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Economics of Transportation

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ABSTRACT

This paper offers an empirical investigation of the relationship between air transport service and trade, using a panel of 20 Italian regions and 24 European countries observed, half-yearly, over the period 1998–2010. We apply a Newey-West two-step GMM estimator to produce estimates which are robust to the presence of heteroskedasticity and autocorrelation. Our findings suggest that air transport service positively affects the export of Italian manufacturers and that full-service carriers are mainly responsible for this result.

1. Introduction

Transport economic theory states that air business trips should be taken only if some form of return can be expected (Button, 2010).¹ Based on this line of reasoning, an increasing body of literature has been devoted to provide some explanations of the beneficial role of business air trips, and, in particular, of their positive impact on the creation of new trade opportunities (Rauch, 2001; Cristea, 2011). Provided that air trips are usually the most efficient way to travel for reasonably long distances, we expect a businessman to take a flight when the activity at the point of destination may expand sales in such a way to justify the (opportunity) cost of the trip sustained by his company.²

Authors agree that the importance of a meeting with a business partner depends on the nature of the interaction, and in particular on the importance of face-to-face communication. A set of complementary explanations has been offered to clarify the role of face-to-face communication, including the fact that it allows complex business relationships to be managed more effectively (Saxenian, 1999); they favor the cultivation of trust among business partners (Storper and

Venables, 2004); and they facilitate the transfer of knowledge (Hovhannisyan and Keller, 2015). Once the benefits of direct communication have been established, those of air trips, and therefore of air accessibility, immediately follow (Frankel, 1998; Rauch, 1999; Kulendran and Wilson, 2000; Frankel and Rose, 2002).

Within Europe, air accessibility is strongly affected by the existence of non-stop flights, as they allow businessmen to reach any destination within two or three hours, so that a business trip can be completed within a day, or the journey time component can be reduced considerably in the case of a short stay. The availability of a non-stop flight may also affect the decision of a businessman to visit a place and, more generally, may influence the travel choice among a set of possible destinations (Grosche et al., 2007).

Our work contributes to the field by analyzing the impact of non-stop air connections on the export of the Italian manufacturers in Europe by using a panel data approach. One of the major novelties of this paper is the organization of the data. Since our variable of interest (flight frequencies) usually changes twice a year, we combine (quarterly) export data on a half-yearly basis i.e., the second and third quarters of a given year are associated to the summer season and the

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¹ For example, Gronau (1970) pointed out that the demand for air transport services is a derived demand, which depends “on the direct utility [the demand for air trips] yield and their contribution to the production of a third activity - a visit to the point of destination.” (p. 13).

² For a review of the methods of evaluating business time saving see Wardman et al. (2015).

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first quarter of the same year and the last quarters of the previous year to the winter season. Moreover, we trace the performance of Italian manufacturers by using regional exports towards the main European countries. Thus, we conduct the analysis at country-region pair, while most of previous papers focused on aggregated data at regional or country level.³

In addition to this, our analysis relies on a measure of air accessibility (number of non-stop flights), while previous contributions have employed business travel statistics (Poole, 2013). This measure of flight connectivity allows us to estimate the export growth generated by an increase of the flight offer.

Finally, in light of the mounting importance of the competition between low-cost carriers (LCCs) and full-service carriers (FSCs), we also investigate the different impacts on exports induced by these two types of airlines. As it is amply documented, LCCs, even if with some differences, adopt a strictly cost-saving business model that implies a flight offer normally from secondary airports, low flight frequencies, strict baggage restrictions, limited seat space (Mason, 2000; Bilotkach et al., 2010).⁴ All these aspects make the use of LCCs probably less appealing to businessmen, suggesting that if air traveling favors trade, the implied boost to exports induced by FSCs should be stronger relatively to LCCs.⁵

Data on flight supply, exports and various controls are combined to obtain a fully-balanced panel of 12,000 observations, i.e. 20 regions, 24 countries, over 25 semesters. Econometric techniques are employed to estimate a gravity model. We account for the multilateral trade resistance (Anderson and van Wincoop, 2003), country-time and region-time fixed effects (Balazsi et al., 2015), endogeneity and serial correlation (Wooldridge, 2010). As additional robustness check, we run the estimates using the Poisson pseudo-maximum likelihood estimator (Santos Silva and Tenreiro, 2006).

Our findings confirm a positive effect of non-stop flights on exports, suggesting that face-to-face relations have a positive impact on international sales. Moreover, as expected, the supply of direct air connections provided by FSCs has a positive and significant impact on exports, whilst a weaker impact is found for LCCs.

The rest of the paper is organized as follows. The next section reviews the related literature, while Section 3 offers a background explanation of the Italian air transport and manufacturing sectors. The empirical analysis is conducted in Section 4 (methodology, data, variable description, results, and robustness checks). Concluding remarks are presented in Section 5.

2. Literature review

The branch of literature closest to our work analyzes the role of air travel as a channel to favor international trade. Some contributions

³ A notable exception is Fageda (2017), who examines one Spanish region and pairs it with all the countries of the main economies in the world. Our paper takes a step forward by considering more than one region.

⁴ In many cases, secondary airports are located at a remote distance from the effective destination. For example, the main airport of Barcelona (El Prat), served by FSCs, is located at less than 15km from the city center, while the secondary airport (Girona), served by most of the LCCs, is much further away at 90km. Moreover, the LCC point-to-point strategy combines a sparse flight frequency with a large set of destinations. Thus, it is not rare that, for several routes, LCCs do not provide daily service. Other factors that may reduce the appeal of LCCs to businessmen, making the travel experience rather unpleasant and, more generally, hamper in-flight work, are: strict baggage restrictions, and limited seat space.

⁵ The period of our analysis spans from 1998 to 2010, when the share of business passengers traveling with LCCs was quite limited. According to the chief marketing officer of Ryanair, business people became relevant for the company only in 2014, when their share of the total number of passengers was estimated to be about 22%. Similar figures can be drawn from easyJet, the other major European LCC. Indeed, business travelers have been given more attention by easyJet and Ryanair only in very recent years, when both airlines started to offer also a flexible fare or other add-ons (e.g. priority boarding) to their tickets to meet the needs of business travelers.

identify a positive effect. Frankel (1997) focuses on export of high-tech capital goods from the United States. He argues that international (i.e. air) travel can affect the success of exports, as it implies a more committed and accurate pre-sale activity by the firm in the foreign country.

Poole (2013) underlines the importance of business and social networks in generating trade. She studies how face-to-face communication generated by traveling for business reasons can facilitate international trade between countries. Using information related to passengers traveling abroad from the US during the period 1993–2003, she finds that a higher share of business travelers in total passenger travel purposes has a positive impact on exports. Further, she points out that this effect is stronger in the case of high-skilled travelers (i.e., those people in professional and managerial occupations), and in the case of differentiated products.

An opposite conclusion is reached by Head and Ries (2010), who investigate whether regular trade missions conducted by Canadian officers generate new business deals. After controlling for country-pair fixed effects, they find that trade missions have small, negative, and mainly insignificant effects.

Another stream of literature investigates the demand for air travel generated by business activities. Cristea (2011), using US data at state level over the period 1998–2003, finds that an increase in the volume of exports raises the demand for business class air travel. Moreover, her work highlights that export composition has a positive impact on air travel demand. Aguilera (2003) concludes that the need to coordinate the planning and production processes with international customers is one of the main explanations of firm location in the neighborhood of an airport. Bel and Fageda (2008) find that air connectivity is a relevant factor driving foreign firms' location choices. Similarly, Brueckner (2003) argues that frequent air service to a variety of destinations favors the location of new firms in the US Metropolitan Areas. Bilotkach (2015) looks at the relationship between air travel and regional economic development using US data for the period 1993–2009. He observes a higher level of employment, a larger number of business establishments, and higher average wages in regions served by non-stop flights. In addition, Strauss-Kahn and Vives (2009) show that headquarters tend to be located in US Metropolitan Areas with adequate airport facilities, and Williams and Balaz (2009) provide some evidence in favor of a positive impact of LCCs on the flow of knowledge and investments.

Other works, even if not concerned directly with the link between air travel and export volumes, underline the role of infrastructure in the development, internationalization, and innovation of a country. Ashauer (1989) and Morrison and Schwartz (1996) find that investment in infrastructure provides a significant return to manufacturers, and augments productivity growth. With respect to the airline industry, Rosenthal and Strange (2001), Brueckner (2003), Graham (2003) reach the conclusion that a better airline accessibility of a given site, measured by the supply of airline routes, increases firms' productivity and employment. Furthermore, Ahn et al. (2011), Bernard et al. (2011) show that improved access to airports contributes to reduce the costs of small and medium-sized enterprises by facilitating a direct connection to the export market.

Blonigen and Cristea (2015) examine the contribution of passenger aviation to regional development and urban growth, exploiting the unexpected market changes induced by the US 1978 airline deregulation. They find that the increase in air passenger transport goes along with an increase in population, per-capita income, and employment. Similar conclusions are reached by Green (2007), who points out that airport activities help predicting population and employment growth in the US metropolitan area of the infrastructure. His results are robust to various measures of airport activities, comprising boarding, hub status and cargo volume. Sheard (2014) studies the link between airport growth and the development of different industries using US data at metropolitan area level. He concludes that there is a positive effect of

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