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Abstract

How can agricultural inheritance traditions affect structural change and economic development in rural areas? The most prominent historical traditions are primogeniture, where the oldest son inherits the whole farm, and equal partition, where land is split and each heir inherits an equal share. In this paper, we provide a theoretical model that links these inheritance traditions to the local allocation of labor and capital and to municipal development. First, we show that among contemporary municipalities in West Germany, equal partition is significantly related to measures of economic development. Second, we conduct OLS and fuzzy spatial RDD estimates for Baden-Württemberg in the 1950s and today. We find that inheritance rules caused, in line with our theoretical predictions, higher incomes, population densities, and industrialization levels in areas with equal partition. Results suggest that more than a third of the overall inter-regional difference in average per capita income in present-day Baden Württemberg, or 597 Euro, can be explained by equal partition.

JEL Codes: D02, D82, H11, H21, N93

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THIS PAPER MAKES FOUR NOVEL CONTRIBUTIONS to the literature on the influence of informal institutions on economic development. First, we argue that particular types of social norms, agricultural inheritance traditions, like primogeniture and equal partition, have a profound and persistent effect on economic development. We show, based on historical and theoretical arguments, that equal partition is more favorable for regional industrialization and development.

Second, we derive a neoclassical model in which we allow a Malthusian economy to feature these different inheritance traditions, and in a second step to be capitalized from outside. This models the historic experience of the rural areas. The putting-out system gave employment to the rural population, which in turn was more willing to take this employment in areas of equal partition.

As third contribution, our results imply that equal partition is an institution that reduces spatial labor mobility but, counter-intuitively, aids economic development. This is an interesting addition to the literature around the 'Oswald hypothesis' (Oswald 1996).

Fourth, to our knowledge, this research is one of the first attempts to investigate systematically the long-run development of rural areas. This is crucial for the understanding of regional economic development, as historically most of the population lived in rural areas or small towns and not in large cities. Yet, cities have received most of the attention of research so far (Bosker, Buringh, and Van Zanden 2013; Bosker and Buringh 2017; Börner and Severgnini 2014; Dittmar and Meisenzahl 2017; Jacob 2010).

Agricultural inheritance traditions have raised ample speculations about their consequences, empirical studies however are rare. Ekelund, Hébert, and Tollison (2002) conduct a descriptive cross-country analysis and argue that Protestantism could spread easier into the equal partition area because of their more flexible, heterogeneous and unstable societies. More recently Rink and Hilbig (2018), also using data from Baden-Württemberg, study the link between inheritance traditions, economic inequality and pro-egalitarian preferences.[1]

Historians such as Wehler (2008) view the German industrialization as a rural, and not an urban, phenomenon. He argues that the industrialization of Germany avoided cities' regulated labor markets by capitalizing the countryside using the putting-out system. We confirm this historical literature by showing theoretically that the putting-out system was likely to be more developed in areas of equal partition. Only there, because of smaller farm sizes, more farmers engaged in part-time farming and needed non-agricultural sources of income to survive. Our aim is to re-introduce this perspective into the old debate about the origins, causes, and spread of the industrialization of European countries. As such, we view the geographic pattern of economic activity in Baden-Württemberg today as an outcome of the interaction between local inheritance norms and the putting-out system.

We show this interaction in a standard neoclassical model of the rural economy. In the model, the basic inheritance traditions (primogeniture or equal partition) decide the allocation of capital and labor among families. The inheritance traditions influence the decision to allocate labor between the agricultural and the industrial sector but also migration patterns. Inheritance traditions are therefore decisive for population growth and industrialization of rural villages. Our model is the

1. Menchik (1980), in a similar attempt, studied the influence of inheritance traditions for the wealth distribution in the United States.

first to analyze the theoretical implications of equal partition on development outcomes. Existing theoretical research has focused on the influence of primogeniture on intergenerational inequality and social mobility (Blinder 1973; Chu 1991).

We test this theory empirically on three different datasets. First, we use the data by Rink and Hilbig (2018), who have digitized a map on inheritance traditions in West German municipalities in the early 1950s based on a survey conducted by Röhm (1957). We find strong, robust, and positive correlations between equal partition and higher municipal population density and between equal partition and wage income in 2014. This dataset has the downside that it links the tradition in historical municipalities with modern municipality borders. This induces the bias that territorial reforms after 1953 affected differently developed regions differently, and thus biases the data when economic development is the outcome. This dataset also does not include transitional or mixed inheritance forms although they are widespread and of potential importance.

Since we are interested in regional development, we presume that credible identification of a single factor's role for regional economic development for the whole of Western Germany is almost impossible, given its history as one of the most fragmented regions in the world, the immigration of German refugees after World War II, the variation in aerial bombing, and coal and other resources for the rise and demise of the Ruhr area. We base the core of our analysis on the dataset by Röhm (1957), and focus on the German federal state of Baden-Württemberg and digitized the borders of the 3,382 historical municipalities of Baden-Württemberg in 1953. Focusing on Baden-Württemberg is interesting from a development perspective and with an eye on identification. It was not an early center of industrialization in Germany and remained an agrarian, rural state until the late 19$^{\text{th}}$ century. Since then it has become one of the economically most prosperous and innovative regions in Germany and the whole of Europe. It is famous for its uniquely decentralized industrial structure with small and mediums sized firms spread over urban and rural areas. Baden-Württemberg today tops the German productivity statistics in the craftmanship sector[2]. From the perspective of identification, and causal inference, the focus on Baden-Württemberg comes with three major advantages. First, there was just a single state government. Second, its industrialization coincided with the collection of reliable small-scale statistics. Third, it provides us with small-scale variation in inheritance traditions including not only the basic forms but also a lot of transitional and mixed traditions. Furthermore, Baden-Württemberg is the only area with an identifiable border between inheritance traditions in Germany, while other areas show no clear spatial distribution patterns.

We exploit this spatial discontinuity using a fuzzy spatial RDD approach. We consider economic outcomes from the early 1950s as dependent variables. Our fuzzy RDD results imply that equal partition municipalities have smaller farms, are significantly more industrialized, show higher population densities and have more positive inter-regional migration balances. Those results are robust to a host of robustness checks including placebo border tests, or "Donut-RDDs" (where we leave out the border municipalities). They also remain intact when using economic outcomes from 1961 as dependent variables and when controlling for coal and historical market potential. A test of the degree of selection on unobservables relative to observables necessary to explain away the results (Altonji et al. 2015), shows that remaining unobserved heterogeneity has to be

2. Statistical Office of Baden-Württemberg, https://www.statistik-bw.de/Presse/Pressemitteilungen/2016330. This lead survives adjusting for purchasing power. Data from GfK Kaufkraft Deutschland 2015

unlikely large (around 3 times larger as selection on observables) to undo our results. Finally, we consider contemporary municipalities and outcomes from Baden-Württemberg and run sharp RDDs exploiting the historical border. We find that contemporary municipalities in the historical equal partition area have higher per capita incomes and industrial activity.

As a third dataset, we digitized data from Krafft (1930) and create a dataset for 1895 Württemberg. We find that our results also hold for an earlier period and with different data on local inheritance traditions. Equal partition had led to smaller farm sizes and had a positive effect on population densities and municipal industrialization already before the turn of the century.

The rest of the paper has the following structure. In section I, we summarize the literature on the consequences of inheritance traditions on economic development, followed by our model in section II. In section III, we introduce our data. To link these traditions to economic development, we provide a model in section II, and provide some empirical evidence for this idea in section IV. We conclude in section V.

I. LITERATURE REVIEW

Economic historians proposed ample theories linking inheritance practice to economic development. O'Brien (1996) hypothesizes that landless workers, which were more prevalent in primogeniture England, provided the industrializing cities with cheap labor, and allowed it to overtake France—which relied on equal partition, especially after its 1789 revolution guided by egalitarian ideas of land distribution (see Tocqueville 1835).

An alternative view, dominant but not exclusively prevalent in the German-speaking literature (e.g., Habakkuk 1955; Karg 1932; Röhm 1957; Schröder 1980) is that equal partition fostered industrial development. The first wave of rural industrialization was usually the establishment of putting-out systems by one or more entrepreneurs who provided farmers with raw materials (e.g. tobacco leafs), sometimes even tools, and required them to perform certain manual tasks (e.g. rolling cigars) in a predetermined time frame.[3] Wehler (2008, p. 94) argues that employees from rural regions had two main advantages for the entrepreneurs. First, they avoided the regulation of city guilds which were hard to get into, and had highly regulated wages and labor standards. Second, peasants were seasonally unemployed for most of the year, and were seeking other modes of employment, also to hedge against the risk of harvest failure. Workers were, in Wehler's view, exploited by low wages, long and unregulated working hours, high interests on the raw materials to penalize lateness, and payment in kind instead of coin. All these aspects, however point at economic development in the countryside, as the potential of the rural areas is exploited, especially in areas were guilds were very restrictive at the time. When the factory overtook the putting-out system, which was prevalent until the first half of the 20th century, transport infrastructure allowed the rural population in areas of equal partition to commute rather than to migrate.

In areas of primogeniture, putting-out systems were less successful. Siblings necessary for working on the farm were more prone to these exploitative conditions, and given their more mobile inheritance, often in forms of animals or even money, could leave the municipality, and rather

3. See for example Karg (1932), who provides a detailed case study on the putting-out system and its connection to equal partition for early 20th century Baden.

move into cities. Hence, such areas would have been subject to a higher emigration, therefore we expect these areas to be less populous.[4] Among others, Wegge (1998), Karg (1932) (for Baden) and Krafft (1930) (for Württemberg) provide historical evidence on this out-migration from the primogeniture area.[5] The migration from rural primogeniture areas to populous equal partition areas put population growth on hold or into decline in the primogeniture areas but led to a population increase in the industrializing areas of equal partition. People migrated from the agricultural sector in the primogeniture area and engaged in industrial activities, while people who stayed in the primogeniture area remained mostly farmers. This way, it contributed not only to structural change in the equal partition area but also to an increase in population density there. This created agglomeration externalities, which fostered the industrialization of the area even further.

There is a close relation of our theory to other two sector models of urban and rural labor markets, going back to Harris and Todaro (1970). We focus however on the rural sector alone and are interested in differences caused within this sector but across regions that apply different traditions. We introduce our idea of inheritance traditions and the role of the putting-out system.

Another idea related to this paper is that immobile property affects economic growth, known as the Oswald-hypothesis (Oswald 1996). Proponents of this idea believe that homeownership induces labor market frictions, causes unemployment, and hampers economic growth.[6] Our argument runs in the opposite direction. In the long run, ownership of immobile capital can foster economic growth—given that the initial distribution of population is not inefficient. In a nutshell, our argument is that the land endowment of peasant families with in equal partition areas was often too small to subsist on it but too much to entirely abandon the farm. Therefore, they supplied cheap and skilled labor in rural areas. This allowed these regions to industrialize, and to overtake the primogeniture areas.

The literature on agricultural inheritance traditions (e.g., Rink and Hilbig 2018; Röhm 1957) in Baden-Württemberg has highlighted that they were slow to adapt to the changes of the industrial revolution and were more or less stable over time before. In Huning and Wahl (2019a) we test this claim in a structured way, and find suggestive evidence that the general regional patterns of inheritance traditions have been established by the early Middle Ages.

II. A MODEL ON THE ECONOMIC CONSEQUENCES OF AGRICULTURAL INHERITANCE TRADITIONS

The implications of inheritance traditions, their advantages and disadvantages, and their role for long-run economic development are theoretically complex. Generations of individuals applying

4. Habakkuk (1955, pp.9) highlighting the smaller migration pressure and the less mobile inheritance of children in the equal partition area puts it like this "Where the peasant population was relatively dense but immobile, industry tended to move to the labor; where the peasant population was more mobile even if less fertile, the industrialist had much greater freedom to choose his site with reference to the other relevant considerations." He also shows that the textile industry in England flourished most in East Anglia, a region where equal partition was common.

5. Sering and von Dietze (1930) provide evidence that actually, the non-inheriting children often did work outside the agricultural sector, as civil servants or as craftsmen. If they however stayed in the rural area they often married (in the case of daughters) into another farm, bought one or remained at the family farm to help their sibling and his family.

6. Wolf and Caruana-Galizia (2015) test this for Germany, and using an instrumental variable approach find that homeownership is positively linked to unemployment.

them could not foresee all their consequences.

In a first step, we set up a common neoclassical model with customary notation and a small rural wage-taking world, with given technology. We take fertility as exogenous, ignore heterogeneous preferences and heterogeneous skills, model savings as simple as possible, and rule out economics of scale altogether. In a second step, we trace this model through three stages of economic development. First, we sketch a Malthusian rural society in which there is no capital in the common sense, but all material assets are employed in agriculture. In a second stage, we model the putting-system. Capitalists enter our world from the outside and settle where the provision of labor is cheapest. We show how capital is employed in areas of equal partition rather than primogeniture. In our conclusion, we argue that in the modern world with and better transport technology this pattern is likely to persist.

To abstract from individuals, our main unit of analysis is the family, which allocates resources together, and can procreate. A family consists of a husband a wife, and children that are under age. Once these children get to age, they leave their core family and form a new family. This new family is distinct from its parents' family, but remains related by blood to their parent family and their siblings' families. The set of all families is given by the set $I = \{i, j, k, ...\}$, and these families live each in one village from our universe of many rural villages. We assume families have the following stages of life

1. **Marry & Inherit**. A family is formed from two families' children, of which one is endowed with the production factors it inherits from its parents' generation. In addition, the family gets one unit of labor.

2. **Decide where to live and work**. Families maximize their income by allocating these factors to working in manufacturing or agriculture. If they have agricultural capital (e.g. land and tools), they have a farm. If they have other forms of capital, they can run a firm.

3. **Procreate and Retire**. Families get children and raise them to marriage age, to which they pass on their production factors and live with them until they die.

The historical setting of a rural economy inspires some assumptions on the productivity of families when working on a farm or in a firm, which depends on the relation between the employer and the employed, and also on the distance between the village they live and work in.

1. Families that work on their own farm, or work in their own firm, have the highest productivity $\pi = 1$. This draws from the idea that parents prepare their children for their working lives, and have a sufficient level of expertise in working on their farm or in their firm.

2. Families that work on a farm or in a firm (a) owned by someone they are related with by blood or law and (b) that lives in the same village, have a strictly lower productivity, and we can assume from their childhood that there is also an order between brothers in terms of productivity. When parents retire, the second oldest child has witnessed his parents work for longer than any of his siblings, so that we can assume that his productivity is smaller, and so forth.

3. Families from the same village but not related by blood nor law have a strictly lower productivity than anyone related to the owner of the farm or firm. They might be not acquainted

with the tasks, and might have to travel also between the work place and their home.

4. An even lower productivity have all families that have to commute to another village for working on a firm or in a firm, and this commuting is so costly that being related doesn't make a difference anymore.

1. Farms

Farms create output by combining agricultural capital S with labor. Any family i can use its endowment with agricultural capital $S \geq 0$ (the land, the tools, the barn and stable, etc.) by employing any family j, working on this farm $L_j^i \geq 0$, to create agricultural output f with given labor income share α,

$$f_i = \left(\sum_{j \in I} \pi_j^i L_j^i \right)^{\alpha} S_i^{(1-\alpha)}, \tag{1}$$

while i can be the same family as j (a self-employed farmer). If the farms employ other families, family j receives a wage equal its marginal product of labor,

$$v_j^i = \frac{\partial F_j}{\partial L_j^i} \qquad \text{if } i \neq j \tag{2}$$

so that the farm's profit is given by

$$F_i = \left(\sum_{j \in I} \pi_j^i L_j^i \right)^{\alpha} S_i^{(1-\alpha)} - \sum_{j \in I, i \neq j} v_j^i L_j^i. \tag{3}$$

2. Manufacturing

Aside from agricultural capital, there is also classical capital K, utilized in firms. Firms create output by combining it with any family's labor $L_j^{i*} \geq 0$, to create output m at their family-specific technology $A_i > 1$ and labor income share β,

$$m_i = A_i \left(\sum_{j \in I} \pi_j^i L_j^{i*} \right)^{\beta} K_i^{(1-\beta)}, \tag{4}$$

wages in manufacturing w are also given by the marginal product of labor,

$$w_j^i = \frac{\partial m_i}{\partial L_j^{i*}}, \tag{5}$$

so that a firm's profit is given by

$$R_i = A_i \left(\sum_{j \in I} \pi^i_j {L^i_j}^* \right)^{\beta} K_i^{(1-\beta)} - \sum_{j \in I, i \neq j} w^i_j {L^i_j}^*. \tag{6}$$

3. Land and Capital Markets

Families trade land and capital between themselves, under the following considerations.

1. Moving capital K from one village to another is costly. Capital is not held in stable currency, but needs to be mobilized, e.g. by selling off machines, or moving them physically, at transport costs. We can assume these costs are a constant share of the units of capital sold (iceberg-type).
2. It is also costly to sell off agricultural capital S or transfer capital between S and C. For example, sold land might be far away from the buyer's farm, so that for any task performed during sowing and harvest the buyer faces long periods of traveling between lands. Additionally, the buyer needs to have the financial means to acquire it. This induces a dilemma. Small pieces of land find a buyer more easily, but induce lots of traveling between fields, larger plots are too costly for anyone, and we know that pooling financial resources across families was not common. Historical accounts highlight this physically induced barrier to land markets, and speak of this as a main reason for the immobility of the peasants.

3.1 Overall Income

Altogether, families gain income Y from wages in agriculture and manufacturing, and the profit of the farm and the firm they might own,

$$Y_i = \left(\sum_{j \in I} v^j_i L^j_i + w^j_i {L^j_i}^* \right) + F_i + R_i \tag{7}$$

4. Saving, Consuming, and Passing Down

Families consume a share of their income, and put the rest in their savings I. Consumption is some fixed amount C_0 which we refer to as subsistence, and a fixed share of the excess income, $0 \leq c < 1$. A family's savings are the sum of all forms of income: wages (in agriculture and in manufacturing), capital and land rents,

$$I_i = (1-c)Y_i - C_0 \tag{8}$$

Families gain utility by leaving behind their savings to their offspring, and seek to distribute their savings equally across their children. They follow inheritance traditions for the distribution of land to their children, but aim to offset the disadvantage to their children by leaving behind capital. If they are themselves endowed with land, they invest a given share of their savings a into improvements of the farm (e.g. by purchasing more land, improve the production). All savings they deem not necessary for the existence of the farm, they store in capital (e.g. improvement of the family business, a house, but also liquid assets), so that a family's endowment at the end of his working life with soil S^* and capital C^* is given by

$$S_i^* = S_i + aI_i \qquad K_i^* = K_i + (1-a)\, I_i \tag{9}$$

Let us, for now, take that the number of children is exogenous, and unrelated to the inheritance tradition, and test this assumption in the empirical part. Families pass down their endowments to this number of children at the end of their working lives. They apply the tradition of their village v, $T = \{0, 1\}$ as follows.

5. Inheritance

Consider the inheritance procedure of any family h that wishes to retire, from the perspective of family i, in its position as the n^{th} of a total of m recipients of inheritance. The inheritance of agricultural capital S is given by tradition. If its municipality v applies equal partition $T_v = 0$ then

$$T_v = 0 : S_i = \frac{S_h^*}{m_h} \tag{10}$$

and

$$T_v = 0 : K_i = \frac{K_h^*}{m_h} \tag{11}$$

If the municipality however applies primogeniture $T_v = 1$, then

$$T_v = 1 : S_i = \begin{cases} S_h^* & \text{if } n = 1 \\ 0 & \text{else} \end{cases} \tag{12}$$

and

$$T_v = 1 : K_i = \begin{cases} 0 & \text{if } n = 1 \text{ and } m_h > 1 \\ \frac{K_h^*}{m_h} & \text{if } n > 1 \text{ and } m_h > 1 \\ K_h^* & \text{if } m_h = 1 \end{cases} \tag{13}$$

6. The Optimization Problem

Our families are strict income maximizers. Provided their subsistence consumption, are indifferent between their own consumption and their children' consumption,

$$\max\left(Y_i + \sum_{n=1}^{h} Y_n\right) \qquad \text{s.t.} \sum_{j \in I} L_i^j + L_i^{j^*} \leq 1 \tag{14}$$

which is given the simple structure of investment opportunities equivalent to

$$\max\left(Y_i\right) \qquad \text{s.t.} \sum_{j \in I} L_i^j + L_i^{j^*} \leq 1. \tag{15}$$

7. Stage 1: Malthusian Era

We start to understand economic development with classical Malthusian assumptions. For generations, fertility prohibited any savings, so there is no classical capital K in our universe of villages, only agricultural capital S. This implies that families

$$\max(y_i) \qquad \text{(from (15))}$$

$$\max\left(\left(\sum_{j \in I} v_i^j L_i^j + w_i^j L_i^{j^*}\right) + F_i + R_i\right) \qquad \text{(from (7))}$$

$$\max\left(\left(\sum_{j \in I} v_i^j L_i^j + w_i^j L_i^{j^*}\right) + F_i\right), \qquad (C_i\text{=0})$$

the implications of which differ by inheritance tradition.

7.1 Primogeniture in Malthusian Times

Assume that a generation has just retired, and passed down the farm and with it, the oldest brother and his family were endowed with S (eq. (12)). Since there was no capital to be inherited, this family is the only producer among his siblings. From the property of the production function (eq. (1)) with any other family working on the farm, the return to labor diminishes. Given their higher productivity, it is rational to employ family members related to by blood or law. Assume that the number of brothers is plenty, and there are several families whose wage (eq. (2)) are above subsistence level C_0, but eventually, there are families that the farm cannot nourish. Historically, family members had to leave the farm, settling in areas where land was still available, by trying to make a life elsewhere.[7] Finally, this leaves the oldest brother's family alone with his parents (who have saved to subsist until they die), and the amount of brothers whose marginal product is above subsistence, while all others leave. Cities, especially Imperial cities, provided higher wages that

7. In Huning and Wahl (2019a), we test a couple of these historical outside options. A further discussion is provided there.

rural areas since the Black Death, and were the main destination for those whose productivity on their family farm did not allow them to subsist.

7.2 Equal Partition in Malthusian Times

The different inheritance practice during Malthusian times becomes clear when the amount of children is above two for many generations. Following the inheritance rule

$$S_i = \frac{S_h^*}{m_h} \text{ if } T_v = 0 \qquad \text{(eq. (10))}$$

$$S_i = \frac{S_h + aI_h}{m_h} \text{ if } T_v = 0 \qquad \text{(eq. (8))}$$

$$S_i = \frac{S_h}{m_h} \text{ if } T_v = 0 \qquad (I_h = 0)$$

$$S_i < S_h \text{ if } T_v = 0 \qquad (m_h \geq 2)$$

From which follows through induction that the endowment with soil approaches zero, and eventually are too small to yield output above subsistence. Again, if there are plots of land in our universe of villages that are not utilized, these families could leave the village and settle on a new plot of land, starting a new village. In analogy to the case of primogeniture, eventually land is completely utilized, and these family members leave our universe of villages, again potentially to the cities of the outside world. Compared to the primogeniture areas, the higher wage in the city minus the costs of moving there have to be marginally higher, as all who move face the costs of abandoning their endowment with land (at least a share of it in form of transaction costs).

7.3 Conclusion on the Malthusian Era

From these we conclude that

Lemma 1. In Malthusian times, a village with primogeniture consists only of retired families, their oldest child, and other families they are related to by blood or law, which produce output above their subsistence level.

A village with equal partition consists only of retired families, and children that were each endowed with enough land to subsist on. Eventually, all land is utilized for agricultural production, and the distribution of across all available land villages is equal, with population density solely determined by the suitability of the land S.

Comparing the endowment of generation two and following generations yields

Lemma 2. Compared to villages of equal partition, villages of primogeniture has larger land holdings per family, and more families helping on farms owned by other families they are related to by blood or law.

8. Stage 2: Putting-out System

Assume that our universe of villages was in stage one for some generations, and then enter some families with capital endowment $C = 1$, we call these families capitalists, and a common technology $A > 1$. These families choose their village they settle in freely, and locate where they maximize their output. Consider family i interested in founding a firm,

$$\max(y_i) \qquad \text{(from (15))}$$

$$\max\left(\left(\sum_{j\in I} v_i^j L_i^j + w_i^j {L_i^j}^*\right) + F_i + R_i\right) \qquad \text{(from (7))}$$

$$\max\left(\left(\sum_{j\in I} v_i^j L_i^j + w_i^j {L_i^j}^*\right) + R_i\right) \qquad (F_i = 0)$$

Assume that the number of capitalists is small enough to settle far away from each other, and that technology A is sufficiently developed enough in relation to productivity π for working for people they are not related with, to ensure that all capitalists work exclusively for their firm, this becomes

$$\max(y_i) = (R_i) \qquad (S_i = 0, {L_i^i}^* = 1)$$

$$\max\left(A_i\left(\sum_{j\in I}\pi_j^i {L_j^i}^*\right)^\beta K_i^{(1-\beta)} - \sum_{j\in I, i\neq j} w_j^i {L_j^i}^*\right) \qquad \text{(from (4))}$$

This yields the two conditions that capitalists focus on, namely (1) that the quantity of labor supply is sufficient (2) at sufficient productivity π. These factors differ between primogeniture and equal partition, according to the discussion of the Malthusian stage. Therefore, capitalists initially settle distant from each other, so they do not compete with each other over labor, but close enough to the labor supply. We focus on labor supply to understand the difference between inheritance traditions.

8.1 Primogeniture and the Putting-Out System

Consider the maximization problem of family i. Apart from their old job, working on k's farm, they can now also gain income by working in j's firm,

$$\max(y_i) \qquad \text{(from (15))}$$

$$\max\left(\left(\sum_{j\in I} v_i^j L_i^j + w_i^j L_i^{j^*}\right) + F_i + R_i\right) \qquad \text{(from (7))}$$

$$\max\left(\left(\sum_{j\in I} v_i^j L_i^j + w_i^j L_i^{j^*}\right) + F_i\right) \qquad (C_i = 0)$$

$$\max\left(v_i^k L_i^k + w_i^j L_i^{j^*} + F_i\right) \qquad (I = \{i, j, k\})$$

Assume that manufacturing technology is low enough that for the owner of the farm, $i = k$, it cannot be profitable to reduce the amount of labor used there. Assuming that the farm employs other families, any labor the owner takes out of his farm reduces its overall output. This rationalizes the idea that heirs in primogeniture areas stay in agriculture full-time, without side employment in manufacturing. Any landless family i maximizes

$$\max\left(v_i^k L_i^k + w_i^j L_i^{j^*}\right) \qquad (I = \{i, j, k\}, S_i = 0, K_i = 0)$$

which means they are indifferent between working in agriculture and manufacturing exactly when

$$v_i^k L_i^k = w_i^j L_i^{j^*}$$

and therefore

$$\frac{\partial \left(\pi_i^k L_i^k\right)^\alpha S_k^{(1-\alpha)}}{\partial L_i^k} L_i^k = \frac{\partial \left(A_i \left(\pi_i^j L_i^{j^*}\right)^\beta K_i^{(1-\beta)}\right)}{\partial L_i^{j^*}} L_i^{j^*}$$

$$\left(\pi_i^k L_i^k\right)^\alpha S_k^{(1-\alpha)} = A_i \left(\pi_i^j L_i^{j^*}\right)^\beta K_i^{(1-\beta)}, \qquad \text{(from (15))}$$

while most of the implications come from the definition of productivity.

Lemma 3. Landless families in the primogeniture area supplies labor, conditional on one, or combination of the factors (2) a large enough inflow of capital relative to (a) the endowment with agricultural capital and (b) the families working for the farm they work on, (2) a large enough level of manufacturing technology, (3) a small enough productivity reduction for working for a capitalist they are not related to by blood or law, and (4) provided they do not have to travel too far to work in the firm.

8.2 Equal Partition and the Putting-Out System

From the Malthusian stage, we know that in the equal partition area all families optimize like the oldest brother of the primogeniture area. We know however that they should have considerably less land, their farm makes a lower profit even if they are the only family working on the farm (eq. (3)), and the main reason why they did not leave their village was the loss they suffer from when selling their land. Concerning all the factors from 3, we conclude the following.

Lemma 4. Ceteris paribus, families from villages where equal partition is applied provide labor to (1) capitalists with less capital, (2) less sophisticated technology, (3) even if they incur higher reduction in productivity when working for capitalists they are not related to by blood or law, or (4) travel further to reach a workplace, or any combination of the above.

8.3 Conclusion on the Putting-Out System, and Dynamics

To conclude, capitalists in a putting-out system locate where labor supply is large enough, and this is the margin more likely the case in areas of equal partition.

Lemma 5. Labor supply for capitalists is higher in villages with equal partition, compared to primogeniture ones, and therefore settle more likely in villages of equal partition.

Consider any family i that provides labor to the capitalists. Assume that the family's endowments were such that there were no savings in the generation before, $Y_i = C_0$, the new source of income should therefore allow savings (eq. 8), so that $I_i > 0$. This allow them to improve the farm, but given that land is completely utilized, there are limits to investing in S. It is therefore safe to assume that the family does not invest all savings into the farm ($a < 1$), or in the case of a landless family in the primogeniture area in establishing an own farm to begin with, so that the next generation is endowed with capital, besides the factors its parents were endowed with. From lemma 5, it follows that this effect is strongest in villages of equal partition.

This implies an increase in the number of capitalists, and since those who work for the capitalists gain all the capital, we expect capital to be more and more unequally distributed across our villages. Families whose grandparents were working on their own land, their parents acquiring capital from working for the entered capitalists, can employ other families themselves, provided they can reach the same level of technology as their parents' employer. This captures the idea that in areas of thriving industry, we expect also the initially completely agricultural population to join the ranks of capitalists, which is recorded especially for the putting-out system. The decision of a capitalist to settle in any village in any generation implies an increase in capital holdings in the same village in the next generation.

The fact that families accumulate capital which formerly were without capital has implications for the villages around it. Consider the case of a family that lives on their parents' farm, and the parents were marginally too distant from capitalists to be attracted. The rising wages attract this family, given the increase in capital stock, because labor becomes scarcer relative to capital. Villages which are very distant from the initial capitalists, remains unchanged, but the distance at which families are indifferent increases.

Lemma 6. There is more capital accumulated in villages of equal partition compared to villages of primogeniture, ceteris paribus—and the distribution of capital across villages is more unequal in areas with equal land partition. Assuming common technology for all families, capital distribution within villages becomes more equal over the generations.

9. Conclusion on the Model

Introducing capital leads to a new option, especially for landless families. They cannot only commute to villages in their proximity, but lemma 6 implies also a more unequal distribution of wages between villages. The increase in income experienced from moving to another village and live there should be initially the highest for landless families, provided that the costs of physically moving to an area with capitalists are small. This should induce migration from primogeniture areas to areas of equal partition.

Further technical progress has rendered the putting-out system obsolete in modern Germany. We can rationalize this by assuming that knowledge spillovers, or technical progress, has given some capitalists a better technology A, which then allows them to pay higher wages, and motivate capitalists with weaker technology to stop producing, instead working for them. Another reason in the model could be that the productivity loss incurred by commuting decreases, which is plausible in the light of advancement in transport infrastructure and technology over the 19$^{\text{th}}$ century Germany. To conclude, these are the ideas we draw from the model that we take to the data:

Theorem. *In areas of equal partition, we expect (1) a higher population density, (2) smaller farms, (3) less family members helping in agriculture, (4) more manufacturing, and (5) less outmigration, ceteris paribus.*

III. DATA

1. Inheritance Traditions

The core of our analysis relies on municipality level data on agricultural inheritance traditions in Baden-Württemberg as assembled by Röhm (1957). After World War II, the federal state of Baden-Württemberg was founded with 3,382 municipalities, each on average only 10.56km^2 in size.[8] In 1953, Röhm sent a one-page questionnaire to each municipality's major. Questions included the predominant inheritance tradition in the municipality at the time, but also its historical origin. Respondents had to decide between a 'main form' (*Hauptform*), primogeniture or equal partition, but could also choose from different transitional and mixed forms. A transitional form could be that small farms were subject to equal partition, while primogeniture applied for large farms. He also asked the majors whether their municipality switched from one main form to the other within the last hundred years, and if so, which was the 'original form'. Only 22 municipalities (0.7 % of

8. The following paragraphs draw heavily from Huning and Wahl (2019a), a companion paper of ours in which we introduce the inheritance data in more detail.

all municipalities) experienced such a change in the main form between 1850 and today. This suggests that the traditions were relatively persistent.[9] If the majors indicated that a transitional or mixed form was prevalent they were also asked for the 'original' form, either primogeniture or equal partition. An outcome of the survey was that there were almost no transitional or mixed forms in 1850. This supports the claim made by many historians that most of the transitional forms have emerged only during the 20th century (Röhm 1957; Krafft 1930; Sering and von Dietze 1930). Based on the information about the origins of mixed forms and about switches in the main form between 1850 and 1953, he drew the border (which he called "historical main border of inheritance rules") between the main forms, which we exploit using a spatial RDD approach. He has drawn the border in a way that it separates the area in which only equal partition was the originally prevalent inheritance tradition from the area in which only primogeniture was the original form (with exclaves of the respective other form as exceptions). The downside of this approach is that it relies on the best knowledge of the majors, and to a minor extent also on their honesty.[10] We compare his data with other data collected earlier, to be sure that this is not a crucial issue.

The questionnaire also inquired whether commons existed and if so, if they were partitioned. The survey resulted in a map depicting for each municipality, one of nine predominant inheritance traditions each with a different color or shading (Figure A.1 in the Online Appendix shows the original map). It distinguishes nine inheritance practices however six of them are transitional forms of primogeniture or equal partition and there is also a mixed tradition, we aggregate these nine to five different inheritance traditions.[11] For the following empirical analysis, we however study only the impact of one of them, equal partition, compared to all the others.

We use maps on the prevalence of inheritance traditions from 1905 as printed in Krafft (1930) and Sering and von Dietze (1930) to check the validity of Röhm's map. It distinguishes only between the two basic forms of equal partition and primogeniture and mixed traditions and is based on a survey of the ministry of law of Württemberg asking notaries about the inheritance traditions prevalent in their jurisdiction. The map largely confirms the location of the border andStandard errors are clustered on county level that mixed traditions were less prevalent in 1905.[12]

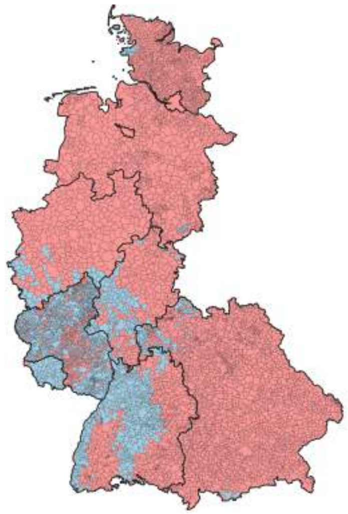
Figure 1(a) shows a map of contemporary West German municipalities and whether they applied equal partition (blue) or primogeniture (red) in 1953. We base those map on the dataset of the Rink and Hilbig (2018) study. Figure 1(b) depicts Krafft's map from 1905, where equal partition municipalities are blue, primogeniture ones are red and mixed ones are orange. Figure 1(c) shows the digitized version of Röhm's map, colorized by inheritance tradition. Primogeniture is the most frequent, prevalent in roughly 38 % of all municipalities; transitional and mixed forms apply in around ⅓ of the municipalities. Figures 1(b) and (c) also show that there are several exclaves, municipalities that apply a tradition different from all its neighbors.

9. In the majority of the switches, municipalities went from equal partition to primogeniture.

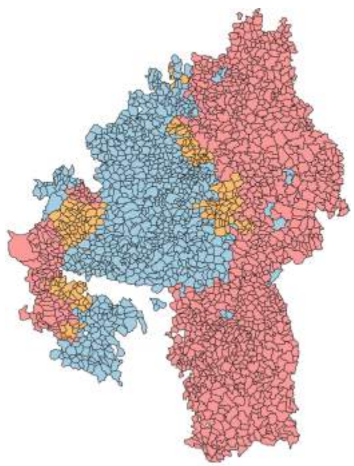
10. Eight years after the Nazi time, this could be a bias, because the political debate emphasized primogeniture as the 'true' Germanic, and therefore superior, tradition.

11. The application of one or the other tradition was not restricted by any laws, the standard German inheritance law was that the farm owners would be free in their will. If farmers wished to apply primogeniture they had to register their farms in the "Höferolle", a trade register for farms, expressing their will that primogeniture law of the respective state is applied. If they changed their mind, they still could pass the farm in another way. Farms were usually passed down to the children during the lifetime of the parents, at parents age around 60 (Krafft 1930), so that the oldest son would be around 25 years old (Karg 1932).

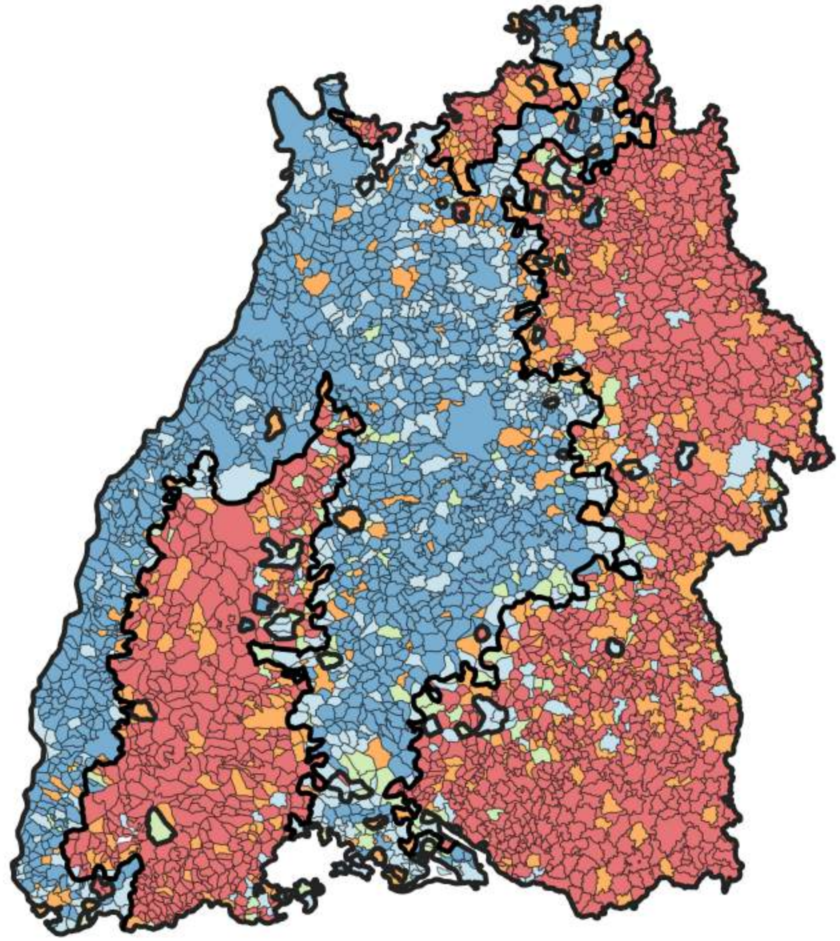
12. We also had a look on the maps depicted in Huppertz (1939) and Karg (1932) to get an idea about the accuracy of Röhm's map. From the comparison, we conclude that Röhm's map is accurate and the most detailed available.



(a) *Inheritance Traditions in Contemporary West-German Municipalities after Rink and Hilbig (2018)*



(b) *Inheritance Practices in Württemberg in 1905 after Krafft (1930)*



(c) *Inheritance Practices and the Historical Main Border of the Equal Partition (with Exclaves) in 1953, after Röhm (1957)*

Note: Blue municipalities predominantly apply equal partition, light blue are municipalities with transitional form of equal partition, red is primogeniture, orange represents transitional forms of Primogeniture. The green areas in 1(c) represent mixed traditions. The black line in 1(c) denotes the historical border of the equal partition area based on Röhm (1957).

Figure 1: *Regional variation on inheritance tradition from three different datasets*

2. Dependent Variables and Controls

Our data on industrialization, agriculture, employment structure and basic demography rely on the official municipal and county statistics of Baden-Württemberg from 1950 and 1961 ("Gemeinde- und Kreisstatistik Baden-Württemberg"). The municipal statistics of 1950 also report population in 1939. For information on part-time farmers, we rely on the municipal statistics from 1971/72 (Statistical Office of Baden-Württemberg 1952, 1964, 1974). These two years are the most chronological closest to Röhm's survey. Not all information is available both in 1950 and 1961 (for example, we only have the migration balance for 1950). For the baseline analysis, we stick to the situation in 1950, the year closest to Röhm's survey. In both 1950 and 1961, the number of municipalities differs slightly from that in 1953, as some few municipalities were merged or created in between.[13]

We also use contemporary data. Asatryan, Havlik, and Streif (2017) provide us with the share of industry buildings per municipality in 2010 and income per capita in 2006 (the last full year before the world financial crisis) for 1,105 municipalities. We also use the areas of municipality's industrial zones, which we extract from openstreetmap.org.[14]

Our control variables originate from a large variety of data sources. To outline our main variables, the share of a municipality's area that is used to grow wine or fruits with intensive agriculture we take from the official municipal statistics of 1961. Data on the location of pre-medieval forest areas were digitized from a map by Ellenberg (1990). Most historical control variables (Distance to the closest Imperial city, historical political instability and fragmentation, location in church territories) were taken from Huning and Wahl (2019b). Talbert (2000) provides the distance of a municipality to the next certain Roman road network. Data on the location of Celtic graves, and 19th railway lines is taken from maps in the "Historischer Atlas von Baden-Württemberg" (Historical Atlas of Baden-Württemberg) which we have digitized (Kommission für geschichtliche Landeskunde in Baden-Württemberg 1988). The shape of the French occupation zones comes from Schumann (2014).

We provide a descriptive overview of all the variables in the Online Appendix in Table A.1 (for the dataset with municipalities as of 1953) and Table A.2 (for contemporary municipalities).

IV. EMPIRICAL ANALYSIS OF THE CONSEQUENCES OF AGRICULTURAL INHERITANCE TRADITIONS

1. Results for Contemporary Municipalities and Outcomes in West Germany

We first study the effect of equal partition on economic development for the whole of West Germany, using data from Rink and Hilbig (2018). They digitized a map drawn by Röhm in the publication "Atlas der deutschen Agrarlandschaft", with data from a survey for all West German

13. For 1971/72, the number of municipalities is much lower (around 1,200) as in 1971, a fundamental reform of the administrative regions was conducted with the results that a lot of counties and municipalities were merged together and the number of municipalities decreased by around 2/3. We do also not have each information for all the municipalities, which can also lead to a slightly smaller number of observations than 3,382 in some regressions.

14. Our data represents the state of 10th March 2019, 12pm. We extracted the polygon shapefile by using the QGIS plug-in QuickOSM.

municipalities (for more details see Rink and Hilbig (2018)). They code the inheritance traditions for contemporary West German municipalities by overlaying Röhm's map with a shapefile of contemporary municipalities. Then they count the number of pixels within each current municipality associated with either inheritance tradition. The authors assign the inheritance tradition with the highest share of pixels to a contemporary municipality.[15] A dummy variable is obtained which is equal to one if a contemporary municipality in 1953 applied equal partition. Figure 1(a) shows West Germany, the borders of contemporary federal states and municipalities. In the figure, municipalities with equal partition in 1953 are blue and the ones applying primogeniture are red. A look at the map makes clear that equal partition was present mostly in Baden-Württemberg, Rhineland Palatine, the Saarland and the south of Hesse. It was virtually absent in Bavaria and the north of Germany. Baden-Württemberg was the only state with closed equal partition and primogeniture areas. All other states were scattered. We use this advantage of Baden-Württemberg to employ a spatial RDD approach.

Their dataset also contains a host of geographical and historical control variables alongside contemporary socio-economic outcomes (measured in 2014). Among those, the average wage income and population density are relevant for our analysis. These two will be the dependent variables in OLS regressions with the equal partition dummy as variable of interest and following historical and geographic control variables: A municipality's distance to Wittenberg, average elevation, the intensity of the Peasant Wars of 1522-1525 in the historical state of the municipality, and dummy variables for historical states of the German Empire of 1871, for municipalities historically located in the Roman part of Germany, and in which the code civil was the prevailing law in 1894.[16] We include either federal state or county fixed effects into the regressions.

Table 1 reports results of the OLS regressions. Regardless of which combination of fixed effects and control variables, equal partition municipalities have a statistically and economically significantly higher population density (around 15 to 58 %) and higher average wage incomes (around 1.6 to 5 %). In conclusion, the results confirm that there is a positive relationship between equal partition and municipal economic prosperity in today's West Germany.

15. In order to arrive at a dichotomous measure, they treat transitional forms of equal partition as equal partition and transitional forms of primogeniture as primogeniture.

16. For descriptive statistics of those variables, the reader is referred to the Data Appendix of the Rink and Hilbig (2018) paper.

Table 1: *Equal Partition and Current Municipal Development in West Germany*

Dependent Variable	ln(Population Density 2014)			ln(Average Wage Income 2014)		
	(1)	(2)	(3)	(4)	(5)	(6)
Equal Partition	0.567***	0.325***	0.154***	0.0468***	0.0211***	0.0159***
	(0.0754)	(0.065)	(0.054)	(0.009)	(0.006)	(0.006)
Federal State Dummies	Yes	No	No	Yes	No	No
Latitude and Longitude	Yes	No	No	Yes	No	No
County Dummies	No	Yes	Yes	No	Yes	Yes
Further Controls	No	No	Yes	No	No	Yes
Observations	4,021	4,021	4,001	7,977	7,977	7,896
R^2	0.183	0.504	0.579	0.132	0.388	0.405

Notes. Standard errors are clustered on county (Landkreis) level are in parentheses. Coefficient is statistically different from zero at the ***1 %, **5 % and *10 % level. The unit of observation is a municipality in 2014. All regressions include a constant not reported. Controls include a municipality's distance to Wittenberg, average elevation, a variable reporting the intensity to which the county in which a municipality is located was involved in the Peasant Wars of 1522-1525, dummy variables for historical states of the German Empire of 1871, for municipality's historically located in the Roman part of Germany, for municipalities in which the code civil was the prevailing civil code in 1894.

2. Consequences of Equal Partition in Baden-Württemberg in 1950

2.1 OLS Results

We move the focus of our analysis to the state of Baden-Württemberg in 1950, and study the effect of equal partition on municipality level population and industry firm density (firms per hectare), industrial and agricultural employment shares, and migration balance per capita. We estimate the following equation using OLS:

$$Outcome_{s,m} = \alpha + \beta EqualPartition_{s,m} + \gamma' \mathbf{X_{s,m}} + \delta_s + \epsilon_{s,m} \tag{16}$$

Where $Outcome_{s,m}$ represents one of the five measure of industrialization, structural change and inter-regional migration in municipality m in border segment s mentioned above. $\mathbf{X_{s,m}}$ is a vector of control variables. We include geographic and historical variables to control for confounding variation representing the determinants of agricultural inheritance traditions studied in our companion paper (Huning and Wahl 2019a). We include controls of pre-historic/ancient (and therefore pre-treatment) measures of economic development, urbanization and settlement history. This accounts for persistence of deep historical factors of development. The geographic covariates include mean elevation, terrain ruggedness, soil suitability and the share of agricultural area used to grow wine and fruits in 1961, and distance to Rhine or Neckar.

Historical controls encompass distance to the closest Imperial city as of 1556, distance to next certain Roman road, a dummy variable for municipalities with at least one Celtic grave, historical political fragmentation and instability, the share of a municipalities total area that is located in ecclesiastical territories in 1556, pre-medieval forest areas, the share of Protestants in 1961 and a dummy for municipalities which belonged to the Duchy of Württemberg in 1789. We also add a measure for distance to the closest urban center (either Freiburg, Heidelberg, Karlsruhe, Mannheim or Stuttgart), and to the rivers Rhine or the Neckar. This addresses concerns of proximity to a large agglomeration or to major rivers in the border's vicinity. Furthermore, we include a dummy variable equal to one if a municipality was located in the French Occupation Zone after World War II. This allows us to control for the argument by Schumann (2014) who shows that the occupational zones led to discontinuous population growth until the 1970s (because the French objected to any immigration from territories Germany lost to Poland).

Some of these control variables are potentially bad controls. The potential bias from not controlling for these factors however is likely larger than the bias that could arise from bad controls. We also add 25 border segment fixed effects (δ_s) to the estimation to further reduce unobserved heterogeneity.[17] We include all control variables in all of the estimations. $\epsilon_{s,m}$ is the error term. Table 2 shows the results.

For all the dependent variables except the migration balance per capita, we find that equal partition has an economically and statistically significant effect. For example, the number of firms per hectare is on average around 12% larger in the equal partition areas, and the share of workers in the industrial sector is on average around 4% higher.

Despite the comprehensive set of control variables, there could be a bias of the OLS estimates because of omitted variables. We therefore propose an alternative strategy to identify the causal relationship between equal partition and our outcomes of interest. This identification strategy comes with its own challenges, but convinces in combination with the OLS results. In what follows, we argue that the historical border of inheritance traditions as depicted in the map of Röhm is a valid border in a spatial RDD and henceforth enables us to eliminate potential biases arising from unobserved heterogeneity.

17. We create those in the following way: We split he border into 25 equally large segments and then each municipality is assigned to the segment it is closest to.

Table 2: *Equal Partition and Industrialization, Structural Change, and Migration Patterns 1950—OLS Estimations*

Dependent Variable	ln(Population Density 1950)	ln(Firms per Acre 1950)	Employment Share Industry 1950	Employment Share Agriculture 1950	Migration Balance p.c. 1950
	(1)	(2)	(3)	(4)	(5)
Equal Partition	0.132***	0.121**	0.042***	-0.029***	0.001
	(0.044)	(0.048)	(0.011)	(0.011)	(0.001)
Border Segment FEs (25)	✓	✓	✓	✓	✓
Geographic Controls	✓	✓	✓	✓	✓
Historical Controls	✓	✓	✓	✓	✓
French OZ Dummy	✓	✓	✓	✓	✓
Distance to Urban Center	✓	✓	✓	✓	✓
Intersects Major Railway	✓	✓	✓	✓	✓
Intersects Minor Railway	✓	✓	✓	✓	✓
Observations	3,371	3,365	3,370	3,370	3,256
R^2	0.488	0.365	0.428	0.438	0.418

Notes. Standard errors are clustered on county (Landkreis) level are in parentheses. Coefficient is statistically different from zero at the ***1 %, **5 % and *10 % level. The unit of observation is a municipality in 1953. All regressions include a constant not reported. R^2 is the centered R^2 of the second stage. Geographic controls include mean elevation, terrain ruggedness and soil suitability as well as the share of agricultural area used to grow wine and fruits in 1961, and distance to Rhine or Neckar. Historical controls encompass distance to the closest Imperial city as of 1556, distance to next certain Roman road, a dummy variable for municipalities with at least one Celtic grave, historical political fragmentation and instability, the share of a municipalities area that is located in ecclesiastical territories in 1556, pre-medieval forest areas, the share of Protestants in 1961 and a dummy for municipalities which belonged to the Duchy of Württemberg in 1789.

2.2 Identification Challenges

The validity of a spatial RDD rests on three assumptions. The border is drawn in an (economically) unsystematic way, there is no compound treatment, and there is no selective sorting (manipulation of the running variable). Of those three, the first two are the most critical in our context.[18] The most crucial assumption is that the border is not endogenous to any unobserved factors and hence not drawn in a systematic way. We cannot proof the validity of this assumption, but we can test whether relevant observables vary smoothly at the border. If this is not the case, it shows that the border is systematic, meaning it is located in an area where relevant characteristics change discontinuously. As depicted in Figure 1(c), the border in the southeast, shaped like an inverted U, is almost identical to the Black Forest. This border reflects discontinuous changes in other variables, such as elevation and other characteristics of relevance. Therefore, we exclude this border from the analysis. We also exclude the small, northern primogeniture area, since it has a long border with another state, Hesse. What remains is the eastern part of the border, stretching roughly from the south to the north of Baden-Württemberg, with a slight eastern-wards tendency. Röhm (1957) already noted that apparent geographical or historical features cannot explain this segment of the border. From a historical point of view, one concern is that the line was not absolutely exogenous, as we know the exact mechanism that determined it. This makes our cultural border not a typical case for a spatial RDD, like an exogenously drawn political border would be.[19]

Regarding the determinants of the border, Schröder (1980) and Huppertz (1939) argue that cultural diffusion and imitation played a decisive role in the spread of equal partition in particular. Schröder (1980) develops the argument that equal partition occurred first in the wine-growing areas, either as original development —or as suggested by others, based on Germanic traditions or Roman ideas of property—and spread from there fast in a classical process of cultural diffusion through imitation.[20] The presence of exclaves, and a lot of transitional forms along the border that is suggested by the results of Huning and Wahl (2019a) support this reasoning.[21] Schröder (1980) further backs this argument by showing that equal partition emerged spontaneously in some areas of the duchy of Württemberg. Together with the fact there seems to be no discontinuities in natural factors like soil quality or elevation along the border, this suggests that the historical border resulted from idiosyncratic circumstances, which put historical diffusion in the municipalities nowadays located along the border on halt.Residuals from a regression in our companion paper (Huning and Wahl 2019a), where we explain the equal partition area support this notion too.[22] Figure 3 visualizes them. Darker shades of red displays higher residuals. The residuals of the prediction are largest around the border, implying that this area is among the locations in which we can predict equal partition least good.

18. Selective sorting usually is an important issue when people are aware of the fact that treatment occurs at a certain value of the running variable, i.e. income or can manipulate their own values of the running variable accordingly leading to a higher density of observations around the threshold. In our case, the observations are municipalities and not individuals and the border is fuzzy and implicit making it unlikely that this is a big issue.

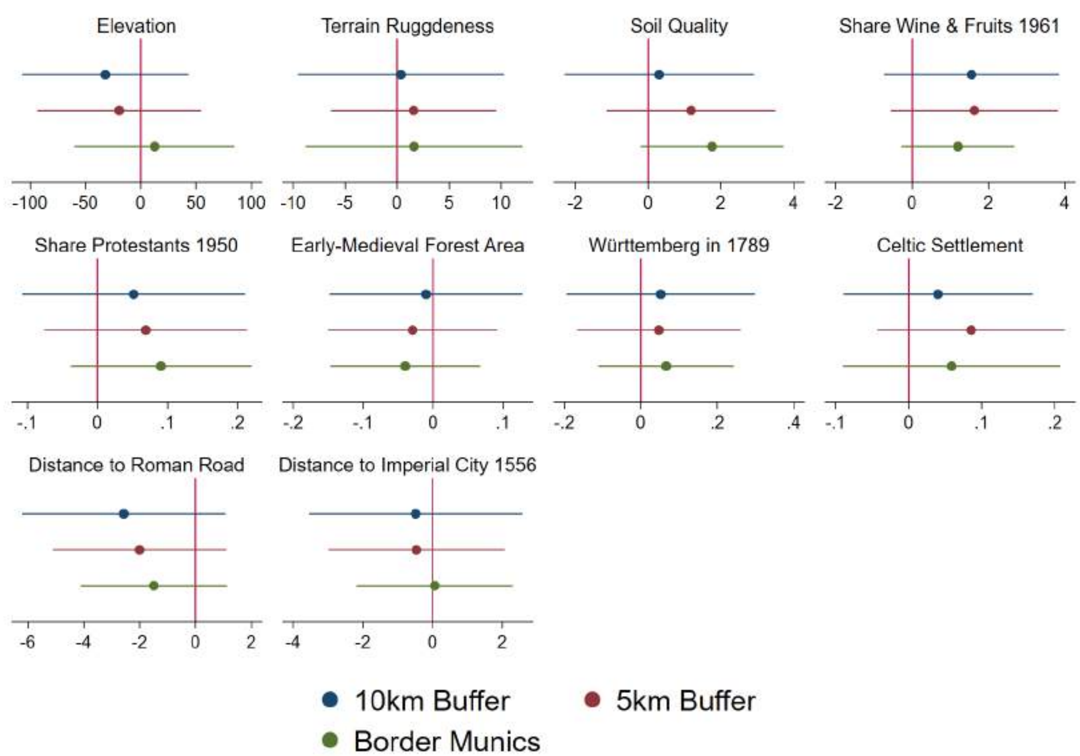
19. A prime example for a completely exogenous border are the African borders drawn in Berlin, see Michalopoulos (2012). For most European borders, endogeneity has been demonstrated by a variety of authors (Wolf, Schulze, and Heinemeyer 2011; Suesse 2018) however studies using RDD on them are as plentiful.

20. We discuss this idea and empirically test it in Huning and Wahl (2019a).

21. Röhm (1957) puts it differently in saying that from today's perspective inheritance traditions seem to result from arbitrariness and randomness. From historical perspective, he argues, they seem to be characteristics of the cultural of the area, which are transmitted from generation to generation.

22. The residuals originate from an OLS estimation of the probit regression in Table 1 of the companion paper.

For the eastern border segment, we show that relevant observables are continuous. We run spatial RDD estimations for a five and a ten kilometer buffer area around the border and also for the municipalities immediately to the left and right of the border only. As running variable, we introduce a linear distance polynomial measuring distance to the border. We cluste standard errors on county level. We consider ten relevant, geographic, ancient, medieval and contemporary variables as dependent ones. Among those are all the variables significantly predicting the equal partition area in Huning and Wahl (2019a) and, additionally the share of Protestants in 1950. Figure 2 reports the results. It shows the coefficient of the equal partition area dummy and 95 % confidence intervals. We do not detect a significant discontinuity of these variables at the border.[23] This reassures us that at least a specification with only comparing municipalities directly at the border leads to a valid spatial RDD.



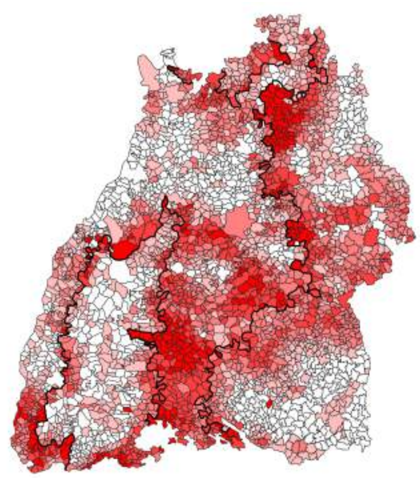
Note: The figures show coefficients of the equal partition area dummy resulting from spatial RDD regressions for several bandwidth and dependent variables using a linear distance polynomial. In the case of the border municipalities sample, the coefficient is just the result of a bivariate OLS regression. The shown confidence intervals are 95 % confidence intervals.

Figure 2: *Testing for Discontinuities in Observables at the Border*

23. In the case of soil quality, the equal split area dummy would become significant at 10 % level when focusing on the border municipalities only. The marginally significant coefficient however would then be just because of two small municipalities on the primogeniture side of the border that have extremely low soil quality values. If we remove those two municipalities, the coefficient turns insignificant.

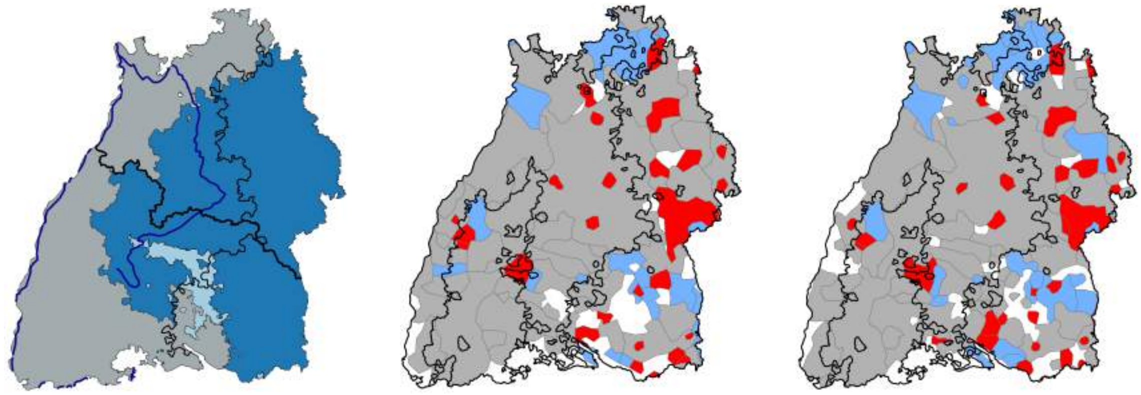
No compound treatment means that the border between the equal partition and the primogeniture areas is not identical to any other existing or historical border of relevance. To show that this is the case, Figure 4(a) depicts the eastern part of the equal partition border and the area of the three predecessor states of Baden-Württemberg (Baden, Hohenzollern, and Württemberg). The border is different to one of those states and in fact cuts right through the middle of both Württemberg (dark blue) and Hohenzollern (light blue) with small but significant share of territory in the southeast of Baden (gray). It is also not identical to the border of the French occupation zone after World War II (the bold black line). Despite this, we include a dummy for municipalities in the French Zone to all the regressions. The border is also distinct from to the course of the two relevant rivers, Rhine and Neckar—although its course to some extent mirrors those of the Neckar flowing in the middle of the state. To rule out that this biases our results, we control for distance to Rhine and Neckar in our spatial RDD specifications.

Figures 4(b) and (c) overlay the borders of historical states in Baden-Württemberg in 1648 (after the Peace of Westphalia) and 1789 (close to the French Revolution). They also show the location of Imperial cities (red) and ecclesiastical territories (blue). We can infer from those figures that the border is also not identical to those of historical states, especially not to important ones that are relevant for inheritance traditions like the historical Duchy of Württemberg (which was the large state in the center of the area). We nevertheless include a dummy for municipalities in the Duchy of Württemberg in 1789, and as a robustness check, a complete set of historical state dummies.



Note: The figure shows residuals of a linear probability model explaining the historical equal partition area. The darker red the municipalities are colored, the higher is the residual.

Figure 3: *Predicted Equal Partition Area, Prediction Residuals and the Historical Inheritance Border*



(a) *The Eastern Historical Main Border of Inheritance Practices, Historical States and Major Rivers*

(b) *The Historical Border and States 1648*

(c) *The Historical Border and States 1789*

Note: Figure (a) shows the eastern part of the historical border of the equal partition, and the borders of the historical states forming Baden-Württemberg (Baden, Hohenzollern and Württemberg) and two major rivers Rhine and Neckar. Figures (b) and (c) show the eastern border of equal partition and the historical states in 1648 (a) and 1789 (b), and secular states are depicted in gray, city states in red, and ecclesiastical states in blue.

Figure 4: *Maps of important control variables on historical borders and rivers*

2.3 Estimation Approach

Intuitively, the idea of our identification strategy is to model municipal economic development as function of distance to the border. If equal partition has a positive effect, we expect a significant upward shift in the intercept of that function at the border. We estimate this shift in the intercept using a spatial RDD approach or Boundary Discontinuity Design (BDD). A BDD is a special case of a standard RDD but with a two-dimensional forcing variable (Keele and Titiunik 2014). Because of the transitional forms, we estimate a fuzzy BDD. This allows us to use the course of the border to identify municipalities located either in the equal partition area or in the primogeniture area. We then use this variable to instrument actual prevalence of equal partition with location in the equal partition area. A fuzzy BDD amounts to estimating a standard 2SLS model including a variable measuring the distance from each municipality to the closest border segment. We estimate the following equations:

$$EqualPartition_{s,m} = \alpha_1 + \beta_1 EqualPartitionArea_{s,m} + f(D_m) + \gamma_1' \mathbf{X_{s,m}} + \delta_s + \epsilon_{s,m} \quad (17a)$$

$$Outcome_{s,m} = \alpha_2 + \beta_2 EqualPartition_{s,m} + f(D_m) + \gamma_2' \mathbf{X_{s,m}} + \zeta_s + \eta_{s,m} \quad (17b)$$

Where $EqualPartitionArea_{s,m}$ is a binary variable that indicates whether municipality m in border segment s was located in the historical area of equal partition inheritance practices. This variable is used as instrument for the potentially endogenous dummy $EqualPartition_{s,m}$ which is equal to one if a municipality applied equal partition of agricultural inheritance by 1953. Here $f(D_m)$ is a flexible linear function of the geodesic distance of each municipality's border to the closest point on the eastern part of the historical border. 'Flexible' means that we allow the distance polynomial to differ in the treated and non-treated area by interacting the distance terms with the treatment variable. $Outcome_{s,m}$ are various socio-economic outcome variables in border segment s in 1950 or 1961, depending on the availability of data. $\mathbf{X_{s,m}}$ is a vector of control variables. We introduce the control variables below alongside the presentation of the results. They are however identical to those used for the OLS regressions of Table 2. δ_s and ζ_s represent five border segment fixed effects.

The standard spatial RDD, using geodesic distance to the border as running variable, has the restriction that it does not take into account that municipalities with the same geodesic distance to border can be far away from each other (because the north-south direction is not taken into account). Introducing border segment fixed effects does already mitigate this problem. Additionally, we follow Dell (2010) and treat the border as a two-dimensional threshold to control for the exact geographic location of a municipality (its longitude and latitude). We modify the 2SLS estimation as follows:

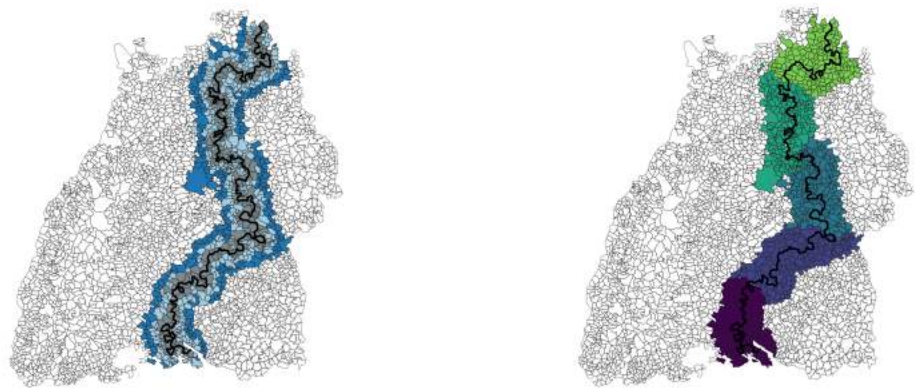
$$EqualPartition_{s,m} = \alpha_1 + \beta_1 EqualPartitionArea_{s,m} + f(x_m, y_m) + \gamma_1' \mathbf{X_{s,m}} + \delta_s + \epsilon_{s,m} \quad (18a)$$

$$Outcome_{s,m} = \alpha_2 + \beta_2 EqualPartition_{s,m} + f(x_m, y_m) + \gamma_2' \mathbf{X_{s,m}} + \zeta_s + \eta_{s,m} \quad (18b)$$

With $f(x_m, y_m)$ we have a flexible function of a municipalities minimum longitudinal and latitudinal coordinates (x_m and y_m). We use a linear coordinates polynomial.[24]

We apply a semi-parametric operationalization of the fuzzy BDD, using three different bandwidths (buffer areas) around the border for the estimation of the sample. These are ten and five kilometers, and lastly only municipalities directly at the western and eastern side of the border. Figure 5(a) shows the estimation samples corresponding to the three different buffer areas. Figure 5(b) shows which municipality is assigned to which of the five border segments. We cluster the standard errors on county level to account for likely spatial correlation of inheritance practices, and outcomes. In robustness checks, we also show that the results are robust to the use of quadratic distance polynomials. We exclude exclave municipalities of the respective other inheritance practice from all estimations.

24. To be precise, the polynomial has the following form: $f(x, y) = x + y + xy$.



(a) *Buffer Areas around the Eastern Main Border* **(b)** *Border Segments around the Eastern Main Border*

Note: These figures show the eastern part of the historical border of equal and unequal partition inheritance areas. In panel (a) municipalities to the left and right of the border are depicted in gray, those five kilometers away from the border are depicted in light-blue and those ten kilometer away in dark-blue. Panel (b) shows how municipalities in the buffer area are assigned to one of five border segments to which they are closest.

Figure 5: *Buffer Areas and Border Segments around the Historical Main Border of Inheritance Practices*

2.4 Consequences of Equal Partition for the Structure of the Agricultural Sector

Consider the consequences of inheritance traditions on the structure of agriculture in the 1950s. Table 3 shows the results of estimating equation 17 with border segment fixed effects and no other controls. We estimate the BDD for a ten kilometer buffer area around the eastern border of the equal partition area. We include four different dependent variables, including two measures of farm size (share of large farms and farms per hectare), the share of helping family members in all employees in 1950, and common land as reported by Röhm (1957). Röhm (1957) argues that common lands are more frequent in equal partition municipalities as they make it easier to maintain it. As expected, farms are on average significantly smaller in the equal partition area, there are fewer family members working on the farms and the probability that common land is present in a municipality is significantly higher. It is also worth noticing that the F-value of the equal partition area dummy in the first stage is very high all the time and well above the commonly used threshold of ten. This makes it a likely candidate for an instrument.

It is essential for our argument that the putting-out system was more widespread in the equal partition area than in the areas of primogeniture. We cannot test that directly, but we have data from the early 1970s, which allow us to test whether there are more part-time farmers in the equal partition area. If this is true it would imply that those part-time farmers also work as craftsmen or in the industrial sector when they do not engage in agricultural activities (e.g., during the winter). As this argument is essential for our story, we test this by running the BDD as before but this time we also include control variables and use a linear coordinates polynomial as additional forcing variable. We rely on the ten kilometer buffer to keep up the number of observations.

Table 3: *Equal Partition and its Consequences for the Structure of Agriculture in Baden-Württemberg in 1950*

Dependent Variable	Share of Farms>40ha	Farms per Acre	Share of Helping Family Members 1950	Commons
	(1)	(2)	(3)	(4)
Buffer Area	10km around the border			
Equal Partition	-0.543***	14.42***	-0.121***	0.567***
	(0.124)	(3.889)	(0.0348)	(0.179)
Linear Dist. Polynomial	Yes	Yes	Yes	Yes
Border Segment FEs	✓	✓	✓	✓
F-Value of Excluded IV	50.48	50.48	50.35	50.46
Observations	869	869	869	870
R^2	0.04	0.09	0.054	0.088

Notes. Standard errors are clustered on county (Landkreis) level are in parentheses. Coefficient is statistically different from zero at the ***1 %, **5 % and *10 % level. The unit of observation is a municipality in 1953. The F-Value of Excluded IVs refers to the F-values of the equal partition area dummy as instrument for equal partition in 1953 on the first stage. R^2 is the centered R^2 of the second stage.

Table 4: *Equal Partition and Part-time Farmers in Baden-Württemberg in 1972*

Dependent Variable	Part-time Farmers (Share)			Mainly part-time farmers (Share)
	(1)	(2)	(3)	(4)
Buffer Area	All Obs.	10km	10km	10km
	Panel A: Linear Distance Polynomial			
Equal Partition	0.120***	0.218***	0.233***	0.459***
	(0.016)	(0.079)	(0.09)	(0.103)
F-Value of Excluded IV	921.86	40.99	29.85	40.11
R^2	0.097	0.157	0.282	0.09
	Panel B: Linear Coordinates Polynomial			
Equal Partition	0.122***	0.191***	0.275***	0.429***
	(0.02)	(0.053)	(0.085)	(0.065)
F-Value of Excluded IV	604.05	80.67	29.06	83.27
R^2	0.114	0.26	0.223	0.029
Border Segment FEs	✓	✓	✓	✓
Geographic Controls	–	–	✓	–
Historical Controls	–	–	✓	–
French OZ Dummy	–	–	✓	–
Distance to Urban Center	–	–	✓	–
Intersects Major Railway	–	–	✓	–
Intersects Minor Railway	–	–	✓	–
Observations	1,114	316	314	322

Notes. Standard errors are clustered on county (Landkreis) level are in parentheses. Coefficient is statistically different from zero at the ***1 %, **5 % and *10 % level. The unit of observation is a municipality in 1953. All regressions include a constant not reported. R^2 is the centered R^2 of the second stage. Geographic controls include mean elevation, terrain ruggedness and soil suitability as well as the share of agricultural area used to grow wine and fruits in 1961, and distance to Rhine or Neckar. Historical controls encompass distance to the closest Imperial city as of 1556, distance to next certain Roman road, a dummy variable for municipalities with at least one Celtic grave, historical political fragmentation and instability, the share of a municipalities area that is located in ecclesiastical territories in 1556, pre-medieval forest areas, the share of Protestants in 1961 and a dummy for municipalities which belonged to the Duchy of Württemberg in 1789.

We compare these results to simple OLS estimates including all municipalities for which data exists, as shown in Table 4. The upper panel presents the results using distance to the border as forcing variable, and the lower panel reports the results with geographic coordinates as forcing variable. The first column of the upper panel reports the coefficient of a standard 2SLS regression without a forcing variable and using all municipalities for which we have data. Column (2) shows BDD estimates without controls and column (3) with controls. In the first three columns, the overall share of part-time farmers in all farmers of a municipality in 1972 is the dependent variable, in column (4) we additionally inspect the share of the category of 'mainly part-time farmers'.

In all the estimations, the share of part-time (or mainly part-time) farms is statistically significantly higher than in the equal partition area. Most conservatively, the results imply a share that is on average around 12 % (column 1). This provides robust empirical support for our argument linking equal partition to the putting-out system, and part-time farming.

2.5 Consequences of Equal Partition for Industrialization and Structural Change

In the next step, we investigate the effects of equal partition on industrialization and structural change. First, we focus on its impact on measures of industrialization and urbanization, i.e. population density and (non-agricultural) firms per hectare. We estimate the same BDD specification as in Table 4. We also consider a smaller, five kilometers buffer area and look only at municipalities immediately to the east and west of the border. Table 5 shows the results of those BDD estimations. Columns (1) to (4) report the results for the natural logarithm of population density and columns (5) to (8) those for ln firms per hectare. All results indicate that the equal partition area is both economically and statistically significantly more industrialized than the primogeniture area. The most conservative estimations, where we consider the border municipalities and include all controls (columns (4)), suggest that on average the population density of an equal partition municipality is around 84 % higher than that of a primogeniture municipality. Reassuringly, the results do not depend on whether one uses a distance or a coordinates polynomial, underlining their robustness to a more precise modeling of geographic location.

In Table 6, we analyze the effect of equal partition on structural change and industry structure. We estimate the same BDD regressions as in the last table but now the dependent variables are the share of employees in industry and agriculture. We find equal partition positively and significantly related to structural change, as the share of workers in industry is at 10 to 20 % higher in equal partition municipalities. The coefficients are almost unchanged by different bandwidth choice, inclusion of control variables or different polynomials, again showing a robust effect of equal partition on the structure of the economy.

Table 5: *Equal Partition and Industrialization in Baden-Württemberg in 1950*

Dependent Variable	ln(Population Density 1950)				ln(Firms per hectare 1950)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Buffer Area	10km	10km	5km	Border Munics	10km	10km	5km	Border Munics
	Panel A: Linear Distance Polynomial							
Equal Partition	0.978***	0.665***	0.752***	0.909***	1.006***	0.641***	0.744***	0.994***
	(0.302)	(0.227)	(0.247)	(0.306)	(0.284)	(0.243)	(0.276)	(0.330)
F-Value of Excluded IV	50.37	48.41	34.34	18.43	50.48	48.41	34.34	18.43
R^2	0.160	0.51	0.453	0.45	0.106	0.403	0.336	0.331
	Panel B: Linear Coordinates Polynomial							
Equal Partition	1.018***	0.618***	0.762***	0.837**	0.973***	0.641***	0.786***	0.969**
	(0.252)	(0.210)	(0.218)	(0.367)	(0.224)	(0.225)	(0.231)	(0.464)
F-Value of Excluded IV	96.48	68.54	58.09	17.57	96.60	68.54	58.09	17.57
R^2	-0.096	0.381	0.283	0.321	-0.057	0.278	0.184	0.211
Observations	868	865	586	267	869	865	586	267
5 Border Segment Fixed Effects	✓	✓	✓	✓	✓	✓	✓	✓
Geographic Controls	–	✓	✓	✓	–	✓	✓	✓
Historical Controls	–	✓	✓	✓	–	✓	✓	✓
French OZ Dummy	–	✓	✓	✓	–	✓	✓	✓
Distance to Urban Center	–	✓	✓	✓	–	✓	✓	✓
Intersects Major Railway	–	✓	✓	✓	–	✓	✓	✓
Intersects Minor Railway	–	✓	✓	✓	–	✓	✓	✓

Notes. Standard errors are clustered on county (Landkreis) level are in parentheses. Coefficient is statistically different from zero at the ***1 %, **5 % and *10 % level. The unit of observation is a municipality in 1953. All regressions include a constant not reported. R^2 is the centered R^2 of the second stage. Geographic controls include mean elevation, terrain ruggedness and soil suitability as well as the share of agricultural area used to grow wine and fruits in 1961, and distance to Rhine or Neckar. Historical controls encompass distance to the closest Imperial city as of 1556, distance to next certain Roman road, a dummy variable for municipalities with at least one Celtic grave, historical political fragmentation and instability, the share of a municipalities total area that is located in ecclesiastical territories in 1556, pre-medieval forest areas, the share of Protestants in 1961 and a dummy for municipalities which belonged to the Duchy of Württemberg in 1789.

Table 6: *Equal Partition and Economic Structure in Baden-Württemberg in 1950*

Dependent Variable	Employment Share Industry 1950				Employment Share Agriculture 1950			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Buffer Area	10km	10km	5km	Border Munics	10km	10km	5km	Border Munics
	Panel A: Linear Distance Polynomial							
Equal Partition	0.174***	0.158**	0.172**	0.205**	-0.218***	-0.154**	-0.163*	-0.212**
	(0.064)	(0.067)	(0.078)	(0.085)	(0.066)	(0.074)	(0.086)	(0.091)
F-Value of Excluded IV	50.48	48.41	34.34	18.43	50.48	48.41	34.34	18.43
R^2	0.218	0.424	0.396	0.397	0.073	0.438	0.427	0.429
	Panel B: Linear Coordinates Polynomial							
Equal Partition	0.144***	0.111**	0.102**	0.168**	-0.170***	-0.110**	-0.115**	-0.184**
	(0.046)	(0.047)	(0.048)	(0.075)	(0.053)	(0.0563)	(0.053)	(0.084)
F-Value of Excluded IV	96.60	68.54	58.09	17.57	96.60	68.54	58.09	17.57
R^2	0.030	0.315	0.287	0.256	-0.032	0.367	0.358	0.373
Observations	869	865	586	267	869	865	586	267
5 Border Segment Fixed Effects	✓	✓	✓	✓	✓	✓	✓	✓
Geographic Controls	–	✓	✓	✓	–	✓	✓	✓
Historical Controls	–	✓	✓	✓	–	✓	✓	✓
French OZ Dummy	–	✓	✓	✓	–	✓	✓	✓
Distance to Urban Center	–	✓	✓	✓	–	✓	✓	✓
Intersects Major Railway	–	✓	✓	✓	–	✓	✓	✓
Intersects Minor Railway	–	✓	✓	✓	–	✓	✓	✓

Notes. Standard errors are clustered on county (Landkreis) level are in parentheses. Coefficient is statistically different from zero at the ***1 %, **5 % and *10 % level. The unit of observation is a municipality in 1953. All regressions include a constant not reported. R^2 is the centered R^2 of the second stage. Geographic controls include mean elevation, terrain ruggedness and soil suitability as well as the share of agricultural area used to grow wine and fruits in 1961, and distance to Rhine or Neckar. Historical controls encompass distance to the closest Imperial city as of 1556, distance to next certain Roman road, a dummy variable for municipalities with at least one Celtic grave, historical political fragmentation and instability, the share of a municipalities total area that is located in ecclesiastical territories in 1556, pre-medieval forest areas, the share of Protestants in 1961 and a dummy for municipalities which belonged to the Duchy of Württemberg in 1789.

Another prediction of our model is that primogeniture leads to sizable out-migration of non-inheriting children from the rural primogeniture area into the more urbanized equal partition area. To assess whether this is true we estimate a BDD with the municipal migration balance per capita in 1950 as dependent variable (Table 7). We find our expectations confirmed as the per capita migration balance of equal split municipalities is on average significantly more positive (by around 1 to 2%) than those of municipalities applying another inheritance tradition. These 2 % are roughly corresponding to an increase by one standard deviation of the per capita migration balance and thus, this is a non-negligible effect. As with the migration balance per capita however, we cannot say where the migrating people come from, this is only indirect, yet suggestive evidence for migration from the primogeniture to the equal partition area.

Table 7: *Equal Partition and Inter-regional Migration in Baden-Württemberg in 1950*

Dependent Variable	Migration Balance p.c. 1950			
	(1)	(2)	(3)	(4)
Buffer Area	10km	10km	5km	Border Munics
	Panel A: Linear Distance Polynomial			
Equal Partition	0.017**	0.01	0.02**	0.019**
	(0.008)	(0.006)	(0.008)	(0.01)
F-Value of Excluded IV	54.47	53.75	35.41	18.83
R^2	-0.011	0.11	0.052	0.138
	Panel B: Linear Coordinates Polynomial			
Equal Partition	0.012**	0.006	0.011**	0.016*
	(0.005)	(0.004)	(0.005)	(0.01)
F-Value of Excluded IV	108.32	77.73	59.79	17.83
R^2	0.021	0.12	0.104	0.164
Observations	842	839	569	261
Border Segment FEs	✓	✓	✓	✓
Geographic Controls	–	–	✓	✓
Historical Controls	–	–	✓	✓
French OZ Dummy	–	–	✓	✓
Distance to Urban Center	–	–	✓	✓
Intersects Major Railway	–	–	✓	✓
Intersects Minor Railway	–	–	✓	✓

Notes. Standard errors are clustered on county (Landkreis) level are in parentheses. Coefficient is statistically different from zero at the ***1 %, **5 % and *10 % level. The unit of observation is a municipality in 1953. All regressions include a constant not reported. R^2 is the centered R^2 of the second stage. Geographic controls include mean elevation, terrain ruggedness and soil suitability as well as the share of agricultural area used to grow wine and fruits in 1961, distance to Rhine or Neckar. Historical controls encompass distance to the closest Imperial city as of 1556, distance to next certain Roman road, a dummy variable for municipalities with at least one Celtic grave, historical political fragmentation and instability, the share of a municipalities total area that is located in ecclesiastical territories in 1556, pre-medieval forest areas, the share of Protestants in 1961 and a dummy for municipalities which belonged to the Duchy of Württemberg in 1789.

2.6 Robustness Checks

Our results are robust to various standard sensitivity tests and empirical exercises. A standard robustness check for spatial RDDs is a placebo border test. In such a test, one shifts the border a certain amount to the north, east, west, or south and re-assigns treatment units accordingly to the new, (placebo) treatment area. There should be no significant effect at this 'false' border—as it is located entirely in either the treated or untreated area. In our case, we shift the border ten kilometer to the west and to the east and re-run the spatial RDDs using the ten kilometer buffer. This ensures that we only have observations in the equal partition or primogeniture area in the sample. We run placebo tests with the outcome variables from Table 5, 6 and 7. We always include the full set of control variables and cluster standard errors on county level. A fuzzy RDD like we have conducted before would not yield reliable estimates, as the new equal partition area dummy would be a bad proxy for being an actual equal partition municipality. This is because almost none of them are actually equal partition municipalities but primogeniture or transitional ones. Therefore, we can conduct this placebo test only be estimating a sharp RDD using the equal partition area dummy as treatment variable. This is however also an insightful robustness check.

We report the results of the sharp RDD using the actual equal partition area dummy as treatment variable in Panel A of Table 8. We consider only border municipalities for the sharp RDD as this is the most demanding specification. Results show statistically and economically significant coefficients that are nevertheless smaller than those got with the fuzzy-RDD. Given that a sharp BDD could be seen as an intention-to-treat model, it should give us the lower bound of the actual effect of equal partition. Panel B of that table shows results of shifting the border ten kilometer westwards—all observations are actually in the equal partition area. Panel C shows a shift of the border ten kilometer eastwards—all observations are actual in the primogeniture area and Panel D the consequences of shifting the border five kilometers eastwards. Reassuringly, in both cases, almost all coefficients are very small and close to zero. There is one exception in columns (1) and (2) of Panel C, when the border is shifted eastwards, we find a marginally significant coefficient for population and firm density. When we shift however the border five kilometer eastwards, we again do not find significant coefficients for any variable. Thus, we should consider this a false positive. We can conclude from the placebo test that the baseline results seem not to be due to statistical coincidence.

Table 9 presents the results of two further robustness checks. First, Panel A shows the result of the 'Donut BDD'. This means we leave out the municipalities immediately to the east and west of the border when estimating the fuzzy BDD. This can be useful to account for selective sorting, measurement error (wrongly assigned municipalities) and to account for the fact that along the border, it could occur that someone had a farm in the equal partition area but some of the fields were located in the nearby primogeniture area—introducing noise in our measure of inheritance traditions. Because we lose a significant amount of observations by leaving out the border municipalities, we enlarge the buffer area for those regressions to twenty kilometer. All results but those for the migration balance per capita remain intact and show statistically and economically significant effects.

In Panel B, we address the concern that Stuttgart has been part of the panel but its size could be unrelated to the inheritance rule. This historical residential city, today one of the largest agglomerations in Europe, could drive the results in favor of the equal partition area it is part of. Our results are robust to estimating the BDD just for the rural areas to the south and north of Stuttgart. We exclude the border segment containing Stuttgart and the eastern part of it agglomeration (the fourth in Figure 5).

Table 8: *Sharp BDD and Placebo Border*

Dependent Variable	ln(Population Density 1950)	ln(Firms per Acre 1950)	Employment Share Industry 1950	Employment Share Agriculture 1950	Migration Balance p.c. 1950
	(1)	(2)	(3)	(4)	(5)
Buffer Area			10km		
			Panel A: Sharp BDD (Border Municipalities)		
Equal Partition	0.23***	0.252**	0.052**	-0.054**	0.005**
	(0.072)	(0.084)	(0.019)	(0.021)	(0.002)
Observations	267	267	267	267	261
R^2	0.514	0.399	0.495	0.482	0.575
			Panel B: Shifted 10km Westwards		
Equal Partition	-0.08	-0.091	0.0002	0.001	-0.003
	(0.1)	(0.114)	(0.01)	(0.016)	(0.002)
Observations	795	795	795	795	773
R^2	0.565	0.456	0.482	0.46	0.556
			Panel C: Shifted 10km Eastwards		
Equal Partition	0.212**	0.322**	0.006	-0.027	0.001
	(0.09)	(0.124)	(0.012)	(0.019)	(0.004)
Observations	905	904	905	905	874
R^2	0.434	0.311	0.507	0.474	0.437
			Panel D: Shifted 5km Eastwards		
Equal Partition	-0.079	-0.013	-0.001	0.003	0.003
	(0.097)	(0.12)	(0.026)	(0.029)	(0.004)
R^2	0.482	0.364	0.502	0.488	0.439
Observations	905	904	905	905	874
Border Segment FEs	✓	✓	✓	✓	✓
Geographic Controls	✓	✓	✓	✓	✓
Historical Controls	✓	✓	✓	✓	✓
French OZ Dummy	✓	✓	✓	✓	✓
Distance to Urban Center	✓	✓	✓	✓	✓
Intersects Major Railway	✓	✓	✓	✓	✓
Intersects Minor Railway	✓	✓	✓	✓	✓

Notes. Standard errors are clustered on county (Landkreis) level are in parentheses. Coefficient is statistically different from zero at the ***1 %, **5 % and *10 % level. The unit of observation is a municipality in 1953. All regressions include a constant not reported. R^2 is the centered R^2 of the second stage. Geographic controls include mean elevation, terrain ruggedness and soil suitability as well as the share of agricultural area used to grow wine and fruits in 1961, and distance to Rhine or Neckar. Historical controls encompass distance to the closest Imperial city as of 1556, distance to next certain Roman road, a dummy variable for municipalities with at least one Celtic grave, historical political fragmentation and instability, the share of a municipalities total area that is located in ecclesiastical territories in 1556, pre-medieval forest areas, the share of Protestants in 1961 and a dummy for municipalities which belonged to the Duchy of Württemberg in 1789.

We also choose the five kilometer buffer area to ensure that the included municipalities are further away from Stuttgart and its suburbs. The resulting coefficients are highly statistically significant and of qualitatively the same size as the original ones. Hence, Stuttgart and its large agglomeration and industry area are not behind our results.

In the Online Appendix, we show the results of four more robustness checks. In Table A.4, Panel A, we present BDD estimates using 15 instead of five border segments and re-estimate the BDD from the baseline applying the ten kilometer buffer area. This leaves on average only 33 municipalities on each side of the border and within each segment as observations. We find however quantitatively and qualitatively similar results to the baseline estimates. If anything results regarding the migration balance per capita are stronger than in the baseline case and remain statistically significant. As the effect size remains large we attribute this to the low number of observations and the the problem that maybe too less variation was left to estimate the coefficient precisely enough. In Panel B, we include dummy variables for each historical state a municipality was located in 1789 to the full set of baseline controls and re-estimate the BDD. We gain virtually identical results. In Panel C, we control for coal access, as measured by the size of late carboniferous geological areas in km^2, weighted by their distance to the municipality in km. We also control for market potential in 1500 AD (based on the Bairoch dataset of historical city populations) which is calculated according to the methodology of Crafts (2005).[25] While market potential in 1500 AD is significant in two cases, coal access is never, and thus, the results are almost identical to those of the baseline estimations.[26]

Table A.5 in the Online Appendix presents the results of two last checks. In Panel A, we again use the 5km buffer and include a quadratic distance polynomial instead of a linear one in the regression. Results are almost unchanged. Thus, the exact shape of the polynomial of the forcing variable is not a decisive point for our results. Finally, in Panel B we include exclaves of the respective other basic inheritance tradition in the regression sample. As before, results change little with the exclaves included.

Our baseline results have proven to be robust to a battery of commonly applied and useful robustness checks. This raises our confidence that the effects we have identified are actually representing the effect of equal partition on industrialization and structural change and not something else.

We complement our results for 1950 with results for 1961. For 1961, we do not have a migration balance in the official statistics but the other four outcomes from the baseline analysis (population and firm density, employment shares of industry and agriculture) we have available. Consequently, we present the result of BDD estimations using these four dependent variables measured in 1961, using the five kilometer buffer and including all baseline controls. The results are available in Table A.6 in the Appendix. They are qualitatively and quantitatively very similar to those for 1950. Thus, a potential bias from the distortions of World War II does not affect our baseline results for 1950.

25. For a comprehensive description of both variables, the reader is referred to the Data Appendix.
26. If we had included market potential in 1800 or 1900 results would be almost unaffected.

Table 9: *Donut BDD and Estimation without the Border Segment Containing Stuttgart*

Dependent Variable	ln(Population Density 1950)	ln(Firms per Acre 1950)	Employment Share Industry 1950	Employment Share Agriculture 1950	Migration Balance p.c. 1950
	(1)	(2)	(3)	(4)	(5)
	Panel A: Buffer Area 20km without Border Municipalities				
Equal Partition	0.525***	0.523***	0.127***	-0.105***	0.001
	(0.157)	(0.186)	(0.042)	(0.040)	(0.004)
Observations	1,157	1,156	1,157	1,157	1,116
F-value of Excluded IV	114.08	113.97	114.08	114.08	123.52
R^2 0.413	0.296	0.377	0.391	0.141	
	Panel B: Buffer Area 5km Without 3rd Border Segment				
Equal Partition	0.735***	0.623**	0.184**	-0.194**	0.022**
	(0.225)	(0.258)	(0.086)	(0.095)	(0.011)
Observations	449	449	449	449	438
F-value of Excluded IV	27.06	27.06	27.06	27.06	26.55
R^2	0.489	0.383	0.449	0.479	0.043
Border Segment FEs	✓	✓	✓	✓	✓
Geographic Controls	✓	✓	✓	✓	✓
Historical Controls	✓	✓	✓	✓	✓
French OZ Dummy	✓	✓	✓	✓	✓
Distance to Urban Center	✓	✓	✓	✓	✓
Intersects Major Railway	✓	✓	✓	✓	✓
Intersects Minor Railway	✓	✓	✓	✓	✓

Notes. Standard errors are clustered on county (Landkreis) level are in parentheses. Coefficient is statistically different from zero at the ***1 %, **5 % and *10 % level. The unit of observation is a municipality in 1953. All regressions include a constant not reported. R^2 is the centered R^2 of the second stage. Geographic controls include mean elevation, terrain ruggedness and soil suitability as well as the share of agricultural area used to grow wine and fruits in 1961, and distance to Rhine or Neckar. Historical controls encompass distance to the closest Imperial city as of 1556, distance to next certain Roman road, a dummy variable for municipalities with at least one Celtic grave, historical political fragmentation and instability, the share of a municipalities total area that is located in ecclesiastical territories in 1556, pre-medieval forest areas, the share of Protestants in 1961 and a dummy for municipalities which belonged to the Duchy of Württemberg in 1789.

A final check is to test how robust our BDD results are if we assume that unobserved heterogeneity still exists. To put it different, we can ask us the following question: How large a remaining selection on unobservables has to be to make our results insignificant. Altonji et al. (2015) have suggested a method enabling to assess selection on unobservables relative to observables necessary to explain away the results (assuming the actual effect is zero). Recently, Oster (2019) has improved their method and provides a Stata command (psacalc) which calculates a single value (called "delta") reporting how large selection on unobservables has to be relative to selection on observables to put results in doubt. We calculate this value for each of the sharp RDD specifications in Panel A of Table 8.[27] The values are 3.66 for Table 8, Panel A, column (1), 3.27 for column (2), 2.94 for column (3), 1.6 for column (4) and 10.47 for column (5). These values suggest that remaining selection on unobservables has to be unrealistically larger than selection on observables to make our results to become insignificant. This raises our confidence that they hold even if there is still unobserved heterogeneity left.

3. Results for Contemporary Municipalities and Outcomes in Baden-Württemberg

To further test our model, we have to show that the effects of inheritance tradition persist, even if agriculture today is of minor economic importance as a sector. This is also worthwhile investigating to rule out that idiosyncrasies of the 1950s and early 1960s, especially World War II and the European Economic Miracle could drive our results. Furthermore, sectoral change from agriculture to industry and services is almost completed nowadays.

We cannot however repeat the analysis of the last section for contemporary municipalities and economic outcomes. At first, we do not have information on actual prevalence of inheritance traditions today. Rink and Hilbig (2018) conducted qualitative interviews with present-day German farmers and found that most of them still stick to the historical way of transferring their property to the next generation. This suggests that the overall pattern is likely the same. Regarding the existence and increasing frequency of transitional and mixed forms during the early 20th this might not be the case. Second, as noted before, the number of municipalities has considerably declined after an administrative reform in the 1970s, so that today we only have around one third of the municipalities of 1953. Considering those facts, we use a different approach for the contemporary analysis. We just took the borders of equal partition and assign each of today's municipalities to either the equal partition or primogeniture area when over 90 % of their area was located in one or the other area. We then run a standard sharp BDD using the equal partition area dummy as treatment indicator and estimate the following equation when employing distance to the eastern border as forcing variable:

$$Outcome_{s,m} = \alpha + \beta EqualPartitionArea_{s,m} + f(D_m) + \gamma' \mathbf{X_{s,m}} + \delta_s + \epsilon_{s,m} \tag{19}$$

27. The psacalc command does not work with estimates from a 2SLS regression, which is why we cannot perform this test on the fuzzy-RDD results. We have assumed, following the original approach of Altonji et al. (2015) that the maximum R^2 that could be achieved if all unobserved heterogeneity is accounted for is 1. The values are robust to relax this and assume e.g., a maximum of 0.9. This would result in deltas even more in our favor as they would suggest that unobserved heterogeneity has to be even lager relatively to observed to undo our effects. The deltas obtained from assuming 0.9 maximum R^2 are available from the authors upon request.

As previously, an alternative specification includes a linear polynomial in a municipality's latitude and longitude as forcing variables, which modifies equation 19 to look like this (with $f(x_m, y_m)$ again being the coordinates polynomial):

$$Outcome_{s,m} = \alpha + \beta EqualPartitionArea_{s,m} + f(x_m, y_m) + \gamma' \mathbf{X_{s,m}} + \delta_s + \epsilon_{s,m} \tag{20}$$

Estimating a sharp BDD assumes that no changes in the basic form have occurred since the 19th century although we know that such changes and transitions happened, but likely because of endogenous reasons. In this sense, the sharp BDD captures the idea of an intention-to-treat model and should provide us with a lower bound estimate of the effect as it assumes that municipalities are still treated with equal partition that in fact have transitional forms for some time now—which should have smaller or no effects.

We include the same control variables (included in $\mathbf{X_{s,m}}$) as in the previous analysis for the 1950s.[28] We choose a larger maximum and minimum bandwidth of 25 and five kilometer for our analysis, as the number of observations is lower today than it was in 1950. Unlike before, we do not cluster the standard errors on county level. The number of counties is so low today that clustering is not feasible anymore (in the case of five kilometer buffer area we would have just 18 clusters/counties).

As dependent variables, we use the share of industrial buildings in all buildings in a municipality in 2010 and the natural logarithm of income per capita in 2006. We also consider the share of industrial area in a municipality's total area as of March 2019. Table 10 shows the results of the sharp BDD. It is organized in the same way as the previous tables. For all three outcomes, we find a positive and statistically and economically significant effect of being in the equal partition area. Municipalities in the historical equal partition area have on average an income per capita around 4 % larger than those in the primogeniture area (columns (7)–(9)).

In euros, the smallest coefficient implies that in the equal partition area income per capita in 2006 was around 598 euros higher on average—which is over one third of the overall difference in per capita income between both regions.[29] Given that the equal partition area has around 7.4 million inhabitants in 2006, this amounts to an extra of 4.4 billion of income in total. The share of industry buildings (columns (1)–(3)) is around 0.04 percentage points larger which might seem small, but is a sizable effect as the average municipality has a share of 1.2 % of industry buildings (the maximum is 14.5%). The share of industrial area is on average 30 percentage points larger, which also is a large effect.

To conclude our results, the historical equal partition area is better developed a more industrialized than the primogeniture area to the day, even though the agricultural sector and its inheritance traditions make up only a small share of the economy. Hence, the different inheritance traditions have led to different, persistent development path of their application areas.

28. We do not include however, the share of Protestants in 1950 and the share of agricultural areas used to grow wine and fruits.

29. Results of those regressions are not shown to save space. They are available upon request. The average difference in per capita income between the equal partition and primogeniture area in 2006 is 1,590 euros.

Table 10: *Equal Partition and Contemporary Municipal Development in Baden-Württemberg*

Dependent Variable	Share of Industry Buildings 2010			Share of Industrial Area 2019			ln(Income per capita 2006)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Buffer Area	25km	15km	5km	25km	15km	5km	25km	15km	5km
	Panel A: Linear Distance Polynomial								
Equal Partition	0.0045***	0.0025*	0.0043***	0.286**	0.286**	0.307**	0.0464***	0.0481**	0.0377*
	(0.001)	(0.001)	(0.001)	(0.117)	(0.117)	(0.118)	(0.017)	(0.019)	(0.023)
R^2	0.280	0.314	0.334	0.160	0.165	0.246	0.572	0.614	0.612
	Panel B: Linear Coordinates Polynomial								
Equal Partition	0.0044***	0.0032**	0.0035**	0.284**	0.276**	0.228*	0.0658***	0.0565***	0.0393*
	(0.001)	(0.001)	(0.001)	(0.111)	(0.121)	(0.127)	(0.016)	(0.019)	(0.022)
R^2	0.315	0.324	0.36	0.169	0.177	0.25	0.425	0.453	0.522
5 Border Segment FEs	✓	✓	✓	✓	✓	✓	✓	✓	✓
Geographic Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Historical Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
French OZ Dummy	✓	✓	✓	✓	✓	✓	✓	✓	✓
Distance to Urban Center	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	537	375	211	537	375	211	537	375	211

Notes. Standard errors are clustered on county (Landkreis) level are in parentheses. Coefficient is statistically different from zero at the ***1 %, **5 % and *10 % level. The unit of observation is a municipality in 1953. All regressions include a constant not reported. Geographic controls include mean elevation, terrain ruggedness and soil suitability as well as the share of agricultural area used to grow wine and fruits in 1961, and distance to Rhine or Neckar. Historical controls encompass distance to the closest Imperial city as of 1556, distance to next certain Roman road, a dummy variable for municipalities with at least one Celtic grave, historical political fragmentation and instability, the share of a municipalities total area that is located in ecclesiastical territories in 1556, pre-medieval forest areas, and a dummy for municipalities which belonged to the Duchy of Württemberg in 1789.

4. Additional Results

4.1 Results for Demographic Outcomes

Based on a case study of the primogeniture area of northeastern part Württemberg, Krafft (1930) concluded that the number of children in the primogeniture area was smaller. He supposes that people found one son enough to guarantee the future of the family property, and avoided to compensate the other children. Another argument brought forward by him is that the higher marriage age in the primogeniture areas limited the number of children a couple could get and contributed to the lower population growth in the primogeniture area. Other scholars argued that it could be the other way round and equal partition lead to fewer children as parents want to restrict further fragmentation of property (Habakkuk 1955). Geographically more broad analyses like Sering and von Dietze (1930) however could not find a clear relationship between inheritance traditions and fertility numbers or marriage ages. Hence, there is no consensus on whether and how inheritance traditions influence demographic outcomes like birth rates. In Table A.7 in the Appendix, we report the results of BDD regressions for demographic outcomes (death and birth rates, age structure etc.). We do not see a large influence of equal partition on the age structure or birth and death rates. Giving the ambiguous arguments about the influence of equal partition on these outcomes this is not surprising.

4.2 Results for late 19th Century Württemberg

We now show that we find similar impacts of inheritance traditions on economic development when using alternative, and historically earlier inheritance data from Krafft (1930)[30], which is for 1895 but restricted to the area of Württemberg. Industrialization in this area was ongoing at least since 1850, but also as we know that the 20th century has seen the frequent emergence of transitional and mixed inheritance practices. Looking at an earlier period when more municipalities still applied the traditional basic inheritance practices primogeniture and equal partition should give a clearer picture about their effects than the more complex picture in the mid-20th century. Furthermore, studying an earlier period based on a different source for the inheritance traditions, could reassure us that our results are not depending on the particular survey of Röhm (1957).

As dependent variables, we consider population density in 1834 and 1895, and the number of industry firms and farms per hectare, all in 1895. Information necessary to calculate these variables comes from the official statistics of the kingdom of Württemberg from 1895 (Statistical Office of Württemberg 1900). We use the same control variables as before, but we only consider the railway network as of 1894 and the share of Protestants in 1895 (also from the official statistics). We do not include the share of agricultural area in which wine or fruits are grown, as there is no data. Distance to urban center we adjust to take into account that the kingdom of Württemberg only had two large urban centers, Stuttgart and Ulm.[31]

30. We thank Sebastian Braun for making available to us his shapefile of municipalities in Württemberg as of 1890, which is the basis for our dataset. There were no changes in municipalities between 1890 and 1905.

31. We also include latitudinal and longitudinal coordinates of a municipality's centroid as controls to account for general spatial development patterns. This is important, as we are not able to include county fixed effects into the regression. Around 1900, Württemberg had more than 60 counties ("Oberämter") and, based on the Krafft (1930) map, there is not a lot of variation in inheritance traditions within these comparatively small counties.

The Data Appendix (Table A.3) provides a descriptive overview of the dataset for 1895 Württemberg.

As the map of Krafft (1930) does not include a border and given that it is unclear what the original inheritance practice of his "mixed traditions" is, we are not able to draw one. OLS regressions are therefore the only feasible choice. Table 11 reports the results of estimations with the equal partition dummy as variable of interest and the four dependent variables, introduced above. The estimated coefficients suggest that, as in 1950 and today, municipalities applying equal partition have significantly lower farm sizes, higher population densities and are more industrialized. This implies that our results from other periods are not coincidence or depend on Röhm's map.

Table 11: *Equal Partition and Municipal Economic Development in the 19^th^ Century Württemberg*

Dependent Variable	ln(Farms per hectare 1895)	ln(Population Density 1834)	ln(Population Density 1895)	ln(Firms per hectare 1895)
	(1)	(2)	(3)	(4)
Equal Partition	0.357***	0.28***	0.282***	0.205**
	(0.067)	(0.078)	(0.078)	(0.084)
Geographic Controls	✓	✓	✓	✓
Historical Controls	✓	✓	✓	✓
Distance to Urban Center	✓	✓	✓	✓
Intersects Major Railway	✓	–	✓	✓
Intersects Minor Railway	✓	–	✓	✓
Observations	1,828	1,828	1,828	1,316
R^2	0.416	0.203	0.232	0.177

Notes. Standard errors are clustered on county (Oberamt) level are in parentheses. Coefficient is statistically different from zero at the ***1 %, **5 % and *10 % level. The unit of observation is a municipality in 1890. All regressions include a constant not reported. Geographic controls include mean elevation, terrain ruggedness and soil suitability, as well as distance to Rhine or Neckar and latitude and longitude of a municipality's centroid. Historical controls encompass distance to the closest Imperial city as of 1556, distance to next certain Roman road, a dummy variable for municipalities with at least one Celtic grave, historical political fragmentation and instability, the share of a municipalities total area that is located in ecclesiastical territories in 1556, pre-medieval forest areas, the share of Protestants in 1895 and a dummy for municipalities which belonged to the Duchy of Württemberg in 1789.

V. CONCLUSION

In this paper, we study the consequences of agricultural traditions on the degree of industrialization and structural change in the 20th and 21st century. We find, in line with our theoretical propositions, equal partition is beneficial from an economic point of view, as it led to smaller farms and only children with an inheritance. This implies that part-time farmers, that allocated a portion of their working time to non-agricultural activities, first within the rural-putting out system, and later in factories, were the nucleus of today's decentralized industry in Southern Germany. Equal partition areas saw a lower level of out-migration from rural areas to industrial centers, which allowed a higher population growth in the Post-Malthusian Era, which fostered industrialization, as shown with data from the 1950s and today.

Small-scale differences in agricultural inheritance traditions can explain the well-known, and unique, decentralized industrial structure of the area. They might also explain why its economic prosperity and high level of innovation rests on small and medium-sized firms instead of large, multinational companies. Our results support the view outlined by German historians that, unlike for example in England, the (comparatively late) industrialization of Germany was a rural phenomenon. It did not start in places that are large cities today, but in remote areas and with small firms and part-time farmers become craftsmen, textile, or tobacco workers. This finding can shed light on the development of domestic demand and industrialization processes in other world regions.

On a more general level, the paper is among the first to study the long-run development of rural areas. Historically, most people lived in rural areas outside the large cities. Shedding light on the developments in these, more remote areas is instrumental for a full understanding of the causes and diffusion of industrialization throughout Europe in the 19th and early 20th century. We hope that this study will inspire others to have a closer look at the historical developments in rural areas.

This paper proposes a channel through which agricultural inheritance norms affected the pattern of economic development. It is a natural follow-up question to derive counterfactuals on how Baden-Württemberg would have developed if there was historically only one inheritance norm. If equal partition had for example never existed, this would have increased migration to cities. How much larger would Stuttgart be today? Would Baden-Württemberg, or Germany, be richer now? All these questions call for more theory, and yet more data.

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Appendix (For online publication only)

A.1. The Map of Inheritance practices of Röhm (1957)

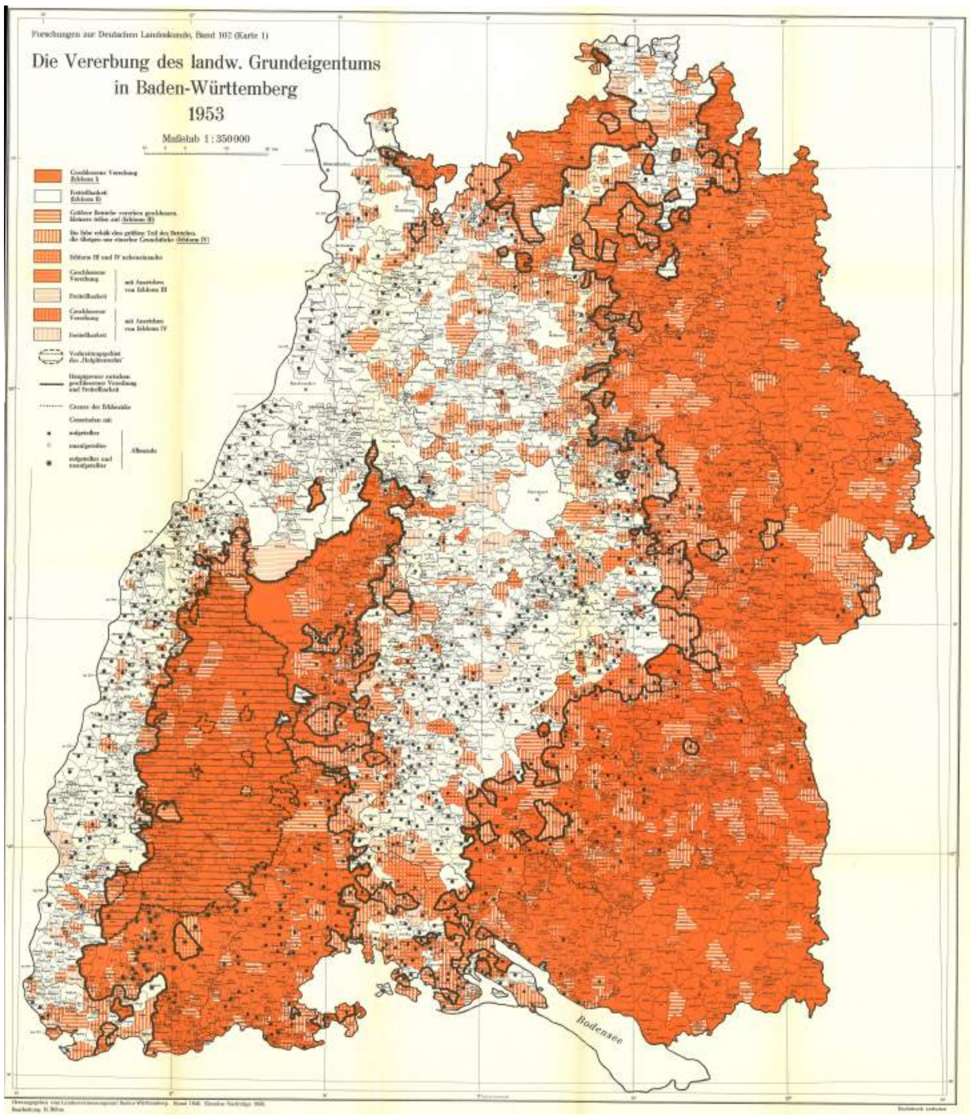

Figure A.1: *Map of Inheritance Practices and Partitioned Common Land in 1953 according to Röhm (1957).*

A.2. Data Set and Variables Description

Table A.1: *Descriptive Overview of the Data Set for Municipalities as of 1953*

Variable	Obs	Mean	Std. Dev.	Min	Max
Birth p.c. 1950	3,372	0.019	0.006	0.002	0.175
Celtic Grave	3,382	0.428	0.991	0.000	13.000
Coal Potential	3,382	209.954	5.895	199.727	227.442
Commons	3,382	0.267	0.442	0.000	1.000
Distance to Eastern Border	3,382	-2.263	41.643	-100.476	85.063
Distance to Imperial City 1556	3,382	11.331	9.843	0.000	51.745
Distance to Neolithic Settlement Area	3,382	6.099	6.613	0.000	33.730
Distance to Rhine or Neckar	3,380	23.572	20.471	0.000	88.011
Distance to Roman Road	3,382	9.713	9.573	0.000	48.148
Elevation (mean)	3,380	474.774	200.677	96.333	1216.923
Employment Share Agriculture 1950	3,378	0.338	0.139	0.011	0.817
Employment Share Industry 1950	3,378	0.389	0.19	0.007	0.893
Equal Partition Area	3,382	0.488	0.500	0.000	1.000
Equal Partition Transition	3,382	0.153	0.360	0.000	1.000
Exclave Equal Partition	3,382	0.012	0.107	0.000	1.000
Exclave Primogeniture	3,382	0.012	0.111	0.000	1.000
Farms per acre	3,379	13.988	10.027	0.000	259.130
French Occupation Zone	3,382	0.565	0.496	0.000	1.000
Historical Political Fragmentation	3,379	20075.080	27898.930	71.574	118850.000
Historical Political Instability	3,382	3.724	1.438	0.000	10.000
Intersects Major Railway	3,382	0.17	0.376	0	1
Intersects Minor Railway	3,382	0.304	0.46	0	1
Latitude	3,382	5376216.000	62732.270	5267568.000	5513552.000
Latitude*Longitude	3,382	2690000000000.000	287000000000.000	2060000000000.000	3280000000000.000
ln(Firms per acre 1950)	3,373	1.542	0.901	-2.596	6.360
ln(Population 1939)	3,378	6.527	0.973	3.258	13.115
ln(Population Density 1950)	3,378	4.631	0.782	1.861	8.608
ln(Population Density 1961)	3,381	4.675	0.892	1.485	8.611
Longitude	3,382	500216.700	51094.990	389401.900	606720.000
Marriages p.c. 1950	3,347	0.010	0.003	0.000	0.112
Market Potential in 1500	3,382	13.016	0.412	12.431	18.337
Migration Balance p.c. 1950	3,263	0.002	0.027	-0.132	0.353
Min. Distance to Urban Center	3,382	41.497	26.546	0.000	125.878
Mixed Inheritance	3,382	0.039	0.193	0.000	1.000
Primogeniture Transition	3,382	0.121	0.326	0.000	1.000
Share <6 Years old	3,375	0.090	0.024	0.006	0.845
Share >65 Years	3,376	0.101	0.051	0.007	1.168
Share 15–20	3,376	0.085	0.034	0.009	0.734
Share 20–45	2,297	0.341	0.083	0.031	3.946
Share 45-65	2,297	0.223	0.032	0.022	0.649
Share 5–15	3,376	0.169	0.038	0.014	1.486
Share Ecclesiastical Territory 1556	3,382	0.124	0.3	0.000	1.000
Share mainly part-time Farmers 1972	1,164	0.553	0.220	0.000	1.000
Share Big Farms	3,375	0.378	0.257	-0.006	1.909
Share Helping Family Members	3,380	0.144	0.081	0.003	0.463
Share part-time Farmers (total) 1972	1,145	0.686	0.181	0.121	1.000
Share Pre-Medieval Forest Area	3,382	0.234	0.4	0	1
Share Protestants 1950	3,378	0.437	0.538	0.000	23.056
Share Wine and Fruits 1961	3,381	1.765	4.078	0.000	36.500
Soil Suitability (Mean)	3,380	22.258	8.282	0.000	52.000
Terrain Ruggedness (mean)	3,380	100.496	71.543	2.366	460.234
Württemberg in 1789	3,382	0.231	0.421	0.000	1.000

Table A.2: *Descriptive Overview of the Data Set for Contemporary Municipalities*

Variable	Obs	Mean	Std. Dev.	Min	Max
Celtic Grave	1,105	0.405	0.491	0.000	1.000
Coal Potential	3,382	209.954	5.895	199.727	227.442
Distance to Eastern Border	1,105	-2.649	40.358	-96.783	83.086
Distance to Imperial City 1556	1,105	9.467	8.994	0.000	47.45
Distance to Neolithic Settlement Area	1,105	4.843	6.282	0.000	31.236
Distance to Rhine or Neckar	1,105	12.916	12.992	0.000	64.653
Distance to Roman Road	1,105	7.865	8.446	0.000	40.900
Elevation (mean)	1,101	469.448	204.369	95.824	1150.703
Equal Partition Area	1,105	0.514	0.500	0.000	1.000
Exclave Equal Partition	1,105	0.018	0.133	0.000	1.000
Exclave Primogeniture	1,105	0.018	0.133	0.000	1.000
French Occupation Zone	1,105	0.5312217	0.4992502	0	1
Historical Political Fragmentation	1,105	18735.050	24752.880	108.754	99351.710
Historical Political Instability	1,105	4.474	1.937	1.000	13.000
ln(Income per capita 2006)	1,101	2.64	0.145	2.005	3.564
Market Potential in 1500	3,382	11.72	0.307	11.412	14.332
Min. Distance to Urban Center	1,105	35.920	27.763	0.000	122.201
Share Ecclesiastical Territory 1556	1,105	0.128	0.28	0.000	1.000
Share Industrial Area 2019	1,105	0.690	1.043	0.000	11.005
Share Industry Buildings 2010	1,105	0.013	0.014	0.000	0.145
Share Pre-Medieval Forest Area	1,105	0.24	0.388	0	1
Soil Suitability (mean)	1,105	58.572	15.890	0.000	84.667
Terrain Ruggedness (mean)	1,101	101.590	71.159	3.267	394.681
Latitude	1,105	5375100.000	59102.100	5267375.000	5510273.000
Longitude	1,105	500146.000	50903.090	392342.400	604822.000
Latitude*Longitude	1,105	2690000000000.000	283000000000.000	2070000000000.000	3270000000000.000
Württemberg in 1789	1,105	0.246	0.431	0.000	1.000

Table A.3: *Descriptive Overview of the Data Set for 1895 Württemberg Municipalities*

Variable	Obs	Mean	Std. Dev.	Min	Max
Celtic Grave	1,912	0.292	0.455	0.000	1.000
Distance to Imperial City 1556	1,912	7.392	6.791	0.000	32.553
Distance to Rhine or Neckar	1,912	17.924	16.456	0.000	72.528
Distance to Roman Road	1,912	7.140	8.712	0.000	48.456
Distance to Urban Center	1,912	45.137	22.230	0.004	106.217
Elevation (mean)	1,912	496.541	155.836	165.800	934.500
Equal Partition	1,912	0.395	0.489	0.000	1.000
Historical Political Fragmentation	1,909	14510.030	22129.960	74.152	105329.100
Historical Political Instability	1,912	3.602	1.418	0.000	8.000
Intersects Major Railway	1,912	0.154	0.361	0.000	1.000
Intersects Minor Railway	1,912	0.144	0.352	0.000	1.000
Latitude	1,912	48.625	0.427	47.599	49.580
ln(Farms per Acre 1895)	1,910	-1.906	0.663	-4.808	1.920
ln(Firms per acre 1895)	1,363	-2.721	0.790	-5.352	1.553
ln(Population Density 1834)	1,909	-0.307	0.898	-3.520	3.496
ln(Population Density 1895)	1,909	-0.193	0.927	-3.219	3.981
Longitude	1,912	9.403	0.494	8.304	10.454
Share Ecclesiastical Territory 1556	1,912	0.083	0.247	0.000	1.000
Share Pre-Medieval Forest Area	1,912	0.164	0.347	0.000	1.000
Share Protestants	1,832	0.649	0.442	0.001	1
Soil Suitability	1,912	63.301	12.892	0.000	85.000
Terrain Ruggedness (mean)	1,912	74.901	43.597	7.652	299.750
Württemberg 1789	1,912	0.434	0.496	0.000	1.000

Table A.4: *Bivariate Correlations of the Predictor Variables of Historical Inheritance Traditions*

Variables	Elevation (mean)	Terrain Ruggedness (mean)	Soil Suitability (mean)	Share Wine and Fruits 1961	Distance to Imperial City 1556	Share Ecclesiastical Territory 1556	Historical Political Instability	Share Protestants 1951	Württemberg in 1789	Distance to Roman Road	Celtic Grave	Share Pre-Medieval Forest Area	Intersects Major Railway	Intersects Minor Railway
Elevation (mean)	1.000													
Terrain Ruggedness (mean)	0.297	1.000												
	(0.000)													
Soil Suitability (mean)	-0.004	-0.271	1.000											
	(0.795)	(0.000)												
Share Wine and Fruits 1961	-0.382	0.029	-0.015	1.000										
	(0.000)	(0.091)	(0.379)											
Distance to Imperial City 1556	-0.052	0.265	-0.226	0.021	1.000									
	(0.003)	(0.000)	(0.000)	(0.215)										
Share Ecclesiastical Territory 1556	-0.102	-0.102	0.015	-0.045	0.083	1.000								
	(0.000)	(0.000)	(0.377)	(0.009)	(0.000)									
Historical Political Instability	0.114	-0.021	0.034	-0.075	-0.153	0.028	1.000							
	(0.000)	(0.224)	(0.047)	(0.000)	(0.000)	(0.108)								
Share Protestants 1951	-0.139	-0.028	0.056	0.072	-0.047	-0.180	-0.090	1.000						
	(0.000)	(0.105)	(0.001)	(0.000)	(0.006)	(0.000)	(0.000)							
Württemberg in 1789	0.011	0.042	0.047	0.054	-0.059	-0.223	-0.142	0.328	1.000					
	(0.505)	(0.014)	(0.006)	(0.002)	(0.001)	(0.000)	(0.000)	(0.000)						
Distance to Roman Road	0.208	0.162	-0.086	-0.109	0.258	0.071	0.033	0.006	-0.105	1.000				
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.052)	(0.742)	(0.000)					
Celtic Grave	0.046	-0.173	0.260	-0.075	-0.101	0.058	0.065	-0.009	-0.008	-0.056	1.000			
	(0.008)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.619)	(0.635)	(0.001)				
Share Pre-Medieval Forest Area 6	0.211	0.447	-0.410	-0.115	0.297	-0.082	-0.041	0.036	0.138	0.125	-0.214	1.000		
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.018)	(0.035)	(0.000)	(0.000)	(0.000)			
Intersects Major Railway	-0.212	-0.080	0.022	0.118	-0.058	0.056	0.037	0.134	-0.061	-0.092	-0.001	-0.142	1.000	
	(0.000)	(0.000)	(0.197)	(0.000)	(0.001)	(0.001)	(0.031)	(0.000)	(0.000)	(0.000)	(0.966)	(0.000)		
Intersects Minor Railway	-0.105	0.061	0.044	0.074	0.011	-0.065	0.106	0.101	-0.010	-0.099	0.070	0.015	-0.048	1.000
	(0.000)	(0.000)	(0.010)	(0.000)	(0.537)	(0.000)	(0.000)	(0.000)	(0.571)	(0.000)	(0.000)	(0.397)	(0.006)	

A.2.1. Definitions and Sources of the Variables

The spatial datasets were each converted into ETRS89 UTM 32N projection. GIS computations were performed with the QGIS software. Variables from the official statistics of Baden-Württemberg are explained in detail in the main text and are not included in the list below.

Celtic Grave. Dummy variable equal to one if in a municipality archaeologists have found at least one Celtic grave. Variable calculated using a digitized version of the following map from Kommission für geschichtliche Landeskunde in Baden-Württemberg (1988): `https://www.leo-bw.de/media/kgl_atlas/current/delivered/bilder/HABW_03_02.jpg` (accessed latest on 27th March 2019).

Coal Potential. A municipality's access to coal is measured as the as the size of the late carboniferous geological areas around it in km^2, weighted by their distance to the municipality in km. Data on the size and location of carboniferous geological areas is taken from **Asch2005**.

Distance to Imperial City 1556. Distance to city states is calculated as follows: Points with random location were generated until 1,000 points fell in into each municipality. In a second step, the Euclidean distance from each of the 1,000 points per municipality to the closest Imperial city was calculated. In a last step, these distances were aggregated by municipality. The location of city states follows the maps of territories of the HRE in 1556 by Wolff (1877) but we have corrected/ supplemented them—if necessary—with information from Köbler (1988), Keyser and Stoob (1939–1974) and Jacob (2010).

Distance to Neolithic Settlement Area. Distance to Neolithic settlement area is calculated as follows: Points with random location were generated until 1,000 points fell in into each municipality. In a second step, the Euclidean distance from each of the 1,000 points per municipality to the closest segment of the Neolithic settlement area polygons was calculated. In a last step, these distances were aggregated by municipality. Variable calculated using a digitized version of the following map from Kommission für geschichtliche Landeskunde in Baden-Württemberg (1988): `https://www.leo-bw.de/media/kgl_atlas/current/delivered/bilder/HABW_03_01.jpg` (accessed latest on 27th March 2019).

Distance to Rhine and Neckar. Distance to those rivers is calculated as follows: Points with random location were generated until 1,000 points fell in into each municipality. In a second step, the Euclidean distance from each of the 1,000 points per municipality to the closest of both rivers was calculated. In a last step, these distances were aggregated by municipality. For the location of the rivers, we used the dataset for 'WISE large rivers' shapefile, which can be downloaded here: `https://www.eea.europa.eu/data-and-maps/data/wise-large-rivers-and-large-lakes`(last accessed May, 30th 2016).

Distance to Roman Roads. Distance to (minor and major) Roman roads is calculated as follows: Points with random location were generated until 1,000 points fell in into each municipality. In a second step, the Euclidean distance from each of the 1,000 points per municipality to the to the closest Roman road was calculated. These distances were aggregated by municipality.

Locations of Roman roads (minor and major) originate from a shapefile included in the "Digital Atlas of Roman and Medieval Civilizations" (McCormick et al. 2013). The shapefile is based on the map of Roman roads in the Barrington Atlas of the Greek and Roman World (Talbert 2000). It can be downloaded here: `http://darmc.harvard.edu/icb/icb.do?keyword=k40248&pageid=icb.page601659` (last accessed September, 24th 2015).

Elevation (mean). Mean elevation of each municipality in meters. Data is based on the Digital Elevation Model (DEM) of the U.S. Geological Survey's Center for Earth Resources Observation and Science (EROS), namely the GTOPO30 dataset, which can be downloaded here `https://lta.cr.usgs.gov/GTOPO30` (last accessed May, 30th 2016). The GTOPO30 has a spatial resolution of 30 arc seconds.

French Occupation Zone. Dummy variable equal to one if the majority of a municipality was located within the French Occupation Zone. Assignment of municipalities to the French Occupation Zone is based on the shapefile of the French Occupation zone provided by Schumann (2014).

Historical Political Fragmentation. Historical average state size of the states intersecting the municipality in km^2. Variable is calculated using digitized versions of the maps of the HRE printed in Wolff (1877).

Historical Political Instability. The variable reports the number of different historical states intersecting a municipality. Variable is calculated using digitized versions of the maps of the HRE printed in Wolff (1877).

Intersects Major Railway. Dummy Variable if a major railway line ("Haupteisenbahnlinie") intersects the area of a municipality. The Variable is based on a digitized version of the following map from Kommission für geschichtliche Landeskunde in Baden-Württemberg (1988): `https://www.leo-bw.de/media/kgl_atlas/current/delivered/bilder/HABW_10_04.jpg` (accessed latest on 27^{th} March 2019). The map shows the railway network after its last wave of expansion in 1934.

Intersects Minor Railway. Dummy Variable if a minor railway line ("Regionale Eisenbahnlinie"or "Nebeneinsenbahnlinie") intersects the area of a municipality Variable is based on a digitized version of the following map from Kommission für geschichtliche Landeskunde in Baden-Württemberg (1988): `https://www.leo-bw.de/media/kgl_atlas/current/delivered/bilder/HABW_10_04.jpg` (accessed latest on 27^{th} March 2019). The map shows the railway network after its last wave of expansion in 1934.

Market Potential in 1500. A municipality's market potential is calculated following the methodology of Crafts (2005). Unlike Crafts measure of regional economic potential, our measure is not based on the GDP of all other municipalities, but on the population size of the historical cities included in the database of Bairoch, Batou, and Chevre (1988).

Minimum Distance to Urban Center. Distance to the closest of these urban centers, namely Freiburg, Heidelberg, Mannheim, Karlsruhe or Stuttgart is calculated as follows: Points with random location were generated until 1,000 points fell in into each municipality. In a second step, the Euclidean distance from each of the 1,000 points per municipality to the closest of those cities was calculated. In a last step, these distances were aggregated by municipality. Location of the cities is determined by the minimum latitudinal and longitudinal coordinates of the city and based on the shapefile of municipalities resulting from digitization of the map of Röhm (1957).

Latitude. Minimum longitudinal coordinates a municipality's centroid (mid-point) in meters.

Longitude. Minimum longitudinal coordinates of a municipality's centroid (mid-point) in meters.

Share Ecclesiastical Territory 1556. Variable is the share of a municipality's area that was located in an ecclesiastical state in 1556. The map of territories within the current state of Baden-Württemberg originates from Huning and Wahl (2019).

Share Industrial Area 2019. Variable that indicates the share of a municipalities area that is used for industrial purposes. This variable is generated by extracting industry area polygons from OpenStreetMap data using the respective tool in QGIS. Data represents the situation as of 10th March 2019.

Share Industry Buildings 2010. Represents the share of industry buildings (factories etc.) of all buildings in a municipality as of 2010. Variable originates from the data set of Asatryan, Havlik, and Streif (2017).

Share Pre-Medieval Forest Area. The share of each municipality's area that is located in pre-medieval forest area. Variable is calculated based on a digitized version of a map by Ellenberg (1990).

Soil Suitability. Soil Suitability is based on the agricultural suitability measure developed in Zabel, Putzenlechner, and Mauser (2014).[1] The measure used in the paper is average agricultural suitability in the period 1961–1990. Zabel, Putzenlechner, and Mauser (2014) measure agricultural suitability by considering climate (temperature, precipitation, solar radiation), soil (pH, texture, salinity, organic carbon content, etc.), and topography (elevation and slope) of a grid cell of 30 arc seconds*30 arc seconds (0.86 km^2 at the equator) size. They consider rain-fed conditions as well as irrigation (what could, among other things, give rise to endoeneity issues). To compute agricultural suitability, they contrast these factors with growing requirements of 16 plants (Barley, Cassava, Groundnut, Maize, Millet, Oilpalm, Potato, Rapeseed, Rice, Rye, Sorghum, Soy, Sugarcane, Sunflower, Summer wheat, Winter wheat).

Terrain Ruggedness (Mean). Following Riley, DeGloria, and Elliot (1999) average ruggedness of

1. The data set is described further here: `http://geoportal-glues.ufz.de/stories/globalsuitability.html` (last accessed on January 22, 2016), where it also can be downloaded.

a municipality's territory is calculated as the negative value of the derivative of the ruggedness index of a digital elevation model. The calculations are based on the elevation raster of Nunn and Puga (2012) (see above).

Württemberg 1789. Dummy Variable equal to one if the majority of a municipality was located in the Duchy of Württemberg in 1789. Assignment of municipalities to the historical duchy is based on the map of territories in 1789 from Huning and Wahl (2019).

A.3. Further Tables and Figures

Table A.5: *Robustness Checks III—Including More Border Segments, Historical State Dummies, Coal and Market Potential*

Dependent Variable	ln(Population Density 1950)	ln(Firms per Acre 1950)	Employment Share Industry 1950	Employment Share Agrar 1950	Migration Balance p.c. 1950
	(1)	(2)	(3)	(4)	(5)
		Panel A: Including 15 Border Segment Fixed Effects			
Equal Partition	0.688***	0.719***	0.149**	-0.140*	0.016*
	(0.222)	(0.258)	(0.073)	(0.082)	(0.009)
Observations	586	586	586	586	569
F-value of Excluded IV	24.22	25.24	25.24	25.24	26.85
R^2	0.408	0.370	0.474	0.482	0.507
		Panel B: Including 1789 State Fixed Effects			
Equal Partition	0.825***	0.832***	0.185**	-0.180**	0.019**
	(0.240)	(0.283)	(0.073)	(0.087)	(0.008)
Observations	568	568	568	568	553
F-value of Excluded IV	26.59	29.55	29.55	29.55	30.28
R^2 0.455	0.344	0.424	0.446	0.103	
		Panel C: Including Coal Potential and Market Potential in 1500			
Equal Partition	0.805***	0.824***	0.136**	-0.147*	0.019**
(0.253)	(0.275)	(0.075)	(0.080)	(0.008)	
Observations	586	586	586	586	569
F-value of Excluded IV	25.32	25.32	25.32	25.32	27.13
R^2 0.441	0.324	0.467	0.444	0.057	
Border Segment FEs	✓	✓	✓	✓	✓
Geographic Controls	✓	✓	✓	✓	✓
Historical Controls	✓	✓	✓	✓	✓
French OZ Dummy	✓	✓	✓	✓	✓
Distance to Urban Center	✓	✓	✓	✓	✓
Intersects Major Railway	✓	✓	✓	✓	✓
Intersects Minor Railway	✓	✓	✓	✓	✓

Notes. Standard errors are clustered on county (Landkreis) level are in parentheses. Coefficient is statistically different from zero at the ***1 %, **5 % and *10 % level. The unit of observation is a municipality in 1953. All regressions include a constant not reported. R^2 is the centered R^2 of the second stage. Geographic controls include mean elevation, terrain ruggedness and soil suitability as well as the share of agricultural area used to grow wine and fruits in 1961, distance to Rhine or Neckar. Historical controls encompass distance to the closest Imperial city as of 1556, distance to next certain Roman road, a dummy variable for municipalities with at least one Celtic grave, historical political fragmentation and instability, the share of a municipalities total area that is located in ecclesiastical territories in 1556, pre-medieval forest areas, the share of Protestants in 1961 and a dummy for municipalities which belonged to the Duchy of Württemberg in 1789.

Table A.6: *Robustness Checks IV—Quadratic Distance Polynomial and Inclusion of Exclaves*

Dependent Variable	ln(Population Density 1950)	ln(Firms per Acre 1950)	Employment Share Industry 1950	Employment Share Agriculture 1950	Migration Balance p.c. 1950
	(1)	(2)	(3)	(4)	(5)
	Panel A: With Quadratic Distance Polynomial				
Equal Partition	0.757***	0.792***	0.172**	-0.172**	0.018**
	(0.240)	(0.257)	(0.079)	(0.085)	(0.008)
Observations	586	586	586	586	569
F-value of Excluded IV	32.30	32.30	32.30	32.30	33.58
R^2	0.452	0.327	0.394	0.418	0.066
	Panel B: With Exclaves				
Equal Partition	0.723***	0.702**	0.162**	-0.160*	0.018**
	(0.255)	(0.300)	(0.077)	(0.088)	(0.008)
Observations	617	617	617	617	600
F-value of Excluded IV	39.76	39.76	39.76	39.76	41.38
R^2	0.464	0.345	0.413	0.422	0.057
Border Segment FEs	✓	✓	✓	✓	✓
Geographic Controls	✓	✓	✓	✓	✓
Historical Controls	✓	✓	✓	✓	✓
French OZ Dummy	✓	✓	✓	✓	✓
Distance to Urban Center	✓	✓	✓	✓	✓
Intersects Major Railway	✓	✓	✓	✓	✓
Intersects Minor Railway	✓	✓	✓	✓	✓

Notes. Standard errors are clustered on county (Landkreis) level are in parentheses. Coefficient is statistically different from zero at the ***1 %, **5 % and *10 % level. The unit of observation is a municipality in 1953. All regressions include a constant not reported. R^2 is the centered R^2 of the second stage. Geographic controls include mean elevation, terrain ruggedness and soil suitability as well as the share of agricultural area used to grow wine and fruits in 1961, distance to Rhine or Neckar. Historical controls encompass distance to the closest Imperial city as of 1556, distance to next certain Roman road, a dummy variable for municipalities with at least one Celtic grave, historical political fragmentation and instability, the share of a municipalities total area that is located in ecclesiastical territories in 1556, pre-medieval forest areas, the share of Protestants in 1961 and a dummy for municipalities which belonged to the Duchy of Württemberg in 1789.

Table A.7: *Equal Partition, Industrialisation and Economic Structure in 1961*

Dependent Variable	ln(Population Density 1961)	ln(Firms per Acre 1961)	Employment Share Industry 1961	Employment Share Agrar 1961
	(1)	(2)	(3)	(4)
Buffer Area		10km		
Equal Partition	0.908***	0.729***	0.120**	-0.135**
	(0.309)	(0.257)	(0.049)	(0.065)
Border Segment FEs	✓	✓	✓	✓
Geographic Controls	✓	✓	✓	✓
Historical Controls	✓	✓	✓	✓
French OZ Dummy	✓	✓	✓	✓
Distance to Urban Center	✓	✓	✓	✓
Intersects Major Railway	✓	✓	✓	✓
Intersects Minor Railway	✓	✓	✓	✓
Observations	586	586	586	586
F-value of Excluded IV	34.34	34.34	34.34	34.34
R^2	0.465	0.386	0.394	0.386

Notes. Standard errors are clustered on county (Landkreis) level are in parentheses. Coefficient is statistically different from zero at the ***1 %, **5 % and *10 % level. The unit of observation is a municipality in 1953. All regressions include a constant not reported. R^2 is the centered R^2 of the second stage. Geographic controls include mean elevation, terrain ruggedness and soil suitability as well as the share of agricultural area used to grow wine and fruits in 1961, distance to Rhine or Neckar. Historical controls encompass distance to the closest Imperial city as of 1556, distance to next certain Roman road, a dummy variable for municipalities with at least one Celtic grave, historical political fragmentation and instability, the share of a municipalities total area that is located in ecclesiastical territories in 1556, pre-medieval forest areas, the share of Protestants in 1961 and a dummy for municipalities which belonged to the Duchy of Württemberg in 1789.

Table A.8: *Equal Partition and Demography in 1950*

Dependent Variable	Share<6 Years	Share 5–15	Share 15–20	Share 20–45	Share 45–65	Share > 65	Births p.c.	Marriages p.c.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Buffer Area				10km				
Equal Partition	0.001	-0.006	-0.008***	0.029**	0.006	-0.003	0.001	-0.000
	(0.008)	(0.009)	(0.003)	(0.013)	(0.007)	(0.007)	(0.001)	(0.001)
5 Border Segment FEs	✓	✓	✓	✓	✓	✓	✓	✓
Geographic Controls	✓	✓	✓	✓	✓	✓	✓	✓
Historical Controls	✓	✓	✓	✓	✓	✓	✓	✓
French OZ Dummy	✓	✓	✓	✓	✓	✓	✓	✓
Distance to Urban Center	✓	✓	✓	✓	✓	✓	✓	✓
Intersects Major Railway	✓	✓	✓	✓	✓	✓	✓	✓
Intersects Minor Railway	✓	✓	✓	✓	✓	✓	✓	✓
Observations	864	864	864	743	743	864	863	859
F-Value of Excluded IV	47.77	47.77	47.77	36.63	36.63	47.77	47.91	48.09
R^2	0.073	0.048	0.100	0.152	0.060	0.162	0.090	0.025

Notes. Standard errors are clustered on county (Landkreis) level are in parentheses. Coefficient is statistically different from zero at the ***1 %, **5 % and *10 % level. The unit of observation is a municipality in 1953. All regressions include a constant not reported. R^2 is the centered R^2 of the second stage. Geographic controls include mean elevation, terrain ruggedness and soil suitability as well as the share of agricultural area used to grow wine and fruits in 1961, distance to Rhine or Neckar. Historical controls encompass distance to the closest Imperial city as of 1556, distance to next certain Roman road, a dummy variable for municipalities with at least one Celtic grave, historical political fragmentation and instability, the share of a municipalities total area that is located in ecclesiastical territories in 1556, pre-medieval forest areas, the share of Protestants in 1961 and a dummy for municipalities which belonged to the Duchy of Württemberg in 1789.

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