Individualism, Identity, and Institutional Change: Evidence from First Names in Germany, 1700–1850

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Abstract

This study documents the rise of individualism in response to rapid institutional change. In data on 44 million birth records we trace out how the dissolution of the Holy Roman Empire (1789–1815) impacted naming practices. We derive a set of name-based measures of cultural traits by drawing parallels to models of infrequent speech. Employing this methodology, we document a distinct shift in naming patterns and a move towards individualism. These patterns were more pronounced in places that became part of a new territory, resulting in cultural dispersion both within and across towns. Territorial borders were redrawn without regard to cultural concerns, and our results are not driven by changes in the supply of ideology or the composition of the population. Instead, we provide evidence that the experience of turnover set off a search for cultural traits suitable to the new institutional environment, with political uncertainty translating into a turn toward the individual.

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1 Introduction

The rise of individualism is seen as a hallmark of the transition from traditional to modern societies. The break away from societal norms that value communalism, tradition, and kinship attachment to norms that prize self-fulfillment, creativity, and individual responsibility arguably is the ideological underpinning of open societies and modern economic growth (Durkheim, 1893; Weber, 1922; Henrich, 2020). A rich literature has shown that the emphasis on individual agency rather than collectivism and prescribed norms has wide-reaching impacts, ranging from cooperation and migration to innovation (Gorodnichenko and Roland, 2011; Enke, 2019; Beck Knudsen, 2021). But how and when do societies adopt this cultural trait? And what are its fundamental drivers?

To study these questions, we consider the case of present-day Germany at the turn between the 18th and the 19th century, and leverage a high-frequency, long-term cultural proxy: a collection of 44 million birth and baptism records, precisely dated and geolocated. We find a sudden and dramatic change in first name choice patterns from the 1790s onward. We link these changes to the experience of rapid institutional turnover: the collapse of the institutional framework of the Holy Roman Empire under French pressure, and the subsequent changes in rulership experienced by large swathes of the population. We further find that these changes are not characterized by a dominant ideological shift (such as the transition to secular or nationalist names). Their defining feature is, instead, a move towards more *individualism*: parents choose from a wider set of names, are more likely to choose names that have not been used before, are are more likely to differentiate themselves from naming practices in neighboring locations.

We interpret our findings as evidence of the effect of the *experience* of institutional change on cultural expression. Our analyses reveal that the effects are more marked in locations that changed their rulers between 1789 (the onset of the French Revolution) and 1815 (the Congress of Vienna, which settled the territorial map for subsequent decades), relative to locations that remained under the same ruling dynasty. The results are *not* driven, instead, by the experience of war and destruction; by the experience of French direct rule; nor by patterns of immigration and outmigration. It is also unlikely that the effects are driven by economic change, as industrialization occurred in Germany only several decades later.

Common explanations of cultural change link rapid turnover to massive supply-side indoctrination efforts (Alesina and Fuchs-Schündeln, 2007; Voigtländer and Voth, 2015;

Campa and Serafinelli, 2019); or highlight slow-moving, bundled factors such as changes in religious institutions (Weber, 1904/05; Schulz et al., 2019) or shifts in the economic modes of production (Alesina et al., 2013; Xue, 2023). Isolating a "demand-side" cultural response to institutional change is thus challenging: gradual institutional turnover is generally underpowered, while discontinuities in institutions are rare and usually accompanied by confounding factors such as ideological indoctrination and changes in population composition through war or migration. Empirically, high-frequency, long-term measures of cultural expression together with comparable treatment and control groups are required.

Our setting, Germany in the 18th and 19th century, provides a uniquely suitable study context to address these conceptual and empirical challenges: the collapse of the Holy Roman Empire 1789–1815 was a rapid and substantial shock to institutions, wiping away hundreds of territories and terminating a centuries-old form of legitimization of rule. This was achieved overwhelmingly through a peaceful redrawing of borders, without cultural factors in mind. Since many, but not all territories ended, we can observe large treatment variation within a narrow geographic space.

A large dataset encompassing millions of birth or baptism records, collected by the Church of Jesus Christ of Latter-day Saints through the Genealogical Society of Utah ("Familysearch"), constitutes the empirical basis for our analyses. We first discuss the empirical challenges of drawing inferences about the support of underlying distributions from a finite set of draws of first names chosen in a given place, during a given time period. We draw parallels to the literature on political language (Gentzkow et al., 2019), and propose a series of metrics, such as the Theil index comparing distributions, as well as a series of remedies to finite sample bias.

Our main analysis reveals a strong and sudden uptick in the rate of change of naming practices in the 1790s; these patterns were more pronounced in places that experienced a rule turnover. We show that the change in naming practices leads to a more dispersed distribution of first names, with a smaller share of children being given the most popular names, a larger number of names in use, and more new names adopted. At the same time, while traditional/religious first names declined steadily in favor and names with Germanic roots took off, these changes in the broad ideological content of names were not specific to areas exposed to more institutional change. As a result, locations tended to differentiate themselves in their naming practices more from their immediate neighbors; the correlation between names across space was reduced.

We confirm our findings in a full event-study analysis, which verifies that areas experiencing institutional change after 1789 are not on already on diverging cultural trends in the earlier decades of the 18th century. We also show robustness to the use of a wide array of alternative measures of distributional change and of naming concentration; we show that results are not driven by outliers or strong patterns of spatial correlation. To speak to the "demand-side" cultural response, we show that our results hold in subsets of the sample, excluding cities directly affected by the turmoil of revolutionary wars, cities ruled temporarily by French-Napoleonic forces, cities that saw changes in schooling laws during the time period of our analysis, or cities with the largest population turnover.

We interpret our findings through the framework of a model of cultural evolution, as in Giuliano and Nunn (2021). In such a framework, attachment to tradition is a function of the volatility of the environment faced by individuals: in stable environments, behavioral strategies developed in the past remain valid, and thus societies will value tradition. Instead, following custom is less likely to be relevant in a context of unstable environments. In the context of late 18th century Germany, we argue that the experience of the collapse of the Holy Roman Empire — an institutional framework providing ideological legitimacy to all forms of secular and ecclesiastical rulers over several centuries — represented a vivid and tangible signal of the end of a long era of stability and the beginning of more uncertain times, both ideologically and politically. This signal was particularly strong in areas experiencing the demise of their dynasties, and the replacement by new rulers, in the period between 1789 and 1815. Drawing from contemporary eyewitnesses, we provide evidence that this experience of volatility and uncertainty set off a search for cultural traits suitable to the new institutional environment. Political uncertainty thus translated into cultural dispersion and a turn toward the individual.

This paper speaks to a literature on the institutional roots of cultural traits (Grosfeld et al., 2013; Alesina and Giuliano, 2015; Becker and Pascali, 2019). Cultural traits may change quickly due to short-run factors within a person's lifetime (Bentzen, 2019; Fouka, 2020), but norms and attitudes can be persistent over long time spans due to intergenerational transmission (Bisin and Verdier, 2001; 2011; Voigtländer and Voth, 2012). One aspect studied in this literature is how the affiliation with different states or empires can cause long-lasting cultural differences (Becker et al., 2016; Dell et al., 2018; Dehdari and Gehring, 2022; Lowes et al., 2017). Our rich data allow us to document the contemporaneous change in cultural norms in reaction to institutional shocks.

Our work speaks to the literature on the historical origins of individualism in particular.[1] A line of research has studied how the early adoption of agriculture, and in particular of irrigation-intensive technologies favoring collectivist norms, have impacted individualism in the long run (Olsson and Paik, 2016; Buggle, 2020; Fiszbein et al., 2022). Selective migration and exposure to very collectivist or individualistic societies can reinforce the long-run persistence of these traits. Beck Knudsen (2021) shows that individualistic individuals were more likely to migrate from Scandinavia to North America in the 19th century, and that sending districts remained more collectivist in the long run through a process of vertical transmission of values from parents to children. Bazzi et al. (2020) show that regions that were located at the American frontier for a longer period became more individualistic, also due to selective immigration.

Finally, we add methodological insights to a growing literature that measures cultural traits through first names, such as assimilation (Abramitzky et al., 2020; Algan et al., 2022; Fouka, 2020), nationalism (Assouad, 2021; Jurajda and Kovač, 2021; Kersting and Wolf, 2021), race (Fryer and Levitt, 2004), religiosity (Andersen and Bentzen, 2022; Becker and Voth, 2023; Gagliarducci and Tabellini, 2024) or — like us — individualism (Bazzi et al., 2020; Beck Knudsen, 2021).

The remainder of the paper is organized as follows. Section 2 introduces the historical context. In Section 3, we describe the data sources. Section 4 discusses name-based measures of cultural traits. Descriptive empirical findings are presented in Section 5, while Section 6 ties these patterns to institutional change. Section 7 concludes.

2 Historical Background

The French Revolution in 1789 and the following armed conflicts upended the political and social order across all of Europe, tearing down centuries-old dynasties and questioning the role of norms, traditions, and organized religion. The upheaval of these decades touched upon the lives of virtually every individual on the European continent, from the elites (as described in literary works like Tolstoy's *War and Peace*) to millions of soldiers fighting and dying in the first mass armies.

For the region of Central Europe, the change was most momentous: the invasion by

[1] Individualism has been linked to innovation and long-run economic growth (Gorodnichenko and Roland, 2011; 2017; Hansen, 2013). Individualism also affects behavior in situations with collective action problems, such as the Covid crisis (Bian et al., 2022; Bazzi et al., 2021) or optimal enforcement mechanisms (Greif, 1994).

the French Revolutionary and Napoleonic wars ultimately led to the dissolution of the Holy Roman Empire in 1806. The Empire was not merely a polity, it was a realm that traced back its legitimacy to Roman emperors, and provided a stable ideological and institutional framework to its hundreds of quasi-sovereign constituent territories over several centuries. While borders were not static in the Holy Roman Empire, most of its places experienced strong continuity: the average city in 1789 had spent 280 years under same ruling dynasty. In addition, territories were very homogeneous culturally, with most territories being either entirely Catholic or Protestant.

After over 1,000 years of existence, the Holy Roman Empire was replaced by the German Confederation, a political union of initially 39 and later 41 sovereign territories. The reduction of territories occurred in two waves, in 1803 (Imperial Recess) and 1806 (Treaty of the Confederation of the Rhine), with a final rearrangement of borders agreed upon at the Congress of Vienna in 1815. Figure 1, Panels A and B, show the dramatic change in the number and geographical extent of territories between 1789 and 1815 for our region of analysis. As part of this transition, more than half of the population had changed rulers. Panel C of Figure 1 shows the number of cities changing ruler in a given year. While from 1750 until 1790 less than 5 percent of cities would change ruler in a given decade, there is a massive increase in this from 1790 until 1810 when 60 to 70 percent of cities changed ruler in a decade. Crucially, this consolidation was driven by geopolitical concerns, without regard for cultural disparities; for example, many territories now included Protestant and Catholic areas. Nevertheless, owing to the broader political pressure, the new arrangement was accepted peacefully.

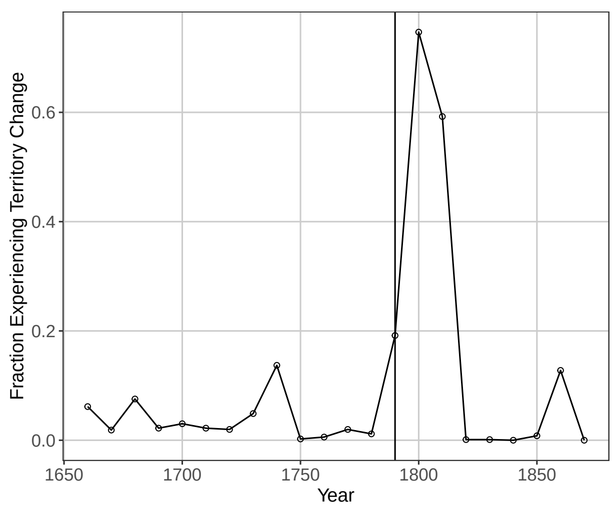
3 Data

The base of our analysis are data on 44 million first names in 13,000 German locations between 1700 and 1870. The data is based on baptism records from Catholic and Protestant churches. In these records, local priests noted the date of birth or baptism (which, due to religious reasons, very closely coincided) as well as the full name of the child and the parents. The Church of Jesus Christ of Latter-Day Saints collected and digitized these individual baptism records for genealogical research purposes, and made them available on Familysearch.org. We access to the anonymized data (without information on last names and parents) through an agreement with Familysearch.

Figure 1: Territories and Territorial Change in Western Germany

A: Territories 1789 B: Territories 1815

C: Change Over Time



Note The maps show the territories extant in our region of analysis in 1789 (Panel A) and 1815 (Panel B). Panel C shows the fraction of cities in our sample that change ruler in a given decade. Details on the data underlying the maps are given in Section 3.

The spatial coverage of data is driven by the availability of records, as they were found and collected by geneaologists. Coverage is consistent throughout time and space only for regions in the West of Germany, roughly corresponding to the present-day states of North Rhine-Westphalia, Hesse, Rhineland-Palatinate, and Baden-Württemberg. We therefore limit the analysis only to these states. We first geolocate all locations mentioned in the data; to better handle the large variety of villages, town, and hamlets, and to match places to their territorial history, we assign each location to its closest "city" (as defined by the set of cities covered in the *Deutsches Städtebuch*).[2] Our data thus cover 746 cities in West Germany.

We clean and standardize names in our data to ensure comparability of naming practices across time and space in our panel. Specifically, we proceed as follows: we harmonize first name spellings, for example by changing Josef to Joseph. Next we exclude names that occur only 10 or fewer times over the entire sample period. We then aggregate names by decade at the city level. We exclude all city-decades with limited coverage of less than 100 births.

We categorize different types of identities associated with first names. In particular, we single out two categories of names as particularly salient in the historical context we study: religious names (relating to Christian traditions), and "nationalist" names, reflecting a revival of Germanic roots. To classify first names, we draw on a variety of lists. To define the set of religious first names, we use a list of first names (in German) from the Bible[3] and a list of names of Saints who have at least one major church named after them in Germany.[4] Additionally, we include first names that include the component *God* (*Gott*, such as *Gottfried* or *Gotthold*); these names were particularly popular in Pietist communities, a religious revival movement common in Southwestern Germany in that era. Germanic names come from Abel (1889).

We supplement our data with information on the institutional history of cities from Cantoni et al. (2019). For each city, we know its territorial history — its rulers, and the reasons for rule change — on a yearly basis until after the Congress of Vienna (1815). In particular, this information allows us to track political changes, such as change in the ruling dynasties or direct rule by Napoleonic troops, in the years of upheaval between

[2]We rely on the border polygons in Bogucka et al. (2019).

[3]We used the following list https://de.wikipedia.org/wiki/Liste_deutscher_Vornamen_aus_der_Bibel (date last accessed: January 28th, 2024).

[4]We scrape and clean the relevant churches from https://www.openstreetmap.org (date last accessed: January 28th, 2024).

Table 1: Naming Distributions

Top Five Male Names and Shares in Decade:					
1720		1770		1820	
Johannes	0.508	Johannes	0.479	Johannes	0.265
Joseph	0.029	Georg	0.037	Friedrich	0.064
Georg	0.027	Peter	0.036	Heinrich	0.058
Franziskus	0.025	Franziskus	0.035	Karl	0.056
Heinrich	0.024	Joseph	0.029	Peter	0.041

Note Table presents the distribution of the top five male names in our data in the decades of 1720, 1770, and 1820.

1789 and 1815. We also obtain information about the nature of rule in the context of the Holy Roman Empire, prior to 1789 (secular/ecclesiastical rule), and about the majority religion (Protestant/Catholic). To account for war activity, we measure attacks to cities from Cantoni and Weigand (2021).

4 Theory and Measurement

4.1 Characterizing Cultural Change

Following a rich tradition in the social sciences (Lieberson and Bell, 1992), we view names as an expression of culture, and aim to study changes in name giving practices across time and space to measure cultural change. However, comparing distributions of names presents several challenges. We illustrate these challenges in Table 1, which shows the top five male names for the decades of 1720, 1770, and 1820, along with the respective shares.

These three distributions, and their comparison, feature a series of dimensions of interest. First, one notices that the distributions change over time, and that the change from 1770 to 1820 was noticeably more marked than the change from 1720 to 1770. Second, the concentration on top names (either the most frequent name, or the top 5 most frequent names, e.g.) declines over time. Third, new names enter the distribution, and these names can be differentiated in qualitative terms (e.g., while "Joseph" is more traditional and has biblical roots, "Friedrich" and "Heinrich" have Germanic roots).

No single metric can capture all these dimensions of change in one summary statistic. Instead, we resort to different metrics to capture aspects of the evolution of naming practices across time and space. Our first objective is to quantify the "distance" between two distributions, e.g. the distributions of first names in a place in a decade and in the following decade, or the distributions of first names in two different places in the same time period. To this purpose draw on the well-known Theil index, a special case of the generalized entropy index often used to measure inequality or segregation.[5]

Consider a city i between time points t_1 and t_2, so that we compare the distribution across two groups, $G = |\{1, 2\}| = 2$.[6] Call the total number of unique names that were assigned to children in either decade N. In the above example of Table 1, looking only at top five names for $t_1 = 1770, t_2 = 1820$, we have:

$$\begin{aligned} N &= |\{Johannes, Georg, Peter, Franziskus, Joseph, Friedrich, Heinrich, Karl\}| \\ &= |\{n = 1, n = 2, \ldots, n = 8\}| = 8. \end{aligned}$$

We can then define the count of each name in each decade as c_{nt}, where n indexes names, and t indexes time points. The total amount of births across both decades is then $c = \sum_{n=1}^{N} \sum_{g=1}^{G} c_{ng}$. Based on this, we can define the joint probability of a birth with name n in decade t as $p_{ng} = c_{ng}/c$, the marginal probabilities of names as $p_{n\bullet} = \sum_{g=1}^{G} c_{ng}/c$, and the marginal probabilities of decades as $p_{\bullet g} = \sum_{n=1}^{N} c_{ng}/c$. The mutual information index is then defined as:[7]

$$M = \sum_{n=1}^{N} \sum_{g=1}^{G} p_{ng} \log \frac{p_{ng}}{p_{n\bullet} p_{\bullet g}}. \tag{1}$$

Normalizing this index so that it lies between 0 and 1, we arrive at the Theil index, T:

$$T = \frac{M}{- \sum_{g=1}^{G} p_{\bullet g} \log p_{\bullet g}} \tag{2}$$

In the case where the naming distribution is exactly the same in t_1 and t_2, $p_{ng} = p_{n\bullet} p_{\bullet g}$ and $T = 0$. Intuitively, this means that the information contained in the marginal proba-

[5]We demonstrate in Section 6 the robustness of our results to alternative measures of differences in distributions, like the Dissimilarity Index or Euclidean distance. We mainly rely on an entropy-based measure because of its well-understood properties and code implementation (Mora and Ruiz-Castillo, 2011; Elbers, 2023).

[6]While in principle the Theil index can be used to compare also a larger number of distributions together ($G > 2$), in this context we always compare only two places at a time, or the same place across two periods of time ($G = 2$).

[7]This explanation is based on the documentation of the *segregation* R package.

bilities $p_{n\bullet}$ and $p_{\bullet g}$ is fully sufficient to characterize the distribution in each group. If the naming distribution is maximally different across the two groups — for example, if the set of names used in one period is fully disjoint from the set of names used in the other period — marginal probabilities are not informative to learn about the distributions in each group, and $T = 1$ (i.e., maximal "segregation" across distributions).

In the following sections we apply the Theil index to quantify the *change* in the distribution of names within a given city. That is, we compare the distribution across two time periods t_1 and t_2 within the same city i: the Theil index resulting from the comparison of these two distributions can be seen as a measure of change between time periods. Alternatively, the Theil index can be used to compare names to a reference time period, to capture how much naming practices have diverged from an initial distribution.

Rather than comparing the same place across time, the Theil index can also be used to compare distributions between two or more places $i \neq j$. In Section 5 below, we introduce a measure of dispersion of naming practices based on comparisons of distributions across neighboring places. We call this the *regionalization index* T^R_{ijt}. A higher regionalization index implies more diverse naming practices across neighboring towns.

The second major stylized fact emerging from comparing the most popular names across decades in Table 1 is a reduction in the concentration of names. To capture this, we define a measure of dispersion of names within city i and territory j as $\frac{1}{\gamma_{ijt}}$, with the Gini coefficient γ a canonical concentration measure.[8]

Changes in dispersion could occur either entirely among the set of existing names, or through the introduction of new names. To reflect this, we use a second measure: the unique name count as a fraction of all names in a given town, territory, and decade, $u_{ijt} = \frac{N_{ijt}}{\sum_{n=1}^{N} c_{nt}}$. This measure is equal to 1 if all children are given a different name, and decreases when fewer names are used. Taken together, we think of $\frac{1}{\gamma_{ijt}}$, u_{ijt} and T^R_{ijt} as measuring individualism in naming.

To capture qualitative changes in naming practices, reflective of changing identities, we resort to external validation — "dictionaries" of names with certain traits. As discussed in Section 3 above, we use established lists of names to identify characteristically religious/biblical and Germanic/nationalist names.

[8]Similar to distribution change measures, our results are robust to using other measures of concentration, which we discuss in Section 6.

4.2 Addressing Sparsity

A core concern when comparing name distributions across time and space is that these distributions represent only a finite "draw" of names from the choice set available (and considered) by parents in a certain place/decade. The number of children that parents can have during their lifetime is limited; and even after aggregating the data at the city level, the number of births in a given decade is limited. At the same time, the dimensionality of the choice set — the universe of names — is large.

To understand the problems related to the finiteness of samples, we draw on an analogy. First name choices can be viewed as an instance of sparse speech. In the context of the language analysis of political speech, these problems have been studies extensively. The Theil index captures the extent to which certain names are characteristic for a given decade, or a given place. Asking this question is akin to asking, in the context of political speech, whether a certain phrase carries information about its speaker. In other words, asking "How likely is a person to be Republican if they use the words 'Death tax'?" is analogous to asking "How likely is a baby to be born in the 1820s if he is called 'Friedrich'?"

In naming choices, as in political language, the nature of the "speech" we observe is thus necessarily sparse. The Theil index is at risk of exhibiting finite-sample bias; this concern has been analyzed extensively in the case of political speech by Gentzkow et al. (2019).[9] In our present setting, the concern is that a measure of naming change will pick up changes in the birth rate, rather than a shift in underlying cultural preferences.

To address this concern, a randomization benchmark can act as a first indication. Constructing such a benchmark requires a reshuffling of naming events across groups, leaving the total number of births in the two groups intact. If finite-sample bias is a concern, the Theil index will be different from zero in the random benchmark.

Our preferred modification to the estimator to reduce finite-sample bias relies on estimation of the bias term through bootstrap resampling, which can then be subtracted from the naive estimate (Horowitz, 2001).[10]

[9] In addition to congressional speech (the application in Gentzkow et al. (2019)), this problem has been widely acknowledged in the literature on segregation (Reardon et al., 2018; Logan and Parman, 2017), and also more broadly in applications of non-linear functions that depend on many parameters, such as variance decompositions in AKM models (Kline et al., 2020).

[10] Other approaches subtract simulation-based estimates of the finite-sample bias, or move beyond subtraction by virtue of a leave-out estimator or shrinkage methods (Gentzkow et al., 2019; Kline et al., 2020).

5 Naming Practices

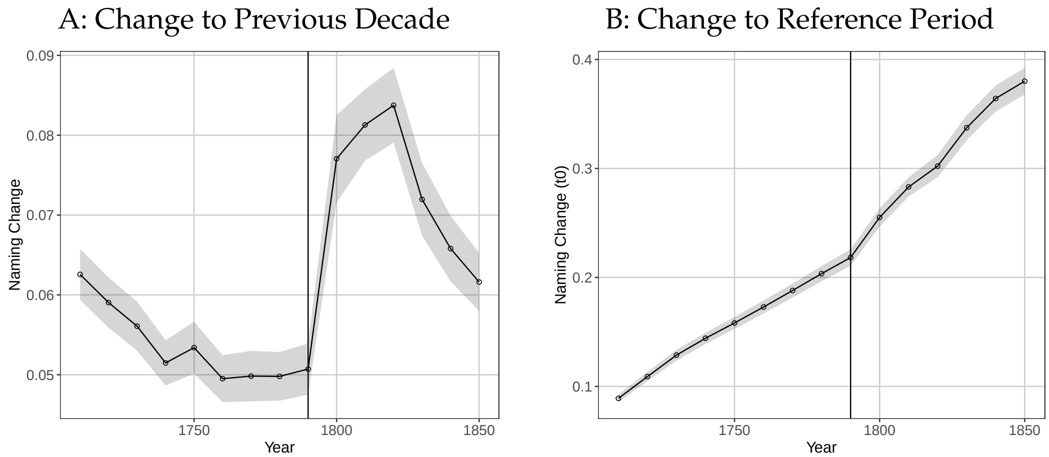
5.1 Change Over Time: A Radical Break

How did naming practices change over time in Germany, in the era spanning the turn from the 18th to the 19th century? First, we calculate the measure of change in naming practices from decade to decade, separately for each town, using a bootstrap-corrected Theil index. We then aggregate over all towns. Figure 2, Panel A shows the results. Before the 1790s, the naming distribution changes at a constant, low rate each decade; the Theil index is stably around 0.05, indicating very little change in distributions from decade to decade. Starting in the 1790s, our measure of change suddenly rises dramatically, almost doubling in value. The extent of change in distributions over time remains high over the following decades, and declines only later towards the middle of the 19th century. The rate of change in naming thus stabilizes again slowly, although it does not reach the low levels of the 18th century.

Appendix Figure A.1 shows the importance of addressing finite sample bias. We show the time series of the unadjusted Theil index, as well as the randomized benchmark. As birth rates increase in the first half of the 18th century, the unadjusted measure picks this up as a reduction in segregation. Also, the random benchmark is not centered at zero but around $T = 0.035$. The figure underlines that the drastic change in naming practices around the turn of the 19th century is not a mere artifact of changing birth rates.

In Panel B, we ask a simple question: does the period with high rates of change lead to an increasing divergence from the naming distribution prevalent in the 18th century? In principle, several periods of high change to distributions could offset each other. We calculate, for each decade, the Theil index relative to the initial time period (the decade ending in 1710); in other words, rather than calculating decade-to-decade differences, we keep the reference point fixed. We find that naming practices did not converge back to the old paradigm after the upheaval period: the (corrected) Theil index grows larger over time indicating a steady move away from the original naming distributions. After 1790 the rate at which names in a new decade differ from the base period increases compared to earlier periods.

Figure 2: Territory Change and Naming Practices



Note The plot shows averages over all cities in our sample, with 95 percent confidence intervals. Observations are at the city-year level. The sample comprises 708 cities and 15 decades. The dependent variables are (A) the bootstrap-corrected decade-to-decade Theil index T_{ijt} in city i, territory j, and year t, (B) the bootstrap-corrected Theil index T_{ijt} calculated with reference period 1700 in city i, territory j, and year t.

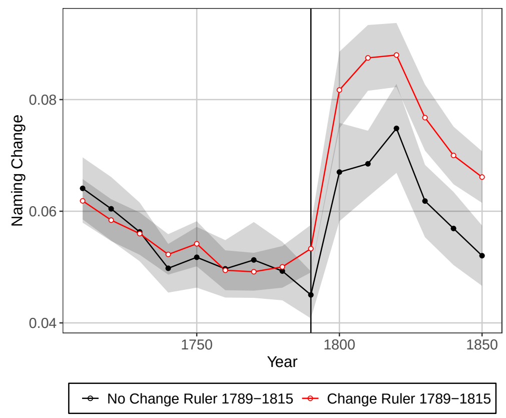
5.2 Institutional Change and Naming Change

In a first step toward assessing the role of institutional change during the time period, we examine the dissolving of the Holy Roman Empire more closely. While the overarching superstructure of the Empire disappeared for all cities, around half also changed their immediate ruler: powerful territories that had existed for hundreds of years, such as the Electoral Palatinate, the ecclesiastical principalities of Cologne and Mainz, or proud Free Imperial cities such as Nuremberg, Augsburg, or Ulm, disappeared and found themselves subsumed under a different dynasty. For the affected populations, this corresponded to a more direct and visible discontinuity.

From a comparison of the territorial constellation of Germany before and after the French and Napoleonic interlude (as depicted in Figure 1), we derive one indicator of territory change between 1789 and 1815 (see Appendix Figure A.2). In Figure 3, we show the decade-to-decade Theil index T, separately for places that changed ruler and those that did not. Before the 1790s, the naming distribution in treated and untreated places changes at a very similar, low rate each decade. Both groups experience a sudden change in the 1790s, but this change is more pronounced in treated places, and it stays higher throughout the remainder of our period of analysis.

Figure 3: Territory Change and Naming Practices: Institutional Change

Change to Previous Decade



Note The plot shows averages over all cities in our sample, with 95 percent confidence intervals, separately by an indicator whether a city changed ruler in the time period 1789–1815. Observations are at the city-year level. The sample comprises 708 cities and 15 decades. The dependent variable is the bootstrap-corrected decade-to-decade Theil index T_{ijt} in city i, territory j, and year t.

6 Understanding Change Mechanisms

6.1 Opening Up Naming Change: Individualism and Institutional Change

As we highlighted in the context of Table 1, changes in naming practices can result in different distributional shapes, or in qualitative differences. In this section, we employ a variety of different measures to open up the dimensions along which the change highlighted by the decade-to-decade Theil index in Figures 2 and 3 took place.

We employ a variety of metrics capturing dimensions of naming practices, introduced in section 4.1: dispersion measures such as the inverse Gini coefficient $\frac{1}{\gamma_{ijt}}$, the unique name count u_{ijt}, or the regionalization index T^R_{ijt}. Our baseline difference-in-differences regression specification is:

$$NamingMeasure_{ijt} \quad = \beta Treated_{ij} \times Post1789_t + \alpha_i + \alpha_j + \alpha_t + \varepsilon_{ijt}, \tag{3}$$

where $NamingMeasure_{ijt}$ represents one of the metrics introduced above, measured for city i, territory j, and year t. $Treated_{ij}$ indicates whether a city changed rulers between

Table 2: Territory Change and Naming Practices

	Naming Change	Dispersion	Name Count	Regionalization
	(1)	(2)	(3)	(4)
Treated × Post-1789	0.0129***	0.0338***	0.0149***	0.0092***
	(0.0024)	(0.0088)	(0.0026)	(0.0035)
Observations	9,528	9,528	9,528	9,528
R^2	0.53255	0.72803	0.78208	0.74764
Outcome Mean	0.0617	1.319	0.0706	0.1780
City FEs	✓	✓	✓	✓
Territory FEs	✓	✓	✓	✓
Decade FEs	✓	✓	✓	✓
Cluster	City	City	City	City

Note Table presents results of estimating equation (3). Observations are at the city-year level. The sample comprises 708 cities and 15 decades. The dependent variables are (1) the bootstrap-corrected decade-to-decade Theil index T_{ijt} in city i, territory j, and year t, (2) dispersion $\frac{1}{\gamma_{ijt}}$, with γ the Gini coefficient on names in city i, territory j, and year t, (3) name count u_{ijt}, the share of unique names amongst all names in a city i, territory j, and year t, (4) regionalization T^R_{ijt} in city i, territory j, and year t, measured by comparing neighboring towns. Standard errors are clustered at the city level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

1789 and 1815, while $Post1789_t$ is a dummy for the time period after 1789.[11] α_i, α_j, and α_t are town, territory, and year fixed effects, respectively.

Table 2 shows results. Column 1 first applies the regression setup of equation (3) to the decade-to-decade Theil index studied in the previous section. As already suggested by the sample split in Figure 3, the uptick in distributional changes was more marked in cities that changed ruler. The effect size of about 0.013 reflects the average difference between the red and the black lines after 1790 in Figure 3 (after conditioning for fixed effects), and is sizable relative to the average value of the Theil index of around 0.05 in the pre-treatment era.

Column 2 uses the inverse Gini coefficient $1/\gamma_{ijt}$ as the dependent variable of interest. It shows that dispersion of names increased in treated cities after 1789; in other words, fewer parents opted for the most popular names for their child. Column 3 tests whether this was the result of a more equal distribution of names chosen from an existing set, or whether the decrease in concentration results from the adoption of more, new names. To this purpose, we use the unique name count (normalized by the total number of births)

[11] For ease of exposition, we opt to anchor all change events in the year 1789. Our results are qualitatively unchanged if we instead consider the staggered timing of the first territory change event for each town.

u_{ijt} as the dependent variable. The regression results show that the number of names that were used in a given decade in a locality went up. Finally, column 4 shows that regionalization increased, i.e. that naming practices of towns that changed ruler became more different from those of their neighbors. After 1790, thus, naming patterns did thus not only start to diverge for the same localities over time, but also between localities at the same point of time.

To examine the dynamics of these findings, we estimate event study analogues of equation (3):

$$\begin{aligned} NamingMeasure_{ijt} &= \sum_{\tau=-5}^{5} \beta_\tau Treated_{ij} \times RelativeDecade_{\tau(t)} \\ &\quad + \alpha_i + \alpha_j + \alpha_t + \varepsilon_{ijt} \end{aligned} \tag{4}$$

with all variables as defined above, and $RelativeDecade_t$ denoting decades until/since 1789. Results are shown in Figure 4. The increases in all three outcomes are immediate after 1790 and persistent. Importantly, they are not led by pre-trends over the preceding periods (Panels A-D).

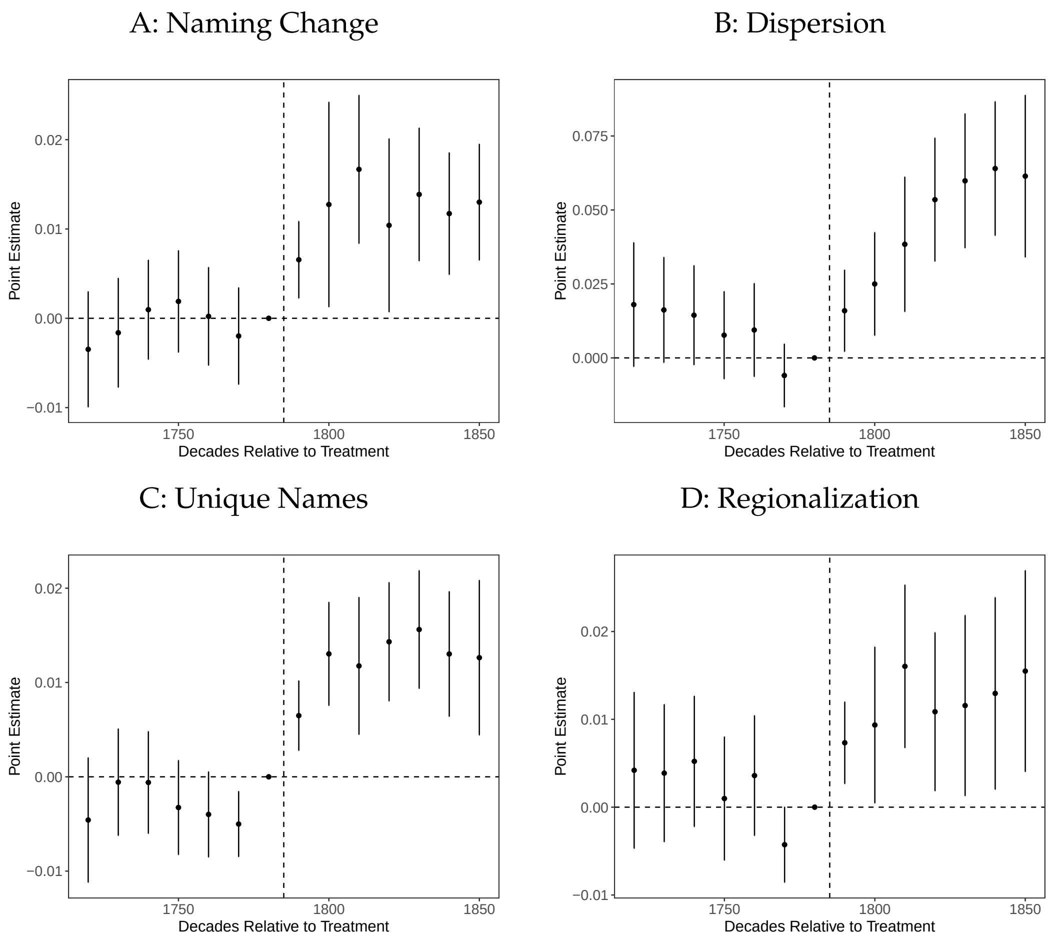
6.2 Institutional Change and Identity

Next, we assess the role of institutional change in impacting underlying identities conveyed in first names. We estimate the event study equation (3) with the fraction of Germanic or religious names as an outcome. The advent of German nationalism and decline of religiosity are arguably the most relevant cultural changes that could have affected naming patterns at that time.

Results in Figure 5, Panel A show that places that change ruler chose increasingly fewer Germanic names compared to untreated places over the whole time period; the opposite picture emerges in Panel B, with treated places having increasingly more religious names over time in comparison to places that do not change ruler. Importantly, however, in contrast to Figure 4 neither of these series does show a sharp change around the time period of treatment. Instead, treated and untreated cities seems to be on moderately diverging trends in choices of naming *identity*, but these slowly diverging trends are unaffected by the major overall changes occurring in the 1790s and after. Underlying national and religious identities are thus not shifted by the institutional change.

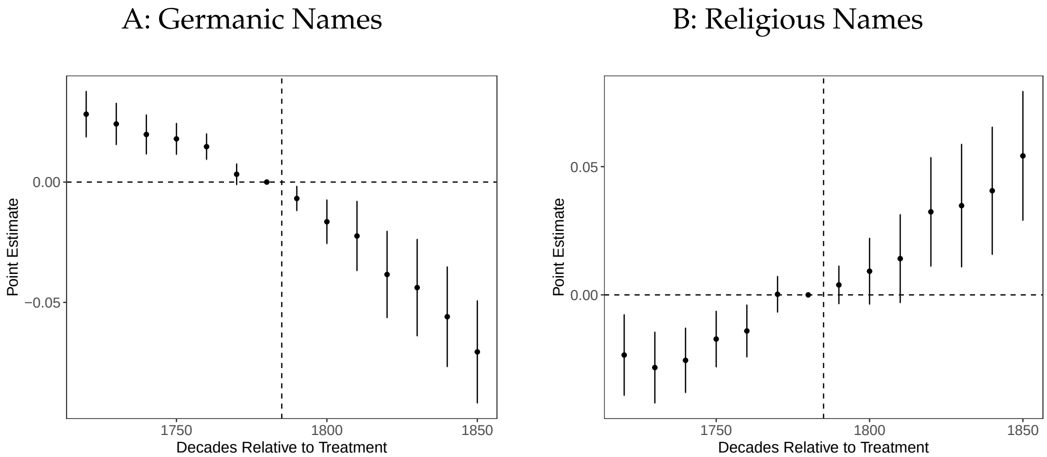
To further engage with this finding, we decompose the measure of unique names u_{ijt}

Figure 4: Territory Change and Naming Practices (Event Studies)



Note The plot shows results of estimating the event study regression in equation (4), with 95 percent confidence intervals. Observations are at the city-year level. The sample comprises 708 cities and 15 decades. The dependent variables are (A) the bootstrap-corrected decade-to-decade Theil index T_{ijt} in city i, territory j, and year t, (B) dispersion $\frac{1}{\gamma_{ijt}}$, with γ the Gini coefficient on names in city i, territory j, and year t, (C) name count u_{ijt}, the share of unique names amongst all names in a city i, territory j, and year t, (D) regionalization T^R_{ijt} in city i, territory j, and year t, measured by comparing neighboring towns. Standard errors are clustered at the city level.

Figure 5: Territory Change and Naming Practices (Event Studies)



Note The plot shows results of estimating the event study regression in equation (4), with 95 percent confidence intervals. Observations are at the city-year level. The sample comprises The sample comprises 708 cities and 15 decades. The dependent variables are (A) the fraction of Germanic names amongst all names in city i, territory j, and year t, (B) the fraction of religious names amongst all names in city i, territory j, and year t, Standard errors are clustered at the city level.

along these dimensions of identity in Appendix Table A.1. Comparing the pooled effect in column 1 to its decomposition in columns 2-4, it becomes clear that the introduction of new names was not driven by parents turning to one specific identity, but comprises a shift to a more individualistic society.

6.3 Robustness

We take the above results as indicative of a permanent change in naming occurring in treated places, driven by a turn toward individualism. To address concerns about the causal interpretation of these results, we first show robustness to alternative definitions of the outcome variables. In Appendix Table A.2, we show that our findings on the distribution of names are qualitatively unchanged when instead considering the unadjusted Theil index (column 2), the Theil index obtained by directly subtracting the randomized benchmark (column 3), or considering the dissimilarity index instead (column 4). Appendix Table A.3 shows that dispersion follows similar patterns for $\frac{1}{\gamma_{ijt}}$ only among the top ten names (column 2), considering the fraction of names not in the top ten (column 3), or instead looking at $\frac{1}{H_{ijt}}$, the inverse Herfindahl index.

To address concerns about spatial correlation, we show that our results are robust to the choice of more restrictive standard errors. For each outcome T, $\frac{1}{\gamma}$, u, and T^R separately, in Appendix Tables A.4–A.7, we consider standard errors clustered at the territory level (column 2), *Städtebuch* region level (column 3), and Conley standard errors with cutoffs at 50, 100, and 200km in columns 4, 5, and 6, respectively.[12]

Additionally, our results are generally not driven by single territories. In Appendix Figure A.3, we drop one territory at a time from our sample and re-estimate equation (3). The direction of coefficients is unchanged throughout, and they remain significant at the 5% level with the exception of the regionalization effect in Panel D, which is concentrated in Württemberg.

Finally, even though borders were re-drawn in 1789–1815 without regard to cultural concerns, other shocks to culture might have been correlated with the regrouping of territories. We hence construct more comparable control groups for each city by propensity-score based nearest neighbor matching based on economic and geographic covariates in Appendix Table A.8. The resulting coefficients are very similar in magnitude to the full sample.

6.4 Institutional Change as Mechanism: Empirical and Historical Evidence

The years of 1789–1815 tore down the institutional framework of Central European society. We argue that the experience of institutional instability triggered a cultural change, expressed through a move towards more individualistic naming patterns. However, rival explanations are conceivable: the impact of institutional change on naming patterns could have been mediated by war, legal changes, indoctrination, or migration. We hence estimate equation (3) using subsets of our data where the above channels are muted. If cultural change was, as we argue, "demand-side"-driven and not caused by external factors, the effects should still be present in these subsamples.

Results are presented in Table 3, where each panel present a separate outcome variable, with sample restrictions varying across columns. Column 1 presents baseline coefficients. To account for potential reactions to exposure to or war with France, in column 2, we omit all cities affected by the revolutionary wars. Column 3 furthermore omits cities ruled temporarily by French-Napoleonic forces.

We omit all cities that implemented compulsory schooling policies after 1780 in column 4 to exclude places in which rulers tried to actively shape the identity of their subjects

[12]Note that the regionalization measure T^R has high spatial correlation owing to its definition: it is based on neighbors of cities, and adjacent cities will share neighbors. It is hence less robust to regional clustering by construction.

Table 3: Territory Change and Naming Practices (Subsets)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Naming Change							
Treated × Post-1789	0.0129***	0.0128***	0.0153***	0.0118***	0.0085***	0.0137***	0.0107***
	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
R^2	0.53	0.51	0.65	0.48	0.51	0.56	0.53
Panel B: Dispersion							
Treated × Post-1789	0.0338***	0.0307***	0.0345***	0.0395***	0.0547***	0.0313***	0.0220**
	(0.009)	(0.010)	(0.011)	(0.010)	(0.011)	(0.010)	(0.009)
R^2	0.73	0.72	0.75	0.70	0.72	0.74	0.76
Panel C: Name Count							
Treated × Post-1789	0.0149***	0.0136***	0.0159***	0.0167***	0.0164***	0.0145***	0.0124***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)
R^2	0.78	0.78	0.81	0.75	0.77	0.79	0.83
Panel D: Regionalization							
Treated × Post-1789	0.0092***	0.0071*	0.0114***	0.0074*	0.0187***	0.0139***	0.0072*
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)
R^2	0.75	0.74	0.78	0.72	0.76	0.77	0.77
Number of Observations	9,528	7,860	5,538	7,177	5,127	7,522	7,037
City FE	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓
Cluster	City	City	City	City	City	City	City
Not War		✓					
Not Napoleon			✓				
Not Schooling				✓			
Not Cath.					✓		
Not Eccl.						✓	
Not Migration							✓

Note Table presents results of estimating equation (3), focusing on subsets of the data. Observations are at the city-year level. The sample comprises 708 cities and 15 decades. The dependent variables are (A) the bootstrap-corrected decade-to-decade Theil index T_{ijt} in city i, territory j, and year t, (B) dispersion $\frac{1}{\gamma_{ijt}}$, with γ the Gini coefficient on names in city i, territory j, and year t, (C) name count u_{ijt}, the share of unique names amongst all names in a city i, territory j, and year t, (D) regionalization T^R_{ijt} in city i, territory j, and year t, measured by comparing neighboring towns. Standard errors are clustered at the city level. We omit places that (2) experienced at least one attack in 1789–1815, (3) were ruled by French-Napoleonic forces for at least one year in 1789–1815, (4) belonged to territories that implemented compulsory schooling policies after 1780, (5) were Catholic, (6) were governed by ecclesiastical rulers before 1815, or (6) are in the top and bottom decile of birth rates. Standard errors are clustered at the city level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

through indoctrination in schools. To address potential indoctrination by the church following the expropriation of church land holdings, column 5 omits all Catholic cities, and column 6 all cities formerly governed by ecclesiastical rulers. Finally, in column 7, we address concerns of selective migration by omitting all cities in the top and bottom decile of birth rates in a given decade. Throughout, estimated coefficients are stable.

We finally assess the role of migration more directly. For a subset of birth/baptism records, we know the last name of the child. Based on this, we construct the set of last names present in a given city before 1780. We then restrict our sample to just those records with a last name in this set of city-specific "long-established" families. Appendix Table A.9 shows results, which are very similar to the baseline results in Table 2.

For centuries, the Holy Roman Empire had provided ideological legitimacy to all forms of secular and ecclesiastical rule, and its constituent territories had supplied stable frames of reference. Now, inhabitants were experiencing "time suddenly moving with extraordinary speed, the sense that nothing would ever be the same again" (Whaley, 2012, p. 558). Viewed through the lens of evolutionary anthropology (Giuliano and Nunn, 2021; Nunn, 2022), a previously stable environment gave way to a volatility during these decades of change. Hence, behavioral strategies developed in the past, which in the form of traditions had prescribed suitable actions for generations, were no longer valid. This signal was particularly strong in areas experiencing the demise of their dynasties, and the replacement by new rulers, in the period between 1789 and 1815. Experiencing these uncertain times, both ideologically and politically, set off a search for cultural traits suitable to the new institutional environment. Furthermore, no comparably legitimate successor entity, which could have resolved the uncertainty, emerged in 1815.

Accounts of eyewitnesses speak to this interpretation: Looking back in 1818, the publisher Friedrich Perthes wrote that *"...our era has brought together completely incompatible principles in the three generations alive. The enormous contrasts of the years 1750, 1789 and 1815 lack any form of transition"*. Johanna Schopenhauer, the mother of the philosopher, remarked in 1839 that *"life and travel have become three or four times faster...the customs and the way of life of the years before 1789 feel so distant, as if they were centuries away"*.

This sustained political uncertainty translated into cultural dispersion and a turn toward the individual. According to an early historical account of this period (Meinecke, 1925), the *"whole world now appeared to be filled with individuality...Boundless diversity and abundance of individual phenomena — these were the new and powerful ideas which now bursth forth in Germany in so many ways"*[13]. The "abyss of individuality" (Schlegel, 1958, p. 257) had opened up in German society.

[13]Translation from Lukes (1971, p. 56)

7 Conclusion

In this study, we document the rise of individualism in response to rapid institutional change. We consider the case of present-day Germany at the turn between the 18th and the 19th century, leveraging a collection of 44 million birth and baptism records, precisely dated and geolocated. We find a sudden and dramatic change in first name choice patterns from the 1790s onward. We link these changes to the experience of rapid institutional turnover: the collapse of the institutional framework of the Holy Roman Empire under French pressure, and the subsequent changes in rulership experienced by large swathes of the population. These changes are defined by a move towards more *individualism*: parents choose from a wider set of names, are more likely to choose names that have not been used before, are are more likely to differentiate themselves from naming practices in neighboring locations.

We interpret our findings as evidence of the effect of the *experience* of institutional change on cultural expression. Our analyses reveal that the effects are more marked in locations that changed their rulers between 1789 (the onset of the French Revolution) and 1815 (the Congress of Vienna, which settled the territorial map for subsequent decades), relative to locations that remained under the same ruling dynasty. We provide evidence that this experience of volatility and uncertainty set off a search for cultural traits suitable to the new institutional environment. Political uncertainty thus translated into cultural dispersion and a turn toward the individual.

We conclude by turning our focus toward the continuation of the 19th and early 20th centuries. The rise of individualism changed how individuals regarded their own role within the state and gave way to a more progressive role of subjects within the existing power structure. In 1848, the absence of efforts of *ideological* integration of the newly formed states resulted in large-scale unrest throughout the entire German lands. As the revolutionary waves calmed, states took to establishing a much tighter grip on their populations, not just by repression, but also by attempting to win patriotic hearts and minds. At the same time, previously dispersed and loose interest groups began to turn into political parties with clearly defined platforms, struggling over the interpretive authority over modernity. Viewed in this light, the discontinuities of 1789–1815 set the stage for the ideological conflicts that shaped much of the 19th and early 20th centuries. Future work will illuminate these linkages in more detail.

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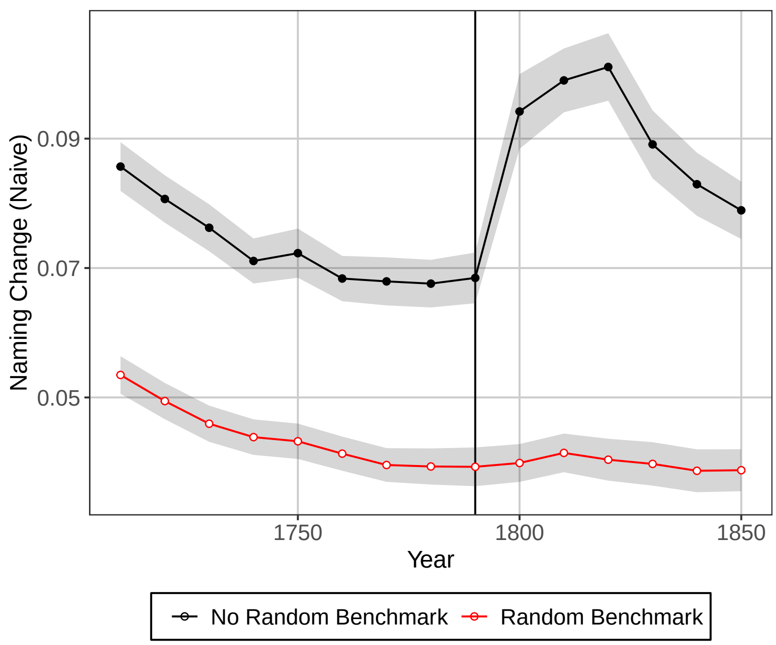
Supplementary Appendix: For Online Publication

A Tables and Figures

Figure A.1: Theil Index: Finite Sample Bias Illustration

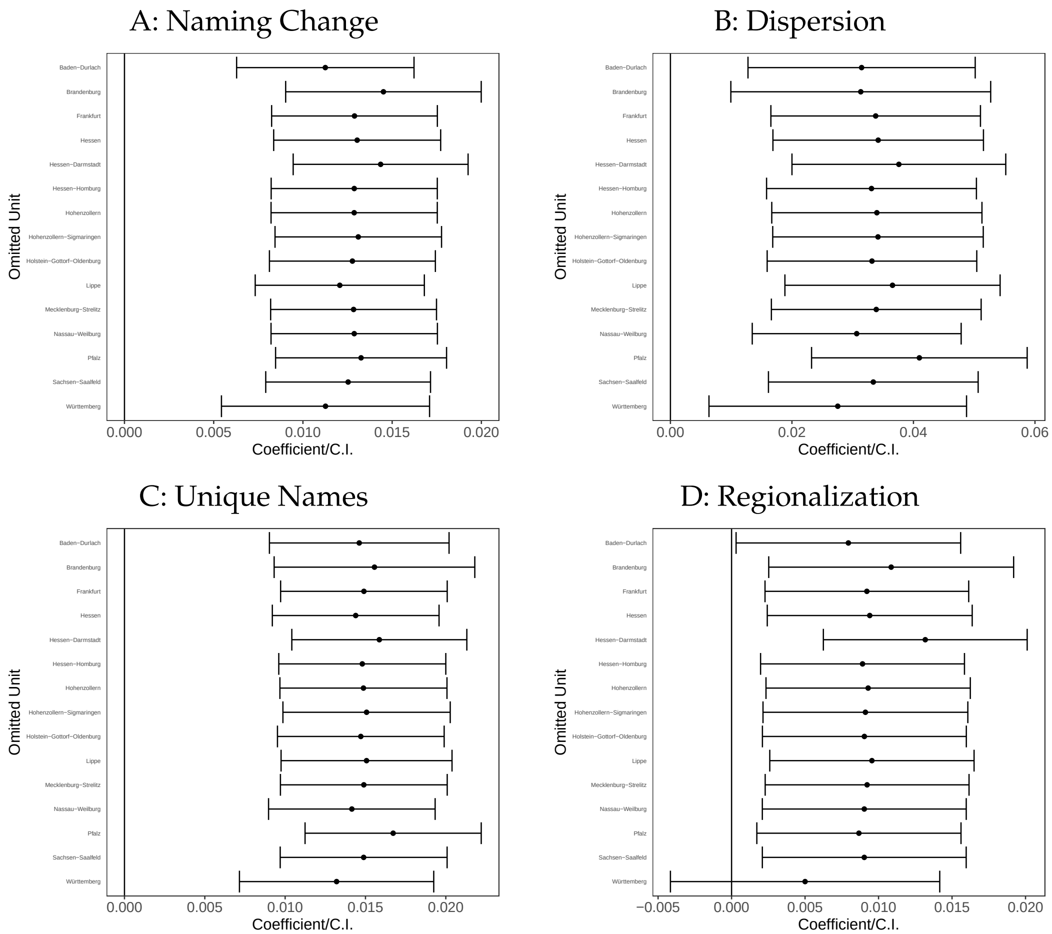


Note The plot shows averages over all cities in our sample, with 95 percent confidence intervals. Observations are at the city-year level. The sample comprises 708 cities and 15 decades. The dependent variables are (black) the naive decade-to-decade Theil index in city i, territory j, and year t, (red) the random benchmark Theil index in city i, territory j, and year t.

Figure A.2: Territory Change Indicator

Note The map shows all places that changed ruler in 1789–1815. Details on variable creation are given in Section 3.

Figure A.3: Territory Change and Naming Practices (Leave-Out Plots)



Note The plot shows results of estimating equation (3), with 95 percent confidence intervals, leaving out one territory at a time. Observations are at the city-year level. The sample comprises 708 cities and 15 decades. The dependent variables are (A) the bootstrap-corrected decade-to-decade Theil index T_{ijt} in city i, territory j, and year t, (B) dispersion $\frac{1}{\gamma_{ijt}}$, with γ the Gini coefficient on names in city i, territory j, and year t, (C) name count u_{ijt}, the share of unique names amongst all names in a city i, territory j, and year t, (D) regionalization T^R_{ijt} in city i, territory j, and year t, measured by comparing neighboring towns. Standard errors are clustered at the city level.

Table A.1: Unique Names: Decomposition

	Name Count (1)	Germanic (2)	Religious (3)	Other (4)
Treated × Post-1789	0.0149***	0.0037***	0.0035**	0.0077***
	(0.0026)	(0.0008)	(0.0014)	(0.0010)
R^2	0.78208	0.64166	0.79614	0.71675
Observations	9,528	9,528	9,528	9,528
Outcome Mean	0.0706	0.0163	0.0317	0.0226
City FEs	✓	✓	✓	✓
Territory FEs	✓	✓	✓	✓
Decade FEs	✓	✓	✓	✓
Cluster	City	City	City	City

Note Table presents results of estimating equation (3), with alternative outcome measures. Observations are at the city-year level. The sample comprises 708 cities and 15 decades. The dependent variables are (1) name count u_{ijt}, the share of unique names amongst all names in a city i, territory j, and year t, (2) the share of unique Germanic names amongst all names in a city i, territory j, and year t, (3) the share of unique religious names amongst all names in a city i, territory j, and year t, (4) the share of unique non-Germanic, non-religious names amongst all names in a city i, territory j, and year t, Standard errors are clustered at the city level.

Table A.2: Naming Change: Alternative Measures

	Naming Change (1)	Naming Change (Naive) (2)	Theil (Adjusted) (3)	Dissimilarity (4)
Treated × Post-1789	0.0129***	0.0162***	0.0074***	0.0179***
	(0.0024)	(0.0026)	(0.0021)	(0.0040)
R^2	0.53255	0.60718	0.46358	0.56579
Observations	9,528	9,528	9,528	9,528
Outcome Mean	0.0617	0.0803	0.0381	0.1847
City FEs	✓	✓	✓	✓
Territory FEs	✓	✓	✓	✓
Decade FEs	✓	✓	✓	✓
Cluster	City	City	City	City

Note Table presents results of estimating equation (3), with alternative outcome measures. Observations are at the city-year level. The sample comprises 708 cities and 15 decades. The dependent variables are (1) the bootstrap-corrected decade-to-decade Theil index T_{ijt} in city i, territory j, and year t, (2) the unadjusted decade-to-decade Theil index in city i, territory j, and year t, (3) the decade-to-decade Theil index in city i, territory j, and year t, subtracting the random benchmark, (4) the dissimilarity index D_{ijt} in city i, territory j, and year t, Standard errors are clustered at the city level.

Table A.3: Naming Dispersion: Alternative Measures

	Dispersion (1)	Inv. Gini (Top 10) (2)	Non-Top 10 (3)	Inv. Herfindahl (4)
Treated × Post-1789	0.0338***	0.0103	0.0223***	1.217**
	(0.0088)	(0.0090)	(0.0071)	(0.5813)
R^2	0.72803	0.70374	0.79987	0.71976
Observations	9,528	9,528	9,528	9,528
Outcome Mean	1.319	0.4688	0.2866	13.09
City FEs	✓	✓	✓	✓
Territory FEs	✓	✓	✓	✓
Decade FEs	✓	✓	✓	✓
Cluster	City	City	City	City

Note Table presents results of estimating equation (3), with alternative outcome measures. Observations are at the city-year level. The sample comprises 708 cities and 15 decades. The dependent variables are (1) dispersion $\frac{1}{\gamma_{ijt}}$, with γ the Gini coefficient on names in city i, territory j, and year t, (2) dispersion $\frac{1}{\gamma_{ijt}}$, among the top ten names in city i, territory j, and year t, (3) the fraction of names not in the top ten names in city i, territory j, and year t, (4) $\frac{1}{H_{ijt}}$, the inverse Herfindahl index in city i, territory j, and year t. Standard errors are clustered at the city level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table A.4: Territory Change and Naming Change (Standard Errors)

	Naming Change					
	(1)	(2)	(3)	(4)	(5)	(6)
Treated × Post-1789	0.0129***	0.0129***	0.0129***	0.0129***	0.0129***	0.0129***
	(0.0024)	(0.0040)	(0.0031)	(0.0047)	(0.0036)	(1×10^{-5})
Standard-Errors	city_id	terr_id_1793	region_id	50km	100km	200km
R^2	0.53255	0.53255	0.53255	0.53255	0.53255	0.53255
Observations	9,528	9,528	9,528	9,528	9,528	9,528
Outcome Mean	0.0617	0.0617	0.0617	0.0617	0.0617	0.0617
City FEs	✓	✓	✓	✓	✓	✓
Territory FEs	✓	✓	✓	✓	✓	✓
Decade FEs	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓

Note Table presents results of estimating equation (3), using different standard errors. Observations are at the city-year level. The sample comprises 708 cities and 15 decades. The dependent variable is the bootstrap-corrected decade-to-decade Theil index T_{ijt} in city i, territory j, and year t. Standard errors are clustered at the level of (1) towns, (2) territories, (3) regions, or Conley standard errors with a cutoff of (4) 50km, (5) 100km, or (6) 200km. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table A.5: Territory Change and Naming Dispersion (Standard Errors)

	Dispersion					
	(1)	(2)	(3)	(4)	(5)	(6)
Treated × Post-1789	0.0338***	0.0338*	0.0338***	0.0338***	0.0338***	0.0338***
	(0.0088)	(0.0170)	(0.0067)	(0.0103)	(0.0055)	(0.0051)
Standard-Errors	city_id	terr_id_1793	region_id	50km	100km	200km
R^2	0.72803	0.72803	0.72803	0.72803	0.72803	0.72803
Observations	9,528	9,528	9,528	9,528	9,528	9,528
Outcome Mean	1.319	1.319	1.319	1.319	1.319	1.319
City FEs	✓	✓	✓	✓	✓	✓
Territory FEs	✓	✓	✓	✓	✓	✓
Decade FEs	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓

Note Table presents results of estimating equation (3), using different standard errors. Observations are at the city-year level. The sample comprises 708 cities and 15 decades. The dependent variable is dispersion $\frac{1}{\gamma_{ijt}}$, with γ the Gini coefficient on names in city i, territory j, and year t. Standard errors are clustered at the level of (1) towns, (2) territories, (3) regions, or Conley standard errors with a cutoff of (4) 50km, (5) 100km, or (6) 200km. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table A.6: Territory Change and Unique Names (Standard Errors)

	Name Count					
	(1)	(2)	(3)	(4)	(5)	(6)
Treated × Post-1789	0.0149***	0.0149***	0.0149***	0.0149***	0.0149***	0.0149***
	(0.0026)	(0.0036)	(0.0032)	(0.0033)	(0.0030)	(1×10^{-5})
Standard-Errors	city_id	terr_id_1793	region_id	50km	100km	200km
R^2	0.78208	0.78208	0.78208	0.78208	0.78208	0.78208
Observations	9,528	9,528	9,528	9,528	9,528	9,528
Outcome Mean	0.0706	0.0706	0.0706	0.0706	0.0706	0.0706
City FEs	✓	✓	✓	✓	✓	✓
Territory FEs	✓	✓	✓	✓	✓	✓
Decade FEs	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓

Note Table presents results of estimating equation (3), using different standard errors. Observations are at the city-year level. The sample comprises 708 cities and 15 decades. The dependent variable is name count u_{ijt}, the share of unique names amongst all names in a city i, territory j, and year t. Standard errors are clustered at the level of (1) towns, (2) territories, (3) regions, or Conley standard errors with a cutoff of (4) 50km, (5) 100km, or (6) 200km. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table A.7: Territory Change and Regionalization (Standard Errors)

	Regionalization					
	(1)	(2)	(3)	(4)	(5)	(6)
Treated × Post-1789	0.0092***	0.0092	0.0092	0.0092*	0.0092*	0.0092***
	(0.0035)	(0.0062)	(0.0067)	(0.0050)	(0.0051)	(0.0030)
Standard-Errors	city_id	terr_id_1793	region_id	50km	100km	200km
R^2	0.74764	0.74764	0.74764	0.74764	0.74764	0.74764
Observations	9,528	9,528	9,528	9,528	9,528	9,528
Outcome Mean	0.1780	0.1780	0.1780	0.1780	0.1780	0.1780
City FEs	✓	✓	✓	✓	✓	✓
Territory FEs	✓	✓	✓	✓	✓	✓
Decade FEs	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓

Note Table presents results of estimating equation (3), using different standard errors. Observations are at the city-year level. The sample comprises 708 cities and 15 decades. The dependent variable is regionalization T^R_{ijt} in city i, territory j, and year t, measured by comparing neighboring towns. Standard errors are clustered at the level of (1) towns, (2) territories, (3) regions, or Conley standard errors with a cutoff of (4) 50km, (5) 100km, or (6) 200km. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table A.8: Territory Change and Naming Practices (Matching)

	Naming Change (1)	Dispersion (2)	Name Count (3)	Regionalization (4)
Treated × Post-1789	0.0103***	0.0354***	0.0166***	0.0070*
	(0.0036)	(0.0099)	(0.0029)	(0.0037)
Observations	8,569	8,569	8,569	8,569
R^2	0.52283	0.72153	0.77441	0.74018
Matched Sample	✓	✓	✓	✓
Outcome Mean	0.0620	1.318	0.0714	0.1768
City FEs	✓	✓	✓	✓
Territory FEs	✓	✓	✓	✓
Decade FEs	✓	✓	✓	✓
Cluster	City	City	City	City

Note Table presents results of estimating equation (3), in a matched sample. Observations are at the city-year level. The sample comprises 573 cities and 15 decades. The dependent variable is (1) the bootstrap-corrected decade-to-decade Theil index T_{ijt} in city i, territory j, and year t, (2) dispersion $\frac{1}{\gamma_{ijt}}$, with γ the Gini coefficient on names in city i, territory j, and year t, (3) name count u_{ijt}, the share of unique names amongst all names in a city i, territory j, and year t, (4) regionalization T^R_{ijt} in city i, territory j, and year t, measured by comparing neighboring towns. The sample is obtained via Probit nearest neighbor matching using agricultural suitability, ruggedness, distance to the coast or navigable river, distance to the border of the Holy Roman Empire; distance to the closest trade route, the existence of fortification, the number of markets; and whether a place was Protestant, all measured in 1789. Standard errors are clustered at the city level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table A.9: Territory Change and Naming Practices (Old Surnames)

	Naming Change (1)	Dispersion (2)	Name Count (3)	Regionalization (4)
Treated × Post-1789	0.0202***	0.0614***	0.0385***	0.0270***
	(0.0048)	(0.0182)	(0.0063)	(0.0088)
Observations	3,432	3,432	3,432	3,432
R^2	0.56747	0.76993	0.78555	0.81589
Outcome Mean	0.0640	1.414	0.1190	0.2287
City FEs	✓	✓	✓	✓
Territory FEs	✓	✓	✓	✓
Decade FEs	✓	✓	✓	✓
Cluster	City	City	City	City

Note Table presents results of estimating equation (3). Observations are at the city-year level. The sample comprises 331 cities and 14 decades. The sample is restricted to all names with a known surname that occurred at least once before 1780 in the respective city. The dependent variables are (1) the bootstrap-corrected decade-to-decade Theil index T_{ijt} in city i, territory j, and year t, (2) dispersion $\frac{1}{\gamma_{ijt}}$, with γ the Gini coefficient on names in city i, territory j, and year t, (3) name count u_{ijt}, the share of unique names amongst all names in a city i, territory j, and year t, (4) regionalization T^R_{ijt} in city i, territory j, and year t, measured by comparing neighboring towns. Standard errors are clustered at the city level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.