Decomposing the Gains from Trade through the Standard Gravity Variables*

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November 12, 2020

Abstract

Using the implications of a trade model, this paper measures the gains from trade through the standard gravity variables. Theoretically, it is shown that such gains can be calculated by using the estimated coefficients of these variables in a gravity regression, together with the bilateral expenditure shares of countries investigated. Empirically, the results show that the total actual gains through all gravity variables in the world have increased from about 1% in 1950s to about 5% as of 2015 that can be decomposed as 3.5% through proximity and 1.5% through other gravity variables. Gains through free trade agreements (FTAs) have started dominating among these other variables starting from 1990s, following the Uruguay Round. Across countries, the total gains of OECD countries are about 1.5 times those of others, whereas the total gains of European countries are more than 10 times those of Pacific countries. Calculations based on the future potential gains from trade through policy-oriented gravity variables further suggest that there is room for an additional 0.8% or 0.4% of a welfare gain in the world through having free trade agreements or using common currencies, respectively.

JEL Classification: F13, F14, F63

Key Words: Welfare Gains from Trade; Potential Gains from Trade; Gravity Variables; Free Trade Agreements

*The author would like to thank editor Sunghyun Henry Kim and two anonymous referees for their helpful comments and suggestions. The usual disclaimer applies.

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Abstract

Using the implications of a trade model, this paper measures the gains from trade through the standard gravity variables. Theoretically, it is shown that such gains can be calculated by using the estimated coefficients of these variables in a gravity regression, together with the bilateral expenditure shares of countries investigated. Empirically, the results show that the total actual gains through all gravity variables in the world have increased from about 1% in 1950s to about 5% as of 2015 that can be decomposed as 3.5% through proximity and 1.5% through other gravity variables. Gains through free trade agreements (FTAs) have started dominating among these other variables starting from 1990s, following the Uruguay Round. Across countries, the total gains of OECD countries are about 1.5 times those of others, whereas the total gains of European countries are more than 10 times those of Pacific countries. Calculations based on the future potential gains from trade through policy-oriented gravity variables further suggest that there is room for an additional 0.8% or 0.4% of a welfare gain in the world through having free trade agreements or using common currencies, respectively.

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1 Introduction

The gains from international trade has been investigated for decades starting from Samuelson (1939). It has been shown by studies such as by Arkolakis, Costinot, and Rodríguez-Clare (2012) or Costinot and Rodríguez-Clare (2014) that these gains can be measured by percentage changes in trade costs and the terms-of-trade, which can be summarized by using home expenditure shares of countries and the trade elasticity. Nevertheless, when welfare changes around the world are considered by assigning certain weights to countries for aggregation purposes as in studies such as by Atkeson and Burstein (2010), Burstein and Cravino (2015) or Lai, Fan, and Qi (2019), the terms-of-trade effects across countries effectively cancel out so that the welfare gains from trade calculations reduce to the knowledge of reductions in *effective* trade costs.

Based on this background, this paper proposes calculating the welfare gains from trade through reductions in effective trade costs measured by the standard gravity variables. Among these, gravity dummy variables such as proximity, common language or contiguity are mostly fixed as they represent either the geographical location or the historical characteristics of countries, whereas policy-oriented variables such as free trade agreements (FTAs) or common currencies are subject to changes over time through trade policies. Therefore, for policy evaluation, it is important to investigate the contribution of each gravity variable to the reduction in trade costs and thus to the welfare gains from trade.

This paper achieves such an investigation by decomposing the welfare gains from trade into those through each standard gravity variable.[1] In particular, the following questions are asked:

[1] This decomposition is different from earlier studies such as by Baier and Bergstrand (2001) or Egger and Nigai (2016) who have decomposed trade flows (rather than the corresponding welfare gains as in this paper) into those due to each gravity variable.

- What are the gains from proximity?
- What are the gains from trading with countries through a free trade agreement?
- What are the gains from trading with countries using the same currency?
- What are the gains from trading with contiguous countries?
- What are the gains from trading with countries with a colonial relationship?
- What are the gains from trading with countries that speak the same language?

These questions are answered by using the implications of a trade model, where the *actual* welfare gains are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries benefit from these gravity variables. Accordingly, welfare gains from trade through each gravity variable is theoretically shown to depend on the estimated coefficients of these variables in a typical gravity regression, together with the bilateral expenditure shares, subject to the knowledge of the trade elasticity. The implications of the trade model is estimated by using a typical gravity regression to obtain the corresponding coefficients of the gravity (dummy) variables, and they are normalized by the trade elasticity, which is shown to be nothing more than a scale factor in this investigation while having a comparison across countries and across time. These coefficients are further combined with the bilateral imports data and the current value of gravity variables to obtain the *actual* welfare gains from trade through each gravity variable.

A similar strategy is used to investigate the *potential* gains from trade in the future through the policy-oriented gravity variables. In particular, the following additional questions are asked:

- What are the *potential* gains from trading with countries through an FTA?

- What are the *potential* gains from trading with countries using the same currency?

These additional questions are again answered by using the implications of the trade model, where, this time, the *potential* welfare gains are calculated by comparing the current situation of countries with a hypothetical case in which they have FTAs or common currencies with all of their trade partners. This is achieved by combining the estimated coefficients of the gravity (dummy) variables (subject to their normalization by the trade elasticity) with the bilateral imports data and *one minus* the current value of gravity (dummy) variables (of FTAs or common currencies).

The empirical results based on a gravity regression covering the period $1948-2015$ suggest that the *actual* gains from trade in the world through all gravity variables have increased over time from about 1% in 1950s to about 5% by the year of 2015. The latter (for 2015) ranges between 6% and 4% for OECD and non-OECD countries, 17% and 5% for landlocked and coastal countries, 11% and 1% for European and Pacific countries, and 3% and 8% for the United States and Germany, respectively.

When the actual gains are decomposed into their components, the total gains from proximity in the world have increased over time from about 1% in 1950s to about 4% by the year of 2015, whereas the total gains from other gravity variables have increased to about 2% during the same period. The latter (for 2015) ranges between 2% and 1% for OECD and non-OECD countries, 5% and 1% for landlocked and coastal countries, and 4% and 1% for South Asian and South American countries, respectively.

Among the gains through gravity variables other than proximity, the contribution of FTAs has started in late 1950s in the world, and they have dominated among these other variables starting from 1990s, following the Uruguay Round. The same domination has been experienced by OECD countries starting from late 1980s, whereas non-OECD countries,

Japan or China had to wait until 2000s. In comparison, despite the increasing contribution of FTAs 2000s, the United States or India have not experienced such domination as of 2015, suggesting that there is potential room for further gains from trade through these policy-oriented variables.

Based on this suggestion, this paper has further calculated the potential gains from trade due to policy-oriented gravity variables that are calculated by comparing the current situation of countries with a hypothetical case in which countries have FTAs or common currencies with all of their trade partners. The corresponding results have shown that the world economy can gain about 0.8% more through FTAs and 0.4% more through common currencies as of 2015. The potential gains from FTAs are about 0.6% for Germany, and 0.9% for China and Japan, reflecting the fact that Germany is already gaining more from trade through FTAs compared to these countries. The potential gains from trade through using common currencies are the highest for Southeast Asian or landlocked countries, suggesting that they can compensate for certain geographical and historical restrictions through using common currencies with their trade partners.

Compared to the existing literature, in addition to studies such as by Arkolakis, Costinot, and Rodríguez-Clare (2012) or Costinot and Rodríguez-Clare (2014) who have shown that welfare gains from trade can be summarized by using home expenditure shares of countries and the trade elasticity, this paper shows that welfare gains can also be calculated as changes in effective trade costs (measured by the weighted average of bilateral trade costs across trading partners). In addition to the literature, this paper also considers potential changes in preferences as their impact can be captured by gravity variables as in studies such as by Hou, Wang, and Yilmazkuday (2017). This addition results in having an expression for the welfare gains from trade depending on changes in not only direct trade costs (e.g., transportation

costs) but also indirect trade costs (e.g., search costs). It is implied that the welfare gains from trade measured in this paper (by including the effects of indirect trade costs) can be higher than those measured by changes in home expenditure shares.

The rest of the paper is organized as follows. The next section provides a theoretical motivation for the empirical investigation. Section 3 introduces the estimation methodology and the data used. Section 4 discusses the gains from trade through the standard gravity variables. Section 5 concludes. Country-specific results are given in the Appendix.

2 Model

We utilize a trade model *à la* Armington (1969) based on endowments, where welfare is measured by per capita consumption in each country. Aggregation across countries is achieved by using population and income shares of countries. These model details are connected to the standard gravity variables representing reductions in international trade costs and thus the welfare gains from trade.

2.1 Economic Environment

The utility of a representative individual in country n is given by the following function:

$$C_n = \left(\sum_i \left(\alpha_{in}\right)^{\frac{1}{\eta}} \left(C_{in}\right)^{\frac{\eta-1}{\eta}} \right)^{\frac{\eta}{\eta-1}} \tag{1}$$

where C_{in} represents the goods imported from country i, η is the elasticity of substitution across goods of different source countries, and α_{in} represents preferences toward such goods. Based on the budget constraint of $\sum_i P_{in}C_{in} = E_n$, where P_{in} is the price of C_{in}, and E_n represents per capita gross domestic income (GDI), the optimization results in the following

value of imports from country i:

$$P_{in}C_{in} = \alpha_{in}\left(\frac{P_{in}}{P_n}\right)^{1-\eta} P_n C_n \tag{2}$$

where P_n is the price of C_n given by:

$$P_n = \left(\sum_i \alpha_{in}\left(P_{in}\right)^{1-\eta}\right)^{\frac{1}{1-\eta}} \tag{3}$$

Per capita GDI in country n is further given by:

$$E_n = Y_n P_{nn} \tag{4}$$

where Y_n represents the per capita endowment of a distinct good, and P_{nn} is the source price of that good. Finally, trade is subject to (iceberg) trade costs that satisfy:

$$P_{in} = \tau_{in} P_{ii} \tag{5}$$

where $\tau_{in} > 1$ is the gross trade cost from source country i to destination country n, and P_{ii} is the source price.

Based on log versions of Equations 2 and 5, the following gravity equation can be obtained:

$$\underbrace{\log\left(P_{int}C_{int}\right)}_{\text{Bilateral Imports}} = \underbrace{\log\alpha_{int}}_{\text{Preferences}} - \underbrace{\left(\eta-1\right)\log\tau_{int}}_{\text{Trade Costs}} - \underbrace{\left(\eta-1\right)\log\left(P_{iit}\right)}_{\text{Source Prices}} + \underbrace{\log\left(\left(P_{nt}\right)^{\eta}C_{nt}\right)}_{\text{Destination Economic Activity}} \tag{6}$$

where the coefficient in front of trade costs $(\eta - 1)$ is what the literature considers as the trade elasticity. Although this expression is based on the trade model *à la* Armington (1969) introduced so far, it is important to emphasize that using alternative models would imply similar

results, because studies such as by Allen, Arkolakis, and Takahashi (2020) have shown that several international trade models such as by Anderson (1979), Anderson and Van Wincoop (2003), Eaton and Kortum (2002), Dekle, Eaton, and Kortum (2008), Caliendo and Parro (2015), Krugman (1980), Melitz (2003), Arkolakis, Demidova, Klenow, and Rodriguez-Clare (2008), di Giovanni and Levchenko (2009), and Bernard, Eaton, Jensen, and Kortum (2003) imply the very same *universal* gravity equation, where bilateral trade between any two countries depend on source prices, bilateral trade iceberg costs, and a measure of economic activity at the destination country.

2.2 The Gains from Trade

Welfare in country n is measured by C_n, which can be written as $C_n = E_n/P_n$ according to the budget constraint. Using Equation 4, it is implied that:

$$C_n = \frac{Y_n P_{nn}}{P_n} \tag{7}$$

which can be rewritten by using Equation 2 as follows:

$$C_n = Y_n \left(\frac{1}{\alpha_{nn}} \left(\frac{P_{nn} C_{nn}}{P_n C_n} \right) \right)^{\frac{1}{1-\eta}} \tag{8}$$

The changes in welfare can be measured by taking the total derivative of this expression in its log form as follows:

$$d\left(\log C_n\right) = d\left(\log Y_n\right) + \frac{d\left(\log \alpha_{nn}\right)}{\eta - 1} - \frac{d\left(\log \lambda_{nn}\right)}{\eta - 1} \tag{9}$$

where $\lambda_{nn} = \frac{P_{nn}C_{nn}}{P_nC_n}$ is the home expenditure share. When the per capita endowment Y_n and preferences for the home good α_{nn} is constant, this expression reduces to $d(\log C_n) = -\frac{d(\log \lambda_{nn})}{\eta-1}$, which is the typical expression for calculating welfare gains from trade as in studies such as by Arkolakis, Costinot, and Rodríguez-Clare (2012) or Costinot and Rodríguez-Clare (2014). Different from these studies, in this paper, we allow for changes in preferences, where we take the per capita endowment Y_n as given. Accordingly, we finally have the following expression regarding the welfare gains from trade in this paper:

$$d(\log C_n) = \underbrace{\frac{d(\log \alpha_{nn})}{\eta-1}}_{\text{Gains through Changes in Preferences}} - \underbrace{\frac{d(\log \lambda_{nn})}{\eta-1}}_{\text{Gains in the Literature}} \tag{10}$$

where there are additional changes in welfare due to changes in preferences.

Since our main focus is on the welfare effects of gravity variables, we will consider an alternative representation of Equation 10. In particular, using Equations 3 and 5, we represent the same welfare of $C_n = E_n/P_n$ as follows:

$$C_n = \frac{E_n}{\left(\sum_i \alpha_{in} \left(\tau_{in} P_{ii}\right)^{1-\eta}\right)^{\frac{1}{1-\eta}}} \tag{11}$$

Further using the per capita GDI given in Equation 4 for country i results in:

$$C_n = \frac{1}{\left(\sum_i \alpha_{in} \left(\frac{\tau_{in} E_i}{Y_i E_n}\right)^{1-\eta}\right)^{\frac{1}{1-\eta}}} \tag{12}$$

where an expression for $\frac{E_i}{E_n}$ can be obtained by considering the aggregation across countries (to measure the utility of a representative individual in the world economy) according to the

following function:

$$C \equiv \prod_i (\pi_i C_i)^{\gamma_n} \tag{13}$$

where $\pi_i = \frac{H_i}{H}$ is the population share of country i in the world, with H_i and H representing country-i and world populations, respectively. Based on this function, the optimization of a world social planner results in the following expression:

$$\underbrace{H_n P_n C_n}_{\text{GDI of country } n} = \underbrace{\gamma_n}_{\text{Income Share}} \underbrace{\sum_i H_i P_i C_i}_{\text{World GDI}} \tag{14}$$

where γ_n is implied as the income share of country n. The GDI per capita ratio between countries n and i is implied as follows:

$$\frac{E_n}{E_i} = \frac{\gamma_n \pi_i}{\gamma_i \pi_n} \tag{15}$$

where the implications of the budget constraint is used. Combining this expression with Equation 12 results in:

$$C_n = \left(\sum_i \alpha_{in} \left(\frac{\gamma_i \pi_n \tau_{in}}{\gamma_n \pi_i Y_i} \right)^{1-\eta} \right)^{\frac{1}{\eta-1}} \tag{16}$$

After considering the population share of countries as given, the welfare effects of a change in trade costs can be measured by taking the total derivative of Equation 16 in its log form as follows, which is an alternative representation of Equation 10:

$$d\left(\log C_n\right) = \underbrace{\frac{\sum_i \lambda_{in} d\left(\log \alpha_{in}\right)}{\eta - 1}}_{\text{Gains through Preferences}} - \underbrace{\sum_i \lambda_{in} d\left(\log \tau_{in}\right)}_{\text{Gains in the Literature}} \tag{17}$$

where λ_{in} is the share of expenditure on goods from country i in country n that can be written as follows:

$$\lambda_{in} = \frac{P_{in}C_{in}}{P_iC_i} = \frac{\alpha_{in}\left(\frac{\gamma_i\pi_n}{\gamma_n\pi_iY_i}\tau_{in}\right)^{1-\eta}}{\sum_j \alpha_{jn}\left(\frac{\gamma_j\pi_n}{\gamma_n\pi_jY_j}\tau_{jn}\right)^{1-\eta}} \tag{18}$$

Therefore, consistent with studies such as by Lai, Fan, and Qi (2019), the welfare effects of a change in trade costs (in percentage terms) depend on the weighted average of the percentage changes in bilateral trade costs, where weights are bilateral expenditure shares. Here, we show that, on top of the effects through changes in trade costs, the weighted average of the percentage changes in preferences also enter the welfare calculations.

In order to connect the welfare gains represented in Equation 17 to the gravity variables, we first define trade costs from country i to country n as follows:

$$\tau_{in} = \exp\begin{pmatrix} -\phi_{fta}D_{in}^{fta} - \phi_{cur}D_{in}^{cur} - \phi_{con}D_{in}^{con} \\ -\phi_{col}D_{in}^{col} - \phi_{lan}D_{in}^{lan} - \left(\sum_{k=1}^{5}\phi_{dist}^{k}D_{in}^{dist,k}\right) \end{pmatrix} \tag{19}$$

where D_{in}^{lan}, D_{in}^{con}, D_{in}^{col}, D_{in}^{fta} and D_{in}^{cur} are dummy variables taking a value of 1 if the countries have a common language, contiguity, colonial relationship, free trade agreement (FTA) or common currency, respectively. Following Eaton and Kortum (2002), $D_{in}^{dist,k}$ for $k = 1, ..., 5$ represent dummy variables taking a value of 1 if the distance between countries is less than 375 miles, between 375 and 750 miles, between 750 and 1500 miles, between 1500 and 3000 miles, and between 3000 and 6000 miles away, respectively. It is important to emphasize that a dummy variable representing trade with countries that are more than 6000 miles away is excluded, meaning that the included dummy variables capture the effects of distance with respect to trading with countries that are more than 6000 miles away. ϕ's represent the corresponding effects of these gravity variables on trade costs with *positive* expected values,

since these standard gravity variables are well known to reduce trade costs in the literature. The total derivative of Equation 19 in its log form implies that:

$$d\left(\log \tau_{in}\right) = \begin{pmatrix} -\phi_{fta} d\left(D_{in}^{fta}\right) - \phi_{cur} d\left(D_{in}^{cur}\right) - \phi_{con} d\left(D_{in}^{con}\right) \\ -\phi_{col} d\left(D_{in}^{col}\right) - \phi_{lan} d\left(D_{in}^{lan}\right) - \left(\sum_{k=1}^{5} \phi_{dist}^{k} D_{in}^{dist,k}\right) \end{pmatrix} \tag{20}$$

where the percentage changes in trade costs depend on the changes in gravity (dummy) variables, subject to ϕ's.

Following such as by Hou, Wang, and Yilmazkuday (2017) who have shown that the major effects of gravity variables are through preferences representing indirect trade costs (rather than measured trade costs, such as transportation costs, representing direct trade costs), we define preferences in country n for the goods imported from country i as follows:

$$a_{in} = \exp\left(\begin{array}{c} \varphi_{fta} D_{in}^{fta} + \varphi_{cur} D_{in}^{cur} + \varphi_{con} D_{in}^{con} \\ +\varphi_{col} D_{in}^{col} + \varphi_{lan} D_{in}^{lan} + \left(\sum_{k=1}^{5} \varphi_{dist}^{k} D_{in}^{dist,k}\right) + \varepsilon_{in} \end{array} \right) \tag{21}$$

where the gravity (dummy) variables are the same, whereas their corresponding effects on preferences are measured by the alternative parameters of φ's. In this expression, ε_{in}'s represent the stochastic (non-gravity) preferences. In terms of economic intuition, this expression suggests that, even after controlling for relative prices, individuals prefer consuming more goods from countries that they have an FTA with, a common currency with, a common border with, a colonial relationship with, a common language with or a closer distance with. This expression for preferences is also supported by the empirical evidence provided by Hou, Wang, and Yilmazkuday (2017). The total derivative of this expression in its log form further

implies that:

$$d\left(\log a_{in}\right)=\left(\begin{array}{c}\varphi_{fta}d\left(D_{in}^{fta}\right)+\varphi_{cur}d\left(D_{in}^{cur}\right)+\varphi_{con}d\left(D_{in}^{con}\right)\\+\varphi_{col}d\left(D_{in}^{col}\right)+\varphi_{lan}d\left(D_{in}^{lan}\right)+\left(\sum_{k=1}^{5}\varphi_{dist}^{k}D_{in}^{dist,k}\right)\end{array}\right) \tag{22}$$

where the percentage changes in preferences also depend on the changes in gravity (dummy) variables, subject to φ's.

Combining Equations 20 and 22 with Equation 17 results in:

$$d\left(\log C_{n}\right)=\left(\begin{array}{c}\beta_{fta}\left(\sum_{i}\lambda_{in}d\left(D_{in}^{fta}\right)\right)+\beta_{cur}\left(\sum_{i}\lambda_{in}d\left(D_{in}^{cur}\right)\right)\\+\beta_{con}\left(\sum_{i}\lambda_{in}d\left(D_{in}^{con}\right)\right)+\beta_{col}\left(\sum_{i}\lambda_{in}d\left(D_{in}^{col}\right)\right)\\+\beta_{lan}\left(\sum_{i}\lambda_{in}d\left(D_{in}^{lan}\right)\right)+\left(\sum_{k=1}^{5}\beta_{dist}^{k}\left(\sum_{i}\lambda_{in}d\left(D_{in}^{dist,k}\right)\right)\right)\end{array}\right) \tag{23}$$

where $\beta_{fta}=\frac{\varphi_{fta}}{\eta-1}+\phi_{fta}$, $\beta_{cur}=\frac{\varphi_{cur}}{\eta-1}+\phi_{cur}$, $\beta_{con}=\frac{\varphi_{con}}{\eta-1}+\phi_{con}$, $\beta_{col}=\frac{\varphi_{col}}{\eta-1}+\phi_{col}$, $\beta_{lan}=\frac{\varphi_{lan}}{\eta-1}+\phi_{lan}$ and $\beta_{dist}^{k}=\frac{\varphi_{dist}^{k}}{\eta-1}+\phi_{dist}^{k}$ for $k=1,...,5$. Therefore, subject to the determination of the trade elasticity $\eta-1$, the effects of gravity variables represented by ϕ_{fta}, ϕ_{cur}, ϕ_{con}, ϕ_{col}, ϕ_{lan} and ϕ_{dist}^{k} for $k=1,...,5$ can be identified. This paper uses this expression to measure the welfare effects of changes in standard gravity variables. It is important to emphasize that one cannot distinguish between the effects of gravity variables on trade costs versus preferences according to Equation 23; however, the point here is to show that the effects of gravity variables through both trade costs and preferences are captured by using Equation 23.

Given Equation 23, we are interested in the answers of the following questions:

- What are the gains from proximity? These gains are defined as those due to trading with countries that are less than 6000 miles away compared to trading with countries that are more than 6000 miles away.

- What are the gains from trading with countries that speak the same language? These gains are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries have a common language.

- What are the gains from trading with contiguous countries? These gains are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries are contiguous.

- What are the gains from trading with countries with a colonial relationship? These gains are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries have a colonial relationship.

- What are the gains from trading with countries through a free trade agreement? These gains are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries have a free trade agreement.

- What are the gains from trading with countries using the same currency? These gains are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries use a common currency.

We would like to measure these welfare gains by calculating the welfare costs of removing the effects of gravity variables. Therefore, changes in dummy variables in Equation 23 correspond to their (negative) current value in a typical gravity data set (e.g., $d\left(D_{in}^{fta}\right) = -D_{in}^{fta}$). Accordingly, to answer our questions, Equation 23 can be rewritten for country n as follows

in terms of welfare costs (that corresponds to $-d\left(\log C_n\right)$ in this framework):

$$\underbrace{-d\left(\log C_n\right)}_{\text{Welfare Costs}} = \left(\begin{array}{c} \underbrace{\beta_{fta}\left(\sum_i \lambda_{in} D_{in}^{fta}\right)}_{\text{FTAs}} + \underbrace{\beta_{cur}\left(\sum_i \lambda_{in} D_{in}^{cur}\right)}_{\text{Currency}} \\ \underbrace{+\beta_{con}\left(\sum_i \lambda_{in} D_{in}^{con}\right)}_{\text{Contiguity}} + \underbrace{\beta_{col}\left(\sum_i \lambda_{in} D_{in}^{col}\right)}_{\text{Colony}} \\ \underbrace{+\beta_{lan}\left(\sum_i \lambda_{in} D_{in}^{lan}\right)}_{\text{Language}} + \underbrace{\left(\sum_{k=1}^{5} \beta_{dist}^{k}\left(\sum_i \lambda_{in} D_{in}^{dist,k}\right)\right)}_{\text{Proximity}} \end{array} \right) \tag{24}$$

which can be calculated by using the bilateral expenditure shares λ_{in}'s, the current value of gravity variables, and β's (representing the effects of gravity variables on trade costs). The corresponding expression for the world economy can be obtained by taking the total derivative of Equation 13 as follows:

$$d\left(\log C\right) = -\sum_i \gamma_n d\left(\log C_n\right) \tag{25}$$

where, again, the population shares of countries are considered as given. This expression can also be used to measure gains from trade for alternative country sets (e.g., European countries) by changing the weights represented by γ_n's.

Overall, the *actual* gains from trade through the standard gravity variables can be calculated by using the bilateral expenditure shares λ_{in}'s and the current value of gravity variables that can be obtained from a typical gravity data set, subject to the knowledge of β's that requires the usage of a gravity regression, as we introduce in the next section.

2.3 Potential Gains from Trade

The questions in the previous subsection are mostly about calculating the *actual* gains from trade with respect to not having any bilateral relationship between countries measured by standard gravity variables. Although some of these variables are not suitable for trade policy (e.g., it is less likely for countries to start using a common language, start having a colonial relationship or change their geographical location for trade purposes), only policy-oriented gravity variables, namely FTAs and having a common currency, are subject to further investigation. Accordingly, we further ask the following questions:

- What are the *potential* gains from trading with countries through a free trade agreement? These gains are calculated by comparing the current situation of countries with a hypothetical case in which they have FTAs with all of their trade partners.
- What are the *potential* gains from trading with countries using the same currency? These gains are calculated by comparing the current situation of countries with a hypothetical case in which they use a common currency with all of their trade partners.

Based on these questions, changes in dummy variables in Equation 23 correspond to their one minus their current value in a typical gravity data set (e.g., $d\left(D_{in}^{fta}\right) = \left(1 - D_{in}^{fta}\right)$). Accordingly, to answer our questions, Equation 23 can be rewritten for country n as follows:

$$\underbrace{d\left(\log C_n\right)}_{\text{Potential Gains}} = \left(\underbrace{\beta_{fta}\left(\sum_i \lambda_{in}\left(1 - D_{in}^{fta}\right)\right)}_{\text{FTAs}} + \underbrace{\beta_{cur}\left(\sum_i \lambda_{in}\left(1 - D_{in}^{cur}\right)\right)}_{\text{Currency}} \right) \tag{26}$$

where changes in other gravity variables are set to zero to focus on policy-oriented variables. As in the case of *actual* gains from trade above (i.e., Equation 24), the *potential* gains from

trade through the policy-oriented gravity variables can be calculated by using the bilateral expenditure shares λ_{in}'s and the current value of gravity variables that can be obtained from a typical gravity data set, subject to the knowledge of β's that requires the usage of a gravity regression, as we next.

3 Estimation

3.1 Methodology and Data

Based on Equations 2 and 5, the following gravity equation can be obtained after including subscripts for the time dimension:

$$\underbrace{\log\left(P_{int}C_{int}\right)}_{\text{Bilateral Imports}} = \underbrace{\log\alpha_{int}}_{\text{Preferences}} \underbrace{-(\eta-1)\log\tau_{int}}_{\text{Trade Costs}} \underbrace{-\ (\eta-1)\log\left(P_{iit}\right)}_{\text{Source-Time Fixed Effects}} + \underbrace{\log\left(\left(P_{nt}\right)^{\eta}C_{nt}\right)}_{\text{Destination-Time Fixed Effects}} \tag{27}$$

Combining this expression with Equations 19 and 21 results in:

$$\begin{aligned}\log\left(P_{int}C_{int}\right) = {} & (\eta-1)\,\beta_{fta}D_{int}^{fta} + (\eta-1)\,\beta_{cur}D_{int}^{cur} + (\eta-1)\,\beta_{con}D_{int}^{con} \\ & + (\eta-1)\,\beta_{col}D_{int}^{col} + (\eta-1)\,\beta_{lan}D_{int}^{lan} + (\eta-1)\left(\sum_{k=1}^{5}\beta_{dist}^{k}D_{int}^{dist,k}\right) \\ & - (\eta-1)\log\left(P_{iit}\right) + \log\left(\left(P_{nt}\right)^{\eta}C_{nt}\right) + \varepsilon_{in}\end{aligned} \tag{28}$$

We estimate this expression by using a Pseudo-Poisson Maximum Likelihood (PPML) regression, which requires the following assumption regarding stochastic preferences of ε_{in}'s:

$$\log\left(\frac{\varepsilon_{in}}{\varepsilon_{in}\left(\eta-1\right)}\right) = \log\left(\frac{P_{int}C_{int}}{P_{int}C_{int}-v_{int}}\right) \tag{29}$$

where v_{int}'s are distributed normally with zero mean. Combining this expression with Equation 28 results in the well-known expression for the PPML estimation:

$$\underbrace{P_{int}C_{int}}_{\text{Bilateral Imports}} = \exp\left(\begin{array}{c} \underbrace{(\eta-1)\,\beta_{fta}D_{int}^{fta}}_{\text{FTA Effects}} + \underbrace{(\eta-1)\,\beta_{cur}D_{int}^{cur}}_{\text{Currency Effects}} + \underbrace{(\eta-1)\,\beta_{con}D_{int}^{con}}_{\text{Contiguity Effects}} \\ + \underbrace{(\eta-1)\,\beta_{col}D_{int}^{col}}_{\text{Colony Effects}} + \underbrace{(\eta-1)\,\beta_{lan}D_{int}^{lan}}_{\text{Language Effects}} + \underbrace{(\eta-1)\left(\sum_{k=1}^{5}\beta_{dist}^{k}D_{int}^{dist,k}\right)}_{\text{Distance Effects}} \\ - \underbrace{(\eta-1)\log\left(P_{iit}\right)}_{\text{Source-Time Fixed Effects}} + \underbrace{\log\left(\left(P_{nt}\right)^{\eta}C_{nt}\right)}_{\text{Destination-Time Fixed Effects}} \end{array}\right) + v_{int}$$

where data are only available for bilateral imports and the standard gravity variables. The remaining variables of $(\eta-1)\log\left(P_{iit}\right)$ and $\log\left(\left(P_{nt}\right)^{\eta}C_{nt}\right)$ are captured by source-time and destination-time fixed effects.

Bilateral imports data are obtained from the International Monetary Fund's Direction of Trade Statistics (DOTS) for the years between $1948-2015$. The gravity variables are obtained from the economic geography database of CEPII (Centre d'Etudes Prospectives et d'informations Internationales) for the very same time period. The combination of the two data sets results in having data for 174 countries in the estimation.[2]

[2] For the calculation of bilateral expenditure shares λ_{int}'s from the data, the following expression is used:

$$\lambda_{int} = \frac{P_{int}C_{int}}{GDP_{nt} - X_{nt} + M_{nt}}$$

where GDP_{nt}, X_{nt} and M_{nt} represent the gross domestic product, total exports and total imports of country n at time t. Similarly, the home expenditure share (for a comparison with the literature) is defined as follows:

$$\lambda_{nnt} = \frac{GDP_{nt} - X_{nt}}{GDP_{nt} - X_{nt} + M_{nt}}$$

where λ_{nnt} is the home expenditure share of country n at time t.

3.2 Estimation Results

Estimation results based on Equation 28 are given in Table 1, where the estimated coefficients correspond to $(\eta - 1)\,\beta$'s. As is evident in the first column representing the complete regression, after controlling for the fixed effects and distance measures, countries import about 37% more from countries that they have an FTA with, about 11% more from those that use the same currency, about 48% more from those that share a common border, 24% more from those that they have a colonial relationship with, and 15% more from those that speak the same language. Regarding the effects of distance, compared to importing from countries that are more than 6000 miles away, countries import about 3 times more from countries that are less than 375 miles away, about 2 times more those that are between 375 and 750 miles away, about 1.5 times more those that are between 750 and 1500 miles away, about 1 time more those that are between 1500 and 3000 miles away, and about 60% more from those that are between 3000 and 6000 miles away. Having highly significant and similar estimates in regressions with high explanatory powers across columns of Table 1 supports the robustness of these measures.

Since the estimated coefficients in Table 1 correspond to $(\eta - 1)\,\beta$'s in Equation 28, they have to be converted in β's in order to be used in welfare calculations based on Equations 24 and 26. Although $\eta - 1$ is nothing more than a scale factor when the contribution of each gravity variable is investigated across countries and across time, for the sake of completeness, we follow studies such as by Anderson and Van Wincoop (2003), Head and Mayer (2014) or Yilmazkuday (2019) who suggest trade elasticity measures (corresponding to $\eta - 1$ in this paper) of around 5. Accordingly, for the calculations in Equations 24 and 26, we use the estimates in column 1 of Table 1 divided by 5 as our β measures.[3]

[3]It is important to emphasize that the relative contribution of each gravity variable for a particular year is not affected by alternative trade elasticity measures. Interested readers can easily change the scale of these

4 Implications for the Gains from Trade

The total welfare gains in percentage terms based on Equation 24 (representing the actual/current gains from trade) are given in Figures 1-10 over time, whereas they are summarized for the year of 2015 in Table 2. As is evident, the total actual gains from all gravity variables in the world have increased over the years, reaching to about 5% in 2015. Nevertheless, the total actual gains as of 2015 are highly different across country sets, where they are 6% versus 4% for OECD versus non-OECD countries, and 17% versus 5% for landlocked versus coastal countries. Across regions, they range between 1% and 11% for Pacific and European countries, respectively, and they are up to 48% (for Hong Kong) across individual countries.[4] Among the top six largest economies, gains for Germany are about 13%, while they are only about 1.5% for the United States and 2% for India.

Although the total actual gains from all gravity variables in the world have increased over the years, the patterns over time are highly different across countries. For example, total actual gains for the United Kingdom are pretty stable over time according to Figure 10, whereas China has achieved a peak in its total actual gains during early 1990s and early 2000s according to Figure 6. Another example is the case of Japan (in Figure 7) for which the total actual gains has increased from about 0.25% in 1950s to about 2% in 2015, while the total actual gains for India has increased during 2000s from about 1% to about 3% according to Figure 9.

calculations for alternative trade elasticity measures by using the following formula:

$$\text{Alternative Gains} = \frac{5 \times (\text{Gains in This Paper})}{\text{Alternative Trade Elasticity}}$$

Since trade elasticity measures can also change over time, this expression can also be used to obtain alternative gains over time.

[4] Country-specific results are given in Appendix Table A1.

Although these are important welfare measures at the country level, we are rather interested in decomposing them due to alternative gravity variables, so that we can learn about their sources, including policy-oriented reasons (based on FTAs and common currencies), as we achieve next.

Beforehand, although the gains through gravity variables do not necessarily correspond to the welfare gains from trade measured by the costs of autarky, to achieve a comparison with the existing literature, autarky costs are calculated according to Equation 10 by accepting the preferences as given (as in the literature).[5] As is evident in Figure 1, welfare gains measured by autarky costs have reduced over time in the world, whereas those through gravity variables have increased. Since autarky costs in these calculations do not consider changes in preferences (to be consistent with the literature) and the gains through gravity variables do consider them in this paper, it is implied that the welfare gains from trade through preferences have increased over time in the world. This implication holds for other countries as well, except for the United States, China or India in Figures 4, 6 and 9, respectively, where autarky costs closely match with the gains through gravity variables, suggesting that preferences have not been effective for the welfare changes in these countries.

4.1 Decomposing the Actual Gains from Trade

4.1.1 The Gains from Proximity

The gains from trade due to trading with countries that are less than 6000 miles away (compared to trading with countries that are more than 6000 miles away) are given and decomposed in Table 3 as of 2015. Total gains from proximity are about 3.5% for the world economy, ranging between 12% and 3% for landlocked and coastal countries. Across regions,

[5] This simply achieved by setting $d(\log \alpha_{nn}) = 0$ and $d(\log \lambda_{nn}) = \log \lambda_{nn}$ in Equation 10, since $\log \lambda_{nn} = 0$ in the case of autarky.

the gains are between 0.3% and 8.2% for Pacific and European countries, respectively, and they are up to 31.5% (for Hong Kong) across individual countries. Among the top six largest economies, gains for Germany are about 9%, while they are only about 1% for the United States.

The contribution of trading with countries that are between 1500 and 3000 miles away is the highest to the overall gains from proximity in the world, although the results are highly different across countries. Landlocked states or Germany gain the most from trading with countries that are between 375 and 750 miles away, whereas China or the United Kingdom gain the most from trading with countries that are between 750 and 1500 miles away.

As shown in Figures 1-10, the total gains from proximity have increased over time for most of the countries; exceptions include the China and the United Kingdom. The contribution of alternative distance measures has been mostly stable over time, although the contribution of trading with countries that are between 375 and 1500 miles away has increased over time for European countries. Starting from late 1990s, China has started gaining from trading more (less) with countries that are between 750 and 1500 miles (1500 and 3000 miles) away. India has gained the most from trading with countries that are between 750 and 1500 miles away back in 1950s, whereas trading with those that are between 3000 and 6000 miles away has dominated other distance measures as of 2015.

Overall, after controlling for other gravity variables, most countries trade more with relatively closer countries, and potentially due to lower direct (e.g., transportation) or indirect (e.g., search) trade costs, they gain more from trade. Although this may be mostly due to the geographical location of countries (that are fixed), the magnitude of these gains provides insights about the potential gains from trade through information spillovers or the cost-reducing investments/innovations in the transportation sector.

4.1.2 The Gains from Other Gravity Variables

The gains from trade due to other gravity variables are depicted in Table 4 as of 2015, where they are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries benefit from them. The gains in the world economy are about 1.5% in total, where FTAs contribute the most by 0.8%. OECD countries gain about 1.8% in total, which is significantly higher than the gains of non-OECD countries, and most of this difference is attributed to FTAs, contiguity and common currencies. Landlocked countries gain about 4.7%, about 3.3% more than coastal countries, where the main contribution is through FTAs and contiguity. Across regions, Southeast Asian countries gain the most (about 3.6%), whereas South American countries gain the least (about only 0.6%); about 2.1% of this difference can be attributed to FTAs. Among the top six largest economies, Germany gains the most by 3.9%, while China or Japan gain only about 0.3% in total; FTAs and common currencies contribute the most to this difference.

It is implied that after controlling for distance-related effects, certain countries gain more from trade through the gravity variables considered, and most of the contribution is achieved by FTAs, followed by common currencies. To give a better picture of the gains from FTAs and common currencies, they are further depicted on the world map in Figures 11 and 12, respectively, for the year of 2015. As evident, regarding FTAs, Southeast Asian and European countries have the lion's share compared to other regions, whereas European countries benefit the most from using a common currency.

As shown in Figure 1, the contributions of language, contiguity and colony have been stable over time in the world. Nevertheless, the contribution of FTAs has increased over time dramatically, especially after the Uruguay Round, and it dominates among other gravity

variables for almost all countries as of 2015. The contribution of using a common currency has also increased after the introduction of Euro for European countries.

Across countries, the contribution of FTAs has started dominating among other gravity variables for OECD countries starting from 1980s according to Figure 2, whereas non-OECD countries, including China, had to wait until 2000s to have the same experience according to Figures 3 and 6. The United States and Japan also had to wait until 2000s to have the highest contribution through FTAs according to Figures 4 and 7, although European countries started gaining from FTAs the most in 1970s according to Figure 5. The United Kingdom is an interesting case as shown in Figure 10, where gains from trade through colonial relationships have dominated among other gravity variables until early 1970s, although gains from FTAs have dominated from this point on. For India, despite the increasing contribution of FTAs in 2000s, it is not the dominating factor yet among other gravity variables, suggesting that there is potential room for further gains from trade through these policy-oriented variables.

Based on the results discussed so far, we can claim that the policy-oriented gravity variables contribute the most to the actual gains from trade (after controlling for proximity), suggesting that certain geographical restrictions (e.g., being landlocked) can be compensated by having FTAs or using a common currency with other countries. We test this hypothesis next by focusing on the potential gains from trade through policy-oriented gravity variables.

4.2 The Potential Gains from Trade

The potential gains from trade due to policy-oriented gravity variables (based on Equation 26) are depicted in Table 2, where they are calculated by comparing the current situation of countries with a hypothetical case in which countries have FTAs or common currencies with all of their trade partners. The total potential gains are about 1.2% for the world

economy, whereas they range between 1% and 1.5% for OECD and non-OECD countries, 1.5% and 1.2% for landlocked and coastal countries, 0.9% and 2.3% across regions, and 0.5% and 9.1% across individual countries. Among the top six largest economies, India has the highest potential gains from trade of about 1.4%, whereas the United States has the lowest potential gains of about 0.8%.

The world economy could gain about 0.8% from having more FTAs and about 0.4% from having common currencies. The potential gains of landlocked countries are mostly through common currencies, suggesting that they can compensate for their geographical restrictions through using common currencies with their trade partners. The potential gains from trade due to FTAs and common currencies are also depicted on the world maps in Figures 13 and 14. As is evident, certain countries in Africa, Asia and South America could benefit from more FTAs, whereas Eastern European and Southeast Asian countries could benefit from more common currencies.

5 Concluding Remarks and Policy Suggestions

Based on the implications of a trade model, this paper has shown that the gains from trade through the standard gravity variables can be measured by using the estimated coefficients of these variables in a typical gravity regression together with bilateral expenditure shares of countries investigated. The actual gains from proximity correspond to those due to trading with countries that are less than 6000 miles away, whereas the actual gains from other gravity variables (i.e., FTAs, common currencies, etc.) have been calculated by comparing the current situation of countries with a hypothetical case in which none of the countries benefit from them.

The empirical results based on a gravity regression covering the period 1948−2015 suggest that the actual gains from trade in the world through all gravity variables have increased over time from about 1% in 1950s to about 5% by the year of 2015. The latter (for 2015) ranges between 6% and 4% for OECD and non-OECD countries, 17% and 5% for landlocked and coastal countries, 11% and 1% for European and Pacific countries, and 2% and 13% for the United States and Germany, respectively.

When the actual gains have been decomposed into their components, the total gains from proximity in the world have increased over time from about 1% in 1950s to about 4% by the year of 2015, whereas the total gains from other gravity variables have increased to about 2% during the same period. The latter (for 2015) ranges between 2% and 1% for OECD and non-OECD countries, 5% and 1% for landlocked and coastal countries, and 4% and 1% for South Asian and South American countries, respectively.

Among the gains through gravity variables other than proximity, the contribution of FTAs has started in late 1950s in the world, and they have dominated among these other variables starting from 1990s, following the Uruguay Round. The same domination has been experienced by OECD countries starting from late 1980s, whereas non-OECD countries, Japan or China had to wait until 2000s. In comparison, despite the increasing contribution of FTAs 2000s, the United States or India have not experienced such domination as of 2015, suggesting that there is potential room for further gains from trade through these policy-oriented variables.

Based on this suggestion, this paper has further calculated the potential gains from trade due to policy-oriented gravity variables that are calculated by comparing the current situation of countries with a hypothetical case in which countries have FTAs or common currencies with all of their trade partners. The corresponding results have shown that the world economy can

gain about 0.8% more through FTAs and 0.4% more through common currencies as of 2015. The potential gains from FTAs are about 0.6% for Germany, and 0.9% for China and Japan, reflecting the fact that Germany is already gaining more from trade through FTAs compared to these countries. The potential gains from trade through using common currencies are the highest for Southeast Asian or landlocked countries, suggesting that they can compensate for certain geographical and historical restrictions through using common currencies with their trade partners.

Overall, the actual gains from trade through the standard gravity variables in the world are about 5%, whereas the potential gains from trade through the policy-oriented gravity variables are about 1%, suggesting that future FTAs and currency unions could easily boost the world welfare through the gains from trade. This investigation in this paper can easily be expanded by focusing on alternative gravity variables or the sectoral heterogeneity in estimated coefficients of gravity variables, which we leave for future research.

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Table 1 - Estimation Results

	Dependent Variable: Bilateral Imports						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
FTAs	0.365***	0.461***					
	(0.0164)	(0.0176)					
Common Currency	0.106***		0.281***				
	(0.0184)		(0.0195)				
Contiguity	0.477***			0.602***			
	(0.0159)			(0.0165)			
Colonial Relationship	0.236***				0.258***		
	(0.0177)				(0.0207)		
Common Language	0.149***					0.338***	
	(0.0143)					(0.0139)	
Distance #1	2.758***	3.471***	3.725***	3.065***	3.743***	3.556***	3.805***
	(0.0442)	(0.0380)	(0.0374)	(0.0421)	(0.0352)	(0.0407)	(0.0354)
Distance #2	1.957***	2.398***	2.653***	2.213***	2.715***	2.569***	2.721***
	(0.0229)	(0.0228)	(0.0190)	(0.0213)	(0.0186)	(0.0197)	(0.0190)
Distance #3	1.545***	1.716***	1.950***	1.770***	2.008***	1.940***	2.004***
	(0.0194)	(0.0193)	(0.0155)	(0.0159)	(0.0154)	(0.0151)	(0.0150)
Distance #4	1.185***	1.326***	1.547***	1.356***	1.580***	1.520***	1.568***
	(0.0151)	(0.0158)	(0.0140)	(0.0129)	(0.0139)	(0.0133)	(0.0138)
Distance #5	0.585***	0.643***	0.755***	0.664***	0.757***	0.736***	0.759***
	(0.0151)	(0.0144)	(0.0142)	(0.0154)	(0.0143)	(0.0141)	(0.0142)
Source-Time Fixed Effects	YES	YES	YES	YES	YES	YES	YES
Destination-Time Fixed Effects	YES	YES	YES	YES	YES	YES	YES
Sample Size	757883	757883	757883	757883	757883	757883	757883

Notes: ***, ** and * represent significance at the 0.1%, 1%, and 5% levels. Standard errors are in parentheses. Distance #1 through #5 represent trading with partners that are less than 375 miles, between 375 and 750 miles, between 750 and 1500 miles, between 1500 and 3000 miles, and between 3000 and 6000 miles away, respectively.

Table 2 - Actual versus Potential Gains from Trade

	Actual Gains from Standard Gravity Variables			Autarky	Potential Gains from Trade		
Countries	Relative Proximity	Other Gravity Variables	Total	Costs	FTAs	Currency	Total
World	3.5%	1.5%	5.1%	5.1%	0.8%	0.4%	1.2%
OECD	3.9%	1.8%	5.7%	5.0%	0.7%	0.4%	1.0%
Non-OECD	2.8%	1.1%	3.9%	5.2%	1.0%	0.4%	1.5%
Landlocked	11.8%	4.7%	16.6%	11.4%	0.8%	0.8%	1.5%
Coastal	3.3%	1.4%	4.7%	4.9%	0.8%	0.4%	1.2%
Island	2.5%	0.8%	3.3%	4.1%	0.7%	0.4%	1.1%
Mainland	3.7%	1.6%	5.3%	5.2%	0.8%	0.4%	1.2%
North America	1.2%	1.1%	2.3%	3.1%	0.6%	0.3%	0.9%
Central America	4.1%	2.0%	6.1%	6.3%	0.5%	0.5%	1.0%
South America	0.7%	0.6%	1.3%	2.9%	0.6%	0.3%	0.9%
Caribbean	2.9%	1.0%	3.9%	6.6%	1.4%	0.5%	2.0%
Europe	8.2%	3.2%	11.4%	8.0%	0.6%	0.5%	1.1%
Eurasia	2.8%	0.9%	3.7%	4.3%	1.0%	0.4%	1.4%
Middle East	3.5%	1.0%	4.5%	8.6%	1.7%	0.6%	2.3%
Africa	2.2%	0.9%	3.1%	4.8%	1.0%	0.4%	1.4%
Central Asia	3.4%	0.9%	4.3%	4.2%	1.0%	0.4%	1.4%
South Asia	1.7%	0.7%	2.3%	3.9%	1.0%	0.4%	1.4%
Southeast Asia	6.9%	3.6%	10.5%	13.2%	1.0%	0.9%	1.9%
East Asia	2.5%	0.7%	3.2%	4.4%	1.0%	0.4%	1.4%
Pacific	0.3%	0.7%	1.0%	3.6%	0.6%	0.3%	1.0%
United States	0.8%	0.7%	1.5%	2.5%	0.6%	0.3%	0.8%
China	1.8%	0.3%	2.1%	3.4%	0.9%	0.3%	1.2%
Japan	1.6%	0.3%	1.9%	3.4%	0.9%	0.3%	1.2%
Germany	8.9%	3.9%	12.9%	8.3%	0.6%	0.4%	1.0%
India	1.4%	0.6%	2.1%	3.9%	1.0%	0.4%	1.4%
United Kingdom	4.3%	1.4%	5.6%	4.6%	0.5%	0.4%	1.0%

Notes: The numbers represent the gains from trade for the year of 2015. The results for country sets have been calculated by using the weighted average of country-specific results given in Appendix Table A1, where weights are income shares of countries. The gains from relative proximity are calculated by comparing the gains due to trading with partners that are less than 6000 miles away with respect to trading with partners that are more than 6000 miles away. The gains from trade due to other gravity variables are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries benefit from them. Autarky costs represent the gains from trade in the literature calculated by using the sufficient statistics of home expenditure share and the trade elasticity, by accepting preferences as given. The potential gains from trade due to FTAs compare the current situation of countries with a hypothetical case in which they have FTAs or common currencies

Table 3 - Gains from Proximity

Countries	Distance Measures #1	#2	#3	#4	#5	Total
World	0.2%	0.9%	1.1%	1.0%	0.3%	3.5%
OECD	0.3%	1.3%	1.2%	1.0%	0.1%	3.9%
Non-OECD	0.1%	0.2%	0.8%	1.1%	0.6%	2.8%
Landlocked	2.0%	5.5%	3.0%	1.0%	0.3%	11.8%
Coastal	0.1%	0.8%	1.0%	1.0%	0.3%	3.3%
Island	0.0%	0.6%	0.8%	0.8%	0.2%	2.5%
Mainland	0.2%	1.0%	1.1%	1.0%	0.3%	3.7%
North America	0.0%	0.0%	0.0%	1.1%	0.1%	1.2%
Central America	1.2%	0.4%	0.6%	1.1%	0.9%	4.1%
South America	0.0%	0.0%	0.1%	0.3%	0.2%	0.7%
Caribbean	0.2%	0.1%	0.4%	0.8%	1.4%	2.9%
Europe	0.7%	3.6%	3.0%	0.8%	0.2%	8.2%
Eurasia	0.0%	0.0%	0.3%	1.9%	0.5%	2.8%
Middle East	0.4%	0.2%	1.0%	0.7%	1.2%	3.5%
Africa	0.0%	0.3%	0.7%	0.6%	0.5%	2.2%
Central Asia	0.1%	0.1%	0.5%	1.7%	1.1%	3.4%
South Asia	0.0%	0.0%	0.1%	0.7%	0.9%	1.7%
Southeast Asia	0.0%	1.3%	1.7%	2.1%	1.8%	6.9%
East Asia	0.0%	0.1%	1.0%	1.1%	0.3%	2.5%
Pacific	0.0%	0.0%	0.0%	0.2%	0.1%	0.3%
United States	0.0%	0.0%	0.0%	0.8%	0.0%	0.8%
China	0.0%	0.0%	1.0%	0.6%	0.2%	1.8%
Japan	0.0%	0.0%	0.2%	1.1%	0.3%	1.6%
Germany	0.0%	5.3%	2.8%	0.7%	0.1%	8.9%
India	0.0%	0.0%	0.0%	0.5%	0.9%	1.4%
United Kingdom	0.0%	1.7%	2.1%	0.3%	0.1%	4.3%

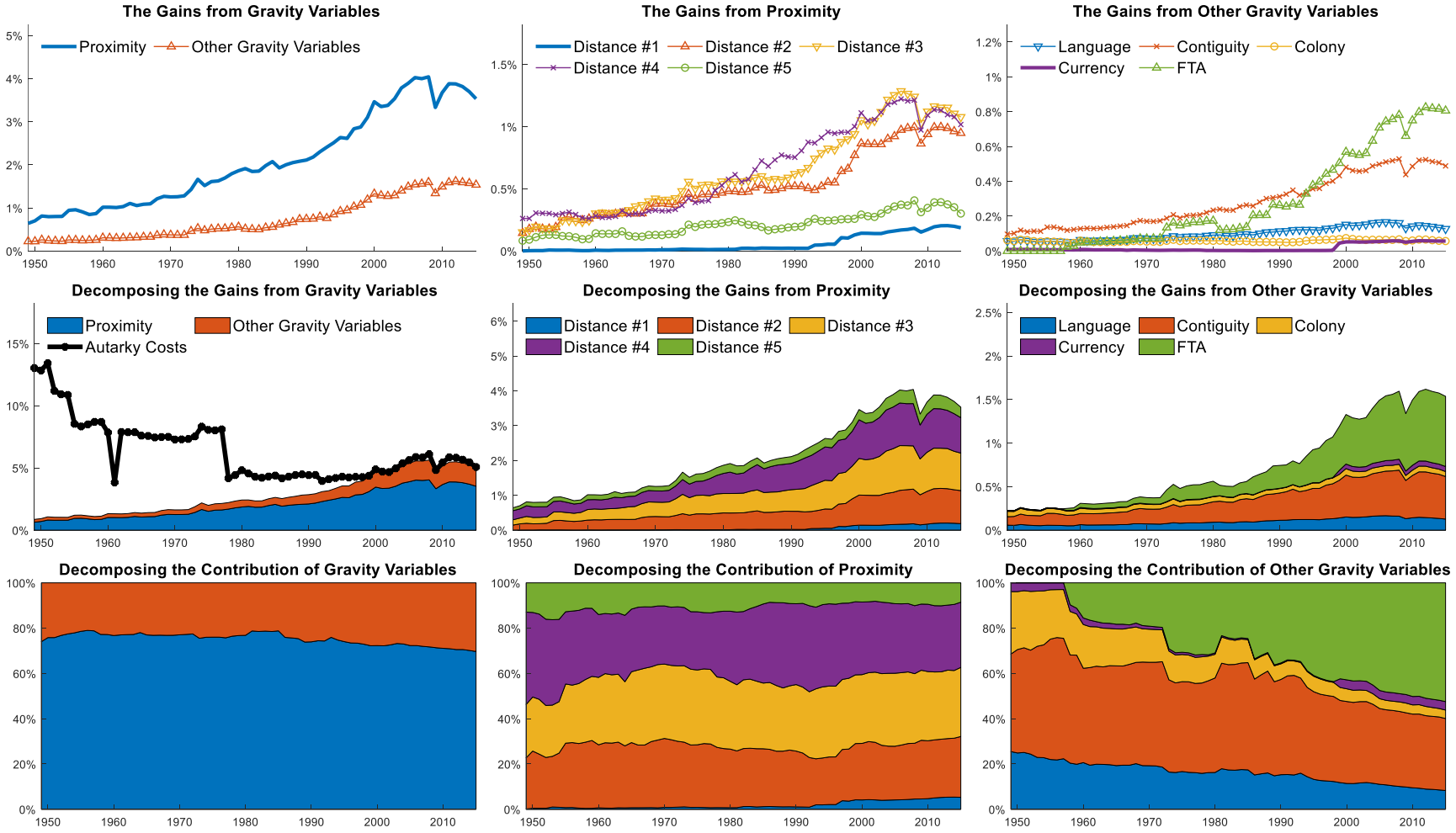
Notes: The numbers represent the gains from trade for the year of 2015. The results for country sets have been calculated by using the weighted average of country-specific results given in Appendix Table A1, where weights are income shares of countries. Distance #1 through #5 represent the gains from trade that are calculated by comparing the gains due to trading with partners that are less than 375 miles, between 375 and 750 miles, between 750 and 1500 miles, between 1500 and 3000 miles, and between 3000 and 6000 miles away, respectively, with respect to trading with partners that are more than 6000 miles away. The total effects of proximity are measured as the sum of the gains from trade due to Distance #1 through #5.

Table 4 - Gains from Other Gravity Variables

	Gains from Other Gravity Variables					
Countries	**FTAs**	**Currency**	**Contiguity**	**Colony**	**Language**	**Total**
World	0.8%	0.1%	0.5%	0.1%	0.1%	1.5%
OECD	0.9%	0.1%	0.6%	0.1%	0.1%	1.8%
Non-OECD	0.6%	0.0%	0.3%	0.0%	0.1%	1.1%
Landlocked	2.3%	0.1%	1.8%	0.1%	0.3%	4.7%
Coastal	0.8%	0.1%	0.4%	0.1%	0.1%	1.4%
Island	0.6%	0.0%	0.0%	0.1%	0.1%	0.8%
Mainland	0.8%	0.1%	0.6%	0.1%	0.1%	1.6%
North America	0.5%	0.0%	0.5%	0.0%	0.1%	1.1%
Central America	1.4%	0.0%	0.3%	0.0%	0.2%	2.0%
South America	0.4%	0.0%	0.2%	0.0%	0.0%	0.6%
Caribbean	0.6%	0.0%	0.0%	0.0%	0.3%	1.0%
Europe	1.7%	0.2%	1.0%	0.1%	0.2%	3.2%
Eurasia	0.4%	0.0%	0.4%	0.1%	0.0%	0.9%
Middle East	0.5%	0.0%	0.3%	0.1%	0.1%	1.0%
Africa	0.5%	0.0%	0.1%	0.1%	0.2%	0.9%
Central Asia	0.4%	0.0%	0.2%	0.2%	0.0%	0.9%
South Asia	0.2%	0.0%	0.3%	0.0%	0.1%	0.7%
Southeast Asia	2.5%	0.1%	0.7%	0.0%	0.4%	3.6%
East Asia	0.4%	0.0%	0.2%	0.0%	0.1%	0.7%
Pacific	0.5%	0.0%	0.0%	0.0%	0.1%	0.7%
United States	0.3%	0.0%	0.3%	0.0%	0.1%	0.7%
China	0.2%	0.0%	0.1%	0.0%	0.1%	0.3%
Japan	0.3%	0.0%	0.0%	0.1%	0.0%	0.3%
Germany	1.9%	0.3%	1.5%	0.1%	0.2%	3.9%
India	0.2%	0.0%	0.3%	0.0%	0.1%	0.6%
United Kingdom	1.0%	0.0%	0.1%	0.2%	0.1%	1.4%

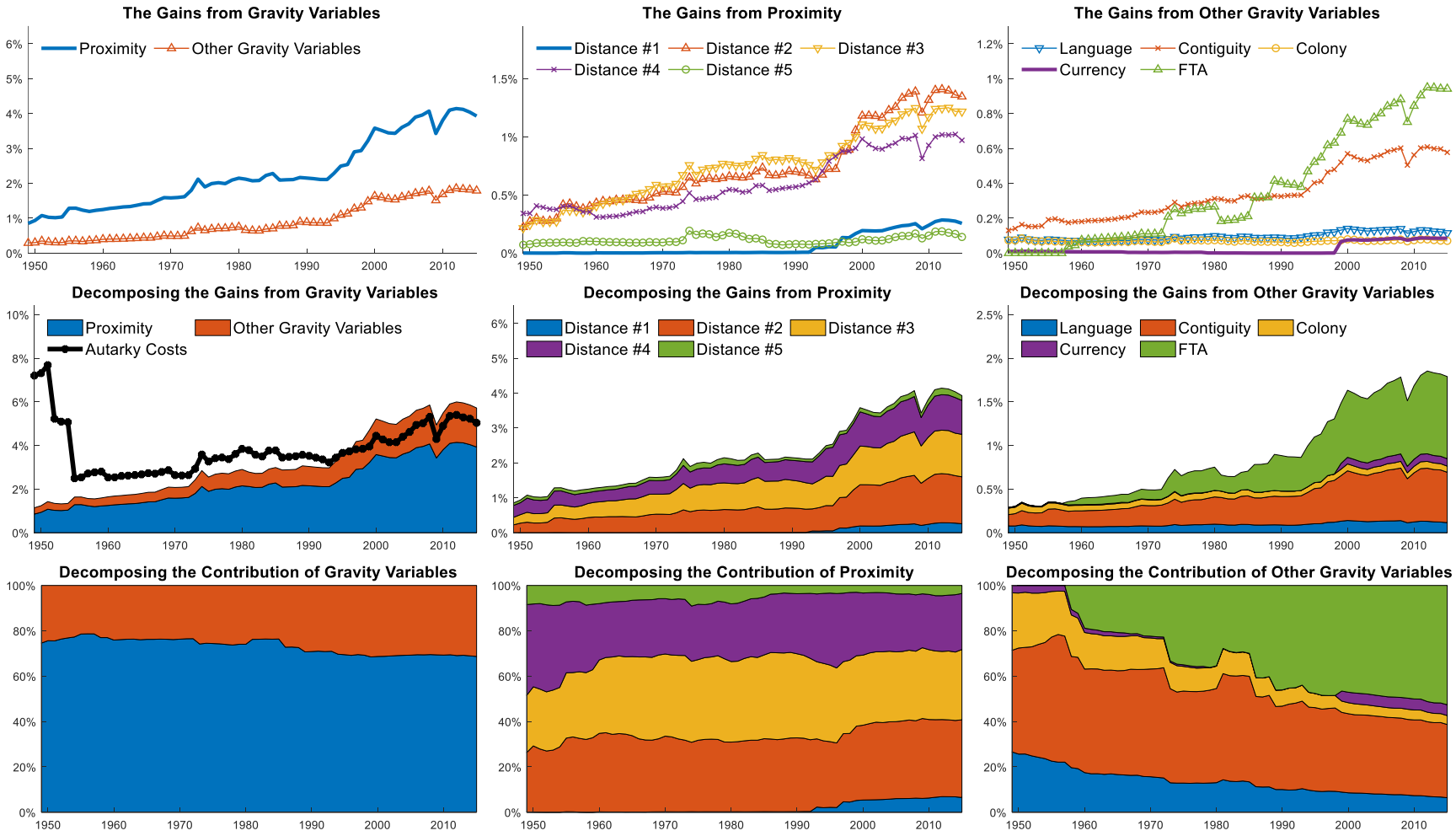
Notes: The numbers represent the gains from trade for the year of 2015. The results for country sets have been calculated by using the weighted average of country-specific results given in Appendix Table A1, where weights are income shares of countries. The gains from trade due to other gravity variables are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries benefit from them.

Figure 1 – Decomposing the Gains from Trade for the World



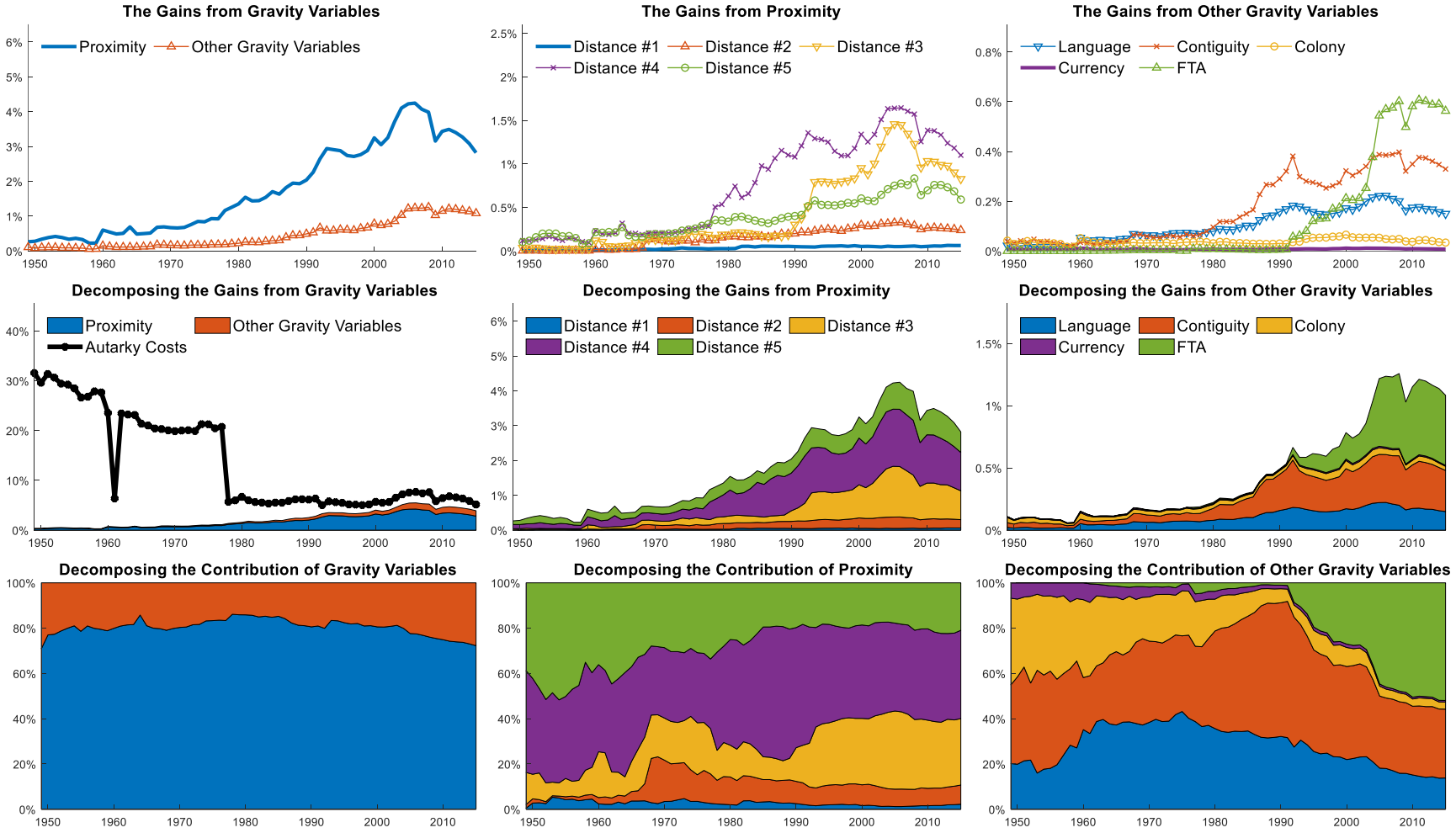
Notes: The results have been calculated by using the weighted average of country-specific results given in Appendix Table A1, where weights are income shares of countries. Distance #1 through #5 represents the gains from trade that are calculated by comparing the gains due to trading with partners that are less than 375 miles, between 375 and 750 miles, between 750 and 1500 miles, between 1500 and 3000 miles, and between 3000 and 6000 miles away, respectively, with respect to trading with partners that are more than 6000 miles away. The gains from trade due to other gravity variables are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries benefit from them.

Figure 2 – Decomposing the Gains from Trade for OECD Countries



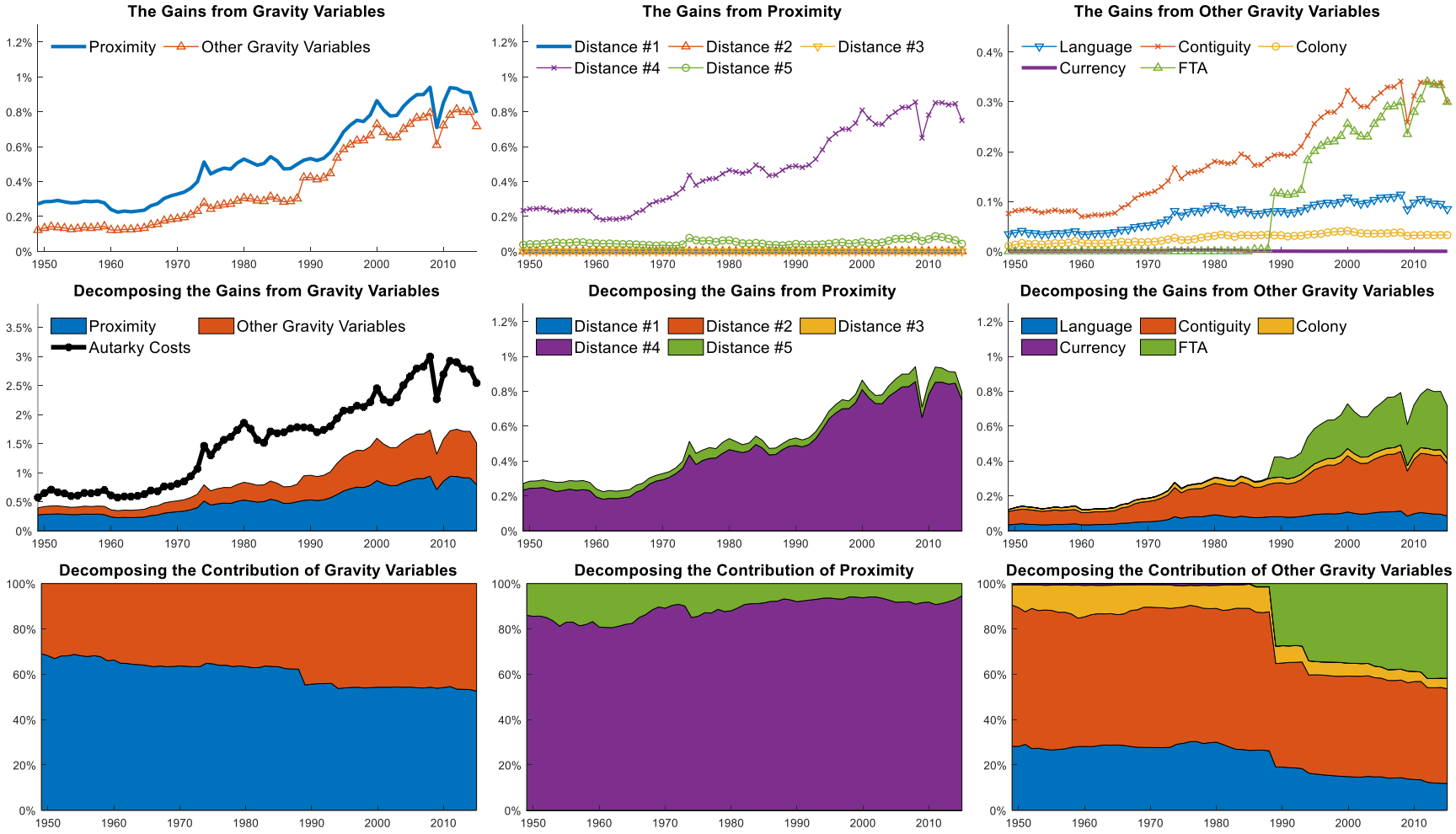
Notes: The results have been calculated by using the weighted average of country-specific results given in Appendix Table A1, where weights are income shares of countries. Distance #1 through #5 represents the gains from trade that are calculated by comparing the gains due to trading with partners that are less than 375 miles, between 375 and 750 miles, between 750 and 1500 miles, between 1500 and 3000 miles, and between 3000 and 6000 miles away, respectively, with respect to trading with partners that are more than 6000 miles away. The gains from trade due to other gravity variables are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries benefit from them.

Figure 3 – Decomposing the Gains from Trade for Non-OECD Countries



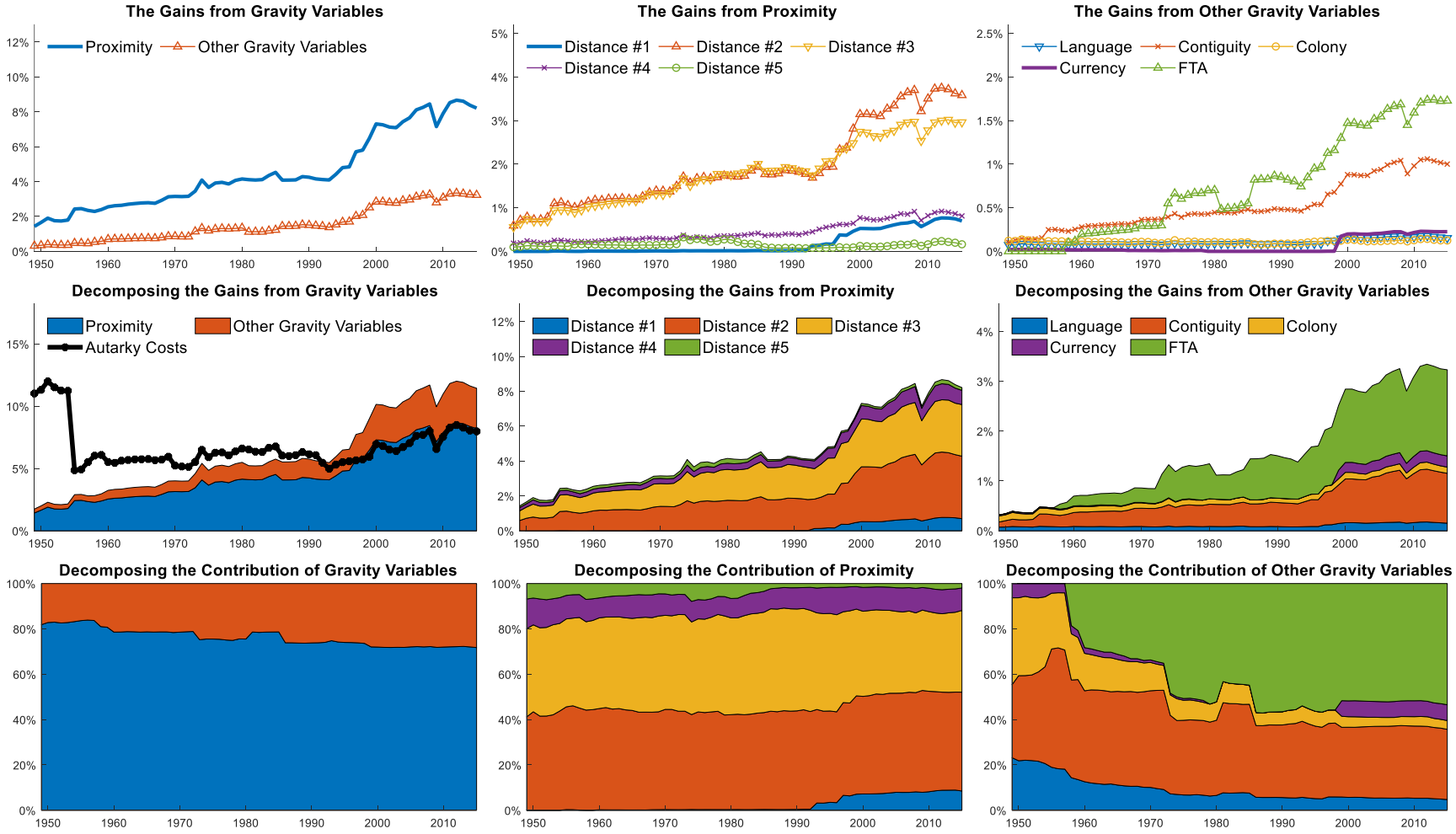
Notes: The results have been calculated by using the weighted average of country-specific results given in Appendix Table A1, where weights are income shares of countries. Distance #1 through #5 represents the gains from trade that are calculated by comparing the gains due to trading with partners that are less than 375 miles, between 375 and 750 miles, between 750 and 1500 miles, between 1500 and 3000 miles, and between 3000 and 6000 miles away, respectively, with respect to trading with partners that are more than 6000 miles away. The gains from trade due to other gravity variables are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries benefit from them.

Figure 4 – Decomposing the Gains from Trade for the United States



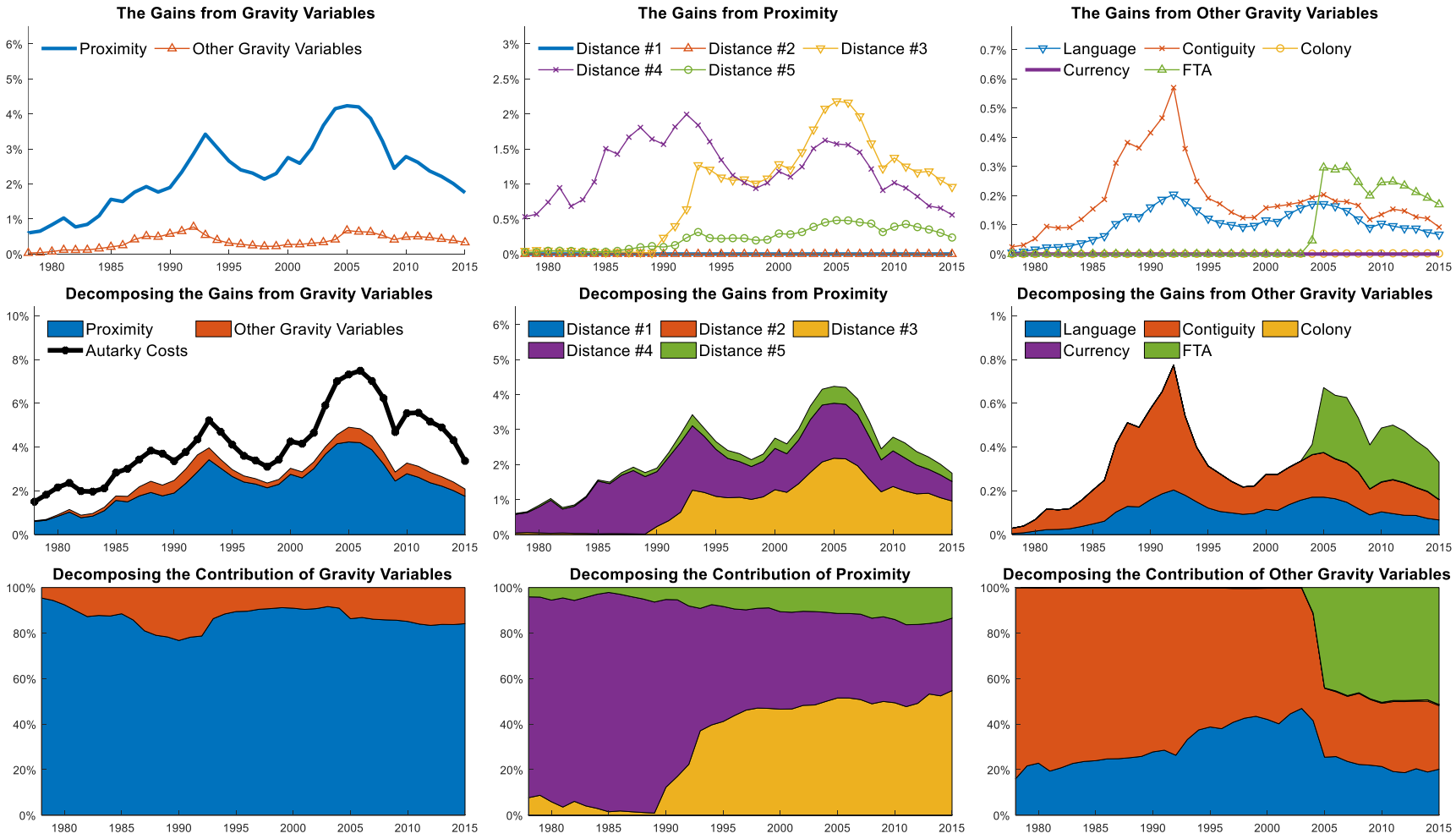
Notes: Distance #1 through #5 represents the gains from trade that are calculated by comparing the gains due to trading with partners that are less than 375 miles, between 375 and 750 miles, between 750 and 1500 miles, between 1500 and 3000 miles, and between 3000 and 6000 miles away, respectively, with respect to trading with partners that are more than 6000 miles away. The gains from trade due to other gravity variables are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries benefit from them.

Figure 5 – Decomposing the Gains from Trade for European Countries



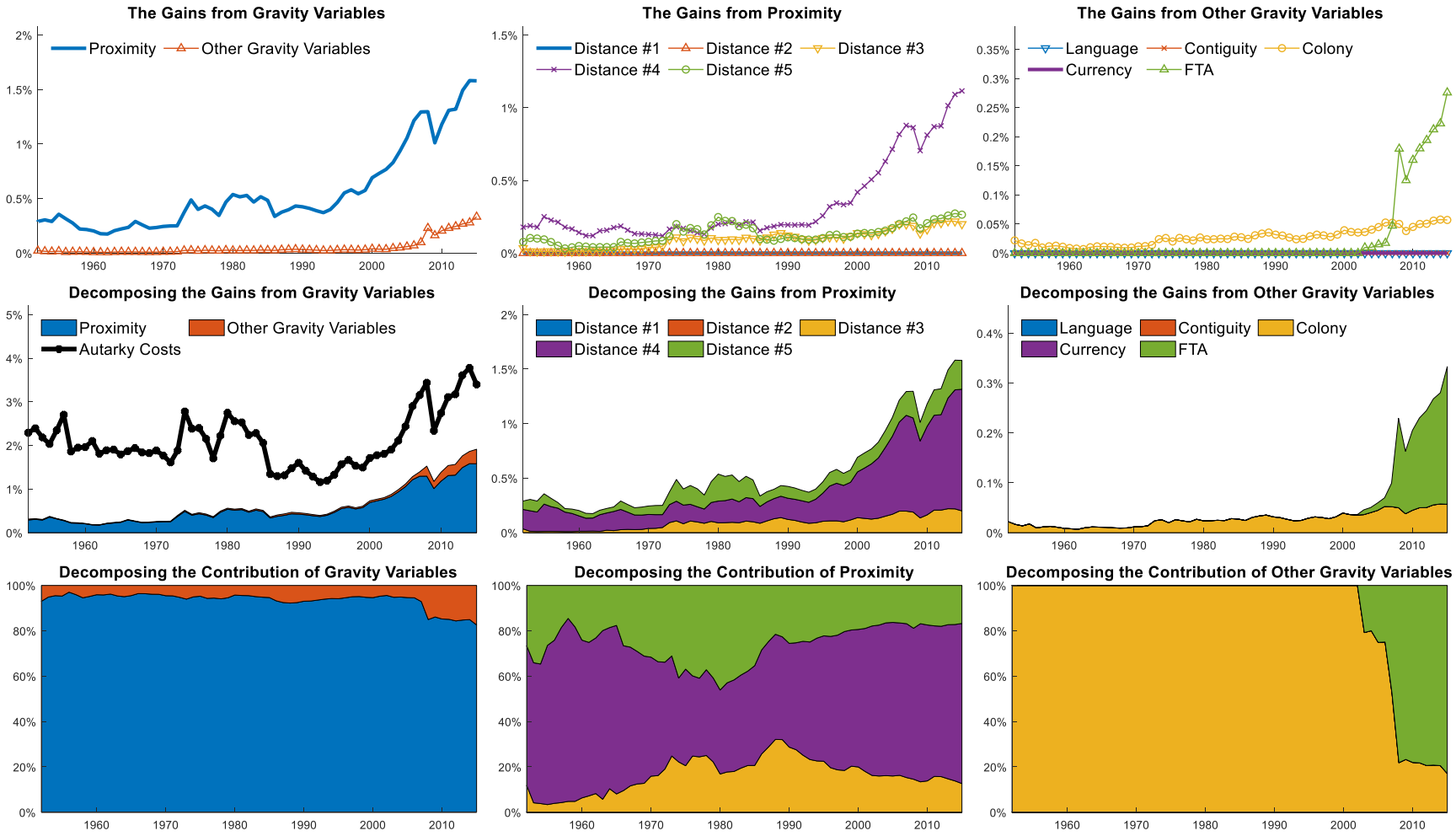
Notes: The results have been calculated by using the weighted average of country-specific results given in Appendix Table A1, where weights are income shares of countries. Distance #1 through #5 represents the gains from trade that are calculated by comparing the gains due to trading with partners that are less than 375 miles, between 375 and 750 miles, between 750 and 1500 miles, between 1500 and 3000 miles, and between 3000 and 6000 miles away, respectively, with respect to trading with partners that are more than 6000 miles away. The gains from trade due to other gravity variables are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries benefit from them.

Figure 6 – Decomposing the Gains from Trade for China



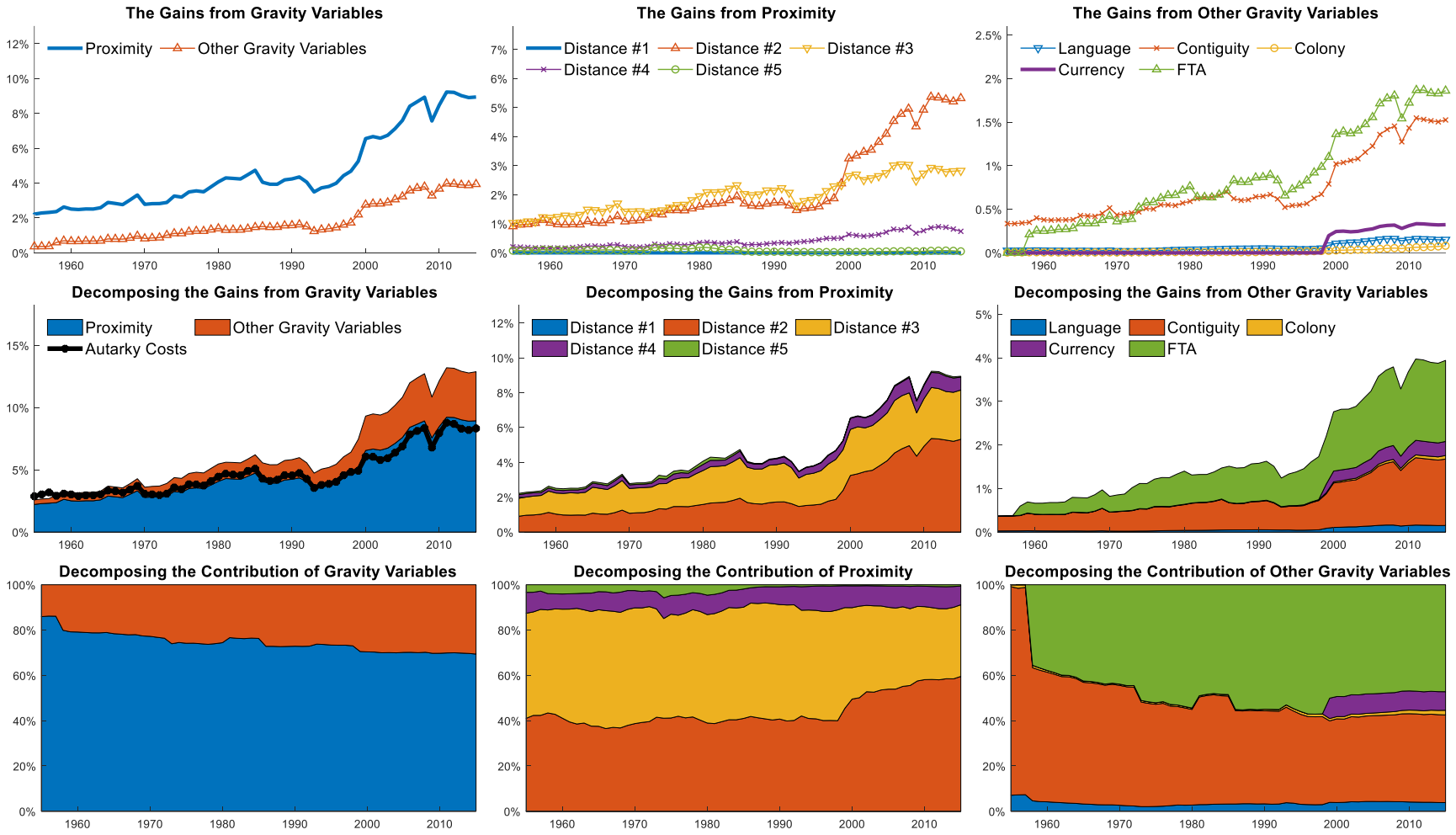
Notes: Distance #1 through #5 represents the gains from trade that are calculated by comparing the gains due to trading with partners that are less than 375 miles, between 375 and 750 miles, between 750 and 1500 miles, between 1500 and 3000 miles, and between 3000 and 6000 miles away, respectively, with respect to trading with partners that are more than 6000 miles away. The gains from trade due to other gravity variables are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries benefit from them.

Figure 7 – Decomposing the Gains from Trade for Japan



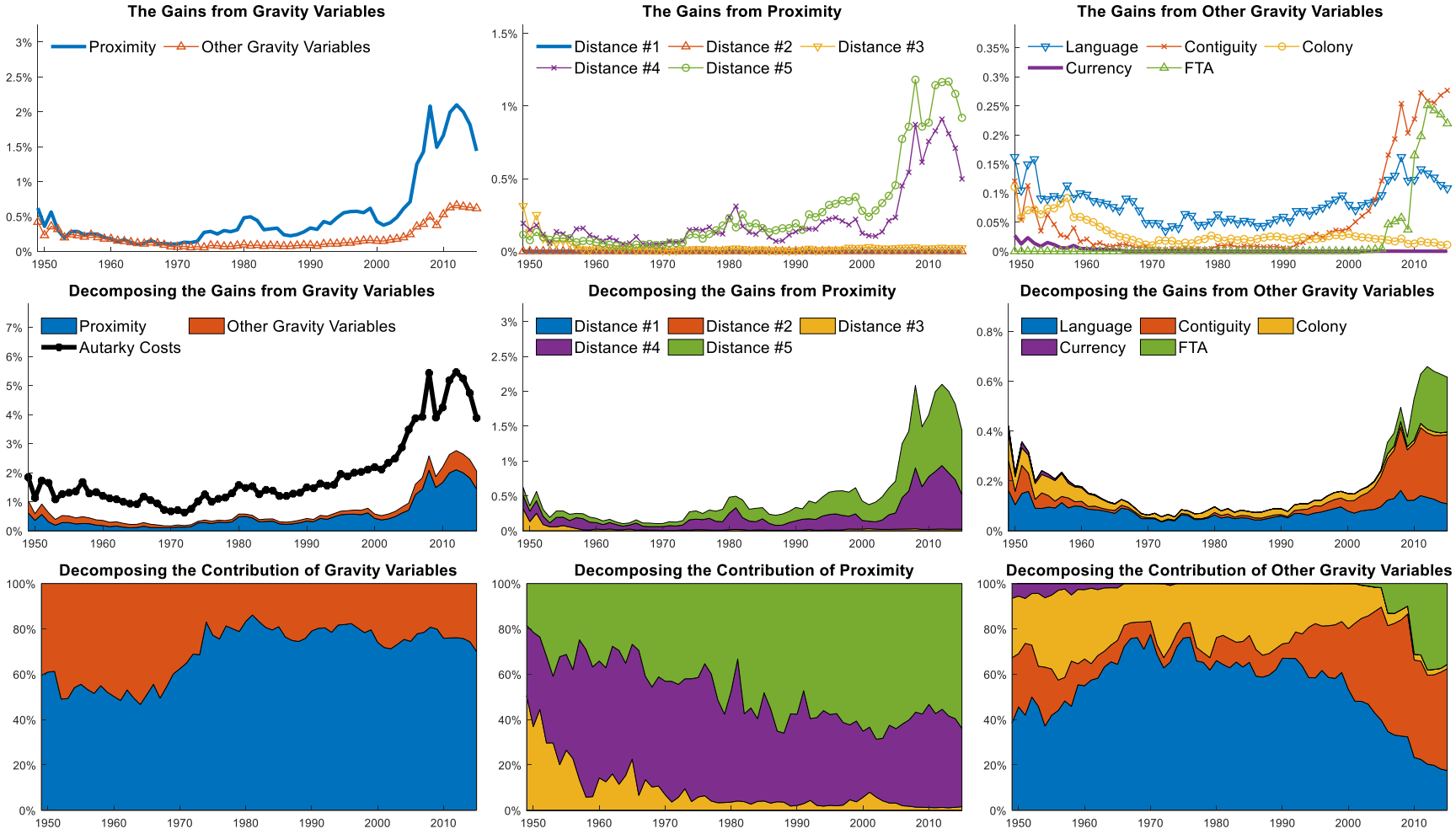
Notes: Distance #1 through #5 represents the gains from trade that are calculated by comparing the gains due to trading with partners that are less than 375 miles, between 375 and 750 miles, between 750 and 1500 miles, between 1500 and 3000 miles, and between 3000 and 6000 miles away, respectively, with respect to trading with partners that are more than 6000 miles away. The gains from trade due to other gravity variables are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries benefit from them.

Figure 8 – Decomposing the Gains from Trade for Germany



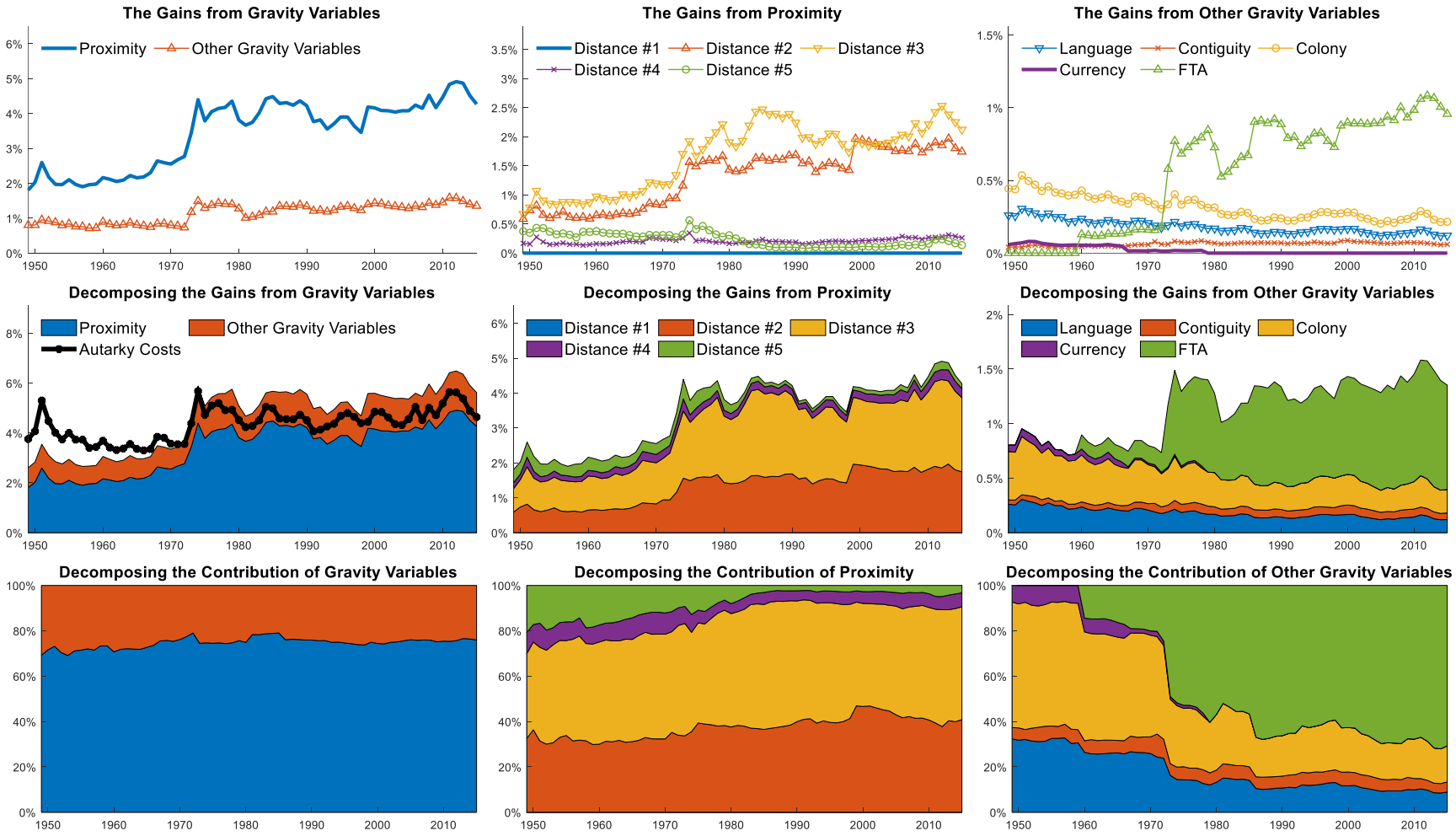
Notes: Distance #1 through #5 represents the gains from trade that are calculated by comparing the gains due to trading with partners that are less than 375 miles, between 375 and 750 miles, between 750 and 1500 miles, between 1500 and 3000 miles, and between 3000 and 6000 miles away, respectively, with respect to trading with partners that are more than 6000 miles away. The gains from trade due to other gravity variables are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries benefit from them.

Figure 9 – Decomposing the Gains from Trade for India



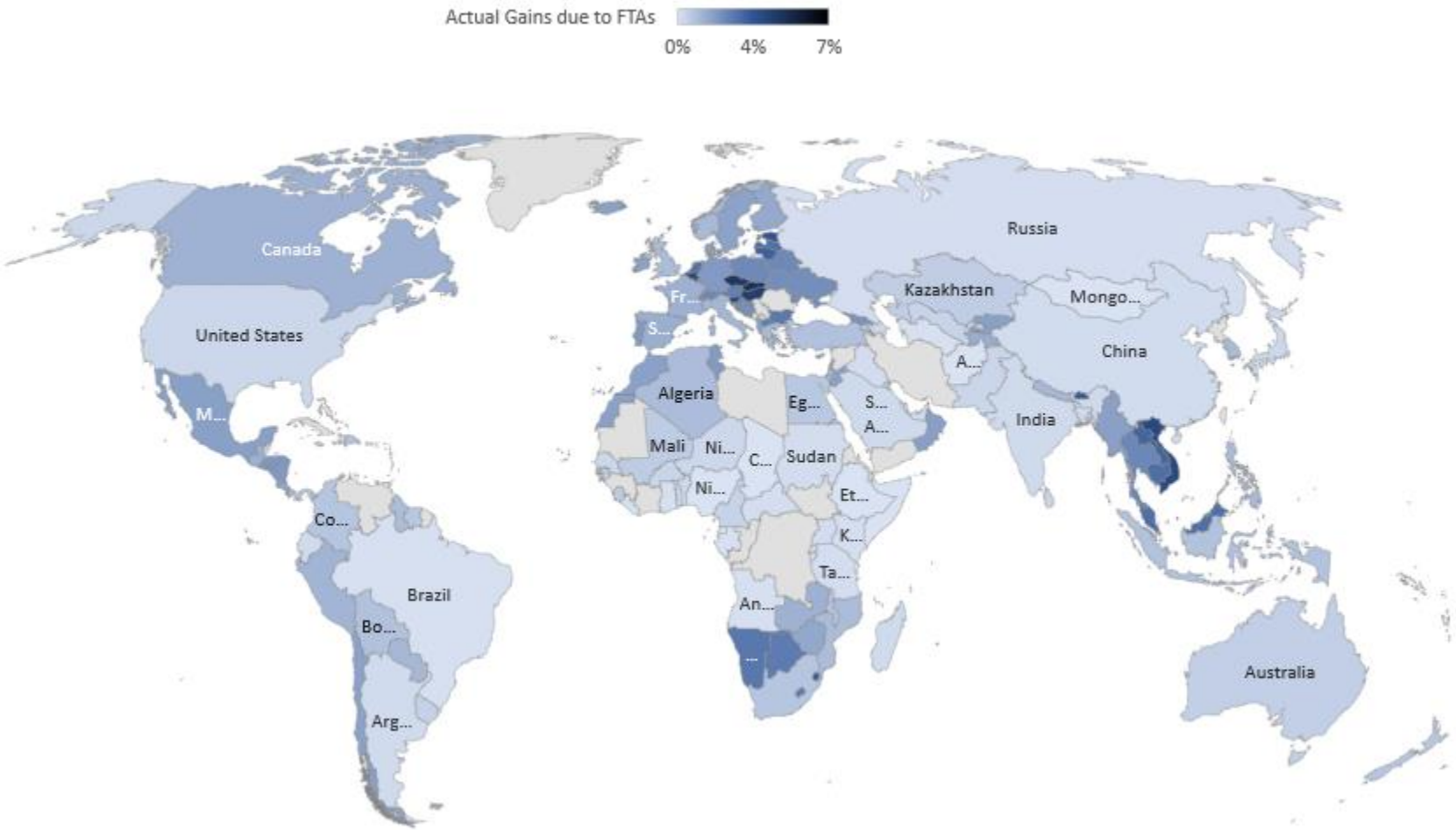
Notes: Distance #1 through #5 represents the gains from trade that are calculated by comparing the gains due to trading with partners that are less than 375 miles, between 375 and 750 miles, between 750 and 1500 miles, between 1500 and 3000 miles, and between 3000 and 6000 miles away, respectively, with respect to trading with partners that are more than 6000 miles away. The gains from trade due to other gravity variables are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries benefit from them.

Figure 10 – Decomposing the Gains from Trade for the United Kingdom



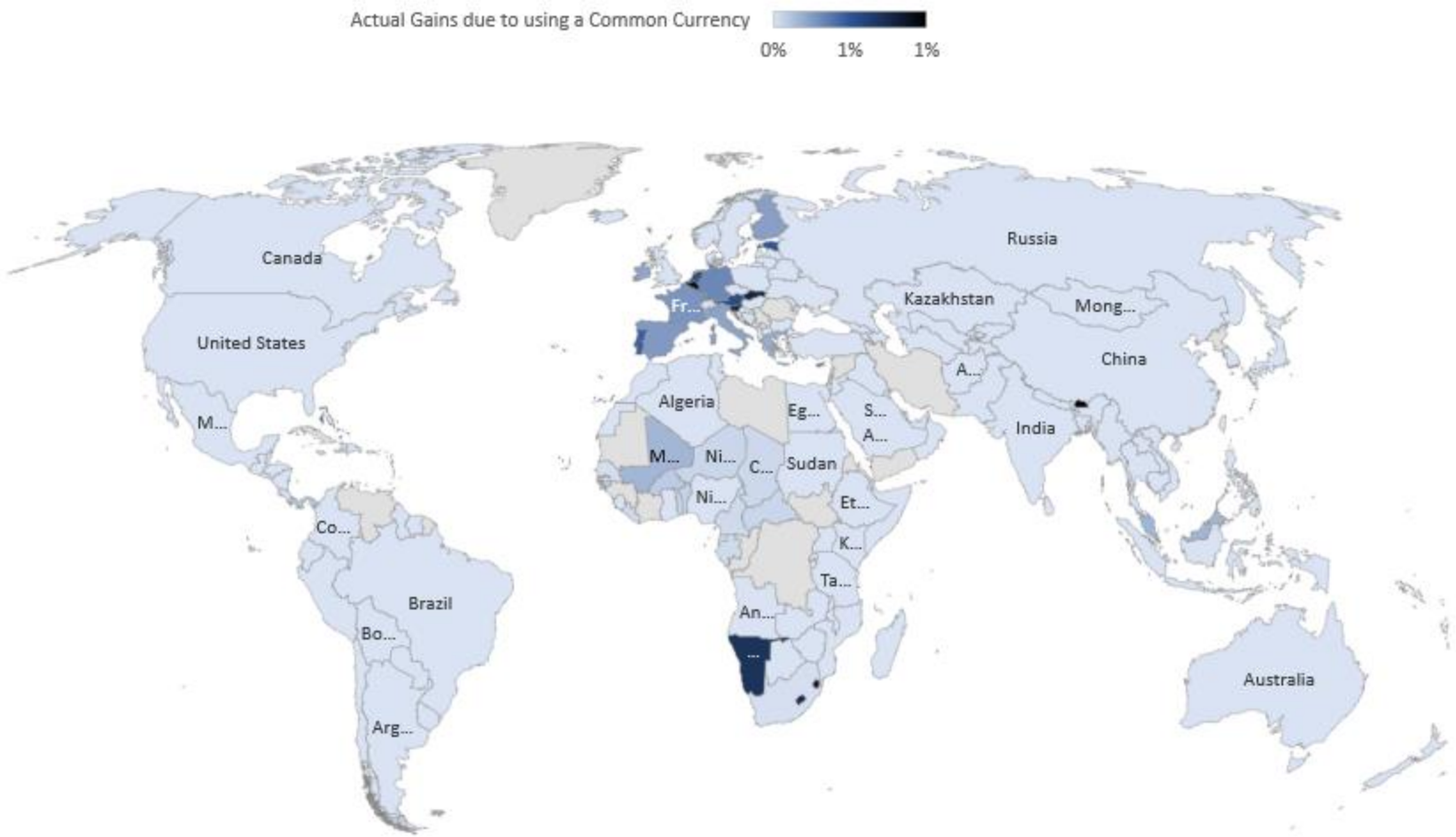
Notes: Distance #1 through #5 represents the gains from trade that are calculated by comparing the gains due to trading with partners that are less than 375 miles, between 375 and 750 miles, between 750 and 1500 miles, between 1500 and 3000 miles, and between 3000 and 6000 miles away, respectively, with respect to trading with partners that are more than 6000 miles away. The gains from trade due to other gravity variables are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries benefit from them.

Figure 11 – Gains from Trade due to FTAs



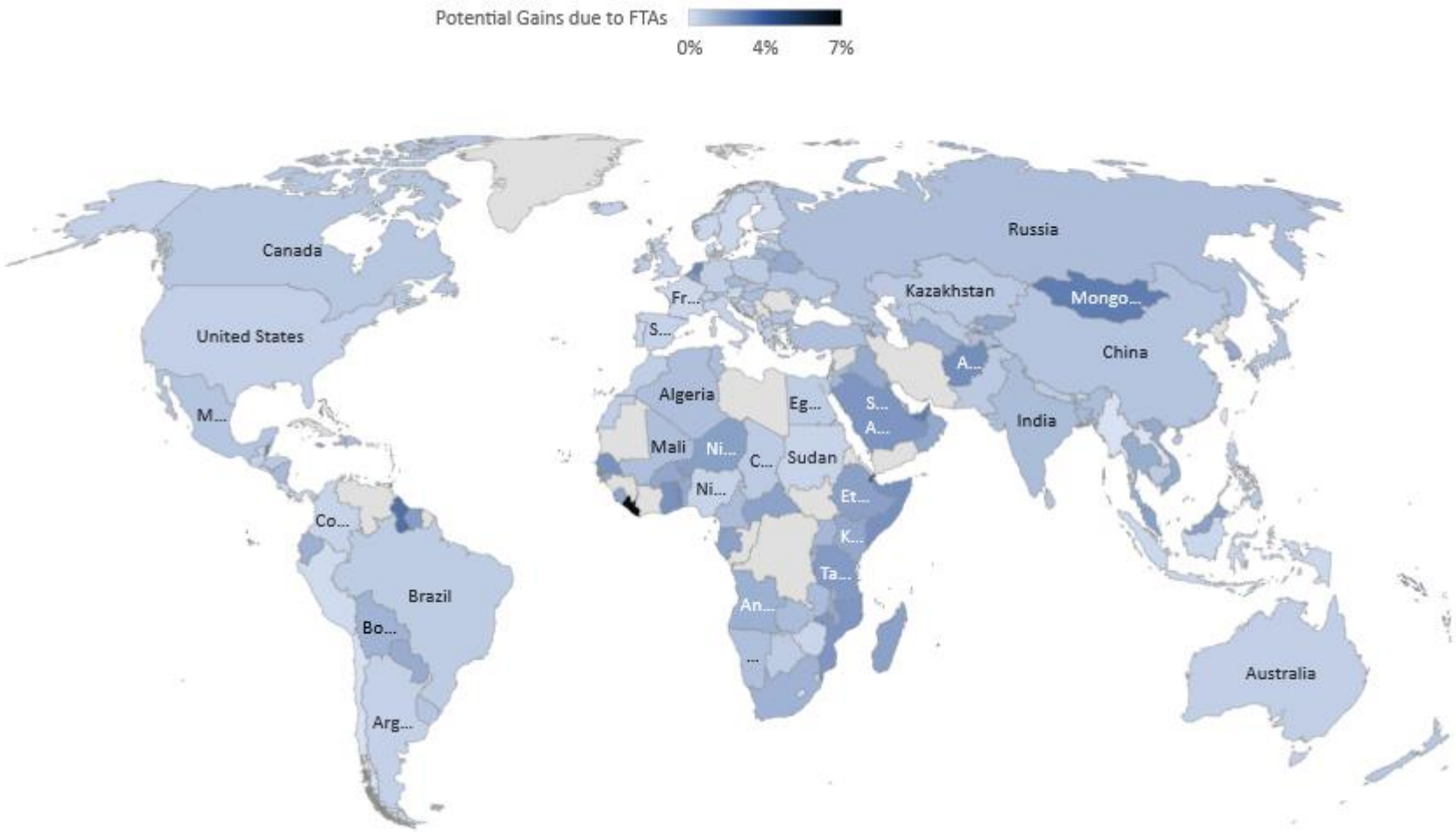
Notes: The numbers represent the gains from trade for the year of 2015. The actual gains from trade due to FTAs are calculated by comparing the current FTAs of countries with a hypothetical case in which none of the countries have FTAs.

Figure 12 – Gains from Trade due to Using a Common Currency



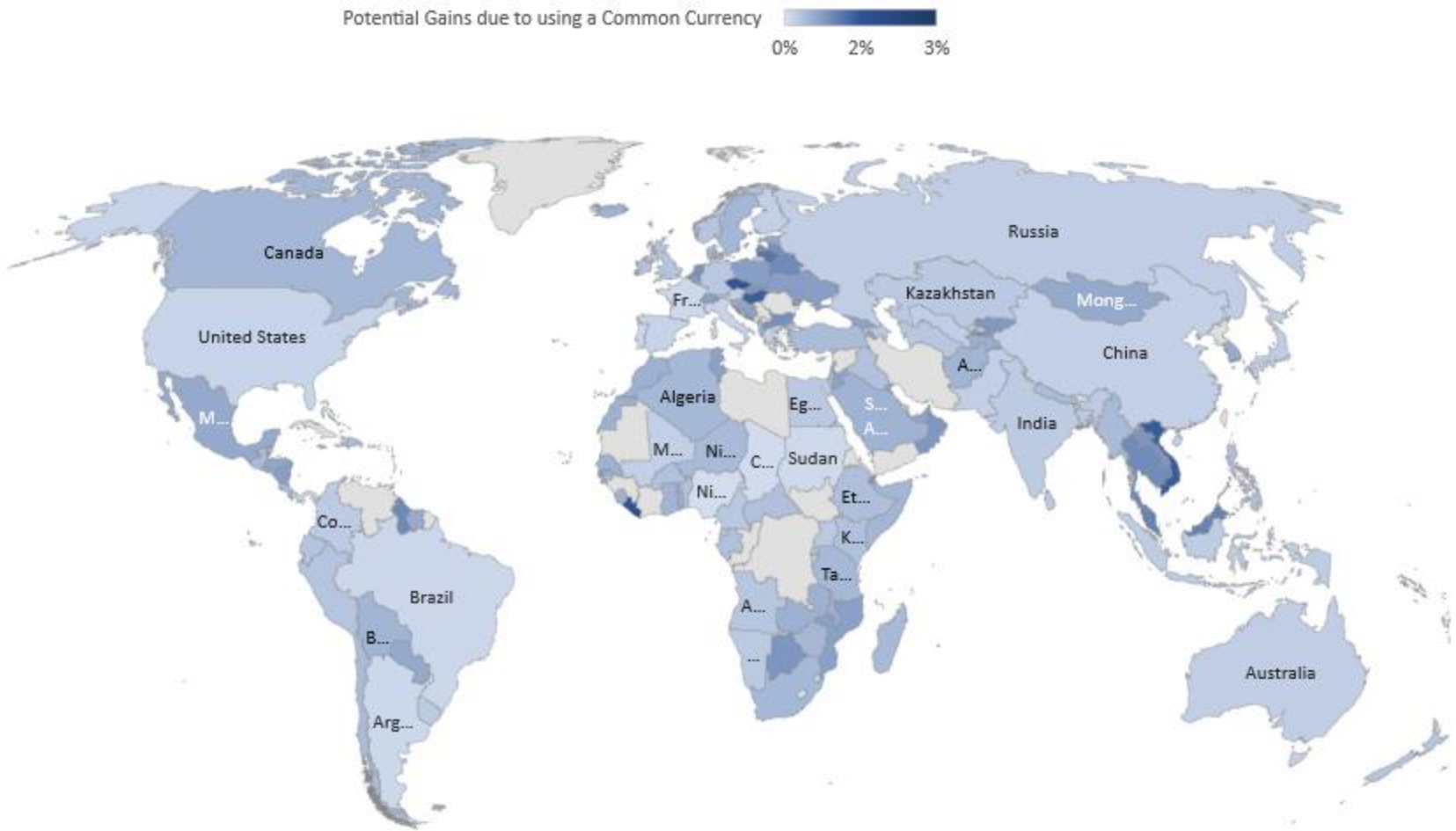
Notes: The numbers represent the gains from trade for the year of 2015. The actual gains from trade due to using a common currency are calculated by comparing the current FTAs of countries with a hypothetical case in which none of the countries have a common currency.

Figure 13 – Potential Gains from Trade due to FTAs



Notes: The numbers represent the potential gains from trade for the year of 2015. The potential gains from trade due to FTAs compare the current situation of countries with a hypothetical case in which they have FTAs with all of their trade partners.

Figure 14 – Potential Gains from Trade due to Using a Common Currency



Notes: The numbers represent the potential gains from trade for the year of 2015. The potential gains from trade due to FTAs compare the current situation of countries with a hypothetical case in which they have FTAs with all of their trade partners.

Appendix Table A1 - Decomposing the Gains from Trade: Country-Specific Results

	Actual Gains													Literature	Potential Gains		
	Gains from Proximity (Distance Measures)						Gains from Other Gravity Variables						Total	Autarky	Policy Variables		
Country	#1	#2	#3	#4	#5	Total	FTAs	Currency	Contiguity	Colony	Language	Total	Total	Costs	FTAs	Currency	Total
Afghanistan	0.0%	0.6%	2.3%	2.5%	0.9%	6.2%	0.0%	0.0%	1.9%	0.0%	0.2%	2.1%	8.3%	7%	2.1%	0.6%	2.8%
Albania	0.3%	5.3%	2.3%	0.6%	0.0%	8.5%	1.7%	0.0%	0.3%	0.1%	0.0%	2.1%	10.6%	8%	0.5%	0.6%	1.1%
Algeria	0.0%	0.1%	2.6%	1.5%	0.2%	4.4%	1.0%	0.0%	0.0%	0.1%	0.2%	1.3%	5.8%	6%	1.0%	0.6%	1.5%
Angola	0.0%	0.0%	0.0%	0.3%	0.5%	0.8%	0.1%	0.0%	0.0%	0.1%	0.1%	0.3%	1.2%	4%	1.3%	0.4%	1.7%
Antigua and Barbuda	0.1%	0.8%	0.2%	0.2%	1.6%	3.0%	0.4%	0.0%	0.0%	0.1%	0.5%	1.0%	4.0%	7%	1.4%	0.5%	1.9%
Argentina	0.0%	0.0%	0.1%	0.6%	0.0%	0.7%	0.2%	0.0%	0.3%	0.0%	0.0%	0.5%	1.2%	2%	0.5%	0.2%	0.7%
Armenia	0.3%	0.0%	1.2%	3.1%	0.3%	4.9%	0.7%	0.0%	0.3%	0.4%	0.0%	1.4%	6.3%	6%	1.2%	0.6%	1.8%
Australia	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%	0.5%	0.0%	0.0%	0.0%	0.1%	0.7%	0.9%	3%	0.6%	0.3%	0.9%
Austria	2.5%	9.1%	1.7%	0.6%	0.1%	13.9%	2.5%	0.6%	2.5%	0.2%	0.6%	6.4%	20.3%	11%	0.4%	0.3%	0.7%
Azerbaijan	0.0%	0.1%	0.8%	1.1%	0.7%	2.7%	0.3%	0.0%	0.5%	0.1%	0.0%	0.9%	3.7%	4%	1.0%	0.4%	1.4%
Bahamas, The	0.0%	0.0%	0.1%	5.7%	0.0%	5.8%	0.1%	0.5%	0.0%	0.0%	0.7%	1.3%	7.1%	6%	1.8%	0.1%	1.9%
Bahrain	0.2%	1.6%	4.8%	0.8%	1.1%	8.5%	1.8%	0.0%	0.0%	0.1%	0.6%	2.5%	11.0%	15%	2.0%	1.1%	3.2%
Bangladesh	0.0%	0.0%	0.8%	1.7%	0.5%	3.0%	0.2%	0.0%	0.3%	0.0%	0.0%	0.5%	3.5%	4%	1.1%	0.4%	1.4%
Barbados	3.0%	0.0%	0.2%	0.2%	1.6%	4.9%	0.7%	0.0%	0.0%	0.1%	0.6%	1.4%	6.4%	7%	1.4%	0.6%	2.0%
Belarus	0.3%	1.5%	10.6%	1.2%	0.1%	13.7%	2.3%	0.0%	3.2%	1.4%	0.0%	6.9%	20.6%	15%	1.5%	1.1%	2.5%
Belgium	8.4%	9.8%	4.6%	0.6%	0.5%	24.0%	4.5%	1.0%	3.3%	0.0%	1.1%	9.8%	33.8%	40%	1.8%	0.9%	2.7%
Belize	0.5%	1.3%	2.1%	3.4%	0.1%	7.4%	0.3%	0.0%	0.7%	0.0%	0.9%	1.9%	9.2%	10%	2.4%	0.8%	3.2%
Benin	1.1%	0.4%	0.2%	0.1%	1.2%	3.1%	0.3%	0.1%	0.3%	0.1%	0.2%	1.0%	4.0%	6%	1.5%	0.5%	2.0%
Bhutan	0.0%	0.2%	0.0%	11.6%	0.3%	12.1%	3.5%	1.0%	4.6%	0.0%	0.0%	9.1%	21.3%	16%	0.5%	0.2%	0.7%
Bolivia	0.0%	0.0%	0.6%	2.4%	0.1%	3.2%	0.9%	0.0%	1.1%	0.0%	0.3%	2.2%	5.4%	7%	1.2%	0.6%	1.9%
Bosnia and Herzegovina	3.8%	3.7%	3.5%	1.0%	0.1%	12.1%	2.1%	0.0%	0.4%	0.2%	0.1%	2.9%	14.9%	12%	0.7%	0.8%	1.5%
Botswana	0.0%	11.2%	2.4%	0.0%	0.0%	13.5%	2.6%	0.0%	3.4%	0.0%	1.2%	7.3%	20.9%	13%	0.7%	1.0%	1.6%
Brazil	0.0%	0.0%	0.0%	0.2%	0.1%	0.3%	0.1%	0.0%	0.1%	0.0%	0.0%	0.2%	0.5%	2%	0.7%	0.2%	0.9%
Brunei Darussalam	0.0%	0.0%	4.0%	0.4%	1.2%	5.7%	1.8%	0.0%	0.7%	0.0%	0.2%	2.7%	8.4%	8%	0.6%	0.7%	1.3%
Bulgaria	0.3%	3.1%	3.6%	5.7%	0.1%	12.7%	2.7%	0.0%	0.6%	0.1%	0.0%	3.5%	16.2%	16%	0.8%	1.0%	1.9%
Burkina Faso	0.0%	0.9%	0.8%	0.3%	1.2%	3.2%	0.4%	0.1%	0.4%	0.1%	0.2%	1.2%	4.4%	6%	1.5%	0.5%	2.0%
Burundi	0.1%	0.3%	0.8%	0.2%	0.5%	1.8%	0.0%	0.0%	0.1%	0.1%	0.1%	0.2%	2.1%	3%	1.2%	0.3%	1.5%
Cabo Verde	0.0%	0.0%	0.1%	3.9%	1.5%	5.5%	0.0%	0.0%	0.0%	0.8%	0.5%	1.3%	6.7%	9%	2.6%	0.8%	3.4%
Cambodia	0.0%	4.7%	1.0%	6.4%	0.6%	12.7%	3.0%	0.0%	1.2%	0.0%	0.0%	4.2%	16.9%	16%	0.7%	1.1%	1.8%
Cameroon	0.0%	0.1%	1.0%	0.1%	0.9%	2.0%	0.4%	0.0%	0.3%	0.1%	0.3%	1.1%	3.1%	4%	1.0%	0.4%	1.4%
Canada	0.0%	0.0%	0.0%	3.5%	0.3%	3.8%	1.3%	0.0%	1.4%	0.0%	0.5%	3.2%	7.0%	7%	0.8%	0.6%	1.4%
Central African Republic	0.0%	0.0%	0.6%	0.7%	1.4%	2.7%	0.1%	0.0%	0.2%	0.2%	0.3%	0.9%	3.6%	6%	1.7%	0.5%	2.1%
Chad	0.0%	0.0%	0.5%	0.1%	0.5%	1.1%	0.0%	0.0%	0.1%	0.1%	0.1%	0.4%	1.5%	2%	0.7%	0.2%	0.8%
Chile	0.0%	0.0%	0.3%	0.2%	0.4%	0.9%	1.7%	0.0%	0.1%	0.0%	0.1%	2.0%	2.9%	6%	0.2%	0.5%	0.7%
China	0.0%	0.0%	1.0%	0.6%	0.2%	1.8%	0.2%	0.0%	0.1%	0.0%	0.1%	0.3%	2.1%	3%	0.9%	0.3%	1.2%
Colombia	0.0%	0.0%	0.1%	0.1%	0.9%	1.2%	0.8%	0.0%	0.1%	0.0%	0.1%	1.0%	2.2%	4%	0.5%	0.4%	0.8%
Comoros	0.0%	0.0%	0.6%	0.2%	1.0%	1.8%	0.0%	0.0%	0.0%	0.2%	0.4%	0.6%	2.4%	5%	1.5%	0.4%	1.9%
Congo, Republic of	0.0%	0.4%	0.2%	0.3%	1.4%	2.3%	0.2%	0.0%	0.1%	0.3%	0.4%	1.0%	3.3%	10%	2.6%	0.8%	3.4%
Costa Rica	0.1%	0.4%	0.4%	0.5%	1.4%	2.8%	1.5%	0.0%	0.1%	0.0%	0.2%	1.8%	4.6%	6%	0.3%	0.5%	0.8%
Croatia	6.1%	2.6%	3.3%	0.8%	0.0%	12.9%	2.2%	0.0%	0.7%	0.2%	0.0%	3.1%	16.1%	9%	0.3%	0.7%	1.1%
C[illegible]te d'Ivoire	0.0%	0.1%	1.5%	0.2%	1.5%	3.4%	1.2%	0.0%	0.0%	0.2%	0.2%	1.7%	5.1%	8%	1.1%	0.6%	1.7%
Cyprus	0.7%	0.1%	2.1%	2.3%	0.6%	5.8%	1.6%	0.3%	0.0%	0.4%	0.2%	2.5%	8.3%	7%	0.5%	0.3%	0.8%
Czechia	4.9%	14.5%	5.1%	1.4%	0.0%	26.0%	4.9%	0.0%	4.0%	0.2%	0.0%	9.1%	35.0%	36%	1.1%	1.7%	2.8%
Denmark	0.0%	6.5%	1.7%	0.4%	0.1%	8.7%	1.8%	0.0%	0.6%	0.0%	0.0%	2.4%	11.1%	7%	0.4%	0.6%	1.0%
Djibouti	0.0%	1.4%	1.4%	3.6%	1.8%	8.2%	0.0%	0.0%	0.4%	0.4%	0.9%	1.6%	9.9%	14%	3.5%	1.0%	4.5%
Dominica	1.5%	2.2%	0.4%	0.4%	1.3%	5.7%	0.9%	0.0%	0.0%	0.1%	0.7%	1.7%	7.4%	7%	1.1%	0.5%	1.6%
Dominican Republic	0.0%	0.0%	0.4%	0.4%	1.4%	2.3%	0.8%	0.0%	0.0%	0.0%	0.1%	1.0%	3.2%	5%	0.9%	0.5%	1.4%
Ecuador	0.0%	0.0%	1.1%	0.1%	0.9%	2.1%	0.2%	0.0%	0.2%	0.0%	0.2%	0.6%	2.7%	5%	1.3%	0.4%	1.7%
Egypt	0.0%	0.1%	0.6%	1.2%	0.5%	2.4%	0.7%	0.0%	0.0%	0.1%	0.1%	0.8%	3.2%	4%	0.6%	0.4%	1.0%
El Salvador	3.3%	0.3%	0.1%	0.8%	1.6%	6.2%	1.9%	0.0%	0.5%	0.0%	0.3%	2.8%	8.9%	8%	0.5%	0.7%	1.2%
Equatorial Guinea	0.1%	0.2%	0.0%	0.2%	1.7%	2.2%	0.0%	0.0%	0.1%	0.2%	0.3%	0.5%	2.8%	6%	1.8%	0.5%	2.2%
Estonia	7.5%	4.3%	5.8%	2.6%	0.0%	20.2%	3.7%	0.5%	0.8%	0.4%	0.0%	5.4%	25.7%	18%	0.7%	0.7%	1.4%
Ethiopia	0.0%	0.0%	0.0%	1.3%	0.8%	2.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	2.2%	6%	1.7%	0.5%	2.2%
Fiji	0.0%	0.0%	0.0%	1.2%	0.7%	1.9%	0.1%	0.0%	0.0%	0.0%	0.6%	0.8%	2.7%	9%	2.5%	0.8%	3.2%
Finland	0.4%	1.7%	2.2%	2.3%	0.1%	6.7%	1.5%	0.2%	0.7%	0.3%	0.1%	2.9%	9.6%	6%	0.4%	0.3%	0.7%
France	0.0%	2.4%	3.1%	0.2%	0.1%	5.9%	1.3%	0.3%	1.1%	0.1%	0.1%	2.9%	8.8%	5%	0.4%	0.2%	0.6%
Gabon	0.0%	0.3%	0.1%	0.0%	1.5%	2.0%	0.1%	0.0%	0.1%	0.3%	0.3%	0.7%	2.7%	5%	1.7%	0.5%	2.1%
Gambia, The	0.3%	0.0%	0.0%	1.3%	1.6%	3.2%	0.4%	0.0%	0.0%	0.0%	0.1%	0.6%	3.8%	8%	1.9%	0.7%	2.6%
Georgia	0.5%	1.1%	3.2%	2.8%	0.7%	8.2%	2.1%	0.0%	1.3%	0.2%	0.0%	3.5%	11.7%	10%	0.8%	0.8%	1.6%
Germany	0.0%	5.3%	2.8%	0.7%	0.1%	8.9%	1.9%	0.3%	1.5%	0.1%	0.2%	3.9%	12.9%	8%	0.6%	0.4%	1.0%
Ghana	0.1%	0.1%	0.1%	0.1%	1.4%	1.8%	0.1%	0.0%	0.0%	0.1%	0.3%	0.5%	2.3%	7%	2.0%	0.6%	2.7%
Greece	0.0%	0.4%	1.4%	2.9%	0.1%	4.8%	1.1%	0.2%	0.2%	0.0%	0.0%	1.4%	6.2%	5%	0.6%	0.3%	0.8%
Grenada	4.3%	0.9%	0.1%	0.1%	1.3%	6.7%	0.8%	0.0%	0.0%	0.0%	0.6%	1.5%	8.2%	7%	1.4%	0.6%	2.1%
Guatemala	1.0%	0.1%	1.4%	2.4%	0.1%	4.9%	1.3%	0.0%	0.4%	0.0%	0.2%	2.0%	6.9%	6%	0.5%	0.5%	1.0%
Guinea-Bissau	1.9%	0.0%	0.0%	0.1%	1.6%	3.6%	0.3%	0.1%	0.3%	0.5%	0.3%	1.5%	5.1%	5%	1.4%	0.4%	1.9%

Appendix Table A1 - Decomposing the Gains from Trade: Country-Specific Results

	Actual Gains													Literature	Potential Gains		
	Gains from Proximity (Distance Measures)						Gains from Other Gravity Variables						Total	Autarky	Policy Variables		
Country	#1	#2	#3	#4	#5	Total	FTAs	Currency	Contiguity	Colony	Language	Total	Total	Costs	FTAs	Currency	Total
Guyana	0.0%	3.5%	0.6%	0.4%	1.5%	6.0%	1.0%	0.0%	0.2%	0.0%	0.7%	1.9%	7.9%	15%	2.9%	1.1%	4.0%
Haiti	0.1%	0.0%	0.5%	0.1%	0.8%	1.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.2%	1.8%	5%	1.2%	0.4%	1.6%
Honduras	3.1%	0.5%	0.3%	0.7%	1.6%	6.2%	1.9%	0.0%	0.5%	0.0%	0.4%	2.9%	9.1%	9%	0.7%	0.8%	1.5%
Hong Kong	0.1%	4.0%	1.3%	25.5%	0.6%	31.5%	5.8%	0.0%	7.1%	0.1%	3.6%	16.6%	48.2%	-	5.8%	3.4%	9.1%
Hungary	6.1%	3.4%	11.7%	1.7%	0.0%	23.0%	4.6%	0.0%	1.1%	0.0%	0.0%	5.7%	28.7%	32%	1.0%	1.6%	2.6%
Iceland	0.0%	0.0%	0.1%	4.2%	0.6%	4.9%	1.7%	0.0%	0.0%	0.1%	0.0%	1.8%	6.7%	7%	0.5%	0.7%	1.2%
India	0.0%	0.0%	0.0%	0.5%	0.9%	1.4%	0.2%	0.0%	0.3%	0.0%	0.1%	0.6%	2.1%	4%	1.0%	0.4%	1.4%
Indonesia	0.0%	0.0%	1.0%	0.3%	0.9%	2.2%	0.8%	0.0%	0.1%	0.0%	0.0%	0.9%	3.1%	4%	0.4%	0.4%	0.7%
Iraq	0.0%	0.0%	2.3%	0.5%	0.5%	3.3%	0.1%	0.0%	0.6%	0.3%	0.1%	1.1%	4.3%	5%	1.5%	0.5%	1.9%
Ireland	0.0%	4.0%	3.2%	0.5%	0.1%	7.8%	1.7%	0.2%	1.0%	0.5%	0.5%	3.9%	11.6%	8%	0.6%	0.5%	1.1%
Israel	0.1%	0.0%	0.3%	1.0%	0.7%	2.1%	0.9%	0.0%	0.0%	0.0%	0.2%	1.2%	3.3%	5%	0.4%	0.4%	0.8%
Italy	0.0%	0.6%	3.8%	0.4%	0.3%	5.0%	1.1%	0.2%	0.3%	0.0%	0.0%	1.7%	6.8%	5%	0.5%	0.3%	0.7%
Jamaica	0.0%	0.1%	1.1%	1.0%	1.3%	3.5%	0.4%	0.0%	0.0%	0.0%	0.5%	0.9%	4.5%	7%	1.5%	0.6%	2.1%
Japan	0.0%	0.0%	0.2%	1.1%	0.3%	1.6%	0.3%	0.0%	0.0%	0.1%	0.0%	0.3%	1.9%	3%	0.9%	0.3%	1.2%
Jordan	0.3%	0.4%	2.4%	1.5%	1.0%	5.6%	1.7%	0.0%	0.6%	0.0%	0.3%	2.6%	8.2%	10%	1.1%	0.8%	1.9%
Kazakhstan	0.0%	0.0%	0.2%	1.6%	1.1%	2.9%	0.6%	0.0%	0.9%	0.3%	0.2%	2.0%	4.9%	4%	0.8%	0.4%	1.1%
Kenya	0.0%	0.2%	0.0%	0.3%	0.9%	1.4%	0.1%	0.0%	0.1%	0.0%	0.2%	0.4%	1.8%	5%	1.5%	0.5%	2.0%
Kiribati	0.0%	0.0%	0.0%	2.3%	1.8%	4.2%	0.7%	0.2%	0.0%	0.0%	0.8%	1.7%	5.9%	11%	2.3%	0.7%	3.0%
Korea, Republic of	0.0%	0.0%	3.3%	0.4%	0.4%	4.1%	1.0%	0.0%	0.0%	0.2%	0.0%	1.2%	5.3%	8%	1.5%	0.7%	2.2%
Kuwait	0.0%	0.2%	1.8%	0.3%	1.2%	3.6%	0.5%	0.0%	0.2%	0.0%	0.2%	0.9%	4.5%	9%	2.0%	0.7%	2.7%
Kyrgyzstan	0.0%	0.3%	2.3%	3.4%	2.3%	8.2%	1.7%	0.0%	1.8%	0.6%	0.6%	4.8%	13.0%	12%	1.5%	0.9%	2.5%
Lao People's Democratic Republic	0.0%	12.4%	0.0%	2.6%	0.2%	15.2%	3.2%	0.0%	3.8%	0.0%	0.0%	7.1%	22.2%	12%	0.1%	1.0%	1.1%
Latvia	6.6%	4.1%	3.9%	2.5%	0.0%	17.2%	3.0%	0.0%	1.6%	0.2%	0.0%	4.8%	22.0%	14%	0.6%	1.0%	1.7%
Lebanon	0.3%	0.3%	1.2%	2.0%	0.8%	4.6%	1.2%	0.0%	0.0%	0.1%	0.2%	1.6%	6.2%	7%	1.0%	0.6%	1.6%
Lesotho	0.0%	14.0%	0.0%	0.0%	0.0%	14.1%	2.6%	0.8%	3.4%	0.0%	1.1%	7.9%	22.0%	11%	0.4%	0.1%	0.5%
Liberia	0.0%	0.2%	0.1%	0.0%	1.7%	1.9%	0.0%	0.0%	0.0%	0.0%	1.1%	1.2%	3.1%	49%	6.6%	1.9%	8.5%
Lithuania	4.1%	4.9%	5.7%	4.7%	0.2%	19.5%	3.4%	0.0%	2.3%	0.5%	0.0%	6.2%	25.7%	20%	1.3%	1.4%	2.6%
Luxembourg	6.5%	5.0%	0.5%	0.1%	0.0%	12.1%	2.1%	0.5%	2.1%	0.1%	0.7%	5.4%	17.6%	9%	0.6%	0.2%	0.8%
Macao	0.9%	0.0%	0.1%	2.1%	0.0%	3.2%	0.5%	0.0%	0.6%	0.0%	0.3%	1.4%	4.6%	4%	0.9%	0.4%	1.3%
Macedonia, FYR	1.8%	2.8%	5.2%	2.6%	0.1%	12.4%	2.6%	0.0%	0.7%	0.1%	0.0%	3.5%	15.9%	15%	0.8%	1.0%	1.8%
Madagascar	0.0%	0.0%	0.3%	0.4%	0.9%	1.6%	0.2%	0.0%	0.0%	0.1%	0.1%	0.4%	2.0%	7%	1.7%	0.6%	2.2%
Malawi	0.0%	0.7%	0.7%	1.4%	0.5%	3.3%	0.7%	0.0%	0.3%	0.0%	0.4%	1.5%	4.9%	7%	1.5%	0.6%	2.1%
Malaysia	0.0%	3.0%	2.7%	1.3%	2.7%	9.7%	3.0%	0.2%	1.4%	0.0%	0.7%	5.3%	15.0%	21%	1.7%	1.2%	2.9%
Maldives	0.0%	0.0%	0.8%	1.1%	2.6%	4.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0.5%	5.0%	9%	2.1%	0.8%	2.9%
Mali	0.0%	0.0%	2.5%	0.2%	0.8%	3.5%	0.6%	0.2%	0.7%	0.1%	0.3%	1.9%	5.3%	5%	1.0%	0.3%	1.3%
Malta	0.0%	0.1%	4.1%	4.5%	0.1%	8.8%	2.4%	0.5%	0.0%	0.2%	0.3%	3.4%	12.2%	12%	0.8%	0.4%	1.2%
Marshall Islands, Republic of	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	7.0%	2.0%	9.0%
Mauritius	0.0%	0.0%	0.1%	0.2%	1.3%	1.6%	0.2%	0.0%	0.0%	0.1%	0.5%	0.9%	2.4%	8%	2.2%	0.7%	2.9%
Mexico	0.0%	0.0%	0.0%	4.0%	0.1%	4.2%	1.7%	0.0%	1.6%	0.0%	0.0%	3.4%	7.5%	9%	0.8%	0.7%	1.5%
Micronesia, Federated States of	0.0%	0.0%	0.0%	0.0%	1.3%	1.3%	0.0%	0.0%	0.0%	0.7%	0.6%	1.3%	2.6%	11%	1.8%	0.5%	2.3%
Moldova	0.0%	2.7%	4.4%	2.5%	0.1%	9.8%	2.0%	0.0%	0.4%	0.3%	0.0%	2.7%	12.5%	12%	0.8%	0.8%	1.7%
Mongolia	0.0%	0.0%	0.0%	4.3%	1.4%	5.7%	0.0%	0.0%	2.1%	0.6%	0.0%	2.7%	8.4%	9%	2.5%	0.7%	3.3%
Morocco	0.0%	0.3%	1.6%	2.6%	0.7%	5.2%	1.7%	0.0%	0.1%	0.2%	0.2%	2.2%	7.4%	8%	0.6%	0.7%	1.3%
Mozambique	0.0%	0.1%	3.9%	0.1%	0.5%	4.6%	1.0%	0.0%	1.2%	0.1%	0.1%	2.4%	7.0%	11%	1.9%	0.8%	2.8%
Myanmar	0.0%	1.1%	0.1%	4.2%	0.4%	5.9%	1.7%	0.0%	1.3%	0.0%	0.0%	3.0%	8.8%	6%	0.1%	0.5%	0.7%
Namibia	0.0%	0.0%	11.1%	0.1%	0.0%	11.3%	2.8%	0.7%	3.4%	1.6%	1.2%	9.7%	21.0%	15%	1.0%	0.4%	1.3%
Nepal	0.0%	0.0%	4.6%	0.4%	0.6%	5.6%	1.1%	0.0%	1.7%	0.0%	0.0%	2.8%	8.4%	6%	0.7%	0.5%	1.2%
Netherlands	3.5%	7.2%	2.9%	1.6%	0.4%	15.6%	3.0%	0.5%	1.6%	0.0%	0.2%	5.4%	21.0%	27%	2.4%	1.0%	3.4%
New Zealand	0.0%	0.0%	0.0%	0.6%	0.0%	0.6%	0.7%	0.0%	0.0%	0.0%	0.2%	1.0%	1.6%	5%	0.8%	0.4%	1.2%
Nicaragua	3.9%	1.2%	0.1%	1.3%	1.1%	7.7%	1.9%	0.0%	0.5%	0.0%	0.5%	2.9%	10.6%	10%	1.1%	0.9%	1.9%
Niger	0.0%	0.0%	1.2%	0.1%	1.3%	2.6%	0.3%	0.0%	0.2%	0.4%	0.4%	1.3%	3.9%	7%	1.7%	0.5%	2.3%
Nigeria	0.0%	0.0%	0.0%	0.0%	0.3%	0.4%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.5%	2%	0.5%	0.1%	0.7%
Norway	0.0%	1.4%	2.2%	0.7%	0.1%	4.5%	1.1%	0.0%	0.3%	0.0%	0.0%	1.4%	5.8%	5%	0.4%	0.4%	0.9%
Oman	9.6%	0.3%	0.9%	0.9%	1.3%	13.0%	1.7%	0.0%	1.8%	0.0%	0.6%	4.2%	17.3%	12%	1.5%	1.0%	2.5%
Pakistan	0.0%	0.0%	0.2%	1.0%	0.8%	2.0%	0.3%	0.0%	0.4%	0.0%	0.1%	0.9%	2.9%	3%	0.7%	0.3%	1.0%
Palau	0.0%	0.0%	0.0%	0.9%	2.0%	2.8%	0.0%	0.0%	0.0%	0.7%	0.4%	1.2%	4.0%	10%	2.3%	0.7%	3.0%
Panama	0.0%	0.5%	0.2%	0.3%	0.7%	1.7%	0.7%	0.1%	0.1%	0.0%	0.1%	1.1%	2.7%	4%	0.4%	0.2%	0.6%
Paraguay	0.0%	0.0%	1.8%	2.2%	0.0%	4.0%	1.1%	0.0%	1.4%	0.0%	0.2%	2.7%	6.7%	9%	1.4%	0.7%	2.2%
Peru	0.0%	0.0%	0.2%	0.5%	0.7%	1.5%	1.2%	0.0%	0.3%	0.0%	0.1%	1.6%	3.1%	5%	0.3%	0.4%	0.7%
Philippines	0.0%	0.0%	0.8%	3.2%	0.1%	4.1%	1.0%	0.0%	0.0%	0.1%	0.2%	1.4%	5.4%	5%	0.7%	0.5%	1.2%
Poland	0.0%	6.7%	3.5%	1.2%	0.1%	11.6%	2.3%	0.0%	1.7%	0.5%	0.0%	4.5%	16.1%	11%	0.7%	0.9%	1.6%
Portugal	0.0%	4.1%	0.8%	2.7%	0.3%	8.0%	1.9%	0.5%	1.0%	0.1%	0.0%	3.4%	11.5%	8%	0.4%	0.2%	0.6%
Qatar	0.1%	1.1%	0.4%	0.5%	1.1%	3.3%	0.4%	0.1%	0.3%	0.1%	0.1%	1.0%	4.2%	6%	1.6%	0.5%	2.1%
Russian Federation	0.0%	0.0%	0.2%	1.3%	0.7%	2.2%	0.1%	0.0%	0.5%	0.1%	0.0%	0.8%	2.9%	3%	1.0%	0.3%	1.3%
Rwanda	0.1%	1.0%	0.8%	0.0%	0.6%	2.4%	0.0%	0.0%	0.3%	0.0%	0.3%	0.7%	3.1%	4%	1.4%	0.4%	1.8%

Appendix Table A1 - Decomposing the Gains from Trade: Country-Specific Results

	Actual Gains													Literature	Potential Gains		
	Gains from Proximity (Distance Measures)						Gains from Other Gravity Variables						Total	Autarky	Policy Variables		
Country	#1	#2	#3	#4	#5	Total	FTAs	Currency	Contiguity	Colony	Language	Total	Total	Costs	FTAs	Currency	Total
Saint Kitts and Nevis	0.0%	0.1%	1.0%	0.2%	2.0%	3.3%	0.4%	0.0%	0.0%	0.1%	0.7%	1.2%	4.5%	6%	1.5%	0.5%	2.0%
Saint Lucia	1.0%	2.5%	0.3%	0.3%	1.8%	5.8%	0.9%	0.0%	0.0%	0.1%	0.8%	1.7%	7.5%	8%	1.4%	0.6%	2.0%
Saint Vincent and the Grenadines	3.9%	0.0%	0.6%	0.4%	1.7%	6.5%	0.9%	0.0%	0.0%	0.1%	0.7%	1.7%	8.3%	8%	1.5%	0.7%	2.2%
Samoa	0.0%	0.0%	0.7%	0.0%	1.5%	2.1%	0.2%	0.0%	0.0%	0.4%	0.7%	1.3%	3.4%	9%	2.4%	0.7%	3.1%
Sao Tome and Principe	0.0%	0.2%	2.1%	0.0%	2.4%	4.8%	0.0%	0.0%	0.0%	0.9%	0.8%	1.6%	6.4%	8%	2.3%	0.7%	3.0%
Saudi Arabia	0.0%	0.0%	0.9%	0.3%	1.1%	2.3%	0.2%	0.0%	0.2%	0.0%	0.1%	0.5%	2.9%	7%	2.0%	0.6%	2.6%
Senegal	0.0%	0.0%	0.0%	1.0%	1.8%	2.9%	0.3%	0.0%	0.0%	0.3%	0.3%	0.8%	3.7%	8%	2.0%	0.7%	2.7%
Seychelles	0.0%	0.0%	0.0%	1.0%	2.7%	3.7%	0.0%	0.0%	0.0%	0.3%	0.6%	0.9%	4.6%	14%	3.7%	1.1%	4.7%
Sierra Leone	0.0%	0.0%	2.3%	0.2%	1.1%	3.7%	0.6%	0.0%	0.0%	0.2%	0.2%	1.0%	4.8%	7%	1.6%	0.6%	2.2%
Singapore	0.0%	5.5%	3.4%	0.8%	6.0%	15.6%	7.3%	0.3%	1.3%	0.1%	2.0%	11.1%	26.7%	-	1.8%	2.3%	4.1%
Slovakia	15.6%	2.9%	9.2%	1.8%	0.0%	29.5%	5.3%	0.8%	3.3%	0.4%	0.0%	9.8%	39.3%	39%	0.8%	1.0%	1.8%
Slovenia	8.8%	10.8%	2.6%	1.6%	0.0%	23.8%	4.4%	0.8%	2.3%	0.4%	0.0%	7.9%	31.7%	26%	0.7%	0.7%	1.4%
Solomon Islands	0.0%	0.0%	0.6%	0.2%	2.0%	2.9%	0.2%	0.0%	0.0%	0.0%	0.6%	0.9%	3.7%	10%	2.6%	0.8%	3.4%
Somalia	0.0%	0.0%	2.2%	1.0%	1.0%	4.2%	0.0%	0.0%	0.7%	0.0%	0.6%	1.3%	5.5%	7%	2.1%	0.6%	2.7%
South Africa	0.0%	0.2%	0.2%	0.1%	0.1%	0.7%	0.7%	0.0%	0.1%	0.1%	0.2%	1.2%	1.8%	7%	1.3%	0.6%	1.8%
Spain	0.0%	0.4%	2.5%	1.9%	0.3%	5.1%	1.3%	0.3%	0.4%	0.1%	0.0%	2.1%	7.2%	6%	0.5%	0.3%	0.8%
Sri Lanka	0.0%	0.0%	0.0%	1.8%	0.4%	2.3%	0.4%	0.0%	0.0%	0.0%	0.0%	0.4%	2.7%	4%	0.9%	0.4%	1.2%
Sudan	0.0%	0.0%	0.0%	0.6%	0.2%	0.9%	0.2%	0.0%	0.1%	0.0%	0.1%	0.3%	1.2%	2%	0.5%	0.2%	0.7%
Suriname	0.0%	0.1%	2.6%	0.6%	1.3%	4.5%	0.7%	0.0%	0.1%	0.2%	0.2%	1.2%	5.7%	9%	1.8%	0.7%	2.5%
Swaziland	0.0%	18.5%	0.4%	0.0%	0.2%	19.1%	3.5%	0.9%	4.4%	0.0%	1.4%	10.3%	29.4%	22%	0.6%	0.3%	0.9%
Sweden	0.0%	2.5%	3.9%	1.0%	0.0%	7.4%	1.6%	0.0%	0.3%	0.1%	0.0%	2.1%	9.5%	7%	0.4%	0.6%	1.0%
Switzerland	0.0%	6.7%	2.5%	0.4%	0.3%	9.9%	2.3%	0.0%	1.4%	0.0%	0.5%	4.3%	14.2%	10%	0.6%	0.8%	1.4%
Tajikistan	0.8%	0.3%	1.1%	3.7%	1.1%	7.0%	1.4%	0.0%	0.6%	0.6%	0.0%	2.5%	9.6%	8%	1.0%	0.7%	1.6%
Tanzania	0.0%	0.2%	0.0%	0.3%	1.8%	2.3%	0.1%	0.0%	0.1%	0.0%	0.2%	0.4%	2.7%	6%	1.8%	0.6%	2.4%
Thailand	0.0%	0.6%	1.8%	3.8%	1.6%	7.8%	2.4%	0.0%	0.4%	0.0%	0.0%	2.8%	10.6%	15%	1.4%	1.1%	2.5%
Togo	0.7%	0.4%	0.0%	0.2%	1.8%	3.2%	0.2%	0.0%	0.1%	0.1%	0.2%	0.7%	3.9%	8%	2.2%	0.7%	2.9%
Tonga	0.0%	0.0%	0.9%	2.5%	0.2%	3.6%	0.2%	0.0%	0.0%	0.0%	0.6%	0.9%	4.5%	7%	1.9%	0.6%	2.6%
Trinidad and Tobago	0.1%	0.1%	0.1%	0.7%	2.0%	3.0%	0.4%	0.0%	0.0%	0.1%	0.5%	0.9%	3.9%	11%	2.7%	0.9%	3.6%
Tunisia	0.0%	0.8%	5.0%	2.1%	0.4%	8.4%	1.9%	0.0%	0.2%	0.4%	0.3%	2.8%	11.2%	10%	1.0%	0.8%	1.8%
Turkey	0.0%	0.1%	0.5%	3.2%	0.2%	3.9%	0.9%	0.0%	0.1%	0.0%	0.0%	1.0%	5.0%	6%	1.0%	0.5%	1.5%
Turkmenistan	0.0%	0.0%	0.1%	2.5%	0.9%	3.5%	0.0%	0.0%	0.0%	0.1%	0.0%	0.2%	3.7%	4%	1.3%	0.4%	1.7%
Tuvalu	0.0%	0.0%	1.3%	0.0%	1.9%	3.3%	0.3%	0.2%	0.0%	0.0%	0.0%	0.6%	3.8%	18%	3.8%	1.0%	4.8%
Uganda	0.0%	0.7%	0.1%	0.2%	0.9%	1.8%	0.1%	0.0%	0.2%	0.0%	0.2%	0.6%	2.4%	4%	1.1%	0.4%	1.5%
Ukraine	0.0%	1.1%	2.7%	4.6%	0.2%	8.5%	2.2%	0.0%	1.5%	0.4%	0.0%	4.1%	12.6%	11%	0.8%	0.9%	1.7%
United Arab Emirates	0.2%	0.1%	0.4%	1.3%	2.3%	4.3%	0.2%	0.0%	0.1%	0.1%	0.1%	0.5%	4.8%	19%	2.6%	0.8%	3.4%
United Kingdom	0.0%	1.7%	2.1%	0.3%	0.1%	4.3%	1.0%	0.0%	0.1%	0.2%	0.1%	1.4%	5.6%	5%	0.5%	0.4%	1.0%
United States	0.0%	0.0%	0.0%	0.8%	0.0%	0.8%	0.3%	0.0%	0.3%	0.0%	0.1%	0.7%	1.5%	3%	0.6%	0.3%	0.8%
Uruguay	0.0%	0.9%	0.1%	0.7%	0.1%	1.8%	0.4%	0.0%	0.5%	0.0%	0.1%	1.1%	2.8%	4%	0.8%	0.4%	1.2%
Uzbekistan	0.0%	0.1%	0.4%	0.9%	1.1%	2.5%	0.4%	0.0%	0.1%	0.2%	0.0%	0.7%	3.2%	3%	0.7%	0.3%	1.0%
Vanuatu	0.0%	0.0%	0.6%	3.1%	0.0%	3.8%	0.2%	0.0%	0.0%	0.0%	0.6%	0.8%	4.6%	7%	1.9%	0.6%	2.5%
Vietnam	0.0%	0.3%	2.9%	7.1%	2.5%	12.9%	4.2%	0.0%	2.3%	0.0%	0.0%	6.5%	19.4%	37%	1.5%	1.6%	3.1%
Zambia	0.0%	0.2%	0.4%	3.2%	0.4%	4.2%	1.3%	0.0%	0.2%	0.0%	0.6%	2.1%	6.3%	9%	1.0%	0.7%	1.7%
Zimbabwe	0.0%	3.1%	3.9%	0.1%	0.1%	7.3%	1.5%	0.0%	1.9%	0.0%	0.7%	4.2%	11.4%	7%	0.4%	0.6%	1.0%
Mean	0.8%	1.5%	1.5%	1.5%	0.8%	6.1%	1.2%	0.1%	0.7%	0.1%	0.3%	2.4%	8.5%	9.2%	1.3%	0.6%	2.0%
Median	0.0%	0.2%	0.8%	0.8%	0.6%	4.2%	0.8%	0.0%	0.3%	0.1%	0.2%	1.5%	5.6%	7.3%	1.1%	0.6%	1.7%
Minimum	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%	0.1%	0.1%	0.5%
Maximum	15.6%	18.5%	11.7%	25.5%	6.0%	31.5%	7.3%	1.0%	7.1%	1.6%	3.6%	16.6%	48.2%	49.4%	7.0%	3.4%	9.1%

Notes: The numbers represent the gains from trade for the year of 2015. Distance #1 through #5 represent the gains from trade that are calculated by comparing the gains due to trading with partners that are less than 375 miles, between 375 and 750 miles, between 750 and 1500 miles, between 1500 and 3000 miles, and between 3000 and 6000 miles away, respectively, with respect to trading with partners that are more than 6000 miles away. The total gains from proximity are measured as the sum of the gains from trade due to Distance #1 through #5. The gains from trade due to other gravity variables are calculated by comparing the current situation of countries with a hypothetical case in which none of the countries benefit from them. Actual total gains are the sum of the gains from proximity and the gains from trade due to other gravity variables. Autarky costs represent the gains from trade calculated by using the sufficient statistics of home expenditure share and the trade elasticity, by accepting preferences as given. The potential gains from trade compare the current situation of countries with a hypothetical case in which they have FTAs or common currencies with all of their trade partners.