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European Capitals of Culture and Life Satisfaction

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EUROPEAN CAPITALS OF CULTURE AND LIFE SATISFACTION[·]

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Abstract
This paper analyzes whether hosting the most prestigious European cultural event, the European Capital of Culture, has an impact on regional economic development or the life satisfaction of the local population. Concerning the economic impact, we show that European Capitals are hosted in regions with above average GDP per capita, but do not causally affect the economic development in a significant way. Even a positive impact on GDP per capita would not imply a positive impact on individual utility or social welfare of the regional population. Surprisingly, using difference-in-difference estimations, a *negative* effect on the well-being of the regional population is found during the event. Since no effect is found before the event, reverse causality and positive anticipation can be ruled out. The negative effect during the event might result from dissatisfaction with the high levels of public expenditure, transport disruptions, general overcrowding or an increase in housing prices.

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1. Introduction

1.1. Background and Contribution

Most studies on mega-events analyze sporting events such as the Olympics or the Football World Cup, and furthermore restrict their focus on the economic consequences thereof. We know little about the impact of *cultural events* on society. Moreover, empirical evidence on the influence on life satisfaction of such mega-events is scarce. To fill this gap, this paper analyzes the impact on life satisfaction of hosting the European Capital of Culture (ECOC).

Founded in 1985, the ECOC is now regarded as the most prestigious and popular European cultural event (Mittag, 2008). The following numbers, derived from a report by the European Union covering the 21 Cultural Capitals between 1995 and 2004, depict the significance of hosting an ECOC. On average, approximately 500 additional cultural projects were implemented the year in which a city was hosting the ECOC. The cultural program budgets reached up to 58.6m euro (in Lille) – and were even exceeded by capital expenditure. New provision and upgrading of cultural infrastructure, urban revitalization and investment in general infrastructure amounted to over 220m euro (in Copenhagen). The total expenditure attributed to the 21 cities analyzed ranged between 3.5 and 3.75bn euro. No comparable series of European cultural programs or events exist that have generated such a large expenditure (Palmer, 2004). The popularity of the ECOC program is also reflected in the imitations around the world. An Arabic capital of culture was selected in 1996; a Central and South American capital of culture was implemented in 2000, Canada adopted the idea in 2003, and in 2009 the USA joined in (Mittag, 2008).

All ECOC projects required large investments by public authorities. The total public sector contribution from national, city, regional and European Union sources represented, on average, 77.5 percent of total investments generated from all sources (Palmer, 2004). For mega-events, such major public subsidies are usually justified with economic multiplier effects or externalities. However, the abundant literature on hosting major sport events has, at

best, shown negligible economic benefits for mega-events. A recent study shows a positive short-term effect of international sporting events on national well-being (Kavetsos and Szymanski, 2010). This result is not driven by improved athletic success but rather the "feel-good" factor of hosting such an event. Hosting the FIFA World Cup or the Olympics increases life satisfaction - *nota bene* - only in the year the event took place, and has no long-term effects. In contrast to the rich literature on sporting events, to date there is no empirical evidence regarding the impact of cultural mega-events. Our estimations show a negative and significant effect of hosting an ECOC on the life satisfaction of the regional population. The coefficient varies around -0.08, which is a sizeable effect on a life satisfaction scale from 1 to 4.

The intended contribution of our study on the European Capitals of Culture is to show that cultural mega-events might have welfare implications, som of which are not captured by using standard economic indicators. The remainder of this article is structured as follows. In Part 1.2 we briefly discuss the literature on mega-events which is directly relevant for cultural programs involving large organizational effort and large resource expenditures. Part 2 reviews the existing literature and gives background information on the ECOC, with respect to its history, selection criteria, funding and economic impact and we present our own econometric estimations on the impact of hosting a ECOC on GDP per capita and growth. In Part 3, happiness research is introduced. Part 4 presents the life satisfaction data and empirical results. Part 5 concludes.

1.2. The Economics of Mega Events

Whether mega-events, especially sporting events, produce net economic benefits has been discussed extensively in the literature (for a review on sporting events see Matheson, 2008). While the following arguments are mainly derived from the discussion on sporting events,

they can also be applied to cultural mega-events such as the ECOC. Politicians and promoters of public investment often emphasize the positive effects of a mega-event. The economic effects can be structured into short- and long-term effects on employment, tourism, infrastructure and housing/land values.

Mega-events, it is argued, create *jobs* and increase *wages* in the construction sector – and, by spillover effects, also in other sectors. However, strong substitution effects and budget constraints limit the net job creation and wage effects – or counteract it completely (see e.g. Rappaport and Wilerson, 2001). Concerning the sustainability of job creation, mega-events do not necessarily contribute to the creation of long-term full-time jobs (Whitson and Horne, 2006).

Mega-events are also supposed to create additional flows of *tourists*, both during and after the event, including economic multiplier effects (Karlis, 2003). The net effect depends on the region and time considered. Substitution effects take place because tourists are diverted to other regions, either at the time of the event or in later periods, making the net effect difficult to determine (Siegfried and Zimbalist, 2002).

Hosting a mega-event usually requires major *infrastructure* investments. The investments include accommodations, efficient transportation and telecommunications systems (Roche, 1992). However, urban infrastructure should serve the regular needs of the population and not the requirement of extraordinary events. One common argument against large public expenditures for mega-events is that they have to be funded out of taxation, and increased taxes tend to crowd out private expenditures. The opportunity cost of public funds has to be considered as well. Public funding could be used more productively to finance hospitals and schools, thus enhancing well-being (Ingerson, 2001, Whitson, 2004). Furthermore, the higher prices associated with construction services before the event might deter other investment projects not relevant for the event (Blake, 2005). The literature on sporting events suggests that the development and construction of stadiums do not generate a net addition to economic

activity (Baade and Dye, 1990, Lertwachara and Cochran, 2007). In order to win the nomination for a major event, competing cities usually outbid each other with more spectacular (and costly) propositions. One difficulty is to use the created capacities once the event is over and to cover the maintenance costs (Thornley, 2002). The facilities constructed to host, e.g., the FIFA World Cup, often do not match the level of demand afterwards (Manzenreiter and Horne, 2005).

Mega-sporting events also influence the *housing market and land values*. The building of event-related infrastructure can involve housing relocation because of the compulsory purchase of land for clearance and building, and this can also lead to a rise in rents and house prices. This leads to problems especially for people with low incomes living in these areas (Hall and Hodges, 1998). Malfas et al. (2004) stress that mega-sporting events could serve to exacerbate social problems and deepen existing divides among residents.

Overall, the literature does not support the view that hosting a mega-event will produce a net increase in economic activity. The positive effects are usually compensated by substitution, crowding out, and leakages. However, what really matters for an economic evaluation is the total effect on *social welfare*. Economic activity is not necessarily correlated with well-being since it does not capture many other effects of mega-events. In particular, focusing on market activities disregards external effects. These may be negative, such as congestion costs, noise or stress, or positive, such as increased pride or enthusiasm for an event. If mega-events do indeed raise well-being, economic indices such as GDP or numbers of tourists are inadequate measures. Modern happiness economics can be applied to determine the impact of an event on life satisfaction. Life satisfaction or subjective well-being has been found to be a valid proxy for utility as used in economic theory (Frey, 2008).

Hosting an ECOC may impact life satisfaction in various ways. In some cities this event has led to substantial improvements of public spaces and public transportation systems, as well as urban renewal. A positive impact on life satisfaction may also result from the creation of

additional jobs and the availability of new customers for businesses. On the negative side, building sites may generate unpleasant noise and make travelling to work more difficult. Also, the influx of tourists might cause some people to be less satisfied with life due to congestion in public transport, additional disruptions, littering or increased crime. Housing prices may also rise. The life satisfaction approach allows individuals to integrate and value the relative importance of such effects. Using this approach, Kavetsos and Szymanski (2010) show that hosting a major sporting event like the FIFA World Cup or the Olympics has a positive and significant impact on life satisfaction. However, this "feel-good" factor is found to exist only in the year of the event; there is no evidence to suggest long-term increase in well-being.

2. The European Capitals of Culture

2.1. History

The European Capital of Culture (ECOC) is one of the most attractive events in the European Union; in fact, according to some European bodies, this prestigious event has advanced to being *the* most popular and admired event within the European Union (Mittag, 2008). Today, the ECOC is Europe's most ambitious collaborative cultural project both in scope and scale, with budgets far exceeding those of any other cultural event (Communities, 2009).

In November 1983, Melina Mercouri, then Greece's Minister of Culture, suggested at the first informal meeting of the ministers of culture "[...] It is time for our [the Culture Ministers'] voice to be heard as loud as that of the technocrats. Culture, art and creativity are not less important than technology, commerce and the economy"(p. 231 Sassatelli, 2008). In June 1985, at the fourth meeting of the Council of Culture Ministers, the formal decision was taken

to create an ECOC initiative. At the same meeting, the first European City of Culture[1] – Athens – was selected (Communities, 2009).

At the beginning of the ECOC event in 1985, the ministers of culture created only very rudimentary rules on the aim and content of the program, the selection criteria and the organization and financing. The selection criteria and the assignment of ECOC had been developed in several phases, making the process inconsistent and erratic. In the beginning, only one Member State held the event and the decision on the choice of city was made at least two years in advance.[2] Due to the attractiveness of the program, stronger regulations and more stable selection procedures were implemented in the 1990s. In 1992, a resolution was developed which proposed to alternate the selection between EU cities and cities from other European countries and non-member states. Furthermore, it was decided that cities should not belong to the same geographical zone in consecutive years, a balance should be struck between capital cities and provincial cities, and a pair of cities could be designated jointly per year. After 1997, the principle of equal rotation was dropped because of substantial problems erupting between the responsible ministers. Lobbying strategies and political interests started to play a more and more decisive role (Mittag, 2008). Adherence to the rules was disrupted entirely in 2000, a highly symbolic year. All nine applying cities were accepted as ECOC. As a result, since 2001, only two cities are able to be an ECOC in the same year. In early 2007, the regulations were amended again, with the result that cities would now be entitled to be the ECOC for a whole year. The ECOC would also involve the surrounding regions, as this allows a wider public to be reached, and the impact of the event to be amplified. Finally, in 2009, additional rules were introduced stating that, of the two ECOC per year, one of the 'old' fifteen EU states and one of the twelve 'new' EU states must be selected.

[1] Later the title was changed to "European *Capitals* of Culture".
[2] Resolution of the Ministers responsible for Cultural Affairs, meeting within the Council, 13 June 1985 concerning the annual event "European City of Culture".

The interpretation, the realization and the goals of the ECOC program changed substantially from its beginnings to the present (Richards, 2000). In the first years, projects focused on 'high culture' such as opera and ballet. A break in this scheme and a new interpretation of the idea came in 1990, with Glasgow being selected as the ECOC. The city was suffering heavy unemployment, urban decay and a reputation for street crime, and furthermore, was not associated with culture at all. Glasgow won the nomination on the basis of promised commercial sponsorship and plans to use the event to stimulate urban regeneration. Large parts of the city were restored and exhibitions of its industrial heritage were shown. Through the selection of de-industrialized cities, the economic aspect of the event was emphasized, with culture gaining growing importance as a source of economic development and growth. Large financial investments were justified mainly by the economic returns the event was expected to generate, rather than the cultural benefits it might produce. A further expansion of the original idea took place in Lille in 2004, where the cultural program was extended to the entire Nord-Pas-de-Calais region and parts of Belgium. 193 cities, towns and villages were included in the program in which nearly 2,500 cultural events took place. This extension was intended to attract economic investment to the whole region. Other recent ECOC followed this concept, as it turned out to be successful (Mittag, 2008).

2.2. Literature

The European Capitals of Culture have so far rarely been analyzed in the economic literature. A few papers exist that focus on the economic impact of the event in a specific town or region, but only a limited number of studies more critically evaluate a whole range of ECOC (Mittag, 2008).

The European Capitals of Culture analyzed by the study 'European Cities and Capitals of Culture' (Palmer, 2004) comprised a broad scale and scope of ***cultural events***. The most

prominent sectors were theater, visual arts, music, street parades and other open-air events, heritage and history, as well as architecture. Traditional, classical, contemporary and modern forms of art were displayed. On average, approximately 500 ECOC projects took place in one year. The cities tried to reach a wide audience and to increase participation in culture by conducting projects in public spaces, and holding many festivities, parades and open-air events (see e.g the case study for Rotterdam, Cultural City of Europe 2001 by Richards and Wilson, 2004, or for Salamanca, European Capital of Culture 2002 by Herrero et al., 2006). Transformation of public spaces and cultural installations in public areas were significant parts of programs, attracting large public and media interest. To draw larger audiences, a large number of free events were offered. In Salamanca, 800 of the 1,100 projects granted free entrance, in Thessaloniki, over 70 percent of projects were free – even free food was supplied at most events – and in Helsinki, the free events attracted an estimated 3.3m visitors.

In all of the analyzed cities, investment in *infrastructure* was undertaken. For at least three European Capitals of Culture, namely Porto, Thessaloniki and Genoa, infrastructure development was a key objective of the year, and possibly more important than the cultural program itself. In these cities, major urban regeneration projects were undertaken by improving roads, developing derelict areas and re-modeling public squares and buildings. Overall, the most common infrastructure projects were improvements to public space, lighting and cultural infrastructure, including refurbishments and restorations of existing facilities and monuments, as well as the construction of new cultural buildings such as concert halls and museums. Many ECOC reported difficulties with their infrastructure projects because they had to be realized within only a few years. In some cities, buildings were not ready for the ECOC year or the building process had to be rushed, causing defects or inflated construction costs. The new modern art museum in Stockholm, for example, opened in 1998 but had to close for repairs a few years later due to structural problems. Several cities also reported

difficulties sustaining new infrastructure after the end of the cultural year due to lack of resources to cover operational costs (Palmer, 2004).

With respect to the general *financial situation*, about a third of the analyzed city-organizations responsible for the ECOC event claimed to make a small financial surplus, a third reported a break-even situation and the remaining third reported a deficit (Palmer, 2004). The absence of a financial deficit cannot, however, be assumed to be a strong indicator of prudent financial management or vice versa. A deficit was also recorded by certain cities as a means of attracting additional financing, or of ensuring the contribution of bodies such as the national lottery, which in some countries helped to alleviate the deficit. All ECOC projects required large investments by public authorities, with funding coming not primarily from the municipality, but rather from the state or regional authorities. Total public sector contribution from national, city, regional and European Union sources represented, on average, 77.5 percent of total investments generated from all sources. The contribution of the European Union, on average, accounted for 1.8 percent, and private sponsorship averaged at 13 percent. Cultural program budgets ranged from 5.48m euro in Reykjavik to 58.6m euro in Lille. The overall average is 25.6m euro.[3] Capital expenditure, including new provision and upgrading of cultural capital (e.g., museums, theaters, concert halls), urban revitalization (e.g., renovation of squares, streets, gardens) and investment in infrastructure (e.g., rail stations, underground, roads), varied from less than 10m euro in Bologna and Avignon to over 220m euro in Copenhagen, Thessaloniki, Weimar and Genoa. Several experts placed the total expenditure attributed to the 21 cities analyzed between 3.5 and 3.75bn euro. No comparable series of European cultural programs or events have generated such large expenditures.

Measuring the *economic impact* of cultural events is confronted with many difficulties including the problem of developing appropriate indicators, reflecting the multiple objectives

[3] Different elements have been included in calculating the total expenditure by each city. Therefore caution must be exercised when comparing the absolute amounts (Palmer Part I (2004) p.69).

of far-reaching events like the ECOC (e.g. for three major cultural events in South Africa see Saayman and Saayman, 2004 , for eleven festivals in England see Maugham and Bianchini, 2004, or for cultural events in Savonlinna, Finland see Mikkonen and Pasanen, 2010). Cities saw their main economic priorities as fostering tourism, image management, urban revitalization, and strengthening industry and job creation. The most significant impact to the city economy was seen in tourism and visitor attraction. In the period 1995 – 2003, overnight stays rose, on average, by 12 percent in the ECOC year and declined by almost 4 percent in the following year (compared to the level before the ECOC took place). Considerable variations in overnight stays during the event year exist, ranging from an increase of 56.3 percent in Weimar to a decline of 6.7 percent in Prague. Helsinki, for example, estimated that about 2m people attended ticketed events in the city in 2000, while a further 3m attended free events. In general, local residents were the largest visitor group, representing 30 to 40 percent of estimated total visitor numbers. 10 to 20 percent were day visitors, 20 to 30 percent were domestic tourists (overnight visitors from the country in which the ECOC is being staged) and 10 to 20 percent were foreign tourists (Palmer, 2004).

2.3. The Impact on GDP per Capita and Growth

Previous studies have focused on the impact of European Capitals of Culture on specific economic aspects, such as infrastructure investment, financial budgets or tourism flows (Palmer, 2004, Mittag, 2008). They find a positive average impact on most of these economic indicators. A problematic aspect of economic-impact studies is that they disregard substitution effects. Substitution effects might occur in time and place, when people visiting an ECOC do not visit the hosting region in later years or do not visit other cities in the hosting region or country. Furthermore, economic-impact studies often assume multiplier effects or indirect profitability. When focusing only on specific indicators, such as tourism, substitution effects

to other sectors might be disregarded. Thus, to investigate the net economic impact of hosting an ECOC, we estimate the impact on GDP per capita and GDP per capita growth.

Figure 1 shows GDP per capita in the year in which a region hosts an ECOC compared to other European regions. Interestingly, average GDP per capita is significantly higher in the regions hosting an ECOC, compared to the other European non-hosting-regions. In host-regions, the average GDP per capita in the respective year adds up to 24,000 euro. All other European regions have an average GDP per capita of 18,800 euro.

FIGURE 1

Since ECOC are located in cities, the difference in average GDP per capita is likely to reflect the difference in economic development between urban and rural areas, and not a causal impact of the event. Thus, Table 1 shows univariate and multivariate regression results of the relation of hosting an ECOC on GDP per capita. GDP per capita and GDP per capita growth, the dependent variables in this section, are provided by BAK Basel. We use standard macro-economic control variables (Barro, 1991, Abadie and Gardeazabal, 2003), namely population density, sectoral shares and human capital, represented by education. The control variables are drawn from Eurostat between 1990 and 2009, and comprise 28 ECOC. Six cities from that time period cannot be included due to missing data. All data are analyzed with variables on sub-national geographical units, which are defined as a NUTS 2 (Nomenclature des unités territoriales statistiques) regional level. Hosting an ECOC is the key explanatory variable. A dummy variable is constructed taking the value 1 if there is an ECOC in the respective region in a certain year, and 0 otherwise. In addition, lags and leads of this variable have been created.

TABLE 1

The univariate regression (Estimation 1) confirms the significant difference documented in Figure 1: Hosting an ECOC is significantly and positively correlated with GDP per capita. The multivariate regression (Estimation 2) also includes standard macro-economic control variables, region and year fixed effects. When including fixed effects and other controls, the correlation between hosting an ECOC and GDP per capita becomes statistically insignificant, confirming the presumption that the higher GDP per capita merely reflects structural differences between urban host-regions and rural non-host-regions.

This selection effect is confirmed by Estimations 3 and 4. Here we include lags and leads of hosting an ECOC. We consider the 4 years prior to, and the 2 years after, the event in order to test for selection effects (years 4 and 3 before the event), anticipation effects (years 2 and 1 before the event) and legacy effects (1 and 2 years after the event). Anticipation effects would occur if, prior to the event, the economic activity was stimulated significantly compared to other regions, for example by increased construction. Legacy effects would show up if the event increased the economic development subsequent to the event, for example, due to higher tourism flows. Estimation 3 does not include any control variables or fixed effects and shows that average GDP per capita in a host-region is higher than in other regions during the whole time period considered. When employing macro-economic controls, year and region fixed effects, all coefficients of the lag and lead variables become insignificant (Estimation 4). This indicates that there are no anticipation or legacy effects. The ECOC have merely been hosted in more developed regions of the respective countries.

Another issue is whether hosting an ECOC fosters economic *growth* or, more generally, if host-regions are more economically dynamic regions. Figure 2 shows the average GPD per

capita growth in the year in which a region hosts an ECOC compared to other European regions.

FIGURE 2

GDP per capita growth in host-regions is, on average, 1.9% compared to an average growth rate of 1.5 % in all European non-host-regions. Estimations 5 and 6 in Table 2 indicate that the difference in average economic growth is not statistically significant, no matter whether control variables and fixed effects are used or not. In Estimations 7 and 8 (Table 2) we also include lag and lead variables to check for possible increased economic activity before and after the event. When including fixed effect and macro-economic control variables, hosting an ECOC is not significantly correlated with GDP per capita growth 4 years before and 2 years after the event.

TABLE 2

While it might be the case that hosting an ECOC has an impact on single economic indicators such as tourism or construction, it does not have a significant *net* impact on a region's economic development reflected by GDP per capita growth. The failure of a net effect might be due to substitution effects. For example, increased construction activity may substitute for other government expenditures or may crowd out private expenditure. According to Palmer (2004) the host-regions also experience only a short-term economic increase in overnight stays by 12 percent in the event year, which is followed by a 4-percent drop in the following year.

Our results are in line with studies on the impact of mega-sporting events, which show that a positive economic impact on the host cities and regions exists but that "the economic contribution of such events might lie in a single impulse of increased demand during the period of the event, and consequently might lose its effect in a short period of time" (p. 213Malfas et al., 2004). Crompton (2001) finds that an increase in demand caused by a single sporting event will not induce businesses to hire more full-time staff. Even the opposite is possible: Coates and Humphreys (2011) estimate a decrease in earnings of $46 per year (inflation adjusted) for all occupations, despite an increase in the wages of workers directly employed by sports teams and facilities. A study of the Seoul Olympics shows that the event did not have a long-term impact on local tourism (Malfas et al., 2004). To summarize: While the ECOC have been hosted in more developed regions of the respective countries, there exists no causal net effect on economic development.

3. The Life Satisfaction Approach

3.1. Economic Impact Studies

As discussed above, the direct public support for the ECOC and the related investment in infrastructure are sizeable. Major state interventions in the cultural sector are usually justified with the insufficient supply provided by the private sector due to culture having positive externalities. Moreover, it is argued that other benefits exist since culture has stimulating effects on the economy and encourages tourism (Frey, 2003). In addition to the benefits for people actually visiting cultural events, culture also produces positive external effects, namely 'non-user benefits' that accrue to people not consuming the cultural supply (Frey and Pommerehne, 1990). The most popular way to measure the value of cultural venues or events is to look at the monetary revenue created (Frey, 2003). While this method disregards effects not reflected in the market, two further methods exist that capture externalities. The first

approach is the revealed-preference method, for which two procedures are relevant, namely the 'hedonic market approach' and the 'travel cost approach'. In many cases, however, the essential restrictive assumptions required are not sufficiently met in practice.

Most economists have, therefore, turned to a second approach, namely the stated-preference method. In this approach, people are asked to state their preferences in hypothetical contingent markets. The most important example is the survey-based method 'Contingent Valuation Methodology' (CVM). However, this survey-based method gives rise to strategic responses. There is also a difference between the willingness-to-pay and the willingness-to-accept for non-market goods (Jason et al., 1994). In addition, it is assumed that supply is efficient, and that consumers' preferences are met. Both assumptions generally do not hold in reality. Due to these drawbacks in existing evaluation methods, we focus on the new possibilities provided by modern happiness research.

3.2. Happiness Research

Happiness research has grown to be an important and lively area of economics. In contrast to the revealed-preference methods, utility is measured through a subjective approach. Subjective well-being (SWB), that focuses an individual's cognitive or affective assessment of his or her own life, is used as a proxy for utility. SWB measurements have the major advantage that no specific definition of happiness is needed; the individuals decide on what well-being means to them (Bruni and Porta, 2007). Three approaches exist to measure SWB. The first approach comprises experience measures that aim to provide an assessment of the emotional quality of an individual's experience in terms of the frequency, intensity and type of emotion at any given moment. The eudemonic approach represents a second method that is based on the notion that people have underlying psychological needs for their lives to have meaning. Eudemonic measures capture a range of factors considered to be important, but that are not necessarily reflected in experience measures (Frey et al., 2007). In line with much of

the literature on SWB, this paper uses the Life Satisfaction Approach based on national and international surveys. Respondents are asked to provide an assessment of their overall satisfaction with life. Cross-national indicators of SWB are, for example, generated by representative surveys such as the 'Eurobarometer Survey' in which individuals are asked: "On the whole, are you very satisfied, fairly satisfied, not very satisfied, or not at all satisfied with the life you lead?"

The Life Satisfaction Approach has several advantages over the standard methods to measure non-market goods. In contrast to CVM, it does not rely on respondents' ability to consider all relevant consequences of a change in the provision of cultural goods. Individuals do not have to value a cultural good directly, but are asked to evaluate their general life satisfaction. This presumably is a cognitively less demanding task. There is no reason to expect strategic behavior in evaluating life satisfaction, which may be a problem in CVM. Furthermore, happiness research explicitly captures utility changes in the absence of market equilibria, which would violate the assumptions required for the 'hedonic market approach'. In addition, the indirect effects of externalities on individuals' utility are captured even if no direct effects exist (Frey and Stutzer, 2002).

Since SWB indicators are based on individual judgments, they are prone to a multitude of systematic and non-systematic biases. The indicators may depend on the mode of interview, the order and the wording of questions, the scales applied, the actual mood of the respondents and the selection of information processed. However, the relevance of these influences depends on the usage of the SWB measurements. For the purpose of identifying the determinants of life satisfaction, it is neither necessary to assume that reported SWB is cardinally measurable, nor that it be interpersonally comparable. Serious studies have established that reported SWB is moderately stable and sensitive to changing life circumstances. In addition, it has been shown that different measures of happiness correlate

well with one another. People reporting high levels of SWB, for example, smile more often during social interactions and are less likely to commit suicide. These studies allow us to conclude that SWB indicators contain substantial amounts of valid variance (Frey, 2008).

There has been little research conducted concerning the relationship between culture and life satisfaction. Frey and Meier (2006) find a positive relationship between life satisfaction and cultural visits, but the direction of causality remains open. Does a higher frequency of visits to cultural events increase contentment, or do happier people tend to attend such activities more frequently? Another issue is that the number of visits to cultural events is based on self-reported statements. According to Frey and Meier, these tend to be upward-biased because the respondents do not want to project the image of being cultural philistines. To avoid these issues, we focus on the hosting of an ECOC as a quasi-exogenous[4] shock or mega-event.

4. European Capital of Culture and Life Satisfaction

Using the ECOC event allows us to analyze the exogenous rise in the supply of culture in combination with the measurement of regional life satisfaction. The Life Satisfaction survey includes people who do not attend cultural events but are nonetheless indirectly affected by an ECOC taking place in their region. There are major positive and negative side effects of mega-events that may affect life satisfaction. In some cities there has been urban renewal as well as substantial improvements to public spaces and public transportation systems. A positive impact on life satisfaction could also result from the creation of additional jobs and greater economic turnover. On the negative side, construction works may generate unpleasant noise and make traveling to work more difficult. The influx of tourists may cause people to be less satisfied with life due to congestion in public transport or due to additional disruptions or

[4] It can be considered exogenous because the local population, whose life satisfaction we measure, does not WHAT? – needs verb an influence to attract the event.

littering. The empirical analysis, therefore, measures all the effects of hosting a mega-event in the form of an exogenous increase in the supply of culture.

4.1. Data

Self-reported life satisfaction, the dependent variable, and individual-specific determinants including household income, size of household, employment situation, age, gender, marital status and number of children, are drawn from 'The Mannheim Eurobarometer Trend File 1970 – 2002'. The longitudinal data contain repeated cross-sectional surveys. This compilation offers unified data from 86 Eurobarometer surveys conducted in 18 European nations in the time period 1970 to 2002.[5] Two of these nations did not host an ECOC during this time period and for one region, no data exist in the relevant time period.[6] The final dataset used includes 14 nations and 24 ECOC.[7] All data are analyzed by comparing individual variables across sub-national geographical units, which are defined as a NUTS 2 regional level.

Data concerning reported life satisfaction are based on the question: "Would you say you are: very satisfied, fairly satisfied, not very satisfied, or not at all satisfied with your life in general?" Minor deviations in the wording exist in different surveys. Respondents could answer according to a 4-point scale ranging from 'not at all satisfied' through 'not very satisfied' and 'fairly satisfied' to 'very satisfied'.

[5] The Eurobarometer also comprises 48 surveys between 2002 and 2010. 19 of these include life satisfaction data. However, only 3 include the necessary control variables. 16 surveys do not include any information about income and number of children. Some do not include information on the occupation (employed, unemployed, retired). Because income is an especially crucial economic control variable for life satisfaction, we refrain from using the survey results that are from after 2002.

[6] Austria and Northern Ireland did not host an ECOC in the time period under consideration; no data on the relevant time period and region exist for Norway.

[7] The countries included in the empirical analysis are: Belgium, Denmark, Finland, France, Germany, Great Britain, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain and Sweden.

Hosting an ECOC is the key explanatory variable. A dummy variable is constructed taking the value 1 if there is an ECOC in the respective region in a certain year, and 0 otherwise. In addition, lags and leads of this variable have been created. The NUTS 2 regions which hosted an ECOC in the time period 1985 to 2002 and have been analyzed in this paper, are highlighted in Figure 3. The ECOC have been distributed over many different regions of Europe.

FIGURE 3

In the Trend File, household income, which serves as an important control variable, is classified into between 6 and 12 income-groups. The size of these groups varies considerably between countries and surveys. Therefore, the original income-group information is translated into a number, which represents the mean of the respective group interval (for example, the lowest income group "0 to 1,000" euro is coded as 500 euro). These mean values are converted into USD, taking into account purchasing-power parity. Since the common European Currency was only introduced in 1999, we use USD instead of EUR to enable comparisons of income from different countries. The square root of household size is included in the regressions in order to control for the effect of household size on equivalent income. Because the highest income group is open-ended, respondents that fall into this income group are excluded. Income is included in a logarithmical functional form, which accounts for decreasing marginal utility of income.

Individual characteristics including employment situation, gender and marital status, have been added in the form of dummy variables. The age of respondents is included in its normal and quadratic forms, as studies have convincingly shown that there is a non-linear U-shaped relationship between life satisfaction and age (Dolan and Peasgood, 2006). To control for the

general economic situation in a region, data on regional GDP per capita are included in the regressions, based on data from BAK Basel.[8]

4.2. Empirical Strategy

The effect of the ECOC on individual life satisfaction is first captured by a raw comparison of mean values. The crucial event that occurs is a region's hosting of an ECOC in a certain year. Figure 4 depicts the average life satisfaction of the regions hosting an ECOC in comparison to all other regions in all other time periods. Figure 4 reveals that the individuals living in the host regions have a significantly lower average life satisfaction. In a host region, average life satisfaction in the year of the event is 2.94 (out of 4); in the other regions it is 3.05.

FIGURE 4

However, raw life satisfaction differences may also reflect various characteristics that distinguish ECOC regions from other regions. The multivariate regression presented in Table 3 controls for a multitude of such characteristics. The empirical analysis follows the specifications of a subjective well-being function (see e.g. Frey and Stutzer, 2002, Frey et al., 2007). To measure the impact of hosting an ECOC, we perform the following difference-in-difference estimation.

$$LS_{i,j,t} = \beta_0 + \beta_1 ECOC_{j,t} + \gamma z_{i,j,t} + \beta_2 m_{j,t} + \omega_j + \tau_t + \varepsilon_{i,j,t}$$

[8] Further information on the variables is given in the Appendix.

$LS_{i,j,t}$ stands for reported life satisfaction as a measure of subjective well-being of individual *i* in region *j* at time *t*. The treatment effect, in this paper the occurrence of the ECOC, in region *j* at time *t* is represented by the term $ECOC_{j,t}$. In the simplest set-up of a difference-in-difference model, outcomes are observed for 2 groups for 2 time periods. The treatment group is exposed to a specific event in the second period but not in the first period. The control group is not exposed to the treatment during either period. Citizens of an ECOC region represent the treatment group and individuals from other European regions represent the control group. The average change of the relevant outcome in the control group is subtracted from the average change of that outcome in the treatment group. This removes biases in second-period comparisons between the treatment and control groups that could be the result of permanent unobserved differences between the two groups, as well as biases from comparisons over time in the treatment group that could be the result of trends. When estimating a multiple group and time period setting, the coefficient β_1 reflects the difference-in-difference estimator. Vector z captures individual-level determinants of life satisfaction such as age or gender, log-income or education. The term $m_{j,t}$ captures GDP per capita growth on the regional level as a macro-economic control. Region fixed effects, ω_j, take into account unobserved time-invariant location factors. In addition, a set of time fixed effects capturing unobserved location-invariant factors over time, such as major macro-economic shocks, are included by the term τ_t. $\varepsilon_{i,j,t}$ is the error term. Because the treatment variable only varies at the regional level, standard errors are clustered. The regressions are estimated with an OLS model. Strictly, life satisfaction is an ordinally-scaled variable, which would speak for an ordered response model. However, OLS models have the advantage that the estimated coefficients are easier to interpret, and experience shows that they are a close approximation of estimations of life satisfaction (Ferrer-i-Carbonell and Frijters, 2004).

4.3. Difference-in-Difference Estimations

Table 3 shows the results of the difference-in-difference-estimations of the impact of an ECOC on individual life satisfaction. A negative and statistically significant impact is found in all three specifications (ECOC-coefficient), suggesting that hosting an ECOC lowers the subjective well-being of the persons living in the corresponding region.

Estimation 9 shows the raw difference between regions hosting an ECOC and all other regions. The coefficient is significant at the 90-percent level. Estimation 10 includes standard socio-economic and socio-demographic control variables at the individual level. The coefficients of the control variables all show the expected signs. Estimation 11 includes GDP per capita growth as a macro-economic control, year fixed effects in order to control for large yearly fluctuations, and region fixed effects in order to control for time-invariant factors, such as institutional differences or geographical preconditions. Compared to the raw difference, the estimated ECOC-coefficient decreases by one fifth of its size. When a region hosts an ECOC, the life satisfaction of the local population decreases roughly by 0.09 on the four-point scale. The size of the effect equals one fourth of the effect of being unemployed (compared to having employment) and thus is quite sizeable.

TABLE 3

Possible explanations for this decrease are factors similar to those found in connection with other mega-events.[9] The increased number of tourists causes noise, disturbance, overcrowding of public places and overcrowding of means of transportation thus pushing up prices. Furthermore, a re-allocation of public funds towards activities connected with the event takes place, which does not necessarily reflect the preferences of the local population. A further

[9] Possible channels for a positive or negative impact of European Capitals of Culture on life satisfaction are cultural supply, prestige, education effect, noise, construction, trash, crime, tourism or an increase in prices. We cannot verify through which channel life satisfaction of the regional is influenced, since no data exist on the regional level (NUTS2), for enough countries and years for any of these factors.

explanation is suggested by Hall and Hodges (1998) whose analysis emphasizes the effects of mega-sporting events on the housing market and land values. The authors claim that the building of event-related infrastructure can involve housing relocation because of the compulsory purchase of land for clearance and building. It may also lead to a rise in rents and house prices, negatively affecting people with low incomes living in these areas. Negative social impacts have also been identified in connection with the 1996 Atlanta Olympic Games. Between 1990 and 1995, 9,500 units of affordable housing were lost and $350m of public funds were diverted from low-income housing, social services, and other support services for homeless and poor people, to Olympic preparation (Beaty, 1998). Moreover, at the time in which Olympic-related infrastructure was at its peak, house prices rose 7 percent above inflation, compared to the usual 2 percent (Horin, 1999).

4.4. The Effect on Various Socio-Economic Groups

The difference-in-difference-estimations show a negative average effect on life satisfaction of the population in a region hosting an ECOC. To investigate which sub-groups of the population are affected more or less strongly by hosting this event, we employ interaction effects. Based on Estimation 3 (Table 3), we estimate the interactions of hosting an ECOC with socio-economic individual determinants.

In Estimation 12, the variable ECOC is interacted with household income. The resulting coefficient is positive, but not significant. Thus, the (negative) impact of hosting an ECOC on the local population's life satisfaction does not depend on income. Individuals from households with either high or low income suffer a similar amount from such an event.

The interaction of education and the variable ECOC is significant and positive (Estimation 13). The highest level of education received is measured with the age at which an individual graduated. The higher this age, the more education someone enjoyed. The positive and significant interaction effect suggests that more highly educated individuals suffer less from

hosting an ECOC. Approximately ten years of additional education offsets the negative effect of this event; this equates, for example, with the difference between leaving high school at the age of fifteen, and university at the age of twenty-six. This result is plausible considering that more highly educated individuals tend to attend cultural events more often. Individuals with higher education thus profit from the extended cultural supply more than individuals with lower education. This partly offsets the negative effects of hosting the event for better-educated people.

While the effect of hosting an ECOC does not differ with respect to household income, the interaction with being unemployed is negative and significant (Estimation 14). Being unemployed roughly doubles the negative effect of hosting an ECOC, from -0.08 to -0.17.[10] Since unemployment is correlated with education and (therewith) cultural attendance, the same logic as for the lower-educated applies: Unemployed individuals bear more of the cost of hosting this event (noise, disturbance, construction, congestion, and especially higher prices), while not profiting from attending cultural events in the same way that employed or the better-educated do. The interaction with being retired is positive but insignificant and will not further be discussed here (Estimation 15).

The estimated interaction so far has dealt with differences at the individual level. It is also possible that the effect of hosting an ECOC varies between regions. To investigate possible differences on a macro-economic level, we estimate interaction effects of ECOC and GDP per capita growth (Estimation 16). The resulting coefficient is positive and significant. Faster growing regions suffer less from hosting the event. An additional economic growth of roughly 4% offsets the effect of hosting an ECOC. This amount is not only statistically significant, it is also economically quite large.

[10] The total effect of hosting a European Capitals of Culture on the unemployed is the sum of the coefficients for being unemployed, -0.0792, and the interaction-coefficient, -0.0905.

4.5. Announcement and Legacy Effects

The previous estimations do not rule out reverse causality – i.e., if cities with a lower average happiness are nominated by the European selection committee. The title "European Capital of Culture" has indeed been given to cities such as Glasgow or Ruhr in order to foster urban renewal and stimulate economic development.

To rule out reverse causality, we look at the average happiness 4 years before hosting the event. This approach allows us also to check for announcement effects, which might arise after a city has been nominated. Announcement effects potentially lead to an increase in happiness, by anticipation or economic stimulus. Happiness decreases if disturbance by construction works or re-allocation of public funds dominates. In our sample, the nomination takes place 2 years before the event year. We include lagged-variables of the treatment-dummy for the 4 years prior to the event. With the first 2 lags (t-1, t-2), we can capture announcement effects. The third and fourth lags (t-3, t-4), help us identify causality issues. We also look at the 2 years following the event to check whether hosting an ECOC has a legacy effect on the average life satisfaction of the local population.[11] Figure 5 shows the average life satisfaction of a region that hosts an ECOC, as compared to other regions in the same country over time.

FIGURE 5

Average life satisfaction follows the same pattern, and the difference between ECOC and Non-ECOC regions is, in most years, statistically insignificant before and after the event. However, in the year of the event, life satisfaction in the treated region decreases strongly and

[11] We do not include more leads, since our dataset ends in the year 2002. By including three lags we would lose the years 2000, 2001 and 2002, and therewith 13 of our 24 Cultural Capitals. This would lead to biased estimates of the coefficient of the third lag.

is significantly lower than in other regions. One year prior to the event, the average life satisfaction is somewhat higher than in other regions (at the 95%-significance level), which suggests a small anticipation effect. A similar result was found for the Sydney Olympics in the year 2000. 2 years prior to the event, respondents held very positive attitudes towards "Sydney 2000". The level of enthusiasm increased further and was significantly more positive in the year of the actual event (Waitt, 2003). For the ECOC, after the event, average life satisfaction recovers to the same level as in the other regions 1 year after the event, and remains at a similar level in the following years. Since average life satisfaction in the treatment regions in years 2 to 4 before the event is not significantly different from other regions, reverse causality does not seem to be an issue. There may be spillover effects to the country as a whole, because a city in that nation has been chosen to host the prestigious event. This is more likely to hold for small countries like Belgium or the Netherlands. In larger countries like France and Spain, it seems unlikely that the whole nation is influenced by the cultural event.

Average life satisfaction can be influenced by many different factors. To control for macro- and micro-economic factors that have an impact on well-being, we perform the same regressions as in Estimations 1 and 3 (Table 3) – but we now include 4 lags and 2 leads of the treatment dummy (hosting an ECOC). Estimation 17 includes socio-economic individual control variables. Estimation 18 includes individual controls as well as macro-economic controls and region and year fixed effects. Table 5 shows the regression specifications with lags and leads.

TABLE 5

In both specifications the coefficient of the treatment dummy (ECOC) is negative, significant, and has the same size as in the previous estimations. All 4 coefficients of the lagged treatment dummy are insignificant. Announcement effects can occur only after a city has been nominated, which takes place 2 years prior to the event. The nomination of a city could lead to an increase of happiness, by anticipation or economic stimulus. Happiness decreases if disturbance by construction works or re-allocation of public funds dominates. The insignificance of lags 1 and 2 speaks against anticipation effects, which could occur only after the announcement (or the positive and negative effects cancel each other out).

The 3- and 4-year lags are the years before the nomination. The insignificance of these lags rules out reverse causality, as it is not the case that the ECOC are hosted in regions that were already unhappier before the event or before the nomination took place.

Proponents of a mega-event often use positive legacy effects as an argument in favor of hosting such an event. However, the coefficients of the 2 years after hosting the event (ECOC t+1 and ECOC t+2) are insignificant. This finding indicates that there are no positive (or negative) legacy effects on the average happiness of the local population. We measure the net effect on average happiness of the local population. As shown in Part 4.4, the effect differs for different socio-economic sub-groups. It might also well be that, at a given point in time, the effect of hosting an ECOC has positive *and* negative effects, which in turn, offset each other.

5. Conclusions

In this study, we apply the Life Satisfaction Approach to measure the impact of a major cultural event on the subjective well-being of the local population. When a city is hosting the European Capitals of Culture, the supply of culture increases substantially with an average of 500 events taking place in the respective year. A broad scale of activities is offered, ranging from traditional forms of art such as theaters and exhibitions of visual art, to a wide

anthropological definition of culture, including sport and food festivals. The goal of including citizens in the program leads to celebrations, open-air events being held, and many projects being conducted in public spaces. Furthermore, a large number of free events are included in the program. Large investments in infrastructure have been conducted in most cities hosting an ECOC. Remodeling public spaces and transportation systems, as well as urban renewal and the construction of museums and concert halls, have changed the appearance of these cities.

Previous economic studies concerning the ECOC focused on single economic indicators, such as tourism, construction or government spending, disregarding substitution effects or the crowding out of private investment. We investigate the impact of hosting an ECOC on regional GDP per capita and economic growth. Descriptive statistics suggest that hosting this event increases the GDP per capita and growth in the respective region. When estimating multivariate regressions with macro-economic control variables and time and region fixed effects, the correlation disappears. The higher average GDP per capita of regions hosting an ECOC is simply driven by the circumstance that this event takes place in urban regions.

Even a positive and significant effect of hosting an ECOC on GDP per capita, would not imply a positive impact on individual utility or social welfare of the regional population. We use the more comprehensive Life Satisfaction Approach, where each individual implicitly weighs the relative importance of advantages and disadvantages of hosting an ECOC. All estimates suggest a significant *negative* impact on the individual life satisfaction of the local population during the year in which the ECOC is hosted. We find no effect in the years after the event. Furthermore, hosting an ECOC has no effect in the 4 years prior to the event, thus ruling out causality problems. These would arise when the events were hosted in regions that are unhappier anyway.

Dissatisfaction during the event may be due to the high levels of public expenditure, increases in housing prices and criminality, disruptions through building sites and the influx of tourists in connection with the hosting of this mega-event. Further research is needed to clarify the channels through which hosting an ECOC exerts influence on individual life satisfaction.

FIGURES

Figure: 1:
Average GDP Per Capita in ECOC-Host-Regions and Non-Host- Regions

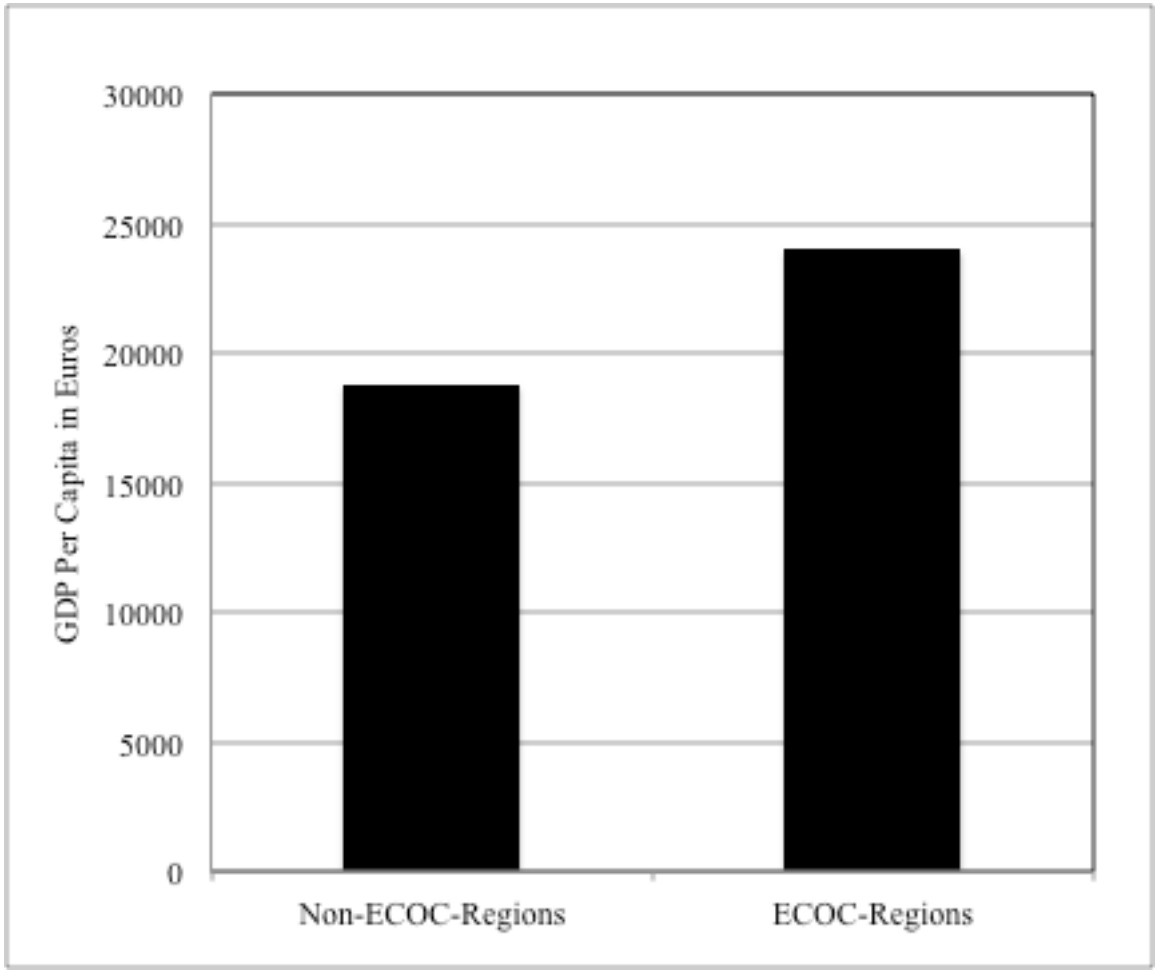


Figure 2: Average GDP Per Capita Growth Depending on ECOC-Status

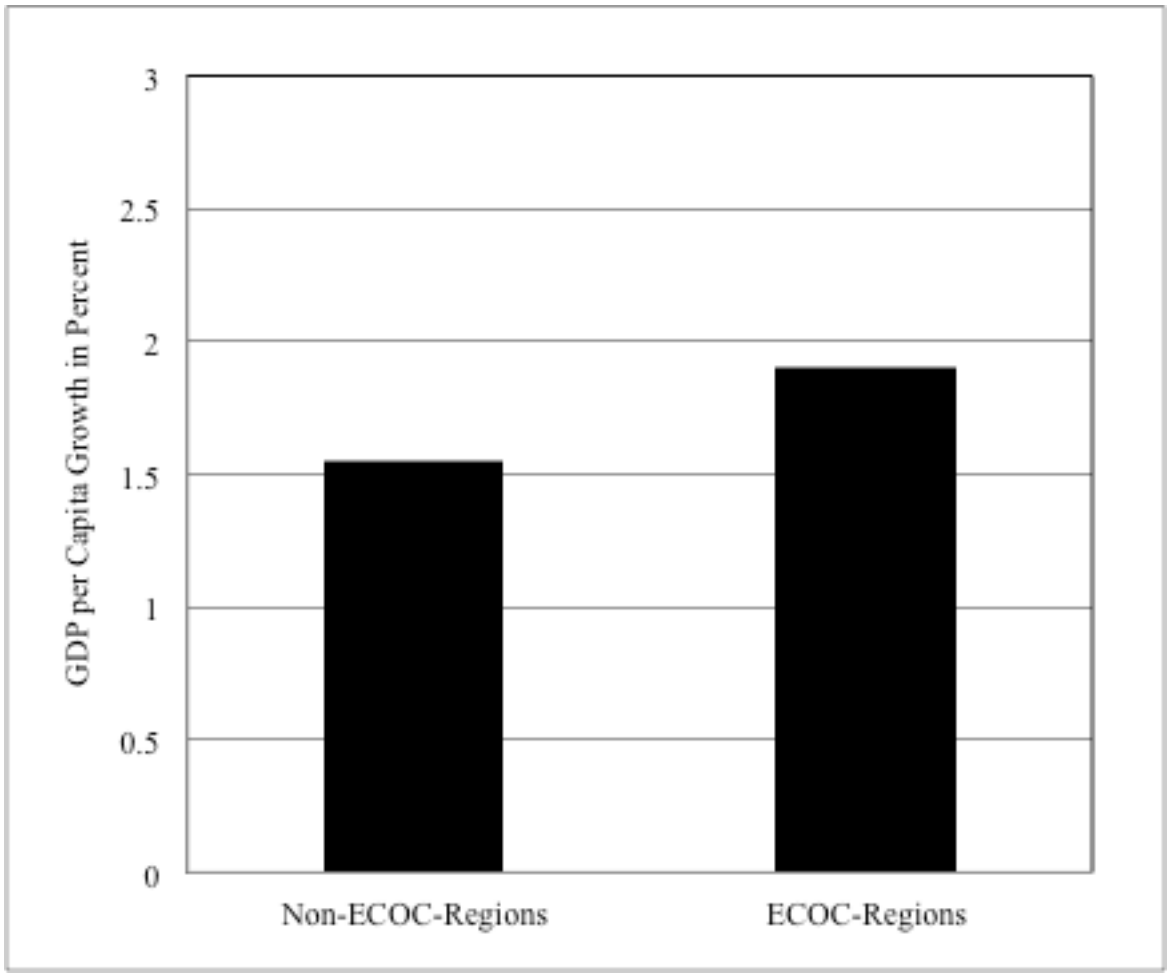
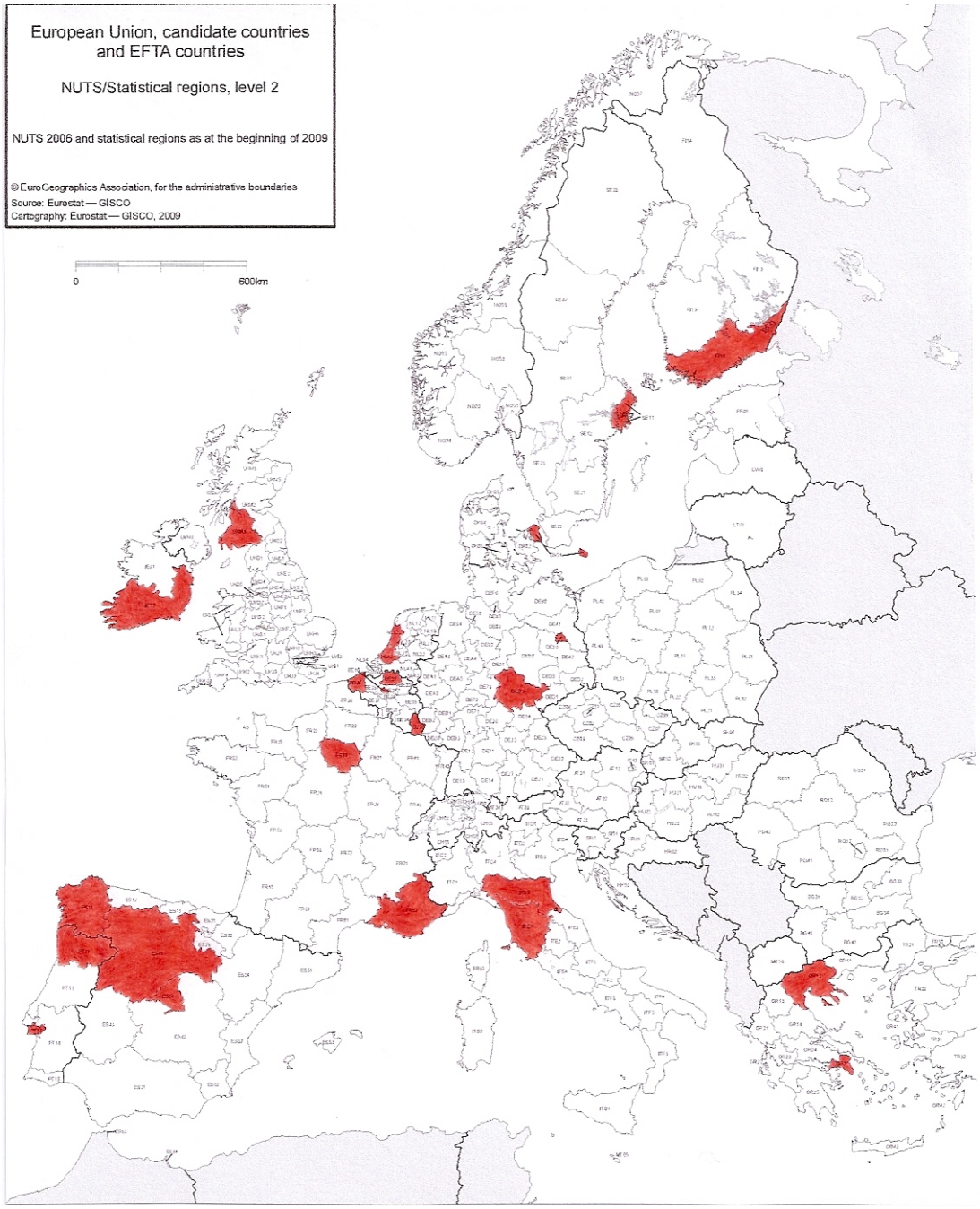


Figure 3: NUTS 2 regions analyzed hosting a ECOC 1985 – 2002



Source: http://epp.eurostat.ec.europa.eu/cache/GISCO/yearbook2009/RYB-Full-NUTS2-2009-EN.pdf

Figure 4: Average Life Satisfaction in Regions Hosting a European Capital of Culture

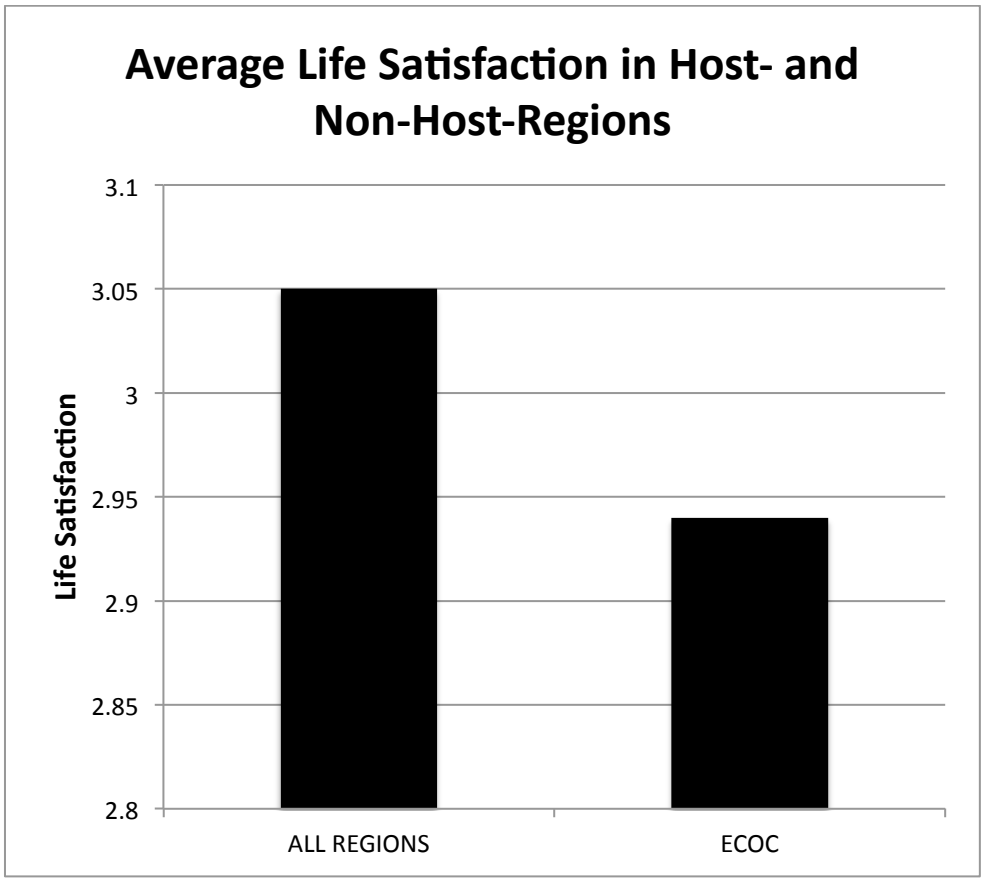


Figure 5: Average Life Satisfaction Before and After Hosting a European Capital of Culture

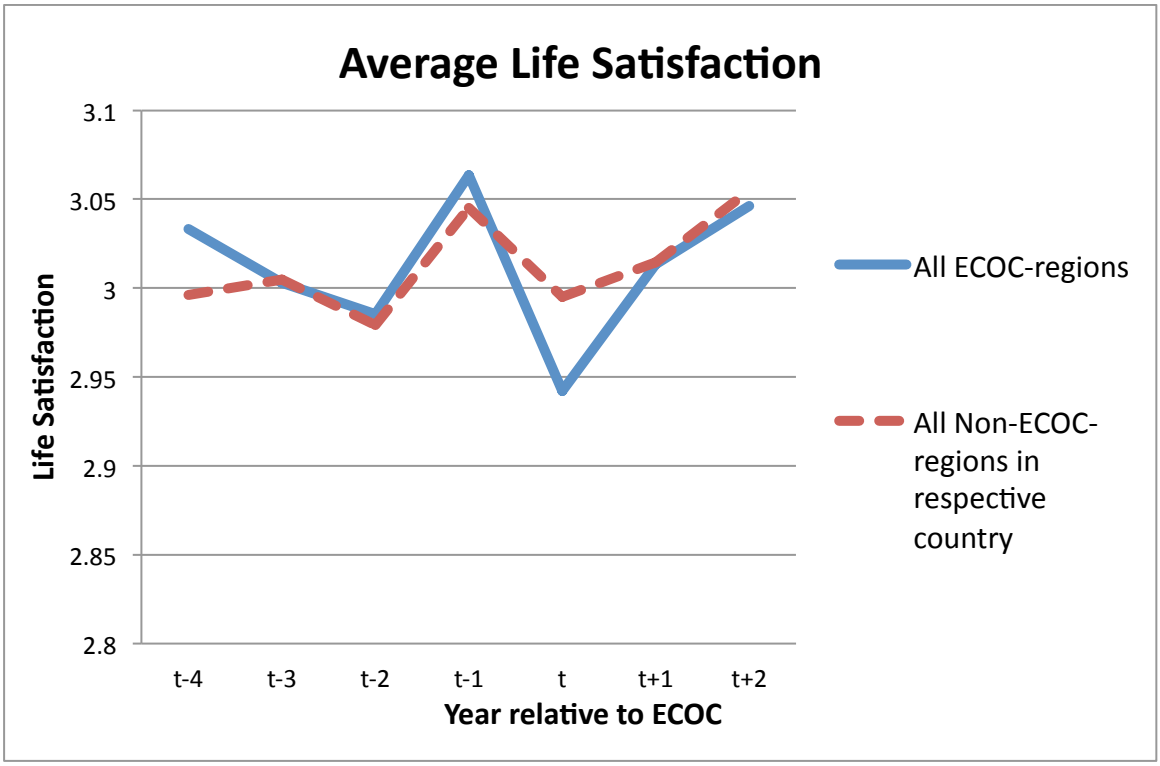


Table 1: The Effect of Hosting a European Capital of Culture on GDP per Capita

	Estimation 1	Estimation 2	Estimation 3	Estimation 4
ECOC t-4			7,730**	-482.2
			(2.482)	(-0.969)
ECOC t-3			6,777**	-801.2
			(2.347)	(-1.183)
ECOC t-2			7,076**	80.41
			(2.279)	(0.246)
ECOC t-1			6,497**	-461.4
			(2.356)	(-1.256)
ECOC t	5,214**	3.165	7,022**	-265.6
	(2.367)	(0.0206)	(2.475)	(-0.820)
ECOC t+1			6,260**	-301.9
			(2.177)	(-0.896)
ECOC t+2			7,817**	-106.7
			(2.373)	(-0.566)
Macroeconomic controls	No	Yes	No	Yes
Year fixed effects	No	Yes	No	Yes
Region fixed effects	No	Yes	No	Yes
Constant	18,773***	11,723***	18,978***	11,753***
	(31.58)	(6.154)	(33.34)	(6.115)
Number of observations	2,342	386	1,751	386
R^2	0.004	0.997	0.046	0.997

Dependent Variable: Regional GDP per capita (on Nuts 2 level) ***: significant at the 99 percent level; **: significant at the 95 percent level; *: significant at the 90 percent level. Robust clustered standards errors. t-statistic in parenthesis.

Table 2: The Effect of Hosting a European Capital of Culture on GDP per Capita growth

	Estimation 5	Estimation 6	Estimation 7	Estimation 8
ECOC t-4			0.0158**	0.00640
			(2.309)	(0.849)
ECOC t-3			0.00105	-0.0324
			(0.106)	(-1.208)
ECOC t-2			-0.000103	-0.000591
			(-0.0143)	(-0.0782)
ECOC t-1			-0.000631	-0.000737
			(-0.0972)	(-0.0745)
ECOC t	0.00358	-0.00297	0.00763*	-0.00840
	(0.805)	(-0.688)	(1.883)	(-0.870)
ECOC t+1			0.00852	-0.00742
			(1.580)	(-0.674)
ECOC t+2			0.0175*	-0.00927
			(1.825)	(-0.731)
Macroeconomic controls	No	Yes	No	Yes
Year fixed effects	No	Yes	No	Yes
Region fixed effects	No	Yes	No	Yes
Constant	0.0155***	0.0378	0.0168***	0.0589
	(24.55)	(0.703)	(23.72)	(1.040)
Number of observations	2,188	386	1,751	386
R^2	0.000	0.492	0.004	0.524

Dependent Variable: Regional GDP per capita growth (on Nuts 2 level) ***: significant at the 99 percent level; **: significant at the 95 percent level; *: significant at the 90 percent level. Robust clustered standards errors. t-statistic in parenthesis.

Table 3: The Effect of Hosting a European Capital of Culture on Life Satisfaction (Diff-in-Diff)

	Estimation 9 Univariate	Estimation 10 Micro Controls	Estimation 11 Micro & Macro Controls
ECOC	-0.108*	-0.137***	-0.0869**
	(-1.798)	(-3.134)	(-2.335)
Ln (income)		0.295***	0.185***
		(12.42)	(18.32)
Size of household$^{1/2}$		-0.140***	-0.0512***
		(-5.332)	(-5.479)
Education		0.0124***	0.00948***
		(5.526)	(6.756)
Employed		Reference	
Unemployed		-0.286***	-0.297***
		(-9.876)	(-15.82)
Retired		-0.0126	0.0207**
		(-0.765)	(2.113)
Gender (Man=1)		-0.0388***	-0.0368***
		(-5.861)	(-6.811)
Age		-0.0227***	-0.0200***
		(-19.04)	(-19.63)
Age^2		0.000256***	0.000211***
		(20.64)	(21.22)
Single		Reference	
Married		0.0630***	0.0914***
		(4.049)	(12.27)
Living together		0.0248	0.00309
		(1.342)	(0.307)
Divorced		-0.140***	-0.137***
		(-7.462)	(-10.89)
Separated		-0.193***	-0.198***
		(-8.772)	(-8.345)
Widowed		-0.0800***	-0.0610***
		(-6.177)	(-5.856)
No children		Reference	
One child		0.00359	-0.0182***
		(0.380)	(-3.158)
Two children		0.0567***	-0.00795
		(4.311)	(-1.039)
Three children		0.107***	-0.0112
		(5.390)	(-0.839)
Four children		0.133***	-0.0352
		(3.958)	(-1.583)
GDP per capita growth			0.000506
			(0.309)
Year fixed effects	No	No	Yes
Region fixed effects	No	No	Yes
Constant	3.050***	1.512***	2.184***
	(73.99)	(11.48)	(30.41)
Number of observations	507,325	148,719	146,770
R^2	0.000	0.121	0.189

Dependent Variable: Life satisfaction; ***: significant at the 99 percent level; **: significant at the 95 percent level; *: significant at the 90 percent level. Robust clustered standards errors. t-statistic in parenthesis.

Table 4: Interactions of European Capitals of Culture and Socio-Economic Sub-Groups

	Estimation 12 Income	Estimation 13 Education	Estimation 14 Unemployment	Estimation 15 Retirement	Estimation 16 GDPPC growth
ECOC	-0.272	-0.134***	-0.0792***	-0.0950**	-0.213***
	(-1.570)	(-3.098)	(-5.107)	(-2.324)	(-5.345)
Ln (income)	0.184***	0.185***	0.185***	0.185***	0.185***
	(18.00)	(18.33)	(48.53)	(18.32)	(18.36)
ECOC * Ln (income)	0.0260				
	(1.086)				
Education	0.00948***	0.00932***	0.00948***	0.00948***	0.00949***
	(6.754)	(6.687)	(12.60)	(6.751)	(6.797)
ECOC * Education		0.0108**			
		(2.296)			
Unemployed	-0.297***	-0.297***	-0.295***	-0.297***	-0.297***
	(-15.86)	(-15.82)	(-39.40)	(-15.84)	(-15.84)
ECOC * Unemployed			-0.0905*		
			(-1.715)		
Retired	0.0207**	0.0208**	0.0206***	0.0202**	0.0209**
	(2.111)	(2.121)	(3.396)	(2.042)	(2.134)
ECOC * Retired				0.0355	
				(0.883)	
GDP per capita growth	0.000510	0.000493	0.000497	0.000504	0.000148
	(0.311)	(0.301)	(0.689)	(0.308)	(0.0905)
ECOC * GDP per capita growth					0.0449***
					(2.900)
Individual controls	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes	Yes
Constant	2.186***	2.184***	2.184***	2.184***	2.177***
	(30.08)	(30.44)	(65.84)	(30.41)	(30.64)
Number of observations	146,770	146,770	146,770	146,770	146,770
R^2	0.189	0.189	0.189	0.189	0.190

Dependent Variable: Life satisfaction; ***: significant at the 99 percent level; **: significant at the 95 percent level; *: significant at the 90 percent level. Robust clustered standards errors. t-statistic in parenthesis.

Table 5: Announcement and Legacy Effects of Hosting a European Capital of Culture

	Estimation 17 No Controls	Estimation 18 Micro & Macro Controls
ECOC t-4	-0.0190	-0.0273
	(-0.151)	(-1.009)
ECOC t-3	-0.0493	0.00458
	(-0.638)	(0.143)
ECOC t-2	-0.0668	-0.0664
	(-0.940)	(-1.431)
ECOC t-1	0.0112	-0.0246
	(0.172)	(-0.774)
ECOC t	-0.110*	-0.0901**
	(-1.755)	(-2.334)
ECOC t+1	-0.0388	-0.0169
	(-0.736)	(-0.762)
ECOC t+2	-0.00604	-0.00483
	(-0.0880)	(-0.152)
Individual controls	No	Yes
Macro controls	No	Yes
Year fixed effects	No	Yes
Region fixed effects	No	Yes
Constant	3.052***	2.182***
	(75.83)	(30.60)
Number of observations	507,325	146,770
R^2	0.001	0.189

Dependent Variable: Life satisfaction; ***: significant at the 99 percent level; **: significant at the 95 percent level; *: significant at the 90 percent level. Robust clustered standards errors. t-statistic in parenthesis.

APPENDIX

Table A.1: European Capitals of Culture 1985-2012

Year	European Capital of Culture	Year	European Capital of Culture
1985	Athens (Greece)	1999	Weimar (Germany)
1986	Florence (Italy)	2000	Avignon (France), Bergen (Norway), Bologna (Italy), Brussels (Belgium) Cracow (Poland), Helsinki (Finland) Prague (Czech Rep.), Reykjavik (Iceland) Santiago de Compostella (Spain)
1987	Amsterdam (Netherlands)	2001	Porto (Portugal), Rotterdam (Netherlands)
1988	Berlin (Germany)	2002	Bruges (Belgium), Salamanca (Spain)
1989	Paris (France)	2003	Graz (Austria)
1990	Glasgow (UK)	2004	Genoa (Italy), Lille (France)
1991	Dublin (Ireland)	2005	Cork (Ireland)
1992	Madrid (Spain)	2006	Patras (Greece)
1993	Antwerp (Belgium)	2007	Luxembourg (Luxembourg), Sibiu (Romania)
1994	Lisbon (Portugal)	2008	Liverpool (UK), Stavanger (Norway)
1995	Luxembourg (Luxembourg)	2009	Linz (Austria), Vilnius (Lithuania)
1996	Copenhagen (Denmark)	2010	Essen (Germany), Pécs (Hungary) Istanbul (Turkey)
1997	Thessaloniki (Greece)	2011	Turku (Finland), Tallinn (Estonia)
1998	Stockholm (Sweden)	2012	Guimarães (Portugal), Maribor (Slovenia)

Source: University network of the European Capitals of Culture

Table A.2: Description of used variables

Name	Description
Life satisfaction	Overall life satisfaction, measured through a four point scale ranging from 0 (‘not at all satisfied’), 1 (’not very satisfied’), 2 (‘fairly satisfied’) to 4 (‘very satisfied’)
ECOC	= 1 if the respective region hosts an European Capital of Culture in a certain year, 0 else (see Table A.2. for a list of the respective cities)
ECOC t-4, t-3, t-2, t-1, t+1, t+2	Dummy variables taking on the value 1 if the respective region hosted an ECOC in following or previous years, 0 else.
Ln (Income)	Mean income computed from income groups of Eurobarometer Trend File. Transformed into USD by controlling for purchasing power parity. Included in the estimations in a logarithmical form.
Education	Age of graduation. The higher the graduation age, the better educated an individual is.
Gender	= 1 if female
Age and Age^2	Age in years and age squared
Single Married Living together Divorced Separated Widowed	Marital status. Dummy variables taking on the value 1 if respondent belongs to the respective group
Employed Unemployed Retired	Employment status. Dummy variables taking on the value 1 if respondent belongs to respective group
No children One child Two children Three children Four children	Number of children. Dummy variables taking on the value 1 if respondent has respective amount of children

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