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The French Revolution and German Industrialization: The New Institutional Economics Rewrites History

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ABSTRACT

Our purpose here is to challenge the "big-bang" approach to economic history in which some alleged institutional imposition – a deus machine – is claimed to launch a series of new economic behaviors. This so-called prime mover is then carried forward by the inexorable forces of path dependency to change the course of history. The specific creation story under investigation here is the French Revolution and the subsequent Napoleonic conquest of parts of Germany. We show that recent efforts to re-write German economic history using this theoretical model cannot be supported by the abundant and concerted empirical evidence.

JEL: N43, N53, N63, O43

Keywords: Institutional Change, French Revolution, Germany, Prussian Reforms, Agricultural Development, Industrialization.

Πόλεμος πάντων μ ν πατήρ στι, πάντων δ βασιλεύς, κα το ς μ ν θεο ς δειξε το ς δ νθρώπους, το ς μ ν δούλους ποίησε το ς δ λευθέρους.

(War is the father of all things, king of all things. War makes some people like gods and others he reduces to be human beings, some became slaves and others became free people.)

[Heraclitus, c. 535 – c. 475 BCE].

I. Introduction

"X changed the course of history"

The emergence of the idea of path dependence seems to have reduced the study of economic history to a search for the definitive cause of a subsequent efflorescence of the settings and circumstances that now define for us what is considered to be our reality. Few scholars seem comfortable without some causal structure that will explain historical trajectories. Thus, much recent work seems concerned to identify a single momentous event that, with creative econometric accoutrements, will allow the authors to pin down the essential prime mover. Surely there is an event in the past that set in train a series of chained responses that, in the fullness of time, brought about the salient features of the present. The Industrial Revolution can be explained by X, the French Revolution can be explained by Y, and the anti-apartheid turn in South Africa can be explained by Z. Once that uncaused cause has been identified, everything else is mechanical – it was inevitable. It helps if that prime mover can be seen as radical rather than continuous. After all, the slow accretion of a number of small institutional refinements cannot be considered "causal." It also helps if the prime mover is exogenous – an invasion, a pestilential plague that changes the relative value of labor versus land, a religious conversion that redefines the Weltanschauung of a powerful leader. Prime movers gain credibility by being large and external. Prime movers alter the course of history.

Early growth theory adhered to this view of technology. Some new technical innovation would appear and lift a languid economy to some new level of productivity and overall efficiency. Then stasis would reign until another new innovation would lift the economy on to a new trajectory. It was reminiscent of Malthusian "agricultural starts" in which new technical innovation, or some new tool, would suddenly allow for modest increases in food production. Malthus would simply revise his ratios and then push the predicted crisis a bit further off into the future. This simple view of technical change was gradually replaced by endogenous growth theory in which technological "starts" were understood to be embedded in existing technology. Growth became less jumpy and more continuous.

When economists decided that institutions were important to an understanding of economic growth, the temptation to re-capitulate the theory of technical change was irresistible. Aren't institutions merely the social technology of an economy? And so we now see research suggesting that institutions enter an economy – just as with a new technique – as some external contrivance that will shift economic processes on to a more promising growth trajectory. This vision, attributable to the so-called "new" institutional economics, is at serious odds with the classical institutionalism of Richard T. Ely, Thorstein Veblen, and John R. Commons. Alexander Field has summarized the issues well:

> … one can group economists into three categories according to the methodological position they have taken regarding institutional structures. The first, associated with the names of John R. Commons, Richard T. Ely, and most of the founders of the American Economic Association, was that institutions had to be understood on a case-by-case basis, in detail: Historical understanding or immersion in the current laws and customs organizing the process under investigation was essential if meaningful analyses or policy recommendations were to be developed. The second methodological position, associated with the development of the neoclassical synthesis, especially after World War II, essentially granted the institutionalists (advocates of position 1) their point and then read them out of the profession by interpreting the analysis of institutions as beyond the scope of economic inquiry. This was reflected in the eventual classification by many libraries of books by Commons and others under the subject heading of sociology, as opposed to economics. The third position, which has attracted an increasing number of devotees, especially in the last decade, attempts to bridge the gap between the former two by accepting the argument that economists have a responsibility to investigate not only the consequences but also the origins or causes of institutional variation. But advocates of this third position (and here they differ from the pioneers of institutional economics) maintain that variation and change in institutional structures can be explained using the same type of economic models whereby price and quantity vectors are explained. Thus, whereas positions 1 and 2 conflict with regard to the appropriate scope of economic inquiry, positions 1 and 3 are in agreement. But the latter positions differ on the appropriate methodology of institutional analysis and, more basically, on the issue of whether a general theory of institutions is possible [FIELD, 1979, p. 50].

The new institutional economics wishes to make institutions causal in the same way that neo-classical growth theory rendered technology causal. Institutional change enters and nudges an economy on to a superior growth trajectory. The topic under discussion here is the French Revolution and the subsequent imposition of a "French treatment" – an institutional imposition – on parts of Germany. This institutional imposition is alleged to have changed the course of German history.

II. France in Germany

The literature is in general agreement that French military victories early in the 19th century introduced a number of changes in parts of what would, in 1871, become a unified Germany. Despite this agreement, the evidence remains unclear whether these imposed institutional changes turned out to be decisive over the long run in creating fundamental economic transformations. Put another way: were these imposed institutional reforms of such a nature that they alone could have produced new behaviors? Sheilagh Ogilvie reminds us that much work along these lines remains seriously under-theorized [OGILVIE, 2007].

Emblematic of OGILVIE'S concern, recent research by ACEMOGLU et al. [2011] (hereinafter ACJR) seeks to document, using a variety of econometric tests, a so-called "treatment effect" of the French Revolution in Germany. The purpose of the ACJR paper is to affirm the usefulness of empirical work on institutions as key explanatory instruments of economic performance. While the authors exercise commendable caution throughout their work, ACJR are quite sure that they have isolated the principal avenues through which imposed institutions can do good work. According to the authors, their purpose is to:

> … exploit the variation in institutional reform created by the French Revolution in Europe, in particular within Germany, to investigate the consequences of radical, externally imposed reforms on subsequent economic growth. After 1792 French armies occupied and reformed the institutions of many European countries. The set of reforms the French imposed in the territories that they conquered were extensive and radical; they included the imposition of the civil legal code, the abolition of guilds and the remnants of feudalism, the introduction of equality before the law, and the undermining of aristocratic privileges. … Parts of Germany, primarily the west and northwest, were invaded, ruled directly by France or through satellite states, and reformed, while the south and the east were not. We first investigate the reduced-form relationship between our definition of "French treatment," the length of French occupation (in years), and our main proxy for economic prosperity, urbanization rates. There is no evidence of a negative relationship. Instead, many of our estimates show significantly faster growth of urbanization in treated areas during the second half of the nineteenth century. … We show a strong association between institutional reforms and French invasion (or control)…which indicate sizable effects of institutional reforms on subsequent growth. … our results show no evidence that the reforms imposed by the French had negative economic consequences. On the contrary, evidence from a variety of different empirical strategies shows that they had positive effects. [ACEMOGLU et al., 2011, pp. 3286-3287]. (emphasis added).

Notice here the subtle elide from "strong association" to "sizeable effects" – such effects being "positive" in nature. Associations do not have causal properties. And effects can be negative or they can be positive. If the purpose of a particular research undertaking is to show how institutional change leads to economic growth, positive effects trump negative effects. In the present setting, the essential prime mover is this vague thing called the "French Revolution," while the more specific agent is "French military occupation." All of the necessary causal components are now in place. How could growth-inducing institutional change possibly fail to occur? Before turning our attention to the necessary empirical manifestations (specific constituents) of this grand theory of institutional change – 19th century German urbanization rates, and the date (vintage) that the reform was imposed on the occupied German territories – it is necessary to put the matter of these imposed German reforms into their proper historical context. This necessity arises because the most sweeping and the most enlightened economic reforms in Germany occurred in several territories that experienced the least influence from the French.

For instance, we see in Table 1 of ACJR that two control areas for their econometric strategy were never occupied by the French. That is why ACJR consider these areas to be "controls". Curiously, in light of the ACJR findings, it turns out that the most sweeping and imaginative economic reforms in the entire German territory after 1800 occurred within these areas that were never controlled by the French. It would appear that having been "controlled" – or occupied – by the French bears no relation to the nature and extent of institutional reforms that are alleged to have brought about modernization in the German territories of interest here.

This issue is particularly pertinent with respect to the profound institutional changes introduced in Prussia east of the River Elbe after 1807. ACJR dismiss these sweeping Prussian reforms as "defensive modernizations" as if to suggest by this move that the reforms came about to forestall a subsequent "French treatment" further to the east. But notice that if these Prussian institutional reforms were indeed defensive in nature – that is, they were induced by what was being observed in the French territories along the Rhine – then they cannot serve as a "control" in the ACJR econometric model. A plausible control is a subject (or object) that is completely unaffected by the treatment. It seems that these

Prussian reforms are simply a "French treatment" by another name. After all, many of the reforms enacted in the French-occupied territories might also be considered "defensive." They were "defensive" in the sense that they were, perhaps reluctantly, undertaken under present – or imagined future – coercion. In other words, these institutional reforms (the "treatment") were likely imposed by the French and their allies against the wishes of those local interests that historically had been the source of institutional change – or the lack thereof. Suddenly the idea of French "occupation" so central to the ACJR empirical strategy is suspect. Under conditions of military occupation, the idea of willing and volitional institutional change becomes problematic. Perhaps all institutional change in the German territories was "defensive."

This problematic nature of the so-called French treatment and the associated induced defensive reforms must therefore command our early attention. We will subsequently address the two core assumptions underlying the ACJR econometric strategy – that urbanization stands as a plausible proxy for economic growth in 19th century Germany, and that the vintage of the institutional reforms in the occupied territories offers an explanation for subsequent "modernization."

III. Prussia and the "French Treatment"

At the core of the ACJR model of imposed institutional change is the unstated presumption that before the imposition of the French treatment, the level of economic development was similar throughout the German territories. Moreover, it must also be assumed that the rates of change in economic development were nearly identical across the entire sweep of what would become a unified Germany. In other words, we are required to believe that both velocity and acceleration of change in economic processes were spatially uniform. In terms of the ACJR model, rates of urbanization had to be similar throughout Germany, and changes in those rates also had to be similar. Without these assumptions, it would be difficult for the authors to use differential rates of urbanization across those territories – some of which received a strong treatment effect, some of which did not – to show that the Napoleonic invasion of parts of Germany induced important economic transformations. In this section we will show that the "uniformity" hypothesis of ACJR cannot stand up to the empirical evidence.

For pre-industrial societies it is quite standard to assume that population density is a valid measure of regional differences in economic activity – and to use changes in that measure across space as a proxy for changes in the economy. Certain regions will gradually exhibit technological superiority and there will emerge regional specialization in all economic sectors – including agriculture [ASHRAF and GALOR, 2013; GRANTHAM, 1999; BOSERUP, 1965, 1981]. Pre-industrial Germany was no exception to this (Table 1).

Table 1: Rural manufacturing in Prussia around 1800

	1816				growth 1816-1840 p.a.	
	area (km²)	Population	pop. Density	Urbanization	population	urban pop.
East	93,674	2,277,431	24	26.9	1.86	1.16
Center	136,833	5,105,384	37	30.3	1.56	1.59
West	44,635	2,937,178	66	24.6	1.27	1.37
Prussia	275,142	10,319,993	38	27.9	1.55	1.49
	persons employed in manufacturing around 1800				looms	
	towns	rural areas	rural share	%-pop.	Number	%-rural areas
East	64,459	16,259	20.1	3.6	6,033	12.1
Center	98,511	29,923	23.3	8.1	28,617	22.7
West	19,065	30,733	61.7	9.7	10,901	84.9
Prussia	182,035	76,915	29.7	6.0	45,551	36.2

Sources: Own calculation based on figures from MATZERATH (1985, pp. 392-393) and KAUFHOLD (1978, p. 484, p. 504, p. 519).

Notes: The three macro-regions in 1816 are defined as: (a) East (provinces of Prussia and Posen); (b) Center (Brandenburg, Pommerania, Silesia, Saxony); and (c) West (Rhineland and Westfalia). Macro-regions around 1800 are defined as: (a) East (East Prussia and Lithuania, West Prussia and Netze district, Pommerania); (b) Center (Berlin, Kurmark, Neumark, Magdeburg, Halberstadt); and (c) West (Mark, Minden-Ravensberg, Tecklenbur-Lingen, Kleve, East Frisia). Even if all three macro regions experienced substantial territorial changes between 1800 and 1816 the structural characteristics of all three macro-regions did not change fundamentally. Pop. Density = persons per square kilometer, urbanization = share of urban population in per cent (urban population refers to the population of settlements defined as towns by law independent of their size), rural share = share of rural persons employed in manufacturing in the total manufacturing labor force, %-pop = share of all persons employed in manufacturing in total population, %-rural areas = share of looms in rural areas in all looms (manufacturing silk, wool, linen, and cotton). The number of persons employed in manufacturing comprises all persons working in craft shops, employed in proto-industry, in manufactures, and in the few early factories. Mining is excluded.

The region of Germany that offers the very clearest opportunity to assess the ACJR presumption of uniformity across space is that of Prussia. In this regard, there is abundant evidence of a distinct west-to-east gradient of economic development within Prussia before the French-inspired reforms got underway. Indeed, stretching more than 1,200 km on a west-east axis, Prussia around 1800 was the only European Empire to contain territories belonging to the economically diversified "European core" in the west, and the agrarian periphery in the east. In this light, it is difficult to maintain, as ACJR do, that urbanization rates are the decisive indicator of regional economic differences, and that prior to the French revolution the level of economic development was more or less the same throughout Germany. To address this issue, we need to demonstrate that the regional variation in Prussia is not unique.

With Adam Smith against Napoleon

Throughout the 18th century, German merchants and entrepreneurs had been very successful in the highly competitive international markets that we know as the "Atlantic economy." This success was not confined to the leading industrial regions – Saxony and the Northern Rhineland. Throughout Germany the medieval guild system was in full retreat and there was no urban bourgeoisie to challenge the overwhelming political supremacy of the landed aristocracy and the absolutist monarchs.[1] Moreover, the economic and political horizon of most town burghers was limited to local interests and their defense of the outdated guilds and mercantilist privileges exemplified by the state-supported monopolies.

Unlike in France and England, the German enlightenment was impelled forward by a small group of administrative officials with a university degree. The beginnings of German liberalism rested with the so-called Beamtenliberalismus (public officials' liberalism) [VOGEL, 1988]. Germany's commercial classes did not embrace the enlightenment – nor did they support the idea of commercial freedom (Gewerbefreiheit). The so-called enlightened absolutism in most German states was confined to the small but emerging bureaucracy that had established itself as the third center of power – alongside the aristocracy and the king. Indeed the reform period after the French revolution saw the emergence and brief triumph of bureaucratic absolutism in most parts of Germany. This "coup d'etat of the bureaucracy" was the only way to enforce radical liberal economic reforms against the old elites [FEHRENBACH, 2008; NOLTE, 1990; VOGEL, 1980, 1983].[2] Many of these early reformers were outsiders even within the administration [BERDING, 1996]. In this regard, Prussia was superior to all French-controlled Rheinbund states. It was Prussia that fully exploited the new opportunities for fundamental economic reforms – institutional change – created by the French revolution. However, it is a mistake to assume that these reforms were informed by the French statist model. Rather, Prussian reformers took their cue from Adam Smith, not from Napoleon. Not only is Prussia not a legitimate control for the ACJR econometric work, Prussia was a domain of anti-French reforms. In Prussia, economic reforms were clearly more urgent than political reforms. After all, Adam Smith was an economist – Napoleon was a politician.

The Prussian bureaucracy was motivated by three factors: (1) intellectual and conceptual acumen; (2) the shock of total defeat at the hands of Napoleon; and (3) a willingness to separate political reforms from economic reforms. The importance of these conditions inside of the Prussian bureaucracy is often overlooked, and yet they are decisive in understanding the nature of Prussian institutional change throughout the 18th and 19th centuries. Even if the Enlightenment had strongly influenced elites throughout Germany, it was only in Prussia that a young generation of bureaucratic reformers – and a few landed aristocrats – could be found who were deeply influenced by Adam Smith. This was particularly true for Christian Jacob Kraus who succeeded Immanuel Kant in the chair of practical philosophy at the University of Königsberg in East Prussia. Starting in the 1770s,

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1 As Herbert Kisch has written about the most successful late -18th century textile producers in the Northern Rhineland: "for all their commercial acumen and success in the capitalist race, the Wupper valley merchant-manufacturers were men devoid of political power, a kind of stunted bourgeoisie with no hope of sharing directly in the decision-making process of government. In turn, the suppression of public discussion as practiced by the Berg officials (Duchy of Berg) also accounts for the absence of public opinion [KISCH, 1989, pp. 143-144]." Contrary to this in contemporary England "the lively debates among rulers and ruled concerning public issues … have been emphasized by Wesley C. Mitchell as among the important factors responsible for the environment conducive to the emergence of classic political economy [KISCH, 1989, pp. 288-289]."

2 Even if all reformers in the bureaucracy were disgusted by the 'bloody excesses' of the French revolution, they approved this event as the "point of no return" which had opened the door for Germany to develop according to enlightenment principles. They wanted a "good revolution" carried out by reforms and not by mass executions [VOGEL, 1980, p. 15].

the teaching of Kraus, who claimed that the Wealth of Nations was the most important book since the New Testament, was profoundly transformative to a generation of young Prussian public servants. Smith's seed fell on fertile ground – in a backward society only the state could create the necessary institutional preconditions for growth. That is, uniform commercial law, relatively "free markets," and education for all. The eager Prussian bureaucrats were ready to get to work.

This ambitious agenda brought about the emergence of an activist government in an ossified pre-modern society [FORSTMANN, 1995; GARBER, 1979; LANDES, 1980; WEHLER, 1987a]. Indeed, in no other region of Germany, including the French-annexed territories on the west bank of the Rhine, was the reform agenda of 1807-1821 more oriented to the principles of The Wealth of Nations than in Prussia [FEHRENBACH, 2008; HARNISCH, 1996]. Moreover, as true disciples of Kant, this generation of reformers was deeply convinced that society is malleable – "makeable." It must be noted here that the standard enlightened view in Germany was that the radical abolition of the old privileged order (Ständegesellschaft) would automatically unleash the talent and latent potentials of everyone. However, it was only in Prussia that a comprehensive Smithian development strategy adapted to Prussian conditions gained general credence [KOSELLECK, 1962].[3]

In accordance with the German late-enlightenment, Prussian reformers justified their authoritarian approach with the Lehre vom beschränkten Untertanenverstande – the limited ability of their "insufficiently educated" rather simple subjects to understand complex issues. In contrast to the situation in France and England, Germany lacked a broad-based enlightenment spirit and a self-confident middle class ready to challenge the ancien regime in the service of modernization. To Prussian reformers, their obligation was to create conditions in which free and well-educated citizens could gradually develop [KOSELLECK, 1962; VOGEL, 1980, 1983; NIPPERDEY, 1983; NOLTE, 1990; FEHRENBACH, 2008]. Once that had been achieved, institutional change would be self-perpetuating – it would be sustainable.

The obvious question thus becomes – how was it possible for a rather small group of civil servants to exert such a profound influence on the fundamental institutions of Prussia? As above, a major factor was the stunning destruction of the vaunted Prussian military machine by Napoleon's armies, and then the quite unexpected collapse of the Prussian state. In the autumn of 1807 the establishment was confused and perplexed. Their strategy had been to obstruct any fundamental reforms, to "hedge" the French revolution, and to stick with their conviction that any change in the "perfect absolutist system" created by the Great King (Friedrich II) would weaken Prussia.

Despite what Heraclitus long-ago declared, it had not been the norm to create opportunity out of catastrophic defeat. No other German state was threatened to the degree that Prussia was threatened by Napoleon. And, unlike in other regions of Germany, Prussia's ruling classes – both conservatives and reformers – were determined to reestablish Prussia as a major power. As the historian ELISABETH FEHRENBACH wrote, only the Prussian reformers favored a defensive modernization "not with but against Napoleon [2008, p. 109]" (italics in the original). This commitment to confront Napoleon, and to fight him again in the future if necessary, imposed great demands on the Prussia's modernization agenda. And it

3 Later, Hegel as the Prussian Staatsphilosoph (state philosopher), transformed this concept into his philosophy of history. The idea of "world spirit" (Weltgeist), and the interpretation of the Prussian state as its highest incarnation, was not Hegel's alone.

explains the more elaborated and comprehensive "Smithian" economic reform strategy compared to that found in the French "model states" of Berg and Westphalia – as well as in the other Rheinbund states [VOGEL, 1983]. A comparable systematic reform approach was followed in the Kingdom of Bavaria under the reform-oriented Count Montgelas [WEHLER, 1987a]. However, the economic part of the proposed system was defeated there by a dedicated "reaction seigneuriale."

In 1807 Prussia had lost half of its territory and subjects, and it had been reduced to its less developed agrarian lands east of the River Elbe. Though bankrupt, it was forced to pay enormous war reparations and other duties to France. In addition, its secret rearmament and a coming war had to be organized and financed. Eventually, the Prussian king could be convinced that Prussia could not survive without fundamental reforms that would induce his subjects to make full use of their intellectual and economic potential. With a small coterie of Prussian reformers, he agreed that Prussia must substitute intellectual strength for its lost physical strength [FEHRENBACH, 2008].

The trade-off between economic and political reforms

A consensus among German historians supports the "Koselleck thesis" – that Prussia was the leading economic reformer while political (constitutional) reforms had gone further in the French-controlled Rheinbund states. Moreover, Koselleck and other German historians agree that a regionally differentiated "French revolution impact" existed within Germany. Ironically, and of profound importance for the ACJR project, a higher degree of political reform led to less sweeping economic reform. The explanation for this curiosity is that political reforms enhanced the opportunity for democratic participation which thereby empowered well-organized opponents of reform to dilute, if not to stop, possible economic reforms. Notice that this is a very different version of the "French revolution impact" than that advanced by ACJR [KOSELLECK, 1967; VOGEL, 1983; NOLTE, 1990; TILLY, 1996; FEHRENBACH, 2008].[4]

It seems that the constructive connection between liberal political reforms and liberal economic reforms is less robust than is often supposed. This dichotomy had far reaching consequences for German liberalism. Whereas southwest Germany became the home of political liberalism with an abiding skepticism toward the central government – and an affinity for localism – Prussia was dominated by an economic liberalism that was favorably inclined to "big business" [FEHRENBACH, 2008; DIPPER, 1996a; LANGEWIESCHE, 1974]. Indeed, southwest German liberals were economically conservative in their adherence to the "Jeffersonian ideal" of small family farmers and artisans.

Prussia was the first instance of a number of states successfully implementing market-oriented "catch up" reforms under non-democratic conditions. Whereas the vested interests of traditional elites were well organized and completely dominated public discussions, the potential winners of reforms – the lower rural classes – were not organized nor were they accustomed to fighting for their interests. Accordingly, any extension of political participation simply hardened elite reactionary forces seeking to maintain the status quo. Only the small group of reformist bureaucrats adhered to the concept of a market-based rural development. In contrast to the French-controlled Rheinbund states,

4 In view of the large gap in development between the agrarian Prussian core lands and France at the end of the 18th century, some historians now believe that Prussia's economic reforms were more successful than those in revolutionary France [VOGEL, 1980].

the Prussian bureaucracy risked harsh conflicts with the nobility and the town-based establishment to push through agrarian reforms and full liberalization of labor markets. Indeed, after 1815, German conservatives uniformly denounced the Prussian reforms as "Jacobinism" [DIPPER, 1996a].

By 1811, Chancellor Karl August von Hardenberg had come to the realization that advancing political participation would endanger the reforms necessary to modernize Prussia's economy [KOSELLECK, 1967]. Beside the nobility's efforts to skip the agrarian reforms, conservative resistance within the bureaucracy against the "chancellor's dictatorship" increased substantially after the victory over Napoleon in 1815. On the one hand, Napoleon's defeat reinvigorated the conservatives who soon regained their strong position at court. Through all of the setbacks, a small group of reform-minded bureaucratic elite managed to establish quite striking economic liberalization in Prussia within just a few years. Capitalist agrarian reforms, and deregulation of trade and industry, were carried out much faster and more consistently in Prussia than in any of the French-treated German states.

The Prussian reforms: growth based on rural development

The humiliating Peace of Tilsit (July 9, 1807), followed by the Oktoberedikt of October 9, 1807, ushered in a number of economic reforms in all German states. This edict declared the right of free choice of a profession, a fully free land market, and it abolished all forms of peasant bondage (serfdom and inherited subservience – Erbuntertänigkeit).[5] Indeed, the edict marked the end of pre-modern estate-based society and introduced "free" land and labor markets. Details of implementing fundamental institutional reforms were left to other laws which followed. The full freedom of enterprise, which was enacted by several laws between October 1810 and September 1811 (commercial tax edict and commercial police edict) meant the abolition of:

1. All exclusive privileges to carry out a business. This included the complete disempowerment of guilds (Zunftverfassung) and the revocation of countless royal monopolies for certain manufactures, enterprises, and merchants;
2. All requirements to use only certain commercial enterprises (seigniorial lords' mills and inns), or the obligation to buy and sell at particular markets.

A simple trade certificate was now sufficient to start a business [ZIEKOW, 1992]. Interestingly, only in Prussia – very far-removed from France – was there unconditional freedom of enterprise for urban and rural areas [VOGEL, 1983].[6]

The reforms had changed a number of agrarian institutions (Agrarverfassung). The seigniorial system was characterized by shared property in farmsteads and land between lords and peasants (lordly dominium directum or direct ownership and peasant dominium utile or proprietary possession). The dominance of shared property rights defined the essential difference between the seigniorial system and a capitalist system of land tenure based on undivided private property. In only a very few German regions did ownership mean full private property rights for the manorial landlords. Instead, the distribution of

5 Notice that in their Table 1 in ACJR incorrectly identifies 1811 as the year in which serfdom was abolished in all Prussian provinces.

6 After severe peasant riots in September 1811, the smaller of the two French model state – the Grand Duchy of Berg – tried, with Napoleon's approval, to abolish all feudal lord's commercial privileges. However, local authorities and landlords ignored the decree and it was not enforced [FEHRENBACH, 1983].

property rights varied considerably between manorial landlords and peasants. These variations in turn determined rents and labor services that had to be rendered by the peasants to the lords. Furthermore, the feudal rent was not based on the profitability of farming but reflected the regionally differentiated balance of power between landlords and peasants. The feudal rent could include rents in kind, rents in money, or rents in terms of labor obligations. Moreover, the legal status of a parcel of land – demesne or villein land – determined the degree of personal freedom of a peasant, as well as the quality of the peasant's property rights in the land being cultivated. The freedom of a peasant to leave ranged between full freedom and the obligation to remain in the lord's territory (Schollenpflichtigkeit). Two points must be kept in mind when assessing the sharp conflicts surrounding legislation to abolish the seigniorial system:

1. It is not possible to differentiate between obligations pertaining to the "person" of the subservient peasant and obligations pertaining to the land because the personal status of a peasant – which in the worst case was serfdom (Leibeigenschaft) – depended on the legal status of the land she or he cultivated; and
2. Under the seigniorial system, the property rights of dependent German peasants differed substantially between simple tenancy for years without any property rights in the land – or weak ownership rights (lassitisches Recht) – and nearly full peasant property rights. In many cases, this included the right of free hereditary ownership and sale (Erbzinsrecht). Even east of the river Elbe, most dependent peasants had strong ownership rights in their farms at the end of the 18th century.

On September 14, 1811 the first law to enable the acquisition of full rights in small peasant farms, with only limited tenant leaseholds (Laßbesitz), was announced but revoked five years later (1816) to be replaced by the "Declaration of May 29." The redemption law (Ablösungsordnung) of July 7, 1821 regularized the acquisition by peasants with strong ownership rights in their farms. One month earlier, June 7, 1821, a new law induced the swift enclosure of all commons in Prussia (Gemeinheitsteilungsordnung). The revolution of 1848 further enabled small farmers to privatize their weak holdings, and facilitated the redemption of all remaining cases of divided property in land (Redemption and Regulation Law of March 2, 1850) [HARNISCH, 1978, 1984; DIPPER, 1980].

Prussian agrarian reformers considered these institutional innovations, and deregulation of industrial production, as the two essential elements of a comprehensive rural development strategy for the backward heartland (Altpreußen) east of the Elbe [VOGEL, 1983]. The purpose of these institutional reforms was to overcome poverty by diversifying the rural economy in order to enable economic growth. The reformers saw rural manufacturing and economic growth as the key to broad-based development [VOGEL, 1983]. Prussian reformers were the first in history to embrace a multi-sectoral strategy of rural development. Their agrarian "bias" was well suited to rural Prussia where three quarters of the population – land-poor sub-peasants – barely survived in a region devoid of non-agricultural employment [VOGEL, 1983].

The Prussian reforms emerged from the understanding that towns and rural areas in the Prussian east were poor (compared to the West) because the existing mercantilist system restricted rural growth. It was also understood that very low rural incomes meant that Prussia was stuck in an under-consumption trap for manufactured goods from the towns. A poor countryside caused poor towns, and vice versa. Reformers grasped the idea that an expanding domestic market required improved rural incomes and that this would then break the cycle and create positive feedbacks in which both rural and urban growth would become closely linked and mutually re-enforcing. The solution to stagnation for each was mutual growth for both. In the spirit of ADAM SMITH, Prussian reformers rejected the idea that the growth of one sector could only be achieved at the expense of the other [VOGEL, 1983; HARNISCH, 1976, 1978].[7]

It is essential to understand that as early as 1800, full peasants had become a minority in the purely agrarian regions east of the Elbe. Rural industries were completely lacking and so it became apparent that the solution to poverty was to find a way to provide employment opportunities in rural areas to make use of the abundant underemployed rural labor [PETERS, 1970; KOCKA, 1990; DIPPER, 1996b]. These reforms would today be thought of as the first market-oriented "growth with equity" rural development strategy.

It is important to stress, again, that by the end of the 18th century guilds had lost their ability to organize and control industrial production and to prevent the rise of new types of firms – except for traditional artisan shops. In addition, unlike the industrial western provinces, the tax system of the agrarian east Elbian regions – which comprised the Prussian rump state after 1807 – enforced the concentration of industrial production in small towns. Indeed, Berlin was surrounded by a wall – the Akzisemauer – that formed an internal tariff border. The Akzise – a consumption tax and a tariff on nearly all essential goods of the urban population – accounted for one-third of Prussian state revenues at this time.

To bolster the taxing exposure of the urban population, the diffusion of industrial production throughout the rural hinterland was strictly limited. Moreover, this taxing regime allowed for the existence of state-controlled guilds. This peculiar tax system was instrumental in fostering the rise of Prussia as a new European military power despite its meagre resources. The large and expanding rural population – now healthy and growing faster than rural employment opportunities – constituted the main reservoir of military recruits. The urban population, through its consumption of rural manufactures, provided the financial means of an expanding military apparatus. Thus, east Elbian Prussia (except for Silesia) was one of the few regions within Germany in which a strict spatial separation between industrial and agrarian production and consumption was enforced by the state. Rural production, both food and manufactures, provisioned the few large urban areas.

In addition, the government's Fabriksystem upheld license requirements for any industrial enterprise outside of the guild system. Manufacturers who managed to obtain a valuable license often acquired monopoly rights and other preferential treatment. It is no surprise that established industrialists, the beneficiaries of this mercantilist "industrial policy", did not support economic freedom – including free trade [VOGEL, 1983; ROHRSCHEIDT, 1898; SCHMOLLER, 1898; ZIEKOW, 1992]. The economic reforms of 1810-11 not only accelerated the demise of urban guilds, the reforms also upset socio-economic relations within the heartland of the Prussian monarchy:

1. The close nexus between the military/tax system and the distorted division of labor between urban and rural areas was destroyed. Regional specialization came to be determined by market forces;

7 Interestingly, the development mantra of the 1960s held that rural areas could be neglected in order to foster industrial growth in towns and larger urban areas.

2. Mercantilist regulation and governmental control of industrial production was abolished to foster a more competitive domestic market.

The defeat and dismemberment of 1807 meant that economic recovery and subsequent development was a much greater concern for the Prussian leadership than was the case in any other German state. During this same time, the French allied Rheinbund states degenerated into French "military prefectures." After 1810 Napoleon was satisfied when his demands for more troops were punctually met by his German allies. An official enquiry of German Rheinbund states about the further introduction and enforcement of the Code Civil was answered by Napoleon with the statement that the Code did not "fit" Germany; further efforts to adapt existing legislation to the Code Civil in the Rheinbund states came to a halt [FEHRENBACH, 1997, p. 54].

The contrast with a rapidly modernizing Prussia could not be more pronounced. The Prussian model of agrarian reforms and economic freedom represents a profound event in the history of economic development. A comparable strategic approach was absent in all French-controlled territories before or after 1815. The Prussian reforms adapted Adam Smith's general vision to the particular development needs of the most backward areas of Germany. Today we would understand it as the "creative adjustment" of a grand economic theory to a concrete – a situated – economic reality.

We see that Prussian reformers were the first in Germany who clearly understood that the only solution for rural poverty was growth – not redistribution. The powerful Prussian Junkers (large estate owners) would never agree to a redistribution policy that favored the rural poor. Pushing a redistribution agenda would surely lead to civil war. Given this polarized polity, the only feasible approach was to maximize the number of peasants entitled to acquire full property rights in their farms. Moreover, feasible agrarian reforms had to be designed in a way that as many peasants as possible could participate, and this required that the necessary fees in land and money to redeem the landlords' dominium directum were affordable for the common peasant. Liberation was affordable, but it had not been easy. Some east Prussian liberal reformers – primarily Theodor von Schön – were part of the ruling agrarian establishment who favored the English model of agricultural development for Prussia. Agreeing with Arthur Young – who was widely known in Germany – they insisted that maximum agricultural growth could only be realized if reforms were designed such that the more productive large estates would eventually replace the allegedly "less productive" peasant farms. These reformers had little concern for the mass eviction of the peasantry. Indeed, in the years 1808-1810 three different decrees were issued to facilitate the eviction of peasants. Those decrees were quickly reversed and never took effect.

In contrast, the reformer Friedrich Wilhelm Scharnweber argued that the market should decide the evolutionary farm structure. This meant that existing preferences for large estates – subsidized governmental loans and nearly costless indentured labor – should be abolished. Fully liberalized land markets would enable the transfer of land to the most efficient agricultural producers. Scharnweber denied any inevitable (natural) correlation between farm size and productivity. He saw competitive advantages of the peasants in their diligence, flexibility, and motivation to work hard. Scharnweber was convinced of the peasants' entrepreneurial skills to manage efficiently their small properties. A diversified farm structure with a strong peasant middle class would guarantee the highest agrarian incomes which would then generate an economic surplus to buy industrial products. This would be the best way to promote growth of the manufacturing sector. Thus, the design of the agrarian reform would determine the success of the new general economic freedom (Gewerbefreiheit) [HARNISCH, 1976, 1978]. It was clear – depopulated rural areas as a consequence of English-style agrarian reforms would endanger Prussia's position as a major European power. The reformers wanted to avoid creating regions that were exclusively raw material suppliers with poor small towns, and that had been depopulated as a result of peasant mass eviction. This had happened in neighboring Mecklenburg whose English-style agrarian reforms had assured that Mecklenburg would evolve into a German center of outmigration to the United States and Prussia during the first half of the 19th century. Mecklenburg's lack of political influence was not an option for Prussia. We see that economic policy is also population policy.

Directly comparing Prussia and England, Scharnweber wrote in his memorandum on agrarian reforms (January 20, 1816):

> … in Prussia the amalgamation of peasant farms to outlying estates and farms of 400 acres would not lead to English national wealth but to conditions as exist in Mecklenburg were manufacturing industries do not exist, trade is negligible and the existence of the countryside depends only on the exports of raw materials to England, Prussia, and Sweden. … It belongs to the most important advantages of the new system … (the agrarian reforms in 1811) … that for us the danger is eradicated, to take England's agrarian institutions as a model and thus to decay on the level of Mecklenburg [Scharnweber, in: HARNISCH, 1976, p. 259].

The implications were clear. Agrarian reform contributing to the emergence of a sound middle class of family farmers, and the simultaneous creation of employment opportunities in rural manufacturing to absorb surplus rural labor, would be the main drivers of a flourishing domestic market. Even the most pro-peasant reformers understood that the enclosure of all common land was essential to the creation of industrial job opportunities. The real losers of radical enclosures were not the peasants but the rural poor. While the rural poor could use the commons, they were not entitled as shareholders or co-proprietors of the commons to receive compensation in the course of land privatization. According to the enclosure law of 1821, only peasants and landlords were entitled to compensation in land or money. Rising rural and urban incomes and productivity should induce a process of sustained growth. The reformers sought large scale export-oriented industries in rural areas east of the Elbe predicated on the abundance of cheap labor and dispersed energy in the countryside. Additionally, around this time (1810) a small group of young Prussian reformers were active in the Gewerbedepartement – a small government agency devoted to the advancement of the industrial sector. They had grasped the idea of technical change as the main engine of sustained growth. In contrast to the German intellectual mainstream, the Prussian reformers were no Malthusians. Anticipating ESTER BOSERUP [1965], they believed that high population density was an important inducement to increased national wealth.

In his memorandum on "The prosperity of the lower classes" of 1814, Scharnweber wrote that man's intellectual abilities offered unlimited possibilities to enhance the productivity of human labor [VOGEL, 1983, p. 150]. In contrast, 20 years of the so-called "French treatment" had failed to convince the Rhenish bourgeoisie of the importance of full industrialization – a view that persisted well into the 1830s [BOCH, 1991].

It is important to point out that the "reference scenario" (the "development frontier") for the Prussian reformers was the former western parts of Prussia in Rhineland and Westphalia – both of which had comprised the leading manufacturing regions of

Continental Europe around 1800. The reformers had sought to catch up with leading European countries – England, France and the Netherlands [VOGEL, 1983]. Most importantly, they realized that the significant economic advantage of the western regions – the Rhine and Ruhr basins – depended not on a more advanced urban economy, or greater urbanization, but on a much deeper industrial penetration of the rural economy [VOGEL, 1983]. The available data fully support this view. Whereas the degree of urbanization and the economic structure of the towns did not differ substantially within Prussia, the rural economy did. As we see in Table 1, there were substantial structural differences between regions of the Kingdom.

During the late 18th century, and into the early decades of the 19th century, we see in Table 1 quite pronounced regional differences in population density, population growth, and the economic importance of manufacturing in Prussia.[8]

By 1816, population density in the western provinces of Prussia was nearly three times higher than in the east but its share of urban population was slightly lower. Moreover, while around 1800 the west had more than 60% of all manufacturing employment in rural areas, by 1816 this share had dropped to around 20% for the east and central regions. Textiles, the largest manufacturing sector, had a distribution of looms between rural and urban areas in line with this pattern. Thus, a clear-cut urban-rural labor division between agriculture and industry existed in the east Elbian Prussian core, but not in the western industrial regions. In the east, rural population growth clearly outstripped total population growth throughout the period 1816-1840. In the more industrial regions of central and western Germany, urban and rural population growth was roughly similar.

Diversification of the rural economy in the west, as well as in Saxony, had certainly accelerated with the proto-industrial boom during the second half of the 18th century. This process continued during the first phase of early industrialization – around 1800-1830. Until around 1830, this expansion of proto-industrial production – and even early industrialization in a few leading German regions (for example Saxony) – was mostly a rural-based phenomenon. This meant much stronger rural population growth than was experienced in urban areas. Abundant labor, low wages and low energy-costs – made possible by the use of renewable energy from water sources – remain the primary explanation for why early industries, and eventually fully mechanized factories like cotton mills, were spatially diffused into the rural countryside. It was not until 1840-1850 that coal could finally compete with water as the most cost-effective energy source in most leading industrial areas. And with the emergence of this new source of energy that could be shipped by barge and railroad to centralized locations, dispersed rural manufactures began to lose their comparative advantage.

Most important for our purposes here, it was not until the 1840s that heavy industry, powered by this new source of power, began its more recent association with urbanization. Notice, therefore, that urbanization and industrialization came together a quarter century after the defeat of Napoleon at, appropriately enough, Waterloo [KOPSIDIS and PFISTER, 2013; KISCH, 1989]. The important role attributed to this connection by ACJR is therefore of dubious coherence for their model.

8 Analyzing nearly all available data for the entire area of Germany, HELGA SCHULTZ [1981] has shown that around 1800 a significant west-east gradient existed concerning the industrial penetration of rural areas.

IV. The Problematic Vintage Model

We come now to the ACJR empirical strategy of regarding the duration of the imposed French reforms as an indicator of their strength – the longer the reforms had been in place, the greater their alleged effect. We will show that contrary to a large body of empirical work by German historians, ACJR assume that "defensive modernizations", mostly in Prussia, were less effective than the reforms imposed by the French in the areas they controlled (or influenced) [ACEMOGLU et al., 2011]. The authors justify this assertion by noting that the duration of French occupation – the basis of their reform index – was shorter (or entirely absent) in the non-occupied states. According to the authors, their reform index is computed simply "by adding the number of years each particular reform had been in place and dividing by 4 [ACEMOGLU et al., 2011, p. 3293]". The authors divided by 4 because that is the number of reforms they claim the French imposed on Germany. These four reforms were: (1) introduction of a civil code; (2) abolition of serfdom; (3) introduction of agrarian reforms; and (4) abolition of guilds [ACEMOGLU et al., 2011, p. 3292].

The obvious flaw in this approach is that the introduction, the imposition, or the announcement of a new legal arrangement (a reform) is never a reliable indicator of when aggregate behaviors will change in sufficient degree that it can be plausibly measured. Scholars of economic history know well the inertia that accompanies all behaviors in the face of new legal decrees. Habituated behavior is slow to be re-directed. When that introduction is the handiwork of an alien power whose staying power is unknown but reasonably doubted, "normal" levels of behavioral momentum are compounded. The issue worthy of careful thought concerns the inherent slippage in all institutional change. By slippage we mean the inevitable delay between the formal "act" of institutional change (enactment of the reform) and the realization of a constellation of the new behaviors whose intended existence provided the explicit reason for the new institutional arrangement in the first place. We will draw on the situation in Prussia – the best possible place for new behaviors to emerge in the residue of a devastated Prussian empire after 1807. As above, we focus on Prussia because here the reforms were imposed not by some alien foreign invader but by indigenous political and economic notables. If it is difficult to pin down the precise vintage of economic reforms in Prussia, with its well-documented political and economic history, how is it possible for ACJR to be so precise in their assignment of vintage to reforms in "occupied" Germany?

As above, working out the specifics of a new rural development strategy by Prussian reformers was difficult in the face of a variety of suspicious, often hostile, interests. In a region dominated by a landed aristocracy representing the sole political class, success was never assured. Moreover, less powerful though important urban elites tried to scuttle reforms that would deregulate industrial production. In addition, newly established agencies of municipal administration, whose writ was to transform subjects into responsible citizens, immediately became instruments of town burghers to defend the guilds and the mercantilist system of manufacturing production (Fabriksystem). Among these opposing forces, the only group able to offer coordinated opposition to the reforms through its access to the king was the nobility. In contrast, resistance from the burghers was seen as unwarranted infringements into the competences of the administration by selfish and immature subjects unable to see the bigger picture. This constellation of inept opposition made it easier for the reformers to push deregulation of industrial production – and to nearly succeed in complete liberalization of Prussian foreign trade in 1818 [VOGEL, 1983; FEHRENBACH, 2008; HARNISCH, 1996].

The strong position of the nobility, and the gradual weakening of the reformers after 1815, nearly derailed the entire agrarian reform. Only resolute commitment from the small group of reformers around HARDENBERG prevented defeat. Hardenberg never withdrew his political support from Scharnweber during these difficult years as the landed aristocracy spared no effort to defend their interests. When the aristocracy finally realized in 1816 that they could not stop the agrarian reforms, they switched to a massive lobbying campaign to modify the inevitable reforms according to their advantage. The result was a classical compromise which would ultimately affect Germany and the rest of Europe in due time. Despite great concessions to the Junkers, Scharnweber was able to save the essentials of his reforms [HARNISCH, 1976, 1978, 1984; WEHLER, 1987a).[9]

In the end, an "English reform" never took place in the old provinces of Prussia east of the Elbe. Even in the core of large estate farming – the "old provinces" of East Prussia, West Prussia, Posen, Pommerania, Silesia, and Brandenburg – slightly more than half of the farmland (around 7.3 million hectares) remained in peasant hands after the agrarian reforms [HARNISCH, 1984; WEHLER; 1987a]. The number of full-time peasant farms remained more or less stable until the 1860s, whereas the number of part-time farms nearly doubled in most provinces [BERTHOLD, 1978]. Land was abundant in the thinly populated east, while further west land was only very extensively used, and large reserves of land remained available. Considerable areas of land reclamation in the course of the enclosures, combined with the switch to more intensive land-saving farming systems, enabled the east Prussian peasants – whose farms were considerably larger than in the west – to cope with their dispossession from the estates. Indeed, abundant land allowed the creation of many small family farms.

Scharnweber succeeded in rejecting many demands of the nobility. In tenacious struggles during 1811-1816, Scharnweber succeeded in gaining redemption of feudal obligations – except in Silesia – for the majority of peasants who had very weak property rights. He also managed to reduce substantially the number of evicted peasants, and he managed to save 500,000 to 750,000 hectares of peasant land from seizure by the aristocracy. Additionally, in hard negotiations, he reduced substantially the redemption payments of peasants in land and money to their former lords to get full property rights in their farms [HARNISCH, 1976, 1978].

The reformers were helped by the fact that even in the eastern provinces the majority of peasants already possessed strong property rights in their land. For this group Scharnweber was able to implement much better conditions in the redemption legislation of 1821 which protected these farms from the Junkers' grasp. Indeed, it is largely to Scharnweber's and Hardenberg's credit that in the old Prussian provinces peasants survived as a class and were gradually transformed into owner-occupiers. In stark contrast to the "French-treated" south and west of Germany, the Prussian reformers engaged in harsh confrontations with the nobility. Recall from above that Prussian leaders wanted to

9 At least 1 million hectares of peasant land was transferred to the landlords in the course of the reforms, the Junkers received the largest part of the enclosed commons, and they managed to restrict the circle of peasants who were entitled to redeem their feudal obligations [HARNISCH, 1984, 1982]. In this latter regard, the consequences were profound – for more than three decades the Junkers were provided with a large amount of nearly costless peasant labor obligations (Hand- und Spanndienste). In addition, after 1815 governmental support for indebted landlords not only continued but was heavily intensified. As a consequence, the transition to purely capitalist wage-labor based estates was substantially facilitated and the nobility was not forced to sell land to the peasants to finance its debts as advocated by Scharnweber.

close the gap with Western Europe and to regain its position as a great European power. This explains why a small group of reformers was given the latitude to push substantial reforms. And it was this motivation that was lacking in other parts of the German west [VOGEL, 1980; LANDES, 1980; FEHRENBACH, 2008].

As a result of their relatively swift implementation, the agrarian reforms were largely completed in Prussia's old provinces around 1840. However, and apropos our criticism of the ACJR "vintage model," note that it took approximately 30 years from the time that reforms were first proposed in Prussia until they had been completed. Over this period, subservient peasants had gradually been transformed into a solid class of small to large capitalist family farmers. Politically conservative, they gradually developed into a pillar of the Prussian monarchy under the leadership of their former landlords [HARNISCH, 1984, 1996]. Indeed, this process could only emerge as quickly as it did because enlightened reformers enforced a historical compromise between peasants and nobility against the will of the latter. Prussia is the only example in history of a society dominated by big landowners that has successfully carried out an agrarian reform in which peasants on family farms came to control most of the land.

Meanwhile, in most parts of "French treated" western Germany, the implementation of agrarian reforms did not start until years after the first decrees had been enacted in response to the peasant uprisings of 1848 [DIPPER, 1980]. The majority of redemption proceedings to end the seigniorial system west of the Elbe took place during the 1850s and 1860s. It was not until after 1848 that the "Prussian solution" of the early 1800s to transform peasants into pillars of the old political system that feasible agrarian reforms were accomplished in all parts of Germany.

V. The Contested Political Economy of the Code Civil

With the elimination of the constitutional monarchy, revolutionary decrees from August 25-28, 1792 and July 17, 1793 had abolished all feudal duties without compensation, thereby rejecting the differentiation between diverse duties as formulated in the legislation of the summer of 1789 [FEHRENBACH, 1983]. French peasants were legally recognized and became full owners of their farms without being obliged to pay compensation to their former landlords. The Jacobins had made the historically correct argument that within the seigniorial system, it was impossible to defend the traditional differentiation between unjust feudal duties charged against the person, and justified contractual duties charged against the land. This acknowledgment that the seigniorial system violated "natural law" necessarily meant that expropriation of the manorial landlords without compensation was justified. However, the Code Civil introduced in France by Napoleon in 1804 reinstated the moderate but inconsistent legislation of the summer of 1789 which demanded peasant payments to landlords to redeem their ownership rights. The legal grounds for this argument were two-fold: (1) that every rent without time limit was, in principle, redeemable (§ 530); and (2) no proprietor could be forced to relinquish title for the purpose of public benefit without receiving appropriate compensation (§ 545) [FEHRENBACH, 1983, p. 40]. The latter condition persists in the constitution of most nations. In France these paragraphs could be ignored because the seigniorial system and associated feudal rents no longer existed. By 1804 the Code Civil protected the status quo of full peasant property rights in land. French peasants were now fully integrated into bourgeois society.

However, precisely the opposite happened in the French controlled Rheinbund-states where the seigniorial system remained intact when the Code Civil was introduced. In effect, in relatively "backward Germany," paragraphs 530 and 545 represented an escape clause that allowed the aristocracy to reintroduce the seigniorial system through legislation. Under German conditions, the revolutionary Code Civil could be used to redefine seigniorial privileges as acquired private property indistinguishable from ordinary capitalist land rent. Ironically, it was Napoleon himself who pushed the "seigniorial counter revolution" which preserved the seigniorial system in southwest Germany until the revolution of 1848.

There are two reasons why the introduction of the Code Civil into the French-controlled areas east of the Rhine had very little effect – and they explain why Napoleon eventually lost interest in enforcing the Code throughout Germany [FEHRENBACH, 1983, p. 100].

First, Napoleon had become convinced that the long-run security of his imperial rule depended on the viability of a land-owning aristocracy. This would enable him to rely on a durable military and bureaucratic elite populated by the sons of the gentry, and it would provide a supply of land for the elites of the "Grand Empire." Second, the international treaties to dissolve the Holy Roman Empire had guaranteed the continued existence of all "private" seigniorial rights of territorial lords whose petit states had lost their independence (Mediatisierung). The same was true for all territorial lords from French annexed areas on the left bank of the River Rhine who had earlier lost their territories. These lords had been compensated with secularized ecclesiastical territories situated on the right (east) bank of the Rhine. The treaties controlling international borders within Germany after the dissolution of the Holy Roman Empire – the Reichsdeputations-hauptschluß from February 25, 1803, and the Rheinbundakte from July 12, 1806 – were acknowledged by the victorious powers at the Congress of Vienna (1815) and remained in effect until the revolution of 1848 [FEHRENBACH, 1979, 2008].

As above, Napoleon was convinced that the well-endowed dependent nobility would put his Empire on a stable foundation; land would bind the new nobility in unswerving loyalty to the emperor. The new high nobility should be formed around members of the Bonaparte family, while high-ranking military officers and administrative officials would become members of the new official nobility (Dienstadel). In the long run, Napoleon wanted to reverse the distribution of property in France. However, simple expropriation of French peasants was politically unacceptable because this would endanger Napoleon's rule. Instead, new revenues from occupied territories should enable the new nobility to buy land in the heartland of the Empire (France). Hence, the occupied territories and the peasants would bear the high cost of this very conservative pre-modern political consolidation based on the control of land by the nobility [BERDING, 1973; FEHRENBACH, 1983].

With this in mind, Napoleon created the historically novel Domaine extraordinaire. The Domaine was an imperial agency whose enormous revenues – mainly war contributions – could be used by Napoleon without public scrutiny or control to finance his wars and policy initiatives [TULARD, 1980]. Within Germany, many large manorial estates came under the control of this agency. These estates were mainly in the French model state of Westphalia which, at its founding in 1807, was as large as the Kingdom of Prussia after the treaty of Tilsit. Napoleon put a substantial number of these estates under his personal control through the Domaine extraordinaire.

As the largest "feudal lord" in Westphalia (if not in all of Germany), Napoleon distributed a special kind of estates (similar to entailed properties) to the newly appointed aristocrats. The proprietor of such an estate received a guaranteed hereditary income from that estate directly from Napoleon. The source of these "donations" was the manifold feudal duties from the estates under the control of the Domaine extraordinaire. [BERDING, 1973]. As a consequence, in Westphalia and in other French controlled territories, the manorial lords changed during the Napoleonic rule, but the entire system of agrarian relations (Agrarverfassung) remained intact. The implications for the effectiveness of the Code Civil, and for all agrarian reform legislation, were fatal. These regulations precluded abolition of the seigniorial system in the Kingdom of Westphalia. According to BERDING, subsequent conflicts over the state domains and donations provide an explanation for why the Kingdom of Westphalia changed from a carefully reforming state to an exponent of an extremely socially conservative policy [1973].

Ironically, in the French controlled parts of Germany – on the east bank of the River Rhine – there was no adjustment of German institutions to the revolutionary Code Civil. Rather, it was the other way around – the seigniorial system was incorporated into the Code Civil [FEHRENBACH, 1983]. The conservative interpretation of the Code Civil, refined in the French state of Westphalia, was swiftly accepted by the ruling nobility in all Rheinbund states [BERDING, 1973]. In 1815 the newly founded Deutsche Bund (German Confederation), a loose confederation of all German states, acknowledged these seigniorial agreements in article 14 of the German Federal Act. Its Supreme Court protected these seigniorial rights against all attempts by the southern German states to abolish the seigniorial system, and this persisted until the revolution of 1848. Indeed, it required several massive peasant rebellions to end this institutional blockade that had been created by Napoleon [FEHRENBACH, 1983, 2008; DIPPER, 1996a; WEHLER, 1987b].

Perhaps the most important reason why French revolutionary reforms did not have any deep impact on Rhenish agricultural development can be attributed to the fact that even under the old regime the emerging commercialization, the growing market orientation, and the gradual individualization of agriculture had advanced very far – farther perhaps than in any other German region – by the time of the French "treatment". Recall that during the 18th century the seigniorial system had been nearly abolished, or else peasant duties had been transformed into a pure land rent (Rentengrundherrschaft). In most parts of the Rhineland peasants had been granted nearly full property rights in their farms long before the Napoleonic reforms. Moreover, in some Rhenish regions, manorial lords had become "agrarian capitalists" even before the revolution by transforming all of their seigniorial tenancies into short-term leases, thereby enabling them to push up leases rates as much as five-fold.

We wish to point out that these changes do not support the image of pre-capitalist institutional rigidity of pre-revolutionary German agriculture in the Rhineland. Indeed, they suggest quite the opposite. The seigniorial system had been undergoing gradual disintegration for a rather long time [WEIDMANN, 1968; SCHULTHEIS-FRIEBE, 1969; DIPPER, 1980; MAHLERWEIN, 2001; GRÜNE, 2011; KONERSMANN, 2001, 2002, 2004, 2006; KOPSIDIS and LORENZEN-SCHMIDT, 2013]. To emphasize the general point, the Archbishop of Mainz had abolished the last remnants of serfdom in 1787 – two years before the French revolution [FEHRENBACH, 2008; BLANNING, 1974]. Commenting on peasant emancipation in the Rhineland, the British historian T. C. W. Blanning writes that:

> The notion of peasant emancipation however, is blurred at either end of the chronological scale. At the early end, so much had been done under the old regime by way of rationalization and commutation that the French initiative merged into a continuum of change. At the other end, the total effect was spoiled by subsequent attempts to reverse some of the benefits. During the Consulate and Empire many landowners set about redefining feudal dues as redeemable rentes fonciéres. As the French courts gave them the necessary official support, the regime was even more unpopular with the peasants in 1813 than it had been in 1798 [BLANNING, 1983, p. 137].

It seems clear that Napoleon's policy not only prevented the abolition of the seigniorial system in the French-controlled model states and the other Rheinbund states comprising most of Germany west of the river Elbe and east of the river Rhine prior to 1815. This Napoleonic deterrent persisted until the revolution of 1848 in most of south- and southwest Germany. In addition, no institutional change deserving the label "revolutionary" can be found in the Rhenish territories annexed directly by France. As we have shown, outside of the Prussian core east of the River Elbe, it was not until 1848 that there were any revolutionary institutional changes – or radical agrarian reforms – in Germany.

VI. Getting the Story Right

Since the end of the 19th century, a dominant theme in German historiography has been the putative effects of the Napoleonic period. Writers in the "younger historical school" – Max Weber, Werner Sombart, Georg Friedrich Knapp – as well as Prussian-German "state historians" such as Heinrich von Treitschke and Leopold von Ranke, strove to solidify the view of older German historiography that the Prussian reforms represented a decisive watershed between medieval stagnation and modern capitalist economic growth [FEHRENBACH, 2008; KISCH, 1989; WEHLER, 1987a; BOSERUP, 1963; SOMBART, 1903, 1919; WEBER, 1906; KNAPP, 1887]. In this telling, the Prussian reforms – "revolution from above" – abolished the severe institutional obstacles of the ancien régime thereby enabling a market economy, unleashing economic growth, and bringing modernization. This account, much like that of ACJR, was an appeal to the salutary effects of a "big-bang" theory of institutional change and economic progress. Interestingly, there is no empirical support for this narrative.

A revisionist narrative, one that was critical of the idea of Prussian supremacy in Germany, has emerged in post-war German historiography. This view recognizes profound political reforms in the French-influenced Rheinbund-states in West and South Germany. However, there is now an emerging consensus that long-term development processes accompanied by – but not necessarily causal of – gradual economic change played a much greater role than previously supposed to explain German growth dynamics over the period 1750-1830 [FEHRENBACH, 2008; WEHLER, 1987a, 1987b]. This new consensus argues that the transition to a market economy – and modern capitalism – was an on-going process that started long before 1789. While the Napoleonic period is certainly part of that account, the events therein do not represent any species of a starting point. Institutional change is only understandable if it is modeled as an integral part of a long stream of events. Institutional change is not something apart from the ongoing becoming of an economy [BROMLEY, 1989, 2006; FEHRENBACH, 2008; WEHLER, 1987a].

We see this in the fact that the quite radical French reforms in the annexed territories on the left bank of the Rhine gained meaningful traction only in the most "advanced"

Northern regions – those that were already quite close to what might be called a full-fledged capitalist market economy [KISCH, 1989]. On the contrary, the relatively backward Rhenish regions failed to gain any momentum from the French treatment, and in fact slipped into a long and complete stagnation over the period 1820-1860. Meanwhile, over this same period, distant Saxony's highly developed economy continued toward early industrialization at a pace similar to that in the "treated" Northern Rhineland without the alleged impetus of "radical reforms." As we will see below, Saxony represents an exemplar of gradualism in institutional change beginning around 1770 and running into the 1860s.

Institutional change in Germany c.1750-1850 reconsidered

The abiding question for economic historians becomes – why is institutional change only considered decisive when it is disruptive?

Despite their differences, both old and new German (and international) historiography are in agreement that if there were any measurable effects from the Napoleonic period, those effects occurred immediately after 1815, and most certainly not five decades later – as claimed by ACJR. Moreover, those effects, if economically meaningful, were experienced over the entire German territory and not, as claimed by ACJR, in some variegated pattern.

For instance, in discussing the immediate shock of the reforms c. 1805-1820 on German real wages, Pfister et al. write:

> … the sustained character of the increase of labor demand occurring from c. 1820 suggests, … a positive effect of institutional change. Reforms affecting the commercial sector seem to have been more important than those relating to agriculture. … Thus, the increase of labor demand clearly ante-dates not only industrialization but also institutional change in agriculture. The strong decline of inter-urban grain price disparities points to a decisive advance of market integration during the early years after the Napoleonic Wars. Tariff and monetary reforms in the larger German states, a liberalization of commercial law that lowered access barriers to business and state programs of road construction can be invoked as contributing factors [BORCHARD, 1968, pp. 260-278; OTTO, 2002, pp. 28-99]. In contrast to the late seventeenth and early eighteenth centuries the dynamic of market integration now went beyond mitigating the fall of the marginal product of labor and led to a sustained productivity increase [PFISTER et al., 2012, p. 22].

How are we to explain that a drastic reduction of tariff barriers within Germany prior to 1820 had a deep impact on manufacturing while leaving agriculture unscathed? It turns out that pronounced increases in agricultural productivity in the 19th century can be attributed to strong local (and regional) demand for livestock products. There was no similar demand change for local manufactures over this period and hence there was no demand for improved export prospects for agriculture [KOPSIDIS and WOLF, 2012]. Transport costs for most finished industrial products were lower than for bulky and low-value-per-weight agricultural products, and therefore a reduction of trade barriers benefitted export-oriented textile manufacturing more than farming.

Beginning around 1815 and running into the 1830s there were a number of trade liberalization reforms throughout Germany [BERDING, 1980; TILLY, 1990]. Among these reforms was the Prussian initiative to establish a Central European custom union. This culminated in the Deutsche Zollverein in 1834. While the magnitude of the effect of this institutional innovation remains under discussion, the Zollverein appears to have had an important impact on German growth and industrialization. The process of political and economic integration seems to have motivated increased investments in transport –

initially focusing on paved roads, and later on railways [FREMDLING, 1985; TILLY, 1990]. However, given the complexities of railway construction, the industrial "take-off" after 1840 seems difficult to attribute to a regionally differentiated "French impact."

There is general agreement among historians that the Napoleonic period promoted the emergence of relatively free factor markets and this aided a gradually industrializing economy [KOCKA, 1990b]. However, it is also true that in pre-reform Germany a gradual increase in the demand for labor – in manufacturing, mining, and agriculture – had induced a range of institutional innovations to bring about more flexible labor markets. These changes had occurred over a very long period of time – up to 6 centuries in specific regions.

Economically meaningful institutional change is the slow accretion of ideas and possibilities. The 18th century saw novel emerging patterns of interaction among simple merchants, artisans, peasants, day laborers, landlords, and government authorities. At the time, none of it looked like "institutional change." It was merely dealing with the surprising vicissitudes of daily life – and making small adjustments as the process moved forward. That is what institutional change consists in – that is what institutional change is. Veblen reminds us of the continuity of institutional change:

> The economic life history of the individual is a cumulative process of adaptation of means to ends that cumulatively change as the process goes on, both the agent and his environment being at any point the outcome of the past process. His methods of life to-day are enforced upon him by his habits of life carried over from yesterday and by the circumstances left as the mechanical residue of the life of yesterday [VEBLEN, 1990 (first 1898), pp. 74-75].

Gradualism is the plausible story of how a market economy and capitalism took root in German society. The persistent fixation on government action – the durable and urgent quest for an agent provocateur as prime mover – in much of contemporary historiography is, ironically, ahistorical. Such a program turns history away from the quotidian task of getting and spending and converts it, instead, to a form of civic treasure hunt. In his prodigious work on the development of capitalism and early industrialization in the Rhineland, Herbert Kisch writes:

> … the focus of this study has been on buoyancy, dynamism, and overall economic success. To be sure the evolution of the textile trades in the Rhenish districts was not unilinear. … Nevertheless, in general this has been a chronicle of long-run progress, of secular advance dating from the initial stirrings of primitive accumulation to that stage reached by the late eighteenth century, when sophisticated capitalist arrangements and sustained proto-industrial growth became the order of the day. … By the close of the eighteenth century, the story to be told is one of rapid urbanization and sizeable accumulations of commercial wealth in the wake of impressive successes registered by the Rhenish textile wares throughout world markets. … the older generation of historians, as a whole, did not glimpse the historical significance of the expanding domestic manufacture as the pioneer of capitalist advance, nor did they feel the need to integrate this particular form of industry activity into their respective accounts of German development.
>
> From the standpoint of this investigation, this omission must be regarded as a basic flaw in historical perspective. It is a blind spot. Because of this lacuna, the manner in which rural trades were originally implanted into an unencumbered countryside – by entrepreneurial elements turning their backs on the restrictive atmosphere of a medieval city – has not been given its proper due. … To put it bluntly, this "Teutonic" version of capitalist development ignores what classical economists call the preparatory stage and what Marxists refer to as the process of primitive accumulation [KISCH, 1989, pp. 214-215].

Kisch is clear in his opposition to history that fetishizes governmental action, and what he calls the "Prussian viewpoint" to explain the process of German industrialization. Moreover, he insists that only this early gradual commercialization of the Northern-Rhenish economy – and its high degree of development on the eve of the French revolution – can explain why the "radical French reforms" had a significant impact on economic development. Kisch is not alone. Some historians go further by arguing that the French revolution had no impact on the development of the Rhineland – which was already among the leading economic regions of Continental Europe by 1789 [BARKHAUSEN, 1954, 1958; KUSKE, 1922; SCHULTE, 1959]. Kisch presses his point:

> This study tends to side with those who regard the legislation of the French era as a milestone from which the Rhineland economy was to benefit for many decades to come. Nevertheless, those who oppose this view seem to have a point insofar as they emphasize that the achievements of French reforming zeal were feasible only because of the already advanced state of Rhineland society. Contact, these historians maintain, between a backward society and French revolutionary legislation would have only led to chaos. Indeed, given the low degree of the arts prevailing at the end of the eighteenth century and the consequently limited possibilities for social planning, the radical transformation of feudal backward regions into progressive societies was not yet within the realm of possibilities [KISCH, 1989, pp. 192-193].

This latter point warrants emphasis.

> … the formulation of a "workable solution" to the emergent problematic situation is inseparable from these customary practices to which all individuals have become accustomed. That is, the habituated mind comes to see current practices, current choices, and current actions as normal, right, and correct. Commons called this the "instituted personality." And this brings us to the idea that the purposes and expectations toward which problem-solving thought will be directed are instances of what Commons called institutional causation. In different words, prevailing institutions are the plausible cause of the emergent problem, and therefore new institutions will become the plausible cause of the solution to those emergent problems [BROMLEY, 2006, p. 49].

The practical implication here is that individuals embedded in an economy cannot possibly imagine how to function if confronted with a discontinuous and quite alien set of rules and protocols telling them how – right now – they must behave differently than they have heretofore. The setting of a new course of action – a new telos – is more difficult than many historians, with the advantage of looking backward, suppose it to be. The adoption of a new purpose of action, and the alleged means to achieve that new purpose, are instances of profound cognitive discontinuity. It is a process that must be accompanied by stark reason giving. And, as Richard Bernstein insists, "All reason functions within traditions [BERNSTEIN, 1983, p. 130]". The sociologist Hans Joas reminds us that:

> … it becomes impossible to hold the position that the setting of an end is an act of consciousness per se that occurs outside of contexts of action. Rather, the setting of an end can only be the result of reflection on resistances met by conduct that is oriented in a number of different ways. Should it prove impossible to follow simultaneously all the various guiding impulses or compulsions to action, a selection of a dominant motive can take place which then, as an end, dominates the other motives or allows them to become effective only in a subordinate manner … action is teleological only in a diffuse fashion. Even our perception is shaped by our capacities and the possibilities for action [JOAS, 1993, p. 21].

It seems that the habituated mind, intent on a familiar purpose, is not easily dislodged. In the present setting, even if the French reforms were a boon for the Rhineland economy, where the ground had been well prepared to receive new seed, the question remains whether or not that was the general case for other advanced German regions. As above, insulated and vibrant Saxony, untouched by radical institutional change, evinced the same dynamic early industrialization, and the emergence of a self-conscious bourgeoisie, as that in Northern Rhineland during the first half of the 19th century.

Prussia's edict of October, 1807, curiously unnoticed by ACJR, implemented equality before the law and simultaneously abolished the juridical foundation of the ancien regime's corporate society. Similar legislation had also been enacted in other German states [WEHLER, 1987a]. Indeed the necessary legal framework for a market economy had been created during the first decades of the 19th century in most of Germany. Labor markets throughout Germany were surprisingly flexible as early as the end of the 18th century [PETERS, 1970; KOCKA, 1990; DIPPER, 1996b; KOPSIDIS, 2006]. The sub-peasant strata grew in prominence and encouraged the emergence of highly sophisticated, commercialized, and fully flexible interlocked factor markets on a regional level. These peculiar markets met the growing labor demand for the expanding rural textile market for coarse cloth for the American slave population, as well as luxury red textiles for Ottoman ladies of the harem. These pre-reform rural factor markets were able to adjust to global export markets as well as to fragmented local food markets. All the while remaining embedded in the allegedly suffocating milieu of the German manorial economy. In fact, the manorial system was much more flexible in its adjustments to emerging market opportunities than previously assumed. This was especially true for the early urbanizing regions of Northern Rhineland and Saxony. But it also held true in most of Germany west of the river Elbe – as well as for large segments of east Elbia. In fact, during the High Middle Ages, labor demand in commercial opportunities in the vibrant towns of Northern Rhineland induced far-reaching liberalization of the manorial system, and encouraged the commercialization of various tenancy systems [KOPSIDIS and LORENZEN-SCHMIDT, 2013; ROBISHEAUX, 1998; HAUN, 1892; LÜTGE, 1957; HENN, 1973; REINICKE, 1989].[10] Somewhat later, liberal manorial systems, and their associated labor markets in most of Germany, became very permissive of the gradual ruralization of export-oriented industrial production.

These relatively free labor markets worked to put pressure on towns to liberalize their restrictive guild systems. Indeed, towns or industrial regions with inflexible labor markets and powerful guilds supported by conservative territorial lords experienced economic stagnation. The purposeful reallocation of industrial production into rural areas to reduce costs weakened the influence of guilds. In core regions of rural proto-industrialization, an industrial labor force embedded in flexible labor markets had arisen early in the 18th century. These factors would then produce a skilled low-cost workforce for the emerging rural textile industry [KISCH, 1989]. Indeed, the pressing problem during the last decades of the pre-reform era was not a lack of labor but rather the need for sufficient employment opportunities for an expanding land-poor rural population.

It is therefore surprising that ACJR can assert that: "in the Rhineland, … an attenuated form of serfdom (Grundherrschaft), which severely restricted freedom of movement, was still practiced [BLANNING, 2011, p. 3288]." This claim misrepresents what Blanning wrote. It also exemplifies a relapse to late 19th century "black and white" historiography concerning the effects of liberal reforms. Actual Rhenish labor markets around 1790 were very different from this simplistic view. Moreover, industrializing post-reform Germany was a labor-

10 Saxony's manorial system was extraordinarily liberal from the very beginning (LÜTGE, 1957; KOETZSCHKE, 1953).

surplus economy and the urgent problem was not to mobilize sufficient labor for industry, but rather to find sufficient employment for a strongly growing (rural) population [TILLY, 1990]. The existence of an "industrial reserve army" was definitely not the result of capitalist-liberal reforms.

It remains highly doubtful whether the alleged French reforms had any impact on labor markets in the leading early industrializing German economic regions. As above, the situation was different in backward East Elbia. However, deregulation of labor markets there did not foster industrialization but local rural development. In other words, the radical deregulation of factor markets around 1810 seemed to have its biggest economic impact in the most backward regions – with very little influence on industrialization.

It was not until after the revolution of 1848 that we find evidence of fundamental institutional reforms to abolish obstacles to the expansion of a market-based industrial economy. This is especially true for capital markets and public finances. Keeping in mind that in early 19th century Germany labor was quite abundant – but that industrial capital was exceedingly scarce – further marginalizes the significance of early liberal reforms [TILLY, 1966a, 1966b, 1980, 1990]. Additionally, it must be kept in mind that between 1815 and 1914, virtually all important commercial institutional change – deregulation of capital markets and mining, the introduction of central banks, modern business laws, and trade liberalization – brought about institutional convergence (in today's European Community it would be called "harmonization") throughout Germany. In light of this fact, it is difficult to imagine how regionally differentiated reforms at the beginning of the 19th century could set in motion divergent regional development after 1850.

The ACJR empirical strategy posits a regionally differing intensity of French reforms that then produced significant variations in implementation and subsequent behavioral modification. But of course by relying on but a single indicator of industrialization – varying degrees of urbanization – the authors are required to suppose that regional differences in economic development within Germany did not vary before 1789. However, industrial development throughout the 19th century was grounded on quite distinct – and regionally differentiated – pre-industrial export sectors whose origins run back to the 14th century [VON STROMER, 1986; KAUFHOLD, 1986; OGILVIE, 1996]. The relationship between institutional change and the growth of these regional export industries in the pre-reform era is still a subject of much debate among historians. Some scholars emphasize the effects of early modern proto-industrialization as an instance of "industrialization before industrialization" [KRIEDTE, MEDICK and SCHLUMBOHM, 1977]. Others explain the relative backwardness of proto-industrial textile production compared to the Spanish Netherlands, East France and Switzerland by institutional obstacles created by the continued existence of the guild system and early modern states that provided monopoly-like privileges to merchant guilds and craft guilds to raise state revenues [OGILVIE, 1996]. Some scholars evaluate the possibility to circumvent these inefficient institutions as being rather optimistic [PFISTER, 2008], but stress the negative impact of Germany's extreme political fragmentation on transport and transaction costs in trade as a severe institutional defect which could not be bypassed.

Saxony and the Northern Rhineland are two regions where proto-industrialization rather quickly evolved into industrialization as we think of it today. However, in Germany as elsewhere in Europe, only a few of these successful proto-industrial regions were able to become part of a modern industrial belt by the close of the 19th century.

It remains one of the flaws of "big-bang" history that researchers find themselves in need of a "big" impediment that once defeated, will allow the flourishing of modernity. Traditionally this role of primary impediment has been assumed by the guilds. They were "powerful" weren't they? Here is the institutional logjam awaiting destruction. This aspect is evident in the ACJR telling of German history. As evidence, we are told of powerful reactionary urban oligarchs capable of – indeed intent upon – stifling technical change and the emergence of vibrant labor markets [ACJR 2011, p. 3288]. The demon has been located. To the great benefit of coherent historical research, this standard narrative is no longer tenable.

> To have overlooked on empirical grounds the protoindustries because they were not as yet the representative mode of production involved these economists and historians in underestimating the German economy throughout most of the eighteenth century and throughout the post-1815 era. A cursory glance at various German economic history texts published in the pre-1914 era and during the 1920s confirms Kan's view that the few German scholars who confronted the issue of the nineteenth century focused much too exclusively on the state of the once great medieval cities by then in decline (Nuremberg, Augsburg, Cologne). Consequently, these historians overemphasized the predominance of craft production and guild activity during the post-Napoleonic period. If they had had a conception of economic evolution, they would have instinctively structured their respective accounts in such a manner as to accord pride of place to the Rhenish and Saxon manufacturing districts and to those commercial centers (notably the major sea ports) where, as a sign of things to come, the New Age was already triumphant. In so doing, they would have been able to assess, much more judiciously than they actually did, the extent to which by 1800, let alone by the 1820s and 1830s, capitalism had penetrated important segments of the German economy" [KISCH, 1989, p. 216].

While urban elites in the old medieval trade centers could block certain reforms, such localized drags on progress were unable to thwart capitalist development throughout Germany. After all, there had always been competition among cities, states, and regions and these struggles for primacy would – and did – overcome the obvious self-interested obstructionism of a few local worthies. As Kisch puts the matter, "capitalism comes to town" [KISCH, 1989, p. 177] and this "coming" necessarily weakened the guilds. In other words, the "French effect" on guilds in the Rhineland merely accelerated the on-going modernization process. A careful reading of German history can do no more than credit the imposed reforms as the final "nudge" on a guild system that was on its last wobbly legs.

Institutional change and early industrialization in Saxony and the Northern Rhineland

Saxony and Northern Rhineland, the two centers of early industrialization, had both experienced similar and quite dynamic development and commercialization since the high medieval period, and yet they received a very different French treatment at the beginning of the 19th century. Comparing their very similar development trajectories is not favorable to a hypothesis concerning some claimed impact of "radical reforms" early in the 19th century. Indeed, any alleged agrarian reforms in Saxony failed to appear until the 19th century was practically 1/3 over, and the claimed "freedom of enterprise" did not appear until 1861 after which full industrialization had been completed. There simply is no evidence that the dynamics of Saxon economic growth were somehow defective because of the persistence of claimed institutional barriers to modernity.

Both early and more recent German historiography are in agreement that a gradual erosion of the role of guilds, combined with a flexible application of the concessions system, were successful in loosening the strictures of urban elites. The 1861 declaration of "freedom of enterprise" was a mere symbolic act that brought the legal landscape into conformity with economic reality [HORSTER, 1908; KIESEWETTER, 2007, pp. 141-162; KOCKA, 1990b, p. 32; KAUFHOLD, 1982; HENNING, 1978]. This, by the way, is often how "institutional change" works – tradition and custom become codified into a legal form that allows them to be noticed by historians. It can be too easy in historical research to confuse cause with effect. This danger is compounded when working from a platform of "big-bang" models.

By the late 18th century the empirical evidence suggests that there was considerable scope for the selective crafting of local practices and behaviors to accommodate exigencies as they arose. Legislating was confined to ex post codification. We are surprised that this should be surprising. Commons and the classical institutionalists repeatedly showed us how "custom evolves into contract" – how practices that emerge from the creativity of those engaged in an economic activity gradually evolve into legislation to codify – and yes to protect – those emerging norms. The Saxon state was not knowingly "laissez faire" in its economic policy. That loaded term has never been usefully applied to any economic process. The Saxon state – as with all economies – was an "experimental state" in which new problems were assessed as they made themselves manifest, and solutions were "worked out." Those whose task it was to help guide the process forward were never sure what they "wanted" until they were able to figure out what they might be able "to have [BROMLEY, 2006]". Economic policy is an act of "practical necessity" [VON WRIGHT, 1983]. Private action created the need and opportunity for adaptive behavior, and public policy – animated by emerging problems – created opportunities for private action [QUATAERT, 1995].

Not wishing to perturb private initiative, Saxon authorities were reluctant to create public manufactures or factories [FORBERGER, 1958, 1982]. Rather, public attention was focused on what we would call collective-consumption goods and services – schooling and various forms of economic infrastructure. This economic pragmatism was seen as the ideal policy stance that would not interfere with Saxony's robust export sector. In fact, at the end of the 18th century, Saxony's cotton sector was threatened by British competition as its leaders sought protection in the form of high tariffs. Their pleas were rejected on the grounds of the importance of maintaining open markets [KÖNIG, 1899]. Saxony shared with the Northern Rhineland a history of early industrial capitalism in the period between 1800 and 1860.[11] In addition, Saxony's early commercial penetration was responsible for its quite early structural transformation from an agrarian to an industrial economy – a change that had been largely completed by the agrarian reforms of 1830-1832. By 1849 the share of farm labor in Saxony had fallen to 37.4% compared to 56% for all of Germany. Industry was by then Saxony's largest sector. This structural transformation was, by 1861, still ahead of

11 The first industrialists in the Northern Rhineland who established cotton mills in the 1780s were existing merchants and entrepreneurs. The skilled labor force enabled the emergence of the first textile factories in 1784 – five years before the French Revolution in Ratingen close to Düsseldorf [ADELMANN, 1966, 1986, 2001]. Textile production, tool making, engineering, and dying started to form a vibrant industrial economy in the late 18th century transformed successfully into the backbone of Saxony's early industrialization [FORBERGER, 1958, 1982; TIPTON, 1976; KELLER, 2002; KARLSCH, 2006; KIESEWETTER, 2007; BEIN, 1884; MEERWEIN, 1914].

the highly developed Rhine-Ruhr area (Table 2). Saxony's structural transition ran for a period of two hundred years and it accelerated in the second half of the 18th century. That process was not affected by any bursts of radical (revolutionary) institutional change from France of elsewhere [KOPSIDIS and PFISTER, 2013].

Table 2: Saxon and German occupational structure in 1849 and 1861

	Saxony 1849		Germany	Saxony 1861		Rhine/Ruhr[4]	Germany
	in total	(%)	(%)	in total	(%)	1861	(%)
Population	1,894,000	--	--	2,225,000	--	2,846,000	--
Employment	875,000	100.0	--	1,068,000	100.0	1,212,000	--
Agriculture	327,000	37.4	56.0	307,000	28.8	38.0	51.7
Industry[1]	399,000	45.6	24.5	546,000	51.2	42.6	28.8
- Manufacturing[2]	337,000	38.5	--	458,000	42.9	31.2	--
- textiles & clothing	254,600	29.1	--	333,200	31.2	16.1	--
Service[3]	149,000	17.0	19.4	215,000	20.1	19.4	19.6

Source: TIPTON (1976, p. 37, p. 185, pp. 191-193).

Notes: 1) Mining, smelting, manufacturing, construction and transportation.
2) Metals, clay, glass, woods, textiles, clothing, food, drink, other.
3) Trade & hotels, domestic service, professional, government, military.
4) The Rhine-Ruhr area comprises the Ruhr area and the industrial districts of the Northern Rhineland (Regierungsbezirke [administrative districts] Arnsberg, Düsseldorf, Cologne, Aachen).

Until 1839, Saxony's industrialization was mainly rurally based. The share of non-agricultural rural population continued to increase significantly through the 1870s – from 20.5% (1750) to 30% (1810), and then to 43.6% around 1870 [KOPSIDIS and PFISTER, 2013, p. 5]. The share of urban population not only stagnated but slightly declined between 1750 and 1810, and it would not increase until after 1830. There are several reasons why Saxony's industrialization was predominately a rural affair. First, abundant water power from the many streams comprised the dominant source of energy for manufacturing until the 1850s. Until this time coal was too expensive and so the construction of a few large factories dependent on steam power was not profitable. Second, Saxony's consumer-oriented industries were based on a high degree of labor-intensive processes. This combination of relatively low wages, a skilled labor force, highly innovative craftsmen, and experienced merchants organizing the entire supply chain was essential in finding and maintaining international markets.

With the introduction of machine-spun cotton yarn in the 1790s, Saxony's export-oriented textile sector managed to withstand tough British competition. Until the 1850s, organizational changes within traditional (proto)-industries seemed to be more important for the survival of Saxon textile production than factory-based technological change [KARLSCH and SCHÄFER, 2006]. Productivity-enhancing technical innovations of British industry, such as mechanical spinning and power looms, were adopted only to the extent that they fit into relative factor scarcities and prices prevailing in Saxony. Important here was the ability of Saxony industrialists to draw on a labor force willing to work at low wages [KOPSIDIS and PFISTER, 2013]. Often (rural) guilds were part of the story and they developed in very different ways. Some developed into pure workers' trade unions, while others became highly vertically integrated big firms. Radical institutional change from above – or from "outside" – played absolutely no role in Saxony's economic success during this period. A great deal of operational flexibility characterized corporate transactions, as well as the economic behavior of small proto-industrial producers. They developed their own idiosyncratic survival strategies [QUATAERT, 1995]. In summarizing that success, Quataert has observed: "On one level, the final outcome of separate yet often interconnected strategies of state officials, businessmen, and small producers achieved the ultimate objective of the initiators: mass migration and deindustrialization did not occur. This outcome was not without costs … [QUATAERT , 1995, p. 173]".

The early successful industrialization in Saxony and the Northern Rhineland is explained by a number of indigenous institutional adjustments and no role in those transformations can be claimed for ACJR's reform index. Importantly, there is no explanatory role for the declaration of free enterprise, or for the introduction of liberal civil codes. If we must have an external event that seems dispositive then we must point to the Continental blockade imposed by Napoleon between 1806 and 1814 which effectively banned British imports from the Continent. After 1790, dramatic technical change in British textiles was devastating to Saxon's textile industry. From this point forward, the competitiveness of Saxony's textile sector was undermined and it deteriorated rapidly. The same was true throughout Germany [KÖNIG, 1899; MOTTEK, 1964]. The cotton industry could not have developed without the prohibitive French protectionism manifested in the Continental blockade [CROUZET, 1964].

Between 1806 and 1812 the number of mule spindles soared in Saxony from 13,200 to 255,904 [MOTTEK, 1964, p. 106]. A similar trend was observed in the Rhineland 1800-1815 (Table 3a).[12] Cotton spinning in the Rhineland developed less dynamically over this same period. However, in contrast to Saxony, the territories on the left bank of the Rhine benefitted additionally from French annexation which opened them to the large French market which was closed for all other German producers.[13] Within the Grand Empire, the Continental system – which must be differentiated from the Continental blockade – had been introduced to keep out all imports of manufactured goods from a much-enlarged France (and the Kingdom of Italy). At the same time, all non-French parts of the Grand

12 The share of the Rhineland in all German cotton spindles moderately increased whereas the Saxon ones significantly declined 1815-1840 (Table 3a). However, around 1840 Saxony's textile industry remained significantly larger than the Rhineland's and it dominated the German textile industry. Saxony's dominance was most significant in factory-based cotton spinning (Table 3b). This does not speak in favor of a Saxon technological lag because of a less radical institutional change. The leading expert on archival sources and contemporary literature on Saxon industrial development 1650-1860 presents a complete list of indigenous inventions and adaptions of foreign technology in the textile industry nearly all made by Saxon craftsmen 1803-1830 – a testament to the inventiveness of Saxon textile workers [FORBERGER, 1982]. According to WOLFRAM FISCHER, the very early commercialization of Saxony and the Northern Rhineland had contributed to the creation of an innovative industrial sector able to create indigenous inventions as opposed to copying British technology [FISCHER, 1972]. A highly-skilled labor force intent on lowering production costs via technical innovations – in 'learning by doing' – existed in 18th century Saxony and the Northern Rhineland.

13 Textile industries boomed on the left bank of the Rhine and German producers gained substantial market share in the enlarged French markets. This supports the competitiveness of Rhenish textile industries compared to those of the French. Second, it shows that German manufacturing was much less affected from the chaos created by revolution and war than were the French ones. We find support for the hypothesis that in a Continental comparison, Germany's textile production around 1800 was not backward [CROUZET, 1964; DUFFRAISE, 1981].

Empire were forced to open their markets for French imports. Indeed, it was a strategic goal of Napoleon's economic policy to replace the dominance of British industry with the French version, and to transform the Grand Empire outside of France into a simple supplier of raw materials [DUFRAISSE, 1981; TARLÉ, 1914].

Table 3a: Number of Cotton mules 1800-1840

	Saxony	Prussia	Germany		Saxony	Prussia	Germany
1800	3,000	15,000	22,000		annual growth rates (%)		
1815	284,000	55,000	360,000	1800-15	35.4%	9.0%	20.5%
1825	300,000	60,000	390,000	1815-25	0.5%	0.9%	0.8%
1834	375,730	95,000	518,000	1825-34	2.5%	5.2%	3.2%
1840	493,000	150,000	818,000	1834-40	4.6%	7.9%	7.9%

Souces: Own calculation based on data from KIRCHHAIN 1973, pp. 39-42.

Notes: Prussia almost entirely corresponded to the Rhineland.

Table 3b: The German textile industry around 1840

	Capacity of the German Customs Union = 100%		
	All Spinning[1]	Cotton Spinning[1]	Weaving[2]
Saxony	37.9%	56.3%	31.7%
Rhineland	17.6%	17.2%	7.6%

Sources: BLUMBERG, 1965, p. 55; DIETERICI, 1844, pp. 340-341.

Notes: 1) = percentages base on number of mules
2) = percentages base on number of looms
DIETERICI'S and thus Blumberg's numbers only represent estimations based on all available statistics (1844, p. 340).

However, during Napoleon's brief rule, and despite all painful regional dislocations, this policy did not prevent modest industrial expansion in the Grand Empire [CROUZET, 1964]. After 1806, German manufacturing east of the river Rhine was completely excluded from the large French market. Nevertheless, German manufacturers were able to compete against French producers in the rest of Europe, and Saxony's textiles flooded into Central and Eastern Europe. Again, this illustrates the general competitiveness of German – and especially Saxon – manufacturers. Finally, Germany benefitted from the exclusion of British industry from the Continent. For German industrial growth, the benefits of the Continental blockade outweighed the disadvantages of the Continental system [CROUZET, 1964; DUFRAISSE, 1981).

We believe it is impossible to understand the influence of the French revolution on institutional change in Germany without first having a firm grip on the effects of French customs and trade policy.[14] The question is why a detrimental import substitution policy ultimately showed positive results for industrialization. As Heckscher points out, the Continental system motivated "a hothouse development of industries" [HECKSCHER, 1922, p. 259] which could only exist under the protection of the Continental blockade. This was

14 Indeed, Napoleon's trade policy was only a continuation of the extreme mercantilist protectionism practiced by all French revolutionary governments since 1789.

especially true for factory-based cotton spinning – the leading technology during the first decades of the 19th century. Indeed, the technical gap between British and Continental (cotton) industries had widened during the Napoleonic period, and growth rates of cotton spinning had drastically slowed during the decade 1815-25 due to the fact that most of the Continental market was reopened for British imports (Table 3a). After an outstanding boom, the period 1815-1825 was indeed one of stagnation for German cotton spinning (and other industries as well).

As we know, cotton never developed into a leading sector of German industrialization [KIRCHHAIN, 1973]. After early industrialization, (by the 1840s) the country gradually shifted into heavy industry [TILLY, 1990]. However, in the two leading economic regions, Saxony and the Northern Rhineland, textile industries had been of strategic importance to the first industrial poles c. 1800-1830. Indeed, the firms that survived the seamless transition from prohibitive protectionism to fully open markets after 1815 finally formed a competitive textile industry ready to exploit the opportunities of the large German Customs Union founded in 1834.[15] The state-enforced opening of markets brought about swift rationalizations and modernizations if firms were to remain competitive [BÜSCH, 1980; VOGEL, 1983]. After a harsh adjustment phase up to the mid-1820s, the surviving industry formed the base of an accelerated early industrialization in Northern Rhineland and Saxony.

It seems reasonable that the unique combination of a rigorous though brief French import substitution policy, and a subsequent radical (Prussian-Saxon) trade liberalization, combined to enable an early industrialization based on self-sustained growth. However, without the exclusion of British competition, it is unlikely that factory-based cotton spinning – and thus early industrialization – would have started around 1800 in certain German regions. Continuation of this policy of extreme protectionism would have led to an oversized and technically backward textile industry (as in France). There, a powerful capitalist bourgeoisie could force the government to renew protectionism to fight the post-war crisis. This was very different from the Prussian and Saxon approach where a politically reactionary and absolutist government and administration – though economically liberal minded – could ignore the urgent demands for protectionism of the weak industrial bourgeoisie [CROUZET, 1964].

Note that two French revolutionary reforms which, according to the literature had the greatest immediate impact on German industrialization – the Continental blockade and the Continental system – were both primitive mercantilism in design and intent. Indeed, Napoleon viewed trade as a simple zero sum game and therefore the task of trade policy was to join the winning side via massive governmental interventions into international trade. Only the defeat of Napoleon prevented a continuation of this counterproductive import substitution policy. More important, only the re-emergence of "backward" Prussia as a European power, and the breakdown of Napoleon's Grand Empire, allowed for the full

15 A vivid description of the difficult years after 1815 presents MEERWEIN [1914, pp. 37-48]. However, cotton industry further expanded in the leading industrial district within Saxony, the Erzgebirge (ore mountains), whereas it contracted in the rest of Saxony. Between 1812 and 1830 the number of cotton spindles increased from 255,904 to 361,202 to jump up to 490,325 in 1837 [MOTTEK, 1965, p. 106; KIESEWETTER, 2007, p. 358]. The foundation of the German Customs Union had motivated the foundation of many new cotton mills 1834-1838 [MEERWEIN, 1914, p. 52].

development of a competitive and modern German industry. This is counter to the claims advanced by ACJR.

As above, Prussia's liberal trade policy was developed by "Smithian" bureaucrats who were deeply convinced that free trade is necessary to induce self-sustained growth. This trade policy could be realized without having to undertake any important compromises within Prussia precisely because free trade corresponded to the economic interests of the export-oriented large estate owners. Thus, Prussia's economic policy represented the strict opposite of Napoleon's Continental system which was devoted to the deindustrialization of those parts of the Grand Empire outside of the borders of France. If the Prussian administration had adhered to a mercantilist Napoleonic trade policy, it is unlikely that the German Customs Union would have been founded. And without that, where would German industrialization have been at the end of the 19th century?

Institutional change and agricultural development

Steady and gradual institutional change characterizes the process of commercialization in German agriculture during the early modern period. Even if the liberal agrarian reforms of the French represented an important turning point in Germany, the economic effects of those reforms could not have been significant. Indeed, with regard to peasant property rights in Germany, the French reforms came too late to represent anything more than the ultimate denouement of a very long process. The individualization of farming in Germany was a centuries-long process which had accelerated significantly during the 18the century. Following the Thirty Years War, the gradual process of extending state authority into the countryside was accompanied by a general weakening of seigniorial privileges and the gradual extension of peasant property rights. Throughout most of Germany there had been a conscious policy of "state peasant protection" (Bauernschutz) to ensure fiscal revenues. There had also been a "rural reservoir of recruits" which served, over time, to advance the substantial strengthening of peasant property rights. These important transformations occurred before the French reforms [ROBISHEAUX, 1998; HAGEN, 1998; EDDIE, 2013; KOPSIDIS, 2006; KOPSIDIS and LORENZEN-SCHMIDT, 2013].[16]

As a result, untold numbers of peasants with access to markets were able to benefit from rising agricultural prices during the second half of the 18th century. These improving economic settings and circumstance enabled peasants to defend and protect most of their additional market incomes against seigniorial duties and state claims [HARNISCH, 1986, 1989, 1994]. While mass evictions of peasants were underway in England during the second half of the 18th century, this phenomenon was present only in a few Baltic areas. On the contrary, Prussia was beset by an urgent demand for soldiers and increased tax revenues – the better to become and to remain a European great power.

The available data, and recent empirical studies, focus attention on west and central Germany. These studies clearly speak against any impact of liberal agrarian reforms. And that includes the effects of privatization of all land and the establishment of free land and labor markets on agricultural growth [PFISTER and KOPSIDIS, 2013; KOPSIDIS, 2012, 2014; KOPSIDIS and WOLF, 2012; KOPSIDIS and HOCKMANN, 2010]. Even for the relatively "backward" East Elbian Prussian provinces it is now clear that during the last third of the 18th century a long-term agricultural boom had substantially advanced the commercialization of peasant

16 ROBISHEAUX states that for western Germany: "A renewal of seigneurial authority would have been almost impossible by 1750" [1998, p. 142].

and large-estate farming. These changes had preceded the agrarian reforms and not vice versa [HARNISCH, 1986].

Previously agriculture had always been seen as the most backward sector of the German economy where only the abolishment of the obstructive seigniorial system could overcome "medieval stagnation" [KOPSIDIS, 1996]. This view is definitely refuted. In agriculture, the largest economic sector of Germany, growth had started to accelerate and to transform into productivity-driven modern growth independent of the timing and institutional design of agrarian reforms. Rather, the regionally differentiated impact of rising demand among the urban-industrial classes for meat and dairy products drove the transition to enhanced productivity and growth in 19th century [KOPSIDIS, 1996, 2012; KOPSIDIS and WOLF, 2012]. Indeed, the so called "traditional agrarian institutions" – the manorial system, the commons, and the peasant economy – were much more market-sensitive than previously assumed and they easily adjusted to changing markets. New opportunities of expanding markets to stabilize or raise incomes were eagerly exploited by all participants of the rural-agrarian economy – even during the pre-reform era. Traditional agrarian institutions adjusted to markets and not vice versa. The liberal agrarian reforms were not entirely useless, but they did not have the power to direct agriculture on to a new and steeper growth trajectory.

For Germany as a whole, the "continuity hypothesis" is supported in all of its manifestations. The period between about 1740 and about 1820 can be seen as a reform continuum. Only where the so called "enlightened absolutism" had started to modernize and standardize administration and jurisdiction could the French reforms give further impulses [BERDING, 1996, 1973].[17] Berding suggests it is impossible to separate the "absolutist" from the "French Revolution" contribution to nation building and the modernization of Germany.

An important feature of nation building in Germany c. 1750-1850 was the emergence of modern bureaucracies. Indeed the rise of a bureaucratic central state and the emergence of a market economy were inseparable in the successful transition to modernity. The pivotal problem during the formation period of modern administrations was to implement new organizational structures and procedures that the legal structure, and other regulations, did not treat as empty proclamations without consequences. They had to be introduced, implemented, and enforced. Indeed, during the early modern period many newly enacted laws had remained hollow proclamations of little effect on their economic subjects. When the Napoleonic liberal reforms were officially proclaimed, there was minimal administrative structure in all of the German states. The administrative system had only recently become effective, centralized and rule-bound. The establishment of modern bureaucracies was a central element of the entire reform agenda. Economic reforms did not start after the establishment of effective administrations – both modernization processes proceeded simultaneously.[18] This fact alone renders problematic the ACJR

17 See additionally the contributions in von ARETIN [1974], REINALTER and KLUETING [2002], BIRTSCH and WILLOWEIT [1998], and SCHMIDT [1980].

18 For the process of making the Prussian administration effective to implement reforms during 1800-1848 see HAAS [2005]. Indeed, the Prussian authorities – but of other German states as well – strongly concentrated on law enforcement. With respect to the agrarian reforms, Prussian success is very likely explained by a combination of strict centralism and careful consideration of the experiences of lower levels of the administration in accomplishing the reforms on the local level. Implementing rules were permanently adjusted. A good example is the full privatization of open fields as part of the commons.

empirical strategy of assessing the strength of reforms by the date those reforms were announced. Their "vintage model" remains open to doubt.

VII. Summary and Conclusions

Based on comprehensive qualitative and quantitative empirical research, recent historiography has completely refuted the older view of radical liberal reforms around 1800 as the decisive breakthrough inducing modern capitalist development in Germany. A consideration of interacting complex long-term economic, demographic, social and political trends has replaced the old rather simple story of an "institutional big bang" dividing the dark ages of uniform pre-capitalist stagnation from the golden age of market-based dynamic growth and industrialization.[19]

In a certain sense, the ACJR approach to economic history represents a throwback to a simplified 19th century historiography. By ignoring nearly the entire recent literature on the "age of reforms" and early industrialization in Germany, these authors have reestablished the old "institutional myth" by replacing the old hero "Prussia" with a new one: "Napoleon." We remain skeptical of any explanatory salience in governmental action that, when presented as a "quasi-natural experiment" [ACJR, 2011, p. 3304], not only supports ongoing developments but also induces the transition to modern capitalism. This account represents a degree of faith in the state that is characteristic of 19th century Prussian philosophers who saw governments in terms of their "historical missions".

However, ACJR go one step further by claiming that a regionally differentiated "French reform impact" had established a compelling path dependency that can then explain regional divergence of economic development within Germany between 1850 and 1914. An elaborate econometric maneuver offers "proof" of this view. Thus, any critical review of their theses should include as well a consideration of their treatment. In light of the flawed empirical grounds for their econometric analysis, it seems that the question worth asking is when does econometrics trump flawed data? Do we now have "economics without history [Jones, 2013]"?

Whereas in the old provinces the separation of peasant and estate land was connected with a far reaching reallocation and consolidation of agricultural land holdings (Flurbereinigung), the enclosures in the peasant western provinces were not connected with any enforced consolidation of the open field strips to create an allegedly more productive lay out of the fields by reducing the number of scattered plots. Without violating the principle aim of full privatization of all land, the Prussian administration consciously reacted to the stiff resistance of peasants in the western provinces and skipped the envisaged consolidations of land to ensure a swift privatization accepted by the affected peasants [Kopsidis, 2006]. Indeed, the impact of land consolidations on farm productivity in developing nations was and is during long phases of agricultural development rather modest.

19 Because industrialization first occurred in a very few small regions, recent research on industrialization has concentrated on long-term structural processes which constituted the economic leadership of these distinct regions [Pollard, 1980, 1981, 1992; Fremdling, Pierenkemper and Tilly, 1979; Pierenkemper, 2007]. According to most authors, the state and policy changes are part of the story but virtually no author thinks that in the early 19th century even radical institutional changes could establish any regional path dependencies as suggested by ACJR. Pollard, whose research is foundational, does not deny any impact of governmental action on regional development prior to 1870. But he finds those impacts to be marginal compared to the 20th century [Pollard, 1981]. The age of "big government" (and "big business") started only at the end of the 19th century.

The most troublesome aspect of the ACJR project is their assertion that the "economic effect of French presence on the growth of urbanization" – and thus on industrialization – occurred only after 1850 and that these effects became even stronger until 1900 [2011, p. 3296]. They explain these pronounced and very late effects of the reforms – indeed four to five decades after their introduction – with the claim that the "French reforms were accompanied by the disruptions caused by invasion and war, and often had quite destructive and exploitative aspects [2011, p. 3298]." That the period c. 1792-1815 was accompanied by disruptions and chaos all over Germany – not only in the French treated territories – goes without question. Especially after 1805 the intensification of armed conflicts on German territory, and between the wars pressing French demands on its voluntary and forced German allies, certainly caused throughout Germany a large rise in the tax burden and an enforced drain of important resources like labor and draft animals into the Napoleonic armies. In addition, continued arbitrary military requisitions presented a large burden for the population.

General uncertainty negatively affected trade and economic growth. However, it must be recalled that "Unlike the twentieth-century world wars, the Napoleonic wars were not marked by large-scale physical destruction; though the productive potential of some towns and districts suffered from military operations or civil disturbances, such destruction was quite limited in space and time [CROUZET, 1964, p. 567)."

Most affected was Saxony whose shrinking agricultural output and food standards between 1805 and 1812, followed by economic collapse in 1813, are well documented [KOPSIDIS and PFISTER, 2013; EWERT, 2006; SCHLENKRICH and SPIEKER, 2008]. During the liberation wars in 1813, around 600,000 soldiers fought over much of Saxony's territory and left it seriously devastated. After its defeat in 1815, Saxony – as a loyal ally of Napoleon – lost half of its territory which brought about additional economic turmoil. However, in terms of agricultural output and growth rates, as well as real wages, the post-war reconstruction of Saxony was completed by the beginning of the 1820s [KOPSIDIS and PFISTER, 2013; PFISTER and KOPSIDIS, 2013]. Recent research clearly indicates that Saxony was not alone in this recovery. All over Germany, after a period of stagnation and decline (c. 1795-1815), by 1820 real wages and labor productivity had reached the level of the early 1790s [PFISTER et al., 2012; PFISTER and FERTIG, 2010].

In the Solow model, rising labor productivity can be related to technical change, or it can rest with increasing capital intensity. Under the conditions of still comparatively low rates of technical change compared to the second half of the 19th century, the swift recovery from losses in real incomes and labor productivity after 1815 indicates a quick recovery of the war-damaged capital stock (even in Saxony) within five to ten years. How can this recovery be so quick? Most economic damage from war arises from a degraded capital stock. However, in contrast to a fully industrialized 20th century economy, the reconstruction of fixed capital proceeded much faster in post-1815 Germany because it's still pre-industrial economy was characterized by low capital intensity – even in manufacturing. Essential capital goods like livestock could be recovered comparatively quickly (within a few years). The same was true for circulating capital essential for contemporary industrial production.

In this regard, the position of ACJR that recovery took four to five decades is not supported by any data of which we are aware.

Indeed, ACJR simply argue that because their econometric analysis shows a regionally differentiated French treatment impact on growth after 1850, that evidence must be the truth. Moreover, the extraordinary economic, political, social and demographic dynamics of Germany throughout the decades before the industrial take-off do not support the idea of a long recovery period after 1815. In this context, it should be mentioned that during the 1810s and 1820s, Germany had escaped the Malthusian trap. Thus, the breakthrough into a non-Malthusian economy occurred before, not during industrialization. This also indicates an immediate positive economic impact of changes during the Napoleonic period on the entire German economy. Pfister's and Fertig's recent results are suggestive of the idea that during the Napoleonic period, some important changes took place which positively affected future German economic growth. The positive effects became immediately apparent and did not require any time lag. Moreover, those effects occurred all over Germany without creating any regionally diversified growth dependency:

> …, German population dynamics were decidedly Malthusian in the eighteenth century, … The early nineteenth century, particularly the period between 1810 and 1830, thus stands out as a period when the German economy and population made a big leap forward in three interconnected dimensions: real wages and life expectancies rose, hunger disappeared. In the same period when state borders were reorganized, the Old Empire was dissolved, and territorial states put much effort in developing their economies. Positive and negative policy integration (…), road construction (…) and tariff reduction might have instrumental in bringing about a positive shock. In addition, the late eighteenth and early nineteenth centuries were the heyday of protoindustrial growth in the countryside. … It may well be that the focus of German economic history on post-1850 growth has been contingent upon the lack of earlier data, and what happened in the 1810s was as important as the structural and institutional changes around mid-century. … Most importantly, however, our evidence points to a departure of the German economy from a strictly Malthusian pattern well before the onset of industrialisation. … [PFISTER and FERTIG, 2010, pp. 55-56].

Intended and unintended market integration policies starting during the Napoleonic period, and forcefully continued in a new dimension by Prussia after 1815, seem to be prime candidates to explain the changing dynamics between 1810 and 1840.[20] Additionally, it should be held in mind that these new studies, which focus on long-term developments since the 16th century, emphasize that the transition to modern economic growth proceeded in a much more gradual manner than previously thought.

The reader is left to wonder if ACJR measured the "French treatment effect" or something else. Indeed, regional disparities are a constant topic of research on German industrialization, and the ongoing discussion on the "little divergence" within Europe is still stimulating academic discussion.[21] There is a well-established consensus among economic

20 According to Francois Crouzet, by abolishing most tariff barriers on the European continent, the ending of Kleinstaaterei (dominance of petty states) through Napoleon's "large scale redrafting of Europe's political map" [CROUZET, 1964, p. 567] was crucial to deflect Europe's trade from seaborne Atlantic routes to domestic ones. This was especially true for Germany and Italy: "…, larger economic units had been created and there was a clear tendency of Berg and Saxony industrialists to increase their sales on the German markets, especially in the eastern parts of Germany. Later on, the creation of large national markets through the Zollverein and Italian unity was of course to strengthen this trend. … Continental industries were to work mostly for their own national markets [1964, p. 588]."

21 Recently an increasing number of empirical studies have supported the view that since the end of the Middle Ages not only a "great divergence" concerning economic development emerged between Europe and Asia. A gradient of economic development from Northwest Europe to the east of the continent emerged as well since that early time [CLARK, 1987; ALLEN, 2001; PAMUK, 2007]. West and Central Germany

historians that, within Germany, significant regional disparities existed at the beginning of industrialization, and that these disparities increased during industrialization in the second half of the 19th century. The outstanding expansion of urbanized, heavy-industrial agglomerations (c. 1850-1914) mainly (but not only) concentrated in the West was accompanied by a deepening of the existing east-west divide with respect to urbanization and the share of employment in industry. Concurrently, there was also a less-noticed west-south divergence [BORCHARD, 1966; HOHORST, 1977; TIPTON, 1976; FRANK, 1994; PIERENKEMPER, 2007].[22]

According to the literature during industrialization (c. 1840-1914), the growing east-west divide was strongly connected with regional differences in the presence of coal as a precondition for a region's ability to carry out quick heavy-industry based industrialization after 1840. Beside the Ruhr basin, large Prussian mining areas also existed in the Saarland, in certain areas of the Northern Rhineland outside the Ruhr area, but also in certain eastern regions in the Prussian provinces of Saxony and in Silesia. However, the largest coal mining areas were located in the Ruhr area – thus giving rise to the pronounced east-west divide. We see this in terms of miners and steelworkers in Prussia according to the occupational census of 1882 (Table 4).

Table 4: Miners and steelworkers in Prussia (occupational census of 1882)

Provinces	employed persons	share in total (%)
Silesia & Saxony	347,389	30.8%
Rhineland & Westphalia	666,209	59.1%
- former County of Mark	254,616	22.6%
- entire Ruhr mining area	410,573	36.4%
Other provinces	113,405	10.1%
Prussia	1,127,003	100.0=%

Source: Own calculation, data from PREUSSISCHE STATISTIK, Vol. 85, (1884, p. 122, pp. 212-244).

To test whether their result of a regional diversified French reform impact on industrialization after 1850 reflects regional differences concerning a coal endowment, ACJR "drop the coal-producing region of the Ruhr (corresponding to the former County of Mark), since the presence of coal might have created a differential growth advantage in the second half of the nineteenth century [2011, p. 3298]". Since their econometric results do not differ from the baseline scenario, the authors conclude that their results on the French reform impact are robust. But two problems arise.

First, dropping a variable from a regression is not the same as controlling for the impact of the factor that this variable reflects. Rather, it is to assume that this impact is zero. A true

contain regions which belonged to the European core or "growth nucleus" whereas large parts east of the river Oder were part of the less developed agrarian European periphery [KOPSIDIS and WOLF, 2012]. This established development gradient (as early as 1789) was not considered by ACJR.

22 During the 1840s a dramatic urbanisation process started with the emergence of the Ruhr as the leading German industrial area. Between 1846-1849 and 1871, the Westphalian urban population of cities larger than 20,000 inhabitants increased by 9.1% per annum. This two-fold to three-fold rise was higher than in the rest of Germany. Saxony and Rhineland followed with 4.11% and 3.88% [TILLY, 1990, p. 217]. During the period 1871-1910, Rhineland and Westphalia – which contained in the Ruhr the biggest European mining district – continued their outstanding annual urban growth rates 6.27% and 4.22% (with Saxony at 3.69%). Urbanisation and coal mining were strongly connected.

control for the impact of coal would have required ACJR to include the variable "mining region" in their regression.

Second, the existing Prussian mining regions are barely considered by ACJR. Their definition of the Ruhr area comprises only the Westphalian part of the Ruhr area (in the administrative district (Regierungsbezirk) Arnsberg). That part of the Ruhr area which is located in the Rhineland – in the administrative district of Düsseldorf – is completely ignored. Taking the labor force employed as miners and steelworkers as a measure of "mining region" from the Prussian occupational census of 1882, reveals that 38% of the Ruhr area is completely ignored by ACJR (Table 4). Moreover, in the "coal producing region" as it is defined by ACJR, one finds only 22.6% of all Prussian miners and steel workers. It must also be held in mind that the claimed "growth impact" ("spread effects") of the mining areas heavily affected the surrounding regions.[23] Hence, all of Westphalia, the Rhineland, and the Prussian provinces of Saxony and Upper Silesia, should have been defined as "coal affected regions".

In short, ACJR did not control for the impact of coal deposits on industrialization. There is little here to say about regional divergence in economic growth between 1850 and 1914. The ACJR thesis of a regionally differentiated institutional change, measured by the duration of French occupation, which then induced regional path dependencies that failed to appear until five decades later, is unsupportable by the available evidence.

23 It should be mentioned in this context that the rise of the Ruhr caused a productivity and income enhancing regional specialization all over West and Northwest Germany until 1914. The re-agrarization of former proto-industrial rural areas and the opening of isolated more or less autarchic areas which both started to specialize in highly profitable livestock farming to supply the Ruhr were connected with steeply rising incomes in former centers of rural poverty [Kopsidis, 2014; Kopsidis, 2013].

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