Labour Economics xxx (2015) xxx–xxx

Contents lists available at ScienceDirect

Labour Economics

journal homepage: www.elsevier.com/locate/labeco

"Phantom of the Opera" or "Sex and the City"? Historical amenities as sources of exogenous variation

Thomas K. Bauer [a,b,c], Philipp Breidenbach [a,b,*], Christoph M. Schmidt [a,b,c,d]

[a] RWI, Germany
[b] RUB, Germany
[c] IZA, Germany
[d] CEPR, United Kingdom

HIGHLIGHTS

- The empirical analysis seriously doubts the causality claimed by Falck et al. (2011).
- German baroque operas cannot serve a quasi-natural experiment.
- Historical brothels and breweries generate similar results which are not seriously causal.
- Large cities and administrative centers eliminate opera effects in several estimation strategies.
- The institutional importance of cities is a driving force of ongoing prosperity.

ARTICLE INFO

Article history:
Received 18 September 2014
Received in revised form 8 March 2015
Accepted 19 May 2015
Available online xxxx

JEL classification:
R11
H42
J24

Keywords:
Human capital
Historical amenities
Regional competiveness

ABSTRACT

Using the location of baroque opera houses as a natural experiment, Falck et al. (2011) claim to document a positive causal effect of the supply of cultural goods on the regional distribution of talents. This paper raises considerable doubts on the validity of the identification strategy underlying these estimates. While we are able to replicate the original results, we show that the same empirical strategy also assigns positive causal effects to the location of historical brothels and breweries. The estimated effects are similar in size and significance to those of historical opera houses. We document that these estimates reflect the importance of institutions for long-run economic growth, and that the effect of historical amenities on the contemporary local share of high skilled workers disappears upon controlling for regions' historical importance.

1. Introduction

One of the most prominent candidates for explaining the substantial variation in economic prosperity across regions is the heterogeneous prevalence of skilled labor (e.g. Jacobs, 1961; Romer, 1990). Attracting mobile high potentials has therefore become an important facet of any ambitious regional policy. Yet, our knowledge is still limited when it comes to the question what makes regions highly attractive in the interregional competition for talents. Therefore, factors that are potentially drawing high skilled workers to cities and regions are the subject of numerous empirical studies. A particularly contentious issue is the subsidization of regional amenities, such as cultural facilities and events, vis-à-vis more sober policies, such as ascertaining solid local public finances.

In his book "The rise of the creative class", Richard Florida (2002) suggests two controversially discussed hypotheses. First, he maintains that it is a high share of workers exhibiting a high level of creativity which is the fundamental prerequisite for prosperity, not the prevalence of high-skilled workers. Thus, different to other authors[1] he disentangles creativity from the usual notion of human capital that finds its expression in measures of formal education. According to his creative-class theory,

* Corresponding author at: RWI, Hohenzollernstr. 1-3, 45128 Essen, Germany.
E-mail address: Breidenbach@rwi-essen.de (P. Breidenbach).

[1] Romer (1986 and 1990) as well as Jacobs (1961) and Mokyr (1990) point out the importance of creativity for growth which they treat as equivalent to human capital. Rauch (1993) and Simon (1998) point out the importance of human capital on regional and urban levels. Glaeser (1994, 2003) also stresses the human capital hypothesis and Glaeser (2005) shows that standard human capital measures wipe out creative class employment.

http://dx.doi.org/10.1016/j.labeco.2015.05.005
0927-5371/

prosperity is therefore a process predominantly generated by new ideas and their spillovers.

As a second hypothesis, he suggests that factors shaping the regional quality of life are decisive for attracting and retaining those talents. He views, in particular, a high variety in cultural supply as one essential ingredient of attractive regions and claims to find corroborative evidence for this hypothesis in American cities, since across cities a large Bohemian index[2] is highly correlated with the cities' endowment with talents. This result would suggest that regional policy makers should place a high priority on fostering creativity, over and above other local traits.

As Falck et al. (2011) and Möller and Tubadji (2009) among others point out, this correlation is plagued by the problem of reverse causality. Since high-skilled and high-earning individuals tend to display a higher willingness to pay for cultural goods, the chain of causality might rather reflect the rich cities attracting the bohemians. One approach to alleviating the reverse causality problem is the use of panel data, since it enables the researcher to account for changes over time and the lagged influences of explanatory variables on current regional economic performance. Möller and Tubadji (2009) choose such a design with German data ranging from 1974 to 2004, using a GMM approach suggested by Blundell and Bond (1998). Instead of evidence for a creative class being attracted by a bohemian milieu, their results rather indicate a causal link running from a talented workforce to bohemians.

Falck et al. (2011) take an alternative route and try to overcome the endogeneity problem by interpreting the presence of historical cultural amenities, namely of baroque opera houses, as a natural experiment. The high fragmentation of historical Germany in sovereign principalities led to substantial variation in geographic and socio-economic factors, such as their proximity to the major European trade lines, their involvement in wars and more generally in their institutional arrangements. These differences in historical circumstances may exert an influence on the observable differences of today's prosperity.

Falck et al. (2011) claim indeed to find that today's regional endowment with human capital is driven by the exogenous endowment with cultural supply, which they approximate by German Opera Houses built from 1641 to 1804 in the baroque era. Their location is taken as the outcome of a natural experiment, and thus as an exogenous measure of cultural amenities which, through its influence on today's cultural life, exerts an effect on the contemporary stock of human capital.

Taking their results (Falck et al., 2011) as a starting point, this paper explores the empirical side of this issue more deeply. Most importantly, we doubt the interpretation of the location of baroque opera houses as the outcome of a natural experiment. While we are able to replicate the correlation between the presence of historical opera houses and the current regional endowment with human capital, we also document similar correlations for historical amenities, which certainly have no tight connection to fostering the fine arts, such as historically documented brothels (built before 1600) and breweries (built before 1700).

These findings illustrate a deeper conceptual point: The historical location of amenities was the reflection of those underlying local traits which make the same regions prosperous today, such as the presence of administrative centers or natural advantages for serving as hubs in the transport of goods and services. Specifically, opera houses were likely to be built in the important cities close to the ruler's residence. These cities typically draw their prominent role for their respective region from their natural setting or from the institutions which had been implemented there first. Just as today, quite obviously erecting a meeting place for connoisseurs of the fine arts is a consequence rather than a prerequisite of prosperity. Interpreting the location of historical opera houses as a natural experiment confuses cause and consequence.

The paper is organized as follows. Section 2 provides a brief overview of the conceptual issues. Section 3 describes the dataset, replicates the results of Falck et al. (2011) and explores the question whether the correlation between the distance to historical opera houses and the current regional share of skilled workers warrants a causal interpretation. Section 4 concludes with a discussion of the implication of our results for regional policy.

2. Conceptual issues

The era of baroque opera house erections is defined as the time between the end of the Thirty Years War in 1648 until the early 19th century. This era which was characterized by a highly fragmented institutional system, was arguably marked by a high regard for cultural life in the absolutistic courts. Against this background, Falck et al. (2011) argue that the erection of opera houses did not reflect above-average economic welfare or local traits which would also be conducive to economic activity, but rather exclusively the rulers' admiration for art and music. Based on this argument, they use the distance of a region to the next baroque opera house as key variable to explain the variation in the regional distribution of today's stock of human capital. This first-stage regression is utilized in a second stage to instrument human capital in a traditional GDP growth regression.

We take issue with the decision by Falck et al. (2011) to assign a causal interpretation to this first-stage regression. Admittedly, this regression successfully pins down a significant correlation between the distance variable on the right-hand side and the skill variable on the left-hand side, since it rests on a wide distribution of baroque opera houses across German cities.[3] Thus, for the shrewd search for a successful instrument operating in the structural equation of skilled workforce and regional growth, the original equation of interest, Falck et al. (2011) have to be applauded.

However, in discussing their results, their principal interest has shifted to a causal interpretation of the first-stage regression, instead. In our assessment this interpretation cannot be sustained, since they err seriously when they go on to argue that the location of baroque opera houses can be interpreted as a quasi-natural experiment. The remarkable mutation from a mere econometric instrument satisfying an exclusion restriction to a genuine treatment variable which is presumed to causally influence the variable of interest in this first-stage regression can simply not be sustained by convincing arguments.

It is the nearly ubiquitous problem of unobserved heterogeneity which makes the causal interpretation of this first-stage regression highly questionable. After all, the distance to historical opera houses is merely one possible candidate variable which could serve as a regressor in the first-stage regression and, thus, as an instrument in the growth regression. All that an instrumental variable must satisfy is orthogonality to the residual in the second-stage regression of interest and a sufficiently high correlation with the variable to be instrumented, i.e. the regional share of high-skilled. Before one would be able to assign this variable a causal interpretation in the first-stage regression, though, much more would be needed. Most importantly, one would have to demonstrate that no other variable of the same kind could be used as an economically more sensible variable instead.

In a hypothetical perfect experiment, baroque opera houses would have been allocated randomly over the German territory — like a helicopter flying over Germany and randomly dropping opera houses. Indeed, opera houses in the baroque era have been built widely over German territory reflecting the administrative conditions of this era. By no means, however, the location of baroque opera houses can be regarded as being random. They were typically built in cities that had emerged as the administrative centers of this era. And these locations became administrative centers not by mere chance but rather because

[2] The Bohemian index is defined as the fraction of artistically creative people (authors, designers, musicians, composers, actors, directors, painters, sculptors, artist printmakers, photographers, dancers, artist, and performers) who live in a given region divided by the fraction of the total population of a country who live in that area (Florida, 2002, p. 333).

[3] This would hardly be possible using the corresponding distribution in former centralistic regimes, e.g. in France.

Please cite this article as: Bauer, T.K., et al., “Phantom of the Opera” or “Sex and the City”? Historical amenities as sources of exogenous variation, Labour Econ. (2015), http://dx.doi.org/10.1016/j.labeco.2015.05.005