International Tourism's Impact on Regional Autonomy: Evidence from 2004 EU Accession Countries

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Abstract

The relationship between increased tourism and increasing regional autonomy is quite nuanced and understudied. This paper hypothesizes that only an increase in both regional air traffic and in international tourism will impact the level of regional autonomy. Using the period after ten countries were admitted to the European Union in 2004 as an example of a dramatic tourism increase, the paper finds that countries with increased tourism, but without regional airports, did not experience a sudden increase in their regional autonomy. In Poland, however, the large number of growing regional airports and increased tourism did provoke regions to argue with the central government for more regional autonomy. These findings contribute to a better understanding of how international interventions impact regional decentralization preferences.

Keywords: regional autonomy, decentralization, Poland, European Union, air travel, low cost carriers.

(8000 words)

Introduction

Studies of regional autonomy movements have long focused on both regional identity and regional economy as the two main factors that influence citizen and elite preferences for decentralization. Starting with Collier and Hoeffler (2004), models of regional autonomy movements, including complete separatism and civil wars, have shifted to focus on the economic causes of decentralization. Clearly, the health of or the regional perception of the health of the regional economy plays an important role in determining whether the region prefers to decentralize (Herrera, 2005). Beramendi (2014) presents a model specifying elite and citizen preferences for decentralization in resource rich and poor regions and regions with high or low income inequality. People within regions that can personally benefit from decentralization will opt to do so; elites prefer decentralization when they can redistribute less of their income, and citizens prefer decentralization when it helps maximize their welfare and redistributive income.

Apart from a study of the impact statistical or imagined economies have on regional preferences for decentralization, other exogenous factors that influence the health of regional economies have not been thoroughly considered (Herrera, 2005). Malesky (2008) studies the exogenous shock that comes with a regional influx in Foreign Direct Investment (FDI), finding that FDI causes regional leaders to violate governing norms and push for regional autonomy. This paper considers another exogenous shock: an increase in international tourism and its impact on demands for regional autonomy by local government leaders. International tourism, especially an increase in air service, conclusively prompts sudden economic growth. This economic growth, when regionally distributed, causes regional governments to gain increased leverage for demanding more regional autonomy from the central government.

To isolate an instance where international tourism suddenly increased, this study examines the

ten European states admitted to the European Union (EU) in 2004. A few years after joining the EU, international tourism, both in terms of non-resident passenger air travel and non-resident hotel stays (among other measures), increased dramatically in several of these countries. A regression discontinuity design isolates the impact of this tourism boom. Tourism has a significant impact on regional autonomy in certain types of countries. Poland, because of its large size and underdeveloped regional airport infrastructure, experienced significant growth in regional autonomy (measured in gross value added (GVA) of local government) in the period immediately following a surge in low-cost carrier (LCC) flights to regional airports. Other countries, due to their single hub airport, experienced increases in tourism, but not commensurate changes in regional autonomy. Thus, international tourism is an important contributor to decentralization in countries where regional airports can profitably exist.

This article proceeds by briefly reviewing literature on the impact of tourism on economic growth, especially focusing on the development of airports, before presenting the causal chain linking tourism to regional autonomy. Next, it discusses the regression discontinuity design of this study and the EU case employed. Finally, it presents the results of the study and focuses on Poland as an example of the mechanisms underlying international tourism that boost regional autonomy, before concluding with thoughts for future research in this field.

Literature Review and Theory

International tourism is often overlooked in political science, yet it impacts economic development and, thus, regional autonomy (Richter, 1983; Kosters, 1984; Matthews and Richter, 1991). The relationship between increased tourism and increased economic development has been conclusively established in various regions of the world using many different mechanisms (Eugenio-Martin et al., 2004; Fayissa et al., 2008; Ghali, 1976; Sequeira and Macas Nunes, 2008). Further, regional tourism specifically improves regional economic conditions as well as national economic conditions (Shone, 2013). This is not to say that tourism has a costless positive impact on local economies. Wong (1996) finds that local government reliance on tourism does incur infrastructure and government spending costs in order to provide the services necessary for tourists to visit.

Since it seems clear that tourism has a net positive impact on national and regional economies, these improved economies can be easily linked to calls for regional autonomy. Ignoring regional autonomy movements based only on cultural or ethnic factors, desiring autonomy for economic reasons is well documented (Fearon and Van Houten, 2002; Tierney, 2005; Giuliano, 2006). Thus, simple improvements in the economic well-being of a region via the mechanism of increased international tourism can lead to calls for decentralization.

Tourism often brings with it airport expansions in order to serve an increased number of international passengers. Whether tourists discover new holiday locations and air service expands as a result of demand or whether air carriers establish routes and tourists seize on low fares for vacations is an open question. Regardless, regional development is further heightened when international tourism is combined with expanding air service. Clearly, major hub airports are key components of the economies of major cities, but regional airports can be just as critical in developing the economy of smaller cities and regions, which are more prone to demand regional autonomy (Green, 2007; Brueckner, 2003; Cooper, 1990; Blonigen and Cristea, 2015). Making the same connection as was apparent between tourism and economic growth and regional autonomy demands, increases in regional air service or the opening of new airports can similarly impact local economies such that regional autonomy becomes desirable.

Some literature finds a direct link between tourism and regional autonomy. One interesting perspective is that tourism makes local governments beholden to international factors for their economic success, therefore reducing autonomy (Shone, 2013, 57). In the sense that local governments now must pay additional attention to the international tourism market, Shone (2013) is correct. Recall, though, that prior to the influx of tourism, local governments relied on the central government for interacting with international markets. Thus, in this respect, local governments decentralize from the central government when tourism increases even if they simultaneously become more dependent on international forces (Shone, 2013, 146, 194).

Cohen (1984) reinforces this point by describing a new, within-state order where power devolves from the central government to local tourist hubs, granting local and regional leaders more power and authority in directing their region and making demands of the state. Several case studies confirm this relationship (Greenwood, 1972, 85-86; Nunez, 1963, 351; Yuksel et al., 2005, 878).

By either a direct mechanism or through an improved local economy, tourism should have an impact on demands for regional autonomy. This study contributes to the literature by directly testing the impact of tourism on regional fiscal autonomy using a period of rapid tourism growth in selected European countries after 2004.

Case Description

This study employs a regression discontinuity design centered around countries that joined the EU in 2004. This section describes the history of these nations around 2004 and the subsequent development of tourism, focusing on the explosion of LCC airline routes. Through this investigation, it isolates regional airports as a key mechanism through which tourism increases in

specific regions, leading regional elites to demand more autonomy. The introduction of a LCC into a country was important because it strengthened or established regional air service. Countries lacking regional airports still saw the development of LCCs at existing hub airports, but the increasing strength of regional airports is what drives the relationship between tourism and regional autonomy.

Joining the EU

Prior to their 2004 accession into the EU, tourism growth in these countries, in terms of both nonresident hotel nights and international air travel, was unremarkable.¹ It was relatively difficult for tourists to access these countries both because of border restrictions as a function of not being part of the EU and because of poor air transport and tourism infrastructure. Between 2004 and 2007, these countries were part of the EU, but not part of the Schengen Area, meaning that travel restrictions were relaxed, but tourists still had to carry a passport to cross the border into Schengen countries. In 2007, all ten new EU members were admitted to the Schengen Area, eliminating the need for a passport to travel between these countries and other Schengen Area members.

Development of Tourism and LCCs Post-2004

Though it may seem that extending the Schengen Area would represent an arbitrary increase in the level of tourism into the new EU countries, this study does not find evidence for that trend. Instead, the factor driving tourism increases during the post-2004 period is the introduction of low cost carrier (LCC) airline routes to and from airports in new EU member countries. It is the introduction of these routes that provides the exogenous increases in tourism that can be used to measure regional autonomy before and after flights increase.

The LCC air travel market in Europe developed as a response to the success of Texas (USA) based Southwest Airlines, beginning in the 1980s (Diaconu, 2012, 342). Europe underwent airport deregulation in the early 2000s that allowed LCCs like Ryanair to establish new airline routes quickly and to provide air service to secondary airports (Button, 2012, 199). During this time, the air travel market in Eastern Europe was virtually untapped. National flag carrier airlines and other mainline carriers made up most of the airline traffic between smaller Eastern European airports and major hub airports in Western Europe (Alamdari and Fagan, 2005, 379). However, LCCs began introducing flights between Eastern European airports and secondary Western European airports as well as popular Southern European tourist destinations shortly after these countries joined the EU in 2004 (Button, 2012, 205). Flights were introduced at different times for different countries, and LCCs utilized different types of airport infrastructure depending on what was available (Kawasaki and Lin, 2013). This variation results in exogenous spikes in air travel at different times in countries with regional airports. Countries without regional airports can be used to determine any impact of increased air travel and tourism on regional autonomy.

Budd et al. (2014) provide a good overview of the market entry and exit of European LCCs and also classify these airlines by type. Forty percent of LCCs operated under a model that emphasized copying the low cost practices of Southwest, some of which are described below. Thirty-five percent branched off from charter service to add scheduled airline service on the side, and twenty-three percent were LCCs established by mainline carriers to compete in the low cost market. These latter two categories of carriers typically did not adhere to some of the principles of Southwest based LCCs: most notably they did not universally prefer to fly into regional airports and often did not negotiate landing fees as hard as the Southwest imitators. Of the forty-three LCCs that entered the European market between 1992 and 2012, only ten of these airlines remain in operation. The surviving carriers are: Ryanair, easyJet, Wizz Air, WOW, Air Berlin, Germanwings, Jet2, Norwegian, Transavia, and Vueling, though the latter six have diversified away from the LCC business model in some ways (Budd et al., 2014, 8; Klophaus et al., 2012, 57).

In terms of market leadership, Ryanair is ranked as the largest airline in Europe, ahead of the Lufthansa Group, International Airlines Group (mostly British Airways and Aer Lingus), and Air France-KLM. EasyJet is the fifth largest carrier in Europe, Norwegian Air Shuttle is ninth, Air Berlin is tenth, and Wizz Air is thirteenth (Dobruszkes, 2013, 78). Other LCCs carry fewer than 10 million passengers per year. Generally, the successful LCCs were founded in what Budd et. al (2014) call the "Pioneer" period between 1985 and 1998. Only Wizz Air was founded later, in 2004.

The LCC Business Model

Since LCCs operate on a somewhat different business model than mainline carriers, it is important to consider unique characteristics of LCCs. Some of these characteristics help explain how and why LCCs are more apt to influence regional autonomy than mainline carriers, though both increase tourism.

The main way to distinguish a low cost carrier from a traditional carrier is by examining their costs per seat per mile (De Neufville, 2008, 43). Mainline carriers spend around \$0.18 per seat per mile, while low cost carriers spend only \$0.12. How do LCCs reduce costs so dramatically when, obviously, mainline carriers desire to spend the least amount possible as well?

Secondary Airports

LCCs keep costs low by flying to and from so-called "secondary airports." These airports are either

less heavily trafficked airports in a major city (e.g. London Stansted) or they are regional airports (e.g. Dortmund, Germany). The former type of airport is usually used as a hub to connect with regional airports. In using this strategy, LCCs reduce idle aircraft time waiting at gates, taxiing, or being delayed, because air traffic is low at these airports (Gillen and Lall, 2004, 42). There are also typically never any delays for incoming planes that are late nor are there any stranded passengers to be accommodated because LCCs do not allow booking a trip that involves changing planes. LCCs can also adjust their flight schedules without worrying about slot space as they would have to in a major international airport (Acar and Karabulak, 2015, 645). Using regional airports means that specific regions get an influx of passengers and tourists when a new LCC route is introduced. In this way, tourism is targeted at a specific region, implying that this region may seek greater regional autonomy because of its strong tourist base.

Incentives and Abandonment

Because LCCs are introducing flights to relatively unknown airports, they have more power to negotiate costs charged by the airport for using its facilities. Regional airports are reliant on only a few LCCs to generate all of their air traffic. There are sometimes a number of seasonal or charter airline services already existing at these airports when a major LCC begins operations, but these airlines typically only serve a few thousand passengers per year. Should a LCC leave a regional airport due to an unprofitable route, the regional airport cannot easily replace that carrier, since the carrier introduced service that had previously not existed. There is little incentive for a mainline carrier to pick up the route because they could not attract enough passengers to fill planes due to their higher costs per mile. Other LCCs are also unlikely to be interested because if the route was costly for one LCC, another LCC would likely face these same cost challenges. This means that

LCCs are in a particularly strong position to demand incentives from regional airports for the carrier to begin operation, to keep flight routes, and not to abandon the airport altogether (De Neufville, 2008).

Regional airports have been documented giving large incentives to LCCs to attract operations to their airports or to continue operations (Barbot, 2004). Malina et al. (2011) show that incentives include discounts on start-up or landing charges, agreeing to pay for airline marketing or promotions, and bonus payments from the airport to the airline for strong route performance. A late 2008 decision in European Union court eliminated previous restrictions on regional governments who owned regional airports from offering incentives to attract LCC carriers like Ryanair. This is a major reason why LCC traffic at regional airports increased dramatically, starting in 2009 in those countries with regional airports (Barbot, 2004).

LCC customers choose to fly with these carriers because of their low prices. Thus, passengers are not wedded to flying out of a particular airport. LCCs can abandon one regional airport for another one relatively close by and not worry about losing customers if the first airport has higher fees than another airport. Regional airports, therefore, are basically at the mercy of the LCC to keep their service, since without LCC service, the airport will lose most of its air traffic, and tourism to the region will dramatically decrease (Budd et al., 2014; Malighetti et al., 2016).

Further, LCC customers flying from secondary airports in major cities to regional airports often care little about their precise destination. Cheap fares attract customers who want to fly to interesting places for vacations, but the exact destination is unimportant (Kuosuwan, 2015). LCCs have the ability, therefore, to cut and move around routes to maximize profitability, meaning that regional airports must do whatever they can to keep costs low and appeal to LCCs (Malighetti et al., 2016).

LCCs Are Better Than Nothing

Rey et al. (2011), Graham and Dennis (2007), and Bottasso et al. (2012) find that regional airports still benefit economically from LCC market entry, despite the threat of abandonment and the cost of incentives required to attract and retain carriers. Regional tourism boards and local municipalities also see LCCs at regional airports to be a profitable and important aspect of regional tourism (Bel, 2009, 15-16). Thus, the literature concludes that LCC market entry will primarily impact secondary airports in major cities and regional airports, that these airports will have to offer incentives to attract and retain carriers, that airports have a great deal to lose if the carrier leaves, and that the net financial and tourism benefit from LCCs is positive.

Causal Mechanism and Hypotheses

Even though it is clear that tourism and air traffic cause economic growth which in turn can cause increasing demands for regional autonomy, it is necessary to hypothesize about how this relationship works. First, increases in tourism are generally not restricted to one region of a particular country. For example, if a country removes its border restrictions to allow international tourism, it is expected that tourists will disperse throughout the country in greater numbers, but their dispersion will be based on the past popularity of vacation sites. Thus, a simple increase in the number of tourists traveling to a country does not give any one region any more of a comparative advantage than it had before the increase in tourists. It is true that regional economies will improve, but in order for thoughts of regional autonomy to be activated, a region's economy must improve relative to other regions in the country. This means that a regional tourism increase is a necessary, but not a sufficient, condition for increasing regional autonomy.

Instead, the mechanism proposed here ties a regional increase in tourism together with growth at a regional airport. Unlike country-level increases in tourism, air traffic at regional airports can be targeted to introduce more tourists into specific regions of a particular country. These regions then benefit from more local government revenue both from the growth of the airport and tourist spending, growth which does not occur in other regions throughout the country lacking increases in regional air traffic. The introduction of LCC service to a country is again not sufficient for development of regional air service. Rather, LCCs are more attracted to provide service to countries with regional airports. If only major hub airports exist, sometimes LCCs can negotiate favorable contracts to serve these airports. This means that LCCs are the cause of increased traffic to regional airports, but the regional airport infrastructure must exist for LCCs to take advantage of and result in increased, targeted regional tourism that then increases regional autonomy.

Table 1 shows the hypothesized relationship between increased tourism in terms of both nonresident hotel nights and non-resident regional airport passengers, the two major measures of tourism used in this study. Notice that tourism in general must change along with the abundance of regional air travel in order for there to be a relationship between tourism and regional autonomy. The increase in tourism can be a numerical increase, while the increase in regional air travel must be a relative increase. Thus, this study hypothesizes that regional air travel is really what is driving the relationship with regional autonomy.

Hypothesis: Regions where international tourism increases along with a relative increase in regional air travel will move toward increased regional autonomy.

Independent Variable

International tourism is measured in several ways. First, Eurostat provides monthly air traffic and hotel tourism data at the country level.² This data is used to confirm evidence shown in the primary measure of international tourism, NUTS II (regional) level non-resident nights spent in hotels, holiday accommodations, campgrounds, and recreational vehicle parks. Hotel nights is a measure of tourism taken per capita based on Eurostat regional population data. Other important variables such as Gross Domestic Product (GDP) per capita are assumed to remain relatively stable around the discontinuity points, and the analysis confirms that this is indeed the case.³

The air traffic and hotel tourism data are the only measures of international tourism available at the regional level for all the countries in the sample. However, there are certainly other ways to measure tourism. These include the number of visitors to museums or other cultural attractions, the number of restaurant patrons served, the number of new tourist-oriented businesses created, and the number of visitors on organized tours. When possible, the data on hotel nights per capita and airline traffic are supplemented and confirmed by other measures of international tourism depending on the data available from country-level statistical agencies.

Dependent Variable

The dependent variable is Gross Value Added (GVA) per capita of local governments in public administration, education, health, and welfare activities.⁴ GVA of local government is a way to measure fiscal decentralization. Increasing GVA means that the local government is financially responsible for more governmental activities. GVA can be increased by local governments collecting their own taxes or through block grants to the local government from the central government. In either case, fiscal decentralization increases when the GVA increases.

Notably, GVA per capita does not include any measure of political decentralization. The

Regional Authority Index (RAI) is such a measure, but it is restricted to those regions that undergo legal changes in their autonomy (Hooghe et al., 2016).⁵ Thus, there is essentially no variation in regional autonomy within states at most points in time, including those states of interest in this study; the lack of variation means that the RAI is not an appropriate measure to employ.

To make sure that the GVA per capita measure is robust to detecting significant changes in regional autonomy, results from the regression discontinuity design are also confirmed by case study research.

Excluded and Missing Data

Table 2 presents each of the ten countries that joined the EU in 2004 and describes the availability of regional level data. There is no reason to believe that data is not missing at random.

Results

First, this section will present measures of changes in international tourism in order to use Table 1 to hypothesize about the level of GVA per capita in these countries. Any sudden and sustained increase in tourism growth signifies the point at which GVA per capita should also increase if the conditions of Table 1 are met.⁶

Tourism

Figure 1 displays the tourism trends in representative regions of countries that joined the EU where data is available from the period 2003-2009, with some data extending through 2013. The main measure used here is the number of hotel nights stayed by foreign tourists per capita.

From Figure 1, it is evident that hotel nights in Estonia, the Czech Republic, and Hungary

remained relatively stable throughout this period. In Poland, hotel nights were stable until about 2009 and then increased. In Slovenia, hotel nights were stable until about 2005 and then increased, while in Latvia, the number of hotels per capita increased starting in 2007.

Figure 2 displays selected regions of the three countries where the number of hotel nights (or hotels) per capita increased significantly in greater detail. The vertical line indicates the apparent point at which the number of hotel nights began to increase. These regions are relatively representative of the trends throughout most regions in each country.

The number of hotel nights stayed by foreign tourists per capita may not fully capture changes in tourism within a country. In Slovenia, the period between 2005 and 2006 is when hotel tourism began to increase dramatically. Seemingly in reaction to this demand, the number of establishments providing accommodations increased from 557 in 2004 and 598 in 2005 to 745 in 2006 and continued increasing steadily afterword. A similar pattern is evident when examining the number of restaurants which was stable at 6600 in 2004 and 2005 before increasing to 6914 in 2006.

In Poland, where the increase in hotel stays occurred around 2009, the number of attendees at museums and theatre performances throughout the country increased by two million between 2009 and 2010 and has risen steadily ever since. The five-year increase in attendance prior to 2009 was 3.5 million visitors, while the five-year increase after 2009 was 10 million visitors.

Around 2007, similar increases in tourism occurred in Latvia. Sales of recreation goods began increasing starting in 2005, and the accommodation and restaurant sector suddenly added 3000 employees in 2006. The number of visitors coming into Latvia on tours increased by almost 100,000 people per year starting in 2006. This evidence confirms the proposed years where hotel tourism began to dramatically increase in Poland, Slovakia, and Latvia.

Figure 3 tracks air traffic data in terms of percentage increases of air passengers in one month compared to the same month one year prior. The vertical lines again indicate the increases in tourism found in Figure 2. For Poland, observe that the increase in tourism occurred just after a massive increase in air traffic. The situation is similar in Latvia. In Slovenia, data is not available for air traffic before 2005, but air traffic seems to be fairly consistent and not to display any of the dramatic periods of growth inherent in Poland and Latvia. Figure 4 shows the total traffic to regional airports and Warsaw Chopin in Poland from 2005 estimated to 2020. It is apparent from this figure that passenger growth in Polish airports is occurring at the regional level since Warsaw Chopin demonstrates only moderate growth. There are two points where traffic dramatically begins increasing. One is in 2005 when LCCs began flying to Poland. The other is 2009 when Ryanair began a concerted effort to increase traffic in Poland after the 2008 EU court decision.

Table 3 breaks down air traffic in Poland, Slovenia, and Latvia by the type of airline. Twothousand and nine signified the beginning of a major expansion in traffic for both Ryanair and Wizz Air in Poland. Prior to 2008-2009, LCC passengers had increased in 2005 and then leveled out at about five million. The increase in traffic is not as dramatic when breaking the data down by carrier type and not by regional airport growth. This is why this study argues that regional airport growth drove increased decentralization. The growth of LCCs was targeted at regional airports, but also required mainline carriers to react and increase service to regional airports to try to compete.

LCCs have long dominated the single airport in Latvia while mainline carriers dominate the only major airport in Slovenia. In Latvia, LCCs have dramatically increased the number of passengers they carry. But, because of the lack of regional airports for these LCCs to fly into, Latvia's regional GVA per capita should not be impacted by the dominance of LCCs. Since mainline carriers are so strong in Slovenia, LCCs may consider entry to regional airports, but the lack of infrastructure prevents such an expansion.

Table 4 shows the number of airports in Poland, Slovenia, and Latvia as well the number of airlines serving each airport, the number of those airlines providing exclusively seasonal or charter service, and the number of passengers served. It is clear that the only one of these three countries with robust regional air service is Poland. Thus, this study hypothesizes that Poland will display a sudden increase in GVA per capita due to the presence of regional airports, but that this increase will not occur in Latvia or Slovenia.

Regional Autonomy

The hypothesis that Poland will display a sudden increase in GVA per capita in areas with strong regional airport investment and growth is borne out in quantitative testing. Also as expected, this discontinuity did not occur in Latvia or Slovenia.

It should be quite clear from Figure 5 that, consistent with the hypothesis, there is no impact on GVA per capita from the increase in tourism in Latvia because air travel was concentrated at the single international airport in Riga.

Figure 6 highlights the possible discontinuity in 2005 in Slovenia. Though there is a small jump in GVA per capita after 2005, the predicted increase in GVA per capita following the GVA pattern before the increase in air travel is no different from the pattern after the increase. This figure demonstrates that no increase in GVA per capita occurred at the point when tourism increased, again, consistent with the hypothesis.

However, there is a significant difference in GVA per capita in Poland, the country where the increase in tourism is expected to have an impact due to the prevalence of regional airports. Figure

7 displays two plots showing the discontinuity. In the upper plot, the discontinuity for all of Poland is plotted, while the lower plot shows the discontinuity for Central Poland where the greatest impact was observed. The upper line in each plot and its associated confidence interval displays the actual GVA per capita after the increase in tourism in 2009 and the extrapolated values before 2009. Similarly, the lower line in each plot displays the actual GVA per capita before 2009 and the extrapolated values after 2009.

The impact of an increase in tourism in Poland in 2009 is significant and can be measured over time. Figure 8 displays the difference in GVA per capita due to the increase in tourism. Estimates before 2009 demonstrate that GVA per capita is higher in this period had there been the level of tourism observed in 2009.

In 2009, the GVA per capita was \$275.92 higher in Poland and \$465.71 higher in Central Poland than predicted by the GVA level before the increase in tourism. This effect holds until 2013, where the increase in tourism in 2009 predicts a GVA per capita of \$108.82 higher in Poland and \$78.80 in Central Poland.

It seems that the 2009 increase in tourism in Poland had an immediate impact of increasing GVA per capita about 6%, depending on the particular region in Poland. If the proposed mechanism is correct, this discontinuity will be present mostly in regions with growing regional airports, while regions without such airports will not experience a sudden increase in regional autonomy in 2009. To check if this is the case, Table 5 presents all Voivodeships (counties) in Poland categorized by whether they displayed a GVA per capita discontinuity in 2009 or not. Also listed are the airports in that Voivodeship. From the theory presented here, those Voivodeships displaying a GVA per capita discontinuity in 2009 should be those with growing regional airports, while those without a significant change in GVA per capita should be those

Voivodeships without a discontinuity. In the table, almost all of the regions conform to expectations. Regions with strong regional airport growth or those that were beginning to build airports around 2009 are all clustered in the group that has a GVA per capita discontinuity. Regions with weak growth or without an airport generally do not experience a jump in GVA per capita around 2009.

There are only two exceptions to this finding: Swietokrzyskie and Zachodniopomorskie. Zachodnipomorskie contains the Szczecin airport, which did not grow during the period around 2009. Szczecin likely saw a jump in GVA during this period because of EU transportation funding for tram lines.⁷ Swietokrzyskie does not have an airport with scheduled service. However, even in the case of Swietokrzyskie, the period between 2008 and 2009 was the beginning of a 4 million PLN capital investment to begin the process of creating an airport in Kielce. Though this plan never materialized, the investment company was wholly owned by the Kielce government, thus accounting for the change in regional autonomy in 2009.

The large discontinuity in Mazowieckie was driven by the reconstruction of Radom airport beginning in 2008 and the construction of Warsaw Modlin with EU funding in 2009. At the Katowice airport, a significant period of new growth followed the opening of a new terminal funded with EU money. EU projects and airport expansions also began at Lublin, Rzeszow, Wroclaw, and Gdansk.

Growth at the Lodz, Poznan, Bydogszcz, and Krakow airports stagnated around the 2009 period, meaning that even though some of these airports represent significant passenger traffic in Poland, regional autonomy should not be expected to increase due to the slow or negative growth. The Zielona Gora airport is too small to make an economic impact. Podlaskie and Opolskie lack any scheduled air service. Finally, the Olsztyn airport was EU funded later than

most of the other airport improvements, so a change in GVA should not be expected until construction on that airport starts.

The next section discusses the increased tourism, but lack of regional airport infrastructure in Latvia and Slovenia that did not result in changes to regional autonomy before turning to the Polish case, where regional autonomy was impacted by increased tourism and traffic to regional airports.

Regional Airports and Autonomy in Latvia and Slovenia

The results above show that tourism increased throughout Latvia and Slovenia around their accession to the EU. However, neither country had a regional airport infrastructure conducive to LCC expansion outside of the main hub airport. The question for this section, therefore, is the following: Why has regional airport infrastructure not developed in either of these countries?

The most straightforward answer in the Latvian case is that LCCs have a monopoly on air traffic out of the major hub airport. In Latvia, airBaltic is the major LCC and controls much of the traffic to Riga International Airport. As LCCs provide 78% of the air service to Riga and airBaltic is by far the biggest LCC at the airport, the success of Riga International Airport depends on airBaltic.⁷ Because both the airport and airBaltic are owned by the government of Latvia, landing fees and other such negotiations are immaterial. Thus, there is no incentive for airBaltic to expand service outside of Riga, and there is even less incentive for competing LCCs to try to establish this service when airBaltic has such a monopoly on air traffic as the flag carrier of Latvia.

There are technically two other internationally certified airports in Latvia: Liepaja and Ventspils. Liepaja International Airport was re-certified to carry commercial flights in 2016, and

these flights will be provided only by airBaltic to Riga. So, international tourists will not be able to use this airport unless airBaltic expands service, and even if this occurs, passenger capacity has never exceeded 45,000 passengers per year. Ventspils similarly was served by airBaltic on flights to Riga that started and were canceled in 2008. There were hopes that the Daugavpils airfield could be refurbished into an international airport, but the municipality was never able to secure the funding. Jurmala airport has recently constructed a passenger terminal, but, due to its proximity to Riga, it seems unlikely that it would be able to attract anything other than domestic service on airBaltic. Even though air traffic to Riga International Airport on airBaltic significantly increased after EU accession, current Latvian airport infrastructure and the dominance of airBaltic are not conducive to regional airport expansion.

The situation is quite different in Slovenia, where mainline carriers dominate and air traffic growth is quite low. Adria Airways, the Slovene flag carrier, dominates all other carriers, who serve at most two destinations. Ryanair does not fly to Ljubljana International Airport, though it briefly provided service to Maribor Airport, which now only receives seasonal charter service. EasyJet and Wizz Air provide service to only two destinations each from Ljubljana International Airport. Though development is planned for Portoroz airport to make it potentially viable for commercial service, such an expansion has not started. Thus, the opportunity for regions to develop their regional airports is even more limited in Slovenia than in Latvia. In Latvia, regional airports may begin scheduled domestic service on airBaltic. In Slovenia, regional airports simply do not exist for expansion to take place like they do in Latvia.

The next section explores the Polish tourism increase in 2009 in more detail and describes some instances of increased regional autonomy as a result of this tourism increase.

Regional Airports and Autonomy in Poland

Poland is a large country, and Table 3 demonstrates that there are myriad airports with commercial service throughout Poland. The table also shows that the vast majority of Polish regional airports serve very few passengers and have very few non-seasonal or charter regularly scheduled flights. From the list of airports, it is also apparent (with a little knowledge of Polish geography) that a number of these airports are positioned relatively close together (Augustyniak and Olipra, 2014). An important question then becomes the following: Why are there so many airports with few scheduled flights so close together serving so few passengers? The answer addresses the critical link in Poland between tourism and regional autonomy.

EU Invests in Polish Airports

Before Poland joined the European Union in 2004, there was little development of regional airport infrastructure. In fact, many of the now fourteen international airports in Poland were nothing more than mere air strips or former military airports. It is true that there was growth in the Polish air travel market, but this growth was centered at the main airport in Warsaw (Davison and Ryley, 2010).

Around 2007, the EU developed a National Strategic Framework for Poland meant to develop its regional infrastructure in order to encourage entrepreneurship and investment (Kalinka, 2012). Backed by EU money, national and regional operations were set up by the EU to invest in regional airport infrastructure (Kalinka, 2012, 8). Regional airports, generally controlled by local or regional governments (only Warsaw Chopin is state-owned), competed for hundreds of millions of Euros to build new regional airports and to expand existing airports. The EU did establish guidelines for the use of these funds and their commissions did reject some funding proposals, but requirements were not strenuous. Ironically, the development of air infrastructure was somewhat of a replacement for road or train improvements, meaning that passengers can fly to various regional airports in Poland, but have a very difficult time traveling between major cities in the country (Kalinka, 2012, 12). It is estimated that 353 million Euros (1.5 billion Polish Zloty) were invested in eight regional airports between 2007 and 2013 (Kalinka, 2012, 8).

The Krakow airport publishes a list of the projects funded by the European Union for its airport development. A total of about 566 million Polish Zloty have been allocated for airport improvements. Of this 566 million, about 300 million was allocated as a subsidy from the EU or 53%. The 2006 EU funding was designed to begin the investment process by commissioning a study to determine what projects were needed at the Krakow airport. Actual construction projects occurred between 2010 and 2014. Since regional government partnerships control all airports other than Warsaw Chopin, these levels of EU investment are sure to lead to more local government spending.

EU funding for airport infrastructure projects was not limited to Poland. In fact, the EU found in a later audit that Poland was the only country that received EU money for air transport infrastructure that actually had a plan for airport infrastructure investments (European Court of Auditors, 2014, 36).

Attracting Traffic

There were undeniable benefits to the Polish economy as a result of regional airport improvements. Notably, airport modernization and expansion occurred before airlines had committed to flying routes from regional airports. Thus, the size of improvement projects is meant to be derived from the expected number of passenger carriers will fly out of an airport. This created a problem: regional governments had the ability to obtain large sums of money for airport improvements, but air traffic was unknown and funding could not be deferred until later.

The result was two-fold. First, so called "ghost airports" developed. These airports are characterized by being oversized, placed in a location unlikely to attract projected air traffic, and lacking many (sometimes any) air carriers (Lowe and Szary, 2014). Though the EU is trying to reduce subsidies to improvements and operations at these airports, the Polish improvements have already taken place (Sebag, 2013).

As a result of having a ghost airport, local and regional governments began losing money simply by keeping the airport operational. This incentivized the airport to attract an air carrier in whatever way possible. As mentioned previously, offering major reductions in airport fees was a common strategy. With the incentive from low fees, LCCs like Ryanair found these airports, explaining why Ryanair has recently surpassed LOT (the Polish flag carrier) as the largest airline in Poland by volume (McMullan, 2001). Since many Ryanair customers are ambivalent about their vacation destination as long as it is cheap and has some tourist infrastructure, tourism dramatically increased. Airports must continue to offer incentives to LCCs to prevent them from leaving for other airports since the particular region an LCC is serving is not important (Lowe and Szary, 2014). LCCs also recognized that there was pent-up demand for Poles to move to Western Europe, meaning that they could guarantee some revenue for routes based on these customers alone (Pancer-Cybulska et al., nd).

Table 6 displays estimates of the landing costs at various Polish airports as calculated form airport landing agreements for a typical plane flown by a LCC. Not reflected in the table are initial incentives provided by every airport, including Warsaw Chopin, to airlines establishing new routes or increasing service. These discounts on the total landing fee range from 50% for the first year in Lodz and Poznan to a 99% discount at Wroclaw and Warsaw Modlin.⁸ Discounts last for between six months and four years, depending on the airport. Thus, LCCs and mainline carriers have incentives to establish new routes at all airports, though the discount is higher at regional airports than at Warsaw Chopin.

More interesting are the ways in which regional airports attract new traffic. LOT flies few routes to airports outside of Warsaw Chopin, so these incentives are targeted at LCCs. Two strategies are employed. First, regional airports charge, on average, 68% of the total landing fee of landing at Warsaw Chopin without including any discounts. The Warsaw Chopin fee is \$3548.10, compared to an average of \$2414.99 at regional airports before discounts. Second, regional airports provide huge discounts for carriers that serve a large number of passengers. These deals apply only to Wizz Air and Ryanair because of their volume and reduce the cost to 28% of the landing cost at Warsaw Chopin or an average of \$988.71. Regional airports either specifically reduce per passenger and per ton fees based on passenger volume or number of connections or they take such discounts off of the total landing cost.

A particularly relevant comparison is between Warsaw Chopin and Warsaw Modlin since these airports are in roughly the same location. Landing fees for a company with volume like Ryanair are only 21% at Warsaw Modlin of what they would be at Warsaw Chopin. Interestingly, Warsaw Chopin does not offer volume discounts or per route discounts, reflecting its status as the main airport in Poland that does not need to offer incentives to attract airlines.

Local Megalomania

Now that it is clear why LCCs descended on Poland around 2009, there were several points during this process that involved increased regional autonomy. Building or modernizing the airport was

the first instance. Regions claim regional pride from having their own airport and from the airport developing an identity as a tourist destination regardless of whether the airport is profitable (Matlack, 2015). Jacek Krawczyk, a Polish aviation expert, concludes that building airports near existing airports using EU money makes no sense stating, "Why...you want to insist to build your own airport in a region that has absolutely no capacity to generate any meaningful demand for air transportation...I cannot comprehend. [These airports are] going to be a monument for the local authorities [to show] that they have been able to spend European funds" (Nielsen, 2015). Orczyk (2016) provides the answer: "megalomania of local authorities."

Gdynia Airport

"Probably the most visible recent illustration of the international competition, separatism, and local ambitions [within Poland] is the Gdynia Kosakowo airport" (Czepczynski, 2014, 63). Gdynia and Kosakowo are small cities near Gdansk, which houses a major regional airport. In 2012, local authorities decided to use EU aviation funding to rebuild the existing military airfield at Gdynia into a regional airport (Colombani, 2014). The airport's intended purpose was to relieve traffic congestion at Gdansk and to provide opportunities for LCCs to enter the aviation market in the region. However, the Gdansk airport operates at below sixty percent of its capacity, and the new Gdynia airport was to be located only twenty-five kilometers from the Gdansk airport. The European Commission eventually investigated local government authorities for violations of competition laws and ordered the Gdynia and Kosakowo governments to pay back 21.8 million Euros. This order drove the Gdynia airport out of business and construction stopped.

The President of Gdynia, Wojciech Szczurek, devised this entire airport scheme in order to distinguish the region and to seize power from neighboring regions. Said Szczurek, the airport

would "become the symbol of Polish thinking and strategic action aimed at building strength and economic success of Polish people" (Szczurek, 2014). Szczurek saw the airport as a way to build his own regional legacy and be a "magical remedy for all local ills" (Sikora, 2014). Adrian Furgalski, a Polish strategic analyst, described the airport as an issue that "returns every four years" when promises for air service can be used as tools to win elections since voters want their region to be a new and unique destination (Sikora, 2014). Now, with the possibility of building an airport nixed by the EU, local government representatives want to turn the airport into a mini Cape Canaveral space center (Sielski, 2016).

Regional Government Financial Investments

More Costs

Regional governments increased their regional autonomy by participating in the EU funding process. The EU operated investment boards funneled more than one quarter of all funding to regional governments in order to decentralize regional development programs and give local governments control over the allocation of monetary resources (Baier et al., 2013, 19). This process circumvents the national government and increases regional fiscal autonomy over budgeting decisions. Since the airport modernization project itself was largely paid for by the EU, the regional government only needed to cover operating costs in order to make a profit. As Kalinka (2012) notes, most regional airports cannot meet this low bar of breaking even, meaning that regional and local governments must prop up their airports financially. This spending is a form of increased regional fiscal autonomy since the local government is increasing spending to maintain a locally-owned asset. In the EU Auditor's report detailing misuse of EU funds to build regional airports across Europe, the two Polish airports audited (Gdansk and Rzeszow) score better than

many at their probability of making a profit (European Court of Auditors, 2014, 42). Gdansk is one of three airports audited that will turn a profit immediately, while Rzeszow is expected to be profitable in the long term.

Further, even though airports may be oversized and costly to maintain, regional governments do generate some revenue from LCCs flight routes. Takeoff and landing fees, gate fees, and other transportation taxes flow directly from the LCC to the regional government. Airport-related activities can generate large profits for regional governments if they manage to meet their passenger projections (Sosna and Lucas, 2007).

More Economic Benefits

The regional economy receives a boost from the tourism associated with LCCs. Gdansk and Rzeszow are two out of only four airports in the EU sample of twenty airports to achieve a positive, measurable economic benefit for the region (European Court of Auditors, 2014, 42). Taxes and other surcharges, such as hotel use fees, generate income for the regional government and increase its regional fiscal autonomy. At least thirty percent of LCC passengers arriving at regional airports are non-resident tourists, providing the increase in hotel nights, observed earlier, and regional revenue (Marek and Liszewski, 2015, 97). The net impact is an influx of money into regional governments as a result of air traffic and tourism (Oxford Economics, 2011). This source of funding gives regional governments the ability to spend on other regional projects, boosting GVA per capita and the region's ability to operate with fewer central government initiated projects.

In the Polish case, this study has demonstrated that increasing international tourism in the form of airport improvements, added flights, and increased non-resident hotel tourism caused local governments to benefit from fiscal decentralization and increase their emphasis on local identity.

Conclusions and Future Research

The relationship between increased tourism and increasing regional autonomy is quite nuanced. This paper demonstrates support for the hypothesis that regional air traffic and international tourism both must increase in order for regional autonomy to be impacted. Using the period after ten countries were admitted to the EU in 2004 as an example of dramatic tourism increases, this study finds that countries like Latvia and Slovenia experienced increased tourism, but, without regional airports, did not experience a change in regional autonomy. In Poland, however, regional airport infrastructure developed in part because of an EU infrastructure plan. Local governments seized on the idea of upgrading airport infrastructure since much of it was subsidized. Though attracting a carrier often proved difficult and required financial concessions, several regional airports have emerged as strong economic growth engines for local government budgets. Other airports have suffered because of "local megalomania," where government officials create an identity of great local autonomy around the success of their airport. Though these airports benefit from tourism revenue to increase their regional budgets, their investments in infrastructure are not always quickly returned.

Like Wong's (1996) study that concluded that tourism has economic costs and benefits to local governments, this research finds that increasing tourism has mixed effectiveness in promoting decentralization. Targeted development of key regional airports has emerged as an effective strategy to promote regional autonomy in the local government owning the airport. However, funding airport infrastructure projects in the hope they may provide local leaders with an opportunity to posture about how important their region or municipality is does not achieve an overall goal of making the municipality more self-sufficient. The Polish airport in Gdansk is a

regional air traffic leader, and the airport in Rzeszow is on the cusp of being profitable. Small regional airports are wholly dependent on one LCC for their air traffic, forcing them to provide major incentives to keep the carrier and running losses when the carrier inevitably leaves. The aviation industry dictum that airports must attract a stable number of around one million passengers per year in order to be profitable seems to apply for airports and regional autonomy. Effective increases in local government infrastructure come from medium-sized regional airports, generating regional fiscal autonomy. Investment in smaller airports generates cultural autonomy that inflates the importance of small regions.

It is difficult to establish a causal effect when studying international tourism because the counterfactual (no tourism) never exists without other factors also changing. This study attempts to isolate a sudden increase in tourism and to explore the relationship with regional autonomy. Other international shocks on regional economies may have similar effects to regional autonomy under certain conditions. As Malesky (2008) demonstrates with FDI and as is demonstrated here with tourism, targeted international investment does change the status of regions within a country. Similar studies with international commodity demands in certain regions and the impact on regional autonomy would help further illuminate the ways in which local government leaders can generate increased regional autonomy using these investments.

Notes

¹The ten countries joining the EU in 2004 were: Poland, Latvia, Slovakia, Estonia, Lithuania, Slovenia, the Czech Republic, Hungary, Cyprus, and Malta. Travel and tourism data shows this trend, but is not reported here for brevity.

⁴All data from the OECD except: Estonia (Statistics Estonia), Latvia (Central Statistical Bureau of Latvia), Poland (Polish Central Statistical Office).

⁵For example, states in the United States that operate their own health insurance exchanges are regarded as having the same regional autonomy as states that use the federal exchange even though the former states are clearly more able

²For hotels, the variable was 'tour,' percent change compared to same period in the previous year. For air travel, the variable was 'avia,' passengers carried on arriving flights. Percent change is calculated from same period in the previous year.

³All data from Eurostat except: Estonia (GDP and Population from Statistics Estonia, Tourism from Enterprise Estonia), Latvia (Central Statistical Bureau of Latvia), Poland (Polish Central Statistical Office), Czech Republic (GDP from Czech Statistical Office).

to make autonomous decisions about their state health care systems. Had some states been required to use one system or the other we would detect a difference in the RAI, but since each state had the legal opportunity to use such a system all RAI values for a given year for states are the same.

⁶All data analysis performed in R and replication files are available from the author.

⁷Data about Polish, Slovenian, and Latvian airports is from air traffic statistics, regional airport histories and financial statements, municipality balance sheets, and EU grant databases all available on the respective websites of these airports.

⁸Landing cost calculations use data from Polish airport contracts posted on their websites.

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References

- Acar AZ and Karabulak S (2015) Competition between full service network carriers and low cost carriers in Turkish airline market. *Procedia-Social and Behavioral Sciences* 207: 642-651.
- Alamdari F and Fagan S (2005) Impact of the adherence to the original low-cost model on the profitability of low-cost airlines. *Transport Reviews* 25(3): 377-392.
- Augustyniak W and Olipra L (2014) The potential catchment area of Polish regional airports. *Journal of International Studies* 7(3): 144–154.
- Baier E, Kroll H and Zenker A (2013) Regional autonomy with regard to innovation policy: A differentiated illustration of the European status quo.
- Barbot C (2004) Low cost carriers, secondary airports and State aid: An economic assessment of the Charleroi affair.
- Bel G (2009) How to compete for a place in the world with a hand tied behind your back: The case of air transport services in Girona. *Tourism Management* 30(4): 522–529.
- Beramendi P (2014) *The political geography of inequality: Regions and redistribution*. Cambridge: Cambridge University Press.
- Blonigen BA and Cristea AD (2015) Air service and urban growth: Evidence from a quasinatural policy experiment. *Journal of Urban Economics* 86: 128–146.
- Bottasso A, Conti M and Piga C (2012) Low-cost carriers and airports' performance: Empirical evidence from a panel of UK airports. *Industrial and Corporate Change* 22(3): 745-769.
- Brueckner J (2003) Airline traffic and urban economic development. Urban Studies 40(8): 1455–1469.
- Budd L, Francis G, Humphreys I and Ison S (2014) Grounded: Characterizing the market exit of European low cost airlines. *Journal of Air Transport Management* 34: 78–85.
- Button K (2012) Low-cost airlines: A failed business model? *Transportation Journal* 51(2): 197-219.
- Cohen E (1984) The sociology of tourism: Approaches, issues, and findings. *Annual Review of Sociology*: 373–392.
- Collier P and Hoeffler A (2004) Greed and grievance in civil war. *Oxford Economic Papers* 56: 563–595.
- Colombani A (2014) State aid: Commission orders Poland to recover incompatible state aid from Gdynia airport.
- Cooper R (1990) Airports and economic development: An overview. In: *Transportation Research Record*. Williamsburg, Virginia, pp. 125–133.

- Czepczynski M (2014) The making of the Gdansk metropolitan region. Local discourses of identities, powers, and hopes. *Quaestiones Geographicae* 33(4): 57–66.
- Davison L and Ryley T (2010) Tourism destination preferences of low-cost airline users in the East Midlands. *Journal of Transport Geography* 18(3): 458–465.
- De Neufville R (2008) Low-cost airports for low-cost airlines: Flexible design to manage the risks. *Transportation Planning and Technology* 31(1): 35–68.
- Diaconu L (2012) The evolution of the European low-cost airlines' business models: Ryanair case study. *Procedia-Social and Behavioral Sciences* 62: 342-346.
- Dobruszkes F (2013) The geography of European low-cost airline networks: A contemporary analysis. *Journal of Transport Geography* 28: 75-88.
- Eugenio-Martin JL, Martin Morales N and Scarpa R (2004) Tourism and economic growth in Latin American countries: A panel data approach.
- European Court of Auditors (2014) EU-funded airport infrastructures: Poor value for the money.
- Fayissa B, Nsiah C and Tadasse B (2008) Impact of tourism on economic growth and development in Africa. *Tourism Economics* 14(4): 807–818.
- Fearon JD and Van Houten P (2002) The politicization of cultural and economic difference. Stanford University.
- Ghali MA (1976) Tourism and economic growth: An empirical study. *Economic Development and Cultural Change* 24(3): 527–538.
- Gillen D and Lall A (2004) Competitive advantage of low-cost carriers: Some implications for airports. *Journal of Air Transport Management* 10: 41-50.
- Giuliano E (2006) Secessionism from the bottom up: Democratization, nationalism, and local accountability in the Russian transition. *World Politics* 58(02): 276–310.
- Graham A and Dennis N (2007) Airport traffic and financial performance: A UK and Ireland case study. *Journal of Transport Geography* 15(3): 161–171.
- Green RK (2007) Airports and economic development. Real Estate Economics 35(1): 91–112.
- Greenwood DJ (1972) Tourism as an agent of change: A Spanish Basque case. *Ethnology* 11(1): 80–91.
- Herrera Y (2005) Imagined economies: The sources of Russian regionalism. Cambridge: Cambridge University Press.
- Hooghe L, Marks G, Schakel AH, Niedzwiecki S, Osterkatz SC and Shair-Rosenfield S (2016) *Measuring regional authority: A postfunctionalist theory of governance*. Oxford University Press.
- Kalinka P (2012) Flights of fancy: A case study on aviation and EU funds in Poland.

- Kawasaki A and Lin MH (2013) Airline schedule competition and the entry route choices of lowcost carriers. *Australian Economic Papers* 52(2): 97-114.
- Klophaus R, Conrady R and Fichert F (2012) Low cost carriers going hybrid: Evidence from Europe. *Journal of Air Transport Management* 23: 54-58.
- Kosters MJ (1984) The deficiencies of tourism science without political science comment on Richter. *Annals of Tourism Research* 11(4): 610–612.
- Kuosuwan B (2015) Market factors influencing the decision to patronage low cost carriers. *Procedia-Social and Behavioral Sciences* 197: 2097-2102.
- Lowe C and Szary W (2014) Special report: EU funds help Poland build 'ghost' airports. http://www.reuters.com/article/us-poland-airports-specialreport-idUSKBN0JS06K20141214.
- Malesky EJ (2008) Straight ahead on red: How foreign direct investment empowers subnational leaders. *The Journal of Politics* 70(1): 97–119.
- Malighetti P, Paleari S and Redondi R (2016) Base abandonments by low-cost carriers. *Journal of Air Transport Management* 55: 234–244.
- Malina R, Albers S and Kroll N (2011) Airport incentive programs: A European perspective.
- Marek M and Liszewski D (2015) Development of Polish regional airports in the context of tourism needs. *Polish Journal of Management Studies* 11: 90–99.
- Matlack C (2015) Poland is building an international airport at a former CIA black site. https://www.bloomberg.com/news/articles/2015-05-20/poland-is-building-an-internationalairport-at-a-former-cia-black-site.
- Matthews HG and Richter LK (1991) Political Science and tourism. *Annals of Tourism Research* 18: 120–135.
- McMullan K (2001) Ryanair: Role of its secondary airport policy. Aviation Economics (41): 5-6.
- Nielsen NJ (2015) Polish airport used by CIA obtains millions in EU funds. https://euobserver.com/investigations/127927.
- Nunez TA (1963) Tourism, tradition, and acculturation: Weekendismo in a Mexican village. *Ethnology* 2(3): 347–352.
- Orczyk M (2016) Radom airport in Poland: The expensive monument to local authorities' megalomania. http://4liberty.eu/radom-airport-in-poland-the-expensive-monument-to-local-authorities-megalomania/.
- Oxford Economics (2011) Economic benefits from air transport in Poland.

- Pancer-Cybulska E, Szostak E and Olipra L (nd) The impact of the migration process on the low cost airlines' routes between EU countries and Poland after its accession to the EU, and on the territorial cohesion of Polish regions.
- Rey B, Myro RL and Galera A (2011) Effect of low-cost airlines on tourism in Spain. A dynamic panel data model. *Journal of Air Transport Management* 17(3): 163–167.
- Richter LK (1983) Tourism politics and Political Science: A case of not so benign neglect. *Annals of Tourism Research* 10: 313–335.
- Sebag G (2013) EU to cut government subsidies to unprofitable airports. https://www.bloomberg.com/news/articles/2013-07-03/eu-to-curb-state-aid-for-airports-inbid-to-bolster-competition.
- Sequeira TN and Macas Nunes P (2008) Does tourism influence economic growth? A dynamic panel data approach. *Applied Economics* 40(18): 2431–2441.
- Shone MC (2013) Local government and tourism public policy: A case of the Hurunui District, New Zealand. PhD Thesis, Lincoln University.
- Sielski M (2016) Kosmodrom na lotnisku Gdynia-Kosakowo? (Spaceport at the airport in Gdynia-Kosakowo?) http://www.trojmiasto.pl/wiadomosci/Kosmodrom-na-lotnisku-Gdynia-Kosakowo-n102349.html.
- Sikora K (2014) Polska lotniskami stoi. Samorzadowcy wyrzucaja pieniadze w bloto by zdobyc punkty przed wyborami (Polish airport: Local government throws money away to score points before the election). http://natemat.pl/93069,polska-lotniskami-stoi-samorzadowcy-wyrzucaja-pieniadze-w-bloto-by-zdobyc-punkty-przed-wyborami.
- Slusarczyk B and Baryn M (2016) Development of regional airports in Poland. *Mediterranean Journal of Social Sciences* 7(4): 625-633.
- Sosna B and Lucas R (2007) Airports in Poland: A 1.2bn EUR business opportunity.
- Szczurek W (2014) List otwarty do polskich politykow i dziennikarzy: Bronmy polskich interesow (Open letter to the Polish politicians and journalists: Defend Polish interests).
- Tierney S (2005) Reframing sovereignty? Sub-state national societies and contemporary challenges to the nation-state. *International and Comparative Law Quarterly* 54(1): 161–183.
- Wong JD (1996) The impact of tourism on local government expenditures. *Growth and Change* 27: 313–326.
- Yuksel F, Bramwell B and Yuksel A (2005) Centralized and decentralized tourism governance in Turkey. *Annals of Tourism Research* 32(4): 859–886.

	Tourism ↑	Tourism ↓
Regional Air Travel ↑	Autonomy ↑	No Relationship
Regional Air Travel ↓ or None	No relationship	Autonomy ↓

Table 1: Interaction Between Tourism and Regional Autonomy

Country	Data
Cyprus	Excluded ^a
Czech Republic	Complete ^b
Estonia	Complete ^b
Hungary	Complete ^b
Latvia	Partial ^c
Lithuania	Missing ^d
Malta	Excluded ^a
Poland	Complete ^b
Slovakia	Missing ^d
Slovenia	Complete ^b

Table 2: Excluded and Missing Data

^aIsland country with no statistical regions. ^bRegional level data available at least from 2003-2009, if not longer. ^cData only from 2005-2009. ^dNo data from statistical regions available.

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Poland (Combined Traffic for All Airports) ^a												
LOT	3.6	3.7	4.4	4	4.1	4.5	4.7	5	4.9	4.8	4.4	5.2
LCC ^d	2	4.6	5	6.3	6.8	7.9	9.2	10.1	8.3	8.4	11	13.4
Ryanair	0.9	2.1	2.3	2.9	3.2	3.8	4.8	5.3	4.9	5.1	6.7	8
Wizz Air	1.1	2.5	2.7	3.4	3.6	4.1	4.4	4.8	3.4	3.3	4.3	5.4
Lufthansa	0.8	0.8	0.9	1.1	1.1	1.3	1.5	1.7	1.7	1.8	2	2.1
Other	4	6	7.2	8	6.3	6	6.6	7.2	6.1	6.5	7	7.4
			L	atvia (F	Riga Int	ernation	nal Airp	port) ^b				
Mainline	0.4	0.6	0.7	0.8	0.9	1.1	1.1	1.1	1.1	1.1	1.2	1.2
LCC	1.5	1.9	2.5	2.9	3.2	3.6	4.0	3.7	3.7	3.7	4.0	4.2
Slovenia (Ljubljana International Airport) ^c												
Mainline	1.1	1.2	1.3	1.5	1.2	1.2	1.2	1.1	1.2	1.2	1.3	1.2
LCC	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2

Table 3: Airline Service in Poland, Slovenia, and Latvia

^aActual data from Polish Civil Aviation Authority for LOT, LCC, and Lufthansa for 2013-2016 and 2007-2010. Other traffic numbers estimated from total yearly passenger traffic and split by estimated market share based on Polish Civil Aviation Authority data.

^bActual data reported for total traffic by Riga International Airport. LCC and Mainline traffic estimates from estimated market share based on Riga International Airport flight data.

^cActual data reported for total traffic by Ljubljana International Airport. LCC and Mainline traffic estimates from estimated market share based on Ljubljana International Airport flight data. Maribor International Airport served too few passengers to change the numbers.

^dSum of Ryanair and Wizz Air. Other LCCs hold a very small market share.

Airport	Airlines	Seasonal/Charter	Passengers ^a					
Slovenia								
Ljubljana	12	3	1438304					
Maribor	6	6	24886					
Latvia								
Riga	18	4	5162149					
Poland								
Warsaw Chopin	52	15	11206700					
Krakow	24	6	4221171					
Gdansk	12	3	3706108					
Katowice	24	19	3069279					
Warsaw Modlin	1	0	2588175					
Wroclaw	17	8	2320000					
Poznan	11	5	1500918					
Rzeszow	4	1	645214					
Szczecin	4	0	412547					
Bydgoszcz	4	0	341079					
Lodz	3	1	287628					
Lublin	3	1	265111					
Zielona Gora	1	0	17111					
Radom	1	0	670					
Olsztyn	3	1	0 ^b					

Table 4: International Airports in Poland, Slovenia, and Latvia

^aPer year. Figures for 2016. ^bService began in 2016.

Region	Airport(s) ^a	Notes				
Discontinuity ^b						
Mazowieckie	Warsaw Chopin,	Radom: reconstruction began in 2008.				
	Warsaw Modlin,	Warsaw Modlin: EU funding begin in 2009.				
	Radom					
Slaskie	Katowice	Period of significant growth after new terminal opened in 2007.				
Lubelskie	Lublin	2008 funding from EU to create airport.				
Podkarpackie	Rzeszow	EU funding for reconstruction and passenger				
Swietokrzyskie	None	Region funded study of airport feasibility.				
Zachodniopomorskie	Szczecin	Slower growth than other airports. Exception.				
Dolnoslaskie	Wroclaw	Airport expansion began in 2009.				
Pomorskie	Gdansk	Period of significant growth, EU projects.				
	No D	iscontinuity				
Lodzkie	Lodz	No growth from 2007 to 2009.				
Malopolskie	Krakow	Slow or declining growth from 2008 to 2014.				
Podlaskie	None					
Lubuskie	Zielona Gora	Small domestic airport.				
Wielkopolski	Poznan	Stagnant growth in 2008 and 2009.				
Opolskie	None					
Kulawsko-Pomorskie	Bydgoszcz	Small airport, major passenger loss in 2009.				
Warminsko-Mazurskie	Olsztyn	EU funding began in 2013.				

Table 5: Characteristics of the GVA Discontinuity in Poland in 2009

^aWith the ability to serve regularly scheduled commercial flights. ^bDefined as non-overlapping confidence intervals from at least 2003 to 2009.

	Base ^a	Per Ton ^b	Noise ^c	Per Passenger ^d	Parking ^e	Security ^f	Total ^g
Warsaw Chopin	200	40	9	60	0.7		13731
Warsaw Modlin	2000		20	40			8500
Warsaw Modlin ^h	2000		20	6			2992
Lodz	3700			33			9046
Lodz ⁱ	3700			33			7298
Poznan		50	5	35		6	10918
Poznan ^j		50	5	35		6	4575
Szczecin		70		35			11113
Szczecin ^k		70		35			1111
Wroclaw	1560			32		4.85	7153
Wroclaw ¹	1560			5		4.85	3156

Table 6: Landing Fee Cost Comparison

^aFare in Polish Zloty (PLN) paid by each landing aircraft.

^bPer ton charge in PLN calculated for a Boeing 737-800, the aircraft flown by Ryanair, using the maximum takeoff weight.

^cAssumes a departure time between 06:00 AM and 10:45 PM.

^dAssumes full flight of 162 passengers in a typical configuration.

^eAssumes a parking time of two hours or less.

^fPer passenger security screening fee

^gIn PLN.

^hDiscounted per passenger fee based on Ryanair passenger volume.

ⁱPercent discount applied to total fee based on number of connections, three for Ryanair.

^jDiscount of 49.75% per ton and 63.48% per passenger based on Ryanair passenger volume.

^kDiscount of 90% based on number of seats available per week.

¹Discount for "high traffic" airlines.



Figure 1: Hotel Tourism in Selected EU Countries.



Each plot represents an individual country, and each line within a plot represents selected regions in that country with the regions labeled to the side of each plot. Measurements for hotel tourism are consistent across all countries except Latvia, where data on the number of non-resident hotel nights was not available. Thus, the measure employed in Latvia is the number of hotels per capita.



Figure 2: Hotel Tourism Displaying Sudden Increases.



Figure 3: Air Traffic Increases in Selected EU Countries.

Each plot shows the year over year percent increase in air traffic. It is clear that air traffic in Poland and Latvia was increasing significantly just before the increase in tourism (indicated by the vertical line). The growth in Poland is broken down by the annual growth rate for the Warsaw Chopin airport and all other airports.



Figure 4: Polish Actual and Projected Air Traffic.



Plot replicated from Slusarczyk and Baryn (2016, 627). Forecast of future traffic is their own. Regional airports include all airports not Warsaw Chopin.

Year



Figure 5: GVA in Latvia

This figure shows no jump in GVA per capita in the year that tourism increased in any region of Latvia with region labels to the side of each line in the plot. This is expected since Latvia does not have regional airports.



Figure 6: GVA Discontinuity in Slovenia.

This figure confirms that there was no GVA per capita discontinuity when tourism increased, as predicted by the fact that there are no regional airports in Slovenia.



Figure 7: GVA Discontinuity in Poland

The top plot shows the GVA per capita discontinuity for Poland and the bottom plot shows it for Central Poland. Each line is extrapolated from the data points to show how the discontinuity impacted GVA per capita.



Figure 8: GVA Predictions Based on Discontinuity. Impact of Air Traffic Growth on GVA/capita

This figure shows the impact of the discontinuity on GVA per capita in Poland and Central Poland. In 2009, GVA per capita in these regions was \$300 to \$500 higher than it would have been without the sudden increase in tourism and air traffic. Had this increased occurred earlier, the predicted increase in GVA per capita from 2001-2009 is displayed. Additionally, this increase in GVA per capita holds past 2013, where the lines cross the x axis. The point where this occurs indicates no additional impact on GVA per capita from that 2009 discontinuity.