



# The internal impact of a customs union; Baden and the Zollverein

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## Abstract

Tariffs can affect the growth of states. But how do they affect regional growth within states? Using Baden's 1836 entry into the Zollverein, the customs union of German states, I investigate the internal impact of a change in tariffs. With a new data set of regional employment data I demonstrate that the Zollverein had a substantial positive effect. Two market access effects are shown, one follows the standard market access predictions and the second triggers the direct investment by Swiss entrepreneurs in German regions close to their home base. Furthermore occupational change within the crafts sector was shifting labour towards higher taxed occupations and towards the region close to Switzerland.

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## 1. Introduction

Trade barriers influence economic activity. Customs regulations and tariffs are central obstacles to international and historically also domestic trade. The negative influence of these barriers on trade and therefore growth has led to the development of institutional structures like trade agreements and customs unions to overcome them. The emergence of these institutions however focused the attention on the effect of customs on the growth of whole states. The economics literature has now begun to look at another important characteristic of tariffs, namely the spatial heterogeneity of their impact. Regions within states might experience different effects when the whole country joins a customs union, free trade agreements or experiences another trade barrier

change. A major example, which also spawned theoretical developments, is the effect of NAFTA in Mexico (Hanson, 1996, 2005).

Although the economic history literature has long been interested in the relationship between tariffs and growth, the main focus in this literature is on the growth experience of whole nations<sup>1</sup>. The focus of this analysis on whole states is also due to the use of a particular economic framework. The analysis of growth effects relies predominantly on the structure of the Solow growth model, which focuses on the growth paths of distinct whole states rather than regional economies within them. Recently the economic history literature has begun to utilise economic geography models, examples are those of Rosés (2003), Crafts and Mulatu (2005), Wolf (2007),

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<sup>1</sup> One example is the literature on the tariff growth correlation (Bairoch, 1989; O'Rourke, 2000; Irwin, 2002; Lehmann and O'Rourke, 2011).

and Ploeckl (2010b) is an example linking them with external tariff changes.

This paper uses a suitable historical case to determine whether tariff changes have a spatially heterogeneous impact. The state of Baden joined the Zollverein, the customs union between German states, on January 1st, 1836. This significant change in the customs structure was not accompanied by other major political, fiscal or other structural reforms. The differences between Baden's prior tariff structure and the Zollverein's custom system were far reaching and affected the whole economy, not just a small number of producers or consumers. Baden's geographic location, situated next to France and Switzerland, foreign states that were not Zollverein members, added a further dimension to the impact. The borders with France and Switzerland saw an increase in trade barriers, while those with other German states saw a complete removal of tariffs. This implies that regions in the South and Southwest of Baden experienced an increase in barriers with their direct neighbours, while the regions in the North, surrounded by other German states, experienced the complete removal of barriers with their direct neighbours.

This setting allows me to test whether already in the early phase of the industrial revolution market access effects shaped the regional growth experience of states. In particular I look at two mechanisms through which that might have happened. The first is a shift between sectors, in particular the impact on industry, and the second is a shift within a sector, in particular the effect within the craft sector. The analysis traces therefore whether the Zollverein had a spatially heterogeneous impact in these two cases by focusing on the relative size of employment in manufacturing and craft occupations.

The newly collected employment data underlying this analysis are based primarily on commercial tax records and statistical compilations from these records. Baden's commercial tax covered not only manufacturing and its employees but also essentially all households active outside of agriculture. This allows the estimation of aggregate manufacturing employment within tax districts and larger administrative regions for 18 years between 1829 and 1847, a time period spanning a number of years prior and post Baden's 1836 entry into the Zollverein. Statistical information based on these taxes provide regional employment by occupation within manufacturing and crafts for the years 1829 and 1844, again providing data points before and after Baden's entry.

Utilising this data the analysis demonstrates that the developments around the time of the entry show a substantial impact on the size of the manufacturing sector, however no differential regional or market access based pattern emerges. Further analysis nevertheless

reveals that this outcome of a homogeneous impact actually is the result of two opposing market access effects, one following the standard logic of market access models and the other based on the changes for Swiss manufacturing to enter German markets. This is underlined with a discussion of the investment, and the resulting impact on Baden's manufacturing, by Swiss firms in Baden.

The second part of the analysis moves from shifts between sectors to shifts within them. Given its considerable size and the importance of trade for its products I focus on the craft sector. Using data on regional aggregate employment within a large number of craft occupations it is demonstrated that the Zollverein shifted the occupational structure towards higher income occupations, as designated by their commercial tax classification. The results also show that there was a regional pattern to these shifts, with a stronger growth in the southwest of Baden.

The paper begins by introducing the historical background of Baden's accession before the data set is detailed in more length. After the two parts of the analysis are completed a final section concludes.

## 2. Historical background

The congress of Vienna in 1815 reshaped the political landscape in central Europe, created new states, shifted borders of existing ones and instituted the *Deutsche Bund*, the German federation, as a supranational institution for German states. The grand duchy of Baden had successfully acquired territories during the times of the Napoleonic wars and was able to hold on to them in Vienna. As a result the state had a very particular shape, essentially an extended slice of land on the eastern bank of the river Rhine ranging from Lake Constance in the southeast corner along the Swiss and the French borders just beyond the city of Mannheim and the confluence of Neckar and Rhine in the North.

Situated on the Rhine, a major river and important trade route, Baden controlled some of the central trade routes between the German states and the foreign neighbours of Switzerland and France, in particular those leading to the cities of Basle and Strasbourg. This was also one of the central factors shaping the economic structure of the state before the time of the Zollverein. Trade was strong in a number of traditional trading centres, like Mannheim, while industry was essentially non-existent. Otherwise Baden was still an agricultural state, though many also found employment in small scale crafts (Fischer, 1962).

This structure was also evident in Baden's attitude towards tariff questions. In contrast to its German neighbours the state government favoured a far more

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