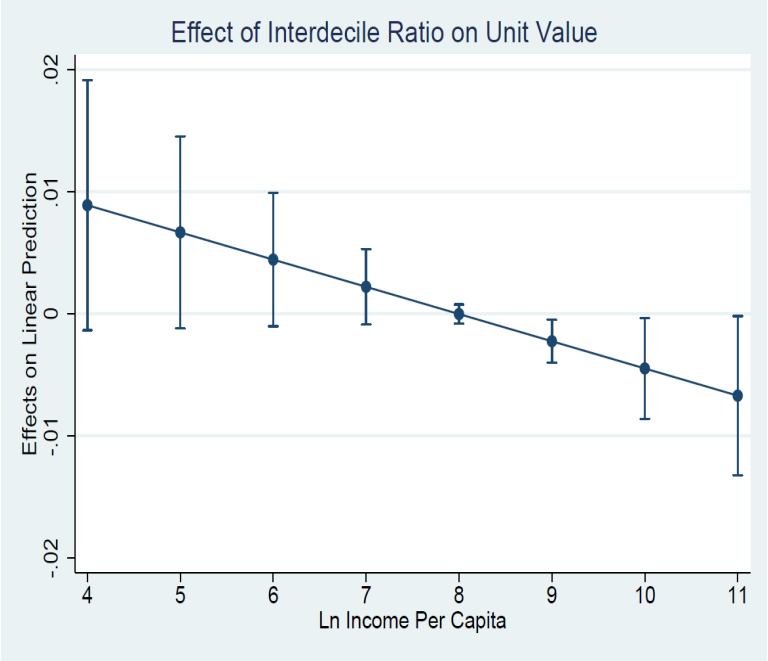

Figure 9. Source: Computations on estimates obtained in column (1) of Table 11.

9 Tables

Table 1: Expenditure on Consumption Goods and Market Size, 1960-2008

	(1) Expenditure on Consumption	(2) Expenditure on Consumption
Gini Index	0.155***	
	(0.028)	
Interdecile Ratio		0.002***
		(0.000)
Ln per capita Income	1.017***	1.017***
	(0.010)	(0.010)
Ln Population	0.953***	0.955***
	(0.006)	(0.006)
Year FE	Y	Y
Observations	1415	1415
R^2	0.967	0.967

Notes: This table studies how the Gini Index, per capita Income, and Population are correlated with the Total Expenditure on Consumption Goods. Both specifications are estimated employing Year fixed effects. Robust standard errors are reported in parentheses.

Table 2: Import Shares and Size Determinants, 1960-2008

	(1) Manufactured prod. Imports	(2) Manufactured prod. Imports	(3) Food Imports	(4) Food Imports
Gini Index	11.936***		-2.826***	
	(1.002)		(0.407)	
Interdecile Ratio		0.094***		-0.024***
		(0.019)		(0.005)
Ln per capita Income	3.575***	3.297***	-1.281***	-1.221***
	(0.259)	(0.264)	(0.125)	(0.128)
Ln Population	-0.611***	-0.411**	0.078	0.033
	(0.202)	(0.209)	(0.083)	(0.084)
Domestic Price Index	-0.001	-0.017	0.011**	0.015***
	(0.015)	(0.015)	(0.006)	(0.005)
Year FE	Y	Y	Y	Y
Observations	1586	1586	1586	1586
R^2	0.271	0.222	0.232	0.218

Notes: This table studies how Gini Index, Interdecile Ratio, per capita Income, Population, and the Domestic Price Index are correlated with the Import Share of Manufactured Products and with the Import Share of Food Products. All specifications are estimated employing Year fixed effects. Robust standard errors are reported in parentheses.

Table 3: Descriptive statistics, Year 2004

	Mean	Median	Semean	Min	Max	p5	p95
Ln Export Unit Value	1.98	2.03	.01	-1.32	5.06	-.523	4.34
Interdecile Ratio, Destination	10.66	10.29	.02	2.82	198.27	6.35	18.21
Gini Index, Destination	32.71	31.6	.02	22.8	64.3	26.6	45.8
per capita Income (Dollars), Destination	18965.29	19047.74	39.77	102.53	53114.55	1261.47	36931.14
Population (Millions), Destination	42.83	11.06	.26	.03	1296.16	.739	82.51
Distance from Bulgaria, Destination	2101.171	1369.55	7.74	311.98	17445.41	311.98	9015.21
Secondary School Enrollment, Destination	95.55	96.99	.040	9.16	148.88	75.66	114.84
Gatt, Destination	.90	1	0	0	1	0	1
Regional Trade Agreement, Destination	.77	1	0	0	1	0	1
Common Legal Origin between Bulgaria and Destination	.31	0	0	0	1	0	1

Notes: The Exporter Dynamics Database of the World Bank provides customs data for export flows at the firm level. The dataset is an unbalanced panel of trade flows from Bulgarian firms for the period 2001-2006. Data reported in this table show descriptive statistics for year 2004. Ln Export Unit Value is the logarithm of the ratio between Export Revenue (US Dollars) and Export Quantity (Kg). The Interdecile Ratio is the ratio between the share of total income earned by the top 10 percent of the income distribution and the bottom 10 percent in each destination. Secondary School Enrollment is the share of pupils in school age that are enrolled in secondary education in each importing country. Gatt indicates whether the importing country is part of the "General Agreement on Tariffs and Trade". Regional agreement indicates whether the destination is part of a regional trade agreement. Common legal origin indicates if Bulgaria and the importing country share a common legal origin. The Mean, the Median, the Standard Errors of means, the Minimum, the Maximum, the value at the 5th percentile, and the value at the 95th percentile of each variable are reported.

Table 4: Unit Value, Quality, and Income Inequality

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Ln Unit Value	Ln Unit Value	Quality	Quality	Ln Unit Value	Ln Unit Value	Quality	Quality
Interdecile Ratio	-0.0007***	-0.0007***	-0.0013**	-0.0008*	-0.0006***	-0.0006***	-0.0009*	-0.0005
	(0.0002)	(0.0002)	(0.0006)	(0.0004)	(0.0002)	(0.0002)	(0.0005)	(0.0004)
Ln per capita Income	0.0487***	0.0327**	0.0254	0.0455*	0.0416***	0.0357***	0.0415*	0.0735***
	(0.0080)	(0.0140)	(0.0186)	(0.0235)	(0.0085)	(0.0114)	(0.0220)	(0.0265)
Ln Population	-0.0209***	-0.0162***	-0.0042	0.0010	-0.0214***	-0.0133***	0.0027	0.0081
	(0.0044)	(0.0039)	(0.0098)	(0.0119)	(0.0049)	(0.0047)	(0.0123)	(0.0147)
Ln Distance	0.0649***	0.0758***	0.0543**	0.0623**	0.0464***	0.0551***	0.0277	0.0369
	(0.0113)	(0.0163)	(0.0226)	(0.0309)	(0.0090)	(0.0118)	(0.0245)	(0.0327)
Sec. School Enr.	-0.0016**	-0.0014*	-0.0053***	-0.0056***	-0.0005	-0.0003	-0.0058***	-0.0064***
	(0.0007)	(0.0007)	(0.0015)	(0.0015)	(0.0006)	(0.0006)	(0.0017)	(0.0017)
Gatt, d		0.0429		0.0027		0.0614***		-0.0112
		(0.0288)		(0.0565)		(0.0229)		(0.0599)
Common Leg. Origin, d		0.0009		0.0908***		0.0372**		0.1200***
		(0.0210)		(0.0328)		(0.0158)		(0.0419)
Regional Trade Agreement, d		0.0288		0.0316		0.0203		0.0314
		(0.0352)		(0.0570)		(0.0273)		(0.0606)
Firm-Year and Product-Year FE	Y	Y	Y	Y	N	N	N	N
Firm-Product-Year FE	N	N	N	N	Y	Y	Y	Y
Observations	168149	168149	168149	168149	53260	53260	53260	53260
R^2	0.695	0.695	0.291	0.292	0.862	0.862	0.488	0.489

Notes: Standard errors clustered at the importing country/year level are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The two dependent variables employed in these regressions are the Logarithm of Unit Value and the proxy for Quality. Variables indicated with d are dummies. Specifications (1) to (4) employ firm-year and product-year fixed effects, while firm-product-year fixed effects are introduced in specifications (5) to (8).

Table 5: Unit Value, Quality, and Income Inequality: IV

	(1)	(2)	(3)	(4)	(5)	(6)
	Interdecile Ratio, F.S.	Ln Unit Value	Quality	Interdecile Ratio, F.S.	Ln Unit Value	Quality
Interdecile Ratio		-0.004*	-0.018***		-0.004*	-0.023***
		(0.002)	(0.005)		(0.002)	(0.006)
Ln per capita Income	-0.350	0.036*	0.006	-0.233	0.026	0.014
	(0.509)	(0.019)	(0.028)	(0.745)	(0.018)	(0.036)
Ln Population	-3.908***	-0.016***	-0.005	-3.847***	-0.012**	0.003
	(0.409)	(0.004)	(0.011)	(0.597)	(0.006)	(0.015)
Ln Distance	8.280***	0.089***	0.205***	8.515***	0.065***	0.220***
	(1.329)	(0.022)	(0.043)	(2.071)	(0.020)	(0.060)
Sec. School Enr.	-0.476***	-0.003***	-0.014***	-0.494***	-0.001	-0.018***
	(0.067)	(0.001)	(0.003)	(0.116)	(0.001)	(0.004)
Gatt,d	2.701*	0.048	0.031	3.629*	0.087**	0.041
	(1.508)	(0.043)	(0.056)	(2.103)	(0.036)	(0.072)
Common Leg. Origin, d	-7.069***	-0.015	-0.046	-6.932***	0.009	-0.059
	(0.684)	(0.028)	(0.053)	(0.828)	(0.025)	(0.069)
Regional Trade Agreement, d	-1.344	0.024	-0.036	-2.302	0.008	-0.045
	(1.721)	(0.046)	(0.055)	(2.428)	(0.038)	(0.074)
Import of newspapers perc. of GDP, t-10	-0.751***			-0.757***		
	(0.093)			(0.127)		
N. daily newspapers per 1 M. inh., t-10	-0.183***			-0.186***		
	(0.016)			(0.023)		
Firm-Year and Product-Year FE	Y	Y	Y	N	N	N
Firm-Product-Year FE	N	N	N	Y	Y	Y
bservations	148803	148803	148803	43210	43210	43210
R^2	0.447	0.699	0.291	0.349	0.867	0.423
Kleibergen-Paap Wald LM statistic.	36.52			33.14		
Kleibergen-Paap Wald F statistic	67.24			32.12		
Stock-Yogo weak ID test critical value, 10 percent	19.93			19.93		
Stock-Yogo weak ID test critical value, 15 percent	11.59			11.59		
Hansen J-Stat, P-val.		0.62	0.80		0.96	0.82

Notes: Standard errors clustered at the importing country/year level are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The two dependent variables are the Logarithm of Unit Value, in (2) and (5), and the proxy for Quality, in (3) and (6). Variables indicated with d are dummies. Specifications (1) to (3) employ firm-year and product-year fixed effects, while firm-product-year fixed effects are introduced in specifications (4) to (6). Column (1) and (4) report first-stage estimates.

Table 6: Descriptive statistics, 2001-2006

	Mean	Median	Semean	Min	Max	p5	p95
Percentage of trade flows due to Entrants, t-1	.69	1	0	0	1	0	1
Percentage of trade flows due to Entrants, t	.39	0	0	0	1	0	1
Firms per country/product/year	32.79	4	.24	1	2757	1	72
N. of products per destination	43.46	10	.12	1	706	1	209
N. of destinations per firm/product	3.39	1	.001	1	73	1	14
N. of products per firm	177.88	33	.51	1	2393	1	989

Notes: The Exporter Dynamics Database of the World Bank provides customs data for export flows at the firm level. The dataset is an unbalanced panel of trade flows from Bulgarian firms for the period 2001-2006. Entrant, t indicates whether a firm entered a product-destination pair in the year under observation. Entrant, t-1 is a dummy variable indicating that the firm entered a product-destination pair either during the current or the previous year.

Table 7: Unit Value, Quality, and Income Inequality: Dynamics (a) and Different Size (b)

	(1a)	(2a)	(3a)	(4a)	(5a)	(6a)	(7a)	(8a)
	Ln Unit Value	Quality	Ln Unit Value	Quality	Ln Unit Value	Quality	Ln Unit Value	Quality
Interdecile Ratio	-0.0008***	-0.0008*	-0.0009**	-0.0004	-0.0006***	-0.0005	-0.0007**	-0.0002
	(0.0003)	(0.0004)	(0.0004)	(0.0005)	(0.0002)	(0.0004)	(0.0003)	(0.0005)
Entrant, t	-0.041**	-0.105***			-0.023	-0.169***		
	(0.020)	(0.016)			(0.020)	(0.021)		
Entrant, t X Interdecile Ratio	0.0004	-0.0003			0.0002	-0.0002		
	(0.0005)	(0.0005)			(0.0005)	(0.0007)		
Entrant, t-1			0.012	-0.023			0.017	-0.078***
			(0.017)	(0.017)			(0.017)	(0.023)
Entrant, t-1 X Interdecile Ratio			0.0003	-0.0008*			0.0002	-0.0007
			(0.0004)	(0.0004)			(0.0004)	(0.0006)
Ln per capita Income	0.032**	0.042*	0.034**	0.044*	0.035***	0.068**	0.037***	0.068**
	(0.015)	(0.024)	(0.015)	(0.024)	(0.013)	(0.027)	(0.013)	(0.027)
Ln Population	-0.017***	-0.000	-0.016***	0.000	-0.014***	0.005	-0.013**	0.006
	(0.004)	(0.012)	(0.004)	(0.012)	(0.005)	(0.015)	(0.005)	(0.015)
Ln Distance	0.077***	0.066**	0.075***	0.064**	0.056***	0.042	0.054***	0.042
	(0.018)	(0.031)	(0.018)	(0.031)	(0.013)	(0.033)	(0.013)	(0.034)
Sec. School Enr.	-0.001*	-0.005***	-0.001*	-0.006***	-0.000	-0.006***	-0.000	-0.006***
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
Gatt, d	0.042	0.001	0.043	0.002	0.061**	-0.014	0.062**	-0.014
	(0.031)	(0.057)	(0.031)	(0.057)	(0.026)	(0.060)	(0.026)	(0.061)
Common Leg. Origin, d	-0.000	0.088***	0.001	0.090***	0.036**	0.114***	0.038**	0.117***
	(0.023)	(0.033)	(0.023)	(0.033)	(0.018)	(0.041)	(0.018)	(0.042)
Regional Trade Agreement, d	0.030	0.034	0.028	0.034	0.020	0.033	0.019	0.037
	(0.038)	(0.058)	(0.038)	(0.058)	(0.028)	(0.062)	(0.028)	(0.063)
Firm-Year and Product-Year FE	Y	Y	Y	Y	N	N	N	N
Firm-Product-Year FE	N	N	N	N	Y	Y	Y	Y
Observations	168149	168149	168149	168149	53260	53260	53260	53260
R^2	0.695	0.292	0.695	0.292	0.862	0.492	0.862	0.490
	Large Exporters		Small Exporters		Large Exporters		Small Exporters	
	(1b)	(2b)	(3b)	(4b)	(5b)	(6b)	(7b)	(8b)
	Ln Unit Value	Quality	Ln Unit Value	Quality	Ln Unit Value	Quality	Ln Unit Value	Quality
Interdecile Ratio	-0.0009**	-0.0005	0.0000	-0.0007	-0.0008**	-0.0002	0.0014	-0.0013
	(0.0003)	(0.0003)	(0.0018)	(0.0027)	(0.0004)	(0.0003)	(0.0013)	(0.0034)
Entrant, t-1	0.017	-0.053***	0.012	0.004	0.031*	-0.105***	0.006	-0.032
	(0.019)	(0.019)	(0.034)	(0.034)	(0.018)	(0.025)	(0.034)	(0.041)
Entrant, t-1 X Interdecile Ratio	0.0002	-0.0003	-0.0006	-0.0011	0.0002	-0.0003	-0.0015	-0.0002
	(0.0004)	(0.0005)	(0.0019)	(0.0025)	(0.0004)	(0.0006)	(0.0013)	(0.0032)
Destination-Specific Controls	Y	Y	Y	Y	Y	Y	Y	Y
Bilateral Controls	Y	Y	Y	Y	Y	Y	Y	Y
Firm-Year and Product-Year FE	Y	Y	Y	Y	N	N	N	N
Firm-Product-Year FE	N	N	N	N	Y	Y	Y	Y
Observations	79287	79287	86407	86407	33977	33977	19283	19283
R^2	0.695	0.258	0.720	0.378	0.862	0.466	0.863	0.531

Notes: Standard errors, two-way clustered at the firm/importing country and at the importing country/year level, are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The two dependent variables employed in these regressions are the Logarithm of Unit Value and the proxy for Quality. We identify as Large Exporters firms reporting export revenues in the fourth or the fifth quintile of the revenue distribution, firms in the other three quintiles are labelled as Small Exporters. Entrant, t is a dummy variable indicating whether a firm entered a product-destination pair in the year under observation. Entrant, t-1 is a dummy variable indicating that the firm entered a product-destination pair either during the current or the previous year. Destination-Specific Controls include: Ln per-capita Income, Ln Population, Sec. School Enr., Gatt-d, Regional Trade Agreement-d. Bilateral Controls include: Distance and Common Legal Origin-d. Variables indicated with d are dummies. Specifications (1) to (4) employ firm-year and product-year fixed effects, while firm-product-year fixed effects are introduced in specifications (5) to (8).

Table 8: Unit Value, Quality, and Income Inequality, Market Shares I

	(1) Ln Unit Value	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Interdecile Ratio	-0.0003**	-0.0004**	-0.0004***	-0.0004***	-0.0004***	-0.0004***	-0.0004***	-0.0004***	-0.0004***
	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0001)
Ln per capita Income		0.0229*	0.0761***	0.0890***	0.0751***	0.0754***	0.0761***	0.0751***	0.0760***
		(0.0129)	(0.0168)	(0.0170)	(0.0169)	(0.0168)	(0.0168)	(0.0175)	(0.0168)
Ln Population		-0.0170***	-0.0189***	0.0006	-0.0195***	-0.0200***	-0.0189***	-0.0197***	-0.0189***
		(0.0050)	(0.0055)	(0.0062)	(0.0055)	(0.0055)	(0.0055)	(0.0072)	(0.0055)
Ln Distance		0.0733***	0.0930***	0.0381*	0.0947***	0.0935***	0.0930***	0.0958***	0.0930***
		(0.0161)	(0.0218)	(0.0215)	(0.0220)	(0.0219)	(0.0218)	(0.0243)	(0.0217)
Sec. School Enr.			-0.0037***	-0.0035***	-0.0037***	-0.0037***	-0.0037***	-0.0037***	-0.0037***
			(0.0009)	(0.0009)	(0.0009)	(0.0009)	(0.0009)	(0.0009)	(0.0009)
Gatt, d			-0.0523	-0.1361***	-0.0528	-0.0528	-0.0522	-0.0435	-0.0527
			(0.0389)	(0.0446)	(0.0391)	(0.0386)	(0.0390)	(0.0619)	(0.0385)
Common Leg. Origin, d			0.0645***	0.0535**	0.0631***	0.0642***	0.0644***	0.0656***	0.0641***
			(0.0225)	(0.0225)	(0.0226)	(0.0225)	(0.0226)	(0.0242)	(0.0225)
Regional Trade Agreement, d			0.0259	0.0187	0.0259	0.0255	0.0259	0.0276	0.0257
			(0.0430)	(0.0415)	(0.0430)	(0.0432)	(0.0428)	(0.0420)	(0.0433)
Share Firm over Other Bulg., Same Prod/Dest.				0.3061***					
				(0.0242)					
Share Firm over Other Bulg., Same Dest.					-0.4154**				
					(0.2057)				
M. Share Other z						-0.1660***			
						(0.0299)			
Share Bulg. F. over Tot. Imports, Prod.							0.0004		
							(0.0072)		
Number of Exporters								0.0000	
								(0.0000)	
Demand Elasticity									0.0017
									(0.0134)
Firm-Year and Product-Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	78170	78170	78170	78170	78170	78170	78170	78170	78170
R^2	0.710	0.711	0.711	0.713	0.711	0.711	0.711	0.711	0.711

Notes: Standard errors clustered at the importing country/year level are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable employed in these regressions is the Logarithm of Unit Value. Variables indicated with d are dummies. All specifications employ firm-year and product-year fixed effects.

Table 9: Unit Value, Quality, and Income Inequality: Market Shares II

	(1) Ln Unit Value	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Interdecile Ratio	-0.0004**	-0.0004**	-0.0004**	-0.0004**	-0.0004**	-0.0004**	-0.0004**	-0.0004**	-0.0004**
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Ln per capita Income		0.0285**	0.0610***	0.0657***	0.0596***	0.0611***	0.0609***	0.0581***	0.0613***
		(0.0133)	(0.0188)	(0.0194)	(0.0188)	(0.0188)	(0.0186)	(0.0204)	(0.0186)
Ln Population		-0.0142**	-0.0129**	-0.0046	-0.0138**	-0.0128**	-0.0129**	-0.0154**	-0.0130**
		(0.0058)	(0.0060)	(0.0063)	(0.0061)	(0.0060)	(0.0061)	(0.0071)	(0.0060)
Ln Distance		0.0421***	0.0524***	0.0282	0.0549***	0.0523***	0.0524***	0.0616***	0.0518***
		(0.0147)	(0.0191)	(0.0186)	(0.0191)	(0.0191)	(0.0189)	(0.0196)	(0.0191)
Sec. School Enr.			-0.0019*	-0.0017	-0.0019*	-0.0019*	-0.0018*	-0.0017	-0.0019*
			(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0012)	(0.0011)
Gatt, d			-0.0611**	-0.0962***	-0.0622**	-0.0612**	-0.0568*	-0.0309	-0.0577*
			(0.0292)	(0.0313)	(0.0294)	(0.0292)	(0.0292)	(0.0556)	(0.0300)
Common Leg. Origin, d			0.0514**	0.0459**	0.0495**	0.0514**	0.0485**	0.0558**	0.0553**
			(0.0218)	(0.0220)	(0.0219)	(0.0218)	(0.0215)	(0.0220)	(0.0222)
Regional Trade Agreement, d			0.0128	0.0104	0.0127	0.0128	0.0114	0.0182	0.0148
			(0.0398)	(0.0395)	(0.0396)	(0.0398)	(0.0395)	(0.0386)	(0.0399)
Share Firm over Other Bulg., Same Prod/Dest.				0.1552***					
				(0.0201)					
Share Firm over Other Bulg., Same Dest.					-0.4841**				
					(0.2178)				
M. Share Other z						0.0127			
						(0.0473)			
Share Bulg. F. over Tot. Imports, Prod.							0.0221**		
							(0.0089)		
Number of Exporters								0.0000	
								(0.0000)	
Demand Elasticity									-0.0165
									(0.0161)
Firm-Product-Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	21422	21422	21422	21422	21422	21422	21422	21422	21422
R^2	0.867	0.868	0.868	0.868	0.868	0.868	0.868	0.868	0.868

Notes: Standard errors clustered at the importing country/year level are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable employed in these regressions is the Logarithm of Unit Value. Variables indicated with d are dummies. All specifications employ firm-product-year fixed effects.

Table 10: Unit Value, Quality, and Income Inequality: Gini Index and Market Shares

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Quality	Ln Unit Value	Ln Unit Value	Ln Unit Value	Ln Unit Value	Ln Unit Value	Ln Unit Value	Ln Unit Value
Gini Index	-0.004*	-0.003***	-0.004***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Ln per capita Income	0.029	0.062***	0.077***	0.062***	0.062***	0.062***	0.060***	0.062***
	(0.025)	(0.013)	(0.014)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Ln Population	0.007	-0.012**	0.010*	-0.013**	-0.013**	-0.012**	-0.016***	-0.012**
	(0.013)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)
Ln Distance	0.061*	0.083***	0.033**	0.085***	0.084***	0.083***	0.090***	0.083***
	(0.034)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Sec. School Enr.	-0.006***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Gatt, d	-0.017	-0.066	-0.129**	-0.065	-0.066	-0.073	-0.054	-0.066
	(0.059)	(0.048)	(0.051)	(0.048)	(0.048)	(0.049)	(0.047)	(0.047)
Common Leg. Origin, d	0.060	0.029	0.016	0.029	0.029	0.031	0.032	0.029
	(0.038)	(0.020)	(0.022)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
Regional Trade Agreement, d	0.046	0.040	0.033	0.040	0.040	0.040	0.040	0.039
	(0.058)	(0.025)	(0.024)	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)
Share Firm over Other Bulg., Same Prod/Dest.			0.281***					
			(0.016)					
Share Firm over Other Bulg., Same Dest.				-2.113***				
				(0.758)				
M. Share Other z					-0.049*			
					(0.027)			
Share Bulg. F. over Tot. Imports, Prod.						-0.022***		
						(0.005)		
Number of Exporters							0.000	
							(0.000)	
Demand Elasticity								-0.002
								(0.011)
Firm-Year and Product-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	128497	128497	128497	128497	128497	128497	128497	128497
R^2	0.301	0.704	0.707	0.704	0.704	0.704	0.704	0.704

Notes: Standard errors clustered at the importing country/year level are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variables employed in these regressions are proxy for Quality in (1), and the Logarithm of Unit Value, in columns (2) to (8). Variables indicated with d are dummies. All specifications employ firm-year and product-year fixed effects.

Table 11: Unit Value, Quality, and Income Inequality: Interactions

	(1a)	(2a)	(3a)	(4a)
	Ln Unit Value	Ln Unit Value	Ln Unit Value	Ln Unit Value
Interdecile Ratio	0.018*		0.000	
	(0.010)		(0.001)	
Gini Index		0.028**		0.003**
		(0.012)		(0.001)
Ln per capita Income	0.052**	0.146***	0.033**	0.037**
	(0.020)	(0.052)	(0.015)	(0.015)
Income per capita X Interdecile Ratio	-0.002*			
	(0.001)			
Ln per capita Income X Gini Index		-0.003**		
		(0.001)		
Quality Ladder			0.015	0.049*
			(0.019)	(0.026)
Quality Ladder X Interdecile Ratio			-0.001*	
			(0.000)	
Quality Ladder X Gini Index				-0.001*
				(0.001)
Ln Population	-0.016***	-0.019***	-0.015***	-0.015***
	(0.005)	(0.004)	(0.005)	(0.005)
Ln Distance	0.081***	0.076***	0.083***	0.078***
	(0.016)	(0.016)	(0.017)	(0.017)
Other Destination-Specific Controls	Y	Y	Y	Y
Common Legal Origin, d	Y	Y	Y	Y
Firm-Year and Product-Year FE	Y	Y	Y	Y
Observations	165258	165258	139133	139133
R^2	0.696	0.696	0.703	0.702
	Rich		Not Rich	
	(1b)	(2b)	(3b)	(4b)
	Ln Unit Value	Quality	Ln Unit Value	Quality
Interdecile Ratio	-0.015***	-0.021*	-0.000	-0.000
	(0.003)	(0.011)	(0.000)	(0.000)
Observations	107400	107400	59596	59596
R^2	0.666	0.311	0.738	0.381
	Rich		Not Rich	
	(1c)	(2c)	(3c)	(4c)
	Ln Unit Value	Quality	Ln Unit Value	Quality
Gini Index	-0.003**	-0.007***	0.008***	0.002
	(0.001)	(0.002)	(0.002)	(0.004)
Observations	106630	106630	57558	57558
R^2	0.666	0.312	0.739	0.388
Destination-Specific Controls	Y	Y	Y	Y
Bilateral Controls	Y	Y	Y	Y
Firm-Year and Product-Year FE	Y	Y	Y	Y

Notes: Standard errors clustered at the importing country/year level are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variables employed in these regressions are the Logarithm of Unit Value and the proxy for Quality. Destination-Specific Controls include: Ln Population, Sec. School Enr., Gatt-d, Regional Trade Agreement-d. Bilateral Controls include: Distance and Common Legal Origin-d. In panel (b) and (c) importing countries are divided in two groups according to the World Bank classification, Rich importing countries report a per capita Income higher than 9,250 USD per year. Variables indicated with d are dummies. All specifications employ firm-year and product-year fixed effects.

Table 12: Unit Value, Quality, and Income Inequality: Different types of Products (a) - Different Groups of Destination Countries (b)

	(1a) Capital Goods Ln Unit Value	(2a) Consumer Goods Ln Unit Value	(3a) Intermediate Goods Ln Unit Value	(4a) Raw Materials Ln Unit Value
Interdecile Ratio	-0.0005**	-0.0014**	0.0001	0.0017
	(0.0002)	(0.0007)	(0.0005)	(0.0064)
Destination-Specific Controls	Y	Y	Y	Y
Bilateral Controls	Y	Y	Y	Y
Firm-Year and Product-Year FE	Y	Y	Y	Y
Observations	39771	114786	29763	881
R^2	0.709	0.719	0.800	0.887
	(1b) EU Ln Unit Value	(2b) No-EU Ln Unit Value	(3b) OECD Ln Unit Value	(4b) No-OECD Ln Unit Value
Interdecile Ratio	-0.0054*	-0.0003*	-0.0123***	-0.0003*
	(0.0028)	(0.0002)	(0.0032)	(0.0002)
Destination-Specific Controls	Y	Y	Y	Y
Bilateral Controls	Y	Y	Y	Y
Firm-Year and Product-Year FE	Y	Y	Y	Y
Observations	110929	54064	119198	44580
R^2	0.656	0.749	0.671	0.754

Notes: Standard errors clustered at the importing country/year level are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable employed in these regressions is the Logarithm of Unit Value. Destination-Specific Controls include: Ln per-capita Income, Ln Population, Sec. School Enr., Gatt-d, Regional Trade Agreement-d. Bilateral Controls include: Distance and Common Legal Origin-d. Variables indicated with d are dummies. All specifications employ firm-year and product-year fixed effects.

Table 13: Unit Value, Quality KSW, and Income Inequality

	(1) Quality KSW	(2) Quality KSW	(3) Quality KSW	(4) Quality KSW
Interdecile Ratio	-0.0023***	-0.0021***	-0.0017***	-0.0017***
	(0.0008)	(0.0006)	(0.0006)	(0.0005)
Ln per capita Income	Y	Y	Y	Y
Ln Population	Y	Y	Y	Y
Ln Distance	Y	Y	Y	Y
Sec. School Enr.	Y	Y	Y	Y
Gatt, d	N	Y	N	Y
Common Leg. Origin, d	N	Y	N	Y
Regional Trade Agreement, d	N	Y	N	Y
Firm-Year and Product-Year FE	Y	Y	N	N
Firm-Product-Year FE	N	N	Y	Y
Observations	128116	128116	34897	34897
R^2	0.461	0.467	0.440	0.454

Notes: Standard errors clustered at the importing country/year level are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable employed in these regressions is the proxy for product Quality estimated following Khandelwal et al. (2013). Variables indicated with d are dummies. Specifications (1) and (2) employ firm-year and product-year fixed effects, while (3) and (4) introduce firm-product-year fixed effects.