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Soo, Kwok Tong

Lancaster University

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Abstract

This paper develops a model of international trade based on the division of labor and comparative advantage. Labor is used to produce traded intermediate inputs which are used in the production of traded final goods. Large countries gain relatively more from comparative advantage than from the division of labor, while the opposite is true for small countries. Large countries export a smaller share of final goods and a larger share of intermediate goods than small countries. These predictions find supportive evidence in the data.

JEL Classification: F11.

Keywords: Division of labor; Comparative advantage; gains from trade; intermediate goods trade.

[a] Department of Economics, Lancaster University Management School, Lancaster LA1 4YX, United Kingdom. Tel: +44(0)1524 594418. Email: k.soo@lancaster.ac.uk

1 Introduction

The third paragraph of the first chapter of Adam Smith's *The Wealth of Nations* (Smith, 1776) contains the famous passage in which he describes the impact of the division of labor on productivity in a pin factory. To paraphrase Smith, one worker, working on his own, could produce at most 20 pins in a day. Ten workers, dividing up the tasks of producing pins, could produce 48,000 pins in a day. Hence, the gain to this group of workers from the division of labor in this example is 24,000%. One implication of this is that international trade, by enabling greater levels of specialization, should result in productivity gains.

This paper develops a model of international trade in which the gains from the division of labor play a central role, as an additional reason for trade. As in Adam Smith's example, the more the production process can be divided into discrete stages, the larger will be the final output. That is, we explicitly model the division of labor, going beyond previous treatments that make use of external economies. In addition, we combine the division of labor with Ricardo's (1817) comparative advantage, and show how the interplay between these two economic forces determines the outcomes and the gains from trade. In the model, countries specialize in different subsets of intermediate goods, then trade both intermediate and final goods. The gains from trade arise from both increased division of labor, and specialization in accordance with comparative advantage. Large countries gain relatively more from comparative advantage than from the division of labor, while the opposite is true for small countries.

A key testable prediction of the model is that country size is negatively associated with the share of consumption goods in its exports, and is positively associated with the share of intermediate goods in its exports. Using data from the UN Comtrade database, we find evidence which supports these predictions of the model. This work is broadly related to the empirical literature on trade in intermediate goods and services. For instance, Miroudot et al (2009) and Sturgeon and Memedovic (2010) show that intermediate inputs represent over half of total goods trade, but that this fraction has actually decreased since the 1960s.

There has been a recent resurgence of interest in models of international trade based on the division of labor. A large portion of this literature revolves around models based on external scale economies, for instance Grossman and Rossi-Hansberg (2010) and Ethier and Ruffin (2009). Choi and Yu (2003) survey the earlier literature on international trade under external scale economies, while Wong (2001) offers an alternative treatment. Relative to this literature, the present paper develops an explicit model of the division of labor, rather than basing it on external economies.

More closely related to the present paper are Swanson (1999), Zhou (2004), and Chaney and Ossa (2013). Swanson (1999) develops a model in which a larger market size leads to productivity gains, because workers specialize in a narrower subset of activities. Zhou (2004) develops a very different model which makes a similar point. Chaney and Ossa (2013) extend the new trade model of Krugman (1979) to allow for multiple production stages. However, Swanson (1999) does not explicitly consider the implications of international trade; the structure of the model means that this is not a straightforward analysis. In addition, unlike Zhou (2004) and Chaney and Ossa (2013), our model is based on perfect competition, so presents an alternative approach to the division of labor.

Also closely related to the present paper are Ethier (1979, 1982). The nature of the division of labor in this paper is similar to that in Ethier (1979, 1982). The main difference is that here, we explicitly model the division of labor as in Ethier (1982), but the production of intermediate inputs is perfectly competitive. Indeed, where Ethier (1982) has two sources of scale economies (internal to the firm, and due to the division of labor) and one source of comparative advantage (factor endowment differences across countries), in the present paper, there is one source of comparative advantage (between final goods), and one source of scale economies (the division of labor). In addition, whilst in Ethier (1982) the market structure is monopolistically competitive, here we adopt perfect competition throughout.

The next section presents the main features of the model. Section 3 outlines the autarkic equilibrium, while Section 4 considers the implications of international trade. Section 5 discusses the trade patterns that arise in the model and provides some supportive empirical evidence. Section 6 concludes.

2 The model

There are two countries, $j = H, F$ for Home and Foreign. Labor is the only factor of production, and the two countries have labor endowments L_j. All markets are perfectly competitive. There are two final consumption goods, 1 and 2. Consumer utility is identical across countries and takes a Cobb-Douglas form[1]:

$$U = C_1^{\theta} C_2^{1-\theta} \qquad 0 < \theta < 1 \tag{1}$$

Where C denotes consumption of a good. Final goods are produced with intermediate inputs, and assembly of final goods is assumed to be costless. Each country produces a number of intermediate inputs n_j, which is assumed to be small relative to the number of possible intermediate inputs. Assume that the intermediate inputs produced in one country are different from those produced in the other country. All intermediate inputs are used in fixed proportions in the production of final goods. Hence let the production functions of the final goods in the two countries be:

$$Q_{1H} = \gamma(n_H + n_F)^{\beta+1} x_{1H} \tag{2}$$

$$Q_{2H} = (n_H + n_F)^{\beta+1} x_{2H} \tag{3}$$

$$Q_{1F} = (n_H + n_F)^{\beta+1} x_{1F} \tag{4}$$

$$Q_{2F} = \gamma(n_H + n_F)^{\beta+1} x_{2F} \tag{5}$$

Output of each final good depends on the number of Home and Foreign produced inputs, n_H and n_F, and the quantity of each intermediate input, x. $\gamma > 1$ indicates that Home has a comparative technological advantage in final good 1, while Foreign has a comparative technological advantage in final good 2. It will be shown below that in free trade Home will specialize in good 1 and Foreign in good 2. $\beta > 0$ measures the payoff from the division of labor. The larger the number of intermediate inputs n, the greater the division of labor, and the larger the output of the final good, analogously to Smith's pin factory example. Note that the production function of final goods exhibits constant returns to scale with respect to the quantity of each input, and

[1] The model can also be solved using CES preferences; the Cobb-Douglas form used here makes the solution much simpler, and does not detract from the main results of the paper.

increasing returns with respect to the number of different inputs. The constant returns to scale feature makes the production function compatible with perfect competition: a larger firm does not have a cost advantage relative to a smaller firm.

Since all inputs are used in fixed proportions in the production of the final goods, output of each intermediate good must also be the same. Each country has the ability to produce a subset $n_j = rL_j$ of intermediate goods, $i = 1, \dots, rL_j$, where $r < 1$ is a constant, and the intermediate goods produced by each country are unique to that country. The uniqueness of each country's intermediate goods may be caused by (unmodelled) sector-specific inputs which are unique to each country, for instance natural resources. This strong assumption[2] implies that the number of intermediate goods produced by each country (hence the extent of the division of labor) is proportional to the size of the market, as in Adam Smith's example. The assumption that larger countries produce a larger variety of goods has empirical support from Hummels and Klenow (2005) and Hanson (2012). Let the production technology of intermediate inputs be identical across countries:

$$q_{ij} = l_{ij} \tag{6}$$

Production of intermediate inputs occurs under constant returns to scale. As a result of equation (6), the price of each intermediate good is, under perfect competition, equal to the wage rate in each country. Assume that wage rates are equalised across countries, and hence that all intermediate goods have the same price[3].

3 Autarky

Consider first the case where the two countries do not trade with each other. Here we analyse the Home country; the solution for the Foreign country is analogous. In this case, Foreign-produced

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[2] Note that, without this assumption, if each country can produce all possible varieties of intermediate goods, then $n = \infty$ yields the largest possible output of the final goods, even if a country has a comparative advantage in a subset of intermediate goods. So this is a strong assumption made to overcome a technical difficulty.

[3] This assumption means that, in the free trade equilibrium, intermediate goods produced in the two countries are indistinguishable from each other. It can be seen that, without this assumption, it is possible that one country has a higher wage rate than the other country (possible due to the complementarity of intermediate inputs), leading to higher prices of that country's intermediate goods, and hence final goods producers will face a choice between incurring a higher cost of using both countries' intermediate goods, or foregoing the benefits of increased division of labor.

intermediates are not available for use in the production of Home-produced final goods, and all Home-produced intermediates are used at Home. Because of the Cobb-Douglas preferences, each country will produce both final goods in autarky, and because production of each final good uses all available varieties of intermediate inputs, the production possibilities frontier (PPF) is a straight line; there are constant opportunity costs.

Given the Cobb-Douglas utility function (1), we have (see Appendix A for a derivation):

$$x_{1H} = \theta q_{iH} \qquad x_{2H} = (1-\theta) q_{iH} \tag{7}$$

Where q_{iH} is the output of each intermediate good in Home. Hence, the production functions in Home are (making use of $n_j = rL_j$):

$$Q_{1H} = \gamma n_H^{\beta+1} \theta q_{iH} = \gamma (rL_H)^{\beta+1} \theta q_{iH} \tag{8}$$

$$Q_{2H} = n_H^{\beta+1} (1-\theta) q_{iH} = (rL_H)^{\beta+1} (1-\theta) q_{iH} \tag{9}$$

Since all intermediate inputs are produced using the same technology, and since all intermediate goods are used in fixed proportions in the production of final goods, the labor used in each intermediate input is also the same. Hence $q_{iH} = l_{iH} = L_H/n_H = 1/r$. The size of the labor force influences only the number of intermediate goods, not the output of each intermediate good. This result of the model is similar to Krugman (1980), in which changing labor endowments results in a different number of varieties produced, but not the scale of production of each variety[4].

Substituting into the production functions (8) and (9) gives:

$$Q_{1H} = (rL_H)^{\beta} \gamma \theta L_H \qquad Q_{2H} = (rL_H)^{\beta} (1-\theta) L_H \tag{10}$$

Since there is no international trade, Home consumers can only consume Home-produced output. Therefore, Home's consumer's utility under autarky is:

$$U_H^A = (rL_H)^{\beta} (\gamma\theta)^{\theta} (1-\theta)^{1-\theta} \tag{11}$$

Utility is increasing in the size of the Home labor force L_H, the parameter r indicating the number of intermediate sectors, the gain from the division of labor β, and the technology parameter γ. In addition, utility has a U-shaped relationship with the share of final good 1 in expenditure, θ.

[4] Indeed, another possible way of setting up the model would be to specify the production technology of intermediate inputs as in Krugman (1980); as noted in the Introduction, this would yield the model in Ethier (1982).

4 International trade

When international trade is allowed, both intermediate inputs and final goods can be freely traded across countries. Proposition 1 (proved in Appendix B) shows that both countries are always specialized in their comparative advantage final goods in free trade:

Proposition 1: In free trade, Home is specialized in final good 1 and Foreign is specialized in final good 2.

Making use of the results in the previous sections and solving for the production functions (2) and (5) gives:

$$Q_{1H} = \left(\frac{\gamma\theta}{r}\right)(rL_H + rL_F)^{\beta+1} \tag{12}$$

$$Q_{2F} = \frac{\gamma(1-\theta)}{r}(rL_H + rL_F)^{\beta+1} \tag{13}$$

Production of each final good uses intermediate goods produced in both countries, and consumers wish to consume both final goods. Hence international trade occurs in both intermediate and final goods[5].

Since preferences are homothetic and identical across countries, each country will consume a fraction of the total output of each final good which is proportional to its relative size. Hence, the Home consumer's utility under free trade is:

$$U_H^{FT} = \gamma(rL_H + rL_F)^{\beta}\theta^{\theta}(1-\theta)^{1-\theta} \tag{14}$$

Define the gains from trade as the ratio between free trade (14) and autarkic utility (11). The gains from trade for the Home country are:

$$G_H = \frac{U_H^{FT}}{U_H^A} = \left(\frac{L_H + L_F}{L_H}\right)^{\beta}\gamma^{1-\theta} > 1 \tag{15}$$

Hence there are gains from trade, which arise from two sources. First, international trade leads to more intermediate goods being available, which leads to greater division of labor. Second,

[5] If trade in intermediate goods is defined to be intra-industry trade, while trade in final goods is inter-industry, then the model predicts both inter- and intra-industry trade.

international trade allows the two countries to specialize in their comparative advantage final goods. The following comparative statics results can be shown:

$$\frac{dG_H}{dL_H} < 0 \qquad \frac{dG_H}{dL_F} > 0 \qquad \frac{dG_H}{d\beta} > 0 \tag{16a}$$

$$\frac{dG_H}{d\gamma} > 0 \qquad \frac{dG_H}{d\theta} < 0 \tag{16b}$$

As might be expected, the gains from trade increase the smaller is the country, or the larger is the trading partner. In fact, from equation (14), it can be seen that utility under free trade depends on the size of the world economy rather than the size of each country, and is identical for both countries. The larger the gains from the division of labor β or the larger the comparative technological advantage in the final good γ, the larger the gains from trade. Similarly, the larger the expenditure share of final good 1, θ, the smaller the gains from trade, since Home has comparative advantage in good 1.

It is possible to decompose the total gains from trade into the component derived from comparative advantage in final goods production and the component derived from the division of labor. To obtain the Home country's gains from trade based on comparative advantage alone, set $\beta = 0$ in the gains from trade equation (15) to obtain:

$$G_{CA} = \gamma^{1-\theta} \tag{17}$$

Similarly, set $\gamma = 1$ in equation (15) to obtain the Home country's gains from trade based on the division of labor alone:

$$G_{DL} = \left(\frac{L_H+L_F}{L_H}\right)^{\beta} \tag{18}$$

Then, we get:

$$G_H = G_{CA} \times G_{DL} \tag{19}$$

Note from equation (17) that the gain from comparative advantage is independent of country sizes, whereas from equation (18) the gain from the division of labor increases the smaller is the country relative to its trading partner. Hence the primary source of the gains from trade for small countries is the division of labor, while for large countries it is comparative advantage. We have:

Proposition 2: The smaller is a country relative to its trading partner, the greater the importance of the division of labor relative to comparative advantage as a determinant of the gains from trade.

5 Trade in intermediate and final goods

As noted in Section 2 above, the two countries are symmetric in every way except one: their size. Similarly, the two final goods and all intermediate goods are also symmetric in every way, and assembly of final goods from intermediate goods is costless. As a result, the total value of intermediate goods output is equal to the total value of final goods output, and the two final goods are produced in proportion to the parameters of the Cobb-Douglas utility function and have equal prices. However, with homothetic preferences, the larger country will consume a larger fraction of each final good, in direct proportion to the country's size. As a result, if trade is balanced, the share of the final good in a country's exports will be negatively related to the country's size, while the share of intermediate goods will be positively related to the country's size.

To make this more concrete, the value of Home's exports of the final good is:

$$\frac{L_F}{L_H+L_F}P_1Q_1 = \frac{L_F}{L_H+L_F}P_1\left(\frac{\gamma\theta}{r}\right)(rL_H+rL_F)^{\beta+1} = L_FP_1\gamma\theta(rL_H+rL_F)^{\beta} \tag{20}$$

Where P_1 is the price of good 1. Recall from equation (7) that a fraction $1-\theta$ of each Home-produced intermediate good is used in the production of final good 2, which is produced in Foreign. The value of Home's exports of intermediate goods is:

$$(1-\theta)p_Hq_Hn_H = (1-\theta)p_HL_H \tag{21}$$

Where p_H is the price of each intermediate good. The price of each intermediate good does not depend on the country's size. Since we have assumed in Section 2 above that wage rates are equal across countries, the prices of intermediate goods are also the same across countries and can be normalised to 1. However, the price of the final good does depend on the country's size, since a larger country implies more intermediate goods and hence lower production cost through greater division of labor. The relative price of the final good can be obtained from the assumptions that assembly of the final goods is costless and profits are zero, so the value of final good output is equal to the value of the intermediate inputs used in its production.

The value of Home's final good output in free trade is, from equation (12):

$$P_1 Q_{1H} = P_1 \left(\frac{\gamma\theta}{r}\right)(rL_H + rL_F)^{\beta+1} \tag{22}$$

While the value of the intermediate inputs used in its production is, substituting from equation (7):

$$p_H(n_H + n_F)x_{1H} = p_H(rL_H + rL_F)\theta q_H = \ p_H(rL_H + rL_F)\left(\frac{\theta}{r}\right) \tag{23}$$

Setting equations (22) and (23) equal to one another, and making use of $p_H = 1$ gives the price of the Home-produced final good as a function of the endowments:

$$P_1 = \left[\gamma(rL_H + rL_F)^{\beta}\right]^{-1} \tag{24}$$

Substituting this into the value of Home's exports of the final good (20) and simplifying gives:

$$\theta L_F \tag{25}$$

Hence, combining this with equation (21), Home's exports of the final good as a share of Home's total exports is:

$$\theta L_F[\theta L_F + (1-\theta)L_H]^{-1} \tag{26}$$

Differentiating this expression with respect to L_H gives the relationship between the share of final goods exports and country size:

$$\frac{d}{dL_H} = \ -L_F\theta(1-\theta)[\theta L_F + (1-\theta)L_H]^{-2} < 0 \tag{27}$$

Since trade is assumed to be balanced, this gives:

Proposition 3: There is a negative relationship between country size and the share of final goods in its exports, and a positive relationship between country size and the share of intermediate goods in its exports.

We take this prediction of the model to data for all available countries from the UN Comtrade database, using data for 2010. We make use of the Broad Economic Categories (BEC) classification which divides industries into capital goods, intermediate goods, consumption goods, and "unclassified" (see United Nations (2002) for details of the classification). For our analysis, we drop the "unclassified" category before calculating the share of each type of good in total exports[6]. Our sample consists of 134 countries, and in the sample, the share of consumption goods in total exports is 26.3%, while the share of intermediate goods is 65.6%, and the share of

[6] Including the "unclassified" category leads to similar results to those reported below.

capital goods is 8.1%. We obtain GDP in real PPP and real US dollar terms and population from the World Development Indicators of the World Bank. Figure 1 shows a scatterplot of the consumption goods share of total exports and the natural log of GDP in PPP terms; there is a clear negative relationship between the two variables, as predicted by Proposition 3 (corr = -0.185 with a p-value of 0.037).

Table 1 reports the results of a regression analysis of the relationship between the consumption share of exports and country size. Country size is measured using one of the three measures above: GDP in real PPP and real US dollar terms, and population, all in natural logs. A series of bivariate regressions is reported with these three measures in Panel A of Table 1, with heteroskedastic-robust standard errors. All the size measures are negatively and significantly related to the consumption share of exports.

It is possible that the relationship between country size and the consumption share of exports is different for different groups of countries. Panel B of Table 1 reports results of the same regressions, this time including a dummy for the OECD and an interaction term between this dummy and the size measure. The OECD dummy and the interaction term are never significantly related to the consumption share of exports, and inclusion of these variables does not change the negative relationship between country size and the consumption share of exports. Finally, Panel C of Table 1 reports results including continent dummies. Once again this does not change the negative relationship between country size and the consumption share of exports.

Of course, what Table 1 shows is that country size and the consumption share of exports are negatively related; it does not imply that one causes the other, or indeed that the model proposed in this paper is the "true" explanation for the observed patterns in the data. What it does suggest, however, is that the model's prediction with respect to the relationship between country size and the consumption share of exports is at least consistent with the empirical evidence.

6 Conclusions

This paper develops a model of international trade based on the division of labor and comparative advantage, going beyond the usual assumption of external scale economies to clarify the implications of the division of labor. Unlike most of the prior literature, the model is perfectly competitive throughout. The extent of the division of labor is determined by the size of the market, whereas the gains from international trade arise from the division of the production process into increasing numbers of stages and from comparative advantage in final goods. It is shown that large countries gain relatively more from comparative advantage than from the division of labor, whereas the opposite is true for small countries. Countries exchange intermediate inputs which are used in the production of final goods, which are then traded with each other. In addition, the model predicts that larger countries will have a smaller share of consumption goods in their exports, and a larger share of intermediate goods. These predictions find supportive evidence from the UN Comtrade database.

The model developed in this paper relies quite heavily on several strong assumptions, especially those regarding the production of intermediate inputs and their prices. As discussed in the paper, these assumptions help sidestep some analytically difficult issues. Future work will address these issues directly, as well as developing a more general approach that would be amenable to the analysis of related issues such as trade costs. Nevertheless, it is hoped that the present paper helps to shed some light on the role of the division of labor, and the relationship between the division of labor and comparative advantage, in international trade.

Appendix A: The autarkic equilibrium

To obtain the autarkic equilibrium for the Home country, set the slope of the PPF equal to the slope of the indifference curve. From the Cobb-Douglas utility function (1), the slope of the indifference curve is:

$$\frac{P_{1H}}{P_{2H}} = \frac{\theta}{1-\theta}\frac{C_{2H}}{C_{1H}} \tag{A1}$$

To derive the PPF, first note that because of constant returns to scale in the production of intermediate goods,

$$\frac{x_{1H}}{x_{1H}+x_{2H}} = \frac{L_{1H}}{L_{1H}+L_{2H}} \tag{A2}$$

Where L_{1H} and L_{2H} are the total labor used in the Home country in producing the intermediate inputs used in goods 1 and 2. Rearranging and substituting into the production functions, noting that in autarky, $x_{1H} + x_{2H} = q_{iH}$ and $L_{1H} + L_{2H} = L_H$, we have:

$$Q_1 = \gamma n_H^{\beta+1}\left(\frac{q_{iH}}{L_H}\right) L_{1H} \qquad \text{and} \qquad Q_2 = n_H^{\beta+1}\left(\frac{q_{iH}}{L_H}\right) L_{2H} \tag{A3}$$

Hence:

$$L_{1H} = \frac{L_H Q_{1H}}{q_{iH}\gamma n_H^{\beta+1}} \qquad \text{and} \qquad L_{2H} = \frac{L_H Q_{2H}}{q_{iH} n_H^{\beta+1}} \tag{A4}$$

Hence the equation of the PPF is:

$$L = L_1 + L_2 = \frac{L_H Q_{1H}}{q_{iH}\gamma n_H^{\beta+1}} + \frac{L_H Q_{2H}}{q_{iH} n_H^{\beta+1}} \tag{A5}$$

Rearranging in terms of Q_{2H}:

$$Q_{2H} = q_{iH} n_H^{\beta+1} - \frac{Q_{1H}}{\gamma} \tag{A6}$$

The slope of the PPF, which is also the no-trade relative price of good 1, is:

$$-\frac{dQ_{2H}}{dQ_{1H}} = \frac{P_{1H}}{P_{2H}} = \frac{1}{\gamma} \tag{A7}$$

Setting this equal to the slope of the indifference curve (A1), making use of the fact that in autarky $C_{1H} = Q_{1H}$ and $C_{2H} = Q_{2H}$, and substituting from the production functions (A3) gives the relationship between x_{1H} and x_{2H}:

$$x_{1H} = \frac{\theta}{1-\theta} x_{2H} \tag{A8}$$

Making use of $x_{1H} + x_{2H} = q_{iH}$ gives:

$$x_{1H} = \theta q_{iH} \qquad\qquad x_{2H} = (1-\theta) q_{iH} \tag{A9}$$

Which is equation (7) in the text.

Appendix B: Proof that both countries always specialize in free trade

The proof involves comparing the no-trade relative prices of the final goods in the two countries with the free trade relative price. From the consumer's first order condition we have:

$$\frac{P_1}{P_2} = \frac{\theta}{1-\theta}\frac{C_2}{C_1} \tag{B1}$$

With both final goods being produced in autarky, the no-trade relative price in Home and Foreign is (see Appendix A):

$$\left(\frac{P_1}{P_2}\right)_H^A = \frac{1}{\gamma} \qquad \left(\frac{P_1}{P_2}\right)_F^A = \gamma \tag{B2}$$

While the free trade relative price is, given the symmetry of the two countries:

$$\left(\frac{P_1}{P_2}\right)^{FT} = 1 \tag{B3}$$

The following relationships always hold if $\gamma > 1$ as assumed in the text:

$$\left(\frac{P_1}{P_2}\right)_F^A > \left(\frac{P_1}{P_2}\right)^{FT} > \left(\frac{P_1}{P_2}\right)_H^A \tag{B4}$$

That is, the free trade relative price always lies strictly between the no-trade relative prices in the two countries. Combining this with the fact that the production possibilities frontier is a straight line (see Section 3 and Appendix A), profit maximisation by firms will ensure that in free trade the Home country specializes in good 1 while the Foreign country specializes in good 2.

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Table 1: The relationship between the consumption share of exports and country size. Dependent variable = consumption goods share of exports

Panel A: Basic regressions			
Size variable	ln(GDP, constant PPP)	ln(GDP, constant US$)	ln(pop)
	(1)	(2)	(3)
Country size	-0.017	-0.014	-0.026
	(0.007)**	(0.006)**	(0.011)**
R^2	0.04	0.03	0.07
N	127	128	134

Panel B: OECD dummy			
Country size	-0.020	-0.018	-0.027
	(0.009)**	(0.009)**	(0.009)**
OECD = 1	0.106	0.151	-0.166
	(0.379)	(0.343)	(0.295)
OECD * Size	-0.003	-0.004	0.010
	(0.014)	(0.013)	(0.018)
R^2	0.04	0.04	0.07
N	127	128	134

Panel C: Continent dummies			
Country size	-0.018	-0.017	-0.021
	(0.007)**	(0.006)**	(0.012)*
Continent dummies	Yes	Yes	Yes
R2	0.11	0.11	0.10
N	127	128	134

Notes: Figures in parentheses are heteroskedastic-robust standard errors. *** Significant at 1%; ** significant at 5%; * significant at 10%. All results include an unreported constant. Estimation method is OLS.

Figure 1: Scatterplot of consumption goods as a share of total exports against GDP.