The Consequences of Radical Reform: The French Revolution ONLINE APPENDIX

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ONLINE APPENDIX A: DEFINITION OF THE TERRITORIES

The 19 German territories in the dataset have been chosen following a series of general principles. First, given that our "reforms index" captures the evolution of reforms in the 19th century, we followed post-1815 border definitions. Of all the territories emerging from the reorganization of the Napoleonic era, and concluded with the Congress of Vienna in 1815, we have then proceeded to exclude those too small to make a computation of urbanization rates meaningless (e.g., the Thuringian states, Waldeck, Lippe, Nassau...), or where no evidence on the pre-1800 evolution of total population was available. Finally, we have divided Prussia into its constituent provinces, in order to capture different levels of French/Napoleonic influence, and in order to avoid a dataset of too unequallysized polities. Within the province of Westphalia, we have singled out the Ruhr mining area (identified with the former county of Mark), to check if this heavily industrialized area is responsible for our main findings (see Table 4, column (1)).

- Rhineland (Prussia). The territory is defined using the borders of the post-1815 Prussian Rhine province. It lies mostly to the west of the Rhine, with the major exceptions of the former territories of the Duchy of Berg and the exclave of Wetzlar. The major territories lying on this area before 1815 are the French-controlled Rhineland and the original parts of the Grand Duchy of Berg.
- Palatinate (Bavaria). The territorial definition is equivalent to the *Regierungsbezirk* of the Bavarian Palatinate after 1815. Before 1815, this area was part of the

French-controlled Rhineland (as part of the *département* of Mont-Tonnerre).

3) Mark (Prussia). The territory is defined as to approximate the pre-1815 County of Mark, which would later become the core of the Ruhr mining area. Following Aloys Meister (1909), this is implemented for the 19th century data by using the Prussian counties of: Soest, Hamm, Dortmund (Stadt and Land), Hörde, Bochum (Stadt and Land), Witten (Stadt), Gelsenkirchen (Stadt and Land), Hattingen, Hagen (Stadt and Land), Schwelm, Iserlohn, and Altena. Total popu-

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lation for the period before 1815 is based on this definition as well, and not on the historical borders of the County of Mark.

- 4) Westphalia (Prussia). The territory as defined in the dataset is comprised of the Prussian (post-1815) province of Westphalia, excluding the Mark (see 3.). The reason to single out Mark from the time series for Westphalia its different social, economic, and political characteristics: the County of Mark was mainly Protestant and characterized by rapid industrialization due to the coal deposits of the Ruhr basin, whereas the rest of Westphalia was largely Catholic and agricultural.
- 5) **Brunswick.** The territorial definition follows the borders of the Duchy of Brunswick, or (equivalently) the ones of its predecessor state, the Duchy of Brunswick-Wolfenbüttel.
- 6) Province of Saxony (Prussia). The territory is defined following the borders of the post-1815 Prussian Province of Saxony, roughly corresponding to the present-day state of Sachsen-Anhalt (but excluding Anhalt, and including the southern exclaves of Erfurt and Suhl). Before 1815, the larger part of this province was composed of the Prussian territories of Magdeburg-Mansfeld and Halberstadt-Hohenstein, part of the Kingdom of Westphalia in Napoleonic times. It also comprises the area of the Principality of Erfurt, controlled by France after 1807.
- 7) Hesse-Kassel. The territory is defined according to the post-1815 borders of the Electorate of Hesse. It therefore also comprises the areas of Hanau and Fulda, ruled by the Grand Duchy of Frankfurt in Napoleonic times. After the annexation by Prussia in 1866, it corresponds to the *Regierungsbezirk* Kassel.
- 8) Hanover. The territory is defined according to its post-1815 borders (as Kingdom of Hanover), therefore including, for example, the former Prince-bishoprics of Osnabrück and Hildesheim, as well as East Frisia.
- 9) Baden. The territorial definition follows the borders of the Grand Duchy of Baden in the 19th century, after the expansion in Napoleonic times. The former Margraviate

of Baden expanded considerably in 1803– 1810, more than doubling in size and incorporating several smaller territories: the parts of the Palatinate on the right bank of the Rhine, former Church territories (Konstanz, and parts of Basel, Strasbourg, Speyer), and parts of the Habsburg Empire (Anterior Austria).

- 10) **Bavaria, Southern half.** The territorial definition follows the borders of the *Regierungsbezirke* Oberbayern, Niederbayern, and Oberpfalz (Upper Bavaria, Lower Bavaria, Upper Palatinate) in the post-1815 Kingdom of Bavaria. This approximates Bavaria before its expansion in Napoleonic times (i.e., *Altbayern* and the Upper Palatinate), but also includes the former Church territories of Freising, Passau, and Regensburg, as well as the free imperial city of Regensburg.
- 11) Hesse-Darmstadt. The territory is defined according to the post-1815 borders of the Grand-Duchy of Hesse (Darmstadt), excluding the province of *Rheinhessen* (Rhenish Hesse). Due to its past under French control, different laws were in force in the latter province.
- 12) Saxony. The territory is defined following the borders of the post-1815 Kingdom of Saxony. It therefore does not include the territories lost to Prussia as a consequence of the Congress of Vienna (parts of Lusatia as well as the *Kurlande* around Wittenberg).
- 13) Schleswig-Holstein. The territory is defined following the borders of the 19thcentury Duchies of Schleswig and Holstein (the later Prussian province of Schleswig-Holstein). It also includes the areas of Northern Schleswig, now part of Denmark.
- 14) Württemberg. The territorial definition follows the borders of the Kingdom of Württemberg in the 19th century, after the expansion in Napoleonic times. The former Duchy of Württemberg expanded considerably in 1803–1810, almost doubling in size and incorporating several smaller territories: free imperial cities (Ulm, Rottweil, Heilbronn, Hall, Gmünd, Ravensburg), Church territories, and parts of the Habsburg Empire (Anterior Austria and Swabian Austria).
- 15) **Brandenburg (Prussia).** The territory is defined following the borders of the post-1815

Prussian Province of Brandenburg (including Berlin). The territories of the *Kurmark*, the *Neumark* and Lower Lusatia (then part of Saxony) composed this region before 1800.

- 16) East Prussia (Prussia). The territory is defined following the borders of the post-1815 Prussian Province of East Prussia (excluding West Prussia).
- 17) **Pomerania (Prussia).** The territory is defined following the borders of the post-1815 Prussian Province of Pomerania, excluding Anterior Pomerania (*Regierungsbezirk* Stral-

sund), where different laws were in place due to its past under Swedish rule.

- 18) Silesia (Prussia). The territory is defined following the borders of the post-1815 Prussian Province of Silesia, therefore also including the territory of Upper Lusatia (formerly part of Saxony), annexed as a consequence of the Congress of Vienna.
- 19) Mecklenburg-Schwerin. The territory is defined following the borders of the post-1815 Grand Duchy of Mecklenburg-Schwerin.

ONLINE APPENDIX B: CONSTRUCTION OF URBANIZATION RATES

1) Rhineland (Prussia). Urbanization rates for the years 1875 and 1900 can be computed directly from the volumes of Statistik des deutschen Reiches (vol. 57 A.F., pp. 16-21; vol. 150, pp. 24-27). Total population for 1850 is from HGIS Germany $(n.d.)^1$, city sizes are from Horst Mazerath (1985). Total population for 1800 is based on the total population size for 1822 (from HGIS Germany), projected back to 1800 assuming a growth rate of 0.4% p.a. City sizes in 1800 are from Paul Bairoch, Jean Batou and Pierre Chèvre (1988). In the period before 1800, the major territories lying within the borders of this area were: the Duchies of Jülich and Berg, the Duchy of Kleve (under Prussian rule, including the territories of Geldern and Moers), the County of Nassau-Saarbrücken, and the Electorates (prince-bishoprics) of Cologne and Trier. Evidence on the evolution of population in those territories is very scarce, in particular for the case of the Church territories. The territories under Prussian rule have better records; population estimates are presented in Otto Behre (1905, pp. 198, 462) for the combined territories of Kleve-Mark, Moers and Geldern. These figures are compared to the population estimates for the County of Mark alone in Meister (1909, p. 367) to obtain an estimate for Kleve, Moers and Geldern. Estimates of population growth in Jülich and Berg are provided by Helmut Dahm (1951, pp. 280–288). The total population size of the Rhineland for 1750 is thus constructed by back projection using the simple average

of the growth rates of Mark and Berg for the years 1770–1800, and the simple average of the growth rates of Mark, Berg, and Jülich for the years 1750–1770. City sizes in 1750 are from Bairoch, Batou and Chèvre (1988). Only few reliable figures for population growth rates in the period 1700–1750 could be found; therefore, no estimate of the urbanization rate in 1700 is provided.

2) Palatinate (Bavaria). Urbanization rates for the years 1875 and 1900 can be computed directly from the volumes of Statistik des deutschen Reiches (vol. 57 A.F., pp. 16-21; vol. 150, pp. 24-27). Total population for 1850 is from HGIS Germany ((n.d.); in turn based on a geometric interpolation of the official Bavarian censuses of 1849 and 1852). city sizes for urban centers above 5 000 inhabitants are from Statistisches Bureau Bayern (1855, pp. 48-197). Total population for 1800 is based on the total population size for 1816 (from HGIS Germany), projected back to 1800 assuming a growth rate of 0.4%p.a. The population of the Bavarian Palatinate in 1750 and 1700 is computed by back projection, starting from the 1800 value and applying the growth rate of Baden in 1771-1789 (from Karl Stiefel (1977, p. 427)) to the years 1775-1800, and the growth rate of the (Rhenish) Palatinate in 1664–1775 (from Willi A. Boelcke (1987, p. 96)) to the years 1700-1775. City sizes in 1800 and 1750 are from Bairoch, Batou and Chèvre (1988). No urban center in the Palatinate is larger than $5\ 000$ inhabitants in 1700.

¹The principal source for the HGIS Germany data is Wolfgang Köllmann and Antje Kraus (1980).

- 3) Mark (Prussia). Urbanization rates can be computed directly from the volumes of Statistik des deutschen Reiches (vol. 150, pp. 44–45) for the year 1900. Total population figures for 1875 and 1850 are from Meister (1909, p. 367; interpolated for 1850). Urban population in 1875 is from Statistik des deutschen Reiches (vol. 57 A.F., pp. 41-42). Urban population for 1850 is from Mazerath (1985). Total population for 1800 is based on the total population size for 1818 (Meister 1909), projected back to 1800 assuming a growth rate of 0.4% p.a. for the vears 1804–1818, and the actual population growth rate of the County of Mark in 1800-1804. City sizes in 1800 are from Bairoch, Batou and Chèvre (1988). Total population size for 1750 and 1700 is again constructed by back projection, starting from the 1800 estimate and using the actual population growth rates of the County of Mark from Meister (1909, p. 367). The population growth rate in 1700-1722 is assumed to be identical to the growth rate in the years 1722–1740. City sizes in 1750 and 1700 are from Bairoch, Batou and Chèvre (1988).
- 4) Westphalia (Prussia). Urbanization rates for the years 1900 and 1875 can be computed directly from the volumes of Statistik des deutschen Reiches (vol. 57 A.F., pp. 41-42; vol. 150, pp. 44-45), by subtracting the values for Mark (see above, 3.) from the total values for the province of Westphalia. The total population figure for 1850 is computed accordingly based on figures in HGIS Germany (n.d.), city sizes are from Mazerath (1985). The total population figure for 1800 is computed by projecting backwards the 1816 figures for the Regierungsbezirke Münster, Minden and Arnsberg, excluding the County of Mark from the latter; this is done separately for each Regierungsbezirk. The 1816 figures are from HGIS Germany. In the period before 1800, the major territories lying within the borders of Catholic Westphalia were: the Prince-bishopric of Münster, the Vest Recklinghausen, the Counties of Tecklenburg and Lingen, and the Duchy of Westphalia (part of the Prince-bishopric of Cologne). All of these territories kept little or no records of their population sizes. The population growth rate of the Regierungsbezirk Münster in 1800-1816 is assumed to be equal to the population growth rate of the prince-bishopric of Münster (Oberstift) in the years 1795–1818 as in Stefanie Reekers

(1964, p. 159). The population growth rate of the Regierungsbezirk Arnsberg (without the Mark) in 1800–1816 is assumed to be equal to the population growth rate of the Duchy of Westphalia in the years 1805-1818 as in Stefanie Reekers (1967, pp. 101-102). Population of the Regierungsbezirk Minden in 1800 and 1750 is computed starting from its value for 1816 (HGIS Germany), projected backwards using the actual growth rates for 1800-1816 and 1750-1800 of the former territory of Minden-Ravensberg from Stefanie Reekers (1965, p. 122). Population of the remaining area (Westphalia without RB Minden and the Mark) in 1750 is computed as follows. For the second half of the 18th century, only one estimate of population growth could be found for a territory partially coterminous with the Regierungsbezirke Münster and Arnsberg: for the (Catholic) Vest Recklinghausen, Alwin Hanschmidt (1982, p. 652) has an estimate for the period 1749–1806. Two more sources of information are considered. The adjoining Prince-Bishopric of Osnabrück probably had socio-economic characteristics similar to the Prince-Bishopric of Münster. The County of Mark was surrounded by the territory of Westphalia. For the former, we have population growth estimates in Karl H. Kaufhold and Markus Denzel (1988, p. 9) (based on Adolph Tellkampf (1846)); for the latter, see section 3. above. The population of this part of Westphalia in 1750 is therefore estimated using a simple average of these three growth rates (i.e., Vest Recklinghausen, Osnabrück, and Mark). City sizes in 1800 and 1750 are from Bairoch, Batou and Chèvre (1988). No reliable figures for population growth rates in the period 1700-1750 could be found; therefore, no estimate of the urbanization rate in 1700 is provided.

5) Brunswick. Urbanization rates for the years 1900 and 1875 can be computed directly from the volumes of *Statistik des deutschen Reiches* (vol. 57 A.F., pp. 16–21; vol. 150, pp. 24–27). Total population in 1850 is from HGIS Germany (n.d.); urban population in 1850 is from Karl Ritter (1855). Total population in 1800 is derived starting from the 1816 value (from HGIS Germany) by interpolation based on the implied growth rates for the periods 1760–1803 and 1806–1816; population sizes in 1760 and 1803 are from W. Robert Lee (1977, p. 6), which in turn is based on Ernst Wolfgang Buchholz

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(1966, p. 4). Population in 1750 is estimated by using the actual population growth rate in the period 1760–1803 (as before) and assuming that the growth rate of the population in Brunswick in the years 1750–1760 was equal to the growth rate of the Hanoverian population in the same period (cf. section 8. below). City sizes in 1800 and 1750 are from Bairoch, Batou and Chèvre (1988). No reliable sources for population growth rates in the period 1700–1750 could be found; therefore, no estimate of the urbanization rate in 1700 is provided.

- 6) Province of Saxony (Prussia). Urbanization rates for the years 1900 and 1875 can be computed directly from the volumes of Statistik des deutschen Reiches (vol. 57 A.F., pp. 16–21; vol. 150, pp. 24–27). The total population figure for 1850 is from HGIS Germany (n.d.), city sizes are from Mazerath (1985). Population in the years 1800 and before is computed based on the actual population growth rates of the combined Prussian territories of Magdeburg-Mansfeld and Halberstadt-Hohenstein (from Behre (1905, pp. 457–458)); lacking data, population growth in the years 1805-1816 is assumed to be equal to 0.4% p.a. Population in 1816 is from HGIS Germany. City sizes in 1800, 1750 and 1700 are from Bairoch, Batou and Chèvre (1988).
- 7) Hesse-Kassel. Urbanization rates for the years 1900 and 1875 can be computed directly from the volumes of Statistik des deutschen Reiches (vol. 57 A.F., pp. 16-21; vol. 150, pp. 24-27). The total population figure for 1850 is from HGIS Germany (n.d.), city sizes are from Ritter (1855). Population in in 1800 is derived starting from the 1816 value (from HGIS Germany), projected backward assuming a population growth rate of 0.1% p.a. in 1805–1816 and of 1% p.a. in 1800-1805. From the 1800 value, total population in 1750 and in 1700 is constructed by back projection using actual growth rates of the Landgraviate of Hesse-Kassel in the years 1705-1750, 1750-1789, and 1789-1802 (all from Karl E. Demandt (1972, pp. 272, 288)). Population growth rate in 1700-1705 is assumed to equal the rate in 1705–1750. City sizes in 1800, 1750 and 1700 are from Bairoch, Batou and Chèvre (1988).

- 8) Hanover. Urbanization rates for the years 1900 and 1875 can be computed directly from the volumes of Statistik des deutschen Reiches (vol. 57 A.F., pp. 16-21; vol. 150, pp. 24-27). The total population figures for 1850, 1800 and 1750 are from is from Kaufhold and Denzel (1988, p. 9), which presents data for the post-1815 territorial extension, based on estimates by Tellkampf (1846, pp. 103-112). Population in 1700 is reconstructed in the following way: population in the Electorate of Hanover (Calenberg) including the territories of Celle, Bremen and Verden is estimated to equal approx. 700 000 in 1714, and 775 000 in $1750.^2$ The implied growth rate is then applied through back projection to the 1750 figure. Urban population in 1850 is derived from a comparison of the values in Bairoch. Batou and Chèvre (1988), Ritter (1855) and Tellkampf (1846). City sizes in 1800, 1750 and 1700 are from Bairoch, Batou and Chèvre (1988).
- 9) Baden. Urbanization rates for the years 1900 and 1875 can be computed directly from the volumes of Statistik des deutschen Reiches (vol. 57 A.F., pp. 16-21; vol. 150, pp. 24-27). Total population in 1850 is from HGIS Germany (n.d.); urban population in 1850 is from Statistisches Bureau Baden (1855, pp. 217-220). Total population in 1800 is derived starting from the 1810 value (from Baden (1855, pp. 221-222)), projected backward assuming a growth rate of 0.4%p.a. in 1800–1810. For the period before 1800, various sources of population growth rates are considered. Stiefel (1977, p. 427) and Edmund Rebmann, Eberhard Gothein and Eugen von Jagemann (1912, p. 350) provide estimates for the population of the Margraviates of Baden-Baden and Baden-Durlach. For Anterior Austria (the Breisgau), the figures in Friedrich Metz (1952, p. 12) and in Boelcke (1987, p. 95) provide wildly divergent estimates of the population growth rates in 1700–1790 (0.1% p.a. in the first, 0.5% p.a. in the second source). This information is therefore not used. The population of Baden in 1750 is calculated by applying to the estimated 1800 value (through back projection) the growth rate of the unified Margraviates of Baden in 1771-1789 and the growth rate of Baden-Durlach in 1746-1771. Baden's growth rate in 1789-1800 is

 $^2 \rm Personal correspondence with Professor Peter H. Wilson, University of Hull. See also Ragnhild Marie Hatton (1978, p. 78).$

assumed to be equal to the average growth rates of the unified Margraviates of Baden in 1771–1789. City sizes in 1800 and before are from Bairoch, Batou and Chèvre (1988).

- 10) Bavaria, Southern half. Urbanization rates for the years 1900 and 1875 can be computed directly from the volumes of Statistik des deutschen Reiches (vol. 57 A.F., 16–21; vol. 150, pp. 24–27). Topp. tal population in 1850 is from HGIS Germany (n.d.); urban population in 1850 is from Bayern (1855, pp. 48-197). Total population in 1800 is derived starting from the 1818 value (from HGIS Germany), projected backward assuming a growth rate of -0.2% p.a. in 1800–1818. This growth rate is derived from an estimate of the population in the future Regierungsbezirke Oberbayern, Niederbayern, and Oberpfalz in 1795 (based on Manfred Rauh (1988, p. 477) and Sylvia Schraut (2005, p. 21)) and in 1818 (from HGIS Germany). Population growth rates for the 18th century are derived from Rauh (1988), excluding, where possible, figures about the Innviertel, which was lost to Austria in 1779 (107 000 inhabitants in 1771). City sizes in 1800 and before are from Bairoch, Batou and Chèvre (1988).
- 11) Hesse-Darmstadt. Urbanization rates for the years 1900 and 1875 can be computed directly from the volumes of Statistik des deutschen Reiches (vol. 57 A.F., pp. 16-21; vol. 150, pp. 24-27). The total population figure for 1850 is from HGIS Germany (n.d.), correcting for the loss of the "Hessisches Hinterland," ceded in 1867 to Prussia (38 194 inhabitants in 1867); city sizes are from Ritter (1855). Population in in 1800 is derived starting from the 1817 value (from HGIS Germany), projected backward assuming a population growth rate of 0.1% p.a. in 1805–1817 and of 1% p.a. in 1800-1805. From the 1800 value, total population in 1750 and in 1700 is constructed by back projection using actual growth rates of the Landgraviate of Hesse(-Darmstadt/Starkenburg) in the years 1669-1776 and 1776-1801 from Grossherzogliche Centralstelle für die Landes-Statistik (1864, pp. 1-27). City sizes in 1800, 1750 and 1700 are from Bairoch, Batou and Chèvre (1988).
- 12) Saxony. Urbanization rates for the years 1900 and 1875 can be computed directly from the volumes of *Statistik des deutschen Reiches* (vol. 57 A.F., pp. 16–21; vol. 150, pp.

24-27). The total population figure for 1850 is from HGIS Germany (n.d.), city sizes are from Ernst Engel (1853, pp. 158-165). Population in the years 1800 is constructed by geometric interpolation between the 1750 value in Karlheinz Blaschke (1967, p. 91) and the figure for 1815 in Victor Böhmert (1890, p. 51). The population figure for 1750 (for Saxony in its post-1815 borders) is from Blaschke (1967, p. 91). Population in 1700 is reconstructed (by back projection) starting from the 1750 value and using the average of the 1550–1750 growth rate (as in Blaschke (1967. pp. 78, 91)) and of the 1700-1800 growth rate (as in Erich Keyser (1941, p. 363)). City sizes in 1800 and before are from Bairoch, Batou and Chèvre (1988).

- 13) Schleswig-Holstein. Urbanization rates for the years 1900 and 1875 can be computed directly from the volumes of *Statistik* des deutschen Reiches (vol. 57 A.F., pp. 16-21; vol. 150, pp. 24-27). The total population figure for 1850 is from HGIS Germany (n.d.), city sizes are from Ritter (1855). Population in the years 1800 and 1750 is computed based on the actual population growth rates of the Duchies of Schleswig and Holstein in 1803–1812, the population growth rate of Holstein in 1800-1803 and in 1750-1800 (from Rolf Gehrmann (2000, p. 391)). Population in 1812 is from HGIS Germany. City sizes in 1800 and 1750 are from Bairoch, Batou and Chèvre (1988).
- 14) Württemberg. Urbanization rates for the years 1900 and 1875 can be computed directly from the volumes of Statistik des deutschen Reiches (vol. 57 A.F., pp. 16-21; vol. 150, pp. 24-27). Total population in 1850 is from HGIS Germany (n.d.); urban population in 1850 is from Ritter (1855) and Bairoch, Batou and Chèvre (1988). Total population in 1800 is derived starting from the 1816 value (from HGIS Germany), projected backward assuming a growth rate of 0.4% p.a. in 1802-1816, and applying the actual average growth rate of the Duchy of Württemberg in the years 1794-1802 to the period 1800-1802 (the latter growth rate is derived from Wolfgang von Hippel (1984, p. 29)). For the period before 1800, two sources of population growth rates are considered. First, population growth of the Duchy of Württemberg in 1697-1802 (with intermediate values), from Hippel (1984, p. 29) (these values are also

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checked against Philipp Ludwig Hermann Röder (1787, pp. 69–70)). Second, the growth rate of Swabian Austria in 1700-1771, as in Nico Sapper (1965, p. 32). A weighted average of these rates is constructed to estimate the population of Württemberg in 1700 and in 1750. City sizes in 1800 and before are from Bairoch, Batou and Chèvre (1988).

- 15) Brandenburg (Prussia). Urbanization rates for the years 1900 and 1875 can be computed directly from the volumes of Statistik des deutschen Reiches (vol. 57 A.F., pp. 16-21; vol. 150, pp. 24-27). The total population figure for 1850 is from HGIS Germany (n.d.), city sizes are from Mazerath (1985). Population in the years 1800 and before is computed based on the actual population size of Berlin (from Bairoch, Batou and Chèvre (1988)) and actual population growth rates of the combined Prussian territories of Kurmark and Neumark (from Behre (1905, pp. 457-458)); lacking data, population growth in the years 1805–1816 is assumed to be equal to 0.4% p.a. Population in 1816 is from HGIS Germany. City sizes in 1800, 1750 and 1700 are from Bairoch, Batou and Chèvre (1988).
- 16) East Prussia (Prussia). Urbanization rates for the years 1900 and 1875 can be computed directly from the volumes of Statistik des deutschen Reiches (vol. 57 A.F., pp. 16-21; vol. 150, pp. 24-27). The total population figure for 1850 is from HGIS Germany (n.d.), city sizes are from Mazerath (1985). Population in the years 1800 and before is computed based on the actual population growth rates of the previous Prussian territory of East Prussia (from Behre (1905, pp. 198, 457-458)); lacking data, population growth in the years 1805–1816 is assumed to be equal to 0.4% p.a. Population in 1816 is from HGIS Germany. City sizes in 1800, 1750 and 1700 are from Bairoch, Batou and Chèvre (1988).
- 17) Pomerania (Prussia). Urbanization rates for the years 1900 and 1875 can be computed directly from the volumes of *Statistik des deutschen Reiches* (vol. 57 A.F., pp. 16–21; vol. 150, pp. 24–27). The total population figure for 1850 is from HGIS Germany (n.d.), city sizes are from Mazerath (1985). Population in the years 1800 and before is computed based on the actual population growth rates of the previous Prussian territory of Pomerania (from Behre (1905, pp. 198, 457)); lacking

data, population growth in the years 1805– 1816 is assumed to be equal to 0.4% p.a. Population in 1816 is from HGIS Germany. City sizes in 1800, 1750 and 1700 are from Bairoch, Batou and Chèvre (1988).

- 18) Silesia (Prussia). Urbanization rates for the years 1900 and 1875 can be computed directly from the volumes of Statistik des deutschen Reiches (vol. 57 A.F., pp. 16-21; vol. 150, pp. 24-27). The total population figure for 1850 is from HGIS Germany (n.d.), city sizes are from Mazerath (1985). Population in the years 1800 and before is computed based on the actual population growth rates of the previous Prussian territory of Silesia (from Behre (1905, pp. 198, 457)); lacking data, population growth in the years 1805-1816 is assumed to be equal to 0.4% p.a. Population in 1816 is from HGIS Germany. City sizes in 1800 and 1750 are from Bairoch, Batou and Chèvre (1988). For the period before 1750, i.e. before the annexation by Prussia in the War of the Austrian Succession, no reliable figures for population growth rates could be found; therefore, no estimate of the urbanization rate in 1700 is provided.
- Mecklenburg-Schwerin. 19)Urbanization rates for the years 1900 and 1875 can be computed directly from the volumes of Statistik des deutschen Reiches (vol. 57 A.F., pp. 16-21; vol. 150, pp. 24-27). The total population figure for 1850 is from HGIS Germany (n.d.), city sizes in 1850 and before are from Bairoch, Batou and Chèvre (1988). Total population in 1800 is derived starting from the 1818 value (from HGIS Germany), projected backward applying the actual average growth rate of the Duchy of Mecklenburg-Schwerin in the years 1800–1815 to the period 1800-1818 (the latter growth rate is derived from Gehrmann (2000, p. 410)). Total population in 1750 is computed starting with the 1800 value, projected backward to 1790 by using the actual average growth rate of the Duchy of Mecklenburg-Schwerin in those years (from Gehrmann (2000, p. 410)), and successively projected backward to 1750 applying the population growth rate of neighboring Swedish Anterior Pomerania in 1767-1790 (from Gehrmann (2000, p. 410)) to the years 1750-1790. For the period before 1750, no reliable figures for population growth rates could be found; however, no urban center in Mecklenburg-Schwerin is larger than 5 000 inhabitants in 1700, hence the urbanization rate is assumed to equal zero.

Online Appendix C: Number of Pre-Revolutionary Territories

We count all territories that existed within the polities in the dataset (as defined in Online Appendix A above) before the changes brought by the French invasion of the Rhineland, the *Reichsdeputationshauptschluss* of 1803, the *Rheinbundakte* of 1806, and the Congress of Vienna. We only consider territories that were immediate to the Emperor (*reichsunmittelbar*), excluding intermediate liege lords. We exclude monasteries from the count, but include other Church territories such as prince-bishoprics (such as Cologne, Trier, Speyer...) or Imperial abbeys (such as Isny or Gengenbach). We count territories in dynastic union (such as, e.g, the duchies of Jülich and Berg) only once.

The main source is Köbler's (1992) Historisches Lexikon der deutschen Länder. For the Rhineland, we looked up map 5.1 in Irsigler's (1982) Geschichtlicher Atlas der Rheinlande. For the Bavarian Palatinate, we used map #59 in Alter's (1963) Pfalzatlas. To complete the list of territories incorporated in Württemberg, we looked up the Rheinbundakte.

1) Rhineland (Prussia). Prussian territories (duchies of Cleves and Geldern, principality of Moers); Bavarian-Palatinian territories (duchies of Jülich and Berg, Electoral Palatinate, principalities of Pfalz-Simmern, Pfalz-Veldenz, county of Sponheim [partially]); Austrian territories (Geldern [partially], Limburg [partially], Luxembourg [partially]); prince-bishoprics of Cologne, Trier, Liège [partially], Mainz (partially): French territories (Lorraine): dukedoms of Arenberg (Arenberg, Kasselburg, Kerpen, Kommern, Saffenburg), Pfalz-Zweibrücken (partially); margraviate of Baden (partially); landgraviate of Hesse-Kassel (partially); counties of Limburg-Styrum, Schaesberg (Kerpen, Lommersum), Sayn-Wittgenstein-Berleburg (Homburg v. d. Mark), Sternberg-Manderscheid (Blankenheim, Dollendorf, Jünkerath, Gerolstein, Salm), Sayn-Hachenburg (partially), Savn-Altenkirchen, Wied-Runkel (Wied, Saarwellingen), Wied-Neuwied, Rheineck, von der Leyen, Salm-Reifferscheid (Reifferscheid, Dyck), Metternich-Winneburg, Waldbott von Bassenheim (Ol[l]brück, Pyrmont), Virneburg, Bretzenheim, Nassau-Weilburg, Kesselstadt, Oettingen (lordship of Dagstuhl); Wild- und Rheingrafen; lordships of Hörstgen, Millendonk, Wickrath, Gimborn-Neustadt; abbeys of Burtscheid, Kornelimünster, Essen (city and Imperial abbey), Werden, Elten, Stablo-Malmedy, Echternach; free Imperial cities of Aachen, Cologne; imperial knightships. [45]

- 2) Palatinate (Bavaria). Added to the Rhenish Palatinate (already in dynastic union with Bavaria before 1800): principalities of Pfalz-Zweibrücken, Leiningen-Hardenburg, Leiningen-Guntersblum, Leiningen-Westerburg-Altleiningen, Leiningen-Westerburg-Neuleiningen, Nassau-Weilburg (partially). Wartenburg, Sickingen. Löwenstein-Wertheim, von der Leyen; territory of Reipoltskirchen; territories of the Wild- und Rheingrafen; prince-bishoprics of Worms (partially) and Speyer (partially); free Imperial city of Speyer; former leftrhenish territories of Baden and Hesse-Darmstadt; and French territories (Landau). [19]
- 3) Mark (Prussia). Unchanged. [1]
- 4) Westphalia (Prussia). Added to former Prussian territories (Mark, Minden-Ravensberg, Tecklenburg-Lingen): princebishopric of Corvey; free Imperial city of Dortmund; principalities of Reckenberg, Arenberg, Salm, Steinfurt, Gemen, Gronau, Rietberg, Rheda, Limburg; territory of Siegen; Oberstift Münster, Vest Recklinghausen; territories of Anholt, Bentheim, Dülmen, Rheina, Bocholt, Horstmar, Neukirchen; Duchy of Westphalia; county of Wittgenstein. [24]
- 5) Brunswick. Added to the Duchy of

Brunswick-Wolfenbüttel: abbeys Gandersheim, Helmstedt. [3]

- 6) Province of Saxony (Prussia). Added to former Prussian territories (Altmark, Magdeburg, Halberstadt, Hohnstein, Wernigerode, Querfurt [partly], Mansfeld [partly], Quedlinburg) in 1802/3 (and again in 1813/15): free Imperial cities of Mühlhausen and Nordhausen; territory of Erfurt; principality of Eichsfeld; lordship of Treffurt. In 1815: former Saxon districts (Kurkreis Wittenberg, Merseburg, Naumburg, Thuringian territories, Mansfeld [partly], Stolberg, Barby, Querfurt [partly]). [7]
- Hesse-Kassel. Added in 1803: former Mainz districts (Fritzlar, Naumburg, Neustadt, Amöneburg, monasteries); free Imperial city of Gelnhausen; village of Holzhausen. In 1815: prince-bishopric of Fulda. [5]
- 8) Hanover. Added in 1803 (and again in 1815): prince-bishoprics of Hildesheim and Osnabrück. In 1815: Niederstift Münster (Emsland, including Meppen), Niedergrafschaft Lingen, East Frisia, and Untereichsfeld; free Imperial city of Goslar. [8]
- 9) Baden. Added to the Margraviate of Baden in 1803: part of the Rhenish Palatinate; Church territories of Konstanz, Basel (partially), Straßburg (partially), and Speyer (partially); districts of Lichtenau and Willstätt; territory of Lahr; abbeys Petershausen, Gengenbach, Odenheim, Salem (partially); free Imperial cities of Offenburg, Pfullendorf, Gengenbach, Zell, and Überlingen; Imperial territory of Hamersbach; various monasteries (among others, Reichenau). In 1805: former Austrian territories (Breisgau, Ortenau, Baar, city of Konstanz, Mainau). In 1806: principalities of Fürstenberg, Leiningen, Salm-Krautheim, landgraviate of Klettgau; territories of Bonndorf, Heitersheim, Wertheim (partially) and imperial knightly territories. In 1810: landgraviate of Nellenburg and county of Hohenberg. [30]
- Bavaria, Southern half. Added: princebishoprics of Passau and Freising; free Imperial city of Regensburg. [4]
- Hesse-Darmstadt. Added in 1803: former Mainz districts (Gernsheim, Bensheim, Heppenheim, Lorsch, Fürth im Odenwald, Steinheim, Alzenau, Vilbel, Rockenberg, Haßloch,

Hirschhorn, Mönchhof, Gundhof, Klarenberg); former Palatinian districts (Kindenfels, Umstadt, Otzberg, Alzey [partially], Oppenheim [partially]); prince-bishopric of Worms; abbeys Seligenstadt and Mareinschloß; Imperial cities of Wimpfen and Friedberg. In 1806: county of Erbach and imperial knightly territories. In 1816: principality of Isenburg-Birstein; other former Mainz and Palatinian districts. [11]

- 12) Saxony. Loses territories to Prussia. [1]
- 13) Schleswig-Holstein. Unchanged. [1]
- 14)Württemberg. Added in 1803/06: provostry of Ellwangen, Imperial abbeys of Schöntal, Gutenzell, Isny, Rot (an der Rot), Schussenried, Weißenau, Weingarten, and Zwiefalten; Imperial cities of Reutlingen, Esslingen, Rottweil, Heilbronn, Giengen, Aalen, Weil der Stadt, Biberach, Schwäbisch Hall and Schwäbisch Gmünd; village of Dürrenmettstetten: former Austrian territories (Austrian Swabia: Hohenberg, Landvogtei Schwaben, Danubian cities [Mengen, Munderkingen, Riedlingen, Saulgau, Waldsee], Ehingen, Wiblingen, Burgau); territories of the Teutonic Order (district of Hornegg: Neckarsulm and Gundelsheim; Mergentheim); territories of the Order of St. John; imperial knightly territories; principalities of Hohenlohe, Königsegg, Thurn und Taxis, Waldburg (partially), Eglofs (Windischgrätz); territories of Neuravensburg, Tannheim, Straßberg, Gundelfingen, (Limpurg-)Gaildorf, Wiesensteig, Waldsee, Schelklingen; former Mainz territories (Krautheim). In 1809/10: territories of Crailsheim and Creglingen; Imperial cities of Bopfingen, Buchhorn, Leutkirch, Ravensburg, Ulm and Wangen; principality of Hirschlatt. [48]
- 15) Brandenburg (Prussia). Unchanged. [1]
- 16) East Prussia (Prussia). Unchanged. [1]
- Pomerania (Prussia). Unchanged (1815 addition of Anterior Pomerania, formerly Swedish, is not included in the data). [1]
- 18) Silesia (Prussia). Added former Saxon territories (upper Lusatia). [2]
- Mecklenburg-Schwerin. Added in 1803: former Swedish territories (Wismar, Poel, Neukloster). [2]

Online Appendix D: Coding of Treatment and Reform

In this section we describe the coding of institutional reforms presented in Table 1. When reforms were conducted prior to 1815, their attribution to the 19 polities in the dataset can be problematic, as they are often defined according to their post-1815 borders (see Online Appendix A). To minimize these problems, we have defined some polities in such a way to exclude areas with different legislations. As detailed in Appendix A above, for example, our definition of the Prussian province of Pomerania excludes the areas of Anterior Pomerania (ruled by Sweden before 1815), and Hesse-Darmstadt excludes the leftrhenish province of *Rheinhessen* (where, as in the Bavarian Palatinate, French laws remained in place after 1815).

In other cases, the post-1815 polity is matched—for the purposes of coding to the preceding territory that occupied the largest part of its area. Specifically, we match the County of Mark and the Prussian province of Westphalia to the Napoleonic Grand Duchy of Berg; we match Hanover, Hesse-Kassel and the province of Saxony to the Napoleonic Kingdom of Westphalia. The lists below describe, where applicable, also the reforms as they took place in other parts of the territory.

D1. Treatment Definition

We define treatment as effective rule through France or through a Frenchcontrolled satellite state (the Grand Duchy of Berg, Kingdom of Westphalia, the Grand Duchy of Frankfurt), excluding periods of pure military occupation. The number in brackets indicated the total number of years of French control.

- Rhineland (Prussia). After initial setbacks, the French controlled the left bank of the Rhine definitively starting in the winter of 1794/1795. This status quo was recognized by the peace of Campo Formio in 1797. In 1802, the Rhineland was annexed by France and subdivided into départements. French rule ended in 1814. [19]
- 2) Palatinate (Bavaria). See 1. [19]
- 3) Mark (Prussia). The former County of Mark was annexed by the (already Frenchruled) Duchy of Berg as a consequence of the Peace of Tilsit, July 1807. French rule ended with the collapse of Napoleonic troops at the battle of Leipzig, 19 Oct 1813. [6]
- 4) Westphalia (Prussia). The Kingdom of Westphalia was created as a French satellite state in 1807 as a consequence of the Peace of Tilsit. in 1807–1808, the Duchy of Berg was

considerably expanded to comprise the territories of Essen, Werden, Dortmund, Münster, Tecklenburg—later part of the Province of Westphalia. French control ceased after the Battle of the Nations in 1813. [6]

- 5) **Brunswick.** The former territory of the Duchy of Brunswick-Wolfenbüttel became part of the newly created Kingdom of Westphalia as a consequence of the Peace of Tilsit, in 1807. French control ceased after the Battle of the Nations in 1813. [6]
- 6) Province of Saxony (Prussia). The former Prussian territories East of the Elbe (Magdeburg, Halle, Mansfeld, Halbertstadt, Hohenstein and the Altmark) became part of the newly created Kingdom of Westphalia as a consequence of the Peace of Tilsit, in 1807. The territories of Eichsfeld, Erfurt, Mühlhausen and Nordhausen, acquired by Prussia in 1802, were ceded to France in 1807. The départements of the Elbe and

the Saale approximately corresponded to the later Province of Saxony (without its Eastern and Southern bits). French control ceased after the Battle of the Nations in 1813. [6]

- Hesse-Kassel. The former territory of the Landgraviate of Hesse-Kassel became part of the newly created Kingdom of Westphalia as a consequence of the Peace of Tilsit, in 1807. The southern parts of the future Electorate of Hesse-Kassel (Fulda, Hanau) were incorporated into the Grand Duchy of Frankfurt in 1810. French control ceased after the Battle of the Nations in 1813. [6]
- 8) Hanover. The former territory of the Electorate of Hanover, limited to the Duchy of Brunswick-Lüneburg, became part of the newly created Kingdom of Westphalia as a consequence of the Peace of Tilsit, in 1807. The northern parts of the Electorate (Bremen-Verden) were annexed to France in 1810. East Frisia was incorporated into the (French-Ruled) Kingdom of Holland in 1806. French control ceased after the Battle of the Nations in 1813. [6]
- 9) Baden. No French rule. Under the auspices of Napoleon, Baden was elevated to Grand Duchy and its territory expanded fourfold.[0]

- 10) Bavaria, Southern half. No French rule. [0]
- Hesse-Darmstadt. No French rule. Under the auspices of Napoleon, the Landgraviate of Hesse-Darmstadt was elevated to Grand Duchy. [0]
- 12) Saxony. No French rule. [0]
- 13) Schleswig-Holstein. No French rule. [0]
- 14) Württemberg. No French rule. Under the auspices of Napoleon, the Duchy of Württemberg was elevated to Kingdom and its territory doubled in size. [0]
- 15) Brandenburg (Prussia). No French rule.[0]
- 16) East Prussia (Prussia). No French rule.[0]
- 17) Pomerania (Prussia). No French rule. [0]
- 18) Silesia (Prussia). No French rule. [0]
- 19) Mecklenburg-Schwerin. No French rule.[0]

D2. Civil Code

We code the years in which a written civil code, guaranteeing universal equality in front of the law to all citizens, was in place (this often correlated with the presence of written penal and/or commercial codes). This definition excludes the the *Allgemeines Landrecht* (ALR), the ambitious Prussian civil code of 1794, a 19 000 paragraphs-long codification of all legal matters which was a progressive work for its times, heavily influenced by the ideals of the Enlightenment, and the Bavarian *Codex Maximilianeus Bavaricus Civilis* of 1756—both of these codes still allowed for the existence of the *Patrimonialgerichtsbarkeit*, i.e. separate courts for peasants, held by their landlords.

Appendix E explores different definitions of this coding that include the ALR and the *Codex Maxiimlianeus*. For most states unaffected by the French 'treatment,' a universal written civil code was in place only in 1900, after the introduction of the German civil code (*Bürgerliches Gesetzbuch*)

1) Rhineland (Prussia). In September 1802, the *départements* on the left bank of the Rhine were declared legally equivalent to all other French départements, which means they were considered French territory and the *Code Napoléon* was in force. See below (4.) for the right-Rhenish parts of the Rhineland, formerly part of the Duchy

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of Berg. The *Code Napoléon* remained in force until the introduction of the German Civil Code (BGB) on 1 Jan 1900. (Helmut Coing 1973, pp. 1441–1442) (Werner Schubert 1977*b*, pp. 85, 89, 97–98) (Werner Schubert 1977*a*, pp. 170–173) [**1802**]

- Palatinate (Bavaria). See above, 1. In this part of Bavaria, the *Code Napoléon* remained in force until the introduction of the German Civil Code (BGB) on 1 Jan 1900. (Coing 1973, p. 1441, 1442–1443) (Schubert 1977b, pp. 85, 89, 97–98) (Schubert 1977a, pp. 170–173) [1802]
- Mark (Prussia). The Code Napoléon was enacted on 1 Jan 1810 in the Grand Duchy of Berg. Prussia introduced the ALR (Prussian Civil Code) in the province of Westphalia on 1 Jan 1815. (Schubert 1977b, p. 140) (Schubert 1977a, p. 155) [1810–1815, 1900]
- 4) Westphalia (Prussia). The Code Napoléon was enacted on 1 Jan 1810 in the Grand Duchy of Berg, and on 1 Jan 1808 in the Kingdom of Westphalia. Only the parts that constituted the old Duchy of Berg hence excluding the ones lying in the new Province of Westphalia—retained French law after the end of French rule. Prussia introduced the ALR (Prussian Civil Code) in the province of Westphalia on 1 Jan 1815. (Coing 1973, p. 1449, 1450) (Schubert 1977b, pp. 100, 140) (Schubert 1977a, pp. 150, 155) [1810–1815, 1900]
- Brunswick. Part of the Kingdom of Westphalia: see 4. The Duchy of Brunswick reintroduced customary law on 1 Mar 1814. (Coing 1973, p. 1450) (Schubert 1977*a*, p. 140) [1808–1814, 1900]
- Province of Saxony (Prussia). Part of the Kingdom of Westphalia: see 4. Prussia (re)introduced the ALR (Prussian Civil Code) in the province of Saxony on 1 Jan 1815. (Schubert 1977*a*, p. 150) [1808–1815, 1900]
- 7) Hesse-Kassel. The Code Napoléon was enacted on 1 Jan 1808 in the Kingdom of Westphalia, and on 1 Jan 1811 in the Grand Duchy of Frankfurt. Hesse-Kassel reintroduced its old laws on 4 Jan 1814 (16 Jan 1814 for the territories of Hanau and Fulda, formerly part of the Grand Duchy of Frankfurt). (Coing 1973, pp. 1449–1450, 1452) (Schubert

1977*b*, pp. 100, 244) (Schubert 1977*a*, p. 142) [**1808–1814, 1900**]

- 8) Hanover. The Code Napoléon was enacted on 1 Jan 1808 in the Kingdom of Westphalia. Ostfriesland (the territory including Emden) and Jever were part of the Batavian Republic from 1807–1811, and of France 1811–1813; here, the Code Napoléon was in force 1809–1811. Hanover reintroduced its old laws in the course of 1813. French law was abolished in the territories of East Frisia, Meppen, Emsbüren and the former bishopric of Hildesheim in 1815. (Schubert 1977b, pp. 100, 150–160) (Schubert 1977a, pp. 134– 135) [1808–1813, 1900]
- Baden. French law was introduced without any pressures on the French side to do so. The Badisches Landrecht is essentially the Code Napoléon, with no exclusions and only some minor addditions; it went in force starting from 1 Jan 1810, and remained in force until the introduction of the German Civil Code (BGB) on 1 Jan 1900. (Coing 1973, pp. 1443–1446) (Schubert 1977b, pp. 193– 236) [1810]
- 10) Bavaria, Southern half. In 1808 Bavaria (under its liberal prime minister Montgelas) set up a commission to adapt the *Code Napoléon*. However, in 1811 they gave up the project of adapting and adopting the C.N. and opted for a profound revision of their own old *Codex Maximilianeus Bavaricus Civilis*, a civil code of 1756, one of the first codices in German language. The revised Cod. Max. remained in force until the introduction of the German Civil Code (BGB) on 1 Jan 1900. (Coing 1973, p. 1455) (Schubert 1977b, pp. 163–181) [1900]
- Hesse-Darmstadt. Hesse-Darmstadt started some efforts to adapt and adopt the *Code Napoléon*, but eventually gave up. (Coing 1973, p. 1455) (Schubert 1977b, pp. 242) [1900]
- 12) Saxony. No enactment of the French civil code. A modern codification of private law (the Sächsische Bürgerliche Gesetzbuch) was enacted on 1 Mar 1865, and remained in force until the introduction of the German Civil Code (BGB) on 1 Jan 1900. (Coing 1973, pp. 1540–1553) [1865]
- 13) Schleswig-Holstein. No enactment of the French civil code. [1900]

- 14)Württemberg. No enactment of the French17)Pomerania(Prussia).See above, 15.civil code.[1900][1900]
- 15) Brandenburg (Prussia). No enactment of the French civil code. ALR (Prussian Civil 18) Silesia (Prussia). See above, 15. [1900] Code) in force since 1794. [1900]
- 16) East Prussia (Prussia). See above, 15. 19) Mecklenburg-Schwerin. No enactment of [1900] the French civil code. [1900]

D3. Agrarian Reforms

We code two types of reform: one is the abolition of serfdom. Even though in most of the lands west of the Elbe serfdom did not subsist in the late 18th and early 19th century, its abolition was often more than a symbolic gesture, indicating the political will to embark on a set of agrarian reforms. The second reform we code is the implementation of a law describing the amount needed to exit the feudal relationship of the *Grundherrschaft*, usually in terms of a multiple of annual rents. Laws that only declared the redeemability of land parcels, as implemented by some states early on, had little or no effect, as landlord and peasant would often not agree on the terms of the sale. Instead, laws (*Ablösungsordnungen*) that determined the exact amounts proved to be a crucial precondition for a successful agrarian reform. The first date in brackets indicates the abolition of serfdom, the second date the implementation of a law regulating the redemption of feudal lands.

- Rhineland (Prussia). France abolished serfdom without compensation in 1794; it was enacted only with a decree of 26 Mar 1798; other duties (*Grundrenten*) were redeemable for 15 times the annual value. However, the definition of redeemability caused troubles, that were partly cleared with a law in 1804. (Friedrich Lütge 1963, pp. 204–5) (Christoph Dipper 1980, pp. 50–53) [1798, 1804]
- Palatinate (Bavaria). See 1. [1798, 1804]
- 3) Mark (Prussia). In the Grand Duchy of Berg, French legislation was introduced on 12 Dec 1808 (abolition of serfdom) and 11 Jan 1809 (abolition of feudal bonds), and led to endless processes about the determination of what was defined as "serfdom" and hence required no compensation. This situation of ambiguity determined that little reform took place. A delegation of peasants even went to Paris, where Napoleon decreed that all duties had to be redeemed at once, which obviously made it an unbearable burden for peasants. The processes were all turned down with a

decree of 28 Mar 1812, which effectively put a halt to all agrarian reforms. When the Prussians took over, they recognized the French legislation (and the changes that had taken place up to then), but they continued to suspend all processes until 1825, when a clarifying law was approved. (Lütge 1963, p. 206) (Dipper 1980, p. 54) [1808, 1825]

- Westphalia (Prussia). For the parts be-4) longing to the Grand Duchy of Berg, see above, 3. In the Kingdom of Westphalia, the French abolished serfdom on 23 Jan 1808. The law of 18 Aug 1809 established that all other duties could be redeemed against 25 times their annual value. French legislation ultimately was not successful (among other reasons, because many peasants did distrust the French government). As Prussia took over, they accepted French legislation; the redemption of duties was regulated with successive waves of legislation, the most important of which was the Ablösungsordnung of 13 July 1829. (Lütge 1963, pp. 201-2) (Dipper 1980, pp. 54–55) [1808, 1825]
- 5) Brunswick. See 4. for the period un-

der the Kingdom of Westphalia. The Westphalian laws about agricultural reform were revoked in 1818. Finally, the redemption of feudal duties was regulated with the *Ablösungsordnung* of 20 Dec 1834. (Karl Heinz Schneider and Hans Heinrich Seedorf 1989, pp. 76–77) [**1808–1818 and 1834**, **1809–1818 and 1834**]

- 6) Province of Saxony (Prussia). For the parts that lay in the Kingdom of Westphalia, see 4. The so-called Duchy of Saxony, i.e. the parts ceded to Prussia from Saxony, had seen no reforms in the Napoleonic period. Prussia abolished serfdom in 1819, and declared feudal duties redeemable with the *Ablösungsordnungen* of 1821 and 1829 (Lütge 1963, p. 204) [1808, 1809]
- 7) Hesse-Kassel. For the parts that lay in the Kingdom of Westphalia, see 4. Kurhessen did not recognize French legislation, as opposed to Prussia. It was only on 23 June 1832 when a new law declared all duties to be redeemable (20 times the annual value), and established a bank to give credit to peasants. (Lütge 1963, p. 219) (Dipper 1980, p. 81) [1808–1814 and 1832, 1809–1814 and 1832]
- 8) Hanover. For the parts that lay in the Kingdom of Westphalia, see 4. Like other successor states, Hanover returned to the old system immediately after the fall of Napoleon in 1814. It was only through two laws on 10 Nov 1831 and on 23 Jul 1833 (*Ablösungsordnung*) that serfdom was abolished (again), and duties were made redeemable for 25 times their annual value. (Lütge 1963, pp. 220–221) (Dipper 1980, pp. 74–76) (Schneider and Seedorf 1989, pp. 65–68) (Walter Achilles 1993, pp. 154–162) [1808–1814 and 1833, 1809–1814 and 1833]
- 9) Baden. The original territory of Baden (before the fourfold expansion under Napoleon) abolished serfdom (partly) on 23 Jul 1783, reduced feudal duties in 1773 and 1786, and permitted the redemption of duties on 25 Jul 1785. However, scarcely anyone took advantage of these possibilities. In 1820 Baden abolished all remaining duties derived from relations of serfdom or and made payments resulting from feudal relationships redeemable. Redemption was made easier by two new laws on 28 May 1831 and on 15 Nov 1833, when the a part of duties was abolished

and redemption was made easier through financing instruments. (Lütge 1963, pp. 218– 219) (Dipper 1980, pp. 82–85) [1783, 1820]

- 10) Bavaria, Southern half. In 1779, the first attempt to improve the peasants' situation was made, starting (as in Prussia) with those that were immediate subjects of the King (landesherrliche Bauern); they were offered to exchange their variable duties against a fixed rent and the guarantee of inheritability. However, scarcely anyone took advantage of it because of the high required sums. In 1803, in the aftermath of secularisation, peasants that used to be subjects of an ecclesiastical institution were given the chance to redeem properties from the kingdom (that had taken over). In 1808 serfdom was abolished and duties were made redeemable. However, both parties had to agree on redemption, and so, also due to the agrarian depression until the 1830s, little happened. Two laws, on 8 Feb 1825 and on 13 Feb 1826, fixed the amounts needed to redeem annual duties (25 times). (Lütge 1963, pp. 212-215) (Coing 1973, pp. 1733–1735) (Dipper 1980, pp. 89-91) (Achilles 1993, pp. 143-146) [1808, 1826]
- 11) Hesse-Darmstadt. Duties from serfdom (rather irrelevant in those territories) and feudal bonds were made redeemable (against 20-fold annuity) with laws on 6 Jun 1811 and 13 May 1812 respectively. These laws were enacted more effectively only when the state started mediating between peasants and nobility, which happened only in 1816 in the southern parts (aka Starkenburg and Rheinhessen), in 1827 for the northern part (aka Oberhessen). (Dipper 1980, pp. 79–80) [1811, 1812]
- 12) Saxony. Saxony did not introduce any reforms at first; however, it should be noted that Saxony was one of the most advanced regions at that time; 77 percent of farmers were on land that was freely inheritable, only one eighth of the population was subject to feudalism (*Grundherrschaft*). Finally, after the revolutionary movements in 1830, a comprehensive law was enacted on 17 Mar 1832 that made all duties redeemable and even created a bank to provide credits. (Lütge 1963, pp. 219–220) (Coing 1973, pp. 1737–1739) (Dipper 1980, pp. 76–79) (Achilles 1993, pp. 150–154) [1832, 1832]

13) Schleswig-Holstein. Here, forms of land tenure varied considerably across the different types of landscapes. A commission propelled a series of reforms from 1768 to 1823, whih made S.-H. one of the states with the most advanced agrarian constitutions. While serfdom had already been abolished for several classes of peasants starting in the late 18th century, a generalized abolition occurred, starting from 1 Jan 1805, only with the law of 19 Dec 1804. This law also regulated the purchase of land from the lords, or alternatively the peasants' claims. (Coing 1973, p. 1741) (Otto Brandt 1976, pp. 208–209) (Dipper 1980, pp. 71–74) [1805, 1805]

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- 14) Württemberg. Serfdom was abolished in 1817; feudal duties were declared redeemable with the same edict of 18 Nov 1817. No clear rules were set for redemption, though, until the laws of (*Ablösungsordnung*) 27, 28 and 29 Oct 1836. (Lütge 1963, pp. 216– 217) (Coing 1973, pp. 1735–1736) (Dipper 1980, pp. 85–88) (Achilles 1993, pp. 146–150) [1817, 1836]
- 15) Brandenburg (Prussia). Domänenbauern, i.e. peasants serving the king directly, were "liberated" (given inheritable rights) in 1799. The edict of 9 Oct 1807 was the radical turning point for Prussia under Napoleon's threat. It promised, among other things, the abolition of feudal bonds (Gutsuntertänigkeit), starting in 1810. However, the definition of what was meant with "feudal bonds" was given only in 1809, and an edict on 14 Sep 1811 finally defined how to proceed: peasants subject to Laßrecht (which means they were given a concession to farm the land, a concession that could be revoked anytime) were given the property of their land if they ceded one third of it to the feudal lord. This process was interrupted from 1812-15 because of the wars, and resumed with a declaration of 29 May 1816. However,

Lütge (1963, pp. 192–195) notes that peasants started reforming their farms, improving their conditions etc. already after 1811. Laws from 1821 regulated the liberation of peasants within the system of *Grundherrschaft*, i.e. those that were already guaranteed the heritability of their land lease, who could now liberate themselves from their duties against a compensation payment of 25 times the annual duty. (Lütge 1963, pp. 190–200) (Dipper 1980, pp. 62–66) (Achilles 1993, pp. 134–143) **[1811, 1821]**

- 16) East Prussia (Prussia). Domänenbauern, i.e. peasants serving the king directly, were "liberated" (given inheritable rights) in 1763. For the remaining aspects of agrarian reforms, see 15. [1811, 1821]
- 17) Pomerania (Prussia). Domänenbauern,
 i.e. peasants serving the king directly, were
 "liberated" (given inheritable rights) in 1799.
 For the remaining aspects of agrarian reforms, see 15. [1811, 1821]
- 18) Silesia (Prussia). Domänenbauern, i.e. peasants serving the king directly, were "liberated" (given inheritable rights) in 1807. For the remaining aspects of agrarian reforms, see 15. [1811, 1821]
- Mecklenburg-Schwerin. The territories of 19)Mecklenburg (M.-Schwerin and M.-Strelitz) are considered the archetype of resistance to reform. At the same time, however, they had one of the most advanced and productive forms of agriculture, with large farms. This was the result of a long period of peasant migration and abandonment of farms, that led to consolidation. Serfdom was finally abolished in 1820. Other feudal duties (for those peasants that were subjected to knights) were declared redeemable in 1862 in M.-Schwerin, but freeing peasants was not mandatory. (Coing 1973, pp. 1741-1743) (Dipper 1980, pp. 69-71) [1820, 1862]

D4. Guilds

We code the year in which the regulation of crafts through the requirement of membership in a guild was abolished. This so-called *Gewerbefreiheit* ("freedom of commerce," including the abolition of guilds) often coincided with equivalently liberal granting of concessions to set up manufacturing activities. For those states that did not liberalize before, the abolition of guilds came through the *Reichs-gewerbeordnung* of 1869, extended to the whole German Empire in 1871.

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- Rhineland (Prussia). For the Rhineland, incorporated into France, the French decrees of 8, 15 Mar 1790 and 17 Mar 1791 effectively meant the abolition of guilds. This situation was maintained by Prussia. (H. Mascher 1866, p. 492) (Karl Friedrich Wernet 1963, pp. 201, 205) [1795]
- Palatinate (Bavaria). See above, 1. The liberalization was maintained under Bavarian rule. (Coing 1973, pp. 3576-2577) [1795]
- 3) Mark (Prussia). Guilds were abolished and crafts liberalized in the Grand Duchy of Berg in a decree on 31 Mar 1809. This situation was maintained by Prussia. (Mascher 1866, p. 492) (Wernet 1963, p. 205) [1809]
- 4) Westphalia (Prussia). For the parts belonging to the Grand Duchy of Berg, see above, 3. Guilds were abolished and crafts liberalized in the Kingdom of Westphalia through two decrees, of 5 Aug 1808 and 12 Feb 1810. Prussia maintained the liberalizations after it took over, but also kept the guilds system in parts of the province, notably the former Duchy of Westphalia (under Hesse-Darmstadt in Napoleonic times). (Mascher 1866, p. 497) (Wernet 1963, p. 205) [1809]
- Brunswick. For the period under Westphalian rule, see 4; reversion in 1815. Liberalization starting on 3 August 1864. (Mascher 1866, p. 636) (Wernet 1963, p. 205) (Coing 1973, p. 3601) [1808–1815, 1864]
- 6) Province of Saxony (Prussia). For the parts that lay in the Kingdom of Westphalia, see 4. Prussia maintained the liberalizations after it took over, but also kept the guilds system in parts of the province, notably the territories ceded by (the Kingdom of) Saxony, Erfurt, and the areas East of the Elbe. (Mascher 1866, p. 497) (Hugo Roehl 1900, pp. 173–186) [1809]
- 7) Hesse-Kassel. For the parts that lay in the Kingdom of Westphalia, see 4. Reintroduction of guilds on 5 Mar 1816. Varied situation, with areas where guilds had been abolished, and others where they were still in place. Final liberalization through the *Reichsgewerbeordnung* in 1869. (Mascher 1866, pp. 496, 644–645) (Coing 1973, p. 3582) [1808–1816, 1869]

- 8) Hanover. For the parts that lay in the Kingdom of Westphalia, see 4. Reintroduction of guilds in 1815. An intended, liberalizing law of 1847 had no effect because of the revolution of 1848. Final liberalization through the *Reichsgewerbeordnung* in 1869. (Mascher 1866, pp. 496, 648) (Wernet 1963, p. 206) [1808–1815, 1869]
- Baden. Either guilds or concessions needed until full liberalization of 15 Oct 1862 (law of 20 Sep 1862). (Mascher 1866, p. 625) (Coing 1973, p. 3588) [1862]
- 10) Bavaria, Southern half. Strict concessionbased system through a law of 11 Sep 1825 (originally intended to be a liberalization, but interpreted very stricly); very high entrance fees. Abolition in 1868. (Mascher 1866, pp. 649–660) (Coing 1973, pp. 3575– 3576) (Dirk Georges 1993, p. 36) [1868]
- Hesse-Darmstadt. Partial freedom of commerce: in the province Oberhessen, 20% of craftsmen belonged to a guild, in the province Starkenburg, 58% (according to Mascher (1866, p. 645)). Full liberalization only through the law of 16 Feb 1866. (Coing 1973, p. 3581) [1866]
- 12) Saxony. Gustav Schmoller (1870) reckons that the legislation was rather liberal, but no formal liberalizations until the law of 9 Dec 1840, which eased the conditions for craftsmen in the countryside. Full liberalization starting on 1 Jan 1862 (law of 15 Oct 1861). (Mascher 1866, pp. 616–617). (Coing 1973, p. 3591) [1862]
- Schleswig-Holstein. Guilds continue to exist and have privileges until 1867. (Mascher 1866, p. 661) (Klaus-Joachim Lorenzen-Schmidt 1996, p. 386). [1867]
- 14) Württemberg. Liberalization of 13 out of 57 professions in 1828, classic guilds remained in power generally until full liberalization starting of 1 May 1862 (law of 12 Jan 1862). (Mascher 1866, p. 622). (Coing 1973, pp. 3585–3586) [1862]
- 15) Brandenburg (Prussia). Liberalization starting with the law of 2 November 1810. The decree of 8 Feb 1849 reintroduced the examination for master craftsmen, but fell short of making the participation in a guild mandatory. (Mascher 1866, pp. 487–489) (Wernet 1963, pp. 204–206) (Coing 1973, pp. 3558–3569) [1810]

- 16) East Prussia (Prussia). See above, 15. 19) Mecklenburg-Schwerin. Guilds continue [1810] to exist and have privileges. Liberaliza-
- 17) **Pomerania (Prussia).** See above, 15. [1810]
- 18) Silesia (Prussia). See above, 15. [1810]

ONLINE APPENDIX E: ADDITIONAL REGRESSIONS

In this section we explore alternative definitions of the reforms index used in section IV to estimate the two-stage least squares models. Column (1) of Table Appendix 1 uses a wider definition of "Presence of a written civil code," including also the Prussian and Bavarian codices of 1794 and 1756 respectively. This change increases the score of the reforms index for five territories in the control area (Bavaria and the four provinces of Prussia east of the Elbe) and for three territories in the treatment area (Mark, Westphalia, and the Province of Saxony, allo of which abandoned the French civil code in favor of the ALR after 1815). The OLS estimate is now smaller (and weaker) than in the baseline case of Table 6, column (1); however, the IV estimate does not differ substantially.

Columns (2)-(6) eliminate one reform at a time from the definition of the reforms index (column (5) eliminates both reforms relating to the agricultural sector). This explores the robustness of the index to the exclusion of some items. In fact, both the OLS estimates in Panel A and the 2SLS estimates in Panel C are very similar to the baseline case of of Table 6, column (1), providing evidence that the results do not depend on the coding of one single area of reforms.

) Mecklenburg-Schwerin. Guilds continue to exist and have privileges. Liberalization only through the *Reichsgewerbeordnung* in 1869. (Mascher 1866, p. 660) (Peter Mast 1994, p. 153). [1869]

lableA	lable Appendix 1: Urbanization in Germany, Alternative Definitions of Reforms	zation in German	iy, Alternative De	finitions of Refc	orms	
		D	Dependent variable: Urbanization rate	e: Urbanization r	ate	
			West of	West of the Elbe		
	incl. ALR and	excl. "Civil	excl.	excl. "Ag.	excl. "Ag. R."	" " " I monthe
	Cod. Max.	Code"	"Serfdom"	Reform"	and "Serfdom"	exci. Guilds
	(1)	(2)	(3)	(4)	(5)	(9)
Panel A: OLS estimation						
Reforms Index	0.157	0.248	0.265	0.253	0.219	0.282
	[0.137]	[0.173]	[0.0806]	[0.0969]	[0.0594]	[0.143]
Panel B: First Stage						
French Presence * Post1800 * Trend	0.994	0.995	1.399	1.320	1.747	0.950
	[0.211]	[0.0899]	[0.106]	[0.127]	[0.143]	[0.157]
F-statistic excluded instruments	22.24	122.5	173.6	108.6	149.1	36.67
p-value F-statistic	0.000	0.000	0.000	0.000	0.000	0.000
Panel C: 2SLS estimation						
Reforms Index	0.341	0.341	0.242	0.257	0.194	0.357
	[0.151]	[0.136]	[0.0811]	[0.0891]	[0.0636]	[0.123]
Observations	74	74	74	74	74	74
Number of States	13	13	13	13	13	13
Notes: All regressions have full set of territory and year dummies. Robust standard errors, clustered by territory. All regressions are weighted by territories' total population in 1750.	territory and year d	lummies. Robust	standard errors, o	clustered by terri	ttory. All regression	ns are weighted

Table Appendix 1: Urbanization in Germany, Alternative Definitions of Reforms

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