Markups versus Trade Costs

Hakan Yilmazkuday*

Abstract

Introducing and estimating a class of monopolistically competitive models using data on international trade, we compare the implications of having constant versus variable markups across importers. The main innovation, which makes the overall analysis very simple and tractable, is that, when trade implications are estimated, having cases of constant versus variable markups is reduced to using quantities in logs versus levels on the left hand side of the estimated equations, where the right hand sides are exactly the same; i.e., constant markups correspond to log-linear regressions, while variable markups correspond to lin-log regressions. For the median good, variable markups imply higher welfare gains from reducing trade costs compared to constant markups. The results are mostly driven by the decomposition of the deviations from the Law of One Price across destination countries, where the contribution of trade costs is estimated higher in the case of variable markups.

JEL Classification F12, F13, F14

Key Words: Functional Separability; Variable Markups; Trade Costs; Price Elasticity of Demand; Income Elasticity of Demand.

*Department of Economics, Florida International University, Miami, FL 33199, USA; e-mail: hyilmazk@fiu.edu

1. Introduction

The concept of trade costs is the key in shaping international trade policy. Since there are not any clear-cut data for trade costs, literatures on international trade and international finance have attempted estimating them properly through various modeling approaches, such as using gravity-type equations (that can be connected to constant-elasticity-of-substitution functions as in Anderson, 1979), analyzing the implications of relative-price differences, etc. Especially when the demand of an importer is investigated through destination prices, it is hard to distinguish between marginal costs of production at the source, markups at the source, and trade costs between source and destination countries, because the identification of these variables highly depend on the modeling assumptions. As a result of these assumptions, if trade costs are overestimated (underestimated), the welfare gains from reducing trade costs may be overestimated (underestimated) as well.

Since any welfare analysis highly depends on the modeling assumptions, it is essential to consider a class of models rather than a single model. Accordingly, this paper contributes to our understanding of different modeling strategies by considering a class of Chamberlinian monopolistic competition models categorized according to the functional separability of the first-order conditions for utility maximization. Following Behrens and Murata (2007), the two functional separability properties we consider are the multiplicatively quasi-separable (MQS) case and the additively quasi-separable (AQS) case; MQS corresponds (one to one) to a utility function in the form of constant relative risk aversion, AQS corresponds (one to one) to a utility function in the form of constant absolute risk aversion. Using these utility functions, we separately model the trade implications of MQS and AQS cases. Both cases imply the very same price elasticity of demand when the elasticity is expressed in terms of source prices and marginal costs, and they imply the very same gross markup when the markup is expressed in terms of the price elasticity of demand. However, the pricing decision at the source country changes with respect to the assumptions employed by MQS versus AQS cases; therefore, the calculation of price elasticity of demand and markups results in different values across these cases. In particular, we find that the case of MQS implies a constant price elasticity of demand (at the destination) and thus a constant markup across importers (at the source) and that the case of AQS implies a variable price elasticity of demand (decreasing with the quantity traded) and thus a variable markup (increasing with quantity traded) across importers.

Using the NBER-UN data covering bilateral trade between 171 countries for 749 good categories, we estimate the trade patterns and the deviations from the Law of One Price (LOP) for both MQS and AQS cases. The estimation results show that the contribution of trade costs to the deviations from LOP are much higher in the case of AQS, corresponding to higher welfare-improving effects of reducing trade costs when (inverse of) prices are accepted as a measure of welfare (in the absence of a cardinal theory of utility). As an additional investigation, we also consider a cardinal theory of utility to employ a welfare analysis at the good level and show that the median (across goods and countries) elasticity of utility with respect to trade costs in the case of AQS is much higher than the median (across goods) elasticity-of-utility measure in the case of MQS. Therefore, for the median good, the implied welfare gains due to reducing trade costs are higher in the case of AQS featuring variable markups. Such a good-level investigation is also the key in shaping the free-trade agreements, where negotiations are mostly achieved at the good/industry level.[1]

The rest of the paper has been organized as follows. The next section connects this paper to the existing literature. Section 3 introduces the economic environment by considering the cases of

[1] To understand the importance of a good-level analysis better, consider "The Office of Trade and Industry Information" as part of the International Trade Administration of the U.S. that seeks to provide a solid foundation of trade and industry data to support the development of national trade policies (http://www.trade.gov/mas/ian/).

MQS versus AQS. Section 4 depicts the methodology and data used in the estimation. Section 5 discusses the estimation results and connects them to the corresponding results in the literature. Section 6 investigates the deviations from LOP. Section 7 shows the trade-policy implications of the two cases (of MQS and AQS) by achieving a welfare analysis. Section 8 investigates the implications of having MQS versus AQS cases on other elasticity measures and on differences across goods. Section 9 concludes.

2. Literature

This paper best fits into the discussion based on the nature of elasticities in monopolistically competitive markets (i.e., price elasticity of demand or elasticity of substitution), since they are directly connected to estimated/implied trade costs. For example, the literature on international trade, focusing on understanding the trade patterns or the relation between quantity traded and prices charged/paid, has mostly focused on constant elasticities, because they imply very nice log-linear expressions to be easily estimated by gravity-type regressions. On the other hand, the literature on international finance has focused on understanding the relative price differences (and their implications) across countries/regions, and accordingly, they have considered models with (mostly ad-hoc) non-constant elasticities (through parameter heterogeneity) to match the price data best.

Going into more details, one of the most successful strategies in the international trade literature has been using the constant elasticity of substitution (CES) models because of their analytical tractability due to the profit maximization of the firms resulting in constant markups over marginal costs. Such a simple strategy is very useful in investigating issues like imperfect competition and/or increasing returns in international trade studies starting with Dixit and Stiglitz (1977) and continuing with studies of new trade theory such as Dixit and Norman (1980), Krugman (1980), and Helpman and Krugman (1985), and with studies of new economic geography such as Krugman (1981) and Fujita et al. (1999). Following Behrens and Murata (2007), this paper shows that the case of MQS (that one-to-one corresponds to a utility function in the form of constant relative risk aversion) has the very same markup implication as in CES models; i.e., constant markups over marginal costs. The main empirical advantage of having constant markups (over marginal costs) is that they imply easy-to-estimate trade expressions (e.g., in log linear terms as in most gravity-type regressions) when data for trade (in quantities) are available. Within this picture, as Arkolakis et al. (2012a) have shown, the welfare gains from trade are identical in a large class of trade models (mostly) based on CES assumptions, including Armington (1969), Krugman (1980), Eaton and Kortum (2002), Melitz (2003) and Bernard et al. (2003). Independent of their micro details, the main disadvantage of these models is that they eventually connect everything to estimated trade costs after aggregation (e.g., across firms) because of their markup structure, which is either constant or depending only on differences in marginal costs of producers (rather than considering heterogeneity in preferences of destination countries). Then the question is "What if these studies are underestimating (overestimating) trade costs due to their markup structure?"; in such a case, reducing trade costs would imply lower (higher) welfare gains. Hence, what if we relax the assumption of having a CES utility function?

The theoretical consideration of non-CES utility functions (implying variable markups) is not new in international trade studies (or in this paper).[2] Nevertheless, in their general-equilibrium setup, Arkolakis et al. (2012b) have recently shown in theory that, under certain assumptions regarding the supply side (which are not employed in this paper to avoid restricting the analysis),

[2]See Dixit and Stiglitz (1977), Krugman (1979), Feenstra (2003), Ottaviano et al. (2002), Behrens and Murata (2007), Melitz and Ottaviano (2008), Saure (2009), Dhingra and Morrow (2012), and Zhelobodko et al. (2012).

many variable-markup models imply the very same aggregate-level welfare gains of reducing trade costs for all goods at the same time, which are lower compared to the corresponding gains obtained from CES utility functions. In contrast, in this paper, we employ an investigation at the good-level (rather than an aggregate-level) through a partial-equilibrium framework, which is important for industry-level trade policies as is the case in many trade-agreement negotiations; influential theoretical contributions such as Arkolakis et al. (2012a) and (2012b) are silent on this subject, because they focus on the aggregate-level welfare implications through (infinitesimal) changes in trade costs for all goods at the same time.

The empirical usage of variable-markup models in understanding the gains from trade is mostly new.[3] Edmond et al. (2012) is only one of them questioning the implication of constant (or zero) markups in international trade studies, and, by using a very detailed calibrated (rather than estimated) analysis extending the variable-markup model of Atkeson and Burstein (2008), they have shown that variable markups imply much higher welfare gains when trade costs are reduced, because trade reduces markups through increasing competition. Instead of having such a complicated/calibrated analysis, the simple estimation and welfare analyses of MQS and AQS cases in this paper show that trade costs are underestimated when constant markups are considered, implying lower welfare gains when trade costs are reduced. Since variable markups in the case of AQS is shown to be positively related with quantity traded, the mechanism introduced by Edmond et al. (2012) is simply embedded in our variable markups through quantities in this paper, because higher competition (i.e., an increase in the number of producers/varieties) would practically reduce quantity sold by each producer (i.e., by each source country in this paper or by each firm in Edmond et al., 2012), which, in turn, would reduce markups in a very simple and tractable way.

De Loecker et al. (2012) have another empirical study focusing on variable markups. They

[3]See Behrens et al. (2009) and Behrens and Murata (2009).

show (by estimating marginal costs of production under certain assumptions) that the input tariff liberalization in India has reduced the marginal costs of production; however, the prices have not reduced much due to firms offsetting their reductions in marginal costs by raising markups. Therefore, they focus on the negative relation between marginal costs of production and markups. Since variable markups in the case of AQS is shown to be positively related with quantity traded in this paper, the mechanism introduced by De Loecker et al. (2012) is also embedded in our variable markups through quantities in this paper, because lower marginal costs would practically increase quantity sold, which, in turn, would increase markups in a very simple and tractable way.

Feenstra and Weinstein (2010) have also considered variable markups implied by translog preferences. In the translog case, the price elasticity of demand is shown to be inversely related to a product's market share, which can be connected to the price elasticity of demand decreasing in quantities traded in the AQS case of this paper. When it comes to application though, Feenstra and Weinstein have shown that the magnitude of the welfare gains for only one economy (i.e., the U.S.) in a translog setup is similar to that obtained by assuming CES preferences. In contrast, in this paper, by considering the bilateral trade relations of 171 economies at the good level, we show that having variable markups through the AQS case results in welfare gains that are much higher than the implications of the CES case for the median good.

Constant markups have also been criticized by the international finance literature that they cannot match the data on international price differences, especially when exporters price discriminate across importers (as recently documented by Alessandria and Kaboski, 2011, using highly disaggregated U.S. exports price data). Accordingly, one of the most successful strategies in the international finance literature has been nesting CES models such that markups become variable (i.e., non-constant) under monopolistic competition. Studies such as Helpman and Krugman (1985), Lapham (1995), Bergin and Feenstra (2001), Alessandria (2004), Corsetti and Dedola

(2005), Hellerstein (2006), Simonovska (2009), among many others, have all investigated international price differences using monopolistically competitive models with non-constant elasticities of demand. Most of these studies, including Atkeson and Burstein (2008), have focused on explaining exporters not fully passing through changes in their marginal costs to their prices. Following Behrens and Murata (2007), this paper shows that the markups in the case of AQS (that one-to-one corresponds to a utility function in the form of constant absolute risk aversion) move in the same direction with quantities sold; therefore, when marginal costs go up, since quantity sold will go down due to the negatively-sloped demand, markups in the case of AQS will also go down, which is consistent with exporters not fully passing through changes in their marginal costs to their prices.

Considering the literature review achieved so far, one may think that international finance studies have done a better job, because by considering the possibility of variable markups, they are able to explain international price differences in a much better way. Nevertheless, since their main focus has been explaining the price differences, they have not focused on modeling or explaining trade patterns at the same time. In fact, there are mostly (ad hoc or reduced-form) empirical studies (without any optimization background) that have used data on both quantity and prices of international trade. The main reason for the scarcity of such studies that both model and explain the relation between quantities and prices is having complicated trade expressions (that are hard to estimate) when CES functions are nested for the unique purpose of explaining international price differences. Some exceptions are studies such as by Kee et al. (2008), Hummels and Lugovskyy (2009), and Yilmazkuday (2011) who have explained price-elasticity differences simply by allowing them to change across importers due to quantities traded in an ad-hoc way. However, this strategy is practically equivalent to explaining everything with heterogeneity in parameters, which may be biased[4], because the mentioned studies show estimated price elasticities changing with the income or development level of the importer countries. Instead, the main objective should be to endogenize price elasticities (as in our case of AQS) if they are believed to be different across importers. In contrast to the existing literature that either deals with such complicated/nested models or explains everything with parameter heterogeneity, this paper, which covers the implications (e.g., stylized facts) of a class of monopolistically-competitive models used in both international trade and finance literatures, shows that the trade and LOP implications of both MQS and AQS cases can be estimated by very similar and simple expressions when data on quantity and prices are available. In particular, we show that the only difference between estimated trade expressions is having quantities in logs in the case of MQS versus having quantities in levels in the case of AQS on the left hand side of the estimated expressions, where the right hand side of the estimated expressions (having gravity-type variables) are exactly the same for the two cases; i.e., constant markups correspond to log-linear regressions, while variable markups correspond to lin-log regressions. For the estimation regarding the deviations from LOP, having constant versus variable markups reduces to decomposing FOB (free on board) export prices (at the dock of the exporter) into marginal costs and markups when such export prices are observed. Nevertheless, when border costs are also included into the picture to obtain destination (rather than FOB) prices, the overall contribution of trade costs to the deviations from LOP are depicted in a clear way by comparing the implications across MQS and AQS cases.

In sum, the class of models considered in this paper cover the implications of many international

[4]Biased results come into picture when such importer-specific parameters are assumed to be constant/given when quantities traded change due to, say, changes in trade costs. This paper (i.e., the case of AQS) shows that such importer-specific parameters may depend on the quantity traded; hence, they may change when there is a change in trade costs.

trade and finance studies in the literature. This is achieved simply by distinguishing between utility functions in the forms of constant relative risk aversion versus constant absolute risk aversion, rather than by using complicated/nested models as in the literature. If many trade models already have the very same aggregate-level implications under certain conditions, as advocated by Arkolakis et al. (2012a, 2012b), what is the point of getting into unnecessary technical details at the micro level in the first place if the ultimate goal is to have a policy analysis at the aggregate-level or industry-level?

Nevertheless, despite its empirical innovations, simplicity, and tractability, we accept that our model/approach is not without caveats: in terms of the tractability of the channels of welfare gains, having a partial-equilibrium investigation simply ignores the underlying mechanisms of pro-competitive effects (as in Arkolakis et al., 2012b) or changes in marginal costs of production (as in De Loecker et al., 2012) due to reducing trade costs, although such effects are simply captured by the implications of the utility-function specification in the case of AQS (as discussed in details, above). Another caveat is that when it comes to the selection of the best model, the results of this paper are silent, but the implications of the AQS case match much better with other independent international finance studies (as discussed above) together with other independent international trade studies considering income-elasticity differences across goods and countries (in order to explain the relation between trade and income, as in the example of the Great Trade Collapse), because the case of AQS implies variable income elasticities as well, while the case of MQS implies a unitary income elasticity, independent of the good or country considered. Therefore, we believe in the welfare implications (of reducing trade costs) suggested by the case of AQS, which are much higher than the implications of the MQS case for the median good. Since MQS represents the majority of the international trade literature and the implied welfare gains for the median good are much higher in the case of AQS, we can safely claim that our welfare results for the median good (obtained by the case of AQS) are significantly higher in magnitude compared to the existing literature on international trade.

3. Model

The multi-good partial-equilibrium model is populated by countries that trade between each other. Each destination country maximizes its utility obtained by goods imported from other countries. Each source country maximizes its profits by following a pricing-to-market strategy. Since we do not have/use any production data, to keep the model as simple as possible, we only focus on the trade implications of having multiplicatively quasi-separable (MQS) versus additively quasi-separable (AQS) inverse function of marginal utility. This partial-equilibrium modeling strategy has resulted in having mostly a demand-side analysis (as is the case in even the most-influential gravity equations modeled by Anderson, 1979, and Anderson and van Wincoop, 2003), which is simple but good enough to compare the welfare implications of having MQS versus AQS cases.

We model the utility of the destination countries at the good level to avoid any further assumptions for the aggregation across goods. Accordingly, a typical destination country d has the following utility U_d^g maximization out of consuming varieties of good g coming from different source countries, each denoted by s :

$$\max U_d^g = \sum_s u_{ds}^g \left[q_{ds}^g \right] \tag{3.1}$$

subject to

$$\sum_s p_{ds}^g q_{ds}^g = E_d^g \tag{3.2}$$

where q_{ds}^g is the quantity of products imported from country s, p_{ds}^g is the price of q_{ds}^g at the destination (i.e., country d), E_d^g is the total expenditure of country d on good g, and brackets [.] stand for "is a function of". The maximization problem results in the following demand function in its general form:

$$q_{ds}^{g} = \psi_{ds}^{g} \left[\left(\psi_{ds}^{g} \right)^{-1} \left[q_{ds'}^{g} \right] \frac{p_{ds}^{g}}{p_{ds'}^{g}} \right] \tag{3.3}$$

where $\psi_{ds}^{g} = \left[(u_{ds}^{g})' \right]^{-1}$ is the inverse function of marginal utility, and $q_{ds'}^{g}$ and $p_{ds'}^{g}$ are the quantity and price of good g imported from country s'.

3.1. Multiplicatively Quasi-Separable Case

If ψ_{ds}^{g} satisfies the following separability property:

$$\psi_{ds}^{g} [xy] = \psi_{ds}^{g} [x] \times f_{ds}^{g} [y]$$

where f_{ds}^{g} is assumed to be continuously differentiable and strictly monotone, then we will call it multiplicatively quasi-separable (MQS) as in Behrens and Murata (2007) who show that the only utility function that can satisfy this separability property is in constant relative risk aversion form (CRRA), which, in this paper, is given as follows:

$$u_{ds}^{g} [q_{ds}^{g}] = \chi_{ds}^{g} \left(q_{ds}^{g} \right)^{\theta^{g}} \tag{3.4}$$

where $\theta^{g} > 0$ represents a good-g-specific taste parameter, and χ_{ds}^{g} represents a source-destination-good-specific taste parameter capturing utility due to quality (as in Hummels and Klenow, 2005) and disutility due to slow delivery of a product (as in Hummels and Schaur, 2012):

$$\chi_{ds}^{g} = \frac{\kappa_{s}^{g}}{\left(D_{ds} \right)^{\delta_{u}^{g}}} \tag{3.5}$$

where κ_{s}^{g} represents the quality of good g produced in source country s, and $\left(D_{ds} \right)^{\delta_{u}^{g}} > 0$ represents time-to-trade, with D_{ds} representing the distance as a proxy for time-to-trade and δ_{u}^{g} is the elasticity of utility with respect to time-to-trade.[5] We assume the very same functional form of utility across

[5] For sure, when it comes to the empirical investigation, D_{ds} may well capture any other distance-related effects that are embedded in the preferences (e.g., distance-related search costs). In any case, as we will show below, the

importers on purpose, because we would like to avoid explaining trade patterns by parameter heterogeneity. Using this function, the demand in Equation 3.3 can be obtained as follows:

$$q_{ds}^{g}=E_{d}^{g}\left(\frac{\chi_{ds}^{g}}{p_{ds}^{g}}\right)^{\frac{1}{1-\theta^{g}}}\left(\sum_{s'}\frac{\left(\chi_{ds'}^{g}\right)^{\frac{1}{1-\theta^{g}}}}{\left(p_{ds'}^{g}\right)^{\frac{\theta^{g}}{1-\theta^{g}}}}\right)^{-1} \tag{3.6}$$

According to Equation 3.6, after assuming that individual source countries have negligible impact on the destination price aggregates, the (absolute value of) price elasticity of demand ε_{ds}^{g} can be obtained as follows:

$$\varepsilon_{ds}^{g}=-\frac{p_{ds}^{g}}{q_{ds}^{g}}\frac{\partial q_{ds}^{g}}{\partial p_{ds}^{g}}=\frac{1}{1-\theta^{g}} \tag{3.7}$$

which is good specific (i.e., $\varepsilon_{ds}^{g}=\varepsilon^{g}$ for all d,s) and independent of the quantity purchased. Regarding the elasticity of substitution σ_{ds}^{g} across varieties of a good, the substitutability of good g imported from source country s for good g imported from source country s' is given by:

$$\sigma_{ds}^{g}\left(q_{ds}^{g},q_{ds'}^{g}\right)=\frac{d\ln\left(\frac{q_{ds}^{g}}{q_{ds'}^{g}}\right)}{d\ln\left(\frac{dU_{d}^{g}}{dq_{ds'}^{g}}\Big/\frac{dU_{d}^{g}}{dq_{ds}^{g}}\right)}=\frac{1}{1-\theta^{g}}$$

As is evident, due to our assumption of individual source countries having negligible impact on the destination price aggregates, the expressions for the elasticity of substitution and the price elasticity of demand are exactly the same; therefore, the case of MQS in fact represents models based on constant-elasticity-of-substitution assumption.

Considering Equation 3.6, each source country s follows a pricing-to-market strategy by maximizing the profit out of sales to country d:

$$\pi_{ds}^{g}=q_{ds}^{g}\left(p_{ds}^{g*}-c_{ds}^{g}\right)$$

where c_{ds}^{g} is the destination-and-good-specific marginal cost of production in country s (including the costs regarding the quality κ_{s}^{g} of good g produced in country s), and p_{ds}^{g*} is the price of q_{ds}^{g} at

good category of "Eggs" has the highest δ_{u}^{g} estimate (i.e., it is the good affected most by time as a trade barrier), mostly due to its perishable nature.

the source (i.e., country s) satisfying:

$$p_{ds}^{g} = p_{ds}^{g*} \tau_{ds}^{g} \tag{3.8}$$

where τ_{ds}^{g} represents the gross trade costs from source s to destination d for good g, and it is further defined as:

$$\tau_{ds}^{g} = (D_{ds})^{\delta_{\tau}^{g}} b_{ds}^{g} \tag{3.9}$$

where $(D_{ds})^{\delta_{\tau}^{g}}$ represents freight costs (with D_{ds} being the distance and δ_{τ}^{g} being good-specific elasticity of trade costs with respect to distance), and b_{ds}^{g} represents source-and-destination-and-good-specific (gross) border costs (e.g., tariff rates or gravity-type variables other than distance).[6]

The profit maximization problem results in the following pricing strategy:

$$p_{ds}^{g*} = \frac{c_{ds}^{g}}{\theta^{g}} \tag{3.10}$$

which implies that the price elasticity of demand (in Equation 3.7) can be rewritten as:

$$\varepsilon_{ds}^{g} = \frac{p_{ds}^{g*}}{p_{ds}^{g*} - c_{ds}^{g}} = \frac{1}{1 - \theta^{g}} \tag{3.11}$$

and that the gross markup denoted by μ_{ds}^{g} can be written as:

$$\mu_{ds}^{g} = \frac{\varepsilon_{ds}^{g}}{\varepsilon_{ds}^{g} - 1} = \frac{1}{\theta^{g}} \tag{3.12}$$

which is good-specific (i.e., $\mu_{ds}^{g} = \mu^{g}$ for all d, s) and hence common across (source and destination) countries according to Equation 3.10.

[6] We are well aware that our definition of trade costs is very simple; however, it is good enough for the empirical analyis that we will have, below, where our data set distinguishes between FOB exporter prices and CIF importer prices. We will also treat b_{ds}^{g}'s as a part of the residuals in our investigation using the trade implications of our model. One can easily extend this analysis by including other gravity-type variables into our trade-cost expression, but investigating such variables/costs is simply not the focus of this paper.

Using Equations 3.5, 3.8, and 3.9, we can rewrite Equation 3.6 as follows:

$$q_{ds}^{g} = \frac{E_{d}^{g} \left(\kappa_{s}^{g}\right)^{\frac{1}{1-\theta^{g}}}}{\left(p_{ds}^{g*} \left(D_{ds}\right)^{\delta^{g}} b_{ds}^{g}\right)^{\frac{1}{1-\theta^{g}}}} \left(\sum_{s'} \frac{\left(\chi_{ds'}^{g}\right)^{\frac{1}{1-\theta^{g}}}}{\left(p_{ds'}^{g}\right)^{\frac{\theta^{g}}{1-\theta^{g}}}}\right)^{-1} \tag{3.13}$$

which is one of the expressions we will estimate, below, where we have defined δ^{g} as the elasticity of distance according to:

$$\delta^{g} = \delta_{u}^{g} + \delta_{\tau}^{g} \tag{3.14}$$

The importance of this expression will come into picture when we will distinguish between the effects of distance on quantities versus prices, below. Finally, using Equations 3.8, 3.9, 3.10, and 3.12, the destination price in country d can be rewritten as follows:

$$p_{ds}^{g} = c_{ds}^{g} \mu_{ds}^{g} \left(D_{ds}\right)^{\delta_{\tau}^{g}} b_{ds}^{g} \tag{3.15}$$

which is another equation that we will use during the estimation process, below.

3.2. Additively Quasi-Separable Case

If ψ satisfies the following separability property:

$$\psi_{ds}^{g}\left[xy\right] = \psi_{ds}^{g}\left[x\right] + f_{ds}^{g}\left[y\right]$$

where f_{ds}^{g} is (again) assumed to be continuously differentiable and strictly monotone, then we will call it additively quasi-separable (AQS) as in Behrens and Murata (2007) who show that the only utility function that can satisfy this separability property is in constant absolute risk aversion (CARA) form, which, in this paper, is given as follows:

$$u_{ds}^{g}\left[q_{ds}^{g}\right] = \chi_{ds}^{g} - \chi_{ds}^{g} e^{-\alpha^{g} q_{ds}^{g}} \tag{3.16}$$

where χ_{ds}^g is again given by Equation 3.5. Using this function, the demand in Equation 3.3 can be obtained as follows:

$$q_{ds}^g = \frac{E_d^g - \frac{1}{\alpha^g} \sum_{s'} \ln\left(\frac{p_{ds}^g \chi_{ds'}^g}{p_{ds'}^g \chi_{ds}^g}\right) p_{ds'}^g}{\sum_{s'} p_{ds'}^g} \tag{3.17}$$

Using the definition of taste parameters and trade costs given in Equations 3.5, 3.8 and 3.9 (that are common across MQS and AQS cases), after some simple manipulation, we can rewrite this expression as follows:

$$q_{ds}^g = \left(\frac{E_d^g - \frac{1}{\alpha^g} \sum_{s'} \ln\left(\frac{\chi_{ds'}^g}{p_{ds'}^g}\right) p_{ds'}^g}{\sum_{s'} p_{ds'}^g}\right) + \frac{\ln\left(\kappa_s^g\right)}{\alpha^g} - \frac{\ln\left(p_{ds}^{g*}\right)}{\alpha^g} - \frac{\delta^g \ln\left(D_{ds}\right)}{\alpha^g} - \frac{\ln\left(b_{ds}^g\right)}{\alpha^g} \tag{3.18}$$

which is another expression we will estimate, below, where δ^g is again given by Equation 3.14. According to Equation 3.17, after assuming that individual source countries have negligible impact on the destination price aggregates, the (absolute value of) price elasticity of demand can be obtained as follows:

$$\varepsilon_{ds}^g = -\frac{p_{ds}^g}{q_{ds}^g} \frac{\partial q_{ds}^g}{\partial p_{ds}^g} = \frac{1}{\alpha^g q_{ds}^g} \tag{3.19}$$

which changes with the quantity q_{ds}^g traded. Regarding the elasticity of substitution σ_{ds}^g across varieties of a good, the substitutability of good g imported from source country s for good g imported from source country s' is given by:

$$\sigma_{ds}^g\left(q_{ds}^g, q_{ds'}^g\right) = \frac{d \ln\left(\frac{q_{ds}^g}{q_{ds'}^g}\right)}{d \ln\left(\frac{dU_d^g}{dq_{ds'}^g} \Big/ \frac{dU_d^g}{dq_{ds}^g}\right)} = \frac{1}{\alpha^g q_{ds}^g}$$

As is evident, again due to our assumption of individual source countries having negligible impact on the destination price aggregates, the expressions for the elasticity of substitution and the price elasticity of demand are exactly the same; therefore, the case of AQS implies variable elasticities of substitution as well.

Considering Equation 3.17, source country s maximizes its profits given by:

$$\pi_{ds}^{g} = q_{ds}^{g}\left(p_{ds}^{g*} - c_{ds}^{g}\right) \tag{3.20}$$

where the notation is the same as above. The first order condition implies that:

$$\alpha^{g} q_{ds}^{g} = \frac{p_{ds}^{g*} - c_{ds}^{g}}{p_{ds}^{g*}} \tag{3.21}$$

which can be substituted into Equation 3.19 to obtain an alternative expression for the price elasticity of demand:

$$\varepsilon_{ds}^{g} = \frac{p_{ds}^{g*}}{p_{ds}^{g*} - c_{ds}^{g}} = \frac{1}{\alpha^{g} q_{ds}^{g}} \tag{3.22}$$

where the first equality is exactly the same as the first equality in Equation 3.11. The gross markup again denoted by μ_{ds}^{g} can be written as:

$$\mu_{ds}^{g} = \frac{\varepsilon_{ds}^{g}}{\varepsilon_{ds}^{g} - 1} = \frac{1}{1 - \alpha^{g} q_{ds}^{g}} \tag{3.23}$$

where the first equality is exactly the same as the first equality in Equation 3.12.

Therefore, both MQS and AQS versions of ψ imply the very same price elasticity of demand when the elasticity is expressed in terms of source prices and marginal costs, and they imply the very same gross markup when the markup is expressed in terms of the price elasticity of demand. Nevertheless, the pricing strategy (i.e., markups) of the source country determined through different demand structures (i.e., either MQS or AQS versions of ψ) is the key factor determining the price elasticity of demand and the gross markups for MQS versus AQS cases. Although the price elasticity of demand and the gross markup expressions are good specific (i.e., they are common across source and destination countries) in the case of MQS (according to Equations 3.10 and 3.12), they change with respect to goods, together with source and destination countries, in the case of AQS (according to Equations 3.21 and 3.23). Therefore, for each good, we have constant elasticities and markups in the case of MQS, while we have variable elasticities and markups in the case of AQS.

Finally, using Equations 3.8, 3.9, 3.21, and 3.23, the destination price in country d can be rewritten as follows:

$$p_{ds}^{g} = c_{ds}^{g} \mu_{ds}^{g} \left(D_{ds} \right)^{\delta_{\tau}^{g}} b_{ds}^{g} \tag{3.24}$$

which is the same expression as in Equation 3.15 that we will use during the estimation process, below.

4. Estimation Methodology and Data

This section depicts the details of estimating trade and destination-price implications of the MQS and AQS cases. The main objective is to estimate markups (using trade data on quantities as the dependent variable) to further use them in decomposing the price data into marginal costs, markups, and trade costs. Once trade costs will be estimated (for both MQS and AQS cases, separately), we will have a better idea about their contribution to destination prices through our variance decomposition analysis (in later sections). Since we would like to investigate the welfare gains from reducing trade costs, the case (either MQS or AQS) implying higher estimated trade costs will also imply higher potential gains from reducing trade costs, because, simply, that case has a bigger room (within destination prices) for such reductions.

4.1. Estimation of Trade Equations

We start with the estimation of trade in the case of MQS given by Equation 3.13, which can rewritten in a log-linear format as follows:

$$\ln\left(q_{ds}^{g}\right) = \underbrace{\ln\left(E_{d}^{g}\left(\sum_{s'}\frac{\left(\chi_{ds'}^{g}\right)^{\frac{1}{1-\theta^{g}}}}{\left(p_{ds'}^{g}\right)^{\frac{\theta^{g}}{1-\theta^{g}}}}\right)^{-1}\right)}_{\text{Destination-and-Good-Fixed Effects}} + \underbrace{\frac{\ln\left(\kappa_{s}^{g}\right)}{1-\theta^{g}}}_{\text{Source-and-Good-Fixed Effects}} - \underbrace{\frac{\ln\left(p_{ds}^{g*}\right)}{1-\theta^{g}}}_{\text{Price Effects}} - \underbrace{\frac{\delta^{g}\ln\left(D_{ds}\right)}{1-\theta^{g}}}_{\text{Distance Effects}} - \underbrace{\frac{\ln\left(b_{ds}^{g}\right)}{1-\theta^{g}}}_{\text{Border-Costs Effects}} \tag{4.1}$$

while trade in the case of AQS is already given in a lin-log format by Equation 3.18 as follows:

$$q_{ds}^{g} = \underbrace{\left(\frac{E_{d}^{g} - \frac{1}{\alpha^{g}}\sum_{s'}\ln\left(\frac{\chi_{ds'}^{g}}{p_{ds'}^{g}}\right)p_{ds'}^{g}}{\sum_{s'}p_{ds'}^{g}}\right)}_{\text{Destination-and-Good-Fixed Effects}} + \underbrace{\frac{\ln\left(\kappa_{s}^{g}\right)}{\alpha^{g}}}_{\text{Source-and-Good-Fixed Effects}} - \underbrace{\frac{\ln\left(p_{ds}^{g*}\right)}{\alpha^{g}}}_{\text{Price Effects}} - \underbrace{\frac{\delta^{g}\ln\left(D_{ds}\right)}{\alpha^{g}}}_{\text{Distance Effects}} - \underbrace{\frac{\ln\left(b_{ds}^{g}\right)}{\alpha^{g}}}_{\text{Border-Costs Effects}} \tag{4.2}$$

As is evident, both expressions can be estimated using trade data in quantities, destination-and-good-fixed effects, source-and-good-fixed effects, price data, and distance data (to measure the combination of freight costs and time-to-trade) if the unobserved border costs are assigned the role of residuals. Therefore, they turn out to be very similar to each other in terms of their estimated expressions; the only difference is to have quantities in logs for the former and quantities in levels for the latter on the left hand side of the expressions. Accordingly, Equation 4.1 is attempting to explain the quantities in logs, while Equation 4.2 is attempting to explain the quantities in levels. Because these are different concepts/variables in magnitudes, there is no obvious way to compare the performance of these expressions using the explanatory power of their estimated versions; since we employ residuals as border costs, when we take the implications literally, both models have explanatory power of 100% regardless.[7]

We estimate Equations 4.1 and 4.2 at the good level using ordinary least squares (OLS); such a strategy has several benefits. First, given the model, it is robust to the identification problem that is typical in empirical studies when data for both quantity and price are used; in particular, since we include both destination-good and source-good fixed effects, all demand curves are normalized (i.e., controlled for demand-shifting effects in our model) such that all price and quantity pairs lie on the very same normalized demand curve at the good level. Second, it is robust to any possible heteroskedasticity problems due to having good-g-specific θ^g's and α^g's in the residuals. Third, it has computational simplicity.

4.2. Identification of Estimated Parameters

For the identification of parameters, using trade data in quantities q_{ds}^g's, when data for source prices p_{ds}^{g*} are available, $(1-\theta^g)$'s and α^g's can be obtained as the coefficients in front of $\ln(p_{ds}^{g*})$. Estimated $(1-\theta^g)$'s and α^g's can be used to identify markups (i.e., μ_{ds}^g's) and δ^g's by the coefficients in front of $\ln(D_{ds})$'s. When data for destination prices p_{ds}^g's are available, estimated δ^g's can be decomposed into δ_u^g's and δ_τ^g's when δ_τ^g's are estimated using the log versions of Equations 3.15 and 3.24, controlled for markups, as follows:

$$\underbrace{\underbrace{\ln p_{ds}^g}_{\text{Destination Prices}} - \underbrace{\ln \mu_{ds}^g}_{\text{Markups}}}_{\text{Prices Controlled for Markups}} = \underbrace{\delta_\tau^g \ln(D_{ds})}_{\text{Freight-Costs}} + \underbrace{\underbrace{\ln(c_{ds}^g)}_{\text{Marginal Costs}} + \underbrace{\ln(b_{ds}^g)}_{\text{Border Costs}}}_{\text{Residuals}} \tag{4.3}$$

[7] In this context, methodologies such as Box-Cox transformation of the dependent variable would not work either; the reasoning is simple: Such transformations take a pure econometric stand and accept the residuals as shocks to econometric model. However, this paper considers border-related costs as residuals that are not shocks but rather part of the trade model. In other words, one cannot select one of the two models just because it implies lower border-related costs.

which is convenient in terms of estimating and identifying freight costs (as a part of actual trade costs τ_{ds}^{g} in Equation 3.9). Estimated δ^{g}'s, together with estimated δ_{τ}^{g}'s in Equation 4.3, can be used to identify δ_{u}^{g}'s according to Equation 3.5.

4.3. Data

Trade data are from NBER-UN world trade data set as documented by Feenstra et al. (2005) which we refer for further/technical details. The data set includes value (price times quantity) of bilateral trade between 171 countries for 749 good categories classified according to 4-digit Standard International Trade Classification Revision 2 (SITC4-R2) between 1962-2000. The data also include quantity of trade, which allows to calculate the unit prices for each good category. However, since there may be possible problems in terms of comparing unit prices at different points in time, as in Jaimovich and Merella (2012), we focus on the data (with both value and quantity observations) only for the year of 2000 (which is the latest year in the data featuring the most-recent data collection techniques) for which the number of source countries is 171 and the number of destination countries is 169.[8] Since we need both unit prices and quantities in our analysis, we restricted ourselves to the part of the data that have both measures; accordingly, we ended up with having 527,371 bilateral trade observations (corresponding to 62% of the original data set) at the good level for the year of 2000.

We accept that the selection of the NBER-UN world trade data set categorized according to SITC4-R2, especially because it is at the 4-digit level, may be restrictive. Nevertheless, this data set has been used widely in the literature; hence, it leads to easier comparison with earlier studies. Besides, Rauch (1999) has created a well-accepted categorization of goods based on SITC4-R2 (which we investigate/challenge under MQS versus AQS cases). Moreover, the main objective of

[8]The list of destination countries in our analysis is given in the first column of Table A3 in the Appendix.

this paper is to focus on an easy-to-implement empirical innovation to distinguish between constant versus variable markups; therefore, the widely-used SITC4-R2 data for the year of 2000 are good enough to make a point, especially through a static trade model like ours.

The data set gives primacy to trade flows reported by the importing country, whenever they are available, assuming that these are more accurate than reports by the exporters. If the importer report is not available for a country-pair, however, then the corresponding exporter report is used instead. The value of bilateral trade reported by the importer is CIF (cost, insurance, freight), whereas the data reported by the exporter is FOB (free on board). Therefore, in order to employ as many observations as possible, we need to distinguish between CIF and FOB based unit prices in our estimation. Accordingly, in order match the data with the model, we revise to-be-estimated Equations 4.1 and 4.2 as follows:

$$\ln\left(q_{ds}^{g}\right) = \underbrace{\ln\left(E_{d}^{g}\left(\sum_{s'}\frac{\left(\chi_{ds'}^{g}\right)^{\frac{1}{1-\theta^{g}}}}{\left(p_{ds'}^{g}\right)^{\frac{\theta^{g}}{1-\theta^{g}}}}\right)^{-1}\right)}_{\text{Destination-and-Good-Fixed Effects}} + \underbrace{\frac{\ln\left(\kappa_{s}^{g}\right)}{1-\theta^{g}}}_{\text{Source-and-Good-Fixed Effects}} - \underbrace{\frac{\ln\left(p_{ds}^{g*}\right)}{1-\theta^{g}}}_{\text{Price Effects}} - \underbrace{I_{ds}^{g}}_{\text{Indicator Function}} \times \underbrace{\frac{\delta^{g}\ln\left(D_{ds}\right)}{1-\theta^{g}}}_{\text{Distance Effects}} - \underbrace{\frac{\ln\left(b_{ds}^{g}\right)}{1-\theta^{g}}}_{\text{Residuals}} \tag{4.4}$$

and

$$q_{ds}^{g} = \underbrace{\left(\frac{E_{d}^{g}-\frac{1}{\alpha^{g}}\sum_{s'}\ln\left(\frac{\chi_{ds'}^{g}}{p_{ds'}^{g}}\right)p_{ds'}^{g}}{\sum_{s'}p_{ds'}^{g}}\right)}_{\text{Destination-and-Good-Fixed Effects}} + \underbrace{\frac{\ln\left(\kappa_{s}^{g}\right)}{\alpha^{g}}}_{\text{Source-and-Good-Fixed Effects}} - \underbrace{\frac{\ln\left(p_{ds}^{g*}\right)}{\alpha^{g}}}_{\text{Price Effects}} - \underbrace{I_{ds}^{g}}_{\text{Indicator Function}} \times \underbrace{\frac{\delta^{g}\ln\left(D_{ds}\right)}{\alpha^{g}}}_{\text{Distance Effects}} - \underbrace{\frac{\ln\left(b_{ds}^{g}\right)}{\alpha^{g}}}_{\text{Residuals}} \tag{4.5}$$

where the indicator function I_{ds}^{g}, which is also available in the data set under the title of "Direction of Trade", takes a value of 1 (or 0) when prices p_{ds}^{g*} are calculated according to the data reported by the exporter (or importer). Therefore, using the cases/data for which $I_{ds}^{g}=1$, we can consider model-implied freight costs and estimate their relation with distance.

Since the unit-price data we have are either CIF or FOB, they do not include any border costs b^g_{ds}'s. Hence, in order match the data with the model, using the indicator function I^g_{ds}, we revise to-be-estimated Equation 4.3 as follows:

$$\underbrace{\underbrace{\ln p^{g*}_{ds}}_{\text{Price Data}} - \underbrace{\ln \mu^g_{ds}}_{\text{Markups}}}_{\text{Price Data Controlled for Markups}} = \underbrace{\delta^g_\tau \left(1 - I^g_{ds}\right) \ln \left(D_{ds}\right)}_{\text{Freight Costs}} + \underbrace{\underbrace{\ln \left(c^g_{ds}\right)}_{\text{Marginal Costs}}}_{\text{Residuals}} \tag{4.6}$$

where the notation (for p^{g*}_{ds} and I^g_{ds}) is the same as in the previous paragraph. It is important to emphasize that, since the unit-price data we have are either CIF or FOB, marginal costs (estimated as residuals) may also be capturing export-related costs that exporters pass on importers at the port.

The other data we use in the estimation are for great circle distances between countries (where latitudes and longitudes have been obtained from Google Maps).

4.4. Identification of Estimated Variables

If we were not employing OLS as an estimation methodology, using estimated $(1 - \theta^g)$'s and α^g's, quality parameters κ^g_s's could be identified through source-and-good-fixed effects, and the border costs b^g_{ds}'s could be identified using the residuals and estimated $(1 - \theta^g)$'s and α^g's. Nevertheless, we should be careful regarding the magnitudes of both κ^g_s's and b^g_{ds}'s due to the restrictions of using OLS as an estimation methodology. In particular, when OLS is used, we can only determine the relative magnitude of κ^g_s's across source countries due to using fixed effects. Moreover, employing the border costs as residuals brings two restrictions (both of which are consistent, at least, do not contradict) with the model: (i) the sum of residuals is zero; (ii) residuals are orthogonal to destination-and-good-fixed effects, source-and-good-fixed effects, price data, and distance data (i.e., the border costs will capture the pattern of trade that cannot be explained by any of these variables).[9] Therefore, we cannot identify the levels of b_{ds}^{g}'s either, although we can identify their relative values across source countries using the implications of our MQS and AQS cases regarding the destination-good-fixed effects.

In particular, the estimated b_{ds}^{g}'s (as residuals) can be biased, because sum of their log is restricted to zero due to OLS. To have a fix for this bias, we will proceed as follows. Estimated $(1-\theta^{g})$'s and α^{g}'s can also be used to estimate markups μ_{ds}^{g}'s through Equations 3.12 and 3.23 for the cases of MQS and AQS, respectively. Once we will know freight-costs effects (due to identified δ_{τ}^{g}'s, above) and markups μ_{ds}^{g}'s, we can identify marginal costs of production c_{ds}^{g}'s according to Equation 4.6. Hence, subject to the identification of border costs b_{ds}^{g}'s, we can identify estimated destination prices p_{ds}^{g}'s (in Equation 4.3) using estimated freight-costs effects $\delta_{\tau}^{g}\ln(D_{ds})$'s, estimated marginal costs c_{ds}^{g}'s, and estimated markups μ_{ds}^{g}'s. Finally, for the identification of b_{ds}^{g}'s, we search for a normalization parameter η_{d}^{g} (at the destination-good level) such that when data on expenditure E_{d}^{g} of country d on good g, estimated χ_{ds}^{g}'s (due to Equation 3.5) subject to the identification of their level, and estimated destination prices p_{ds}^{g}'s subject to the identification b_{ds}^{g}'s are included in destination-and-good-fixed effects, they will be consistent with the estimated destination-and-good-fixed effects, and Equations 4.4 and 4.5 will hold with equality at the same time. Such a strategy results in the identification of the levels/magnitudes of all variables in the model except for χ_{ds}^{g}'s, κ_{s}^{g}'s and b_{ds}^{g}'s, for which we can only identify relative measures across source countries, which is good enough for the investigations based on the deviations from LOP and welfare analysis, below.

[9] Yilmazkuday (2012) has estimated taste parameters as model residuals in a closed-economy framework. Since we already estimate taste parameters through source-and-good-fixed effects, and since we have an open-economy framework, employing the border costs as residuals is new to this paper.

5. Estimation Results for Trade Patterns

This section depicts the estimation results and connects them to the existing literature.

5.1. Estimation Results

The identification and the significance of $\theta^g > 0$ and $\alpha^g > 0$ estimates are the key for the welfare analysis, below, which is the main focus in this paper. According to the good-level estimation results, the number of insignificant or negative estimates is 296 for θ^g estimates and 189 for α^g estimates at the 10% level (according to their standard errors calculated by the Delta method). Hence, the case of AQS has done a much better job in terms of identifying the elasticity measures at the good level. The summary statistics of the good-level estimates are given in Table 1, where we have taken a conservative approach (for comparison purposes) by ignoring the goods that have insignificant or negative estimates for either θ^g's or α^g's; this has resulted in having the summary statistics for 367 (out of 749) good categories. These 367 good categories are also going to be the ones that we will use during the welfare analysis, below.[10]

As is evident in Table 1, according to the estimation of Equation 4.4 for MQS, the distribution of θ^g's has a median (across goods) of about 0.25, which corresponds to a median price elasticity of demand of about 1.3 (according to Equation 3.7) and to a median gross markup of about 4.04 (according to Equation 3.10). On the other hand, according to the estimation of Equation 4.5 for AQS, the median (across goods and countries) price elasticity of demand is much higher by taking a value of about 29.14, and thus the median (across goods and countries) gross markup is much lower, about 1.04; therefore, there are significant differences across MQS and AQS in terms of price elasticities and markups.

When elasticity of trade costs with respect to distance measures δ_τ^g's are compared across MQS

[10] The list of these 367 goods is given in Table A1 in the Appendix.

and AQS cases, the median (across goods) is the same by having a value of about 0.05; this corresponds to about 41% of freight costs for the median good when it travels around 1,000 miles. The elasticity of utility with respect to time-to-trade δ_u^g has a median value of 0.31 for the case of MQS and a median value of 0.28 for the case of AQS; therefore, time-to-ship (i.e., capturing any distance effects due to preferences in the utility function) has a much higher effect as a trade barrier compared to freight costs for both cases.

Recall that we can only identify relative values of quality measures κ_s^g's across source countries due to using source-and-good-fixed effects. Therefore, by setting the quality measure for each good equal to 1 for the U.S. (i.e., $\kappa_{U.S.}^g = 1$ for all g), we represent quality estimates in Table 2. As is evident, for all percentiles, the case of MQS (AQS) corresponds to a lower (higher) quality difference between the U.S. and the rest of the world.[11] The importance of these quality measures will be clearer, below, while calculating the welfare implications of reducing trade costs, because they are the key in measuring/identifying individual utility measures though χ_{ds}^g's.

Since we assigned border costs b_{ds}^g's the role of residuals in Equations 4.4 and 4.5, recall that they capture the pattern of trade that cannot be explained by destination-and-good-fixed effects, source-and-good-fixed effects, price effects, and distance-related freight costs. In this context, as briefly discussed above, the goodness of fit in both MQS and AQS cases is 100% for each good. Nevertheless, R-squared values in Table 1 still provide useful information: They depict the portion of the sum of squares of the left hand side Equations 4.4 and 4.5 explained by variables other than border costs.

[11] The complete country-level estimates are given in Table A3 in the Appendix. It is important to emphasize that these quality estimates are based on the number of goods exported by each country; therefore, as in the case of Chad that exports only one type of product (i.e., cotton), it is very possible for a particular country to export only a limited number of goods and have much higher quality measures for such products compared to the U.S..

5.2. Discussion on Estimation Results

Now, we have a general idea about the implications of having MQS versus AQS cases in terms of markups, price elasticities, distance elasticities, and the contribution of taste parameters and border costs to international trade. But, where do our results stand in the literature?

We start with comparing our price elasticity estimates with other estimates the literature. On average, the estimates of this paper are much lower for the case of MQS with having a median (across goods) of 1.3 and higher for the case of AQS with having a median (across goods and countries) of 29.1. In particular, Hummels' (2001) estimates range between 4.79 and 8.26, the estimates of Head and Ries (2001) range between 7.9 and 11.4, the estimate of Baier and Bergstrand (2001) is about 6.4, Harrigan's (1996) estimates range from 5 to 10, Feenstra's (1994) estimates range from 3 to 8.4, the estimate by Eaton and Kortum (2002) is about 9.28, the estimates by Romalis (2007) range between 6.2 and 10.9, the (mean) estimates of Broda and Weinstein (2006) range between 4 and 17.3, and the estimates of Simonovska and Waugh (2011) range between 3.47 and 5.42. Since price elasticity estimates are inversely related to markups (as clearly shown in this paper for both cases of MQS and AQS), markups are higher compared to the literature for the case of MQS and they are lower for the case of AQS.[12]

In terms of the elasticity of distance δ^g $(= \delta^g_u + \delta^g_\tau)$ estimates, the median (across goods) estimate of $\delta^g = 0.34$ in the case of MQS and the estimate of $\delta^g = 0.27$ in the case of AQS are very close to the distance elasticity estimates in the international trade literature, which are about 0.3 (see Hummels, 2001; Limao and Venables, 2001; Anderson and van Wincoop, 2004).

[12] Not surprisingly, median (variable) markups in the case of AQS (i.e., about 1.04) are in line with firm-level studies also featuring variable markups, such as De Loecker et al. (2012) which have a median markup of about 1.10.

6. Implications for the Deviations from the Law of One Price (LOP)

We would like to compare the contributions of overall trade costs to destination prices across MQS and AQS cases by considering the the deviations from LOP. This will be the key in understanding the welfare implications of reducing trade costs, below.

6.1. Methodology

In our data set, since prices reported by importers are CIF and by exporters are FOB, the first step is to convert all prices into destination prices (i.e., to construct destination prices) using the following deviations-from-LOP expression (for both MQS and AQS cases) across destination countries d and d':

$$\underbrace{\ln\left(\frac{p^g_{ds}}{p^g_{d's}}\right)}_{\text{Relative Destination Prices}} = \underbrace{\ln\left(\frac{c^g_{ds}}{c^g_{d's}}\right)}_{\text{Relative Marginal Costs}} + \underbrace{\ln\left(\frac{\mu^g_{ds}}{\mu^g_{d's}}\right)}_{\text{Relative Markups}} + \underbrace{\delta^g_\tau \ln\left(\frac{D_{ds}}{D_{d's}}\right)}_{\text{Relative Freight Costs}} + \underbrace{\ln\left(\frac{b^g_{ds}}{b^g_{d's}}\right)}_{\text{Relative Border Costs}} \tag{6.1}$$

where marginal costs, markups, freight costs, and relative border costs were all estimated/identified, above. We will consider both the mean and the variance of the deviations from LOP (as in Crucini et al., 2005). One difference is that we will consider the absolute value of relative-price expressions by multiplying all negative relative-price values (and the corresponding right-hand-side variables) with -1; such a strategy is important in measuring the actual (absolute value of) deviations from LOP.

Since LOP is a concept at the good level, we will consider the mean and the variance of the variables in Equation 6.1 across destination countries at the good level by pooling observations for each source country in our data set. Therefore, when the mean deviations from LOP will be considered, we will investigate the portions explained by mean (log) relative marginal costs, markups, freight costs, and border costs. When the variance of deviations from LOP will be considered, we will consider the following variance decomposition analysis to compare the contributions of marginal costs, markups, freight costs, and border costs:

$$\underbrace{var\left(\ln\left(\frac{p^g_{ds}}{p^g_{d's}}\right)\right)}_{\text{Relative Destination Prices}} = \underbrace{cov\left(\ln\left(\frac{c^g_{ds}}{c^g_{d's}}\right), \ln\left(\frac{p^g_{ds}}{p^g_{d's}}\right)\right)}_{\text{Relative Marginal Costs}} + \underbrace{cov\left(\ln\left(\frac{\mu^g_{ds}}{\mu^g_{d's}}\right), \ln\left(\frac{p^g_{ds}}{p^g_{d's}}\right)\right)}_{\text{Relative Markups}}$$

$$+\underbrace{cov\left(\delta^g_\tau \ln\left(\frac{D_{ds}}{D_{d's}}\right), \ln\left(\frac{p^g_{ds}}{p^g_{d's}}\right)\right)}_{\text{Relative Freight Costs}} + \underbrace{cov\left(\ln\left(\frac{b^g_{ds}}{b^g_{d's}}\right), \ln\left(\frac{p^g_{ds}}{p^g_{d's}}\right)\right)}_{\text{Relative Border Costs}}$$

which holds with exact equality, where *var* is the variance operator, and *cov* is the covariance operator.

6.2. Results

As is evident in Table 3, the mean deviations from LOP are about 1.67 and 1.89 for the cases of MQS and AQS, respectively; hence, they are very similar. However, the contribution of border costs are significantly different from each other with AQS having a higher percentage contribution attributed to border costs for all percentiles. When variance of deviations from LOP are considered in Table 4, the case of AQS has higher variance measures for all percentiles with higher percentage contributions of border costs. Therefore, both mean and variance analyses suggest that the contribution of border costs to the deviations from LOP are higher in the case of AQS. Since the contribution of freight costs are relatively minor, border costs mostly represent overall trade costs in both cases; hence, we can safely claim that the case of AQS implies higher estimated trade costs, and, thus, higher potential gains from reducing trade costs.

Getting into more details, for the case of MQS, the median contribution of marginal costs to the mean (variance of) deviations from LOP is about 42% (43%). Since the contributions are investigated by keeping the source country the same, these figures are unexpectedly high, even after considering that these marginal costs may be including any export-related costs that exporters pass on importers at the port. Nevertheless, the case of AQS assigns a much lower role for marginal costs, 22% for the mean and 6% for the variance of deviations from LOP; although these figures are more plausible, we do not have any relevant data (for marginal costs) to compare the validity of these results.

Since we observe either FOB or CIF prices and construct our own destination (e.g., retail) relative prices through Equation 6.1, our overall trade costs may well be capturing any distribution costs at the destination country. In this context, the high contribution of trade costs (to the destination prices) is in line with the literature focusing on the deviations from LOP that (mostly) use micro-level retail prices. For example, using retail-price data on 79 countries over the period of 1990-2005, Crucini and Yilmazkuday (2009) show that trade costs (as defined in this paper) contribute to the deviations from LOP by about 72% on average; this number is in line with the case of AQS when the mean deviations from LOP are considered.

7. Implications for Good-Level Trade Policy

Using the estimation results, we are interested in investigating the welfare and/or trade-policy implications of having MQS versus AQS inverse function of marginal utility. In particular, we would like to know the negative effects of overall trade costs τ_{ds}^{g}'s on the welfare of destination countries. In order to investigate such negative effects, we consider two methodologies.

7.1. Methodology

The first methodology focuses on a common (across MQS and AQS cases) measure of welfare based on good-level prices (i.e., inverse of good-level prices as a measure of good-level welfare, because, as discussed above, the good-level welfare implications are the main concern of any free-trade negotiation); this is important for the comparison of MQS and AQS cases in the absence of a cardinal theory of utility.

The second methodology focuses on the elasticity of utility with respect to trade costs (i.e., a cardinal theory of utility). For this methodology, we will use good-specific utility functions U_d^g's for each destination country given by Equations 3.1, 3.4 and 3.16 for the cases of MQS and AQS, respectively, because, again, as discussed above, the good-level welfare implications are the main concern of any free-trade negotiation. Since U_d^g's are good specific, our welfare analysis will also be good specific for each destination. To measure the negative welfare effects of overall trade costs, we calculate the elasticity of U_d^g's with respect to trade costs τ_{ds}^g's (defined in Equation 3.8) according to the following expression for MQS:

$$-\frac{\partial U_d^g}{\partial \tau_{ds}^g}\frac{\tau_{ds}^g}{U_d^g} = \left(\frac{\theta^g}{1-\theta^g}\right)\left(\frac{\chi_{ds}^g \left(q_{ds}^g\right)^{\theta^g}}{\sum_s \chi_{ds}^g \left(q_{ds}^g\right)^{\theta^g}}\right) \tag{7.1}$$

and the following expression for AQS:

$$-\frac{\partial U_d^g}{\partial \tau_{ds}^g}\frac{\tau_{ds}^g}{U_d^g} = \frac{\chi_{ds}^g e^{-\alpha^g q_{ds}^g}}{\sum_s \left(\chi_{ds}^g - \chi_{ds}^g e^{-\alpha^g q_{ds}^g}\right)} \tag{7.2}$$

where the change in τ_{ds}^g's are infinitesimal. During the estimation process, above, θ^g's and α^g's were already identified, and we have data for q_{ds}^g's. Recall that only the relative values of χ_{ds}^g's (across source countries) were identified at the good level, above; nevertheless, this is not a problem, since both of Equations 7.1 and 7.2 are robust to this issue due to having χ_{ds}^g's in both numerators and denominators.

7.2. Results

Regarding the first methodology, we already have the results for the implications of MQS and AQS cases regarding the deviations from LOP, above, which can be used to compare the welfare of destination countries. Accordingly, since the case of AQS implies higher contribution of trade costs to the deviations from LOP (for all percentiles in Table 3 and Table 4), the welfare-improving effects of reducing τ_{ds}^{g}'s are also higher under the case of AQS. For example, according to Table 3 and Table 4, the median contribution of trade costs in the case of AQS is 77% (92%) and higher than the case of MQS when the mean (variance of) deviations from LOP are considered.

Regarding the second methodology, the summary statistics for the elasticity of utility with respect to trade costs are given in Table 5.[13] As is evident, the welfare implications are much higher in the case of AQS where the distribution of median elasticities (across goods and source countries) for destination countries has a median value (across destinations) of about 11.95 compared to a median value of 0.11 in the case of MQS. Hence, although the implications change from country to country (which are important for a country-level analysis), the median welfare implications of the AQS case are much higher than implications of the MQS case. Therefore, during a possible free-trade negotiation on the median good, the case of AQS implies a much higher welfare gain.

In sum, both of our methodologies suggest that the case of AQS has higher welfare-improving effects of reducing trade costs.

8. Implications for Other Elasticities and Differences across Goods

We have so far depicted the implications of the estimation results and the welfare-analysis results by focusing on the median measures across goods. This section will go deeper by focusing on the implications of our two cases on other elasticity measures and differences across goods. The latter requires differentiating goods according to their properties. The common practice in the literature is classifying goods according to their homogeneity, which we will follow in this section; we will use the classification of goods in Rauch (1999), which we refer for further details, that is given in SITC4-R2 as our trade data.[14] For the analysis in this section, we will employ four elasticity

[13] The complete country-level estimates are given in Table A3 in the Appendix.

[14] The classification at the good level is provided in Table A1.

measures at the good level: (1) Price elasticity of demand. (2) Elasticity of substitution between varieties of a good. (3) Elasticity of distance. (4) Income elasticity of demand. We have already covered the methodologies used calculate the first three elasticities, above; hence, we will mostly focus on the income elasticity of demand in this section.

8.1. Methodology

Since our analysis is at the good level, we will also focus on the concept of income (i.e., expenditure) elasticity of demand at the good level by considering the total expenditure of a destination country on a particular good as our income measure.[15] For the case of MQS, in destination country d, the income elasticity of demand (to be denoted by φ_{ds}^{g}) for good g imported from source country s is obtained as:

$$\varphi_{ds}^{g} = \frac{E_d^g}{q_{ds}^g} \frac{\partial q_{ds}^g}{\partial E_d^g} = 1$$

which is a unitary income elasticity of demand that is common across all goods and countries; for the case of AQS, however, the income elasticity of demand is obtained as:

$$\varphi_{ds}^{g} = \frac{E_d^g}{q_{ds}^g} \frac{\partial q_{ds}^g}{\partial E_d^g} = \frac{E_d^g}{q_{ds}^g \sum_{s'} p_{ds'}^g} \tag{8.1}$$

which positively depends on expenditure E_d^g, but negatively depends on quantity traded q_{ds}^g and destination prices $\sum_{s'} p_{ds'}^g$; as is evident, this expression can simply be calculated by using data on prices and quantities (without any estimation).[16] Therefore, we can decide whether the goods in

[15] Alternatively, we could investigate the income elasticity of demand considering the overall expenditure of a destination country on all goods; however, in terms of modeling, this requires an aggregation across goods (i.e., aggregation of U_d^g's in Equation 3.1 across goods), which we did not include in our model to avoid any further modeling assumptions.

[16] In a special case in which the quantities imported are the same across source countries (i.e., $q_{ds}^g = q_d^g$ for all s) Equation 8.1 is equal to 1 as in the case of MQS.

our trade data are necessity or luxury using the income elasticity of demand based on the case of AQS, while the case of MQS is silent on this subject.[17] As is standard, we will call a good luxury if $\varphi_{ds}^{g} > 1$ and necessity if $0 < \varphi_{ds}^{g} < 1$. Since φ_{ds}^{g} is both good and country specific, a good coming from a particular source country may be a necessity for a particular destination country, while it may be a luxury for another one. For comparison (across goods) purposes, we will also depict the median across (source and destination) countries to obtain a good-level estimate of φ_{ds}^{g}, which will correspond to the median conception of a good around the world. Such a median income-elasticity measure based on the case of AQS may also have implications for recent debates, such as the discussion on understanding the Great Trade Collapse experienced during 2008-2009, which was hard to explain using the existing literature focusing on models with unitary income elasticity of demand (such as the case of MQS).

8.2. Results

The heterogeneity across goods is depicted in Tables 6-7 as summary statistics; Table 6 represents homogenous goods, Table 7 represents differentiated goods, and the complete set of estimates at the good level is depicted in Table A1 in the Appendix. In particular, homogenous goods in this paper correspond to the combination of "goods traded on organized exchanges" and "referenced-priced goods" in Rauch (1999), while differentiated goods in this paper correspond to all other goods. The first observation is that the heterogeneity across goods is substantial for any parameter, independent of our cases of MQS or AQS.

When we compare the price elasticities ε^{g}'s (which are equal to elasticities of substitution σ^{g}'s) across goods, for the case of MQS, the highest elasticity belongs to "Mate" (with SITC code 742), and the lowest elasticity belongs to "Seeds, Fruit And Spores, N.e.s., Of A Kind Used For Sowing"

[17] Inferior goods are out of the picture here, since all variables in the expression of φ_{ds}^{g} are positive.

(with SITC Code 2925). For the case of AQS, the highest elasticity belongs to "Elect. App. Such as Switches, Relays, Fuses, PWGS, Etc." (with SITC code 7721), and the lowest elasticity belongs to "Potassium Salts, Natural, Crude" (with SITC code 2714). In general, though, homogeneous goods have higher (lower) ε^g's for the case of MQS (AQS). Therefore, homogenous goods coming from different source countries are more (less) substitutable to each other according to MQS (AQS); this result may seem to be consistent with the MQS case and puzzling for the AQS case. However, there is nothing inconsistent here (i.e., there is no counterevidence), at least due to the available data in hand. In particular, as Rauch (1999) nicely puts himself, this particular result may well be related to the thickness of the markets for each good category, which is exactly the case in this paper according to Equation 3.19 that decreases in quantity traded. Moreover, although a good is labeled as differentiated (i.e., non-homogenous) according to Rauch (1999), this may not be a clear-cut categorization in reality; e.g., destination countries may still be indifferent between varieties of a good coming from different source countries, even though it is not a good traded on organized exchanges or reference priced, which would make even a so-called differentiated good imported from different sources more substitutable between each other. As a striking example, consider the good category with SITC4-R2 code of 9410 (at the bottom of Table A1), which is "Animals, Live". This particular good category has been labeled as "differentiated" in Rauch (1999), because it is neither traded on organized exchanges nor reference priced. Nevertheless, it may well be considered as homogenous in nature, and the case of AQS is the only one that has this consideration by assigning this good category an elasticity of substitution estimate of about 15,978. Therefore, the case of AQS challenges the good categorization in Rauch (1999). The story for markups is implied accordingly.

When it comes to the comparison of distance elasticities across MQS and AQS cases, although the median estimates are the same regarding the elasticity of trade costs with respect to distance δ_τ^g, the elasticity of utility with respect to time-to-trade δ_u^g are mostly lower (higher) for homogenous goods in the case of MQS (AQS). Therefore, the case of AQS assigns a bigger role for trade barriers due to time-to-trade for homogeneous goods. Highest δ_τ^g estimates belong to "Pulpwood (Including Chips and Wood Waste)" (with SITC code 2460) and "Other sugars" (with SITC code 619) for the case of MQS and AQS, respectively, which are consistent with expectations due to heavy weight of such products. Highest δ_u^g estimates belong to "Eggs" (with SITC code 252) for the case of MQS (mostly due to the perishable nature of eggs) and "Pitch and Pitch Coke Obtain.From Coal Tar/Minar.Tars" (with SITC code of 3353) for the case of AQS (mostly due to uses of pitch as a raw-material); these are the products for which time-to-trade (capturing any distance-related preferences in the utility function) is most important according to our analysis. When the elasticity of distance measures δ^g's are compared across MQS and AQS cases, overall, they are higher for differentiated (homogeneous) goods for the case of MQS (AQS). For the case of MQS, this result is consistent with studies such as Davis (1998) that have used CES functions as well; nevertheless, this paper shows that if we relax the assumption of having CES functions by considering the case of AQS, the results in such papers are overturned.

The income elasticity φ^g estimates at the good level (available only in the case of AQS) are mostly higher than 1 (in Tables 1, 6, 7), making the overall global trade a luxury process, consistent with other recent trade studies in the literature such as Freund (2009) and Emran and Shilpi (2010); at the same time, homogenous goods have higher φ^g estimates, suggesting that they are "more luxurious" than differentiated goods on average. The estimates of φ^g are significantly different across goods and countries according to Table 1; this result is consistent with many trade studies in the literature, such as Freund (2009), and Gangnes et al. (2012), which have shown that income elasticities change across goods and countries in a significant way.[18] Nevertheless, the most

[18] Bayoumi and Eichengreen (1997) is another study paying close attention to variable income elasticities.

important results of this section are related to the magnitude of income elasticities in the case of AQS, which has been shown by Freund (2009) to be a possible reason for the Great Trade Collapse experienced during 2008-2009. In particular, by following pure empirical approaches, Irwin (2002) and Freund (2009) have shown that the income elasticity of demand has consistently increased over time starting from 1960s. Considering the increase in global trade starting from 1960s, this result is not surprising at all when we consider income-elasticity expression for the case of AQS (i.e., Equation 8.1) that increases in expenditure on trade; nevertheless, this result cannot be obtained in the case of MQS. Similarly, as also shown by Freund (2009), economies that trade more than others have higher income elasticities (consistent again with the case of AQS); hence, when there is a change in their income, they will be affected most, such as the experience of some East Asian countries during the episode of the Great Trade Collapse.

Finally, to understand the importance of having φ^g estimates different from 1 at the good level in the case of AQS, consider the highest φ^g estimate of 3.21 (in the category of luxury goods) belonging to "Passenger Motor Cars, For Transport of Pass.&Good" (with SITC code 7810). This high φ^g estimate of 3.21 is consistent with the main story of Alessandria et al. (2010) who have explained the Great Trade Collapse through investigating the trade of autos, the industry with the largest drop in trade during 2008-2009. Therefore, the case of AQS in this paper also sheds lights on the Great Trade Collapse at the good-level, even by using trade data coming from the year of 2000. In other words, the Great Trade Collapse is not a surprising result when we consider variable markups.

9. Conclusion

This paper has five main contributions. First, we have shown that when monopolistically competitive models are classified according to the functional separability of the first-order conditions for utility maximization in a partial equilibrium framework, the two functional separability properties we consider, namely MQS (i.e., the multiplicatively quasi-separable case that one-to-one corresponds to a utility function in the form of constant relative risk aversion) and AQS (i.e., the additively quasi-separable case that one-to-one corresponds to a utility function in the form of constant absolute risk aversion), cover the implications of many studies in international trade and finance literatures. Second, we have obtained trade implications of these two cases and shown that the estimated trade expressions of the two cases are very similar to each other, with the only difference of using quantities in logs for the case of MQS and using quantities in levels for the case of MQS, with exactly the same right hand side variables; i.e., constant markups correspond to log-linear regressions, while variable markups correspond to lin-log regressions. Third, when the implied trade expressions and the deviations from LOP are estimated using international trade data of quantities and prices, border costs contribute to destination-price differences much higher in the case of AQS; it follows that there are higher gains from reducing trade costs in the case of AQS when (inverse of) prices are considered as a measure of welfare in the absence of a cardinal theory of utility. Fourth, using a welfare analysis through a cardinal theory of utility at the good level, we show that welfare gains from reducing trade costs in the case of AQS are much higher than the gains in the case of MQS for the median good. Fifth, the case of AQS implies income elasticities of demand increasing with the expenditure on trade, which has been shown in the literature as one of the key mechanisms in understanding the Great Trade Collapse experienced during 2008-2009.

It is not possible to advocate for or against the cases of MQS versus AQS based on the results in this paper. In fact, without making/having any further assumption/information regarding pure trade costs (i.e., obtained without any estimation), the studies in the existing literature suffer from the very same problem in terms of model selection. However, since the case of AQS is the only one that is consistent with other independent international finance studies explaining international price differences and international trade studies explaining the Great Trade Collapse by focusing on income-elasticity differences, we believe in the welfare gains of reducing trade costs implied by the case of AQS. Therefore, we may well have answers to the following questions in the NBER working paper version of Arkolakis et al. (2012a): "How does one reconcile theory and empirics? If micro-level adjustments are not the answer, what sources of gains from trade can quantitatively account for the discrepancy between our models and ... reduced-form estimates?"

The main goal of this paper has been to show that a class of monopolistically-competitive models can be reduced to a nuance in the utility function. We are well aware of a caveat that explaining everything due to the specification of the utility function is a restrictive approach; however, many existing trade studies employing utilities in a functional form are subject to the very same criticism. Nevertheless, such a modeling strategy in this paper makes the overall analysis very simple and tractable compared to much more complicated models in the literature which practically have the very same implications for international trade and finance.

This paper has focused on the variability of markups to have a simple and clean message. In this context, we have not considered other channels of welfare gains, such as through the functional form of trade costs; we have rather followed the simple idea of using multiplicative iceberg trade costs to have comparable results with the existing literature. Yet, in future research, the results are subject to further improvement if additive trade costs as in Irarrazabal et al. (2012) or other sources of variation in the trade-cost function as discussed by Martin (2012) would be considered with the appropriate/corresponding data.

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Table 1 - Summary of Good-Level Estimation Results

	Multiplicatively Quasi-Separable (MQS)							Additively Quasi-Separable (AQS)							
	θ^g	ε^g	μ^g	δ^g	δ_τ^g	δ_u^g	R-Sqd.	$\alpha^g \times 10^3$	ε^g	μ^g	δ^g	δ_τ^g	δ_u^g	φ^g	R-Sqd.
1st Percentile	0.07	1.07	1.58	0.02	0.00	0.01	0.47	0.00	4.16	1.00	0.01	0.00	0.00	0.95	0.06
10th Percentile	0.12	1.14	2.41	0.10	0.01	0.08	0.57	0.01	9.11	1.00	0.04	0.01	0.04	1.08	0.09
25th Percentile	0.18	1.22	2.91	0.20	0.03	0.18	0.63	0.03	15.16	1.01	0.11	0.02	0.11	1.21	0.15
Median	0.25	1.33	4.04	0.34	0.05	0.31	0.69	0.10	29.14	1.04	0.27	0.05	0.28	1.41	0.23
75th Percentile	0.34	1.52	5.55	0.53	0.08	0.53	0.77	0.32	96.68	1.08	0.53	0.12	0.52	1.63	0.34
90th Percentile	0.42	1.69	8.06	0.72	0.12	0.69	0.83	1.08	807.66	1.15	0.95	0.21	0.99	1.91	0.51
99th Percentile	0.63	2.63	15.33	2.23	0.23	2.91	0.97	6.34	48,727.00	1.38	6.14	1.58	6.27	2.58	0.99

Notes: These are the summary statistics for the distribution of estimated parameters and the explanatory power of regressions that have been run at the good level. α^g's in the table have been multiplied by 1,000 for presentational purposes. All the parameter estimates are significant at the 10% level according to their standard errors calculated by the Delta method. For the case of AQS, the summary statistics of ε^g, φ^g and μ^g have been obtained as the median across source and destination countries. The complete good-level estimates are given in Table A1.

Table 2 - Summary of Quality Estimates for Source Countries

	Multiplicatively Quasi-Separable (MQS)			Additively Quasi-Separable (AQS)		
	All Goods	**Homogeneous Goods**	**Differentiated Goods**	**All Goods**	**Homogeneous Goods**	**Differentiated Goods**
1st Percentile	0.05	0.09	0.01	0.01	0.01	0.00
10th Percentile	0.11	0.17	0.04	0.02	0.03	0.01
25th Percentile	0.18	0.24	0.08	0.03	0.05	0.01
Median	0.25	0.35	0.13	0.05	0.08	0.03
75th Percentile	0.35	0.47	0.21	0.09	0.14	0.04
90th Percentile	0.49	0.71	0.36	0.17	0.32	0.08
99th Percentile	1.01	1.66	1.16	0.75	1.23	4.72

Notes: Quality Estimates represent the median quality measures (across goods) for source countries, where the quality for each good has been normalized to 1 for the U.S., since it is the country for which we have trade data covering the highest number of goods. The complete country-level estimates are given in Table A2.

Table 3 - Summary of Mean of Deviations from LOP

	Multiplicatively Quasi-Separable (MQS)				Additively Quasi-Separable (AQS)				
		% Contribution of				% Contribution of			
	Mean of Deviations from LOP	Marginal Costs	Freight Costs	Border Costs	Mean of Deviations from LOP	Marginal Costs	Markups	Freight Costs	Border Costs
1st Percentile	0.77	7%	-1%	10%	0.86	-8%	-6%	0%	25%
10th Percentile	1.11	16%	0%	27%	1.14	3%	-3%	0%	49%
25th Percentile	1.34	26%	0%	41%	1.38	9%	-1%	0%	60%
Median	1.67	42%	0%	58%	1.89	22%	0%	0%	77%
75th Percentile	2.14	58%	1%	74%	2.64	40%	2%	1%	89%
90th Percentile	2.76	71%	3%	84%	3.94	51%	4%	3%	95%
99th Percentile	4.31	87%	6%	93%	9.77	78%	10%	7%	106%

Notes: We consider the mean of the deviations from LOP across destination countries at the good level by pooling observations across source countries. The complete good-level estimates are given in Table A2.

Table 4 - Summary of Variance Decomposition of Deviations from LOP

	Multiplicatively Quasi-Separable (MQS)				Additively Quasi-Separable (AQS)				
		% Contribution of				% Contribution of			
	Variance of Deviations from LOP	Marginal Costs	Freight Costs	Border Costs	Variance of Deviations from LOP	Marginal Costs	Markups	Freight Costs	Border Costs
1st Percentile	0.36	-1%	-1%	4%	0.53	-18%	-5%	-1%	37%
10th Percentile	0.77	8%	0%	20%	1.09	-4%	-2%	0%	62%
25th Percentile	1.06	23%	0%	33%	1.70	0%	0%	0%	82%
Median	1.73	43%	0%	56%	2.97	6%	1%	0%	92%
75th Percentile	2.93	66%	1%	77%	6.12	17%	3%	0%	98%
90th Percentile	5.49	79%	2%	92%	15.78	37%	5%	1%	102%
99th Percentile	67.05	93%	5%	101%	178.80	66%	15%	4%	113%

Notes: We consider the variance of the deviations from LOP across destination countries at the good level by pooling observations across source countries. The complete good-level estimates are given in Table A2.

Table 5 - Summary of Welfare Implications for Destination Countries

	Multiplicatively Quasi-Separable (MQS)			Additively Quasi-Separable (AQS)		
	All Goods	**Homogeneous Goods**	**Differentiated Goods**	**All Goods**	**Homogeneous Goods**	**Differentiated Goods**
1st Percentile	0.01	0.01	0.00	0.04	0.03	0.04
10th Percentile	0.02	0.02	0.01	0.15	0.14	0.21
25th Percentile	0.03	0.04	0.02	0.68	0.58	0.91
Median	0.11	0.18	0.07	11.95	6.88	17.61
75th Percentile	0.19	0.31	0.14	26.93	15.29	47.74
90th Percentile	0.24	0.37	0.18	52.60	24.83	117.11
99th Percentile	0.33	0.55	0.27	213.95	76.23	441.51

Notes: Welfare Implications represent the (absolute value of) median (across goods and source countries) elasticities of good-level utilities with respect to trade costs at destination countries. The complete country-level estimates are given in Table A2.

Table 6 - Summary of Good-Level Estimation Results for Homogeneous Goods

	Multiplicatively Quasi-Separable (MQS)							Additively Quasi-Separable (AQS)							
	θ^g	ε^g	μ^g	δ^g	δ_τ^g	δ_u^g	R-Sqd.	$\alpha^g \times 10^3$	ε^g	μ^g	δ^g	δ_τ^g	δ_u^g	φ^g	R-Sqd.
1st Percentile	0.08	1.09	1.58	0.01	0.00	0.01	0.47	0.00	5.50	1.00	0.01	0.00	0.01	0.95	0.07
10th Percentile	0.19	1.23	2.12	0.07	0.02	0.05	0.55	0.01	8.97	1.01	0.06	0.01	0.04	1.12	0.14
25th Percentile	0.23	1.31	2.58	0.15	0.03	0.14	0.60	0.04	13.82	1.03	0.13	0.03	0.12	1.27	0.19
Median	0.32	1.48	3.10	0.27	0.06	0.23	0.68	0.08	21.72	1.06	0.31	0.07	0.32	1.48	0.27
75th Percentile	0.39	1.63	4.28	0.44	0.09	0.47	0.76	0.25	36.42	1.09	0.64	0.15	0.63	1.76	0.39
90th Percentile	0.47	1.89	5.32	0.68	0.13	0.82	0.82	0.51	87.60	1.15	1.07	0.25	1.57	2.04	0.55
99th Percentile	0.63	2.73	12.11	3.78	0.26	4.80	0.89	3.59	403.09	1.26	6.78	0.81	7.12	2.61	0.85

Notes: These are the summary statistics for the distribution of estimated parameters and the explanatory power of regressions that have been run at the good level. α^g's in the table have been multiplied by 1,000 for presentational purposes. All the parameter estimates are significant at the 10% level according to their standard errors calculated by the Delta method. For the case of AQS, the summary statistics of ε^g, φ^g and μ^g have been obtained as the median across source and destination countries. The complete good-level estimates are given in Table A1.

Table 7 - Summary of Good-Level Estimation Results for Differentiated Products

	Multiplicatively Quasi-Separable (MQS)							Additively Quasi-Separable (AQS)							
	θ^g	ε^g	μ^g	δ^g	δ^g_τ	δ^g_u	R-Sqd.	$\alpha^g \times 10^3$	ε^g	μ^g	δ^g	δ^g_τ	δ^g_u	φ^g	R-Sqd.
1st Percentile	0.06	1.07	2.11	0.04	0.00	0.01	0.51	0.00	4.37	1.00	0.00	0.00	0.00	0.94	0.06
10th Percentile	0.11	1.12	2.93	0.14	0.01	0.18	0.58	0.00	10.81	1.00	0.03	0.01	0.03	1.08	0.08
25th Percentile	0.14	1.16	3.74	0.25	0.02	0.25	0.65	0.02	19.02	1.00	0.09	0.02	0.09	1.21	0.12
Median	0.20	1.25	4.96	0.39	0.04	0.39	0.69	0.13	49.79	1.02	0.23	0.05	0.23	1.37	0.19
75th Percentile	0.27	1.36	7.13	0.58	0.07	0.56	0.78	0.41	422.87	1.06	0.40	0.09	0.40	1.56	0.29
90th Percentile	0.34	1.52	9.25	0.77	0.10	0.68	0.84	1.73	2,633.94	1.12	0.68	0.19	0.68	1.76	0.44
99th Percentile	0.48	1.91	15.40	1.01	0.22	1.00	0.93	8.35	132,492.30	1.36	2.76	1.86	3.06	2.51	0.95

Notes: These are the summary statistics for the distribution of estimated parameters and the explanatory power of regressions that have been run at the good level. α^g 's in the table have been multiplied by 1,000 for presentational purposes. All the parameter estimates are significant at the 10% level according to their standard errors calculated by the Delta method. For the case of AQS, the summary statistics of ε^g, φ^g and μ^g have been obtained as the median across source and destination countries. The complete good-level estimates are given in Table A1.

Table A1 - Good-Level Estimation Results (For Online Publication)

		Multiplicatively Quasi-Separable (MQS)							Additively Quasi-Separable (AQS)							
SITC	**HG**	θ^g	ε^g	μ^g	δ^g	δ^g_τ	δ^g_u	**R-squared**	$\alpha^g \times 10^3$	ε^g	μ^g	δ^g	δ^g_τ	δ^g_u	φ^g	**R-squared**
111	1	0.28	1.39	3.60	0.09	0.04	0.05	0.58	0.12	34.18	1.04	0.12	0.00	0.12	1.51	0.35
129	1	0.43	1.74	2.35	0.00	0.10	0.00	0.83	2.42	7.79	1.16	0.00	0.12	0.00	1.04	0.82
141	1	0.19	1.24	5.19	0.00	0.03	0.00	0.79	6.44	6.70	1.28	0.00	0.00	0.00	1.31	0.86
142	1	0.36	1.57	2.75	0.18	0.08	0.10	0.55	0.31	19.62	1.06	0.13	0.06	0.08	1.57	0.41
149	1	0.24	1.31	4.21	0.20	0.05	0.15	0.52	0.34	14.49	1.08	0.60	0.03	0.57	1.82	0.28
223	1	0.54	2.18	1.85	0.29	0.06	0.23	0.67	0.02	121.89	1.01	0.09	0.05	0.04	1.57	0.41
240	1	0.21	1.27	4.70	0.23	0.02	0.21	0.52	0.18	31.51	1.04	0.18	0.00	0.18	2.07	0.23
252	1	0.34	1.52	2.93	6.33	0.01	6.31	0.71	0.61	17.67	1.07	4.37	0.14	4.23	1.17	0.37
341	1	0.36	1.57	2.76	0.06	0.20	0.00	0.69	0.30	29.14	1.04	0.14	0.25	0.00	1.33	0.26
342	0	0.20	1.25	4.96	0.21	0.09	0.00	0.58	0.19	11.93	1.10	0.21	0.24	0.00	1.60	0.19
371	1	0.18	1.22	5.65	0.28	0.09	0.19	0.56	0.93	6.20	1.20	0.37	0.00	0.37	1.32	0.18
412	1	0.26	1.36	3.78	0.13	0.07	0.06	0.63	0.01	8.71	1.21	0.63	0.00	0.63	1.84	0.37
421	1	0.34	1.52	2.92	0.00	0.04	0.00	0.77	0.08	16.22	1.07	0.00	0.00	0.00	1.35	0.85
422	1	0.24	1.32	4.16	0.27	0.07	0.20	0.68	0.04	15.56	1.08	0.13	0.00	0.13	1.74	0.65
440	1	0.42	1.73	2.38	0.09	0.12	0.00	0.81	0.01	68.70	1.02	0.21	0.21	0.00	2.62	0.22
459	1	0.51	2.04	1.96	1.28	0.03	1.25	0.83	0.01	116.50	1.01	2.58	0.07	2.51	1.32	0.57
460	1	0.50	1.99	2.01	0.19	0.06	0.14	0.67	0.05	9.42	1.13	0.60	0.21	0.39	1.46	0.58
470	1	0.42	1.72	2.39	0.32	0.09	0.23	0.75	0.17	6.64	1.22	0.44	0.11	0.33	1.34	0.44
482	0	0.22	1.28	4.52	0.72	0.05	0.67	0.71	0.11	4.83	1.32	1.73	0.00	1.73	1.20	0.48
483	0	0.24	1.32	4.17	0.56	0.09	0.47	0.55	0.23	10.67	1.12	0.39	0.18	0.21	1.61	0.19
484	0	0.27	1.36	3.75	0.58	0.02	0.56	0.46	0.13	31.44	1.04	0.09	0.00	0.09	1.80	0.15
488	0	0.25	1.33	4.03	0.51	0.00	0.50	0.51	0.21	20.30	1.06	0.22	0.00	0.22	1.69	0.19
541	1	0.37	1.59	2.70	0.23	0.03	0.00	0.72	0.02	24.48	1.06	0.00	0.00	0.00	1.40	0.36
542	1	0.28	1.39	3.54	0.32	0.04	0.28	0.65	0.07	15.83	1.07	0.36	0.02	0.34	1.70	0.28
545	1	0.33	1.50	2.99	0.54	0.15	0.40	0.62	0.05	22.95	1.06	0.34	0.14	0.20	1.69	0.18
546	1	0.38	1.62	2.62	0.43	0.05	0.38	0.58	0.12	15.19	1.08	0.78	0.00	0.78	1.65	0.19
548	1	0.23	1.30	4.29	0.17	0.01	0.17	0.81	0.08	87.89	1.01	0.67	0.06	0.61	1.11	0.33
564	1	0.19	1.24	5.24	0.03	0.00	0.03	0.72	0.74	6.22	1.24	6.56	0.00	6.56	1.29	0.40
565	0	0.14	1.17	7.01	1.00	0.03	0.97	0.53	0.16	17.07	1.07	0.45	0.02	0.43	1.67	0.17
571	1	0.32	1.46	3.15	0.75	0.06	0.69	0.56	0.07	12.14	1.10	0.96	0.02	0.94	2.58	0.28
579	1	0.44	1.79	2.27	0.28	0.08	0.00	0.60	0.07	23.31	1.05	0.00	0.06	0.00	1.91	0.19
582	0	0.35	1.55	2.83	0.00	0.03	0.00	0.56	0.46	15.16	1.07	0.00	0.02	0.00	1.28	0.53
585	1	0.32	1.48	3.09	0.38	0.06	0.00	0.59	0.12	23.54	1.06	0.00	0.00	0.00	1.43	0.25
612	1	0.34	1.51	2.95	0.31	0.11	0.00	0.62	0.05	10.02	1.14	0.18	0.39	0.00	2.06	0.33
616	1	0.48	1.91	2.10	0.16	0.00	0.16	0.64	0.42	16.79	1.07	0.19	0.00	0.19	1.44	0.32
619	0	0.40	1.66	2.51	0.12	0.08	0.00	0.69	0.07	25.55	1.04	0.08	1.96	0.00	1.31	0.27
620	1	0.27	1.38	3.66	0.48	0.03	0.44	0.47	0.31	18.23	1.06	0.14	0.02	0.12	1.50	0.16
711	1	0.30	1.43	3.35	0.79	0.00	0.79	0.62	0.31	20.28	1.06	1.60	0.00	1.60	2.48	0.30
722	1	0.43	1.76	2.31	0.22	0.02	0.21	0.60	0.34	9.24	1.15	0.18	0.00	0.18	1.47	0.30
730	0	0.27	1.37	3.73	0.63	0.02	0.61	0.51	0.20	33.39	1.03	0.15	0.00	0.15	1.61	0.17
742	1	0.99	162.55	1.01	0.00	0.03	0.00	1.00	0.01	271.44	1.01	0.00	0.04	0.00	1.01	1.00
751	1	0.20	1.25	4.97	0.12	0.01	0.00	0.60	0.86	13.00	1.09	0.00	0.01	0.00	1.28	0.29
812	1	0.33	1.50	2.99	0.00	0.11	0.00	0.80	0.10	5.21	1.26	0.00	0.00	0.00	1.30	0.51
819	1	0.30	1.43	3.32	0.63	0.06	0.57	0.73	0.05	34.26	1.03	0.59	0.03	0.56	1.39	0.27
914	1	0.27	1.37	3.72	0.24	0.08	0.16	0.66	0.29	7.28	1.19	0.83	0.07	0.76	1.34	0.41
980	0	0.10	1.11	10.52	0.86	0.00	0.86	0.57	0.20	19.74	1.06	0.19	0.00	0.19	1.53	0.09
1110	0	0.25	1.34	3.98	0.63	0.05	0.00	0.58	0.00	12743.53	1.00	0.00	0.05	0.00	1.50	0.21
1121	1	0.13	1.15	7.77	1.02	0.01	1.01	0.71	0.17	29.81	1.04	1.07	0.00	1.07	1.37	0.23
1123	1	0.22	1.29	4.47	0.65	0.07	0.59	0.60	0.15	12.14	1.10	0.65	0.06	0.59	1.68	0.31
1222	1	0.22	1.27	4.64	0.38	0.06	0.32	0.47	0.73	22.89	1.05	0.17	0.05	0.11	2.24	0.24
2224	1	0.32	1.48	3.10	0.00	0.06	0.00	0.80	0.14	14.13	1.09	0.00	0.18	0.00	1.62	0.45
2226	1	0.47	1.87	2.14	0.00	0.01	0.00	0.81	0.01	42.32	1.05	1.99	0.00	0.00	2.00	0.58
2331	1	0.37	1.58	2.72	0.15	0.03	0.12	0.62	0.13	19.35	1.06	0.25	0.00	0.25	2.00	0.25
2450	0	0.39	1.64	2.55	0.21	0.14	0.00	0.80	0.07	11.15	1.10	0.11	0.19	0.00	1.36	0.65
2460	1	0.44	1.78	2.28	1.80	0.41	1.39	0.86	0.01	36.42	1.06	5.56	0.57	4.99	1.52	0.60
2471	1	0.32	1.46	3.17	0.67	0.06	0.61	0.77	0.01	22.71	1.06	2.49	0.05	2.45	1.63	0.33
2472	1	0.43	1.75	2.34	0.45	0.19	0.26	0.75	0.02	29.85	1.03	0.99	0.00	0.99	2.50	0.41
2482	0	0.37	1.60	2.67	0.44	0.08	0.35	0.67	0.01	48.79	1.03	0.36	0.09	0.28	2.00	0.26
2483	0	0.32	1.47	3.12	0.27	0.04	0.00	0.63	0.04	52.45	1.02	0.18	0.21	0.00	2.11	0.25
2511	1	0.33	1.50	3.01	0.02	0.01	0.00	0.63	0.01	29.90	1.04	0.00	0.01	0.00	1.79	0.36
2665	1	0.23	1.30	4.37	0.07	0.04	0.03	0.55	0.28	10.93	1.11	0.21	0.01	0.20	1.76	0.23
2667	1	0.32	1.47	3.12	0.08	0.03	0.05	0.63	0.25	20.37	1.05	0.09	0.04	0.05	1.41	0.38
2711	0	0.29	1.41	3.46	0.00	0.05	0.00	0.93	0.08	24.49	1.04	0.00	0.07	0.00	1.06	0.48
2714	0	0.32	1.48	3.12	0.06	0.04	0.00	0.83	0.53	3.03	1.54	0.00	0.00	0.00	1.00	1.00
2731	0	0.36	1.56	2.79	0.13	0.02	0.00	0.73	0.02	32.94	1.03	0.00	0.00	0.00	1.53	0.34
2732	1	0.31	1.44	3.28	0.36	0.12	0.00	0.87	0.01	59.09	1.04	0.00	0.13	0.00	1.17	0.47
2733	1	0.39	1.63	2.58	1.41	0.24	1.17	0.89	0.00	412.74	1.00	2.48	0.25	2.23	1.02	0.37
2734	1	0.37	1.58	2.71	0.30	0.17	0.13	0.89	0.00	69.14	1.02	6.08	0.18	5.90	1.20	0.56
2782	1	0.37	1.58	2.73	0.26	0.11	0.15	0.76	0.01	31.40	1.03	0.38	0.00	0.38	1.47	0.29
2783	1	0.32	1.46	3.17	0.00	0.13	0.00	0.86	0.01	26.20	1.05	0.00	0.10	0.00	1.05	0.51
2785	1	0.28	1.39	3.58	0.26	0.17	0.00	0.80	0.04	14.94	1.08	0.00	0.21	0.00	1.16	0.32
2786	1	0.23	1.29	4.43	0.00	0.26	0.00	0.85	0.02	7.61	1.19	0.00	0.63	0.00	1.12	0.48
2789	1	0.35	1.54	2.84	0.04	0.08	0.00	0.75	0.01	43.17	1.03	0.00	0.08	0.00	1.52	0.32
2816	1	0.56	2.29	1.77	0.02	0.03	0.00	0.86	0.00	13.53	1.09	0.07	0.01	0.00	1.44	0.64
2820	1	0.39	1.65	2.55	0.00	0.10	0.00	0.67	0.01	32.34	1.05	0.65	0.12	0.00	1.86	0.27
2873	1	0.18	1.21	5.69	0.43	0.13	0.30	0.79	0.02	40.36	1.03	0.58	0.20	0.37	1.43	0.44
2879	1	0.18	1.22	5.48	0.64	0.15	0.00	0.81	0.07	31.49	1.03	0.00	0.00	0.00	1.22	0.42
2882	1	0.24	1.32	4.16	0.22	0.04	0.18	0.45	0.06	27.16	1.04	0.82	0.25	0.57	2.46	0.21
2919	0	0.15	1.17	6.79	0.35	0.10	0.00	0.80	0.36	19.11	1.06	0.00	0.07	0.00	0.80	0.25
2922	0	0.11	1.13	8.98	0.58	0.04	0.00	0.80	1.96	6.31	1.22	0.07	0.10	0.00	1.08	0.41
2923	0	0.43	1.76	2.32	0.00	0.00	0.00	0.82	0.36	15.00	1.07	0.00	0.11	0.00	1.54	0.50
2925	1	0.06	1.06	16.98	1.14	0.00	1.13	0.76	0.42	45.64	1.03	1.06	0.00	1.06	0.94	0.19
3224	0	0.25	1.34	3.93	0.00	0.06	0.00	0.78	0.02	23.19	1.05	0.00	0.06	0.00	1.23	0.33
3232	1	0.38	1.62	2.62	0.89	0.03	0.85	0.72	0.01	10.38	1.14	0.69	0.00	0.69	1.79	0.46
3341	1	0.64	2.74	1.57	0.35	0.03	0.31	0.68	0.00	26.37	1.06	0.59	0.00	0.59	1.98	0.22

Table A1 - Good-Level Estimation Results (For Online Publication)

		Multiplicatively Quasi-Separable (MQS)							Additively Quasi-Separable (AQS)							
SITC	HG	θ^g	ε^g	μ^g	δ^g	δ_τ^g	δ_u^g	R-squared	$\alpha^g \times 10^3$	ε^g	μ^g	δ^g	δ_τ^g	δ_u^g	φ^g	R-squared
3342	1	0.63	2.69	1.59	0.68	0.02	0.66	0.76	0.01	21.77	1.08	0.55	0.00	0.54	1.81	0.33
3345	1	0.51	2.03	1.97	0.57	0.04	0.53	0.76	0.02	62.71	1.02	0.29	0.00	0.29	1.73	0.14
3351	1	0.35	1.54	2.85	0.00	0.06	0.00	0.68	0.14	15.71	1.09	0.07	0.21	0.00	1.38	0.41
3352	1	0.50	1.98	2.02	0.00	0.09	0.00	0.75	0.03	32.33	1.04	0.80	0.12	0.00	1.73	0.33
3353	1	0.49	1.94	2.06	3.73	0.07	3.66	0.84	0.09	5.33	1.25	8.02	0.15	7.87	1.18	0.65
3354	0	0.35	1.54	2.84	0.25	0.04	0.00	0.76	0.02	21.60	1.06	0.00	0.05	0.00	1.49	0.39
3413	1	0.22	1.29	4.47	0.44	0.07	0.36	0.70	0.00	57.12	1.02	0.29	0.00	0.29	1.72	0.39
4111	1	0.20	1.26	4.88	0.20	0.08	0.12	0.85	0.41	10.09	1.12	1.45	0.01	1.43	1.00	0.40
4113	1	0.39	1.65	2.54	0.08	0.11	0.00	0.77	0.12	14.30	1.08	0.04	0.00	0.00	1.19	0.34
4232	1	0.46	1.86	2.17	0.22	0.02	0.00	0.76	0.10	15.30	1.09	0.00	0.00	0.00	1.50	0.55
4233	0	0.80	4.94	1.25	0.00	0.04	0.00	1.00	0.19	7.15	1.18	0.00	0.01	0.00	1.71	1.00
4236	1	0.36	1.57	2.76	0.44	0.01	0.00	0.69	0.10	13.60	1.11	0.12	0.19	0.00	1.60	0.45
4249	1	0.25	1.33	4.07	1.24	0.12	1.11	0.78	0.53	7.01	1.20	2.81	0.15	2.66	1.25	0.51
4311	1	0.21	1.27	4.67	0.10	0.09	0.00	0.82	0.33	9.36	1.17	0.00	0.22	0.00	1.07	0.33
4312	1	0.48	1.91	2.09	0.16	0.07	0.10	0.68	0.15	15.38	1.07	0.06	0.05	0.01	1.89	0.36
4313	0	0.19	1.24	5.13	0.24	0.10	0.13	0.69	0.29	6.36	1.20	0.68	0.00	0.68	1.30	0.32
5111	1	0.53	2.12	1.89	0.00	0.09	0.00	0.73	0.04	12.55	1.09	0.39	0.74	0.00	1.76	0.26
5112	1	0.51	2.03	1.98	0.07	0.09	0.00	0.61	0.03	24.05	1.06	0.38	0.02	0.00	2.00	0.19
5113	1	0.37	1.60	2.68	0.01	0.01	0.00	0.77	0.09	42.46	1.03	0.00	0.00	0.00	1.24	0.30
5114	1	0.25	1.33	4.05	0.00	0.12	0.00	0.68	0.85	7.03	1.21	0.62	0.00	0.00	1.18	0.38
5121	1	0.38	1.61	2.63	0.06	0.05	0.01	0.69	0.06	29.29	1.04	0.11	0.09	0.02	1.42	0.32
5122	1	0.13	1.15	7.84	0.00	0.04	0.00	0.76	0.72	21.69	1.05	0.00	0.08	0.00	1.00	0.20
5123	1	0.24	1.31	4.25	0.00	0.03	0.00	0.76	0.38	14.81	1.10	0.08	0.00	0.00	1.17	0.31
5137	1	0.21	1.27	4.75	0.36	0.00	0.35	0.70	0.17	17.72	1.07	0.21	0.00	0.21	1.37	0.28
5138	1	0.38	1.62	2.60	0.06	0.05	0.01	0.60	0.08	24.40	1.05	0.46	0.00	0.46	1.58	0.17
5161	1	0.27	1.37	3.67	0.87	0.05	0.82	0.77	0.11	36.85	1.03	0.89	0.03	0.86	1.54	0.31
5162	1	0.26	1.35	3.82	0.39	0.12	0.00	0.81	0.28	14.79	1.09	0.00	0.12	0.00	1.00	0.32
5163	1	0.11	1.13	8.76	0.00	0.03	0.00	0.73	1.68	6.50	1.21	0.00	0.00	0.00	1.20	0.37
5169	1	0.09	1.10	11.28	0.65	0.06	0.59	0.77	2.17	9.27	1.13	0.41	0.01	0.41	1.05	0.33
5221	1	0.20	1.26	4.89	0.18	0.13	0.00	0.74	0.10	17.96	1.06	0.00	0.11	0.00	1.00	0.22
5222	1	0.22	1.29	4.47	0.37	0.12	0.00	0.76	0.06	21.41	1.06	0.00	0.08	0.00	1.07	0.26
5223	1	0.21	1.27	4.68	0.41	0.19	0.00	0.86	0.49	16.43	1.11	0.36	0.53	0.00	1.13	0.56
5225	1	0.30	1.43	3.32	0.12	0.16	0.00	0.77	0.05	19.19	1.06	0.00	0.01	0.00	1.24	0.23
5231	1	0.25	1.34	3.92	0.58	0.09	0.49	0.70	0.12	10.82	1.11	0.52	0.00	0.52	1.20	0.18
5232	1	0.35	1.54	2.86	0.20	0.07	0.14	0.66	0.05	16.10	1.07	0.03	0.02	0.02	1.34	0.25
5239	1	0.19	1.24	5.13	0.09	0.21	0.00	0.77	0.27	8.09	1.15	0.08	0.24	0.00	0.92	0.24
5311	1	0.20	1.24	5.10	0.44	0.00	0.44	0.63	1.11	11.07	1.12	0.44	0.00	0.44	1.70	0.26
5312	1	0.16	1.19	6.38	0.08	0.06	0.00	0.72	0.35	43.54	1.03	0.00	0.04	0.00	1.20	0.15
5331	1	0.19	1.23	5.32	0.67	0.02	0.66	0.57	0.20	23.68	1.05	0.11	0.00	0.11	1.49	0.15
5332	0	0.24	1.32	4.10	0.47	0.07	0.00	0.65	0.44	29.87	1.04	0.00	0.00	0.00	1.31	0.15
5334	0	0.31	1.45	3.21	0.49	0.05	0.00	0.57	0.04	118.01	1.01	0.00	0.04	0.00	1.77	0.11
5335	0	0.31	1.44	3.27	0.31	0.08	0.00	0.66	0.09	38.01	1.03	0.00	0.06	0.00	1.29	0.12
5411	1	0.08	1.09	12.32	0.64	0.03	0.61	0.76	0.00	10.92	1.10	0.41	0.01	0.39	1.25	0.25
5417	0	0.11	1.12	9.25	0.81	0.09	0.72	0.69	0.00	21.01	1.05	0.28	0.03	0.25	1.34	0.24
5530	0	0.26	1.35	3.83	0.66	0.01	0.65	0.65	0.28	35.60	1.03	0.32	0.00	0.32	1.72	0.15
5541	0	0.35	1.53	2.88	0.27	0.08	0.19	0.59	0.26	14.77	1.08	0.31	0.08	0.23	1.42	0.18
5542	0	0.48	1.93	2.08	0.29	0.04	0.24	0.59	0.06	41.06	1.03	0.08	0.01	0.07	1.81	0.15
5543	0	0.20	1.25	4.97	0.35	0.04	0.31	0.67	0.17	38.35	1.03	0.13	0.03	0.10	1.11	0.21
5621	1	0.32	1.48	3.09	0.32	0.07	0.25	0.65	0.03	7.65	1.19	0.92	0.00	0.92	1.44	0.25
5623	1	0.55	2.24	1.81	0.19	0.05	0.14	0.76	0.01	25.50	1.06	0.38	0.00	0.38	1.83	0.22
5629	1	0.39	1.64	2.55	0.20	0.07	0.13	0.75	0.04	18.71	1.08	0.31	0.19	0.11	1.47	0.26
5721	0	0.21	1.26	4.83	0.02	0.22	0.00	0.84	1.23	15.26	1.13	0.00	0.21	0.00	1.07	0.87
5821	1	0.33	1.50	3.00	0.10	0.08	0.00	0.59	0.27	14.55	1.08	0.03	0.07	0.00	1.21	0.25
5822	1	0.35	1.53	2.90	0.13	0.09	0.00	0.69	0.17	19.86	1.06	0.00	0.10	0.00	1.40	0.37
5823	1	0.40	1.66	2.52	0.28	0.04	0.23	0.57	0.07	34.57	1.03	0.16	0.00	0.16	1.53	0.13
5824	1	0.39	1.63	2.58	0.05	0.04	0.01	0.59	0.21	17.58	1.07	0.06	0.02	0.04	1.89	0.26
5825	1	0.24	1.31	4.24	0.57	0.02	0.56	0.59	0.19	30.01	1.04	0.13	0.00	0.13	1.76	0.16
5826	1	0.31	1.45	3.22	0.06	0.00	0.06	0.60	0.06	116.49	1.01	0.03	0.01	0.01	1.50	0.16
5827	1	0.30	1.43	3.33	0.03	0.03	0.00	0.68	0.10	93.49	1.01	0.04	0.01	0.00	1.52	0.14
5829	1	0.28	1.39	3.54	0.00	0.05	0.00	0.56	0.17	17.55	1.07	0.01	0.04	0.00	1.64	0.19
5831	1	0.29	1.40	3.48	0.30	0.01	0.29	0.53	0.03	61.28	1.02	0.13	0.00	0.13	2.03	0.09
5832	1	0.37	1.59	2.68	0.20	0.03	0.17	0.55	0.03	72.09	1.02	0.07	0.00	0.07	1.59	0.09
5833	1	0.36	1.56	2.80	0.22	0.02	0.20	0.50	0.04	64.74	1.02	0.19	0.00	0.19	1.78	0.14
5834	1	0.42	1.74	2.36	0.33	0.03	0.00	0.56	0.08	27.57	1.04	0.38	0.60	0.00	1.95	0.14
5835	1	0.38	1.63	2.60	0.24	0.10	0.14	0.74	0.40	12.84	1.11	0.16	0.10	0.06	1.35	0.54
5836	1	0.35	1.53	2.89	0.57	0.05	0.53	0.65	0.06	74.36	1.01	0.11	0.02	0.09	1.54	0.22
5837	1	0.32	1.48	3.10	0.44	0.06	0.37	0.66	0.23	16.91	1.08	0.18	0.05	0.12	1.38	0.32
5839	0	0.26	1.34	3.92	0.59	0.00	0.59	0.62	0.01	275.55	1.00	0.01	0.00	0.01	1.82	0.07
5842	0	0.49	1.96	2.04	0.23	0.01	0.22	0.58	0.89	6.16	1.22	0.31	0.06	0.25	1.25	0.50
5843	1	0.56	2.29	1.78	0.09	0.04	0.05	0.88	0.33	28.45	1.05	0.14	0.00	0.14	1.77	0.81
5852	1	0.10	1.11	10.13	0.00	0.03	0.00	0.75	0.16	117.90	1.01	0.40	0.03	0.00	1.04	0.15
5912	0	0.11	1.12	9.26	0.38	0.02	0.36	0.68	3.29	5.34	1.24	0.31	0.00	0.31	1.21	0.30
5914	0	0.16	1.19	6.37	0.19	0.01	0.18	0.68	1.28	9.08	1.13	0.03	0.00	0.03	1.09	0.33
5921	0	0.40	1.66	2.52	0.51	0.07	0.44	0.68	0.11	10.31	1.12	0.13	0.09	0.04	1.39	0.30
5922	1	0.27	1.37	3.70	0.33	0.05	0.00	0.68	0.04	102.33	1.01	0.00	0.03	0.00	1.20	0.08
5981	1	0.29	1.41	3.46	0.03	0.04	0.00	0.72	0.17	15.77	1.07	0.35	0.00	0.00	1.34	0.36
5982	0	0.26	1.36	3.80	0.78	0.03	0.00	0.66	0.07	50.98	1.02	0.00	0.01	0.00	1.66	0.16
5983	0	0.31	1.45	3.21	0.59	0.05	0.54	0.68	0.25	18.52	1.06	0.11	0.05	0.06	1.38	0.23
5989	0	0.16	1.20	6.11	0.72	0.03	0.00	0.74	0.02	241.35	1.00	0.00	0.01	0.00	1.16	0.09
6118	0	0.29	1.41	3.46	0.56	0.00	0.56	0.74	1.09	49.79	1.02	0.17	0.00	0.17	1.60	0.41
6122	0	0.30	1.43	3.34	0.00	0.01	0.00	0.77	16.87	3.44	1.43	0.00	1.13	0.00	1.09	0.99
6210	0	0.31	1.45	3.25	0.26	0.03	0.00	0.67	0.03	215.31	1.00	0.00	0.02	0.00	1.25	0.08
6252	0	0.18	1.22	5.49	0.35	0.06	0.29	0.74	0.04	69.79	1.02	0.89	0.10	0.79	1.52	0.17
6259	0	0.09	1.10	11.05	0.26	0.06	0.19	0.85	0.01	392.09	1.00	0.35	0.06	0.29	1.27	0.24
6282	0	0.13	1.15	7.60	0.55	0.05	0.51	0.78	0.03	737.15	1.00	0.55	0.04	0.51	1.22	0.24

Table A1 - Good-Level Estimation Results (For Online Publication)

		Multiplicatively Quasi-Separable (MQS)							Additively Quasi-Separable (AQS)							
SITC	HG	θ^g	ε^g	μ^g	δ^g	δ_τ^g	δ_u^g	R-squared	$\alpha^g \times 10^3$	ε^g	μ^g	δ^g	δ_τ^g	δ_u^g	φ^g	R-squared
6289	0	0.19	1.24	5.14	0.41	0.01	0.40	0.72	0.02	952.49	1.00	0.01	0.00	0.01	1.21	0.07
6341	1	0.18	1.22	5.47	0.33	0.00	0.33	0.62	0.20	19.60	1.05	0.76	0.00	0.76	1.50	0.21
6342	1	0.27	1.36	3.75	0.22	0.05	0.17	0.53	0.06	29.91	1.04	0.64	0.01	0.63	2.16	0.21
6343	1	0.49	1.95	2.05	0.40	0.07	0.33	0.67	0.03	29.32	1.04	0.17	0.08	0.10	1.54	0.15
6349	0	0.33	1.48	3.07	0.00	0.06	0.00	0.77	0.54	4.21	1.36	0.00	0.14	0.00	1.04	0.47
6351	0	0.37	1.59	2.70	0.00	0.02	0.00	0.79	0.00	362.02	1.00	0.00	0.05	0.00	1.54	0.57
6353	0	0.14	1.17	6.97	0.36	0.00	0.00	0.57	0.25	22.15	1.05	0.00	0.01	0.00	1.40	0.28
6354	0	0.16	1.19	6.19	0.38	0.00	0.38	0.68	0.41	30.01	1.04	0.37	0.00	0.37	1.19	0.18
6359	0	0.20	1.25	5.08	0.62	0.04	0.58	0.70	0.15	33.99	1.03	0.03	0.01	0.01	1.12	0.17
6412	1	0.35	1.54	2.85	0.32	0.03	0.30	0.63	0.05	35.95	1.03	0.28	0.00	0.28	1.80	0.22
6413	1	0.40	1.66	2.51	0.29	0.04	0.26	0.63	0.02	68.80	1.02	0.11	0.00	0.11	1.95	0.15
6415	1	0.39	1.65	2.54	0.22	0.04	0.19	0.62	0.05	27.96	1.04	0.21	0.00	0.21	1.72	0.11
6416	1	0.39	1.63	2.58	0.50	0.04	0.46	0.61	0.03	27.99	1.04	0.41	0.00	0.41	1.56	0.21
6417	1	0.31	1.45	3.22	0.32	0.05	0.27	0.60	0.06	50.31	1.02	0.09	0.04	0.04	1.32	0.16
6418	1	0.18	1.22	5.46	0.53	0.03	0.50	0.60	0.09	33.06	1.03	0.19	0.00	0.19	1.60	0.16
6419	0	0.27	1.37	3.73	0.29	0.04	0.25	0.70	0.32	19.50	1.06	0.47	0.12	0.35	1.29	0.27
6421	1	0.38	1.62	2.61	0.37	0.06	0.00	0.57	0.01	271.26	1.00	0.00	0.05	0.00	1.73	0.07
6423	0	0.28	1.39	3.60	0.25	0.03	0.22	0.63	0.14	57.38	1.02	0.07	0.01	0.05	1.36	0.15
6424	0	0.37	1.58	2.72	0.17	0.05	0.00	0.66	0.08	65.45	1.02	0.00	0.04	0.00	1.31	0.15
6428	0	0.30	1.42	3.35	0.90	0.04	0.00	0.56	0.02	224.80	1.01	0.02	0.03	0.00	1.70	0.08
6511	0	0.27	1.38	3.65	0.00	0.06	0.00	0.79	2.61	21.31	1.05	0.00	0.00	0.00	1.44	0.67
6512	1	0.15	1.18	6.52	0.47	0.00	0.47	0.52	1.13	11.16	1.12	0.71	0.27	0.44	2.05	0.24
6513	1	0.37	1.58	2.74	0.22	0.00	0.22	0.56	0.38	24.64	1.05	0.34	0.00	0.34	1.66	0.17
6514	1	0.24	1.32	4.16	0.26	0.00	0.00	0.60	0.04	157.20	1.01	0.00	0.00	0.00	1.40	0.08
6515	1	0.23	1.30	4.39	0.00	0.05	0.00	0.82	3.88	6.97	1.18	0.00	0.21	0.00	1.04	0.58
6516	1	0.35	1.53	2.89	0.14	0.00	0.14	0.54	0.45	19.97	1.06	0.11	0.00	0.11	1.67	0.23
6517	1	0.33	1.49	3.04	0.18	0.01	0.17	0.57	0.98	13.39	1.08	0.41	0.00	0.41	1.46	0.26
6519	0	0.22	1.29	4.48	0.00	0.00	0.00	0.70	0.02	285.20	1.00	0.00	0.00	0.00	1.34	0.24
6521	1	0.23	1.31	4.28	0.22	0.01	0.20	0.66	0.19	60.77	1.02	0.28	0.00	0.28	1.49	0.22
6522	0	0.27	1.37	3.70	0.43	0.04	0.39	0.57	0.16	46.47	1.02	0.54	0.05	0.49	2.28	0.08
6531	1	0.21	1.27	4.74	0.49	0.02	0.46	0.65	0.11	64.13	1.02	0.32	0.00	0.32	1.81	0.14
6532	1	0.19	1.23	5.32	0.34	0.04	0.30	0.66	0.71	21.76	1.05	0.82	0.03	0.79	1.29	0.25
6534	1	0.27	1.38	3.64	0.37	0.03	0.33	0.62	0.04	234.35	1.01	0.10	0.03	0.06	2.15	0.11
6535	0	0.11	1.13	8.95	0.44	0.00	0.44	0.65	0.40	52.07	1.02	0.05	0.00	0.05	1.56	0.15
6536	0	0.24	1.32	4.09	0.20	0.02	0.18	0.66	1.05	16.79	1.07	0.52	0.04	0.48	1.34	0.35
6538	0	0.22	1.28	4.54	0.42	0.02	0.40	0.63	0.95	18.49	1.06	0.23	0.00	0.23	1.53	0.26
6542	0	0.20	1.25	5.07	0.29	0.02	0.27	0.52	4.41	11.95	1.10	0.29	0.00	0.29	2.23	0.19
6543	0	0.29	1.41	3.42	0.44	0.00	0.00	0.66	5.08	8.37	1.18	0.00	0.00	0.00	1.60	0.32
6546	0	0.30	1.43	3.32	0.26	0.04	0.22	0.64	0.48	30.63	1.04	0.36	0.01	0.35	1.31	0.26
6549	0	0.19	1.23	5.38	0.40	0.11	0.29	0.80	0.28	60.39	1.02	0.65	0.12	0.53	1.23	0.36
6552	0	0.26	1.34	3.91	0.44	0.01	0.00	0.54	0.03	326.78	1.00	0.00	0.00	0.00	2.56	0.10
6560	0	0.20	1.25	5.07	0.26	0.00	0.00	0.61	0.01	2403.26	1.00	0.00	0.00	0.00	1.45	0.09
6571	0	0.27	1.38	3.64	0.23	0.03	0.00	0.71	0.02	810.84	1.00	0.00	0.03	0.00	1.16	0.18
6572	0	0.24	1.32	4.14	0.32	0.00	0.00	0.62	0.12	67.85	1.02	0.00	0.00	0.00	1.55	0.11
6573	0	0.20	1.26	4.91	0.34	0.00	0.34	0.54	0.16	65.22	1.02	0.04	0.00	0.04	1.63	0.09
6575	0	0.17	1.21	5.83	0.10	0.01	0.00	0.64	0.15	71.69	1.02	0.00	0.00	0.00	1.18	0.11
6577	0	0.26	1.35	3.84	0.31	0.08	0.00	0.71	0.09	249.91	1.00	0.00	0.07	0.00	1.12	0.10
6579	0	0.11	1.13	8.79	0.50	0.02	0.48	0.79	1.17	43.89	1.03	0.38	0.01	0.36	1.03	0.23
6581	0	0.06	1.07	15.85	0.24	0.03	0.00	0.87	0.00	2205.35	1.00	0.00	0.03	0.00	1.17	0.71
6592	0	0.14	1.17	7.03	0.30	0.00	0.00	0.76	5.31	14.48	1.08	0.00	0.00	0.00	1.64	0.32
6594	0	0.17	1.21	5.81	0.89	0.02	0.00	0.70	4.54	11.02	1.11	0.00	0.00	0.00	1.22	0.21
6596	0	0.22	1.28	4.63	0.55	0.02	0.53	0.68	0.01	1460.40	1.00	0.13	0.02	0.11	1.17	0.27
6612	1	0.33	1.49	3.05	0.31	0.19	0.00	0.78	0.02	9.92	1.14	0.53	0.90	0.00	1.33	0.41
6613	0	0.22	1.29	4.48	0.65	0.00	0.65	0.70	0.15	13.43	1.10	1.50	0.15	1.35	1.42	0.15
6618	1	0.22	1.29	4.46	0.38	0.03	0.35	0.69	0.22	8.34	1.16	0.49	0.07	0.43	1.27	0.39
6623	1	0.20	1.25	5.03	0.37	0.06	0.31	0.62	0.14	10.71	1.11	0.46	0.14	0.32	1.37	0.39
6624	0	0.35	1.54	2.85	0.31	0.07	0.24	0.68	0.05	13.15	1.09	0.43	0.06	0.37	1.75	0.26
6631	0	0.14	1.16	7.12	0.14	0.11	0.04	0.69	0.48	31.38	1.04	0.03	0.03	0.00	1.09	0.12
6632	0	0.28	1.38	3.61	0.61	0.03	0.00	0.64	0.06	251.64	1.00	0.00	0.03	0.00	1.29	0.16
6633	0	0.29	1.40	3.49	0.61	0.21	0.41	0.80	0.06	23.85	1.05	0.25	0.23	0.02	0.99	0.25
6635	0	0.22	1.28	4.56	0.55	0.04	0.51	0.68	0.26	14.35	1.09	0.52	0.00	0.52	1.27	0.28
6637	0	0.12	1.14	8.06	0.93	0.06	0.00	0.76	0.06	169.41	1.01	0.00	0.06	0.00	1.33	0.72
6638	0	0.18	1.22	5.55	0.34	0.08	0.00	0.71	0.98	15.54	1.07	0.00	0.06	0.00	1.17	0.23
6641	0	0.13	1.14	7.99	0.93	0.18	0.00	0.79	0.19	26.39	1.05	0.11	1.20	0.00	0.99	0.40
6642	0	0.14	1.16	7.39	0.00	0.04	0.00	0.70	0.40	60.75	1.02	0.01	0.03	0.00	1.25	0.19
6644	0	0.31	1.46	3.19	0.17	0.12	0.04	0.66	0.22	7.54	1.18	0.25	0.05	0.20	1.30	0.23
6645	0	0.14	1.16	7.07	0.00	0.21	0.00	0.78	0.73	3.34	1.49	0.00	1.74	0.00	1.04	0.43
6647	0	0.35	1.54	2.86	0.18	0.10	0.00	0.69	0.10	93.91	1.01	0.00	0.09	0.00	1.20	0.13
6648	0	0.20	1.25	5.02	0.31	0.10	0.00	0.83	0.00	1850.23	1.00	0.00	0.10	0.00	1.01	0.29
6649	0	0.25	1.33	4.01	0.34	0.09	0.00	0.68	0.08	64.04	1.02	0.05	0.07	0.00	1.04	0.14
6652	0	0.16	1.19	6.36	0.50	0.00	0.50	0.90	0.00	2278.63	1.00	0.38	0.00	0.38	1.14	0.22
6658	0	0.06	1.07	15.41	0.34	0.03	0.00	0.74	0.96	23.69	1.05	0.00	0.00	0.00	1.00	0.13
6716	1	0.34	1.52	2.92	0.00	0.09	0.00	0.68	0.11	16.41	1.08	0.17	0.01	0.00	1.57	0.24
6724	0	0.30	1.43	3.32	0.00	0.14	0.00	0.79	0.13	17.69	1.08	0.00	0.00	0.00	1.18	0.65
6725	1	0.41	1.69	2.45	0.17	0.09	0.09	0.74	0.05	13.01	1.11	1.03	0.04	0.99	1.95	0.29
6727	0	0.40	1.66	2.52	0.10	0.07	0.03	0.65	0.03	17.29	1.08	0.08	0.00	0.08	1.92	0.18
6731	1	0.38	1.62	2.62	0.14	0.10	0.04	0.59	0.06	9.88	1.13	0.33	0.00	0.33	1.95	0.29
6732	1	0.46	1.85	2.17	0.19	0.12	0.00	0.67	0.04	19.98	1.06	0.17	0.18	0.00	1.62	0.20
6733	0	0.45	1.82	2.21	0.23	0.06	0.18	0.65	0.04	26.46	1.05	0.30	0.00	0.30	1.57	0.20
6744	1	0.41	1.69	2.44	0.12	0.08	0.04	0.65	0.06	21.23	1.05	0.18	0.00	0.18	1.52	0.22
6745	1	0.33	1.50	3.01	0.11	0.09	0.03	0.61	0.08	17.28	1.07	0.10	0.09	0.01	1.45	0.21
6746	1	0.36	1.57	2.77	0.11	0.07	0.04	0.62	0.04	26.60	1.04	0.27	0.00	0.27	1.59	0.21
6749	1	0.41	1.69	2.45	0.15	0.03	0.12	0.60	0.04	26.46	1.04	0.29	0.00	0.29	2.11	0.15
6760	1	0.19	1.24	5.22	0.74	0.05	0.69	0.70	0.21	12.73	1.11	3.53	0.10	3.43	1.32	0.34
6770	1	0.39	1.65	2.54	0.10	0.09	0.02	0.62	0.02	87.31	1.01	0.08	0.07	0.01	1.29	0.16

Table A1 - Good-Level Estimation Results (For Online Publication)

		Multiplicatively Quasi-Separable (MQS)							Additively Quasi-Separable (AQS)							
SITC	HG	θ^g	ε^g	μ^g	δ^g	δ^g_τ	δ^g_u	R-squared	$\alpha^g \times 10^3$	ε^g	μ^g	δ^g	δ^g_τ	δ^g_u	φ^g	R-squared
6781	0	0.34	1.52	2.91	0.00	0.09	0.00	0.82	0.35	7.61	1.17	0.27	1.48	0.00	1.33	0.82
6782	0	0.25	1.33	4.06	0.15	0.05	0.00	0.62	0.20	13.62	1.09	0.22	0.33	0.00	1.54	0.16
6783	1	0.45	1.82	2.22	0.12	0.07	0.00	0.66	0.07	26.10	1.05	0.05	0.13	0.00	1.67	0.15
6785	1	0.25	1.33	4.00	0.16	0.06	0.11	0.64	0.09	84.84	1.01	0.04	0.03	0.01	1.37	0.08
6793	0	0.22	1.28	4.52	0.00	0.10	0.00	0.74	0.04	133.59	1.01	0.09	0.10	0.00	1.01	0.13
6794	0	0.29	1.41	3.43	0.34	0.08	0.26	0.68	0.37	11.85	1.10	0.33	0.05	0.28	1.15	0.28
6822	1	0.46	1.84	2.19	0.22	0.02	0.20	0.57	0.02	364.51	1.00	0.05	0.02	0.02	2.30	0.10
6841	1	0.37	1.59	2.69	0.15	0.02	0.14	0.47	0.08	24.23	1.05	0.76	0.04	0.72	3.08	0.18
6842	1	0.42	1.72	2.40	0.29	0.00	0.29	0.55	0.06	131.72	1.01	0.00	0.00	0.00	2.10	0.09
6852	1	0.31	1.44	3.27	0.00	0.13	0.00	0.85	0.18	40.90	1.03	0.00	0.16	0.00	1.17	0.62
6861	1	0.30	1.42	3.38	0.18	0.00	0.17	0.48	0.04	53.45	1.03	0.13	0.00	0.13	2.08	0.23
6863	1	0.32	1.46	3.16	0.01	0.06	0.00	0.67	0.35	13.82	1.08	0.04	0.10	0.00	1.12	0.44
6871	1	0.22	1.29	4.47	1.93	0.00	1.93	0.51	0.13	87.94	1.01	0.86	0.00	0.86	2.08	0.52
6911	0	0.22	1.29	4.45	0.25	0.02	0.23	0.54	0.30	12.24	1.10	0.02	0.00	0.02	1.52	0.14
6912	0	0.16	1.19	6.37	0.29	0.00	0.00	0.48	1.18	13.99	1.08	0.00	0.00	0.00	1.57	0.18
6921	0	0.11	1.13	8.95	0.00	0.04	0.00	0.66	0.25	41.43	1.03	0.00	0.00	0.00	1.19	0.17
6924	0	0.16	1.19	6.17	0.15	0.03	0.13	0.70	0.00	4554.00	1.00	0.25	0.02	0.22	1.48	0.39
6931	1	0.24	1.32	4.14	0.18	0.04	0.14	0.60	0.10	45.58	1.03	0.10	0.03	0.07	1.24	0.11
6932	1	0.30	1.43	3.30	0.38	0.06	0.00	0.87	0.38	14.25	1.11	0.06	0.10	0.00	1.06	0.73
6935	0	0.34	1.51	2.95	0.45	0.15	0.00	0.75	0.17	29.21	1.04	0.00	0.14	0.00	1.10	0.27
6940	0	0.24	1.31	4.18	0.50	0.06	0.00	0.72	0.01	926.27	1.00	0.03	0.06	0.00	1.31	0.07
6975	0	0.21	1.26	4.87	0.48	0.08	0.40	0.70	1.34	11.66	1.10	0.43	0.06	0.37	1.11	0.25
6991	0	0.25	1.33	4.08	0.79	0.01	0.00	0.67	0.01	794.96	1.00	0.00	0.01	0.00	1.89	0.08
6992	0	0.23	1.31	4.26	0.40	0.05	0.35	0.69	0.22	42.80	1.03	0.27	0.04	0.23	1.23	0.13
6993	0	0.13	1.15	7.86	0.42	0.02	0.00	0.67	0.01	2010.81	1.00	0.00	0.02	0.00	1.39	0.18
6994	0	0.32	1.47	3.13	0.49	0.12	0.00	0.71	0.02	537.90	1.00	0.00	0.12	0.00	1.20	0.10
6996	1	0.28	1.40	3.53	0.22	0.06	0.00	0.63	0.03	208.70	1.01	0.00	0.06	0.00	1.24	0.09
6997	0	0.25	1.33	4.04	0.41	0.04	0.37	0.68	0.02	427.23	1.00	0.06	0.04	0.02	1.17	0.06
6998	0	0.17	1.20	6.04	0.19	0.03	0.16	0.60	1.29	13.11	1.10	0.04	0.00	0.04	1.37	0.25
7139	0	0.26	1.35	3.83	0.36	0.00	0.00	0.69	0.09	404.97	1.00	0.00	0.00	0.00	1.86	0.07
7161	0	0.09	1.10	10.55	0.00	0.00	0.00	0.84	0.01	5731.11	1.00	0.00	0.00	0.00	1.25	0.25
7169	0	0.17	1.20	5.90	0.32	0.00	0.00	0.67	0.08	419.62	1.00	0.00	0.00	0.00	1.35	0.10
7188	0	0.13	1.16	7.45	0.24	0.00	0.24	0.66	1.31	26.25	1.04	0.06	0.00	0.06	1.25	0.13
7211	0	0.23	1.30	4.33	0.42	0.01	0.00	0.68	1.17	11.75	1.11	0.00	0.00	0.00	1.46	0.25
7212	0	0.11	1.12	9.25	0.66	0.00	0.00	0.70	0.77	21.34	1.06	0.00	0.02	0.00	1.53	0.35
7243	0	0.20	1.25	4.98	0.22	0.00	0.22	0.69	1.13	34.29	1.03	0.13	0.00	0.13	1.53	0.15
7244	0	0.11	1.13	8.77	0.11	0.00	0.11	0.69	4.40	7.29	1.18	0.18	0.09	0.09	1.23	0.20
7246	0	0.24	1.32	4.12	0.10	0.01	0.00	0.79	3.80	23.95	1.05	0.00	0.00	0.00	1.16	0.31
7247	0	0.12	1.14	8.16	0.19	0.00	0.19	0.68	1.40	21.61	1.06	0.11	0.00	0.11	1.66	0.19
7259	0	0.25	1.33	4.07	0.30	0.03	0.00	0.72	3.94	14.81	1.09	0.01	0.03	0.00	1.45	0.32
7269	0	0.18	1.22	5.51	0.72	0.04	0.69	0.72	2.07	48.40	1.03	0.11	0.02	0.09	1.32	0.21
7271	0	0.16	1.19	6.32	0.20	0.03	0.18	0.68	8.93	4.15	1.38	0.29	0.10	0.19	1.02	0.45
7272	0	0.14	1.16	7.21	0.51	0.01	0.50	0.63	5.86	6.53	1.20	0.34	0.00	0.34	1.37	0.26
7283	0	0.15	1.17	6.75	0.58	0.02	0.56	0.61	2.28	6.97	1.19	0.60	0.00	0.60	1.42	0.25
7284	0	0.07	1.08	13.90	0.53	0.01	0.52	0.67	0.66	34.38	1.03	0.02	0.00	0.02	1.75	0.07
7368	0	0.17	1.21	5.81	0.64	0.06	0.58	0.80	0.17	423.87	1.00	0.20	0.05	0.15	1.43	0.30
7369	0	0.19	1.23	5.31	0.00	0.01	0.00	0.78	0.37	138.99	1.01	0.00	0.00	0.00	1.24	0.20
7371	0	0.15	1.17	6.85	0.06	0.06	0.00	0.75	3.37	8.86	1.15	0.13	0.00	0.13	1.04	0.38
7372	0	0.13	1.15	7.45	0.04	0.00	0.00	0.73	2.66	6.15	1.21	0.00	0.00	0.00	0.99	0.35
7373	0	0.07	1.08	13.51	0.06	0.01	0.00	0.80	0.05	687.18	1.00	0.00	0.00	0.00	1.16	0.48
7414	0	0.18	1.22	5.45	0.41	0.01	0.40	0.58	0.97	18.75	1.06	0.17	0.00	0.17	1.55	0.10
7415	0	0.14	1.16	7.15	0.39	0.07	0.32	0.68	0.19	61.98	1.02	0.68	0.05	0.62	1.48	0.12
7416	0	0.16	1.19	6.38	0.38	0.00	0.38	0.69	0.57	42.56	1.03	0.09	0.00	0.09	1.52	0.13
7421	0	0.09	1.10	10.55	0.14	0.00	0.00	0.86	0.05	1078.12	1.00	0.00	0.00	0.00	1.33	0.34
7422	0	0.13	1.15	7.78	0.18	0.00	0.00	0.83	0.03	925.18	1.00	0.00	0.00	0.00	1.32	0.17
7423	0	0.12	1.13	8.55	0.00	0.00	0.00	0.84	0.04	1562.83	1.00	0.00	0.00	0.00	1.51	0.13
7428	0	0.09	1.10	10.77	0.36	0.00	0.36	0.87	0.01	2573.76	1.00	0.23	0.00	0.23	1.44	0.40
7429	0	0.19	1.24	5.13	0.38	0.00	0.00	0.74	0.23	250.58	1.00	0.00	0.00	0.00	1.34	0.09
7431	0	0.12	1.14	8.22	0.41	0.00	0.41	0.83	0.02	726.18	1.00	0.27	0.00	0.27	1.34	0.14
7434	0	0.17	1.21	5.73	0.12	0.00	0.00	0.89	0.00	4758.93	1.00	0.00	0.00	0.00	1.26	0.11
7439	0	0.16	1.20	6.09	0.36	0.00	0.00	0.73	0.20	238.04	1.00	0.00	0.00	0.00	1.33	0.08
7449	0	0.18	1.22	5.54	0.34	0.00	0.34	0.69	0.45	40.28	1.03	0.12	0.00	0.12	1.48	0.15
7451	0	0.11	1.12	9.13	0.70	0.00	0.70	0.75	0.29	221.17	1.00	0.21	0.00	0.21	1.27	0.10
7452	0	0.15	1.18	6.59	0.42	0.00	0.00	0.73	0.17	169.39	1.01	0.00	0.00	0.00	1.46	0.07
7491	0	0.13	1.15	7.53	0.38	0.00	0.38	0.90	0.00	39313.94	1.00	0.94	0.00	0.94	1.44	0.19
7492	0	0.20	1.26	4.92	0.51	0.00	0.00	0.83	0.00	4566.62	1.00	0.00	0.00	0.00	1.83	0.20
7493	0	0.22	1.27	4.65	0.31	0.00	0.31	0.88	0.00	149453.30	1.00	0.88	0.00	0.88	1.57	0.14
7499	0	0.14	1.16	7.27	0.58	0.00	0.58	0.69	0.10	421.41	1.00	0.03	0.00	0.03	1.43	0.06
7611	0	0.22	1.28	4.57	0.08	0.14	0.00	0.77	0.11	80.24	1.02	1.13	0.15	0.00	1.16	0.18
7712	0	0.11	1.12	9.02	0.46	0.04	0.00	0.71	0.05	612.54	1.00	0.00	0.02	0.00	1.12	0.08
7721	0	0.14	1.16	7.18	0.80	0.03	0.78	0.79	0.00	236047.85	1.00	0.35	0.02	0.32	1.76	0.12
7731	0	0.24	1.32	4.15	0.48	0.07	0.00	0.59	0.03	219.19	1.01	0.00	0.05	0.00	1.52	0.06
7732	0	0.09	1.10	10.59	0.13	0.05	0.00	0.62	0.06	254.56	1.00	0.00	0.05	0.00	1.20	0.08
7752	0	0.20	1.25	5.05	0.36	0.02	0.35	0.68	0.22	28.22	1.05	0.68	0.00	0.68	1.52	0.22
7757	0	0.17	1.20	5.95	0.09	0.00	0.00	0.65	0.12	142.93	1.01	0.00	0.00	0.00	1.58	0.11
7758	0	0.19	1.24	5.23	0.30	0.02	0.00	0.65	0.02	509.34	1.00	0.00	0.01	0.00	1.72	0.12
7781	1	0.15	1.17	6.72	0.26	0.06	0.20	0.67	0.36	17.86	1.06	0.14	0.00	0.14	1.18	0.09
7782	0	0.26	1.35	3.89	0.14	0.05	0.00	0.70	0.07	209.22	1.01	0.00	0.05	0.00	1.15	0.10
7783	0	0.26	1.34	3.90	0.36	0.00	0.00	0.69	0.02	2137.61	1.00	0.00	0.00	0.00	1.49	0.09
7788	1	0.09	1.10	10.64	0.57	0.00	0.00	0.75	0.04	1370.48	1.00	0.00	0.00	0.00	1.30	0.07
7810	0	0.24	1.32	4.10	0.35	0.05	0.30	0.63	0.14	49.74	1.02	0.44	0.00	0.44	3.21	0.20
7849	0	0.24	1.31	4.19	0.44	0.00	0.00	0.62	0.01	721.17	1.00	0.00	0.00	0.00	2.09	0.06
7853	0	0.20	1.25	5.00	0.77	0.00	0.00	0.70	0.14	89.78	1.01	0.00	0.00	0.00	1.58	0.23
7868	0	0.22	1.28	4.55	0.88	0.02	0.00	0.67	0.06	144.63	1.01	0.00	0.02	0.00	1.43	0.14
7919	0	0.14	1.17	6.96	0.32	0.03	0.00	0.71	0.60	31.70	1.04	0.00	0.04	0.00	1.15	0.19

Table A1 - Good-Level Estimation Results (For Online Publication)

		Multiplicatively Quasi-Separable (MQS)							Additively Quasi-Separable (AQS)							
SITC	**HG**	θ^g	ε^g	μ^g	δ^g	δ_τ^g	δ_u^g	**R-squared**	$\alpha^g \times 10^3$	ε^g	μ^g	δ^g	δ_τ^g	δ_u^g	φ^g	**R-squared**
8124	0	0.18	1.23	5.44	0.91	0.00	0.00	0.70	0.16	120.99	1.01	0.00	0.00	0.00	1.66	0.09
8212	0	0.18	1.22	5.58	0.62	0.03	0.00	0.75	0.27	97.50	1.01	0.00	0.02	0.00	1.08	0.31
8219	0	0.18	1.22	5.47	0.78	0.00	0.00	0.65	0.07	94.24	1.01	0.00	0.00	0.00	1.77	0.09
8472	0	0.12	1.13	8.63	0.65	0.00	0.65	0.93	0.00	24927.74	1.00	3.60	0.00	3.60	1.35	0.13
8482	0	0.23	1.30	4.35	0.29	0.00	0.00	0.76	0.23	63.24	1.02	0.00	0.00	0.00	1.38	0.13
8720	0	0.07	1.07	15.29	0.63	0.01	0.61	0.87	0.00	34480.76	1.00	0.30	0.02	0.29	1.28	0.19
8743	0	0.14	1.16	7.06	0.38	0.00	0.38	0.89	0.01	11717.47	1.00	0.11	0.00	0.11	1.42	0.20
8748	0	0.10	1.11	10.09	0.45	0.00	0.00	0.89	0.03	9597.48	1.00	0.00	0.00	0.00	1.56	0.15
8749	0	0.07	1.07	15.34	0.14	0.00	0.00	0.69	0.13	843.84	1.00	0.00	0.00	0.00	1.48	0.09
8812	0	0.17	1.21	5.84	3.12	0.03	0.00	0.75	12.42	24.32	1.05	0.00	0.00	0.00	1.27	0.42
8821	0	0.13	1.15	7.69	0.56	0.06	0.00	0.69	1.07	17.85	1.07	0.00	0.00	0.00	1.14	0.15
8921	0	0.17	1.20	6.05	0.63	0.00	0.63	0.79	0.00	3573.72	1.00	0.40	0.00	0.40	1.45	0.19
8922	0	0.24	1.32	4.11	1.01	0.00	1.01	0.81	0.00	60184.86	1.00	0.41	0.00	0.41	1.60	0.22
8924	0	0.14	1.17	6.99	0.05	0.00	0.00	0.68	0.06	625.47	1.00	0.00	0.00	0.00	1.17	0.14
8928	0	0.09	1.10	10.77	0.86	0.00	0.00	0.69	0.02	1287.95	1.00	0.00	0.00	0.00	1.28	0.07
8931	0	0.29	1.40	3.49	0.71	0.02	0.00	0.58	0.01	568.06	1.00	0.00	0.02	0.00	1.56	0.07
8932	0	0.27	1.37	3.72	0.36	0.00	0.00	0.81	0.01	2674.06	1.00	0.00	0.00	0.00	1.34	0.17
8935	0	0.35	1.53	2.88	0.00	0.01	0.00	0.79	0.10	221.78	1.00	1.53	0.01	0.00	1.13	0.42
8939	0	0.32	1.48	3.09	0.60	0.04	0.00	0.63	0.01	940.92	1.00	0.00	0.04	0.00	1.96	0.05
8951	0	0.30	1.43	3.34	0.57	0.03	0.00	0.75	0.04	198.56	1.01	0.00	0.03	0.00	1.28	0.98
8983	0	0.08	1.08	13.19	0.62	0.00	0.62	0.92	0.00	50654.98	1.00	1.11	0.00	1.11	0.92	0.13
8989	0	0.26	1.36	3.78	0.05	0.00	0.00	0.81	0.69	90.26	1.01	0.00	0.00	0.00	1.00	0.21
8993	0	0.12	1.13	8.54	0.35	0.05	0.00	0.85	0.00	19673.42	1.00	0.00	0.05	0.00	1.16	0.72
8994	0	0.28	1.39	3.56	0.68	0.00	0.68	0.79	0.90	16.77	1.07	0.55	0.00	0.55	1.67	0.94
8998	0	0.17	1.21	5.87	0.43	0.00	0.00	0.67	0.01	2767.38	1.00	0.00	0.00	0.00	1.59	0.14
8999	0	0.12	1.14	8.04	0.20	0.02	0.00	0.80	1.17	28.54	1.04	0.00	0.00	0.00	2.33	0.30
9410	0	0.16	1.20	6.10	0.19	0.05	0.00	0.98	0.00	15978.40	1.00	0.00	0.06	0.00	1.02	0.96

Notes: All the parameter estimates are significant at the 10% level according to their standard errors calculated by the Delta method. For the case of AQS, the good-level statistics have been obtained as the median across source and destination countries. HG, the second column, respresents the Rauch (1999) index, where a value of 1 corresponds to homogenous goods.

Table A2 - Results on Deviations from LOP (For Online Publication)

		Mean of Deviations from LOP									Variance of Deviations from LOP								
		Multiplicatively Quasi-Separable (MQS)				Additively Quasi-Separable (AQS)					Multiplicatively Quasi-Separable (MQS)				Additively Quasi-Separable (AQS)				
			% Contribution of				% Contribution of					% Contribution of				% Contribution of			
SITC	HG	Deviations	Marginal Costs	Freight Costs	Border Costs	Deviations	Marginal Costs	Markups	Freight Costs	Border Costs	Deviations	Marginal Costs	Freight Costs	Border Costs	Deviations	Marginal Costs	Markups	Freight Costs	Border Costs
111	1	1.31	43%	1%	56%	1.98	15%	5%	0%	79%	1.02	46%	1%	53%	3.84	8%	2%	0%	89%
129	1	1.11	69%	-3%	34%	1.82	32%	-3%	-1%	71%	0.78	57%	-4%	47%	5.11	-4%	2%	3%	99%
141	1	1.24	55%	0%	45%	1.22	52%	-11%	0%	60%	2.29	12%	0%	88%	1.62	28%	-8%	0%	80%
142	1	1.05	42%	0%	58%	1.29	31%	0%	-1%	70%	0.67	50%	0%	49%	1.59	7%	0%	0%	94%
149	1	1.23	32%	1%	68%	3.35	5%	1%	0%	93%	0.85	37%	1%	62%	6.28	3%	1%	0%	95%
223	1	1.24	27%	0%	73%	0.77	54%	-2%	1%	47%	0.79	31%	0%	69%	0.43	40%	-2%	0%	62%
240	1	1.38	14%	0%	86%	1.57	7%	4%	0%	88%	1.04	17%	0%	83%	1.37	5%	5%	0%	90%
252	1	12.02	0%	0%	100%	7.73	-1%	-1%	2%	100%	155.47	0%	0%	100%	76.80	-5%	1%	0%	104%
341	1	1.54	66%	6%	28%	1.74	44%	-2%	5%	53%	1.45	78%	5%	17%	1.90	37%	-2%	4%	62%
342	0	1.34	41%	2%	57%	1.99	14%	1%	3%	82%	1.06	49%	2%	50%	2.62	5%	4%	2%	89%
371	1	1.43	47%	1%	52%	3.77	12%	2%	0%	87%	1.33	73%	1%	27%	8.52	8%	3%	0%	90%
412	1	1.18	30%	2%	68%	4.40	8%	1%	0%	92%	1.36	76%	2%	23%	15.16	5%	1%	0%	94%
421	1	1.84	29%	0%	72%	2.36	8%	-1%	0%	93%	5.97	5%	0%	95%	10.37	-9%	1%	0%	108%
422	1	1.37	29%	1%	71%	2.48	6%	6%	0%	88%	1.17	49%	1%	51%	5.62	-7%	9%	0%	98%
440	1	1.56	81%	2%	17%	2.39	27%	0%	3%	69%	1.37	86%	2%	12%	6.15	2%	3%	3%	93%
459	1	2.65	13%	0%	87%	5.01	4%	0%	1%	96%	8.78	5%	0%	95%	43.83	-4%	1%	0%	104%
460	1	0.87	30%	1%	69%	1.48	-36%	7%	2%	126%	0.42	38%	0%	61%	1.22	-33%	12%	3%	118%
470	1	1.20	41%	0%	59%	1.92	11%	-2%	2%	89%	0.77	49%	0%	51%	2.21	12%	-1%	2%	88%
482	0	2.81	7%	0%	93%	8.18	2%	1%	0%	97%	4.80	7%	0%	92%	43.19	2%	0%	0%	97%
483	0	2.02	15%	0%	85%	1.63	0%	2%	3%	95%	2.19	11%	0%	89%	1.57	0%	3%	3%	94%
484	0	2.44	8%	0%	92%	1.45	19%	3%	0%	79%	3.24	6%	0%	94%	1.76	5%	4%	0%	91%
488	0	2.31	10%	0%	90%	1.74	4%	3%	0%	93%	2.83	8%	0%	92%	1.78	1%	3%	0%	96%
541	1	1.29	37%	1%	63%	0.86	61%	-2%	0%	41%	0.97	48%	1%	52%	0.53	58%	-4%	0%	46%
542	1	1.45	27%	0%	73%	1.95	9%	2%	0%	89%	1.23	29%	0%	70%	2.35	7%	2%	0%	91%
545	1	1.88	42%	2%	57%	1.87	34%	-2%	3%	65%	2.01	40%	2%	59%	2.06	26%	-1%	3%	72%
546	1	1.67	17%	0%	83%	3.98	4%	2%	0%	94%	1.53	11%	0%	89%	10.29	4%	1%	0%	94%
548	1	1.53	75%	0%	25%	2.95	11%	-1%	1%	89%	1.25	74%	0%	26%	10.06	-1%	0%	0%	101%
564	1	1.03	71%	0%	29%	10.24	-2%	1%	0%	102%	0.63	72%	0%	28%	185.09	-1%	1%	0%	100%
565	0	3.41	8%	0%	93%	2.41	6%	2%	0%	92%	8.91	1%	0%	99%	3.44	1%	2%	0%	97%
571	1	2.15	9%	0%	91%	3.52	8%	1%	0%	91%	3.90	4%	0%	97%	11.47	1%	2%	0%	97%
579	1	1.20	49%	2%	49%	1.39	32%	0%	1%	67%	0.86	54%	2%	44%	1.31	25%	0%	1%	74%
582	0	3.66	13%	0%	87%	1.96	23%	-3%	0%	79%	67.36	-1%	0%	101%	15.67	-4%	0%	0%	104%
585	1	1.46	29%	1%	71%	1.63	18%	4%	0%	78%	1.24	29%	1%	71%	1.83	13%	4%	0%	83%
612	1	1.37	32%	1%	67%	2.64	37%	6%	3%	54%	1.09	50%	2%	48%	3.83	30%	8%	3%	59%
616	1	0.76	57%	0%	43%	1.31	10%	5%	0%	85%	0.34	60%	0%	40%	1.32	9%	3%	0%	89%
619	0	1.06	67%	3%	29%	7.39	41%	0%	5%	54%	0.76	80%	3%	17%	127.59	51%	0%	-2%	51%
620	1	2.02	13%	0%	87%	1.18	20%	0%	0%	80%	2.26	12%	0%	88%	0.99	4%	1%	0%	95%
711	1	2.20	17%	0%	83%	4.63	-1%	2%	0%	99%	5.22	6%	0%	94%	26.75	-3%	1%	0%	102%
722	1	0.92	28%	0%	72%	1.59	1%	10%	0%	89%	0.49	32%	0%	68%	1.70	-5%	12%	0%	93%
730	0	2.59	9%	0%	92%	1.38	11%	4%	0%	85%	3.91	6%	0%	95%	1.22	6%	4%	0%	90%
742	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
751	1	1.04	44%	0%	56%	1.31	26%	-4%	0%	78%	0.63	55%	0%	45%	1.09	32%	-8%	0%	76%
812	1	1.70	45%	2%	52%	2.86	9%	2%	0%	89%	2.86	27%	2%	71%	6.28	0%	1%	0%	99%
819	1	2.57	26%	0%	74%	3.18	11%	0%	0%	89%	3.91	21%	0%	79%	6.28	3%	1%	0%	95%
914	1	1.08	39%	1%	60%	3.93	2%	0%	0%	98%	0.67	47%	1%	51%	9.61	1%	0%	0%	99%
980	0	3.66	9%	0%	91%	2.37	8%	2%	0%	90%	7.70	4%	0%	96%	5.12	1%	2%	0%	97%
1110	0	2.76	15%	0%	84%	1.07	46%	0%	1%	53%	4.32	16%	0%	83%	1.17	26%	0%	1%	73%
1121	1	4.34	9%	0%	91%	5.59	2%	2%	0%	96%	11.18	3%	0%	97%	17.97	0%	1%	0%	99%
1123	1	2.51	12%	0%	88%	3.11	6%	0%	1%	93%	3.62	8%	0%	92%	5.97	2%	0%	0%	98%
1222	1	1.81	16%	1%	83%	1.68	13%	1%	0%	85%	1.72	17%	1%	82%	2.82	-1%	4%	0%	97%
2224	1	1.45	67%	2%	31%	2.99	17%	1%	1%	82%	1.34	70%	1%	28%	6.76	9%	1%	0%	89%
2226	1	1.48	45%	0%	55%	2.97	13%	1%	0%	86%	2.26	53%	0%	46%	15.82	-4%	1%	0%	103%
2331	1	1.03	38%	1%	61%	2.27	2%	7%	0%	91%	0.65	49%	1%	50%	4.32	-1%	5%	0%	96%
2450	0	1.13	71%	7%	22%	1.26	54%	-6%	8%	45%	0.88	86%	5%	9%	1.06	51%	-5%	4%	50%
2460	1	1.69	49%	-5%	55%	8.51	5%	-1%	7%	90%	2.76	35%	1%	65%	46.71	0%	0%	4%	97%
2471	1	2.08	36%	1%	64%	7.69	4%	0%	0%	96%	3.49	26%	1%	73%	50.51	-4%	1%	0%	103%
2472	1	1.29	65%	4%	30%	3.28	15%	0%	0%	85%	1.11	69%	3%	28%	11.38	3%	1%	0%	96%
2482	0	1.66	37%	1%	63%	1.73	23%	0%	1%	76%	1.67	41%	1%	59%	2.24	22%	0%	1%	77%
2483	0	1.41	49%	1%	50%	1.36	45%	-4%	5%	54%	1.15	53%	1%	46%	1.32	33%	-2%	4%	64%
2511	1	1.01	45%	0%	55%	2.12	5%	2%	0%	92%	0.66	59%	0%	41%	3.57	11%	-1%	0%	90%
2665	1	1.04	33%	1%	65%	2.31	1%	4%	0%	94%	0.68	43%	1%	56%	4.97	1%	3%	0%	96%
2667	1	0.86	53%	1%	47%	0.70	61%	-5%	2%	42%	0.47	67%	1%	32%	0.45	46%	-3%	2%	54%
2711	0	1.43	87%	2%	10%	2.03	46%	-3%	1%	57%	1.25	91%	2%	7%	3.52	31%	-2%	0%	71%
2714	0	1.20	15%	11%	74%	2.45	6%	-17%	0%	111%	0.65	80%	-4%	23%	2.70	80%	-62%	0%	82%
2731	0	1.13	64%	1%	35%	1.60	30%	1%	0%	70%	0.78	71%	1%	28%	3.84	1%	3%	0%	96%
2732	1	1.91	72%	3%	25%	2.87	29%	-3%	2%	72%	1.94	71%	3%	26%	7.20	5%	0%	1%	94%
2733	1	2.88	46%	2%	52%	5.84	9%	-1%	3%	89%	9.24	24%	0%	77%	44.14	-4%	0%	1%	103%
2734	1	1.77	83%	6%	11%	16.57	2%	0%	1%	97%	1.89	87%	5%	8%	273.49	-2%	0%	0%	102%
2782	1	1.34	66%	4%	30%	2.41	23%	0%	0%	77%	1.10	72%	3%	25%	6.92	2%	2%	0%	96%
2783	1	1.71	66%	3%	31%	2.36	32%	-4%	1%	71%	1.80	76%	3%	22%	4.18	16%	-2%	1%	85%
2785	1	1.40	77%	6%	17%	2.56	21%	0%	2%	77%	1.20	82%	5%	13%	5.66	8%	2%	0%	90%
2786	1	2.07	46%	7%	47%	3.62	29%	2%	6%	63%	2.66	29%	2%	68%	17.96	26%	3%	-1%	73%
2789	1	1.15	67%	3%	30%	1.91	19%	-1%	1%	82%	0.79	75%	3%	22%	3.49	10%	-2%	0%	92%
2816	1	0.80	67%	0%	32%	0.84	36%	14%	0%	49%	1.06	103%	0%	-3%	0.67	16%	10%	0%	75%
2820	1	1.44	62%	3%	35%	2.15	20%	0%	2%	78%	1.13	63%	3%	34%	2.68	11%	1%	1%	86%
2873	1	1.83	62%	2%	36%	3.62	1%	1%	3%	95%	1.98	63%	1%	35%	12.32	-8%	2%	1%	104%
2879	1	2.13	69%	2%	28%	2.79	27%	2%	0%	72%	2.75	62%	2%	36%	5.71	17%	1%	0%	82%
2882	1	1.21	23%	1%	76%	1.64	-4%	2%	7%	96%	0.88	31%	1%	68%	2.02	-12%	2%	4%	105%
2919	0	1.99	74%	1%	25%	2.19	36%	-2%	1%	66%	2.31	76%	1%	23%	2.88	36%	-3%	0%	66%
2922	0	1.41	53%	0%	46%	1.34	39%	-2%	1%	63%	1.88	28%	0%	72%	1.26	20%	1%	0%	78%
2923	0	1.05	74%	0%	26%	1.85	25%	-1%	2%	73%	0.71	61%	0%	39%	3.84	13%	-1%	1%	86%
2925	1	4.07	25%	0%	75%	4.53	13%	0%	0%	87%	12.63	7%	0%	93%	15.79	-5%	1%	0%	104%
3224	0	1.02	65%	3%	32%	1.88	18%	-1%	1%	83%	0.69	76%	3%	21%	3.93	12%	-2%	0%	90%
3232	1	2.14	12%	-1%	88%	2.97	-1%	5%	0%	96%	4.39	0%	0%	101%	7.36	1%	2%	0%	96%
3341	1	1.39	22%	0%	77%	3.63	3%	2%	0%	95%	1.08	22%	0%	78%	7.57	0%	2%	0%	97%

Table A2 - Results on Deviations from LOP (For Online Publication)

		Mean of Deviations from LOP									Variance of Deviations from LOP								
		Multiplicatively Quasi-Separable (MQS)				Additively Quasi-Separable (AQS)					Multiplicatively Quasi-Separable (MQS)				Additively Quasi-Separable (AQS)				
			% Contribution of				% Contribution of					% Contribution of				% Contribution of			
SITC	**HG**	**Deviations**	**Marginal Costs**	**Freight Costs**	**Border Costs**	**Deviations**	**Marginal Costs**	**Markups**	**Freight Costs**	**Border Costs**	**Deviations**	**Marginal Costs**	**Freight Costs**	**Border Costs**	**Deviations**	**Marginal Costs**	**Markups**	**Freight Costs**	**Border Costs**
3342	1	2.22	8%	0%	92%	2.61	2%	4%	0%	95%	3.46	-1%	0%	101%	4.39	1%	3%	0%	96%
3345	1	2.50	18%	0%	82%	2.64	10%	1%	0%	88%	3.31	12%	0%	88%	4.83	1%	2%	0%	97%
3351	1	0.97	48%	2%	49%	1.32	48%	-3%	5%	50%	0.56	60%	2%	38%	1.22	34%	5%	4%	58%
3352	1	1.67	31%	3%	66%	1.85	9%	2%	2%	87%	3.21	-3%	0%	102%	2.80	-4%	1%	1%	103%
3353	1	7.63	0%	0%	101%	16.70	1%	-1%	1%	100%	74.34	1%	0%	99%	390.08	-2%	0%	0%	102%
3354	0	1.49	62%	0%	38%	3.12	10%	0%	0%	90%	1.22	67%	0%	32%	5.80	4%	1%	0%	94%
3413	1	1.87	25%	1%	74%	3.54	4%	3%	0%	93%	2.00	39%	1%	60%	13.60	-4%	2%	0%	102%
4111	1	1.63	90%	1%	10%	4.06	15%	0%	0%	84%	1.52	85%	1%	14%	14.69	2%	1%	0%	97%
4113	1	1.18	78%	5%	17%	1.70	43%	-1%	0%	58%	0.84	81%	5%	14%	3.99	17%	4%	0%	79%
4232	1	1.09	21%	1%	78%	2.27	-5%	4%	0%	101%	0.62	23%	1%	76%	2.96	-10%	8%	0%	102%
4233	0	0.50	86%	2%	12%	0.91	-11%	9%	0%	102%	0.12	90%	2%	8%	0.59	-11%	4%	-1%	108%
4236	1	1.83	8%	0%	92%	1.54	16%	10%	4%	70%	1.84	3%	0%	97%	1.85	-17%	21%	2%	93%
4249	1	2.63	30%	-2%	71%	5.61	7%	-2%	2%	93%	6.20	6%	-1%	94%	48.28	-3%	1%	0%	102%
4311	1	1.09	79%	4%	17%	1.93	24%	-3%	3%	77%	0.83	93%	3%	4%	3.20	14%	-2%	4%	85%
4312	1	0.91	58%	2%	40%	0.93	39%	-1%	1%	61%	0.50	65%	2%	33%	0.66	19%	-1%	1%	82%
4313	0	1.18	55%	3%	42%	3.40	6%	3%	0%	91%	0.83	71%	2%	27%	8.25	6%	3%	0%	91%
5111	1	1.10	60%	3%	37%	2.16	30%	-1%	6%	65%	0.96	68%	1%	31%	4.41	52%	0%	-1%	49%
5112	1	0.98	58%	4%	38%	2.34	8%	3%	0%	89%	0.62	72%	4%	24%	3.27	8%	2%	0%	89%
5113	1	1.14	74%	0%	26%	1.66	16%	3%	0%	81%	0.86	78%	0%	21%	2.77	-2%	5%	0%	97%
5114	1	1.41	49%	4%	47%	2.10	30%	-2%	0%	71%	1.48	43%	2%	56%	3.49	10%	5%	0%	85%
5121	1	1.22	66%	2%	32%	1.53	19%	2%	2%	77%	0.96	79%	1%	20%	1.47	14%	3%	1%	82%
5122	1	1.61	52%	1%	48%	3.19	24%	-4%	0%	80%	1.93	28%	0%	72%	29.92	1%	-1%	0%	100%
5123	1	1.36	73%	1%	26%	2.69	5%	5%	0%	90%	1.14	83%	1%	17%	5.04	-4%	6%	0%	98%
5137	1	1.70	38%	0%	61%	2.46	8%	4%	0%	88%	1.78	40%	0%	60%	3.95	3%	4%	0%	93%
5138	1	1.02	49%	2%	49%	2.84	4%	4%	0%	91%	0.64	65%	2%	33%	5.68	1%	4%	0%	95%
5161	1	2.25	35%	0%	65%	3.78	3%	1%	0%	95%	4.89	15%	0%	85%	17.83	-4%	2%	0%	102%
5162	1	1.84	71%	2%	27%	2.05	47%	-1%	2%	53%	1.94	72%	2%	27%	2.44	37%	0%	1%	61%
5163	1	1.25	52%	0%	48%	2.23	3%	5%	0%	92%	1.04	66%	0%	34%	3.19	2%	6%	0%	92%
5169	1	2.45	32%	0%	68%	2.69	18%	2%	0%	80%	3.76	21%	0%	79%	4.45	14%	2%	0%	83%
5221	1	1.86	74%	4%	22%	2.64	31%	-4%	1%	73%	1.99	81%	3%	16%	4.71	25%	-3%	0%	78%
5222	1	1.74	59%	2%	38%	1.66	51%	-3%	2%	51%	1.81	69%	2%	29%	1.91	47%	-3%	2%	54%
5223	1	1.94	88%	3%	9%	1.91	78%	-4%	6%	20%	2.15	87%	3%	10%	2.40	66%	-2%	5%	31%
5225	1	1.47	80%	5%	16%	2.03	40%	-2%	0%	62%	1.29	84%	3%	13%	3.61	16%	0%	0%	84%
5231	1	2.04	31%	1%	68%	2.91	16%	1%	0%	83%	2.89	24%	0%	76%	5.97	8%	2%	0%	90%
5232	1	1.28	59%	2%	39%	1.33	41%	-4%	1%	62%	1.00	68%	2%	31%	1.27	26%	0%	0%	74%
5239	1	1.80	78%	5%	17%	2.05	65%	-7%	3%	38%	2.23	86%	4%	10%	3.15	50%	-4%	4%	51%
5311	1	1.93	18%	0%	82%	2.84	-1%	6%	0%	95%	2.33	17%	0%	83%	4.81	-3%	6%	0%	97%
5312	1	1.32	64%	2%	34%	1.25	47%	-2%	1%	54%	1.03	67%	2%	32%	1.39	4%	4%	1%	91%
5331	1	2.37	12%	0%	88%	1.75	10%	4%	0%	86%	4.10	6%	0%	94%	2.88	0%	4%	0%	96%
5332	0	2.07	33%	1%	66%	1.44	46%	-1%	0%	55%	2.30	31%	1%	68%	2.08	10%	6%	0%	85%
5334	0	2.21	16%	1%	83%	1.16	31%	-3%	1%	70%	2.66	17%	1%	82%	1.39	10%	0%	1%	88%
5335	0	1.63	46%	2%	53%	1.36	50%	-5%	1%	53%	1.49	49%	2%	49%	1.95	14%	-1%	1%	86%
5411	1	2.44	25%	0%	75%	3.04	4%	4%	0%	92%	4.23	23%	0%	77%	8.78	1%	1%	0%	97%
5417	0	3.72	18%	0%	82%	3.54	14%	2%	0%	83%	7.11	18%	0%	82%	16.62	0%	1%	0%	98%
5530	0	3.05	16%	0%	84%	2.72	8%	3%	0%	89%	4.93	13%	0%	87%	4.34	5%	4%	0%	91%
5541	0	1.27	39%	1%	60%	1.60	17%	-2%	1%	84%	0.88	46%	1%	53%	1.78	9%	0%	2%	89%
5542	0	1.39	28%	0%	71%	1.23	26%	1%	0%	73%	1.04	33%	0%	67%	1.01	15%	4%	0%	80%
5543	0	1.62	35%	0%	65%	1.18	50%	-3%	1%	52%	1.49	39%	0%	61%	1.68	6%	0%	0%	94%
5621	1	1.42	41%	0%	59%	5.08	4%	2%	0%	93%	1.18	56%	1%	43%	16.10	3%	2%	0%	94%
5623	1	0.99	56%	0%	44%	2.74	5%	3%	0%	91%	0.66	77%	0%	22%	8.10	-2%	2%	0%	99%
5629	1	1.27	71%	1%	28%	2.10	15%	-1%	4%	82%	0.99	83%	1%	16%	5.48	0%	0%	2%	98%
5721	0	1.78	73%	5%	21%	3.77	19%	-1%	1%	80%	1.64	75%	5%	20%	11.54	-2%	2%	0%	101%
5821	1	0.96	53%	4%	43%	1.09	37%	0%	3%	61%	0.58	63%	4%	33%	0.96	21%	1%	1%	76%
5822	1	1.05	59%	4%	37%	1.33	23%	2%	0%	75%	0.70	68%	4%	28%	1.24	19%	2%	0%	79%
5823	1	1.37	31%	1%	69%	1.79	19%	2%	0%	79%	1.08	36%	0%	64%	2.25	7%	3%	0%	90%
5824	1	0.97	43%	2%	55%	1.36	6%	8%	1%	86%	0.57	51%	2%	47%	1.47	3%	9%	0%	88%
5825	1	1.85	13%	0%	87%	1.06	15%	4%	0%	81%	2.66	7%	0%	93%	0.84	5%	4%	0%	90%
5826	1	1.15	45%	0%	55%	0.91	52%	-1%	0%	49%	0.82	55%	0%	45%	0.73	25%	1%	0%	74%
5827	1	1.12	50%	1%	49%	1.14	27%	5%	0%	68%	0.87	65%	1%	35%	1.17	8%	3%	0%	88%
5829	1	1.11	26%	2%	72%	1.31	4%	7%	1%	88%	0.71	32%	2%	66%	1.57	-10%	9%	1%	100%
5831	1	1.58	16%	0%	84%	1.53	11%	2%	0%	87%	1.36	20%	0%	80%	2.06	1%	3%	0%	95%
5832	1	1.29	33%	0%	67%	1.17	32%	0%	0%	69%	0.91	37%	0%	63%	1.26	8%	1%	0%	91%
5833	1	1.22	21%	1%	79%	1.63	9%	2%	0%	89%	0.81	27%	1%	72%	2.12	0%	3%	0%	97%
5834	1	1.54	25%	0%	75%	3.19	55%	-1%	5%	41%	1.27	26%	0%	73%	6.39	60%	0%	2%	37%
5835	1	0.86	67%	3%	30%	0.87	49%	1%	2%	49%	0.39	66%	3%	30%	0.46	20%	2%	1%	77%
5836	1	1.92	16%	0%	84%	1.05	23%	5%	1%	71%	2.61	7%	0%	93%	0.82	12%	4%	0%	83%
5837	1	1.50	23%	0%	77%	1.12	25%	1%	2%	73%	1.41	18%	0%	83%	0.92	8%	5%	1%	87%
5839	0	2.62	14%	0%	86%	1.19	40%	-1%	0%	60%	3.99	11%	0%	89%	2.26	-1%	3%	0%	98%
5842	0	0.74	17%	0%	83%	1.10	-7%	10%	2%	96%	0.35	12%	0%	88%	0.86	-19%	17%	-1%	102%
5843	1	0.68	74%	0%	27%	1.08	9%	19%	0%	72%	0.32	85%	0%	15%	0.70	-3%	28%	0%	76%
5852	1	1.71	58%	0%	42%	1.54	51%	0%	0%	49%	1.98	53%	0%	46%	1.84	29%	0%	0%	71%
5912	0	1.93	31%	0%	69%	3.06	7%	3%	0%	90%	2.01	33%	0%	67%	7.05	-1%	6%	0%	95%
5914	0	1.31	45%	0%	55%	1.43	18%	5%	0%	77%	0.98	52%	0%	48%	1.78	-4%	8%	0%	96%
5921	0	1.57	23%	-1%	77%	0.97	23%	1%	4%	72%	1.68	10%	-1%	91%	0.57	16%	4%	3%	77%
5922	1	1.73	38%	1%	61%	1.39	38%	-1%	1%	63%	1.69	43%	1%	56%	1.92	10%	1%	1%	88%
5981	1	1.10	65%	1%	33%	1.68	15%	5%	0%	80%	0.78	73%	1%	26%	2.29	8%	4%	0%	88%
5982	0	2.78	11%	0%	88%	1.15	27%	-5%	0%	77%	6.00	2%	0%	98%	1.70	7%	-1%	0%	94%
5983	0	1.72	30%	0%	70%	1.41	20%	2%	1%	77%	2.43	19%	0%	81%	3.60	-8%	2%	0%	105%
5989	0	3.44	23%	0%	77%	2.32	25%	-2%	0%	77%	6.61	19%	0%	81%	5.25	6%	-1%	0%	94%
6118	0	1.77	26%	0%	74%	1.35	25%	2%	0%	73%	2.20	11%	0%	89%	1.55	11%	4%	0%	84%
6122	0	1.00	65%	0%	35%	1.98	22%	1%	1%	76%	1.31	10%	0%	90%	11.05	39%	-1%	1%	61%
6210	0	1.56	43%	1%	57%	1.20	51%	-1%	0%	50%	1.33	46%	1%	54%	2.02	3%	1%	1%	96%
6252	0	2.15	51%	0%	49%	4.36	6%	0%	0%	95%	2.58	56%	0%	44%	12.47	-1%	0%	0%	101%
6259	0	2.11	61%	0%	39%	1.98	30%	-1%	1%	71%	2.75	79%	0%	20%	2.80	24%	-1%	0%	77%
6282	0	2.36	28%	0%	72%	2.70	14%	1%	0%	85%	3.43	33%	0%	67%	7.19	-17%	3%	0%	114%

Table A2 - Results on Deviations from LOP (For Online Publication)

		Mean of Deviations from LOP									Variance of Deviations from LOP								
		Multiplicatively Quasi-Separable (MQS)				Additively Quasi-Separable (AQS)					Multiplicatively Quasi-Separable (MQS)				Additively Quasi-Separable (AQS)				
			% Contribution of				% Contribution of					% Contribution of				% Contribution of			
SITC	**HG**	**Deviations**	**Marginal Costs**	**Freight Costs**	**Border Costs**	**Deviations**	**Marginal Costs**	**Markups**	**Freight Costs**	**Border Costs**	**Deviations**	**Marginal Costs**	**Freight Costs**	**Border Costs**	**Deviations**	**Marginal Costs**	**Markups**	**Freight Costs**	**Border Costs**
6289	0	2.05	35%	0%	65%	1.34	56%	0%	0%	44%	2.46	35%	0%	65%	2.22	6%	0%	0%	94%
6341	1	1.50	43%	0%	57%	2.59	10%	2%	0%	88%	1.37	42%	0%	58%	6.12	-1%	2%	0%	99%
6342	1	1.27	34%	1%	65%	2.89	6%	2%	0%	92%	0.97	40%	1%	59%	6.43	7%	1%	0%	92%
6343	1	1.51	35%	0%	65%	1.79	20%	-2%	1%	81%	1.31	35%	0%	65%	6.59	-1%	0%	1%	100%
6349	0	1.44	55%	2%	44%	2.19	24%	-3%	1%	79%	2.19	17%	0%	83%	5.83	10%	-2%	0%	92%
6351	0	1.94	79%	0%	21%	2.53	34%	-2%	0%	68%	2.51	92%	0%	8%	26.32	4%	0%	0%	97%
6353	0	1.88	23%	0%	77%	1.54	22%	-2%	0%	80%	1.90	26%	0%	74%	1.64	18%	-1%	0%	83%
6354	0	1.55	40%	0%	60%	1.41	33%	-1%	0%	67%	1.46	38%	0%	62%	1.76	17%	2%	0%	81%
6359	0	1.93	29%	0%	70%	1.31	39%	-1%	0%	62%	2.65	18%	0%	82%	1.39	15%	2%	0%	83%
6412	1	1.60	20%	0%	80%	2.42	3%	4%	0%	93%	1.36	25%	0%	75%	3.30	4%	3%	0%	93%
6413	1	1.37	21%	0%	79%	1.21	20%	3%	0%	77%	1.03	24%	0%	76%	1.06	7%	4%	0%	89%
6415	1	1.30	36%	1%	63%	2.25	8%	4%	0%	89%	0.96	45%	1%	54%	4.11	5%	3%	0%	92%
6416	1	1.92	25%	0%	75%	2.28	20%	1%	0%	79%	2.31	27%	0%	73%	3.89	3%	4%	0%	94%
6417	1	1.43	32%	0%	67%	1.02	40%	-3%	2%	62%	1.14	34%	1%	65%	1.77	4%	0%	1%	95%
6418	1	2.36	13%	0%	87%	1.95	9%	3%	0%	87%	3.02	11%	0%	89%	2.51	5%	3%	0%	91%
6419	0	1.43	52%	0%	48%	1.78	9%	2%	3%	86%	1.14	51%	0%	49%	2.30	-1%	3%	1%	96%
6421	1	1.73	30%	1%	68%	1.41	28%	-2%	1%	73%	1.70	37%	1%	62%	1.68	14%	-1%	1%	85%
6423	0	1.46	42%	0%	58%	1.08	57%	0%	0%	42%	1.20	48%	0%	52%	0.81	46%	-1%	0%	55%
6424	0	1.24	53%	2%	45%	1.38	30%	-3%	1%	72%	0.89	60%	2%	38%	1.78	1%	0%	1%	98%
6428	0	3.19	13%	0%	87%	1.04	40%	-3%	1%	61%	7.34	3%	0%	97%	1.83	-6%	0%	1%	105%
6511	0	2.04	30%	1%	69%	1.91	24%	2%	0%	74%	6.20	0%	0%	101%	3.03	-5%	8%	0%	97%
6512	1	1.85	17%	0%	83%	1.75	-23%	5%	6%	111%	2.30	17%	0%	83%	1.74	-18%	5%	5%	107%
6513	1	1.30	40%	0%	60%	2.43	5%	2%	0%	93%	0.96	45%	0%	55%	3.99	1%	2%	0%	97%
6514	1	1.68	30%	0%	70%	1.03	59%	-3%	0%	44%	1.58	33%	0%	67%	1.03	18%	0%	0%	82%
6515	1	1.14	70%	1%	28%	1.58	36%	0%	4%	61%	0.74	70%	2%	28%	2.18	25%	5%	0%	70%
6516	1	1.10	39%	0%	61%	1.58	9%	5%	0%	86%	0.67	46%	0%	54%	2.59	3%	5%	0%	92%
6517	1	1.14	48%	0%	52%	2.14	8%	2%	0%	90%	0.74	53%	0%	47%	2.87	3%	4%	0%	94%
6519	0	1.40	56%	0%	44%	1.50	47%	-1%	0%	54%	1.19	65%	0%	35%	3.53	19%	-1%	0%	81%
6521	1	1.45	46%	0%	54%	1.60	22%	0%	0%	78%	1.15	49%	0%	51%	1.84	11%	1%	0%	88%
6522	0	2.10	23%	0%	76%	2.76	4%	1%	0%	95%	2.47	26%	0%	74%	4.58	-2%	1%	0%	101%
6531	1	2.37	24%	0%	76%	2.61	14%	1%	0%	86%	3.17	24%	0%	76%	5.71	-4%	1%	0%	103%
6532	1	1.70	46%	0%	55%	3.96	4%	0%	0%	96%	1.62	45%	0%	55%	12.68	-1%	1%	0%	100%
6534	1	1.91	34%	0%	66%	1.15	79%	-3%	-1%	25%	2.06	34%	0%	66%	1.09	46%	-3%	0%	57%
6535	0	2.09	33%	0%	67%	1.36	46%	-1%	0%	55%	2.53	28%	0%	72%	1.63	13%	2%	0%	86%
6536	0	1.32	55%	0%	45%	2.25	4%	-1%	0%	97%	1.00	55%	0%	45%	3.69	1%	-1%	0%	100%
6538	0	1.84	29%	0%	71%	1.71	14%	2%	0%	83%	2.04	26%	0%	74%	1.99	10%	2%	0%	88%
6542	0	1.49	29%	0%	71%	2.23	7%	0%	0%	92%	1.25	31%	0%	69%	3.55	3%	1%	0%	97%
6543	0	1.66	25%	0%	75%	2.49	-4%	4%	0%	100%	1.87	16%	0%	84%	5.90	-12%	9%	0%	103%
6546	0	1.29	55%	1%	44%	1.48	34%	0%	1%	65%	0.96	58%	1%	41%	1.44	20%	0%	0%	79%
6549	0	1.55	55%	-1%	45%	1.86	31%	-1%	2%	68%	1.33	57%	-1%	44%	2.80	6%	-1%	1%	93%
6552	0	2.16	20%	0%	80%	0.93	78%	-2%	0%	24%	2.68	22%	0%	78%	0.72	51%	-4%	0%	53%
6560	0	1.84	38%	0%	62%	1.44	30%	0%	0%	70%	1.91	40%	0%	60%	1.31	27%	0%	0%	73%
6571	0	1.58	62%	1%	37%	1.36	46%	0%	1%	54%	1.43	63%	1%	37%	1.38	25%	0%	1%	74%
6572	0	1.63	30%	0%	70%	1.07	40%	-1%	0%	61%	1.56	34%	0%	66%	1.29	12%	2%	0%	87%
6573	0	1.88	26%	0%	74%	1.41	36%	-2%	0%	66%	1.94	28%	0%	72%	2.55	-3%	2%	0%	101%
6575	0	1.34	55%	0%	45%	1.12	57%	-4%	0%	47%	1.02	57%	0%	43%	1.15	19%	-1%	0%	82%
6577	0	1.72	56%	2%	43%	1.64	40%	-1%	1%	59%	1.70	55%	1%	43%	1.86	17%	0%	1%	82%
6579	0	1.70	42%	0%	58%	1.37	40%	-2%	1%	61%	1.92	30%	0%	70%	1.28	18%	-1%	0%	82%
6581	0	1.61	44%	0%	56%	4.33	11%	0%	0%	89%	1.74	62%	0%	38%	38.89	-4%	0%	0%	104%
6592	0	1.66	57%	0%	43%	2.48	17%	2%	0%	81%	1.59	51%	0%	49%	3.78	18%	0%	0%	82%
6594	0	1.85	34%	0%	66%	1.97	12%	-1%	0%	89%	4.65	4%	0%	96%	2.54	8%	-2%	0%	94%
6596	0	1.98	31%	0%	69%	1.09	65%	0%	0%	35%	2.57	22%	0%	78%	0.98	40%	0%	0%	60%
6612	1	1.57	72%	5%	23%	5.11	44%	2%	5%	49%	1.86	89%	3%	8%	18.35	39%	3%	4%	54%
6613	0	2.56	15%	0%	85%	6.23	-8%	1%	1%	106%	4.22	7%	0%	93%	24.01	-10%	1%	0%	108%
6618	1	1.64	27%	0%	73%	2.42	2%	1%	1%	97%	1.54	34%	0%	65%	3.80	-3%	1%	0%	102%
6623	1	1.61	31%	1%	69%	1.82	-5%	4%	2%	99%	1.54	30%	0%	69%	2.26	-7%	5%	1%	100%
6624	0	1.41	30%	1%	68%	2.53	5%	2%	0%	93%	1.10	37%	2%	61%	3.29	6%	2%	0%	92%
6631	0	1.59	67%	2%	32%	1.61	61%	-2%	0%	40%	1.39	69%	1%	29%	2.91	5%	3%	1%	92%
6632	0	2.08	22%	0%	77%	0.95	58%	-1%	0%	42%	3.09	11%	0%	89%	0.60	48%	-1%	1%	52%
6633	0	2.22	53%	2%	44%	1.94	50%	-4%	3%	52%	2.98	54%	1%	45%	2.68	24%	-1%	1%	76%
6635	0	1.83	30%	0%	70%	2.83	2%	5%	0%	93%	2.29	22%	0%	78%	5.99	-1%	5%	0%	96%
6637	0	2.39	30%	1%	69%	7.12	8%	0%	0%	92%	5.95	9%	0%	91%	191.54	-1%	0%	0%	101%
6638	0	1.53	46%	1%	52%	2.37	16%	-1%	0%	86%	1.36	49%	1%	50%	4.40	0%	-1%	0%	101%
6641	0	2.54	53%	3%	44%	3.94	38%	0%	9%	54%	4.64	39%	1%	60%	28.07	48%	0%	-2%	54%
6642	0	1.82	54%	0%	45%	2.21	14%	1%	0%	84%	1.87	56%	0%	43%	5.83	-13%	2%	0%	111%
6644	0	1.47	82%	3%	15%	2.19	29%	-2%	1%	72%	1.39	85%	3%	12%	2.52	24%	0%	1%	76%
6645	0	2.43	43%	3%	54%	9.50	40%	1%	3%	56%	3.30	34%	3%	63%	132.51	43%	1%	-1%	57%
6647	0	1.51	67%	4%	29%	1.67	52%	-2%	3%	48%	1.34	75%	3%	22%	2.08	32%	-1%	2%	67%
6648	0	2.02	75%	1%	24%	2.65	33%	0%	0%	67%	3.04	91%	0%	9%	8.84	9%	0%	0%	91%
6649	0	1.70	50%	2%	48%	1.62	45%	-1%	1%	55%	1.74	55%	2%	43%	3.21	7%	1%	1%	91%
6652	0	2.94	43%	0%	57%	2.56	12%	1%	0%	87%	6.14	67%	0%	33%	3.84	10%	1%	0%	89%
6658	0	2.08	55%	0%	44%	2.64	32%	-3%	0%	71%	2.42	58%	0%	42%	6.81	3%	2%	0%	95%
6716	1	1.20	60%	3%	37%	2.02	12%	5%	0%	84%	0.85	63%	2%	35%	2.61	9%	3%	0%	88%
6724	0	1.37	71%	4%	25%	1.83	36%	-1%	0%	65%	1.07	71%	4%	26%	2.82	-6%	16%	0%	90%
6725	1	1.25	76%	1%	23%	5.38	-2%	2%	0%	100%	0.93	82%	1%	17%	18.99	0%	1%	0%	99%
6727	0	1.23	59%	1%	40%	2.33	14%	2%	0%	84%	0.96	73%	1%	26%	3.90	9%	3%	0%	88%
6731	1	1.08	60%	2%	37%	2.74	15%	2%	0%	83%	0.75	74%	3%	23%	4.30	12%	2%	0%	86%
6732	1	1.20	69%	4%	26%	1.33	38%	-2%	3%	62%	0.86	73%	4%	23%	1.80	12%	1%	-1%	88%
6733	0	1.22	46%	1%	54%	2.28	15%	2%	0%	83%	0.81	52%	1%	47%	3.24	10%	3%	0%	87%
6744	1	1.13	69%	2%	29%	2.16	18%	3%	0%	79%	0.80	75%	2%	24%	2.69	19%	2%	0%	79%
6745	1	1.15	60%	2%	38%	1.41	30%	-1%	1%	70%	0.77	64%	2%	33%	1.64	10%	3%	1%	85%
6746	1	1.24	60%	2%	38%	2.51	16%	1%	0%	83%	0.89	65%	2%	34%	5.05	4%	3%	0%	93%
6749	1	1.11	44%	0%	56%	2.71	4%	3%	0%	93%	0.72	53%	0%	47%	6.53	-2%	1%	0%	101%
6760	1	2.37	23%	-1%	78%	9.82	0%	0%	1%	100%	4.23	15%	0%	85%	100.58	-2%	0%	0%	102%
6770	1	1.16	58%	4%	38%	0.96	72%	-4%	3%	29%	0.79	63%	3%	34%	0.85	37%	-2%	2%	63%

Table A2 - Results on Deviations from LOP (For Online Publication)

		Mean of Deviations from LOP									Variance of Deviations from LOP								
		Multiplicatively Quasi-Separable (MQS)				Additively Quasi-Separable (AQS)					Multiplicatively Quasi-Separable (MQS)				Additively Quasi-Separable (AQS)				
			% Contribution of				% Contribution of					% Contribution of				% Contribution of			
SITC	**HG**	**Deviations**	**Marginal Costs**	**Freight Costs**	**Border Costs**	**Deviations**	**Marginal Costs**	**Markups**	**Freight Costs**	**Border Costs**	**Deviations**	**Marginal Costs**	**Freight Costs**	**Border Costs**	**Deviations**	**Marginal Costs**	**Markups**	**Freight Costs**	**Border Costs**
6781	0	1.22	69%	2%	29%	8.98	45%	1%	7%	47%	1.20	86%	3%	11%	85.74	52%	1%	2%	45%
6782	0	1.30	54%	1%	45%	2.36	35%	0%	3%	61%	0.99	58%	1%	41%	3.91	16%	5%	2%	78%
6783	1	1.21	69%	3%	29%	1.56	37%	-3%	3%	64%	0.85	76%	2%	22%	2.00	14%	1%	2%	82%
6785	1	1.51	58%	1%	42%	1.37	59%	-1%	0%	42%	1.28	60%	1%	39%	2.47	4%	3%	1%	93%
6793	0	1.60	61%	2%	37%	1.40	59%	-2%	2%	42%	1.49	66%	2%	32%	1.87	19%	0%	3%	79%
6794	0	1.50	55%	1%	44%	2.27	10%	3%	1%	86%	1.27	57%	1%	42%	3.18	3%	4%	1%	93%
6822	1	1.32	34%	0%	66%	0.88	47%	-1%	1%	53%	0.96	40%	0%	59%	0.91	23%	0%	0%	77%
6841	1	1.07	16%	0%	84%	2.88	-4%	2%	1%	102%	0.65	23%	0%	77%	6.59	-5%	2%	0%	103%
6842	1	1.49	20%	0%	80%	1.01	25%	1%	0%	74%	1.27	23%	0%	77%	1.51	-3%	4%	0%	99%
6852	1	1.50	66%	5%	28%	1.68	62%	-5%	5%	38%	1.32	71%	5%	24%	2.92	26%	-2%	4%	72%
6861	1	1.19	15%	0%	85%	1.04	10%	3%	0%	87%	0.82	22%	0%	78%	0.79	7%	2%	0%	91%
6863	1	0.99	54%	2%	44%	1.19	34%	-1%	3%	64%	0.65	72%	2%	27%	1.83	15%	0%	1%	83%
6871	1	3.03	5%	0%	95%	1.19	14%	2%	0%	85%	11.49	2%	0%	98%	2.99	0%	1%	0%	99%
6911	0	1.51	35%	0%	65%	1.87	14%	2%	0%	85%	1.30	41%	0%	59%	2.57	6%	2%	0%	92%
6912	0	1.52	22%	0%	78%	2.33	10%	-3%	0%	93%	1.29	27%	0%	73%	3.49	5%	-3%	0%	98%
6921	0	1.54	39%	1%	60%	1.67	23%	-2%	0%	78%	1.35	42%	1%	57%	3.02	3%	1%	0%	96%
6924	0	1.68	44%	1%	55%	1.23	37%	0%	0%	63%	1.97	60%	0%	40%	2.06	10%	0%	0%	90%
6931	1	1.36	45%	1%	54%	1.09	49%	-3%	1%	53%	1.08	52%	1%	47%	1.55	14%	-1%	1%	86%
6932	1	1.49	35%	1%	65%	1.03	69%	-6%	1%	36%	1.22	28%	1%	71%	0.74	44%	-4%	1%	60%
6935	0	1.79	51%	3%	46%	1.43	56%	-4%	3%	45%	1.77	52%	3%	45%	1.20	53%	-4%	3%	49%
6940	0	2.24	35%	1%	64%	1.40	67%	-1%	1%	33%	2.98	33%	0%	66%	2.00	23%	0%	1%	76%
6975	0	1.83	28%	0%	72%	1.90	22%	-1%	0%	78%	1.77	26%	0%	74%	2.20	9%	0%	0%	90%
6991	0	3.23	14%	0%	86%	1.23	47%	0%	0%	53%	7.03	3%	0%	97%	1.27	26%	0%	0%	75%
6992	0	1.62	33%	0%	66%	1.36	33%	-1%	1%	67%	1.56	28%	0%	72%	1.50	7%	2%	1%	91%
6993	0	1.94	38%	0%	62%	1.67	34%	0%	0%	66%	2.30	39%	0%	61%	2.01	19%	0%	0%	81%
6994	0	1.78	52%	2%	45%	1.48	43%	0%	3%	54%	1.88	50%	2%	48%	1.65	30%	0%	3%	67%
6996	1	1.50	49%	1%	50%	1.35	38%	-1%	1%	62%	1.29	54%	1%	45%	1.51	15%	0%	2%	83%
6997	0	2.00	32%	1%	67%	1.36	44%	-1%	1%	55%	2.28	34%	0%	66%	4.29	-1%	0%	1%	100%
6998	0	1.44	49%	1%	51%	1.85	19%	2%	0%	79%	1.21	55%	1%	44%	2.08	12%	2%	0%	86%
7139	0	2.33	31%	0%	69%	1.58	39%	-1%	0%	62%	2.83	32%	0%	68%	5.96	-9%	2%	0%	107%
7161	0	2.34	75%	0%	25%	2.20	39%	0%	0%	62%	3.77	90%	0%	10%	4.93	17%	0%	0%	83%
7169	0	2.19	43%	0%	57%	1.88	43%	-2%	0%	59%	2.64	42%	0%	58%	4.08	3%	0%	0%	97%
7188	0	1.68	47%	0%	53%	1.53	33%	2%	0%	65%	1.61	48%	0%	52%	2.46	3%	3%	0%	94%
7211	0	1.85	26%	0%	74%	1.23	37%	2%	0%	61%	2.06	24%	0%	76%	0.94	23%	3%	0%	74%
7212	0	2.74	18%	0%	82%	1.65	22%	2%	0%	76%	5.11	15%	0%	85%	1.96	9%	3%	0%	88%
7243	0	1.58	48%	0%	52%	1.43	42%	-1%	0%	59%	1.44	52%	0%	48%	1.85	16%	-1%	0%	85%
7244	0	1.46	59%	0%	41%	2.60	13%	1%	0%	85%	1.21	62%	0%	38%	7.13	-6%	2%	0%	103%
7246	0	1.30	72%	0%	28%	1.32	37%	3%	0%	60%	0.99	74%	0%	26%	1.09	26%	4%	0%	70%
7247	0	1.45	42%	0%	58%	1.76	15%	4%	0%	81%	1.19	47%	0%	53%	2.72	-4%	6%	0%	98%
7259	0	1.42	51%	1%	49%	1.43	20%	5%	0%	76%	1.24	46%	0%	53%	1.32	18%	5%	0%	77%
7269	0	2.60	26%	0%	74%	1.46	43%	2%	0%	55%	4.61	13%	0%	87%	1.38	29%	3%	0%	68%
7271	0	1.29	51%	0%	48%	1.41	16%	2%	1%	82%	0.96	55%	0%	45%	1.38	1%	8%	0%	91%
7272	0	2.36	17%	0%	83%	2.86	2%	4%	0%	94%	2.93	17%	0%	83%	4.54	0%	4%	0%	96%
7283	0	2.54	17%	0%	83%	3.77	3%	2%	0%	94%	3.54	12%	0%	87%	7.70	1%	3%	0%	97%
7284	0	2.64	19%	0%	80%	1.94	16%	5%	0%	79%	3.86	19%	0%	81%	6.23	-1%	3%	0%	98%
7368	0	2.13	45%	0%	54%	1.32	49%	1%	2%	49%	3.26	42%	0%	58%	1.21	14%	3%	1%	82%
7369	0	1.64	71%	0%	29%	1.62	47%	0%	0%	54%	1.53	73%	0%	27%	2.29	20%	2%	0%	78%
7371	0	1.38	72%	2%	26%	1.87	23%	2%	0%	75%	1.06	72%	1%	27%	1.97	24%	0%	0%	76%
7372	0	1.43	75%	0%	25%	2.32	10%	4%	0%	85%	1.23	78%	0%	22%	5.67	-10%	6%	0%	104%
7373	0	1.95	69%	0%	31%	2.79	30%	-1%	0%	72%	2.40	79%	0%	21%	7.47	5%	-1%	0%	96%
7414	0	1.99	18%	0%	82%	1.72	10%	2%	0%	87%	2.12	20%	0%	80%	2.68	2%	1%	0%	97%
7415	0	2.09	38%	0%	62%	3.51	6%	1%	0%	93%	2.49	41%	0%	59%	10.42	0%	0%	0%	100%
7416	0	2.13	28%	0%	72%	1.66	14%	4%	0%	82%	2.43	30%	0%	70%	2.66	-3%	4%	0%	99%
7421	0	2.08	74%	0%	26%	2.59	42%	-2%	0%	60%	2.81	88%	0%	12%	5.98	29%	-2%	0%	73%
7422	0	2.12	62%	0%	38%	1.86	63%	-3%	0%	40%	2.79	79%	0%	21%	2.52	60%	-4%	0%	44%
7423	0	2.26	74%	0%	26%	2.56	44%	-1%	0%	57%	3.23	90%	0%	10%	4.55	42%	-2%	0%	60%
7428	0	2.97	61%	0%	39%	2.46	50%	-1%	0%	52%	5.54	76%	0%	24%	10.08	10%	0%	0%	90%
7429	0	2.32	39%	0%	61%	1.61	48%	-2%	0%	54%	3.03	37%	0%	63%	3.16	-4%	1%	0%	103%
7431	0	2.65	44%	0%	56%	3.04	9%	0%	0%	91%	3.87	52%	0%	48%	10.75	-9%	1%	0%	108%
7434	0	2.49	81%	0%	19%	3.09	43%	-1%	0%	58%	4.57	100%	0%	0%	9.81	4%	0%	0%	96%
7439	0	2.26	37%	0%	63%	1.83	32%	0%	0%	68%	2.88	37%	0%	63%	3.10	1%	3%	0%	96%
7449	0	2.03	32%	0%	68%	1.95	8%	5%	0%	87%	2.21	33%	0%	67%	3.48	-5%	6%	0%	99%
7451	0	2.75	22%	0%	78%	1.59	18%	3%	0%	79%	5.34	13%	0%	87%	1.98	-7%	4%	0%	103%
7452	0	2.42	26%	0%	74%	2.09	20%	0%	0%	79%	3.22	26%	0%	74%	3.70	0%	5%	0%	96%
7491	0	2.97	63%	0%	37%	4.93	13%	0%	0%	87%	7.57	90%	0%	10%	22.25	7%	0%	0%	93%
7492	0	2.80	33%	0%	67%	1.45	36%	0%	0%	64%	5.04	48%	0%	52%	2.11	-9%	1%	0%	108%
7493	0	2.65	59%	0%	41%	4.07	7%	0%	0%	93%	5.50	84%	0%	16%	14.04	-3%	0%	0%	102%
7499	0	2.71	21%	0%	79%	1.27	47%	0%	0%	53%	4.12	18%	0%	82%	2.92	-3%	1%	0%	102%
7611	0	2.12	78%	1%	22%	7.05	-4%	0%	0%	103%	2.57	80%	0%	19%	54.09	-5%	0%	0%	105%
7712	0	2.36	35%	0%	64%	1.69	46%	-1%	0%	54%	3.12	35%	0%	65%	4.13	2%	1%	0%	97%
7721	0	3.85	18%	0%	82%	2.91	11%	0%	0%	89%	8.85	23%	0%	77%	16.03	-17%	1%	0%	116%
7731	0	2.29	24%	1%	75%	1.89	19%	-1%	1%	82%	2.82	27%	1%	72%	7.30	-4%	1%	0%	102%
7732	0	1.69	58%	1%	41%	1.77	35%	0%	1%	65%	1.57	57%	1%	42%	2.68	10%	0%	1%	89%
7752	0	2.06	38%	0%	62%	4.25	4%	2%	0%	94%	2.29	45%	0%	55%	11.81	0%	2%	0%	98%
7757	0	1.37	45%	0%	55%	1.04	48%	-1%	0%	54%	1.09	54%	0%	46%	0.97	26%	0%	0%	75%
7758	0	1.79	31%	0%	69%	1.00	63%	-2%	0%	40%	1.79	34%	0%	66%	0.94	37%	-1%	0%	64%
7781	1	1.77	51%	1%	49%	2.51	27%	0%	0%	73%	1.80	57%	1%	43%	11.69	1%	1%	0%	99%
7782	0	1.56	66%	1%	34%	1.43	56%	-1%	0%	44%	1.39	70%	0%	30%	1.83	17%	0%	1%	82%
7783	0	1.95	31%	0%	69%	1.16	43%	0%	0%	57%	2.22	31%	0%	69%	1.23	27%	0%	0%	73%
7788	1	2.85	33%	0%	67%	2.17	41%	0%	0%	59%	4.83	28%	0%	72%	9.48	-6%	1%	0%	105%
7810	0	1.97	28%	1%	72%	4.18	7%	2%	0%	91%	2.13	35%	1%	65%	10.53	8%	2%	0%	90%
7849	0	2.50	17%	0%	83%	1.29	38%	0%	0%	62%	3.36	19%	0%	81%	3.72	0%	2%	0%	99%
7853	0	2.36	29%	0%	71%	1.14	79%	-5%	0%	26%	4.66	7%	0%	93%	0.77	66%	-5%	0%	38%
7868	0	2.99	15%	0%	84%	1.16	47%	-3%	0%	55%	7.39	5%	0%	95%	1.65	8%	-1%	1%	93%
7919	0	2.00	58%	1%	41%	3.84	16%	-2%	0%	86%	2.34	59%	1%	41%	17.12	1%	-1%	0%	99%

Table A2 - Results on Deviations from LOP (For Online Publication)

		Mean of Deviations from LOP									Variance of Deviations from LOP								
		Multiplicatively Quasi-Separable (MQS)				Additively Quasi-Separable (AQS)					Multiplicatively Quasi-Separable (MQS)				Additively Quasi-Separable (AQS)				
			% Contribution of				% Contribution of					% Contribution of				% Contribution of			
SITC	HG	Deviations	Marginal Costs	Freight Costs	Border Costs	Deviations	Marginal Costs	Markups	Freight Costs	Border Costs	Deviations	Marginal Costs	Freight Costs	Border Costs	Deviations	Marginal Costs	Markups	Freight Costs	Border Costs
8124	0	3.53	15%	0%	85%	1.22	50%	-1%	0%	51%	9.16	3%	0%	97%	1.55	10%	0%	0%	89%
8212	0	2.63	32%	0%	68%	1.59	51%	-2%	0%	50%	4.43	24%	0%	76%	1.60	40%	-1%	0%	60%
8219	0	3.37	12%	0%	88%	1.35	29%	1%	0%	70%	7.31	6%	0%	94%	1.81	5%	3%	0%	92%
8472	0	3.12	55%	0%	45%	9.23	5%	0%	0%	95%	8.63	79%	0%	21%	145.76	-3%	0%	0%	102%
8482	0	1.49	49%	0%	51%	1.21	45%	-3%	0%	58%	1.37	51%	0%	49%	1.11	20%	1%	0%	79%
8720	0	3.22	27%	0%	73%	2.10	23%	0%	0%	77%	6.19	34%	0%	66%	3.51	2%	0%	0%	98%
8743	0	2.81	56%	0%	44%	1.95	40%	-1%	0%	61%	5.84	79%	0%	21%	3.54	40%	-1%	0%	61%
8748	0	2.91	49%	0%	51%	1.92	63%	-2%	0%	39%	5.63	65%	0%	35%	3.01	72%	-3%	0%	31%
8749	0	1.90	57%	0%	43%	1.57	53%	0%	0%	47%	2.03	60%	0%	40%	2.64	5%	0%	0%	95%
8812	0	4.81	13%	0%	87%	1.23	38%	-3%	0%	65%	70.26	-3%	0%	103%	1.17	13%	-3%	0%	90%
8821	0	2.22	33%	0%	66%	1.76	43%	-1%	0%	58%	2.90	27%	0%	73%	2.47	4%	3%	0%	92%
8921	0	2.98	25%	0%	75%	3.13	3%	0%	0%	96%	5.71	35%	0%	65%	11.01	-23%	2%	0%	121%
8922	0	4.18	29%	0%	71%	2.41	44%	-1%	0%	57%	13.77	44%	0%	56%	12.27	17%	0%	0%	83%
8924	0	1.38	61%	0%	39%	2.08	23%	0%	0%	77%	1.19	65%	0%	35%	6.09	3%	0%	0%	97%
8928	0	3.64	19%	0%	81%	2.04	25%	-1%	0%	76%	8.96	11%	0%	89%	3.37	6%	0%	0%	94%
8931	0	2.92	12%	0%	87%	1.28	29%	-1%	0%	72%	5.35	6%	0%	94%	1.45	12%	0%	0%	88%
8932	0	2.07	50%	0%	50%	1.74	41%	-2%	0%	61%	3.82	83%	0%	17%	3.98	43%	-2%	0%	59%
8935	0	3.78	18%	0%	82%	2.05	29%	0%	0%	72%	65.43	-2%	0%	102%	10.51	0%	0%	0%	100%
8939	0	2.67	14%	0%	85%	1.17	40%	-1%	1%	60%	4.09	12%	0%	88%	1.90	7%	0%	1%	92%
8951	0	1.60	40%	1%	60%	0.95	64%	-1%	1%	36%	2.26	21%	0%	79%	0.66	50%	0%	1%	49%
8983	0	3.94	59%	0%	41%	6.42	5%	0%	0%	96%	10.21	71%	0%	29%	30.20	0%	0%	0%	100%
8989	0	1.36	82%	0%	18%	1.37	63%	-3%	0%	40%	1.11	83%	0%	17%	1.04	50%	-2%	0%	52%
8993	0	1.79	49%	1%	50%	4.21	17%	0%	0%	83%	2.01	51%	1%	48%	38.59	-2%	0%	0%	102%
8994	0	1.88	39%	0%	61%	2.00	14%	1%	0%	85%	2.70	20%	0%	80%	2.95	12%	3%	0%	85%
8998	0	2.04	32%	0%	68%	1.02	60%	-1%	0%	41%	2.46	29%	0%	71%	0.66	64%	0%	0%	37%
8999	0	1.57	69%	0%	31%	2.54	20%	1%	0%	80%	1.47	72%	0%	28%	5.22	-4%	3%	0%	100%
9410	0	2.69	96%	0%	4%	2.50	97%	-1%	-1%	4%	4.83	100%	-1%	1%	4.51	103%	-3%	-1%	0%

Notes: HG, the second column, respresents the Rauch (1999) index, where a value of 1 corresponds to homogenous goods. We consider the mean and the variance of the deviations from LOP across destination countries at the good level by pooling observations across source countries.

Table A3 - Quality Estimates and Welfare Implications (For Online Publication)

		QUALITY ESTIMATES						WELFARE IMPLICATIONS					
		MQS			AQS			MQS			AQS		
Country	# of Goods	AG	HG	DG	AG	HG	DG	AG	HG	DG	AG	HG	DG
Afghanistan	14	0.24	0.28	0.09	0.13	0.09	0.13	0.12	0.15	0.10	5.78	2.80	10.69
Albania	53	0.12	0.15	0.06	0.02	0.02	0.01	0.02	0.03	0.01	0.40	0.32	0.41
Algeria	55	0.30	0.63	0.05	0.26	0.34	0.01	0.05	0.06	0.03	2.07	1.21	3.22
Angola	15	0.14	0.16	0.05	0.11	0.12	0.07	0.12	0.21	0.07	21.33	15.38	34.26
Argentina	291	0.42	0.49	0.24	0.06	0.06	0.03	0.02	0.04	0.01	0.55	0.59	0.50
Armenia	26	0.20	0.34	0.03	0.04	0.14	0.01	0.23	0.33	0.16	24.58	12.78	49.16
Australia	337	0.20	0.42	0.09	0.05	0.07	0.03	0.22	0.51	0.17	85.33	24.70	162.63
Austria	334	0.34	0.40	0.28	0.07	0.07	0.05	0.02	0.04	0.01	0.53	0.46	0.57
Azerbaijan	63	0.16	0.24	0.05	0.03	0.03	0.03	0.07	0.15	0.03	4.13	4.13	3.70
Bahamas	14	0.14	0.60	0.07	0.10	0.11	0.07	0.19	0.37	0.14	55.13	11.95	121.55
Bahrain	82	0.47	0.53	0.12	0.02	0.04	0.02	0.10	0.15	0.08	19.36	8.56	38.84
Bangladesh	48	0.31	0.22	0.42	0.04	0.04	0.04	0.17	0.28	0.13	13.89	6.33	22.96
Barbados	26	0.05	0.10	0.02	0.01	0.01	0.01	0.19	0.25	0.14	67.12	33.57	109.68
Belarus	121	0.19	0.32	0.10	0.02	0.02	0.01	0.02	0.03	0.01	0.62	0.55	0.65
Belgium-Lux	356	0.40	0.46	0.38	0.07	0.09	0.05	0.01	0.01	0.00	0.03	0.02	0.04
Belize	21	0.23	0.20	0.23	0.02	0.02	0.01	0.31	0.48	0.19	18.67	22.79	17.84
Benin	14	0.06	0.12	0.05	0.03	0.05	0.03	0.15	0.31	0.12	29.88	16.72	40.79
Bermuda	13	0.18	0.23	0.03	0.03	0.03	0.07	0.22	0.42	0.16	127.21	25.21	156.40
Bolivia	40	0.32	0.40	0.08	0.09	0.14	0.02	0.11	0.17	0.08	10.79	6.65	26.14
Bosnia Herzg	72	0.11	0.38	0.09	0.03	0.11	0.02	0.09	0.13	0.05	9.68	5.92	15.69
Brazil	330	0.33	0.44	0.24	0.05	0.06	0.03	0.02	0.03	0.01	0.27	0.20	0.29
Bulgaria	228	0.12	0.23	0.08	0.02	0.03	0.02	0.07	0.12	0.04	5.44	3.05	9.31
Burkina Faso	21	0.10	0.18	0.04	0.01	0.03	0.00	0.19	0.31	0.14	51.06	29.57	114.15
Burundi	4	0.80	0.80	-	0.14	0.14	-	0.30	0.50	0.22	177.55	37.01	388.10
Cambodia	20	0.19	0.23	0.11	0.03	0.06	0.01	0.02	0.02	0.01	0.17	0.15	0.17
Cameroon	33	0.41	0.55	0.41	0.11	0.21	0.08	0.15	0.22	0.12	15.86	8.19	28.97
Canada	331	0.19	0.34	0.15	0.04	0.10	0.02	0.02	0.02	0.01	0.04	0.04	0.06
Cent.Afr.Rep	11	0.22	0.22	0.10	0.11	0.14	0.03	0.23	0.30	0.19	187.94	41.51	301.39
Chad	1	1.04	-	1.04	12.47	-	12.47	0.22	0.48	0.18	236.37	59.14	331.29
Chile	236	0.39	0.45	0.26	0.08	0.20	0.04	0.04	0.05	0.02	0.48	0.39	0.63
China	352	0.46	0.53	0.38	0.04	0.09	0.04	0.06	0.07	0.04	2.57	1.22	3.74
China HK SAR	312	0.20	0.25	0.17	0.03	0.05	0.02	0.01	0.02	0.01	0.11	0.07	0.19
China MC SAR	47	0.13	0.23	0.02	0.06	0.05	0.01	0.20	0.32	0.16	43.73	36.76	75.30
Colombia	231	0.40	0.83	0.20	0.09	0.31	0.02	0.03	0.04	0.02	0.64	0.47	0.70
Congo	17	0.23	0.33	0.13	0.08	0.18	0.03	0.16	0.32	0.12	52.20	27.76	76.40
Costa Rica	101	0.19	0.58	0.07	0.04	0.45	0.01	0.10	0.14	0.06	7.82	5.70	11.31
Cote Divoire	53	0.28	0.37	0.26	0.13	0.25	0.05	0.12	0.18	0.10	15.02	7.16	30.30
Croatia	201	0.15	0.24	0.11	0.02	0.03	0.01	0.73	0.73	-	13.30	13.30	-
Cuba	37	0.31	0.39	0.02	0.07	0.09	0.06	0.11	0.21	0.08	15.77	13.92	15.97
Cyprus	94	0.06	0.16	0.03	0.02	0.04	0.00	0.06	0.08	0.04	7.06	4.48	13.25
Czech Rep	316	0.27	0.27	0.25	0.05	0.05	0.03	0.07	0.16	0.03	7.12	4.95	8.96
Dem.Rp.Congo	10	0.38	0.55	0.07	0.13	0.22	0.03	0.24	0.35	0.16	34.54	20.59	83.82
Denmark	330	0.28	0.33	0.23	0.05	0.05	0.04	0.02	0.03	0.01	0.45	0.41	0.52
Djibouti	6	0.05	0.09	0.01	0.01	0.01	0.00	0.20	0.27	0.16	39.54	18.80	85.44
Dominican Rp	44	0.08	0.17	0.01	0.05	0.06	0.05	0.08	0.14	0.05	7.82	5.98	12.33
Ecuador	128	0.25	0.39	0.16	0.06	0.08	0.03	0.05	0.09	0.03	2.40	1.44	2.81
Egypt	182	0.23	0.30	0.12	0.03	0.06	0.01	0.03	0.05	0.02	1.45	0.92	2.17
El Salvador	30	0.43	1.22	0.09	0.59	0.88	0.01	0.11	0.19	0.08	13.23	8.44	22.95
Eq.Guinea	6	0.32	0.37	0.05	0.12	0.22	0.03	0.17	0.34	0.12	53.52	14.06	136.59
Estonia	184	0.17	0.28	0.12	0.04	0.05	0.02	0.06	0.13	0.02	4.23	3.25	7.02
Ethiopia	22	0.54	1.01	0.10	0.54	0.76	0.03	0.16	0.24	0.09	25.78	14.97	31.76
Falkland Is	11	0.09	0.28	0.09	0.05	0.14	0.01	0.32	0.49	0.25	202.91	21.26	435.72
Fiji	35	0.18	0.29	0.10	0.07	0.13	0.04	0.17	0.25	0.14	15.28	12.78	23.21
Finland	291	0.26	0.39	0.17	0.04	0.07	0.03	0.02	0.03	0.01	0.29	0.26	0.31
France	360	0.63	0.61	0.63	0.12	0.16	0.08	0.03	0.05	0.02	0.60	0.53	0.69
Gabon	24	0.33	0.71	0.12	0.20	0.55	0.03	0.17	0.29	0.13	41.10	19.47	61.80
Gambia	8	0.09	0.29	0.05	0.02	0.05	0.01	0.22	0.31	0.17	29.97	11.92	78.27
Georgia	80	0.13	0.16	0.06	0.02	0.04	0.02	0.28	0.34	0.20	34.75	21.12	87.50
Germany	359	0.96	0.92	0.98	0.16	0.23	0.12	0.01	0.01	0.01	0.07	0.04	0.10
Ghana	51	0.23	0.29	0.19	0.09	0.10	0.04	0.08	0.14	0.06	10.01	6.10	16.32
Gibraltar	13	0.09	0.09	0.04	0.02	0.01	0.12	0.04	0.06	0.02	2.39	1.92	3.93
Greece	254	0.21	0.31	0.15	0.04	0.04	0.03	0.01	0.01	0.01	0.05	0.04	0.06
Greenland	6	0.20	0.09	0.28	0.01	0.04	0.01	0.29	0.43	0.24	95.56	23.72	153.70
Guatemala	63	0.39	0.70	0.15	0.19	0.29	0.02	0.10	0.18	0.06	6.95	3.68	12.95
Guinea	14	0.26	0.26	0.16	0.09	0.13	0.00	0.18	0.27	0.12	27.20	11.14	89.33
GuineaBissau	13	0.16	0.18	0.16	0.01	0.13	0.00	0.22	0.32	0.19	32.67	22.00	57.94
Guyana	16	0.24	0.24	0.05	0.11	0.15	0.02	0.25	0.37	0.18	39.70	18.43	121.97
Haiti	7	0.35	0.35	0.25	0.03	0.03	0.13	0.20	0.32	0.13	23.45	12.70	46.97
Honduras	24	0.25	1.14	0.12	0.38	0.72	0.24	0.13	0.19	0.08	14.15	10.31	22.49
Hungary	304	0.23	0.30	0.18	0.03	0.05	0.02	0.15	0.24	0.09	20.80	14.51	33.22
Iceland	73	0.26	0.45	0.11	0.04	0.26	0.01	0.02	0.03	0.01	0.26	0.23	0.30
Indonesia	303	0.36	0.46	0.31	0.04	0.07	0.03	0.28	0.40	0.23	20.39	8.69	66.97
Iran	148	0.24	0.25	0.21	0.04	0.05	0.03	0.03	0.04	0.02	2.20	1.27	5.80
Iraq	15	0.04	0.05	0.03	0.09	0.25	0.02	0.14	0.36	0.07	23.02	15.32	39.66
Ireland	323	0.20	0.28	0.17	0.05	0.08	0.04	0.02	0.03	0.01	0.45	0.28	0.80
Israel	249	0.17	0.29	0.11	0.03	0.05	0.02	0.05	0.05	0.01	0.11	0.07	4.72

Table A3 - Quality Estimates and Welfare Implications (For Online Publication)

		QUALITY ESTIMATES						WELFARE IMPLICATIONS					
		MQS			AQS			MQS			AQS		
Country	# of Goods	AG	HG	DG	AG	HG	DG	AG	HG	DG	AG	HG	DG
Italy	352	0.57	0.54	0.59	0.08	0.10	0.07	0.01	0.02	0.01	0.09	0.07	0.13
Jamaica	42	0.39	0.61	0.11	0.21	0.77	0.02	0.15	0.20	0.11	19.89	9.45	32.79
Japan	342	0.67	0.72	0.60	0.14	0.20	0.13	0.01	0.01	0.01	0.07	0.04	0.09
Jordan	83	0.17	0.43	0.05	0.02	0.04	0.01	0.07	0.12	0.05	7.65	5.31	9.58
Kazakhstan	116	0.63	0.63	0.06	0.11	0.14	0.01	0.16	0.27	0.12	27.58	14.11	82.93
Kenya	50	0.32	0.61	0.28	0.10	0.10	0.10	0.12	0.18	0.08	14.11	8.29	15.94
Kiribati	13	0.14	0.42	0.12	0.05	0.10	0.03	0.34	0.53	0.24	72.31	42.92	79.80
Korea D P Rp	141	0.14	0.17	0.09	0.02	0.02	0.01	0.01	0.01	0.01	0.06	0.03	0.10
Korea Rep.	335	0.37	0.59	0.32	0.05	0.08	0.04	0.20	0.30	0.16	24.49	14.88	35.76
Kuwait	87	0.34	0.41	0.06	0.02	0.02	0.03	0.06	0.09	0.04	5.28	2.99	9.36
Kyrgyzstan	44	0.16	0.17	0.20	0.02	0.11	0.01	0.14	0.27	0.09	13.83	7.54	25.63
Lao P.Dem.R	12	0.52	0.58	0.39	0.17	0.17	0.21	0.02	0.02	0.01	0.14	0.08	0.23
Latvia	152	0.21	0.27	0.15	0.07	0.08	0.03	0.02	0.03	0.01	0.22	0.15	0.29
Lebanon	74	0.12	0.17	0.10	0.02	0.04	0.02	0.06	0.11	0.03	6.17	3.62	8.43
Liberia	12	0.25	0.42	0.07	0.11	0.20	0.02	0.20	0.38	0.15	49.55	22.52	372.19
Libya	37	0.49	0.59	0.03	0.17	0.17	0.09	0.10	0.18	0.06	12.37	8.54	16.43
Lithuania	190	0.19	0.31	0.14	0.03	0.04	0.02	0.03	0.04	0.01	1.00	0.98	1.01
Madagascar	51	0.26	0.38	0.11	0.09	0.10	0.03	0.15	0.22	0.12	26.83	16.16	46.61
Malawi	14	0.31	0.32	0.01	0.20	0.32	0.04	0.28	0.38	0.24	29.15	21.28	94.98
Malaysia	321	0.27	0.38	0.18	0.03	0.06	0.02	0.04	0.05	0.03	1.36	1.08	1.78
Mali	22	0.15	0.15	0.14	0.07	0.02	0.07	0.19	0.31	0.15	42.22	24.98	80.96
Malta	89	0.08	0.12	0.06	0.04	0.05	0.03	0.09	0.20	0.06	17.96	11.06	28.52
Mauritania	13	0.30	0.66	0.30	0.02	0.25	0.02	0.16	0.24	0.12	32.46	17.46	75.61
Mauritius	48	0.19	0.22	0.19	0.03	0.17	0.02	0.11	0.18	0.07	16.83	6.64	27.52
Mexico	294	0.23	0.38	0.15	0.04	0.07	0.02	0.01	0.02	0.01	0.03	0.03	0.02
Mongolia	18	0.11	0.23	0.11	0.03	0.26	0.03	0.02	0.03	0.01	0.30	0.23	0.40
Morocco	151	0.26	0.41	0.14	0.04	0.05	0.03	0.04	0.07	0.03	2.17	1.54	3.66
Mozambique	23	0.22	0.30	0.11	0.10	0.12	0.03	0.22	0.33	0.15	10.75	7.96	14.80
Myanmar	43	0.29	0.74	0.19	0.08	0.74	0.06	0.07	0.11	0.05	6.79	3.12	11.31
Nepal	24	0.52	0.18	1.40	0.34	0.04	4.53	0.02	0.03	0.02	0.32	0.25	0.36
Neth.Ant.Aru	79	0.23	0.26	0.23	0.05	0.21	0.05	0.15	0.31	0.10	23.14	9.88	38.57
Netherlands	357	0.44	0.49	0.35	0.07	0.12	0.06	0.01	0.01	0.00	0.04	0.05	0.04
New Calednia	15	0.29	3.46	0.09	0.53	1.00	0.01	0.10	0.22	0.06	23.65	16.49	34.09
New Zealand	237	0.22	0.43	0.06	0.06	0.10	0.02	0.17	0.26	0.14	20.21	13.42	44.28
Nicaragua	10	0.90	1.50	0.06	0.38	0.50	0.01	0.20	0.35	0.14	31.15	25.76	41.23
Niger	13	0.08	0.15	0.03	0.02	0.02	0.01	0.20	0.34	0.16	77.05	27.32	136.86
Nigeria	53	0.18	0.49	0.11	0.06	0.09	0.04	0.03	0.05	0.03	1.88	2.13	1.45
Norway	285	0.19	0.33	0.13	0.04	0.08	0.03	0.20	0.40	0.14	58.37	24.99	150.78
Oman	74	0.15	0.37	0.11	0.01	0.01	0.02	0.17	-	0.17	29.91	-	29.91
Pakistan	111	0.47	0.57	0.24	0.04	0.05	0.04	0.02	0.02	0.01	0.14	0.13	0.17
Panama	121	0.18	0.32	0.12	0.05	0.03	0.05	0.09	0.14	0.06	9.77	6.88	9.78
Papua N.Guin	17	0.46	0.78	0.14	0.33	0.33	0.04	-	-	-	-	-	-
Paraguay	56	0.20	0.21	0.17	0.03	0.02	0.06	0.14	0.27	0.10	8.32	5.15	17.61
Peru	148	0.32	0.43	0.19	0.07	0.11	0.04	0.04	0.08	0.02	1.41	1.19	1.40
Philippines	243	0.14	0.27	0.12	0.02	0.05	0.01	0.02	0.03	0.01	0.33	0.28	0.29
Poland	325	0.23	0.28	0.21	0.04	0.04	0.02	0.03	0.04	0.02	0.10	0.07	0.16
Portugal	303	0.23	0.28	0.17	0.03	0.07	0.02	0.02	0.02	0.01	0.23	0.23	0.23
Qatar	36	0.25	0.25	0.02	0.01	0.01	0.05	0.02	0.03	0.01	0.37	0.39	0.33
Rep Moldova	35	0.14	0.17	0.11	0.06	0.04	0.06	0.02	0.03	0.01	0.29	0.19	0.37
Romania	245	0.20	0.24	0.15	0.04	0.03	0.03	0.05	0.07	0.02	2.43	1.49	3.38
Russian Fed	264	0.36	0.44	0.22	0.06	0.08	0.04	0.09	0.15	0.06	11.42	6.85	18.09
Rwanda	11	0.71	0.71	0.01	0.11	0.11	0.00	0.28	0.57	0.16	93.45	65.45	299.30
Samoa	1	0.44	-	0.44	0.01	-	0.01	-	-	-	-	-	-
Saudi Arabia	175	0.32	0.46	0.10	0.03	0.04	0.01	0.06	0.10	0.05	5.09	2.45	9.61
Senegal	21	0.19	0.33	0.15	0.04	0.08	0.01	0.13	0.20	0.10	15.51	7.64	23.65
Seychelles	7	0.40	1.22	0.30	0.53	1.68	0.01	0.22	0.35	0.17	36.07	23.58	58.71
Sierra Leone	27	0.07	0.11	0.03	0.02	0.05	0.00	0.25	0.37	0.20	51.67	23.47	186.17
Singapore	322	0.19	0.36	0.16	0.04	0.07	0.03	0.16	0.24	0.11	16.89	10.26	35.10
Slovakia	263	0.19	0.25	0.15	0.02	0.04	0.02	0.05	0.09	0.03	3.59	2.32	5.43
Slovenia	248	0.20	0.27	0.15	0.02	0.05	0.02	0.02	0.02	0.01	0.15	0.30	0.07
Somalia	4	0.50	1.98	0.39	0.18	8.27	0.18	0.30	0.29	0.31	28.98	18.32	48.51
South Africa	297	0.26	0.40	0.15	0.05	0.07	0.03	0.02	0.04	0.02	0.60	0.57	0.53
Spain	352	0.39	0.44	0.36	0.06	0.09	0.05	0.02	0.03	0.01	0.70	0.50	0.78
Sri Lanka	107	0.23	0.26	0.20	0.03	0.05	0.03	0.02	0.02	0.02	0.26	0.15	0.42
St.Helena	4	0.13	0.17	0.11	0.03	0.03	0.06	0.31	0.32	0.31	238.13	97.14	1096.23
St.Kt-Nev-An	56	0.11	0.17	0.04	0.04	0.19	0.00	0.19	0.32	0.13	24.30	11.17	36.10
St.Pierre Mq	1	0.15	0.15	-	0.02	0.02	-	0.25	0.32	0.23	168.67	134.21	452.75
Sudan	15	0.35	0.35	1.42	0.08	0.08	5.10	0.16	0.21	0.12	19.72	12.51	30.95
Suriname	20	0.22	0.29	0.20	0.06	0.53	0.01	0.20	0.31	0.15	26.17	15.26	84.35
Sweden	322	0.33	0.42	0.30	0.06	0.08	0.04	0.10	0.14	0.07	16.52	8.41	21.91
Switz.Liecht	323	0.30	0.35	0.28	0.08	0.11	0.07	0.15	0.24	0.10	12.32	8.59	20.82
Syria	74	0.17	0.20	0.12	0.04	0.04	0.02	0.02	0.02	0.01	0.44	0.20	0.58
Taiwan	331	0.33	0.43	0.30	0.04	0.08	0.03	0.19	0.31	0.12	38.03	23.71	85.98
Tajikistan	24	0.64	0.83	0.19	0.05	0.11	0.01	0.01	0.02	0.01	0.08	0.06	0.09
Tanzania	30	0.21	0.43	0.09	0.15	0.19	0.01	0.16	0.27	0.11	16.72	11.40	23.74
TFYR Macedna	72	0.10	0.21	0.04	0.03	0.05	0.02	0.04	0.05	0.03	1.11	1.00	1.25

Table A3 - Quality Estimates and Welfare Implications (For Online Publication)

		QUALITY ESTIMATES						WELFARE IMPLICATIONS					
		MQS			AQS			MQS			AQS		
Country	**# of Goods**	**AG**	**HG**	**DG**	**AG**	**HG**	**DG**	**AG**	**HG**	**DG**	**AG**	**HG**	**DG**
Thailand	329	0.29	0.39	0.23	0.02	0.07	0.02	0.20	0.36	0.16	44.90	22.59	62.31
Togo	15	0.26	0.37	0.09	0.05	0.06	0.02	0.22	0.34	0.16	35.28	24.73	94.01
Trinidad Tbg	63	0.30	0.31	0.06	0.16	0.31	0.01	0.14	0.22	0.09	17.75	7.81	44.87
Tunisia	169	0.22	0.39	0.09	0.03	0.06	0.02	0.05	0.08	0.03	2.81	1.67	4.59
Turkey	285	0.28	0.45	0.19	0.03	0.07	0.02	0.25	0.46	0.19	11.58	4.85	17.09
Turkmenistan	22	0.37	0.53	0.39	0.06	0.05	0.06	0.18	0.26	0.13	14.33	7.27	34.06
Uganda	8	1.31	1.31	0.05	0.63	0.63	0.09	0.21	0.32	0.13	54.24	40.37	74.28
UK	357	0.58	0.59	0.55	0.10	0.12	0.08	0.09	0.18	0.05	15.82	9.45	31.64
Ukraine	268	0.29	0.43	0.09	0.09	0.11	0.02	0.03	0.04	0.02	1.27	0.89	2.26
Untd Arab Em	239	0.25	0.42	0.17	0.04	0.09	0.02	0.12	0.24	0.07	11.10	8.34	17.98
Uruguay	162	0.27	0.34	0.22	0.03	0.05	0.02	0.08	0.15	0.05	5.35	3.86	7.36
USA	364	1.00	1.00	1.00	1.00	1.00	1.00	0.01	0.01	0.01	0.08	0.05	0.15
Uzbekistan	76	0.42	0.55	0.09	0.03	0.04	0.02	0.18	0.33	0.13	18.53	12.67	31.68
Venezuela	204	0.37	0.39	0.16	0.03	0.05	0.01	0.03	0.04	0.02	0.47	0.57	0.44
Viet Nam	198	0.19	0.23	0.15	0.03	0.05	0.02	0.01	0.01	0.00	0.04	0.03	0.04
Yemen	24	0.30	0.46	0.06	0.02	0.04	0.01	0.07	0.12	0.05	4.62	2.58	7.07
Yugoslavia	149	0.11	0.19	0.06	0.02	0.03	0.01	0.22	0.27	0.16	19.55	15.33	29.40
Zambia	18	0.31	0.41	0.09	0.06	0.06	0.36	0.27	0.46	0.17	19.31	10.30	24.67
Zimbabwe	75	0.40	0.40	0.10	0.10	0.10	0.14	0.22	0.37	0.16	16.09	8.54	25.62
Minimum	1.00	0.04	0.05	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.03	0.02	0.02
1st Percentile	1.00	0.05	0.09	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.04	0.03	0.04
10th Percentile	11.00	0.11	0.17	0.04	0.02	0.03	0.01	0.02	0.02	0.01	0.15	0.14	0.21
25th Percentile	20.50	0.18	0.24	0.08	0.03	0.05	0.01	0.03	0.04	0.02	0.68	0.58	0.91
Median	63.00	0.25	0.35	0.13	0.05	0.08	0.03	0.11	0.18	0.07	11.95	6.88	17.61
75th Percentile	241.00	0.35	0.47	0.21	0.09	0.14	0.04	0.19	0.31	0.14	26.93	15.29	47.74
90th Percentile	329.00	0.49	0.71	0.36	0.17	0.32	0.08	0.24	0.37	0.18	52.60	24.83	117.11
99th Percentile	359.30	1.01	1.66	1.16	0.75	1.23	4.72	0.33	0.55	0.27	213.95	76.23	441.51
Maximum	364.00	1.31	3.46	1.42	12.47	8.27	12.47	0.73	0.73	0.31	238.13	134.21	1096.23
Mean	124.61	0.29	0.43	0.19	0.16	0.20	0.17	0.12	0.19	0.09	23.81	11.20	51.43
Standard Deviation	123.46	0.19	0.36	0.21	0.96	0.66	1.09	0.10	0.15	0.07	40.68	16.35	113.51

Notes: AG stands for all goods, HG stands for homogeneous goods, and DG stands for differentiated goods defined according to Rauch (1999). Quality Estimates represent the median quality measures (across goods) for each source country, where the quality for each good has been normalized to 1 for the U.S., since it is the country for which we have trade data covering the highest number of goods. Welfare Implications represent the (absolute value of) median (across goods and source countries) elasticities of good-level utilities with respect to trade costs at destination countries.