Institutional collective action in the case of spillovers. An application of Mancur Olson´s theory

Christian Bergholz

Public Finance, University of Kassel, Kassel, Germany

University of Kassel; Department of Economics; Public Economics Unit

Nora-Platiel-Str. 4; 34109 Kassel

Germany

Phone ++49-561-804-3034

Mail bergholz@uni-kassel.de

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Abstract

This paper examines the question: Does the existence of regional spillovers have an impact on the emergence of inter-municipal cooperation in tourism marketing? We use data from a survey conducted among Western German municipalities merged with official statistics regarding municipalities´ fiscal, political and demographic situation as well as tourism-related characteristics. We are the first to apply a hazard model explaining the emergence of inter-municipal cooperation. This method has serious advantages over the previously used methods. Our results show that especially small municipalities having the opportunity to free ride on great neighbours start inter-municipal cooperation less likely. The results are in line with Olson/Zeckhauser´s (1966) famous theory about "*the exploitation of the great by the small*".

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Key words: internalizing externalities, inter-municipal cooperation, tourism, hazard model, exploitation hypothesis, collective action, free riding

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1. Introduction

The sufficient and efficient provision of public services is a challenge, especially for small and rural municipalities. Despite several regional reforms, many municipalities do not meet the requirements for an optimal provision of public goods. Especially rural municipalities often are too small to provide public services efficiently. They are neither able to exploit scale economies nor to internalize spillovers (Oates, 1972; Hulst et al., 2009). In the 1960s and 1970s, structural reforms were applied in some European countries to mitigate these inefficiencies. However, these reforms evoke severe protests among the citizens and often the expected benefits are not generated (e.g. Blume/Blume, 2007; Blesse/Baskaran, 2016).

Public administration as well as the economics scholars have discussed inter-municipal cooperation (hereafter IMC) as an alternative to structural reforms (e.g. Steiner, 2003; Blesse/Rösel, 2017). In the last two decades, one can observe an increasing number of IMCs in Western countries. By establishing IMC, municipalities provide certain public services jointly but stay independent in all other tasks of public service provision. Proponents posit that through IMC municipalities can exploit economies of scale and scope as well as internalize spillovers. However, spillovers offer incentives to free ride on nearby municipalities. That is why some municipalities show no interest in IMC, because free riding provides them with a better outcome. Consequently, IMC does not exist in regions where it would be pareto-superior.

The existing literature on IMC emphasizes arguments in favour of scale economies to explain IMC emergence. Former contributions mention the existence of spillovers, but do not directly account for its impact and implications in analysing IMC emergence. We fill this gap by focusing on the public service tourism marketing (hereafter TM), where, besides the potential of exploiting scale economies, the existence of spillovers is given. Our main question is: Does the existence of regional spillovers have an impact on IMC emergence in tourism marketing?

We build on Olson/Zeckhauser´s (1966) famous exploitation hypothesis which proposes that the great get exploited by the small whereas the small free ride on the greats´ contributions to a public good. In our framework the classification of great and small depends on the intensity of municipalities´ preference or interest in the public service TM. We account for the fact that each municipality is embedded in a certain spatial constellation of great and small neighbouring municipalities. The different constellations help to identify to what extent the opportunity to free ride on neighbouring municipalities exists. We compare the probability of a certain municipality cooperating in different spatial constellations. Finally, we control for standard factors like municipalities' fiscal and demographic situation.

Apart from this, our second contribution is a methodical innovation. To the best of our knowledge, we are the first applying hazard model in order to explain IMC emergence. It is more adequate than methods applied in previous studies because it explicitly explains the start of IMC, namely switching from no cooperation to cooperation at a particular point in time. Additionally, hazard models address endogeneity problems through backward effects from the endogenous variable of the exogenous ones much better than usual methods. We make use of a unique data set collected in a survey among rural municipalities in Western Germany providing us with data on 303 municipalities from 2000 to 2015.

Our results show that the main argument of Olson/Zeckhauser (1966) contributes to explaining IMC emergence in the presence of spillovers. Given free riding opportunities, municipalities act opportunistically and free ride on their neighbours instead of bearing the costs in cooperative arrangements. We further find that with an increasing number of neighbours with a similar preference for TM, municipalities are more likely to start IMC. This is true for municipalities having a relatively high interest in TM and for those having a relatively low interest, with a larger effect for the latter. It supports the notion put forth by Feiock (2007) that transaction costs regarding IMC matter.

In section 2, we review the literature. Section 3 sketches the institutional background. A stylized model of different spatial constellations that shape freeriding opportunities is presented in section 4. In section 5, we present the data and our empirical strategy. The results are reported in section 6. Section 7 discusses the results and concludes.

2. Related Literature

There is a growing body on the determinants that facilitate or hinder IMC emergence. The US strand focuses on metropolitan areas whereas the European strand emphasizes small, rural municipalities. Nevertheless, the main determinants explaining IMC emergence coincide. Municipalities´ fiscal stress facilitates IMC and larger populated municipalities tend to cooperate less likely. Richard Feiock´s (2007) Institutional Collective Action Framework (ICA) argues that the more similar municipalities are, regarding several characteristics (socio-demographical, political and financial), the lower are the transaction costs and the more likely municipalities come to an agreement. Various empirical studies show that transaction costs have an impact on IMC emergence (e.g. Kwon/Feiock, 2010; Shrestha/Feiock, 2011). Blaeschke (2014) and Bel/Warner (2016) provide a comprehensive overview on the IMC literature.

So far, the literature has mostly focused on fields where scale economies are the dominant driver for IMC. Spillovers are mentioned in existing publications, but their effects and influence on IMC emergence has not been systematically analysed (e.g. Shrestha/Feiock, 2011; Di Porto et al., 2016). One of the few exceptions is the empirical study by Feiock et al. (2009) which analyses IMC emergence in the field of economic development. Their paper provides interesting insights into transaction costs reducing factors that facilitate IMC in a field which produces substantial regional spillovers. However, their empirical approach lacks a measure that captures the quantity or the existence of regional spillovers. That is why they cannot identify whether internalization of spillovers or other motives, like exploiting scale economies, are the reason for IMC emergence. To fill this gap, we examine whether regional spillovers lead to less IMC because of free riding.

In order to explicitly account for the spillover arguments, we make use of Olson/Zeckhauser´s (1966) famous exploitation hypothesis. In their seminal paper, they argue that great North Atlantic Treaty Organization (NATO) members bear the major burden for the global public good defence and small members mainly free ride on the great. In case of the alliance, all NATO partners are defended by the coalition irrespective of their contribution. Since TM, like defence, can also produce positive spillovers and a similar pattern of free riding is expected. The effort in attracting tourists can produce positive spillovers for nearby municipalities, because tourists do not only book hotels or spend money within the boundary of the advertising municipality. Consequently, the great, who have more interest or a higher preference for TM, provide the good and the small free ride. However, there are differences between both public goods. Contrary to defence, the public good character of TM is expected to be regionally limited and so are its spillovers. But we can expect that at least nearby municipalities are affected by spillovers.

The marketing literature clearly shows that spillovers in advertising exist. Expansive spillovers represent positive spillovers, where a company benefits from competitors´ advertising effort, e.g. in online advertising (Lewis/Nguyen, 2015) or TV advertising of pharmaceuticals (Shapiro, 2017). Predatory spillovers affect competitors negatively by stealing their former customers. Vardanyan/Tremblay (2006) provide evidence for it in the US brewing industry.

We can conclude that spillovers play a role in advertising in general. It can be expected that they change the rational suppliers´ behaviour regarding the optimal investment in the marketing mix. So far, there is no reliable evidence for municipalities´ TM and its spillovers. We expect predatory spillovers in situations where whole regions compete for the same potential tourist group. For example, beach resorts at the North Sea compete with beach resorts at the Baltic Sea. One region increases its TM effort which leads to a loss of tourists in the other region and vice versa.

Expansive spillovers, on the other hand, are expected to be existent within regional tourism markets, so that benefits of TM cannot be restricted to the advertiser's boundaries.

3. Institutional background

The tourism sector is a growing and significant factor for the German economy. In 2015, about 2.9 million people were employed in this sector (Deutscher Tourismusverband, 2016). There is a 26.9% growth in overnight stays, to 436.4 million, from 2005 to 2015 (Statistisches Bundesamt, 2016). Tourism activity is widely spread in Germany. Almost all regions in Germany have touristic activities and almost all municipalities have at least one accommodation provider. Nevertheless, there are plenty touristic hotspots spread all over Germany (coloured in orange in Figure 1). IMCs have emerged in touristic hotspots as well as in regions without a high extent of tourism while there are also many municipalities not cooperating in both types of regions.

German municipalities provide important public services like business parks, pre-school childcare and TM. When it comes to public service provision, they are, to a certain degree, autonomous in their decisions. Tourism marketing is not a mandatory public service like preschool childcare. Municipalities can decide whether they provide it and to what extent. In Germany, the states set the legal framework for IMC. In all states, municipalities are allowed to start IMC autonomously, even though there are slight differences in the relevant legislations. Municipalities can apply auto financing through own revenue sources, i.e. land tax and local business tax. Furthermore, touristic hotspots are allowed to collect tourism taxes under certain conditions. But for most municipalities, the largest share of revenues comes from a vertical tax sharing system and state grants (e.g. Zimmermann, 2009).

[Figure 1]

4. A stylized model of free riding opportunities in the presence of regional spillovers

Before we come to the stylized model we clarify some details and assumptions. By assuming that most IMCs exist between adjacent neighbours (e.g. Blaeschke, 2014), we focus on regional tourism markets and its expansive (positive) spillovers between direct neighbours. We present a stylized model derived from Olson´s (1965) logic of collective action, Feiock´s (2007) ICA and Olson/Zeckhauser´s (1966) exploitation hypothesis. Olson/Zeckhauser (1966) define big/large countries in terms of their national income. Transferring this concept to the current paper, we define big and small in terms of municipalities´ preferences or interest in TM. Thus, big municipalities have high preference for TM and are called big players (*B-P*). Ceteris paribus, they provided TM more likely and in a higher quantity and/or quality. Small municipalities, i.e. those with a low preference for TM, provide TM less likely and to a lower degree. They are called small players (*S-P*). The extent of TM spillovers as well as the opportunity to free ride depend on different spatial constellations a municipality is located in. We construct a simple environment with these two types of municipalities that helps explain different stylized constellations of free riding opportunities. The four stylized constellations consist of different combinations of *B-P*s and *S-P*s (see Figure 2). Two constellations are asymmetric (1 and 2) and two are symmetric (3 and 4). For each constellation, we derive whether the centered municipality is expected to start IMC.

[Figure 2]

Let us begin with the asymmetric ones. Consider a centered *S-P* that is surrounded by three *S-P* and one *B-P* (constellation 1). Now we can expect a relatively low probability of IMC emergence for two reasons. First, the centered *S-P* would not agree on IMC because free riding on *B-P*´s effort is a better option than internalizing all costs through IMC. Here, we observe Olson/Zeckhauser's (1966) exploitation of the great by the small. Second, *B-P* and *S-P* have divergent preferences for TM. This heterogeneity between them lets the transaction costs for finding an agreement on IMC rise.

The second asymmetric constellation is characterized by a centered *B-P* surrounded by only *S-P* (constellation 2). The centered *B-P* does not find cooperation partners because free riding is the better option for all its neighbours instead of bearing the costs for TM. Again, we observe Olson/Zeckhauser´s (1966) exploitation of the great by the small. And again, because of heterogeneity between *S-P* and *B-P* they face high transaction costs for coming to an agreement through IMC. Note that this does not mean that there is no investment in TM at all. The *B-P* invests in TM and the small players free ride on it.

Looking at the two symmetric constellations, we consider a centred *S-P* with only *S-P*s as direct neighbours (constellation 3). Free riding at the expense of the neighbours is per se impossible because none of the municipalities can expect the others to take the lead by starting to invest in TM. However, IMC can be a way for the centered *S-P* to provide TM together with its neighbours. And because of lower transaction costs, municipalities with similar preferences come to a cooperative agreement more easily than those with diverging preferences. The centered *S-P* starts IMC more likely than in the asymmetric constellations.

The final constellation is characterized by a centered *B-P* with only *B-P*s as direct neighbours (constellation 4). Contrary to constellation 3, the surrounding municipalities as well as the centered *B-P* still have incentives and the opportunity to free ride on each other. But because all of them have a similar preference for TM, other things equal, reaching an agreement is expected to be easier and more likely because of lower transaction costs than in the asymmetric constellations.

In reality, we encounter constellations that differ from these four stylized constellations. Some neighbours are *S-P* and some are *B-P*. In this context it is important to note that for a centered *B-P*, a *S-P* as neighbour has not much impact on IMC when there are several other similar *B-P*s, but for a centered *S-P* only one single *B-P* provides a free riding opportunity, which has a large effect on IMC emergence.

From the stylized model we expect that especially *S-P*s refrain from starting IMC when they have free riding opportunities (constellation 1), compared to the case when they do not have these opportunities (constellation 3). Thus, our first hypothesis reads:

H1: *Having the opportunity to free ride, small players are less likely to start IMC than small players without this opportunity.*

The number of direct neighbours plays an important role in examining IMC emergence. Recall, neighbours with similar preferences are better suited as cooperation partners than others because transaction costs are lower. We test this argument by distinguishing between *S-P* and *B-P*.

H2a: *The more neighbours with a similar preference for tourism marketing a small player has the more likely it is to start IMC.*

H2b: *The more neighbours with a similar preference for tourism marketing a big player has the more likely it is to start IMC.*

By testing **H1** we are going to find out whether *S-P*s start IMC less likely if they have a free riding opportunity. This is given if a neighbouring *B-P* exists. However, a neighbouring *B-P* does not only provide a free riding opportunity, it also has diverging preferences for TM, which leads to higher transaction costs and thus to the second argument which might explain less IMC in this constellation. To find out whether free riding is the reason for less IMC, we have to control for the number of neighbours with a similar preference for TM in scenarios with and without an additional neighbouring *B-P*. Consider constellation 3, a centered *S-P* with three direct neighbours that are all *S-P*s and compare it with constellation 1, consisting of a centered *S-P* with four direct neighbours, three are *S-P*s and the fourth is a *B-P*. Other things equal, if we observe no difference in the probability to start IMC between the two scenarios, we can be sure that there is no free riding effect that prevents IMC. But if there is a higher probability to start IMC in constellation 3 as compared to constellation 1, even though constellation 1 has in total one more neighbour, we can expect free riding behaviour. The final hypothesis reads:

H3: *Among small players, an additional neighbour with a similar preference for tourism marketing leads to a lower rise in the probability to start IMC if there is a big player around compared to if there is no big player around.*

5. Empirical Strategy

5.1 Data

Our analyses build on data from Western German local governments, remote from metropolitan regions, merged with official data on municipal level from the Land Statistical Offices including population, geographical, political, financial and tourism data. Unfortunately, there is no official database of inter-municipal cooperation in Germany. That is why we ran a survey and asked all 4,610 local governments in Western Germany remote from metropolitan regions to participate by filling in the mail-sent questionnaire on paper or online. We received 507 answers from all Western German states (except the city states Berlin, Hamburg and Bremen) which represents a response rate of ca. 11%. Not all of them answered all relevant questions and some respondents made contradictory statements. Because of this and because of missing data in several important explanatory variables, we must reduce the number of observations to 303 municipalities. Nevertheless, it compiles a solid data base in order to answer our research questions.

Our sample is not representative and there is no reliable information about existing IMCs in Western Germany. For that reason, we do not know the actual cooperation behaviour. We are aware that there could be a response bias. After talking to local politicians and because IMC is increasingly promoted by superordinate governments, we get the impression that social desirability in favor of IMC might exist. That is why, in a first step, we check whether the stated IMCs really exist by consulting the tourism associations´ websites. In a second step, we follow Solon et al. (2015) and account for several factors that could cause other potential selection biases. In our regression models, we control for municipalities´ fiscal situation, population size, the extent of tourism etc. In the end, we cannot be entirely sure that we disposed all doubt of a potential response bias. Nevertheless, we did the utmost to dispose of these problems.

We ask municipalities how they conduct their TM, i.e. which entity (county, municipality itself, municipality in cooperation with others, private provider etc.) is mainly responsible for it.

5.2 Endogenous variable

We focus on long-term IMCs organized in tourism associations. The endogenous variable IMC_{it} is 1 for those municipalities that start an IMC at a particular time interval t (0 else). The observation period lasts from the year 2000 to 2015. Because we use hazard model, all municipalities are observed over time until they start IMC or provide TM in alternative forms (delegation to superordinate governmental level or privatization). If a municipality starts providing TM in one of the mentioned provision types, it is censored for all following periods after starting it. Municipalities that do not start IMC in the observation period are censored after 2015. Out of 303 municipalities 126 (42%) start IMC at some point in the observation period and 26 (9%) start one of the alternative provision types.

5.3 Identification strategy

Our main purpose is to identify factors that explain IMC emergence in TM. The focus rests on the role of intra-regional spillovers from TM. We build on Olson/Zeckhauser´s (1966) exploitation of the great by the small and derive three hypotheses that we test. Essentially, we argue that big players which have a high interest in TM get exploited by free riding small players. In such constellations, we expect IMC being less likely to emerge. We measure the preference or interest in TM by the extent of municipalities' yearly overnight stays per capita (hereafter overnight stays).

The higher it is the more a municipality depends on tourism and the higher is the interest in promoting it (other things equal). Additionally, we control for several factors like demographic, political, institutional, geographic and financial characteristics.

First, we introduce a dummy variable ***S-P*** (small player) that is 1 if municipality *i*´s overnight stays is below the median of all direct neighbours (0 else). Remember, being a small player is always defined in relative terms (compared to the values of the direct neighbours). Second, we identify whether there is at least one big player as a direct neighbour by adding a dummy variable to the model (***BP_AROUND***). It is 1 if municipality *i* has at least one direct neighbour whose overnight stays are at least 4 times the overnight stays of the centered municipality *i* (0 else). It serves as a measure for free riding opportunities. At the same time it illustrates that there are highly diverging preferences of municipality *i* with at least one direct neighbour. Third, we construct an interaction variable of ***S-P*** and ***BP_AROUND*** (***S-P*BP_AROUND)*** to clearly distinguish between small players with and without a big player as direct neighbour. By adding an interaction variable to the model, the interpretation of the coefficients of the interactions variable´s components changes compared to usual dummy variables. The effect of ***S-P*BP_AROUND*** represents the difference in the likelihood to start IMC between small players that have at least one big player as direct neighbour and those that do not have a big player as direct neighbour. To illustrate it differently, it shows the differences in the likelihood to start IMC between constellation 1 and 3 of Figure 2. It is the main variable to test **H1**. The coefficient of ***S-P*** represents the likelihood to start IMC if municipality *i* is a small player which does not have a big player as direct neighbour compared to the case that municipality *i* is a big player.

The variable ***B-P*** (big player) is 1 if municipality *i*´s overnight stays are above the median of its direct neighbours (0 else). Following Bergholz/Bischoff, (2016), we add the variable ***NUMSIM_STAYS_PC*** to the model which counts the absolute number of municipality *i*´s direct neighbours whose overnight stays do not differ by more than 25% from municipality *i*. The variable serves as a proxy for the number of direct neighbours with a similar preference for TM and indicates low transaction costs between potential partners. Again, we construct an interaction variable (***B-P*NUMSIM_STAYS_PC***). It clearly distinguishes between the impact on IMC by the number of neighbours with a similar preference for TM if municipality *i* is a big player (constellation 4) compared to the case when municipality *i* is a small player (constellation 3). Note that there can also be neighbouring big players in constellation 3 and small players in constellation 4. What matters is the absolute number of neighbouring similar small players in constellation 3 and the absolute number of neighbouring similar big players in constellation 4. The variable ***B-P*NUMSIM_STAYS_PC*** and its components are the main variables to test **H2a** and **H2b**.

Finally, we introduce the interaction variable ***BP_AROUND*NUMSIM_STAYS_PC***. It represents the difference in the likelihood to start IMC of an additional neighbour that has a similar preference for IMC, with and without a big player as direct neighbour. It is the main variable to test **H3**.

5.4 Control variables

We introduce annual tax revenues per capita (*TAX_REV_PC*) as an indicator for fiscal capacity and the ratio of expenditures and revenues (*EXP_OV_REV*) as a fiscal stress indicator as well as for municipalities´ population size (measured in 1000 inhabitants) (*POP*).

Furthermore, we account for transaction costs by introducing the absolute number of similar neighbours regarding fiscal stress (*NUMSIM_EXP_OV_REV)*, fiscal capacity (*TAX_REV_PC*), population size (*NUMSIM_POP*) and ruling party (*SAME_STRONGEST_PARTY*).[1] Additionally, we control whether there is an absolute majority in the municipal council (*ABSOLUTE_MAJORITY*).

[1] For all three NUMSIM-variables a neighbour is considered as similar if the value does not differ by more than 25% (see section 5.3).

On geographical level, *NEAR_TOURISTIC_SITE* is 1 if the municipality is at most 20 km away from an important touristic site.[2] We control for the distance to the next big city (over 100,000 inhabitants) (*DISTANCE_BIG_CITY*). Furthermore, we account for the absolute number of direct neighbours (*NUM_NEIGHBOURS*) and municipalities that are located at a county border or at a state border with two dummy variables (*COUNTY_BORDER*, *STATE_BORDER*). State fixed effects are added to the model, to cover differences in states´ administrative structures. We also introduce time fixed effects to control for unobserved shocks that might have an impact on IMC in TM.

The dummy variable *ONLINE* equals 1 if respondents filled in the questionnaire online and 0 for those who filled in the printed questionnaire. Finally, by adding two dummy variables, we distinguish between several types of municipalities (see Blesse/Rösel, 2017) to control for institutional differences (*VERBANDSGEMEINDE_1*, *VERBANDSGEMEINDE_2*). To get better insights into our sample, a table of descriptive statistics, containing important exogenous variables we use, is presented in table 1.

[Table 1]

5.5 Empirical method

Unlike a lot of other papers in the IMC emergence literature, we do not conduct an ordinary binary panel regression (e.g. Di Porto et al., 2013) or cross section analysis with a binary endogenous variable (e.g. Blaeschke, 2014) to explain IMC emergence. Cross section approaches actually explain the existence not the emergence of IMC and entirely ignore the time dimension. Panel models incorrectly imply that the decision to cooperate is made again and again each year. But in fact IMC starts once and remains quite consistent in the following years. Therefore, we assume an emerged IMC in our observation period as definite. Our objective is to explain IMC emergence at

[2] The Baedeker Travel Guide (1997) attributes one star for interesting touristic sites or municipalities and two stars for very special touristic sites. In Germany 280 municipalities qualify for either one or two stars.

a particular point in time. That is why we apply hazard model, which explicitly explains the switch from no cooperation to cooperation. Another reason for using hazard model instead of panel regressions is that periods following the point in time a municipality starts IMC do not contribute to explaining its emergence. Hazard models account for it by censoring the following periods after the IMC started.

An additional argument in favour of hazard models is that they especially address endogeneity issues, in a way that ordinary panel models are not able to, by dropping (censoring) all following observation periods of an observation *i* after the event (starting IMC) occurs. All kinds of backward effects from exogenous variables on the endogenous one are prevented.

In hazard models the probability to start IMC depends on time intervals in which municipality *i* can start IMC, and on the explanatory variables that affect the hazard rate independently of time. But explanatory variables can vary over the time intervals. The hazard rate function is defined as the probability to start IMC within interval *t* and *t+1* divided by the probability of not starting IMC at least until time interval *t*. Under the assumption of a complementary log–log distribution the discrete hazard function reads (Allison, 1982):

$$P_{it} = 1 - \exp[-\exp(\beta' X_{it})]$$

P_{it} equals the probability of starting IMC in the time interval *t*, given that it has not started IMC or got censored before. $\beta' X_{it}$ represents the matrix of explanatory variables and its corresponding coefficients.

In order to test the hypotheses we apply hazard model. Our regression equation reads:

$$IMC_{it} = f(Freeriding_{it-2}, Controls.fiscal_{it-2}, Controls.demogr_{it-2}, Controls.other_{it}, FE_t, FE_s)$$

IMC_{it} is 1 for those municipalities that start an IMC at a particular time interval *t*. The matrix *Freeriding* represents the variables that cover the main variables of interest that are the most important to test our three hypotheses. Note that *Freeriding* consists of slightly different variables for each model (see section 5.6). The three *Control* matrices consist of fiscal, demographic, geographical political and institutional control variables that are identical for each model. We do not assume a functional form of the base line hazard. Alternatively, we include dummy variables for each time interval (FE_t) and apply a fully non-parametric approach. State fixed effects FE_s are added to the model. Standard errors are clustered at state level. We lag tourism related, demographic and fiscal variables by two years because the awareness for the need to start IMC in TM lies in the past. Furthermore, looking for suitable partners and the IMC bargaining process itself takes time until the cooperation finally starts. Thus, an observed IMC is the end of a process. The approach of lagging exogenous variables further helps to overcome endogeneity problems through simultaneity. As a robustness check, we test another specification of lagged variables by taking the mean value of *t*-1 and *t*-2 (see section 6).

5.6 Regression models

We test our hypothesis in three different models, because having ***S-P*** and ***B-P*** in one model would result in multicollinearity and some variables are interacted with multiple other variables. In model 1 we test **H1**, that is why it includes ***S-P***, ***BP_AROUND*** as well as ***S-P*BP_AROUND***. We examine for small players, whether a free riding opportunity (a big player as direct neighbour exists) changes the probability to start IMC, compared to situations without this opportunity. In model 2 we test **H2a** and **H2b**. Different to model 1 we drop the former three variables and add ***B-P*** and ***B-P*NUMSIM_STAYS_PC*** to test whether an additional neighbour with a similar preference for TM changes the probability to start IMC for small as well as for big players. In the final model 3, we only look at small players to test **H3** and drop all big players. We reintroduce ***BP_AROUND*** and create the interaction variable ***BP_AROUND*NUMSIM_STAYS_PC*** to examine if among small players, an additional neighbour with a similar preference has a different impact on IMC with or without a big player as direct neighbour. So that we can identify to what extent free riding instead of transaction costs is the reason for less IMC.

6. Results

In model 1 (table 2) we test **H1**. The highly significant coefficient of ***SP*BP_AROUND*** suggests that small players which have a free riding opportunity (a big player as direct neighbour exists) have a 69% lower probability to start IMC than small players without this opportunity.[3] Further, the results allow us to make more detailed interpretations. We can compare the likelihood of big players starting IMC with the likelihood of small players, which differ in having the opportunity to free ride or not, starting IMC. As ***S-P*** indicates, without a free riding opportunity, small players have a 58% higher probability to start IMC than big players. Given a free riding opportunity, small players have an 11% lower probability to start IMC than a big player. It indicates that small players, compared to big players, only start IMC more likely if there is no free riding opportunity. The sizeable odds ratio of 69% underlines the strong effect of a free riding opportunity on the probability to start IMC. Our results confirm **H1**.[4]

[Table 2]

By looking at the positive and highly significant impact of the variable ***NUMSIM_STAYS_PC***[5] in model 1, it becomes clear that additional similar neighbours increase the likelihood of starting IMC. Unfortunately, in model 1 we are not able to distinguish whether there are different effect sizes between small and big players. That is what we do in regression model 2 by testing **H2a** and **H2b**. The results show that with an additional neighbour which has a similar preference for TM, the likelihood to start IMC for big players rises on average by 26% and for small players by 50%. Here as well, the difference between both equals the hazard ratio of ***BP*NUMSIM_STAYS_PC***

[3] Note that we report coefficients in table 2. In order to interpret effect sizes, we calculate hazard ratios (see table 3 in the Appendix) (e.g. Jenkins, 2005).

[4] Because of the arbitrary chosen definition that a big player has 4 times more overnight stays as municipality *i* we applied robustness checks with alternative definitions. We changed the definition of ***BP_AROUND*** from 4 times to 5, 6, 7 times. The results are robust to these changes. Regression tables are available upon request.

[5] We changed the definition of ***NUMSIM_STAYS_PC*** as well as for the other NUMSIM-variables in a robustness check. In two additional specifications, a neighbour is defined as similar if the value differs by at most 20% and by at most 33%. The results remain robust to these changes. Regression tables are available upon request.

(24%). We can confirm **H2a** and **H2b** and find that, with an increasing number of similar neighbours for small and for big players, the likelihood to start IMC increases.

In regression model 3, we split the sample and only keep the small players to further examine whether the result from **H1** is really driven by free riding or by transaction costs. We find that for small players which have a big player as direct neighbour, an additional neighbour with a similar preference in TM increases the likelihood to start IMC on average by 57%. And the effect for small players without a big player as direct neighbour is 89%. The difference between both equals the hazard ratio of ***BP_AROUND*NUMSIM_STAYS_PC*** (32%). Given the same number of direct neighbours with a similar preference for TM, it indicates that there is a lower probability to start IMC with an additional big player as direct neighbour compared to no big player as direct neighbour. This can be interpreted as the free riding effect. Therefore, our results confirm **H3.** It provides evidence that Olson/Zeckhauser´s (1966) exploitation of the great by the small is highly relevant for our context.

Unfortunately, *SAME_STRONGEST_PARTY* suffers from a lot of missing values. That is why we exclude it from the basic model. Nevertheless, we run all three basic models including it. When included, it is insignificant while the impact of the other variables remains mostly the same. Most importantly, the performance of major variables remains unchanged with one exception. By testing **H3**, ***BP_AROUND*NUMSIM_STAYS_PC*** shows no significant impact. However, we test **H3** in a sub sample with small players only, which reduces the number of observations in a first step. In a second step the missing values of variable *SAME_STRONGEST_PARTY* reduce the sub sample again by 35% and we end up with only 169 municipalities. We are convinced that the insignificance is caused by the low number of observations. Our results of model 3 are also robust to changes in the definition of ***BP_AROUND*** and in the definition of ***NUMSIM_STAYS_PC***.[6][7]

[6] See footnote 4 and 5 on page 16 and 17.

[7] Regression table is available upon request.

Our control variables provide the following results. With increasing distance to the next big city, municipalities start IMC more likely (*DISTANCE_BIG_CITY*). *NUMSIM_EXP_OV_REV* is positively significant in model 1 and 2, but not in model 3 and neither in the models with *SAME_STRONGEST_PARTY*. Finally, the larger municipalities are, in terms of population size, the less likely they start IMC.

As a robustness check, we run our regressions with another time lag variant. Instead of applying a two years lag, we take the mean values of *t-1* and *t-2*. The performance of the major variables remains unchanged. Only *POP* and *NEAR_TOURISTIC_SITE* lose their significance. Thus, the impact of both has to be treated with caution.[8]

7. Discussion and conclusion

In the current paper we examine IMC emergence in the public service tourism marketing. The main question asked is: Does the existence of regional spillovers have an impact on IMC emergence in tourism marketing? We use information about whether and when Western German municipalities started IMC between the year 2000 and 2015 from a survey and merge it with official fiscal, demographic, geographic, political and tourism data on municipality level, to a unique data set of 303 municipalities. We close a gap in the literature by explicitly taking regional spillovers into account and analysing its impact on IMC emergence. The spillover argument is often mentioned, but existing studies do not directly account for its impact on IMC emergence (see section 2). In our identification strategy, we build on Olson/Zeckhauser´s (1966) famous exploitation hypothesis. In their framework the small free ride on the great and exploit them. We define great and small in terms of municipalities´ preference or interest in tourism marketing. It is assumed that each municipality is embedded in a spatial constellation of great and small

[8] Regression table is available upon request.

municipalities. These constellations help to identify to what extent there is the opportunity to free ride.

As a methodical contribution, we apply hazard model which has never been used before to explain IMC emergence. To answer the question under which conditions municipalities start IMC, hazard model is superior to the usually applied methods because it explicitly explains the start of IMC, namely the switch from no cooperation to cooperation at a particular point in time. Additionally, hazard models address endogeneity problems through backward effects from the endogenous variable of the exogenous ones much better than usual methods.

Our results are in line with Olson/Zeckhauser´s (1966) proposition that the small exploit the great. Especially the small municipalities with the opportunity to free ride on great neighbours act opportunistically and start IMC less likely. We can show that the lower probability to start IMC in a scenario with a free riding opportunity is due to spillovers and not due to high transaction costs. With this result, again, we want to stress that this neglected aspect deserves more attention in the IMC literature and ignoring it could lead to misinterpretation of coherences. Olson/Zeckhauser´s (1966) exploitation hypothesis provides an appropriate basis in order to illustrate the free rider problem in IMC.

We also find that municipalities´ number of direct neighbours with similar interest in tourism marketing significantly increases the likelihood to start IMC. The effect is larger for the ones with low interest than for those with high interest. It indicates that an additional similar neighbour for municipalities with a low interest has a higher impact on the likelihood to start IMC than a similar neighbour for municipalities with a high interest. One explanation is that high interest municipalities often simply do not have the need to start IMC even with suitable partners available. The utility they receive from the provision of tourism marketing seems to be large enough to be profitable even without cooperation. That is why they provide it themselves. Note that IMC is always a trade-off between giving up some autonomy and gaining positive effects, like efficiency improvements (e.g. Ferris/Graddy, 1988). Apparently, low interest municipalities to a stronger degree depend on the gains from IMC than high interest municipalities. As outlined by e.g. Feiock et al. (2009), we show that similar preferences between potential cooperation partners reduce transaction costs and increase the likelihood to start IMC. We conclude, not the mere number of neighbours determines IMC emergence, but the number of neighbours that share preferences.

The higher municipalities´ distance to the next big city the more likely they start IMC. This indicates additional support of an impact of spillovers on IMC because big cities usually invest in tourism marketing and/or attract tourists anyway. Because these spillovers and thus free riding opportunities decrease with distance, we observe IMC as more likely for municipalities that are far away from big cities.

The current paper suffers from some limitations. First, through our measures of differences between municipalities regarding their yearly overnight stays per capita, we simply assume, rather than explicitly prove, the existence of spillovers. Data on municipalities' tourism marketing expenditures are required to clearly identify spillovers. Unfortunately, in German official statistics it is part of a compound measure including other assets and it is impossible separating it properly. Having data on tourism marketing expenditures, future research can provide refined insights by quantified spillovers by applying spatial autoregressive model (SAR) with tourism marketing expenditures as dependent variable. Nonetheless, with our measure, we are able to identify and isolate the important effects and test our hypotheses. Second, our data stem from a survey and might suffer from a response bias. Our approaches encounter a potential social desirability response bias in favour of IMC and other potential response biases. We checked whether the stated IMCs really exist by consulting the tourism associations´ websites and controlled for factors in our exogenous variables that could cause a response bias (e.g. Solon et al., 2015). But due to the fact that there is no information available about the actual number of IMC in tourism marketing in

Germany, we cannot guarantee that we eliminate the response biases entirely. Nevertheless, we did the utmost to dispose of the problem.

Let us finish the paper with policy implications. Apart from structural reforms, voluntary IMC is an alternative solution to deal with spillovers on municipality level. We find that IMC exists in regions where we would usually expect free riding behaviour. But our results also show that IMC emerges less likely in such regions. Especially in asymmetric constellations where municipalities have divergent preferences for tourism marketing, federal and state governments could help to overcome the free riding dilemma by subsidies. Some German states like Hesse or Bavaria have implemented subsidy programs for IMC (e.g. Kompetenzzentrum für Interkommunale Zusammenarbeit, 2016), but so far they are not particularly designed for overcoming free riding. They simply provide financial incentives and support municipalities in legal and organizational affairs. However, even the mere financial incentive can help to start IMC, especially in cases in which the subsidy equals at least the gains they receive by free riding. Another recommendation is to shift the decision about tourism marketing onto the county. Counties encompass a much broader geographical area and a substantial part of spillovers can be internalized. This efficiency gains must be counted against the loss of utility, due to a uniform level of tourism marketing of each member municipality (Oates, 1972).

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Appendix

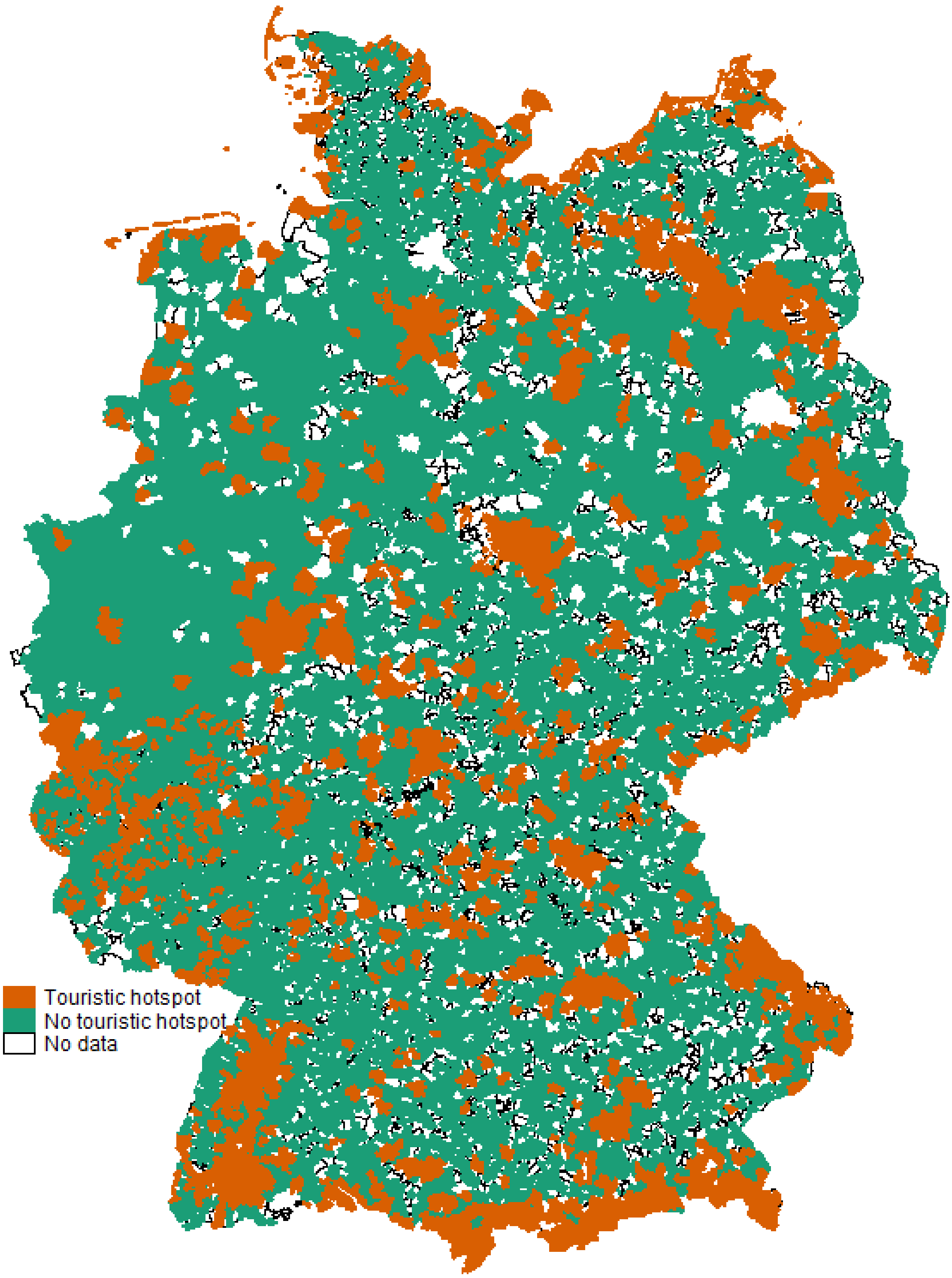

Figure 1: Germany´s touristic hotspots

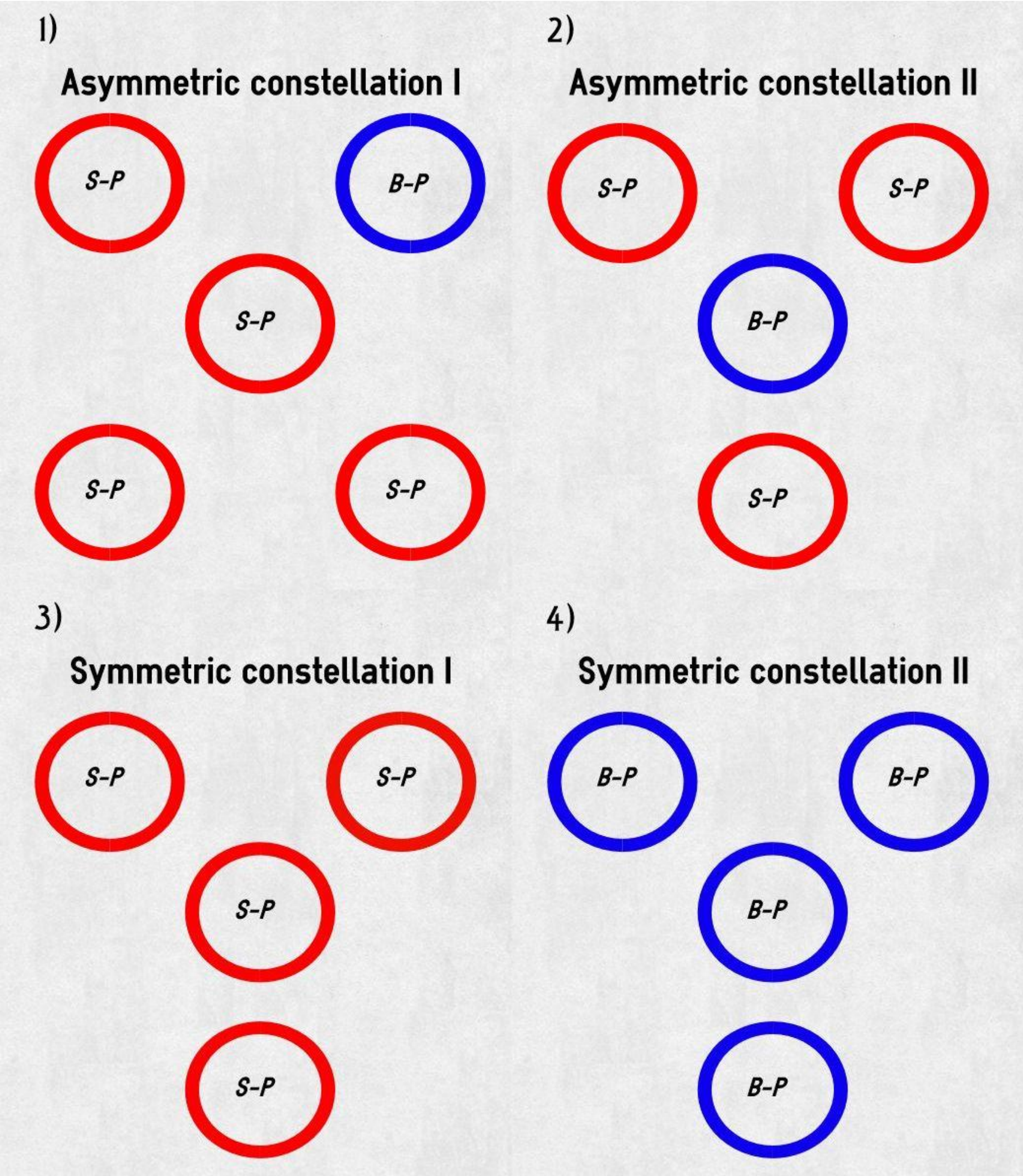

Figure 2: Asymmetric and symmetric constellations

Vector	Variable	Obs	Mean	Std. Dev.	Min	Max
Freeriding	***S-P***	2,937	0.5679265	0.4954489	0	1
	BP_AROUND	2,937	0.3258427	0.4687687	0	1
	S-P*BP_AROUND	2,937	0.2138236	0.4100736	0	1
	B-P	3,471	0.3710746	0.483162	0	1
	NUMSIM_STAYS_PC	3,471	1.039182	0.9625062	0	5
	B-P*NUMSIM_STAYS_PC	3,471	0.6081821	0.9222088	0	5
	BP_AROUND*NUMSIM_STAYS_PC	2,937	0.4824651	0.7957968	0	4
Controls.fiscal	***NUMSIM_TAX_REV_PC***	3,471	4.067128	1.856165	1	12
	NUMSIM_EXP_OV_REV	3,471	5.958225	2.046079	1	15
	EXP_OV_REV	3,471	0.9259618	0.5124877	-27.55565	3.149509
	TAX_REV_PC	3,471	5147.551	270694	-76.20529	2738.75
Controls.demogr	***NUMSIM_POP***	3471	2.044944	1.05018	1	6
	POP	3,471	7637.997	12953.85	19	88759
Controls.other	***ABSOLUTE_MAJORITY***	3,471	0.3820225	0.485952	0	1
	NEAR_TOURISTIC_SITE	3,471	0.4747911	0.4994361	0	1
	DISTANCE_BIG_CITY	3,471	62323.03	36164.96	7908.762	301586.4

Table 1: Descriptive statistics; exogenous variables

Variables	**(1)**		**(2)**		**(3)**	
	Coeff	**Std. Err**	**Coeff**	**Std. Err**	**Coeff**	**Std. Err**
S-P	0.457**	(0.183)				
NUMSIM_STAYS_PC	0.406***	(0.124)	0.404***	(0.0743)	0.638***	(0.0635)
BP_AROUND	1.276***	(0.296)			0.577	(0.539)
S-P*BP_AROUND	-1.174***	(0.409)				
B-P			0.283	(0.216)		
B-P*NUMSIM_STAYS_PC			-0.280**	(0.119)		
BP_AROUND*NUMSIM_STAYS_PC					-0.399**	(0.173)
NUMSIM_TAX_REV_PC	-0.0244	(0.0896)	-0.0587	(0.0438)	-0.00268	(0.0855)
NUMSIM_EXP_OV_REV	0.148**	(0.0694)	0.0903**	(0.0440)	0.0238	(0.0635)
NUMSIM_POP	0.110	(0.0757)	0.0721	(0.0678)	0.0866	(0.103)
EXP_OV_REV	0.831*	(0.469)	0.301	(0.338)	1.083*	(0.593)
TAX_REV_PC	-6.28e-05	(0.00036)	-0.000104	(0.000380)	5.13e-05	(0.00066)
POP	-3.79e-05***	(1.47e-05)	-3.36e-05***	(8.10e-06)	-3.93e-05	(5.88e-05)
NEAR_TOURISTIC_SITE	0.490***	(0.162)	0.308***	(0.0928)	0.585***	(0.224)
DISTANCE_BIG_CITY	3.19e-06**	(1.56e-06)	4.18e-06***	(9.97e-07)	4.52e-06	(4.46e-06)
ABSOLUTE_MAJORITY	-0.0117	(0.107)	0.0328	(0.199)	-0.224	(0.287)
Observations	**2,063**		**2,438**		**1,206**	
Time-invariant Controls	**Yes**		**Yes**		**Yes**	
Time Interval Dummies	**Yes**		**Yes**		**Yes**	
State Fixed Effects	**Yes**		**Yes**		**Yes**	
Clustered Standard Errors (States)	**Yes**		**Yes**		**Yes**	

Table 2: Regression results

VARIABLES	(4)		(5)		(6)	
	Coeff	Std. Err	Coeff	Std. Err	Coeff	Std. Err
S-P	1.580**	(0.288)				
NUMSIM_STAY_PC	1.502***	(0.187)	1.498***	(0.111)	1.892***	(0.120)
BP_AROUND	3.583***	(1.061)			1.780	(0.960)
S-P*BP_AROUND	0.309***	(0.126)				
B-P			1.328	(0.287)		
B-P*NUMSIM_STAYS_PC			0.756**	(0.0896)		
BP_AROUND*NUMSIM_STAYS_PC					0.671**	(0.116)
NUMSM_TAX_REV_PC	0.976	(0.0875)	0.943	(0.0413)	0.997	(0.0853)
NUMSIM_EXP_OV_REV	1.159**	(0.0804)	1.094**	(0.0482)	1.024	(0.0651)
NUMSIM_POP	1.116	(0.0845)	1.075	(0.0729)	1.091	(0.113)
EXP_OV_REV	2.295*	(1.076)	1.351	(0.457)	2.954*	(1.750)
TAX_REV_PC	1.000	(0.00036)	1.000	(0.00038)	1.000	(0.000662)
POP	1.000***	(1.47e-05)	1.000***	(8.10e-06)	1.000	(5.88e-05)
NEAR_TOURISTC_SITE	1.633***	(0.264)	1.360***	(0.126)	1.794***	(0.402)
DISTANCE_BIG_CITY	1.000**	(1.56e-06)	1.000***	(9.97e-07)	1.000	(4.46e-06)
ABSOLUTE_MAJORITY	0.988	(0.106)	1.033	(0.205)	0.799	(0.230)
Observations	**2,063**		**2,438**		**1,206**	
Time-invariant Controls	**Yes**		**Yes**		**Yes**	
Time Interval Dummies	**Yes**		**Yes**		**Yes**	
State Fixed Effects	**Yes**		**Yes**		**Yes**	
Clustered Standard Errors (States)	**Yes**		**Yes**		**Yes**	

Table 3: Regressions results (hazard ratios)