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The Role of Direct Flights in Trade Costs*

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Abstract

The role of direct flights in trade costs is investigated by introducing and using a micro price data set on 49 goods across 433 international cities covering 114 countries. It is shown that having at least one direct flight reduces trade costs by about 1,400 miles in distance equivalent terms, while an international border increases trade costs by about 14,907 miles; hence, the positive effects of having at least one direct flight between any two cities can compensate for about 10% of the negative effects of an average international border. Trade costs also decrease with the number of direct flights: on average, one direct flight reduces trade costs by about 305 miles in distance equivalent terms, which corresponds to 7% of the average distance and can compensate for about 2% of the negative effects of an average international border. The results are shown to be robust to alternative empirical strategies.

JEL codes: F15, F31

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1 Introduction

The increase in air transportation/travel due to the technological development in jet aircraft engines has led to the improvement of global market integration significantly since World War II. This improvement has been partly achieved by the increase in air shipment due to lower air transportation costs,[1] and partly due to the face-to-face business meetings that overcome informational asymmetries in international trade.[2] Besides the obvious role of air transportation in the integration of the traded goods markets, air travel of individuals has also contributed to the integration of non-traded goods markets, such as the housing market and the service sector.[3] Therefore, there is no doubt that air transportation/travel has significantly contributed to welfare-improving globalization through reducing trade costs between regions/countries.

Within this picture, direct flights have gained more importance, because they provide the cheapest and fastest air transportation/travel. For example, Alderighi and Gaggero (2012) have found that the elasticity of exports to direct flights is about 10%. Similarly, Micco and

[1] Hummels (2007) shows that by the year of 2000, air shipments were representing a third of the value of U.S. imports and more than half of U.S. exports with countries outside North America. Similarly, again in 2000, excluding land neighbors, the air share of import value was more than 30 percent for Argentina, Brazil, Colombia, Mexico, Paraguay, and Uruguay.

[2] As Cristea (2011) and Poole (2013) have shown, business travel helps to overcome informational asymmetries in international trade by generating international sales in the form of new export relationships.

[3] For example, Ley and Tutchener (2001) show how house prices in Canadian cities are strongly associated with overseas tourism. Moreover, service sectors such as medical tourism have benefited from the existence of direct flights between countries, as discussed in Bookman and Bookman (2007), Herrick (2007), and Helble (2011).

Serebrisky (2006) have shown that Open Skies Agreements between countries, which allow airlines to operate direct flights internationally, reduce air transport costs by 9% and increase by 7% the share of imports arriving by air. Moreover, studies such as Bel and Fageda (2008) have found that the availability of direct flights has a large influence on the location of large firms' headquarters, which is another factor facilitating trade.[4]

This paper attempts to measure the effects of direct flights on overall trade costs between cities (in distance equivalent terms) by introducing and using a micro price data set on 49 goods across 433 international cities covering 114 countries. In the benchmark specification, following Eaton and Kortum (2002), together with other studies in which consumers search for the minimum price across locations, we define intercity trade costs as the maximum price difference (i.e., the maximum of deviations from the Law of One Price) across goods between two cities; for any city pair for which we compare micro prices, we also search for airports within 50 miles to check whether they have any direct flights between each other.

The benchmark results show that *having at least one direct flight* corresponds to a reduction in trade costs by about 1,400 miles in distance equivalent terms, on average; this is about one third of the average distance between the cities in the sample that is about 4,551 miles. Due to having both international and intranational city pairs, we also investigate the role of an international border in trade costs: it is found that the average international border increases trade costs by about 14,907 miles in distance equivalent terms, which is about triple the average distance. In other words, the positive effects of *having at least one direct flight* between any two cities can compensate for about 10% of the negative effects

[4]Regarding the importance of time spent in transportation, Hummels and Schaur (2013) estimate that each day in transit is equivalent to an ad-valorem tariff of 0.6% to 2.3%.

of an average international border. Trade costs are also shown to be decreasing with the number of direct flights: the results show that *one direct flight* reduces trade costs by about 305 miles, which is about 7% of the average distance; therefore, the positive effects of *one direct flight* between any two cities can compensate for about 2% of the negative effects of an average international border.

For robustness, we consider many alternative empirical strategies. In order to measure trade costs, for instance, we alternatively follow Borraz et al. (2012) who have suggested using 80th, 90th or higher percentiles of micro price differences in order to reduce the severity of measurement errors in prices; on the other hand, we also follow Eaton and Kortum (2002) by using the second maximum of the price difference between cities. Since direct flights can be used for the air transportation of goods (i.e., for the market integration of traded goods) or for the air travel of individuals (i.e., the market integration of non-traded goods, such as housing and services, especially through tourism), we also consider the price difference between cities for both traded and non-traded goods in our sample. Finally, while searching for a direct flight between any two cities, we consider airports within 25, 100 and 200 miles of the city centers. In all of these alternative empirical strategies, we find very similar results in which the effect of direct flights on trade costs is always negative and significant.

The rest of the paper is organized as follows. The next section introduces the empirical methodology used to measure trade costs and details of the regression analysis. Section 3 depicts the data and descriptive statistics. Section 4 reveals the empirical results. Section 5 concludes.

2 Empirical Methodology

2.1 Measuring Trade Costs

Data for trade costs are either non-existing or not covering the globe.[5] Accordingly, studies such as by Eaton and Kortum (2002), Simonovska and Waugh (2014), among many others, have considered disaggregate price information across countries to measure trade costs. For example, in Eaton and Kortum (2002), given a pair of countries, the maximum price difference across goods is used as a measure of trade costs. In order to understand the logic behind this, consider the following arbitrage condition for the same good between any two locations:

$$\frac{P_i^g}{P_j^g} \leq \tau_{ji} \tag{1}$$

where P_i^g is the price of good g in location i, P_j^g is the price of good g in location j, and τ_{ji} represents the gross multiplicative trade costs from location j to location i. When traded goods are considered, this expression literally means that importing good g from location j is more costly compared to the already-available price in location i; therefore, this is an expected situation in the equilibrium after arbitrage opportunities are taken (i.e., after possible trade is achieved). When non-traded goods are considered, this expression means that travelling from city i to city j to consume good g is more expensive than consuming the same good in city i; the same arbitrage conditions are implied as for traded goods. Therefore,

[5] An exception is the data set for the U.S. international trade that can be obtained from http://dataweb.usitc.gov/. Nevertheless, even this detailed data set covers only the calculated duties and the cost of all freight, insurance, and other charges incurred; it does not cover, for instance, trade costs due to search frictions or time to ship.

in our empirical investigation, below, we will consider the implications for both traded and non-traded goods.

The symmetric version of Equation 1 also holds with an inequality:

$$\frac{P_j^g}{P_i^g} \leq \tau_{ij}$$

When trade costs are symmetric (i.e., when $\tau_{ji} = \tau_{ij}$), the last two inequalities can be combined in log terms as follows:

$$\left| p_i^g - p_j^g \right| \leq \log \tau_{ij}$$

where $|\cdot|$ is the absolute operator, $p_i^g = \log P_i^g$, and $p_j^g = \log P_j^g$. The main point is that, when the maximum (i.e., the upper bound) of the left hand side is considered, the last inequality turns into an equality. For example, Eaton and Kortum (2002) consider the maximum of the left hand side as the maximum price difference across goods between two locations, which can be summarized as follows:

$$\log \tau_{ij} = \max_g \left\{ \left| p_i^g - p_j^g \right| \right\} \tag{2}$$

We follow this definition of trade costs in our benchmark results.

As mentioned by Eaton and Kortum (2002) and Borraz et al. (2012), however, the maximum price difference across goods is sensitive to the possibility of measurement errors in the price data. Accordingly, Eaton and Kortum (2002) have considered the second maximum price difference across goods, while Borraz et al. (2012) have considered alternative percentiles (e.g., 80th, 90th, etc.). Therefore, besides our benchmark case defined as Equation 2, for robustness, we will also consider these alternative measures in our investigation.

2.2 Regression Analysis

Once trade costs are obtained (as described in the previous subsection), we are interested in the effects of having direct flights between cities. Since we have data for the exact number of direct flights between cities, we will consider two alternative approaches.

In the first specification, we consider the effects of *having at least one direct flight* between cities. Accordingly, the following regression will be used (where the superscripts represent the specification):

$$\log \tau_{ij} = \beta_1^1 f_{ij}^1 + \beta_2^1 b_{ij} + \beta_3^1 \log d_{ij} + c_i + c_f \tag{3}$$

where f_{ij}^1 is a dummy variable taking a value of 1 when there is at least one direct flight between cities i and j, b_{ij} is a dummy variable taking a value of 1 when there is an international border between cities i and j, d_{ij} is the great circle distance in miles between cities i and j, c_i and c_f are city fixed effects.

In the second specification, we will consider the effects of *the number of direct flights* between cities, where we will employ the following regression (where the superscripts represent the specification):

$$\log \tau_{ij} = \beta_1^2 f_{ij}^2 + \beta_2^2 b_{ij} + \beta_3^2 \log d_{ij} + c_i + c_f \tag{4}$$

where f_{ij}^2 is the number of direct flights between cities i and j, and the remaining notation of variables is the same as in the first specification, above.

In both specifications, the expected sign of β_1 is negative since we expect that having direct flights between any considered city pair is going to reduce trade costs due to the reduced search costs, informational asymmetries, time-to-ship, etc. As consistent with the literature (e.g., Engel and Rogers, 1996), we also expect the effects of international borders and distance to be positive (i.e., $\beta_2 > 0$ and $\beta_3 > 0$).

Using the estimated coefficients, following the methodology introduced by Parsley and Wei (2001), which is robust to the units of distance measurement used (e.g., miles versus kilometers), the distance equivalent of having direct flights can be measured by the following expression:

$$F = \overline{d_{ij}} \left(\exp\left(\frac{\beta_1}{\beta_3} \right) - 1 \right) \tag{5}$$

while the distance equivalent of the average international border effect can be measured by the following expression:

$$B = \overline{d_{ij}} \left(\exp\left(\frac{\beta_2}{\beta_3} \right) - 1 \right) \tag{6}$$

where $\overline{d_{ij}}$ is the average distance between cities, which is about 4,551 miles. In these expressions, we literally determine the corresponding change in distance units to compansate for having direct flights or an international border.

3 Data and Descriptive Analysis

Micro price data include observations of 49 goods (22 traded and 27 non-traded) obtained from 433 cities (covering 114 countries) for the years between 2010 and 2014. The complete lists of goods and cities are given in Online Appendix tables, while the coverage of cities are depicted on the world map in Figure 1, where we have multiple cities from many countries. The data have been downloaded from http://www.numbeo.com/ which is the world's largest database of user contributed data about cities. Users of Numbeo can enter the micro prices that they observe either at the good level or by using the price collection sheet provided by the web page. Since the price data are user contributed, Numbeo uses alternative methodologies to filter out noise data. First, the user provided data are checked for outliers manually.[6] Second, one quarter of lowest and highest inputs are discarded as borderline cases. Third, Numbeo uses heuristic technology that discards data which most likely are incorrect statistically. Using the price data, we calculate log trade costs according to Equation 2, where, as indicated in Table 1, the number of city pairs is 90,785, and number of international city pairs are much higher than the number of intranational city pairs.

The data for direct flights have been obtained from Airline Route Mapper for the year of 2013.[7] The data include information on 63,149 direct flights from around the world where the name of the airlines and airports are also provided. Considering the provided airport codes and names, we determined the exact location of the airports (in terms of their latitudes and longitudes) and the countries in which they are located by using Google Maps.

By using Google Maps, we also calculated the exact location of cities in our price data (in terms of their latitudes and longitudes). Considering these locations, we calculated the great circle distance between them in miles to be used in the regression analysis (see Table 1). Furthermore, in order to determine whether there is a direct flight between any two cities in our price data, we searched for the airports within 50 miles of the city centers by using the airport location data we have. We found that for some cities, there are no airports within 50 miles, while for some others, there are more than one airport; summary statistics are provided in Table 1 where the number of direct flights is 10,677 (out of 90,785). For a given city pair for which prices are compared, we calculated the number of direct flights using the

[6] For example, for a particular price in a city, when values contributed are 5, 6, 20, and 4 in a reasonable time span, the value of 20 is discarded as a noise.

[7] The web page is http://arm.64hosts.com/.

direct flight data that we have by considering all available airports within 50 miles. In the empirical investigation, we consider two alternative versions of this information: (i) having *at least one direct flight* between cities, and (ii) the *exact number of direct flights* between cities.[8] For robustness, we also considered alternative measures of proximity to the airport (i.e., airports within 25, 100, and 200 miles of city centers); in Table 1, to save space, we only depict the summary statistics for airports within 100 miles of city centers.

When the maximum price difference across goods is used as the measure of trade costs between cities and airports within 50 miles of city centers are considered to determine direct flights, the corresponding Kernel density estimates are provided in the upper panel of Figure 2, where the city pairs that have a direct flight between each other have fewer trade costs between each other, independent of considering traded or non-traded goods. The results remain the same with a different magnitude when the 80th percentile of price difference across goods is used as the measure of trade costs between cities, as depicted in the lower panel of Figure 2. Therefore, direct flights seems to have a reducing effect on trade costs between cities. Nevertheless, proving this claim requires a formal investigation, of which results we depict next.

4 Empirical Results

When the maximum price difference across all goods is used as the measure of trade costs between cities and airports within 50 miles of city centers are considered to determine direct

[8] The exact number of direct flights is defined as one flight in any direction between the considered cities. For example, an airline serving between two cities inbound and outbound is considered as two different flights.

flights, the results in Table 2 are obtained for the estimation of Equation 3. As is evident, all considered variables are significant at the 1% level, and the adjusted R-bar squared values are as high as 0.67 when city fixed effects are included. The main point out of these results is the negative and significant coefficient estimate of the dummy for having at least one direct flight between the considered cities; this result holds for all eight alternative regressions in Table 2.

We would like to focus on regression version (4) in Table 2, since it includes all the considered variables in Equation 3. The distance-equivalent effects of having at least one direct flight, calculated according to Equation 5, are about $-1,400$ miles, while the distance-equivalent effects of borders, calculated according to Equation 6, are about $14,907$ miles.[9] Therefore, the positive effects of having at least one direct flight between any international city pair can compensate for the negative effects of a border by about 10%, on average across all cities in our sample. When distance elasticity of trade is about one, which is the most commonly estimated coefficient of log distance in gravity studies (e.g., see Disdier and Head, 2008), this result is comparable to the results in Alderighi and Gaggero (2012) who have found that the elasticity of exports to direct flights is about 10%. Since the average distance between the cities in our sample is about $4,551$ miles (according to Table 1), we can safely claim that the effect of borders are about triple the effects of distance, while having at least

[9] In order to compare this number with the existing literature, consider the following studies that have used alternative data sets and empirical methodologies: Among many others, Engel and Rogers (1996) have estimated the distance equivalent of the U.S.-Canada border about 75,000 miles; Parsley and Wei (2001) have estimated the U.S.-Japan border about 43 000 trillion miles; Yilmazkuday (2012) has estimated the average border across states of the U.S. about 3,344 miles.

one direct flight reduces the effects of distance by one third.

When we replicate the results in Table 2 using price data on traded goods only, we obtain the results in Table 3, where the significance and signs of all variables remain the same. When we consider the implied distance-equivalent effects, according regression version (4), having at least one direct flight corresponds to about $-1,000$ miles, while having a border corresponds to about $25,870$ miles. Hence, having at least one direct flight between any international city pair reduces the effects of a border by about 4%, on average across all cities in our sample, when price data on traded goods only are considered.

When Equation 4 is estimated to investigate the effects of the number of direct flights on trade costs, the results in Table 2 are replaced by the results in Table 4, where the maximum price difference across all goods is considered as the measure of trade costs, and airports within 50 miles of city centers are considered to determine direct flights. As is evident, again, all considered variables have their expected signs and they are significant at the 1% level. Having one direct flight reduces trade costs by about 305 miles in distance equivalent terms, on average; hence, an airline serving both an inbound and an outbound flight between two cities reduces trade costs by about 710 ($= 350 \times 2$) miles in distance equivalent terms. The interesting part of this result is that trade costs are reduced further as the number of direct flights increases. When we replicate the results in Table 4 by using price data on traded goods only, we obtain the results in Table 5, where one direct flight reduces trade costs by about 241 miles in distance equivalent terms, on average.

We considered many alternative estimation strategies for robustness. These include replicating Tables 2-4 by (i) using price data on non-traded goods only, (ii) considering the second maximum of price difference across goods between cities as the measure of trade costs, (iii) considering the 80th percentile of price difference across goods between cities as the measure of trade costs, and (iv) considering airports within 100 miles of city centers. All of these investigations resulted in virtually similar results (i.e., direct flights affect trade costs negatively and significantly), which can be found in the Online Appendix of this paper.[10]

5 Conclusion

The effects of direct flights on trade costs have been shown to be negative and significant across cities around the world. *Having at least one direct flight* corresponds to a reduction in trade costs by about 1,400 miles in distance equivalent terms, on average, which is about one third of the average distance between cities. The results also show that *one direct flight* reduces trade costs by about 305 miles, which is about 7% of the average distance. Since the average international border is shown to increase trade costs by about 14,907 miles, the positive effects of having *at least one* direct flight (respectively, having *one* direct flight) between any two cities can compensate for about 10% (respectively, 2%) of the negative effects of an average international border. Therefore, the results, which are supported by many alternative robustness analyses, are in favor of international policies such as *Open Skies Agreements* that facilitate direct flights and thus reduce trade costs.

The results, for sure, depend on the focus of this paper, which is about the effects of direct flights; alternatively, indirect flights may also be contributing to the reduction of trade costs. However, indirect flights are hard to measure/capture due to the many alternative routes

[10] Many other alternative measures can also be investigated by using the to-be-published Matlab codes of this paper.

that one can have; e.g., from New York City, USA to Istanbul, Turkey, there are many alternative airline routes that one can use regarding indirect flights. Such indirect effects, nevertheless, can be investigated by considering the network effects of direct flights across cities, although it is out of the scope of this paper.

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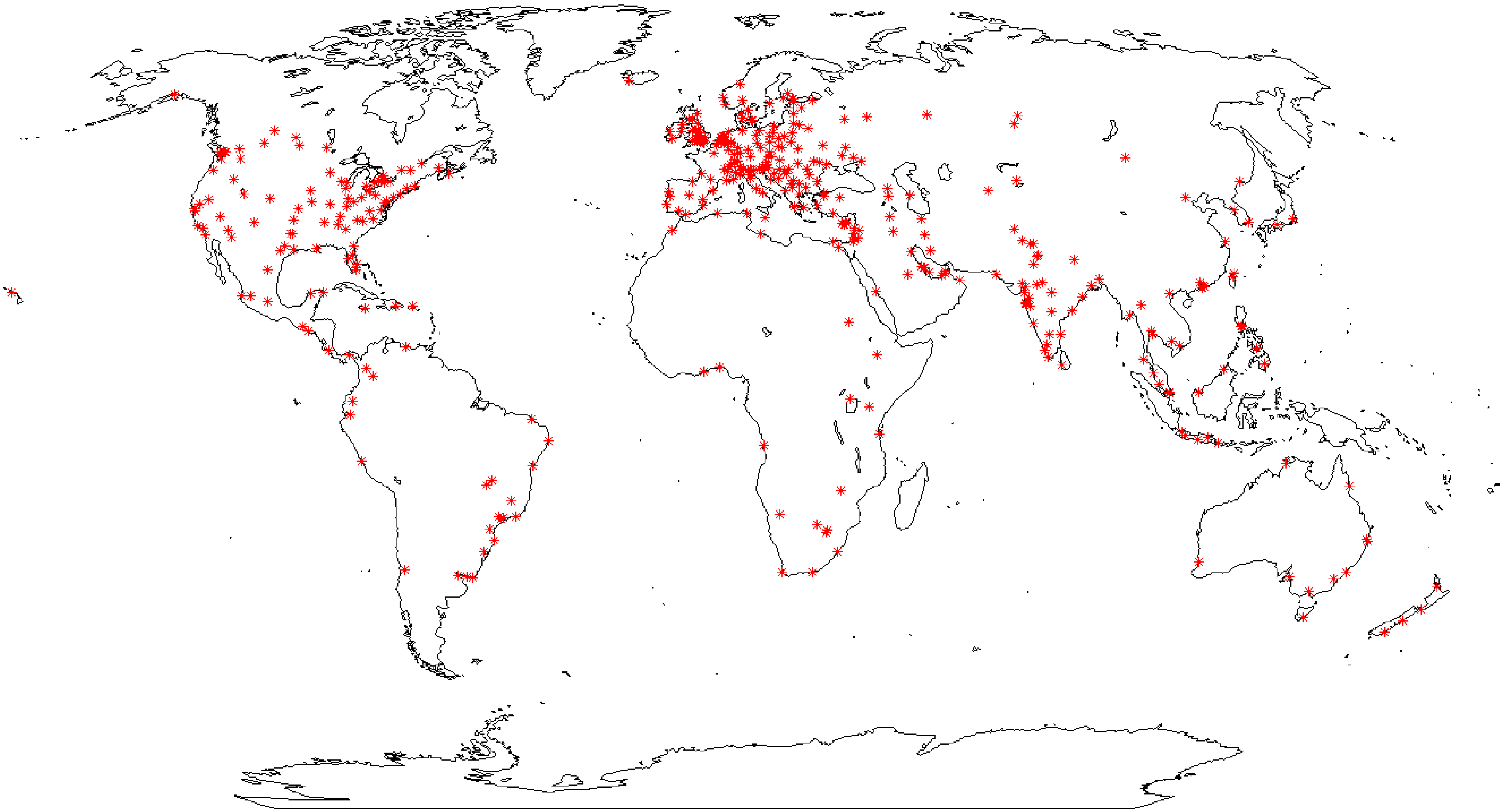
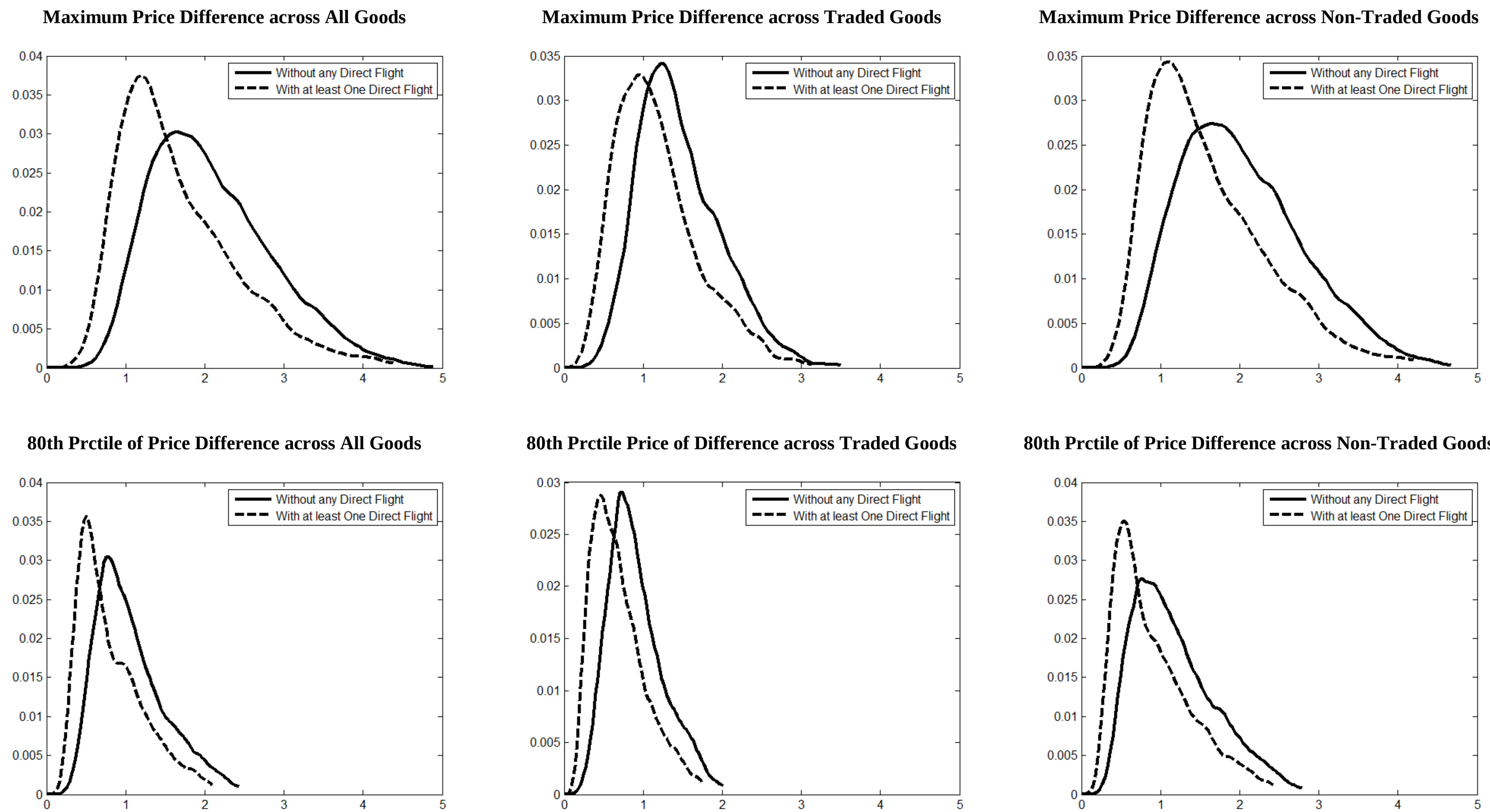
Figure 1 - Cities in the Micro Price Data



Notes: Each star represents a city in the micro price data. There are 433 cities in the sample.

Figure 2 - Kernel Density of Price Dispersion across Cities



Notes: For any given city pair and each good, the price difference is first calculated as the absolute log price difference. Afterwards, for each city pair, the maximum or the 80th percentile of these price differences are calculated across goods. City pairs with direct flights are defined as the pairs that have at least one direct flight between each other through an airport within 50 miles of the center city. The sample size is 90,785.

Table 1 - Descriptive Statistics

	All City Pairs	International City Pairs	Intranational City Pairs
Number of City Pairs in Price Data	90,785	87,346	3,439
City Pairs that have at least One Direct Flight through an Airport within 50 Miles	10,677	8,819	1,858
City Pairs that have at least One Direct Flight through an Airport within 100 Miles	17,135	14,703	2,432
Average Distance in Miles	4,551	4,692	980

Source: International city pairs are defined as the pairs that have an international border between them. Intranational city pairs are defined as the pairs that are located in the same country. The availability of the price data has been determined by considering the long-run relative prices between 2010-2014. The availability of the direct flights has been determined according to the data for 2013.

Table 2 - Effects of Having at Least One Direct Flight on the Maximum Price Difference (across All Goods) through an Airport within 50 Miles

Variables	Dependent Variable: Maximum (across All Goods) of Absolute Log Price Difference between Cities							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dummy for Having at Least One Direct Flight	-0.37*** (0.01) [0.00]	-0.09*** (0.01) [0.00]		-0.08*** (0.01) [0.00]	-0.43*** (0.01) [0.00]	-0.18*** (0.01) [0.00]		-0.14*** (0.01) [0.00]
Log Distance		0.24*** (0.00) [0.00]	0.21*** (0.00) [0.00]	0.20*** (0.00) [0.00]		0.22*** (0.00) [0.00]	0.21*** (0.00) [0.00]	0.19*** (0.00) [0.00]
Border Dummy			0.31*** (0.01) [0.00]	0.30*** (0.01) [0.00]			0.51*** (0.02) [0.00]	0.47*** (0.02) [0.00]
Distance-Equivalent Effects of Having at Least One Direct Flight in Miles		-1,498		-1,400		-2,561		-2,385
Distance-Equivalent Effects of Borders in Miles			14,817	14,907			49,206	51,555
City Fixed Effects	YES	YES	YES	YES	NO	NO	NO	NO
R-Squared	0.63	0.67	0.67	0.67	0.02	0.06	0.07	0.07

Notes: *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parenthesis and p-values are in brackets. All regressions include a constant that are not shown.

Table 3 - Effects of Having at Least One Direct Flight on the Maximum Price Difference (across Traded Goods) through an Airport within 50 Miles

Variables	Dependent Variable: Maximum (across Traded Goods) of Absolute Log Price Difference between Cities							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dummy for Having at Least One Direct Flight	-0.29*** (0.00) [0.00]	-0.06*** (0.00) [0.00]		-0.04*** (0.01) [0.00]	-0.29*** (0.01) [0.00]	-0.13*** (0.01) [0.00]		-0.09*** (0.01) [0.00]
Log Distance		0.20*** (0.00) [0.00]	0.17*** (0.00) [0.00]	0.16*** (0.00) [0.00]		0.14*** (0.00) [0.00]	0.12*** (0.00) [0.00]	0.11*** (0.00) [0.00]
Border Dummy			0.32*** (0.01) [0.00]	0.31*** (0.01) [0.00]			0.53*** (0.02) [0.00]	0.51*** (0.02) [0.00]
Distance-Equivalent Effects of Having at Least One Direct Flight in Miles		-1,207		-1,000		-2,743		-2,491
Distance-Equivalent Effects of Borders in Miles			25,339	25,870			383,948	484,132
City Fixed Effects	YES	YES	YES	YES	NO	NO	NO	NO
R-Squared	0.64	0.68	0.69	0.69	0.02	0.05	0.07	0.07

Notes: *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parenthesis and p-values are in brackets. All regressions include a constant that are not shown.

Table 4 - Effects of the Number of Direct Flights on the Maximum Price Difference (across All Goods) through an Airport within 50 Miles

Variables	Dependent Variable: Maximum (across All Goods) of Absolute Log Price Difference between Cities							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Number of Direct Flights	-0.04*** (0.00) [0.00]	-0.02*** (0.00 [0.00]		-0.01*** (0.00) [0.00]	-0.05*** (0.00) [0.00]	-0.02*** (0.00) [0.00]		-0.02*** (0.00) [0.00]
Log Distance		0.23*** (0.00) [0.00]	0.21*** (0.00) [0.00]	0.20*** (0.00) [0.00]		0.22*** (0.00) [0.00]	0.21*** (0.00) [0.00]	0.19*** (0.00) [0.00]
Border Dummy			0.31*** (0.01) [0.00]	0.29*** (0.01) [0.00]			0.51*** (0.02) [0.00]	0.46*** (0.02) [0.00]
Distance-Equivalent Effects of One Direct Flight in Miles		-305		-305		-476		-434
Distance-Equivalent Effects of Borders in Miles			14,817	14,479			49,206	46,791
City Fixed Effects	YES	YES	YES	YES	NO	NO	NO	NO
R-Squared	0.63	0.67	0.67	0.67	0.02	0.07	0.07	0.07

Notes: *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parenthesis and p-values are in brackets. All regressions include a constant that are not shown.

Table 5 - Effects of the Number of Direct Flights on the Maximum Price Difference (across Traded Goods) through an Airport within 50 Miles

Variables	Dependent Variable: Maximum (across Traded Goods) of Absolute Log Price Difference between Cities							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Number of Direct Flights	-0.03*** (0.00) [0.00]	-0.01*** (0.00 [0.00]		-0.01*** (0.00) [0.00]	-0.03*** (0.00) [0.00]	-0.02*** (0.00) [0.00]		-0.01*** (0.00) [0.00]
Log Distance		0.19*** (0.00) [0.00]	0.17*** (0.00) [0.00]	0.16*** (0.00) [0.00]		0.14*** (0.00) [0.00]	0.12*** (0.00) [0.00]	0.11*** (0.00) [0.00]
Border Dummy			0.32*** (0.01) [0.00]	0.30*** (0.01) [0.00]			0.53*** (0.01) [0.00]	0.50*** (0.01) [0.00]
Distance-Equivalent Effects of One Direct Flight in Miles		-252		-241		-561		-507
Distance-Equivalent Effects of Borders in Miles			25,339	25,563			383,948	430,132
City Fixed Effects	YES	YES	YES	YES	NO	NO	NO	NO
R-Squared	0.64	0.68	0.69	0.69	0.02	0.06	0.07	0.07

Notes: *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parenthesis and p-values are in brackets. All regressions include a constant that are not shown.

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Table A.1 - Goods in the Micro Price Data

Good Code	Goods	Traded Goods
1	Meal, Inexpensive Restaurant	0
2	Meal for 2, Mid-range Restaurant, Three-course	0
3	Combo Meal at McDonalds or Similar	0
4	Domestic Beer (0.5 liter draught)	0
5	Imported Beer (0.33 liter bottle)	1
6	Coke/Pepsi (0.33 liter bottle)	1
7	Water (0.33 liter bottle)	1
8	Milk (regular), (1 liter)	1
9	Loaf of Fresh White Bread (500g)	0
10	Eggs (12)	1
11	Local Cheese (1kg)	0
12	Water (1.5 liter bottle)	1
13	Bottle of Wine (Mid-Range)	1
14	Domestic Beer (0.5 liter bottle)	0
15	Imported Beer (0.33 liter bottle)	1
16	Pack of Cigarettes (Marlboro)	1
17	One-way Ticket (Local Transport)	0
18	Chicken Breasts (Boneless, Skinless), (1kg)	1
19	Monthly Pass (Regular Price)	0
20	Gasoline (1 liter)	1
21	Volkswagen Golf 1.4 90 KW Trendline (Or Equivalent New Car)	1
22	Apartment (1 bedroom) in City Centre	0
23	Apartment (1 bedroom) Outside of Centre	0
24	Apartment (3 bedrooms) in City Centre	0
25	Apartment (3 bedrooms) Outside of Centre	0
26	Basic (Electricity, Heating, Water, Garbage) for 85m2 Apartment	0
27	1 min. of Prepaid Mobile Tariff Local (No Discounts or Plans)	0
28	Internet (6 Mbps, Unlimited Data, Cable/ADSL)	0
29	Fitness Club, Monthly Fee for 1 Adult	0
30	Tennis Court Rent (1 Hour on Weekend)	0
31	Cinema, International Release, 1 Seat	0
32	1 Pair of Jeans (Levis 501 Or Similar)	1
33	1 Summer Dress in a Chain Store (Zara, H&M, ...)	1
34	1 Pair of Nike Shoes	1
35	1 Pair of Men Leather Shoes	1
36	Price per Square Meter to Buy Apartment in City Centre	0
37	Price per Square Meter to Buy Apartment Outside of Centre	0
38	Average Monthly Disposable Salary (After Tax)	0
39	Mortgage Interest Rate in Percentages (%), Yearly	0
40	Taxi Start (Normal Tariff)	0
41	Taxi 1km (Normal Tariff)	0
42	Taxi 1hour Waiting (Normal Tariff)	0
43	Apples (1kg)	1
44	Oranges (1kg)	1
45	Potato (1kg)	1
46	Lettuce (1 head)	1
47	Cappuccino (regular)	0
48	Rice (white), (1kg)	1
49	Tomato (1kg)	1

Notes: Traded goods take a value of 1 in the last column.

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Table A.2 - Cities in the Micro Price Data

City	City	City	City	City	City	City	City	City
Aachen, Germany	Bhopal, India	Cologne, Germany	Grenoble, France	Kota Kinabalu, Malaysia	Milton Keynes, United Kingdom	Phnom Penh, Cambodia	Sao Jose dos Campos, Brazil	Tunis, Tunisia
Aalborg, Denmark	Bhubenswar, India	Colombo, Sri Lanka	Groningen, Netherlands	Kowloon, Hong Kong	Milwaukee, WI, United States	Phoenix, AZ, United States	Sao Paulo, Brazil	Turin, Italy
Abbotsford, Canada	Bialystok, Poland	Columbus, OH, United States	Guadalajara, Mexico	Krakow (Cracow), Poland	Minneapolis, MN, United States	Phuket, Thailand	Sarajevo, Bosnia And Herzegovina	Turku, Finland
Aberdeen, United Kingdom	Bilbao, Spain	Copenhagen, Denmark	Guangzhou, China	Kuala Lumpur, Malaysia	Minsk, Belarus	Pittsburgh, PA, United States	Saskatoon, Canada	Ulaanbaatar, Mongolia
Abu Dhabi, United Arab Emirates	Birmingham, United Kingdom	Cork, Ireland	Guatemala City, Guatemala	Kuching, Malaysia	Mississauga, Canada	Plovdiv, Bulgaria	Seattle, WA, United States	Utrecht, Netherlands
Accra, Ghana	Bogota, Colombia	Coventry, United Kingdom	Guildford, United Kingdom	Kuwait City, Kuwait	Monterrey, Mexico	Port Elizabeth, South Africa	Seoul, South Korea	Vadodara, India
Ad Dammam, Saudi Arabia	Boise, ID, United States	Cuenca, Ecuador	Gurgaon, India	Lagos, Nigeria	Montevideo, Uruguay	Portland, OR, United States	Sevilla, Spain	Valencia, Spain
Addis Ababa, Ethiopia	Bologna, Italy	Curitiba, Brazil	Haifa, Israel	Lahore, Pakistan	Montreal, Canada	Porto Alegre, Brazil	Shanghai, China	Vancouver, Canada
Adelaide, Australia	Bordeaux, France	Dallas, TX, United States	Halifax, Canada	Larnaca, Cyprus	Moscow, Russia	Porto, Portugal	Sharjah, United Arab Emirates	Varna, Bulgaria
Ahmedabad, India	Boston, MA, United States	Damascus, Syria	Hamburg, Germany	Las Vegas, NV, United States	Mumbai, India	Poznan, Poland	Shenzhen, China	Venice, Italy
Akron, OH, United States	Brampton, Canada	Dar Es Salaam, Tanzania	Hamilton, Canada	Lausanne, Switzerland	Munich, Germany	Prague, Czech Republic	Shiraz, Iran	Verona, Italy
Albuquerque, NM, United States	Brasilia, Brazil	Darwin, Australia	Hanoi, Vietnam	Leeds, United Kingdom	Muscat, Oman	Pretoria, South Africa	Singapore, Singapore	Vicenza, Italy
Alexandria, Egypt	Brasov, Romania	Davao, Philippines	Harare, Zimbabwe	Leicester, United Kingdom	Nagpur, India	Pristina, Serbia	Skopje, Macedonia	Victoria, Canada
Algiers, Algeria	Bratislava, Slovakia	Delhi, India	Hartford, CT, United States	Leiden, Netherlands	Nairobi, Kenya	Puerto Vallarta, Mexico	Sliema, Malta	Vienna, Austria
Alicante, Spain	Brighton, United Kingdom	Denver, CO, United States	Helsinki, Finland	Lille, France	Nanaimo, BC, Canada	Pune, India	Sofia, Bulgaria	Vilnius, Lithuania
Almaty, Kazakhstan	Brisbane, Australia	Detroit, MI, United States	Ho Chi Minh City, Vietnam	Lima, Peru	Naples, Italy	Punta del Este, Uruguay	Split, Croatia	Visakhapatnam, India
Amman, Jordan	Bristol, United Kingdom	Dhaka, Bangladesh	Hobart, Australia	Limassol, Cyprus	Nashville, TN, United States	Quebec City, Canada	Spokane, WA, United States	Vladivostok, Russia
Amsterdam, Netherlands	Brno, Czech Republic	Dnipropetrovsk, Ukraine	Hong Kong, Hong Kong	Lisbon, Portugal	Nasik, India	Quezon City, Philippines	Stavanger, Norway	Warsaw, Poland
Anchorage, AK, United States	Brussels, Belgium	Doha, Qatar	Honolulu, HI, United States	Liverpool, United Kingdom	Navi Mumbai, India	Quito, Ecuador	Stockholm, Sweden	Washington, DC, United States
Ankara, Turkey	Bucharest, Romania	Donetsk, Ukraine	Houston, TX, United States	Ljubljana, Slovenia	New Orleans, LA, United States	Raleigh, NC, United States	Strasbourg, France	Waterloo, Canada
Antalya, Turkey	Budapest, Hungary	Dresden, Germany	Huntsville, AL, United States	Lodz, Poland	New York, NY, United States	Reading, United Kingdom	Stuttgart, Germany	Wellington, New Zealand
Antwerp, Belgium	Buenos Aires, Argentina	Dubai, United Arab Emirates	Hyderabad, India	London, Canada	Newcastle Upon Tyne, United Kingdom	Recife, Brazil	Surabaya, Indonesia	West Palm Beach, FL, United States
Arhus, Denmark	Buffalo, NY, United States	Dublin, Ireland	Iasi, Romania	London, United Kingdom	Nice, France	Regina, Canada	Surat, India	Wichita, KS, United States
Asheville, NC, United States	Bursa, Turkey	Dunedin, New Zealand	Indianapolis, IN, United States	Los Angeles, CA, United States	Nicosia, Cyprus	Reno, NV, United States	Surrey, Canada	Windhoek, Namibia
Athens, Greece	Busan, South Korea	Durban, South Africa	Indore, India	Louisville, KY, United States	Nis, Serbia	Reykjavik, Iceland	Sydney, Australia	Windsor, Canada
Atlanta, GA, United States	Bydgoszcz, Poland	Dusseldorf, Germany	Irbil, Iraq	Luanda, Angola	Nizhniy Novgorod, Russia	Richmond, VA, United States	Szczecin, Poland	Winnipeg, Canada
Auckland, New Zealand	Cairns, Australia	Edinburgh, United Kingdom	Islamabad, Pakistan	Lublin, Poland	Noida, India	Riga, Latvia	Taichung, Taiwan	Wroclaw, Poland
Austin, TX, United States	Cairo, Egypt	Edmonton, Canada	Istanbul, Turkey	Ludhiana, India	Nottingham, United Kingdom	Rijeka, Croatia	Taipei, Taiwan	Yangon, Myanmar
Baghdad, Iraq	Calgary, Canada	Eindhoven, Netherlands	Izmir, Turkey	Lugano, Switzerland	Novi Sad, Serbia	Rio De Janeiro, Brazil	Tallinn, Estonia	Yekaterinburg, Russia
Bahrain, Bahrain	Cambridge, United Kingdom	Esfahan, Iran	Jacksonville, FL, United States	Luxembourg, Luxembourg	Novosibirsk, Russia	Riyadh, Saudi Arabia	Tampa, FL, United States	Yerevan, Armenia
Baku, Azerbaijan	Campinas, Brazil	Espoo, Finland	Jaipur, India	Lviv, Ukraine	Nuremberg, Germany	Roanoke, VA, United States	Tampere, Finland	Yogyakarta, Indonesia
Bali, Indonesia	Canberra, Australia	Florence, Italy	Jakarta, Indonesia	Lyon, France	Odesa, Ukraine	Rochester, NY, United States	Tartu, Estonia	Zagreb, Croatia
Baltimore, MD, United States	Cancun, Mexico	Florianopolis, Brazil	Jeddah (Jiddah), Saudi Arabia	Macao, Macao	Oklahoma City, OK, United States	Rome, Italy	Tashkent, Uzbekistan	Zurich, Switzerland
Bandung, Indonesia	Cape Town, South Africa	Fort Lauderdale, FL, United States	Jerusalem, Israel	Madison, WI, United States	Omaha, NE, United States	Rostov-na-donu, Russia	Tbilisi, Georgia	
Bangalore, India	Caracas, Venezuela	Fort Worth, TX, United States	Johannesburg, South Africa	Madrid, Spain	Orlando, FL, United States	Rotterdam, Netherlands	Tehran, Iran	
Bangkok, Thailand	Cardiff, United Kingdom	Fortaleza, Brazil	Johor Baharu, Malaysia	Makati, Philippines	Osaka, Japan	Sacramento, CA, United States	Tel Aviv-Yafo, Israel	
Banja Luka, Bosnia And Herzegovina	Casablanca, Morocco	Frankfurt, Germany	Kampala, Uganda	Malaga, Spain	Osijek, Croatia	Saint Louis, MO, United States	Thane, India	
Barcelona, Spain	Cebu, Philippines	Fredericton, Canada	Kansas City, MO, United States	Malmo, Sweden	Oslo, Norway	Saint Petersburg, Russia	The Hague, Netherlands	
Barrie, Canada	Chandigarh, India	Gaborone, Botswana	Karachi, Pakistan	Manama, Bahrain	Ottawa, Canada	Salt Lake City, UT, United States	Thessaloniki, Greece	
Basel, Switzerland	Charlotte, NC, United States	Galway, Ireland	Kathmandu, Nepal	Manchester, United Kingdom	Oxford, United Kingdom	Salvador, Brazil	Thiruvananthapuram, India	
Beersheba, Israel	Chennai, India	Gdansk, Poland	Katowice, Poland	Manila, Philippines	Padova, Italy	San Antonio, TX, United States	Timisoara, Romania	
Beijing, China	Chiang Mai, Thailand	Geneva, Switzerland	Kaunas, Lithuania	Maribor, Slovenia	Panama City, Panama	San Diego, CA, United States	Tirana, Albania	
Beirut, Lebanon	Chicago, IL, United States	Genoa, Italy	Kelowna, Canada	Marseille, France	Paphos, Cyprus	San Francisco, CA, United States	Tokyo, Japan	
Belfast, United Kingdom	Chisinau, Moldova	Gent, Belgium	Kharkiv, Ukraine	Medellin, Colombia	Paris, France	San Jose, CA, United States	Tomsk, Russia	
Belgrade, Serbia	Christchurch, New Zealand	Glasgow, United Kingdom	Khartoum, Sudan	Melbourne, Australia	Patras, Greece	San Jose, Costa Rica	Toronto, Canada	
Belo Horizonte, Brazil	Cincinnati, OH, United States	Goa, India	Kiev, Ukraine	Memphis, TN, United States	Pattaya, Thailand	San Juan, Puerto Rico	Toulouse, France	
Bergamo, Italy	Cleveland, OH, United States	Goiania, Brazil	Kingston, Jamaica	Merida, Mexico	Penang, Malaysia	San Salvador, El Salvador	Trieste, Italy	
Bergen, Norway	Cluj-napoca, Romania	Gold Coast, Australia	Kitchener, Canada	Mexico City, Mexico	Perth, Australia	Santa Barbara, CA, United States	Tripoli, Libya	
Berlin, Germany	Coimbatore, India	Gothenburg, Sweden	Kochi, India	Miami, FL, United States	Petaling Jaya, Malaysia	Santiago, Chile	Trondheim, Norway	
Bern, Switzerland	Coimbra, Portugal	Graz, Austria	Kolkata, India	Milan, Italy	Philadelphia, PA, United States	Santo Domingo, Dominican Republic	Tucson, AZ, United States	

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Table A.3-Effects of Having at Least One Direct Flight on the Maximum Price Difference (across NonTraded Goods) through an Airport within 50 Miles

Variables	Dependent Variable: Maximum (across Non-Traded Goods) of Absolute Log Price Difference between Cities							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dummy for Having at Least One Direct Flight	-0.37*** (0.01) [0.00]	-0.09*** (0.01) [0.00]		-0.07*** (0.01) [0.00]	-0.43*** (0.01) [0.00]	-0.16*** (0.01) [0.00]		-0.13*** (0.01) [0.00]
Log Distance		0.24*** (0.00) [0.00]	0.21*** (0.00) [0.00]	0.20*** (0.00) [0.00]		0.23*** (0.00) [0.00]	0.22*** (0.00) [0.00]	0.21*** (0.00) [0.00]
Border Dummy			0.31*** (0.01) [0.00]	0.30*** (0.01) [0.00]			0.46*** (0.02) [0.00]	0.43*** (0.02) [0.00]
Distance-Equivalent Effects of Having at Least One Direct Flight in Miles		-1,404		-1,286		-2,280		-2,076
Distance-Equivalent Effects of Borders in Miles			15,112	15,208			30,968	31,164
City Fixed Effects	YES	YES	YES	YES	NO	NO	NO	NO
R-Squared	0.57	0.61	0.61	0.61	0.02	0.08	0.08	0.09

Notes: *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parenthesis and p-values are in brackets. All regressions include a constant that are not shown.

Online Appendix (Not For Publication)

Table A.4- Effects of the Number of Direct Flights on the Maximum Price Difference (across NonTraded Goods) through an Airport within 50 Miles

Variables	Dependent Variable: Maximum (across Non-Traded Goods) of Absolute Log Price Difference between Cities							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Number of Direct Flights	-0.04***	-0.02***		-0.01***	-0.05***	-0.02***		-0.02***
	(0.00)	(0.00		(0.00)	(0.00)	(0.00)		(0.00)
	[0.00]	[0.00]		[0.00]	[0.00]	[0.00]		[0.00]
Log Distance		0.23***	0.21***	0.20***		0.23***	0.22***	0.21***
		(0.00)	(0.00)	(0.00)		(0.00)	(0.00)	(0.00)
		[0.00]	[0.00]	[0.00]		[0.00]	[0.00]	[0.00]
Border Dummy			0.31***	0.29***			0.46***	0.41***
			(0.01)	(0.01)			(0.02)	(0.02)
			[0.00]	[0.00]			[0.00]	[0.00]
Distance-Equivalent Effects of One Direct Flight in Miles		-317		-319		-429		-388
Distance-Equivalent Effects of Borders in Miles			15,112	14,771			30,968	28,660
City Fixed Effects	YES	YES	YES	YES	NO	NO	NO	NO
R-Squared	0.57	0.61	0.61	0.61	0.02	0.08	0.08	0.09

Notes: *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parenthesis and p-values are in brackets. All regressions include a constant that are not shown.

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Table A.5 - Effects of Having at Least One Direct Flight on the Second Maximum Price Difference (across All Goods) through an Airport within 50 Miles

Variables	Dependent Variable: Second Maximum (across All Goods) of Absolute Log Price Difference between Cities							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dummy for Having at Least One Direct Flight	-0.36*** (0.01) [0.00]	-0.09*** (0.01) [0.00]		-0.07*** (0.01) [0.00]	-0.40*** (0.01) [0.00]	-0.16*** (0.01) [0.00]		-0.12*** (0.01) [0.00]
Log Distance		0.23*** (0.00) [0.00]	0.20*** (0.00) [0.00]	0.19*** (0.00) [0.00]		0.20*** (0.00) [0.00]	0.19*** (0.00) [0.00]	0.17*** (0.00) [0.00]
Border Dummy			0.33*** (0.01) [0.00]	0.32*** (0.01) [0.00]			0.51*** (0.01) [0.00]	0.48*** (0.01) [0.00]
Distance-Equivalent Effects of Having at Least One Direct Flight in Miles		-1,505		-1,395		-2,488		-2,273
Distance-Equivalent Effects of Borders in Miles			18,672	18,989			63,513	67,651
City Fixed Effects	YES	YES	YES	YES	NO	NO	NO	NO
R-Squared	0.56	0.60	0.61	0.61	0.03	0.09	0.10	0.10

Notes: *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parenthesis and p-values are in brackets. All regressions include a constant that are not shown.

Online Appendix (Not For Publication)

Table A.6 - Effects of the Number of Direct Flights on the Second Maximum Price Difference (across All Goods) through an Airport within 50 Miles

Variables	Dependent Variable: Second Maximum (across All Goods) of Absolute Log Price Difference between Cities							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Number of Direct Flights	-0.04***	-0.02***		-0.01***	-0.05***	-0.02***		-0.02***
	(0.00)	(0.00		(0.00)	(0.00)	(0.00)		(0.00)
	[0.00]	[0.00]		[0.00]	[0.00]	[0.00]		[0.00]
Log Distance		0.22***	0.20***	0.19***		0.21***	0.19***	0.18***
		(0.00)	(0.00)	(0.00)		(0.00)	(0.00)	(0.00)
		[0.00]	[0.00]	[0.00]		[0.00]	[0.00]	[0.00]
Border Dummy			0.33***	0.31***			0.51***	0.47***
			(0.01)	(0.01)			(0.01)	(0.01)
			[0.00]	[0.00]			[0.00]	[0.00]
Distance-Equivalent Effects of One Direct Flight in Miles		-315		-316		-466		-418
Distance-Equivalent Effects of Borders in Miles			18,672	18,521			63,513	61,633
City Fixed Effects	YES	YES	YES	YES	NO	NO	NO	NO
R-Squared	0.56	0.60	0.61	0.61	0.03	0.09	0.10	0.10

Notes: *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parenthesis and p-values are in brackets. All regressions include a constant that are not shown.

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Table A.7 - Effects of Having at Least One Direct Flight on the 80th Percentile of Price Difference (across All Goods) through an Airport within 50 Miles

Variables	Dependent Variable: 80th Percentile (across All Goods) of Absolute Log Price Difference between Cities							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dummy for Having at Least One Direct Flight	-0.25*** (0.00) [0.00]	-0.04*** (0.00) [0.00]		-0.07*** (0.00) [0.00]	-0.25*** (0.00) [0.00]	-0.10*** (0.00) [0.00]		-0.06*** (0.00) [0.00]
Log Distance		0.17*** (0.00) [0.00]	0.15*** (0.00) [0.00]	0.14*** (0.00) [0.00]		0.13*** (0.00) [0.00]	0.11*** (0.00) [0.00]	0.11*** (0.00) [0.00]
Border Dummy			0.29*** (0.01) [0.00]	0.29*** (0.01) [0.00]			0.43*** (0.01) [0.00]	0.42*** (0.01) [0.00]
Distance-Equivalent Effects of Having at Least One Direct Flight in Miles		-1,001		-714		-2,387		-2,024
Distance-Equivalent Effects of Borders in Miles			29,621	30,144			211,128	241,002
City Fixed Effects	YES	YES	YES	YES	NO	NO	NO	NO
R-Squared	0.43	0.50	0.51	0.51	0.03	0.09	0.12	0.12

Notes: *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parenthesis and p-values are in brackets. All regressions include a constant that are not shown.

Online Appendix (Not For Publication)

Table A.8 - Effects of the Number of Direct Flights on the 80th Percentile of Price Difference (across All Goods) through an Airport within 50 Miles

Variables	Dependent Variable: 80th Percentile (across All Goods) of Absolute Log Price Difference between Cities							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Number of Direct Flights	-0.03*** (0.00) [0.00]	-0.01*** (0.00 [0.00]		-0.01*** (0.00) [0.00]	-0.03*** (0.00) [0.00]	-0.01*** (0.00) [0.00]		-0.01*** (0.00) [0.00]
Log Distance		0.17*** (0.00) [0.00]	0.15*** (0.00) [0.00]	0.14*** (0.00) [0.00]		0.13*** (0.00) [0.00]	0.11*** (0.00) [0.00]	0.11*** (0.00) [0.00]
Border Dummy			0.29*** (0.01) [0.00]	0.28*** (0.01) [0.00]			0.43*** (0.01) [0.00]	0.41*** (0.01) [0.00]
Distance-Equivalent Effects of One Direct Flight in Miles		-290		-287		-484		-418
Distance-Equivalent Effects of Borders in Miles			29,621	30,198			211,128	222,461
City Fixed Effects	YES	YES	YES	YES	NO	NO	NO	NO
R-Squared	0.43	0.50	0.51	0.51	0.03	0.10	0.12	0.12

Notes: *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parenthesis and p-values are in brackets. All regressions include a constant that are not shown.

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Table A.9 - Effects of Having at Least One Direct Flight on the Maximum Price Difference (across All Goods) through an Airport within 100 Miles

Variables	Dependent Variable: Maximum (across All Goods) of Absolute Log Price Difference between Cities							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dummy for Having at Least One Direct Flight	-0.36*** (0.01) [0.00]	-0.08*** (0.01) [0.00]		-0.07*** (0.01) [0.00]	-0.42*** (0.01) [0.00]	-0.18*** (0.01) [0.00]		-0.15*** (0.01) [0.00]
Log Distance		0.23*** (0.00) [0.00]	0.21*** (0.00) [0.00]	0.20*** (0.00) [0.00]		0.21*** (0.00) [0.00]	0.21*** (0.00) [0.00]	0.18*** (0.00) [0.00]
Border Dummy			0.31*** (0.01) [0.00]	0.30*** (0.01) [0.00]			0.51*** (0.02) [0.00]	0.48*** (0.02) [0.00]
Distance-Equivalent Effects of Having at Least One Direct Flight in Miles		-1,318		-1,258		-2,642		-2,623
Distance-Equivalent Effects of Borders in Miles			14,817	15,481			49,206	62,572
City Fixed Effects	YES	YES	YES	YES	NO	NO	NO	NO
R-Squared	0.64	0.67	0.67	0.67	0.03	0.07	0.07	0.07

Notes: *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parenthesis and p-values are in brackets. All regressions include a constant that are not shown.

Online Appendix (Not For Publication)

Table A.10 - Effects of Having at Least One Direct Flight on the Maximum Price Difference (across All Goods) through an Airport within 100 Miles

Variables	Dependent Variable: Maximum (across All Goods) of Absolute Log Price Difference between Cities							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Number of Direct Flights	-0.02*** (0.00) [0.00]	-0.01*** (0.00 [0.00]		-0.01*** (0.00) [0.00]	-0.03*** (0.00) [0.00]	-0.01*** (0.00) [0.00]		-0.01*** (0.00) [0.00]
Log Distance		0.23*** (0.00) [0.00]	0.21*** (0.00) [0.00]	0.20*** (0.00) [0.00]		0.21*** (0.00) [0.00]	0.21*** (0.00) [0.00]	0.18*** (0.00) [0.00]
Border Dummy			0.31*** (0.01) [0.00]	0.28*** (0.01) [0.00]			0.51*** (0.02) [0.00]	0.44*** (0.02) [0.00]
Distance-Equivalent Effects of One Direct Flight in Miles		-155		-147		-286		-260
Distance-Equivalent Effects of Borders in Miles			14,817	13,848			49,206	46,425
City Fixed Effects	YES	YES	YES	YES	NO	NO	NO	NO
R-Squared	0.64	0.67	0.67	0.67	0.03	0.07	0.07	0.08

Notes: *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parenthesis and p-values are in brackets. All regressions include a constant that are not shown.