

A Service of



Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics

Becker, Sascha O.; Cinnirella, Francesco; Hornung, Erik; Woessmann, Ludger

Working Paper iPEHD: The ifo Prussian Economic History Database

IZA Discussion Papers, No. 6829

Provided in Cooperation with: IZA – Institute of Labor Economics

Suggested Citation: Becker, Sascha O.; Cinnirella, Francesco; Hornung, Erik; Woessmann, Ludger (2012) : iPEHD: The ifo Prussian Economic History Database, IZA Discussion Papers, No. 6829, Institute for the Study of Labor (IZA), Bonn

This Version is available at: https://hdl.handle.net/10419/62480

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



WWW.ECONSTOR.EU

IZA DP No. 6829

iPEHD: The ifo Prussian Economic History Database

Sascha O. Becker Francesco Cinnirella Erik Hornung Ludger Woessmann

August 2012

Forschungsinstitut zur Zukunft der Arbeit Institute for the Study of Labor

iPEHD: The ifo Prussian Economic History Database

Sascha O. Becker

CAGE, University of Warwick, Ifo, CEPR, CESifo, and IZA

Francesco Cinnirella

Ifo, CESifo and CEPR

Erik Hornung

lfo

Ludger Woessmann

University of Munich, Ifo, CESifo, IZA and CAGE

Discussion Paper No. 6829 August 2012

IZA

P.O. Box 7240 53072 Bonn Germany

Phone: +49-228-3894-0 Fax: +49-228-3894-180 E-mail: iza@iza.org

Any opinions expressed here are those of the author(s) and not those of IZA. Research published in this series may include views on policy, but the institute itself takes no institutional policy positions.

The Institute for the Study of Labor (IZA) in Bonn is a local and virtual international research center and a place of communication between science, politics and business. IZA is an independent nonprofit organization supported by Deutsche Post Foundation. The center is associated with the University of Bonn and offers a stimulating research environment through its international network, workshops and conferences, data service, project support, research visits and doctoral program. IZA engages in (i) original and internationally competitive research in all fields of labor economics, (ii) development of policy concepts, and (iii) dissemination of research results and concepts to the interested public.

IZA Discussion Papers often represent preliminary work and are circulated to encourage discussion. Citation of such a paper should account for its provisional character. A revised version may be available directly from the author.

IZA Discussion Paper No. 6829 August 2012

ABSTRACT

iPEHD: The ifo Prussian Economic History Database^{*}

This paper provides a documentation of the ifo Prussian Economic History Database (iPEHD), a county-level database covering a rich collection of variables for 19th-century Prussia. The Royal Prussian Statistical Office collected these data in several censuses over the years 1816-1901, with much county-level information surviving in archives. These data provide a unique source for micro-regional empirical research in economic history, enabling analyses of the importance of such factors as education, religion, fertility, and many others for Prussian economic development in the 19th century. The service of iPEHD is to provide the data in a digitized and structured way.

JEL Classification: N13, N33

Keywords: economic history, Prussia, 19th century, database, county

Corresponding author:

Ludger Woessmann Ifo Institute for Economic Research at the University of Munich Poschingerstr. 5 81679 Munich Germany E-mail: woessmann@ifo.de

^{*} Over the years, a large number of research assistants have contributed to the digitization work underlying iPEHD. We are grateful for their contributions, especially to Christian Steibl, as well as to Rajesh Bhateja. Financial support by the Pact for Research and Innovation of the Leibniz Association is gratefully acknowledged.

1. Introduction

Prussian economic history during the 19th century proves a fascinating setting to study many of the most fundamental questions in economic history. A country of such high diversity, but with a rather uniform institutional setting, allows answering many important research questions by analyzing the micro-regional variation existing within one country. For example, the Prussian setting allows analyzing the importance of such factors as education, religion, fertility, and many others for industrialization and historical economic development.

What is more, starting with the first full-scale population census in 1816, the Royal Prussian Statistical Office collected a huge amount of data in a number of censuses over the 19th century. Many interesting county-level data have survived in archives. Thanks to the Prussian proverbial orderliness and thoroughness, we have high-quality data for the Prussian counties (*Kreise*) covering nearly the whole range of the 19th century. These data provide a unique source for empirical research in economic history, with the particular potential to study historical micro-regional data with modern microeconometric methods.

The service of the ifo Prussian Economic History Database (iPEHD) is to provide many of these data in a digitized and structured way. Thus, iPEHD is a county-level database covering a rich collection of variables for all counties of Prussia over the period 1816-1901. iPEHD is freely available to any interested researcher at <u>www.cesifo-group.de/ipehd</u>. The iPEHD website does not only provide the raw data, but also background information, definitions, and sources of variables. It also makes suggestions on how to merge data from different census waves with varying administrative boundaries into panel datasets. Finally, it provides a collection of thematic maps visualizing the data, ready-made datasets and codes to replicate tables from published research, and additional material.

Throughout, iPEHD covers all Prussian counties, whose number increased over the 19th century from 308 in 1816 to 574 in 1901. Drawing from a total of 15 original sources – many of which contain several volumes – iPEHD comprises more than 1,500 variables. The available data cover a wide range of topics including a host of indicators of economic development, education, demographics, and more. iPEHD organizes these data into eight content areas: education, occupation, wages and income tax, industry, agriculture, population, religion, and miscellaneous. In total, iPEHD contains more than half a million data points at the county level. While nowhere near being a complete collection of all available data, we think that iPEHD provides a comprehensive micro-regional database on 19th-century economic history in Prussia.

This paper documents iPEHD and provides guidance on how to use the data contained in it. The next section starts with some brief background on how iPEHD emerged. Section 3 provides an overview of the data contained in iPEHD. Section 4 describes the data structure and suggests a procedure to combine data from different census years. Section 5 lists the original sources, published by the Royal Prussian Statistical Bureau or its employees, from which the iPEHD data stem. Section 6 gives a brief overview of research that has been conducted using iPEHD data so far. Section 7 presents a few additional features of the iPEHD website, and Section 8 concludes.

2. A Brief History of the Birth of iPEHD

In 2006, when looking for data to analyze the relationship of religion and literacy with economic outcomes in German history, we stumbled upon the rich county-level data available from the Prussian census of 1871. After thorough studies of the data, we were fascinated by the depth and breadth of the historical information that the Royal Prussian Statistical Office had collected and documented. Prussian thoroughness had produced high-quality data at the county level in the 19th century documenting everything from education over religion and demographics to economic development (see Figure 1 for an example).

Soon, we recognized the sheer amount of data that were just sitting around in the statistical annals at German state libraries. The quality of this impressive collection of information, remarkable for the 19th century, has generally been regarded as excellent by historians and demographers (cf., e.g., Galloway, Hammel, and Lee (1994)).¹ And compared to the selective samples which a lot of historical research is restricted to, the full censuses covering the whole population provide a much more reliable picture of the historical setting.

After the original "Was Weber Wrong?" paper (eventually published as Becker and Woessmann (2009)) which relied mainly on the 1871 census and subsequent data, we explored annals covering rather unknown census data from 1816 to 1821.² Although lots of effort had to be undertaken to make these data ready for research and to ensure their comparability, we soon found it to be very promising and equally reliable. A third large data digitization project involved the census of 1849. The sheer amount of information provided in the sources was overwhelming.

¹ After we had digitized the data used in Becker and Woessmann (2009), data from that project became available online at www.patrickgalloway.com.

² We are grateful to Davide Cantoni for pointing us to these data sources at the time.

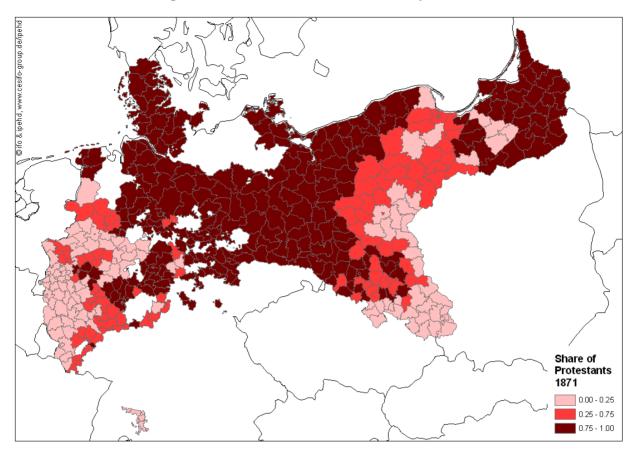


Figure 1: Protestantism in 19th-Century Prussia

Note: County-level depiction based on the 1871 Prussian Population Census. For details, see Becker and Woessmann (2009).

The censuses of 1816, 1849, and 1871 became the foundation of iPEHD. But, as time went by, we also digitized data from different other censuses to fill in the gaps. Although far from complete, we find the data to provide a rather comprehensive overview of 19th-century economic history in Prussia. Thus, we are happy to be able to make the digitized data available to the scientific community and the interested public. iPEHD went online in the summer of 2012 to be freely used by anyone interested at <u>www.cesifo-group.de/ipehd</u>.

The collection of these data and their provision to the scientific community is part of the project "Establishment of a leading international center for empirical research on the importance of education for long-term economic development," generously funded by the Leibniz Association under the Pact for Research and Innovation. The project was carried out at the Human Capital and Innovation department at the Ifo Institute – Leibniz Institute for Economic Research at the University of Munich.

3. An Overview of the Data contained in iPEHD

This section provides an overview of iPEHD, discussing its scope, the structure of its data files, the areas of content covered, and the information contained in the codebooks.

3.1 The Scope and Data Files of iPEHD

iPEHD starts with the population census in 1816, the first full-scale census released by the Royal Prussian Statistical Office, which had been founded in 1805. The 1816 census covers the 308 Prussian counties at the time. Further extensive census data are available in 1849, 1864, 1871, and 1882, but – as indicated in Table 1 – many more detailed data were collected in additional years. As the number of counties grew over time, by 1901 the data cover 574 Prussian counties. In total, iPEHD contains more than 1,500 variables and more than half a million data points, all at the county level.

Year	No. of variables	No. of county observations	No. of data points
1816	58	308	17,864
1819	5	344	1,720
1821	22	344	7,568
1816-1821	24	456	10,944
1829	6	59	354
1849	712	335	238,520
1858	6	342	2,052
1862	4	346	1,384
1864	53	347	18,391
1866a	1	342	342
1866b	11	334	3,674
1871a	25	453	11,325
1871b	14	458	6,412
1878	5	426	2,130
1882a	269	464	124,816
1882b	14	465	6,510
1886a	156	544	84,864
1886b	97	518	50,246
1892	8	550	4,400
1896	15	552	8,280
1901	8	574	4,592
Sum	1,513		606,388

Table 1: The Scope of iPEHD

Note: Some of the data points may contain missing information.

iPEHD consists of county-level information gathered from these different censuses. The data are currently presented in 76 separate data files, organized by content area, specific topic, and census year. Each data file in iPEHD contains a unique county (*Kreis*) identifier (discussed in Section 4.2 below), the county name, the abbreviated district (*Regierungsbezirk*) name (rb), and a set of variables of census data. iPEHD stores its data in comma-separated values (csv) format, which is easily accessible from any statistical software. For example, to open the csv data files in Stata, one just has to type:

```
insheet using "xxxxxx.csv"
```

To give an example of a data file, Table 2 shows a brief extract of a few variables for the first few counties (by alphabet) from the data file "ipehd_1819_indu_fac.csv", which contains data on the number of factories in a county in 1819. E.g., the variable "fac1819_brick" documents the total number of brick manufactories in a county in 1819, and the variable "mill1819_water" the total number of water mills.

kreiskey1800	County	rb	fac1819_brick	fac1819_lime	fac1819_glass	mill1819_water
277	Achen	AAC	5	10	2	26
33	Adelnau	POS	11	6	0	26
254	Adenau	KOB	0	1	0	71
196	Ahaus	MUN	11	15	0	20
255	Ahrweiler	KOB	0	0	0	51
2	Allenstein	KON	5	0	1	31
219	Altena	ARN	3	13	0	41
257	Altenkirchen	KOB	1	0	0	41
10	Angerburg	GUM	4	26	0	5
53	Angermünde	POT	13	2	0	28
32	Anklam	STE	3	0	0	2
209	Arnsberg	ARN	12	4	0	26
67	Arnswalde	FRA	7	3	3	29
160	Aschersleben	MAG	8	5	0	57
55	(Nieder-)Barnim	POT	8	0	1	30
54	(Ober-)Barnim	POT	18	0	0	36
190	Beckum	MUN	8	3	0	22

Table 2: Extract from an Example Data File

Note: Extract from iPEHD data file "ipehd_1819_indu_fac.csv".

3.2 Areas of Content covered by iPEHD

The iPEHD data are categorized into the following eight content areas:

Education: This area contains, among others, such data as the number of students, teachers, and schools by school type, literacy, and school finance.

Occupation: This area contains, among others, data on the labor force in agriculture, in factories, in manufacturing, in crafts, and in services.

Wages and Income Tax: This area contains data on daily wages of day laborers, on teacher income, and on income taxes.

Industry: This area contains data on a huge number of different factories, technologies, and transportation.

Agriculture: This area contains, among others, such data as livestock, crop yields, soil composition, and the distribution of land.

Population: This area contains data on population by age, by gender, and by marital status, on births and deaths, and on population with disabilities.

Religion: This area contains denomination-specific data on population, literacy, education, occupation, and number of churches.

Miscellaneous: This area contains such data as surface area, buildings, municipalities, and residential areas for each county.

Apart from the data gathered in these eight content areas, the **merger file** provides information on merger variables necessary to combine data from different census years (see Section 4.3 below).

3.3 Codebooks

A large number of codebooks provide additional information for each variable contained in iPEHD. There is one codebook for each year, so that explanations for each variable can be found in the codebook for the corresponding year. A summary codebook that combines all years is also provided; this summary codebook allows a content search of the whole iPEHD.

The codebooks list the variable name ("variable name"), the name of the data file where it can be found ("ipehd datasets"), an English label ("label"), and the original label in German language ("original label"). The German language label is similar to the table headings found in the original sources. The English label leads with the year and is a shortened (direct) translation

of the German label; in cases where a translation is not feasible, the original German term was adopted. In addition, the codebooks indicate the source of each set of variables ("source").

4. Merging Data from Different Censuses

One of the biggest challenges when analyzing historical data is to ensure comparability over time. A key service of iPEHD is to facilitate the analysis of data from different census years at the county level, holding the administrative boundaries fixed. This section presents the structure in which the data are presented in iPEHD and the suggested procedure of combining different census years.

4.1 County-level Structure of the Data

Starting after the Congress of Vienna in 1815, Prussia reformed its administrative structure and introduced the county level. At the time, the dimension of a county was meant to follow borders of previously existing administrative units. The maximum distance to the administrative center was meant to be two to three Prussian Miles (roughly 15 to 23 km or 9 to 14 miles), such that every inhabitant could travel forth and back within a day. The population size was meant to range between 20,000 in sparsely populated areas and 36,000 in densely populated areas.

Throughout the 19th century, various administrative reforms reshaped the county structure of Prussia. As the population grew over time, it became necessary to divide existing administrative units in order to reduce administrative efforts. Most of these changes were partitions of one county into two or more counties.

Thus, it is usually possible to reconstruct earlier administrative units by aggregating data from later years to the former structure. A drawback of this procedure is that the researcher loses part of the variation provided by having more observations. Still, the procedure appears necessary in order to have intertemporal comparability of the units of observation. The alternative would be to assign the same early data to two or more subsequently parted units, introducing measurement error if observed data were not uniformly distributed in the original area.

A peculiarity of the Prussian county system is the city county. Starting with the introduction of the county level in 1815, the so-called *Immediatstädte* (immediate towns) became a county themselves. As urbanization advanced, an increasing number of cities were detached from their

original county and became a county of their own. Thus, the database often contains a *Landkreis* (rural county) and a *Stadtkreis* (city county) with similar names. For example, there are six pairs of *Landkreis/Stadtkreis* information among the 335 county observations in the 1849 classification and 20 pairs among the 458 county observations in the 1874 classification.

4.2 County Identifiers

All data in iPEHD reflect the administrative conditions in place at the date of publication of the census. Since censuses often ordered the counties in different ways, identifiers were assigned reflecting the order of each census. Thus, each county in each census has been assigned a continuous number which is *unique within a census but not across censuses*. The identifiers are named kreiskeyYYYY, where YYYY represents the four-digit year (see Section 4.5 below for additional peculiarities of the 1816-21 data).

The year in the identifier denotes the administrative structure of Prussia, which is not necessarily the same as the census year. In some cases, different identifiers (e.g., kreiskey1871 and kreiskey1874) even had to be assigned to data from the same census year (1871) because the Royal Prussian Statistical Office used different aggregations in different publications of data from the same census.

4.3 Intertemporal Comparisons

Researchers may be interested in intertemporal comparisons and in the construction of panel datasets using iPEHD. The iPEHD county identifiers, together with the merge-county file also provided on the iPEHD website, provide a service that facilitates such linkage of comparable units of observation over time. Our suggestion is that, *in order to obtain a comparable set of observations, researchers should collapse the data to the earliest set of counties in the data.* However, it is important to point out that at the end of the day, the best way to structure and use the data will be specific to every single research project.

To conduct intertemporal comparisons, our suggestion is to take the following nine-step procedure. To construct cross-sections, the procedure should be followed only until step 3.

- 1. Choose datasets from the same census year.
- 2. Merge all datasets from the same census year using the identifier (e.g., kreiskey1882).
- 3. Save the cross-section.

- 4. Use the merge-county file provided on the iPEHD website.
- 5. Drop all duplicate and missing observations from the merge-county file according to the identifier in the cross-section (e.g., kreiskey1882): see section 4.4 for an example.
- 6. Merge the merge-county file with the cross-section using the identifier (e.g., kreiskey1882).
- 7. Aggregate (sum/mean) all variables in the cross-section to the aggregation level of the earliest census in the analysis using the identifier of the earliest census in the analysis (crucial step!).
- 8. Repeat steps 1 to 7 for datasets from other census years.
- 9. Merge the resulting cross-sections using the identifier of the earliest census in the analysis.

4.4 Example from the Merger File

In the example shown in Table 3, the eight illustrative counties observed in 1901 were established from six counties in 1874 and five counties in 1849. Between 1849 and 1874, the 'Elbing Landkreis' had been divided into 'Elbing Stadtkreis' and 'Elbing Landkreis'. Between 1874 and 1901, the 'Danzig Landkreis' had been divided into 'Danzig Niederung', 'Danzig Höhe', and 'Dirschau'.

Kreiskey 1901	County1901	Kreiskey 1874	County1874	Kreiskey 1849	County1849
38	ELBING STADTKREIS	38	ELBING STADTKREIS	37	ELBING LANDKREIS
39	ELBING LANDKREIS	39	ELBING LANDKREIS	37	ELBING LANDKREIS
40	MARIENBURG IN PREUSSEN	40	MARIENBURG IN PREUSSEN	38	MARIENBURG IN PREUSSEN
41	DANZIG STADTKREIS	41	DANZIG STADTKREIS	39	DANZIG STADTKREIS
42	DANZIG NIEDERUNG	42	DANZIG LANDKREIS	40	DANZIG LANDKREIS
43	DANZIG HOHE	42	DANZIG LANDKREIS	40	DANZIG LANDKREIS
44	DIRSCHAU	42	DANZIG LANDKREIS	40	DANZIG LANDKREIS
45	PREUSSISCH STARGARD	43	PREUSSISCH STARGARD	41	PREUSSISCH STARGARD

 Table 3: Example from the Merge File

Note: Extract from the iPEHD merge file "ipehd_merge_county.csv".

In order to have a comparable set of observations when performing intertemporal comparisons between 1901 and 1849, one has to aggregate the observations of 'Danzig Niederung', 'Danzig Höhe', and 'Dirschau' to match 'Danzig Landkreis'. Thus, one should always aggregate the data to the aggregation level of the earliest census year in the specific analysis (step 7).

However, to perform intertemporal comparisons between, e.g., 1874 and 1849, one needs to drop the duplicate entries of 'Danzig Landkreis' from the merger file first (step 5). In addition, one needs to drop entries from the merger file that have missing observations on the county identifier in the respective year. Such missing observations exist because some territories were annexed by Prussia only after the respective census year.

As one example of how to merge datasets from 1874 and 1849, the following Stata code exemplifies the nine steps of the suggested procedure:

```
insheet using "ipehd 1871 edu literacy part2.csv", clear /* Step 1 */
save "ipehd 1871 edu literacy part2.dta"
insheet using "ipehd 1871 pop demo part2.csv", clear
save "ipehd 1871 pop demo part2.dta"
merge 1:1 kreiskey1874 using "ipehd 1871 edu literacy part2.dta" /* Step 2 */
drop merge
save "ipehd 1871 part2.dta"
                            /* Step 3 */
insheet using "ipehd merge county.csv", clear /* Step 4 */
duplicates drop kreiskey1874, force /* Step 5 */
drop if kreiskey1874==.
merge 1:1 kreiskey1874 using "ipehd 1871 part2.dta" /* Step 6 */
collapse (sum) pop* lit* edu*, by (kreiskey1849) /* Step 7 */
drop if kreiskey1849==.
save "ipehd 1871 part2 2.dta"
insheet using "ipehd 1849 rel deno.csv", clear /* Step 8 */
save "ipehd 1849 rel deno.dta"
insheet using "ipehd merge county.csv", clear
duplicates drop kreiskey1849, force
drop if kreiskey1849==.
merge 1:1 kreiskey1849 using "ipehd 1849 rel deno.dta"
collapse (sum) rel*, by (kreiskey1849)
save "ipehd 1849.dta"
merge 1:1 kreiskey1849 using "ipehd 1871 part2 2.dta" /* Step 9 */
drop merge
save "ipehd 1849 1871.dta"
```

4.5 Peculiarity of the Data from 1816 to 1821

By 1816, Prussia had just started her administrative reform that established the county level. In some parts of the country, the reforms had not been finalized even in 1821. Thus, the data from the censuses in 1816 until after 1821 sometimes reflect old administrative units.

Unfortunately, due to the reform, these old units were subsequently aggregated and then newly divided in order to establish the new counties. This makes it impossible to accurately match the data of (some of) the administrative units from the early censuses to (some) counties in subsequent censuses. The *kreiskey1800* is thus coded so as to aggregate the data to a higher level. The *kreiskey1800* can be used to link the 1816-1821 data to later periods.

However, iPEHD also provides a unique identifier that allows merging data from the same census for these cross-sections. These identifiers are named 'id1816' and 'id1819'. In order to merge data from 1816 to other data from 1816, one should use id1816. In order to merge data from 1819 or 1821 to other data from 1819 or 1821, one should use id1819.

In order to merge data from 1816, 1819, or 1821 to data from subsequent censuses, one should take the following steps:

- 1. Choose datasets from 1816, 1819, or 1821.
- 2. Merge all datasets from the same census using the identifier (idYYYY).
- 3. Aggregate (sum/mean) all cross-sections using the identifier 'kreiskey1800'.
- 4. Merge the cross-section with aggregated data from subsequent censuses using the identifier 'kreiskey1800'.

5. Original Sources underlying the iPEHD Data

The iPEHD data have been digitized from different sources originally published by the Royal Prussian Statistical Bureau or its employees. These original historical volumes should be consulted for detailed information regarding the exact attributes of the data. Figure 2 shows two example pages from such source volumes.

The following list documents all the volumes used as sources for iPEHD. There are a total of 15 original sources, many of which consist of several volumes.

1816-21: Mützell, Alexander A. (1821-25). *Neues Topographisch-statistischgeographisches Wörterbuch des Preussischen Staats*, Vol. 1-6. Halle: Karl August Kümmel.

													and the second se	
234	I Ein-	smmenste Fami-)etsauwescude	Besilkering			Ornazvistada		am 1. December	1871.	-	85		
Geneizdegrup Landdrossei-Bari and Kreis- mid	ke updan H	Iaus- liche	1. December weib- liche haup Sewahner	1971) damp A.D. orte- orte- torte- through	Stan	ckrit. Bran- gellette	Religion Katkes stap Tikes Cho- stes	Jules Beben	Alter u. Sel	The or an and a second	Geterechen	181		
August der Gemeind	U L K	A A	6 2			147 24130	12. 16	101	IL IL	11 36 B				
I. Langueoutra I. Kreit Britholskin 2. Kreit Britholskin 3. Eachaberg br. I. 4. Ouerodit a. H 5. Geninger 5. Geninger 5. Zeherful	103 128 61957 685 103 128 61957 685 18 115 5244 743 69 112 8472 451 195 108 7325 443 113 108 7325 443 113 108 7325 443	7.542 16.740 9.487 21.465 8.600 19.418 10.229 21.728 9.339 21.152 9.492 22.544 3.231, 7.165	23.216 44.70 20.645 40.06 25.568 47.36 23.140 44.33 23.817 46.36 7.570 14.73		14008 14209 14208 14208 14208 14208 14208	147 34,130 168 34,822 384 35,064 42 35,906 42 35,906 116 43,488 117 45,140 36 14,063	9 979 9 9678 11 4 883 58 30 806 7 570 91 746 58 52 1	104 - 2 58 - 1 835 - 1 425 - 1	7 896 23 56 11 099 28 72 9 428 36 24 12 153 31 12 10 650 39 55 11 884 28 50 3 660 10 21	366 2391 3 710 4104 3 5710 700 3 5710 4104 3 5710 700 3 1400 2632 4 7792 7334 4 1242 709 1				
IT. Subjectives	the state of the s								And and		11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-		
1. Errei Hälteheim 4. Ere		88 95 316 96 337 896 97 78 360 138 443 146 334	942 50 255 57 811 1 62 255 47 471 80 255 47 471 80 356 00		511 549 1618 475 820 809 809 809 809		1 ³¹ 11	1010	140 140 355 179 180 163 4		1			
K. Samet der Arrive. Häckheim Häckheim Kausenkargen, b. H. Häckender Aussenkargen, b. H. Aussenkargen, b. H. Aussenkargen, b. H. Zubretröd K. Gonneyn, b. H. Zubretröd K. Gonneyn, b. H. K	84 108 8 675 1 102 1 121 138 7 855 898 1 85 146 6 850 1 685 1 7.3 133 10536 816 1 2.3 190 9 621 1 670 1	2496 30 766 1 1070 35342 3 1220 25764 1 3253 25762 3 3685 30 617 3	11.009 61.805 67.104 52.446 67.122 52.546 14.122 64.234 64.2446 64.24466 64.24466 64.24466 64.2446666666666		41,040 33,004 53,814 53,814 53,814 54,105 64,125 44,125 595 595	736 43 015 325 41 740 814 45 001 130 40 578 738 40 578 738 40 578 215 42 614 160 679	18011 30 19445 19 6355 69 25472 8 2156 64 1255 98 1777 16 11 -	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	13.008 45.0 12.871 34.1 17.143 35.5 15.976 43.0 15.976 43.0	5 464 1348 44 736 4635 5 567 1605 5 1605 1605 1 1405 500 12 1405 500 10 356 2465 5 1 31 6 1 31	114 1788 55 114 1785 56 155 179 56 155 179 56 155 114 59 155 114 50 155 110 155 110 1100 1100 10000000000	30388		
C. Landerstei Linebus		170 324	9 017 42 835 366 630	40) 40	42 500 591	215 62 614 169 679	177 16 11 -		1 9971 300 165 4	17 1 444 5500 10 500 7 466 15 1 81	2 44 III 6 9 III	1 HE		
L Schnindge Stide.	9 2 1969 394 3 7 1 357 65 7 1 559 116 14 7 1 559 116 14 9 2 542 108 14 7 14 1966 429 33 7 2 1448 215 37	879 9840 1 589 1418 1 651 2850 2 009 2250 2 303 8300 7 747 10220 9	111 19 151 1365 2 813 1592 5 415 1419 4 669 987 16 287 015 19 225	9476 Iberr 1425 2754 2357 437	13.889 27.54 5.532 4.593 13.933 13.933 13.935 13.935	254 17 952 5 957 17 952 5 957 17 959 5 957 15 959 17 15 959 18 95	546 24 365 4 366 5 366 5 36 5 3	1111	3 806 14 6 650 20 1 092 41 3 106 12 7 1 2 484 15 9	191 400 11 16 115 26 35 140 15 41 107 11 28 378 37 315 464	Same.	198 AF 72		
IL Antoinige Salgementers				8.847 13.956 8.250 16.759					100 10		KA.	312		
2. Kreis Gilbern 3. Fallingbottel 4. Delan 5. Danbestlerg 10. Lathrander	4 192 30 1 2 575 76 8 1 174 53 3 1 130 31 9	118 8/9 54 2211 2 46 256 59 562	755 1557 (%4 4975 857 1643 606 1.168	1011 140 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 1	1511 4282 1005 1156	20 1534 41 4136 8 1585 12 1559	1111	1111	206 1 917 31 355 12 368 6	71 6 54 81 87 159 9 46 61 18 41	1 + 1 m	1385		
1. Kreis Colle	344 7.080 490 9.3 320 6.961 480 9.3 555 6.661 0.04 8.25 200 0.347 774 7.25 3204 9.27 3.24 9.23 3205 6.927 0.04 8.25 3204 9.271 734 1.25 3205 9.24 3.04 5.26 3285 6.924 3.265 9.44	06 22 453 22 19 53 007 23 28 21 5757 25 28 21 5757 25 29 15 454 15 15 25 547 34	548 45 991 960 66 117 951 46 123 717 57 504 958 47 700 159 30 568	27 991 65 10 29 118 46 10 36 977 47 10 30 546 17 556 36 707 68 518		11日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日	*日日1日の日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日	11111	9570 343 9540 385 1080 386 7758 378 9514 845 6788 213	80 124 1018 66 449 9173 66 309 9964 56 130 2180	Sector Sector	4.50 19 10 10 10 10 10 10 10 10 10 10 10 10 10		
E Fullinghestel 200 4. Udam 223 5. Dama-akerg 323	304 5.98 318 6.991 304 5.98	15 494 15 13 35 547 341	50 50568 50 50148	1700 B 24 3078 49 54	49 439	en 983	100 101		1 11 025 15-0	45 200 1 754 35 436 2019	N II I		19- 14	
L Krist Galance 124 2 4 7 Foling faced, 50 4 7 Colores 222 5 1 Danselerg 222 5 1 Refug 254														
Tellinghood, 50 4 Class 222 5 Cr. Duscriberg 222 7 Participant 222 7 Participant 222 7 Participant 222 7 Participant 222 7 Participant 222 8 Participant 222											-		-	
Ten - Formand - 199									1	-	1			
	Im Jah	re 1861	und fr	rüher G könne	eborne n (Ana	welch	te nicl	1 t lesen	und se	hreiben				
(B.)	Im Jah	2.		2		- France	te nich ten):	ıt leser	und se	chreiben		ingabe Schul-	and the second second	nder, n in den
	Im Jah	ge- 1	und fr katl lisc	ho-	isr	, welch lphabe ae- che:		it leser	Analp	habeten haupt:	über bildun		gebore Ja	nder, n in den hren
(2) Kreise,	Im Jah evang	ge- 1	katl	ho-	isr	ae-	übr männl.	ige: weibl.	Analp über männl.	habeten haupt: weibl.	über bildun für Per männl.	Schul- g fehlt sonen: weibl.	geboren Ja 1871- männl.	n in den hren -1862: weibl.
(2.) Kreise, baw. grössere Städte.	Im Jah evang lisch männl. 1.	ge- e: weibl. 2.	kati lisci männi.	ho- he: weibl.	isr litis mānnl.	ae- che: weibl.	übr	ige:	Analp über	habeten haupt:	über bildun für Per	Schul- g fehlt sonen:	geborer Ja 1871-	n in den hren -1862:
(2.) Kreise, baw. grössere Städte. I. Regierungsbezirk H	Im Jah evang lisch männl. 1. önigsbe	ge- e: weibl. 2. Fg. 7 388	kati lisc männl. 3.	ho- he: weibl. 4. 451	isr litis mūnnl. 5. 81	ae- che: weibl. 6.	übr männl, 7.	ige: weibl. 8.	Analp über männl. 9.	habeten haupt: weibl. 10.	über bildun für Per männl. 11.	Schul- g fehlt sonen: weibl. 12.	geborer Ja 1871- männl. 13.	n in den hren -1862: weibl. 14.
(2.) Kreise, haw. grössere Städte. 1. Regierungsbezirk H 1. Memel 2. Fischhausen 3. Königsberg (Stadtkreis).	Im Jah evang lisch männl. 1.	ge- e: weibl. 2. 7 388 3 699 5 757 4 658	kat) lisc <u>mānni.</u> 3. 539 31 149 20	ho- he: weibl. 4. 451 8 178 11	isr litis männl. 5.	ae- che: weibl. 6.	übr <u>männl.</u> 7. 22 5 6	ige: weibl. 8. 36 11 36	Analp über månnl. 9. 5 144 3 15: 2 900	habeten haupt: 10. 8 022 3 726 6 157	über bildun für Per minnl. 11. 3655 215 32	Schul- g fehlt sonen: weibl. 12. 540 276 138	geborer Jai 1871- <u>mānni.</u> 13. 6 564 5 861 10 524	n in den hren -1862: weibl. 14. 6 553 5 654 10 303
(2.) Kreise, baw. grössere Städte, 1. Regierungsbezirk H 1. Memel	Im Jah evang lisch männl. 1. conigsbe 3 109 2 659 3 889 4 745 3 4745 3 473	ge- e: 2. 7 388 3 699 5 757 4 658 7 006 4 761	kat) lisc minnl. 3. 539 31 149 20 202 26	ho- he: <u>weibl.</u> 4. 451 8 178 11 11 12 12	isr litis männl. 5. 81 7 92 13 18 13	ae- che: weibl. 6. 148 8 186 10 26 14	übr <u>männi.</u> 7. 22 5	ige: weibl. 8. 36 11	Analp über <u>månnl.</u> 9. 5 144 3 155 2 900 3 922 4 800 3 5 511	habeten haupt: 10. 8 022 3 726 6 157 4 683 5 7 061 4 730	tiber bildun für Per <u>minnl.</u> 11. 3655 2155 322 3855 1377 3333	Schul- g fehlt sonen: <u>weibl.</u> 12: 540 276 138 561 299 497	gebore: Ja 1871- <u>mānni.</u> 13. 6 564 5 861 10 524 6 299 6 402 5 764	n in den hren 1862: weibl. 14. 6 553 5 654 10 303 6 187 6 487 5 790
(2) Kreise, brw. grössere Städte, brw. grössere Städte, I. Regierungsbezirk H 1. Memel	Im Jah evang lisch männl. 1. 50n ig s b ee - 4 5009 - 3 659 - 3 889 - 4 745 - 3 4745 - 3 4745	ge- e: weibl. 2. 7 388 3 699 5 757 4 658 7 006 4 761 3 368 4 012 3 495	kati lisc mānni. 3. 539 31 149 200 32 266 6 1777 13	ho- he: weibl. 4. 451 8 178 11 12 12 12 12 12 12 14 4 14	isr litis mānul. 5. 81 7 92 13 13 13 13 13 13 9 8	ae- che: weibl. 6. 148 8 186 10 266 140	übr <u>männi.</u> 7. 22 5 6 3 10 10 1 2 9	ige: weibl. 8. 36 11 36 11 36 217 3 20	Analp über minnl. 9. 5 144 3 155 2 900 3 922 4 800 3 511 2 366 2 68 2 4 20	habeten haupt: 10. 8 8 022 3 726 6 155 4 681 7 061 3 385 4 730 3 385 4 233	über bildun für Per minnl. 11. 365 215 322 385 1377 333 365 101 6856	Schul- g fehlt :sonen: <u>weibl.</u> 12. 540 276 138 561 299 497 414 322 832	gebore: Ja: 1871- <u>mānnl.</u> 13. 6 564 5 861 10 524 6 402 5 764 4 935 5 181 5 105	n in den hren 1862: weibl. 14. 6 553 5 654 10 303 6 187 6 487 5 790 4 897 5 317
(2.) Kreise, baw. grössere Städte. I. Regierungsbezirk H 1. Memel	Im Jah evang lisch männl. 1. 50n ig sb e 4 500 3 109 2 659 3 889 2 389 3 889 2 348 2 445 3 473 2 348 2 439 2 390 3 504 3 100 1 3 101	ge- e: 2. 7 388 3 699 5 757 4 658 7 006 4 761 3 368 4 012 3 495 4 667 4 3495 3 12	katl lisc mānn. 3. 539 31 149 20 32 26 6 177 13 42 42 42 52 150	ho- he: weibl. 4 451 8 178 11 12 12 12 12 12 12 12 4 4 14 62 61 3 855	isr litis <u>mānal.</u> 5. 81 7 92 13 18 13 13 13 13 9 8 4 4 26	ae- che: <u>weibl.</u> 6. 148 8 186 100 26 14 10 4 5 7 7 7 13	übr <u>männ1.</u> 7. 22 5 6 3 10 1	ige: ************************************	Analp über <u>månnl.</u> 9. 5 144 3 15: 2 900 3 511 2 36: 2 63: 2 63: 2 64: 2 36: 2 64: 2 36: 2 64: 2 36: 2 16: 2 36: 2 36: 3	habeten haupt: 10. 8 8 022 3 726 6 157 4 681 5 7 061 5 4 681 5 7 061 5 4 790 3 382 9 3 534 2 4 785 3 4 175	über bildun für Per minnl. 11. 365 215 323 365 106 3664 233 41	Schul- g fehlt sonen: <u>weibl.</u> 12. 540 276 138 561 299 497 414 322 832 510 397 71	gebore: Ja 1871- männl. 13. 6 564 5 861 10 524 6 299 6 402 5 764 4 935 5 764 4 935 5 764 4 935 5 7145 5 888 6 393	n in den hren
(2.) Kreise, baw. grössere Städte. 1. Regierungsbezirk H 1. Memel	Im Jah evang lisch männl. 1. önigsbe 4 500 3 109 2 659 3 889 3 889 4 745 2 3473 2 348 2 499 2 390 3 504 3 504 3 109 1 9 1 1 39 4 28 3 370	ge- e: veibl. 2. 7 388 3 699 5 757 4 658 7 006 4 761 3 368 4 012 3 495 4 667 4 3495 4 667 4 349 5 21 234	katl lisc mānn. 3. 539 31 149 20 32 26 6 6 177 13 42 226 6 6 41 52 150 2321 4065 6 6 6	ho- he: weibl. 4 451 8 178 11 12 12 12 12 12 12 12 12 12 12 12 12	isr litis mānul. 5. 81 7 92 13 13 13 13 13 13 13 13 9 8 8 4 4 26 9 200 12	ae- che: <u>weibl</u> 6. 148 8 186 10 26 14 10 26 14 10 4 5 7 7 3 12 32 8	übr männl. 7. 22 5 6 3 10 2 9 222 20 1 - 3	ige: weibl. 8. 366 111 36 22 17 3 3 200 47 566 1 1 -	Analp über månnl. 9. 5 144 3 155 2 900 3 922 4 800 3 511 2 367 2 687 2 480 3 511 2 367 2 687 2 422 3 577 3 166 2 2 366 2 466 4 5 12 7 7 02	habeten haupt: 10. 8 022 3 726 6 157 6 4 53 5 4 683 5 7 061 5 4 790 3 382 7 3 382 7 3 4 273 3 4 175 3 4 455 3 4 175 9 9 044	über bildun für Per minnl. 11. 365 215 322 385 101 686 364 231 333 365 101 686 364 231 419 419	Schul- g fehlt sonen: weibl. 12. 5400 276 188 561 188 561 188 561 188 299 497 414 322 510 397 17 555 391 555	gebore: Ja 1871- männl. 13. 6 564 5 861 10 524 6 299 6 402 5 764 4 935 5 764 4 935 5 764 4 935 5 764 4 935 5 764 6 393 6 599 6 399 6 399 6 399 6 399 6 399 7 499	n in den hren
(3) Kreise, baw. grössere Städte, baw. grössere Städte, 1. Regierungsbezirk H 1. Menel	Im Jah evang lisch männl. 1. conigsbe 2 659 2 659 2 659 2 659 2 659 2 659 2 659 2 645 2 658 6 5 868 5 4 521	ge- e: weibl. 2. 7 388 3 699 5 757 4 658 7 006 4 761 3 368 4 012 3 495 4 667 4 349 312 209 521 209 521 234 8 234 6 274	katl lisc männl. 3. 5399 31 149 200 32 26 66 177 13 422 455 2 1500 2 321 4 065 6 641 9282 2 216	ho- he: weibl. 4. 451 8 178 178 11 12 12 2 4 214 14 61 3 853 4 230 6 117 8 794 7 94 9 1 632	isr litis mānul. 5. 811 7 92 13 18 13 13 13 13 9 8 8 4 4 20 12 20 12 22 22 22	ae- che: weibl. 6. 148 8 186 10 26 14 10 26 14 10 26 14 10 26 14 10 26 14 8 32 13 12 2 18 32 35	übr männi, 7. 22 5 6 6 3 10 1 2 9 22 5 6 3 10 1 - 2 9 22 20 1 - 3 5 9 9 22 9 1 9 1 9 1 9 1 9 1 9 1 9 1 9 1 9 1 1 1 1 1 1 1 1 1 1 1 1 1	ige: weibl. 8. 36 11 36 11 36 11 36 11 3 20 07 47 56 1 1 - 10 47 10 47 10 10 10 10 10 10 10 10 10 10	Analp über månnl. 9. 5 144 3 155 2 900 3 922 4 800 3 902 4 800 3 922 4 800 3 922 8 800 3 922 8 800 8 92 8 800 8 92 8 800 8 92 8 800 8 80 8 80 8 80 8 80 8 80 8 80 8 8 8 8	habeten haupt: 10. 8 8 022 3 726 5 6 157 5 4 683 5 7 061 5 4 790 3 385 7 4 235 5 4 4730 3 353 2 4 785 5 4 475 5 4 475 5 4 475 5 9 044 7 9 044 7 9 9 171 2 7 9 44	über bildun für Pen minnl. 11. 365 215 323 3855 117 3333 365 365 3133 348 3133	Schul- g fehlt *sonen ; *eibl. 12. 540 540 276 188 566 188 566 188 566 188 566 188 566 3299 497 414 322 832 510 555 540 540 555 309 309 309 309 309 300 300 300 300 300	gebore: Ja 1871- mānnl. 13. 6 564 5 861 10 524 6 402 5 764 4 935 5 764 4 935 5 764 4 935 5 764 4 935 5 764 4 935 5 764 4 999 6 319 7 499 9 7 323	n in den hren 1862: weibl. 14. 6 553 5 654 10 303 6 187 6 487 6 487 5 3790 4 897 5 313 7 239 5 334 7 239 5 334 7 239 5 434 7 239 5 434 7 239 5 434 7 239 5 934 7 345 8 955
(2) Kreise, brw. grössere Städte, brw. grössere Städte, 1. Regierungsbezirk H 1. Memel	Im Jah evang lisch männl. 1. önigsbe 4 500 3 109 2 659 3 889 4 745 3 473 2 348 2 499 2 3869 4 745 3 473 2 348 2 499 2 390 3 504 3 504 3 109 2 3504 3 109 2 390 5 868 4 521 7 843 3 974 1 612	ge- e: weibl. 2. 7 388 3 699 5 757 4 658 7 006 4 761 3 368 4 012 3 495 4 667 4 349 5 209 521 234 4 52 4 667 4 349 5 209 521 234 4 627 4 10 093 5 827 2 285	katl lisc mānnl. 3. 5339 311 149 200 321 49 226 6 6 177 13 42 25 2 150 2 321 4 065 5 6 641 928 2 216 1 229 2300 121	ho- he: weibl. 4. 451 8 178 11 12 12 12 4 4 214 4 62 61 3 855 3 4 230 6 117 8 794 1 632 1 276 9 240	isr litis mänul. 5. 81 7 92 13 18 13 13 13 13 13 13 13 13 13 13 13 28 4 4 4 26 9 200 12 232 266 30 17	ae- che: ************************************	übr nännl. 7. 222 5 6 3 10 2 9 22 20 1 2 9 22 20 1	ige: weibl. 8. 366 111 366 27 17 3 200 47 566 1 1 1 - 104	Analp über månnl. 9. 5 144 3 155 2 900 3 922 4 800 3 922 4 800 3 922 4 800 3 922 4 800 3 922 4 800 3 922 4 800 2 968 2 480 2 366 2 366 2 366 2 366 2 366 2 366 2 366 2 46 8 57 3 166 2 366 2 46 8 57 3 166 2 366 2 46 8 57 3 167 2 90 16 9 17 17 1 7 17 1 7 17 1 7 17 1 7 17 17 17	habeten haupt: 10. 8 8 022 3 726 6 155 4 681 5 7 063 5 4 681 5 7 063 5 4 681 5 7 063 4 475 3 382 4 475 3 6 677 5 9 046 7 9 171 2 7 944 5 9 046 7 9 11 421 8 6 100	über bildun für Per minnl. 11. 3655 2155 325 3855 3855 3355 3655 101 6866 3644 2333 411 4355 3322 419 3488 313 197 2333 135	Schul- g fehlt (sonen; 12) 540 2766 188 560 2766 188 561 561 561 561 561 397 717 555 5391 550 5466 3993 311 554 5466 3993 311 5546 3993 311 5546 3993 311 5556 3993 311 5556 3993 311 5556 3993 311 5556 3993 311 5556 3993 311 5556 3993 311 5556 3993 311 5556 3993 311 5556 3993 311 5556 3993 311 5556 3993 311 5556 3993 311 5556 3993 311 5556 309 311 5556 309 311 5556 300 311 5556 300 311 5556 300 311 5556 300 311 5556 300 311 5556 300 311 5556 300 311 5556 300 311 5556 300 311 5556 300 311 5556 300 311 5556 300 311 5556 300 311 5556 300 311 5556 300 311 5556 300 311 5556 300 300 311 5556 300 300 311 5556 300 300 300 300 300 300 300 300 300 30	gebore: Ja 1871- mānni. 13. 6 564 5 861 10 524 6 299 6 402 5 764 4 935 5 5 181 5 405 5 7 145 5 5 888 6 393 6 319 7 499 9 139 9 139 7 323 8 875 7 370	n in den hren 1862: weibl. 14. 6 553 5 654 10 303 6 187 5 750 6 487 5 317 5 487 5 317 5 434 7 239 5 934 6 287 6 688 6 6354 7 249 7 391 8 9559 7 359 5 651

Figure 2: Example Pages from Source Volumes

Note: The top picture is from Königliches Statistisches Bureau (1873), Vol. VIII, pp. 234-235. The bottom picture is from Königliches Statistisches Bureau in Berlin (1875), p. 117.

1829: Preussisches Statistisches Landesamt (1829). Beiträge zur Statistik der Königlichen Preussischen Rheinlande, aus amtlichen Nachrichten zusammengestellt. Aachen: J.A. Mayer.

1849: Statistisches Bureau zu Berlin (1851-55). *Tabellen und amtliche Nachrichten über den Preussischen Staat für das Jahr 1849*, Vol. 1-6b. Berlin: Statistisches Bureau zu Berlin.

1858: Meitzen, August (1868). Der Boden und die landwirthschaftlichen Verhältnisse des Preussischen Staates, Vol. 1-4. Berlin: Verlag von Paul Parey.

1862: Königlich Preussisches Statistisches Bureau (1863). Die Eisen-, Stein- und Wasserstrassen des preussischen Staates im Jahre 1862, in *Zeitschrift des Königlich Preussischen Statistischen Bureaus*, Vol. 3, 206-214. Berlin: Verlag der Königlichen Geheimen Ober-Hofbuchdruckerei.

1864: Königliches Statistisches Bureau in Berlin (1867). Die Ergebnisse der Volkszählung und Volksbeschreibung, der Gebäude und Viehzählung, nach den Aufnahmen vom 3. December 1864, resp. Anfang 1865 und die Statistik der Bewegung der Bevölkerung in den Jahren 1862, 1863 und 1864. Preussische Statistik Vol. 10. Berlin: Verlag von Ernst Kuehn.

1866: Meitzen, August (1868). Der Boden und die landwirthschaftlichen Verhältnisse des Preussischen Staates, Vol. 1-4. Berlin: Verlag von Paul Parey.

1871: Königliches Statistisches Bureau (1873-74). Die Gemeinden und Gutsbezirke des Preussischen Staates und ihre Bevölkerung: Nach den Urmaterialien der allgemeinen Volkszählung vom 1.December 1871, Vol. 1-11. Berlin: Verlag des Königlichen Statistischen Bureaus.

Königliches Statistisches Bureau in Berlin (1875). *Die Ergebnisse der Volkszählung und Volksbeschreibung im Preussischen Staate vom 1. December 1871.* Preussische Statistik Vol. 30. Berlin: Verlag des Königlichen Statistischen Bureaus.

1878: Herrfurth, Ludwig and Conrad Studt (1880). *Finanzstatistik der Kreise des preussischen Staates für das Jahr 1877/78*. Zeitschrift des Preussischen Statistischen Landesamtes, Ergänzungshefte, Vol. 7. Berlin: Verlag des Königlichen Statistischen Bureaus

1882: Königliches Statistisches Bureau in Berlin (1884/85). Die Ergebnisse der Berufsstatistik vom 5. Juni 1882 im preussischen Staat. Preussische Statistik Vol. 76 a-c. Berlin: Verlag des Königlichen Statistischen Bureaus. **1886 (Education)**: Königliches Statistisches Bureau in Berlin (1889). *Das gesammte Volksschulwesen im preußischen Staate im Jahre 1886.* Preussische Statistik Vol. 101. Berlin: Verlag des Königlichen Statistischen Bureaus.

1886 (Agriculture): Königliches Statistisches Bureau in Berlin (1887). *Die Ergebnisse der Ermittelung des Ernteertrags im preussischen Staate für das Jahr 1886*. Preussische Statistik Vol. 92. Berlin: Verlag des Königlichen Statistischen Bureaus.

1892: Neuhaus, Georg (1904). Die ortsüblichen Tagelöhne gewöhnlicher Tagearbeiter in Preußen 1892 und 1901, in *Zeitschrift des Königlich Preussischen Statistischen Bureaus*, Vol. 44, 310-346. Berlin: Verlag des Königlichen Statistischen Bureaus.

1896: Königliches Statistisches Bureau in Berlin (1897). Die Ergebnisse der Ermittelung des Ernteertrags im preussischen Staate für das Jahr 1896. Preussische Statistik Vol. 147. Berlin: Verlag des Königlichen Statistischen Bureaus.

1901: Neuhaus, Georg (1904). Die ortsüblichen Tagelöhne gewöhnlicher Tagearbeiter in Preußen 1892 und 1901, in *Zeitschrift des Königlich Preussischen Statistischen Bureaus*, Vol. 44, 310-346. Berlin: Verlag des Königlichen Statistischen Bureaus.

6. Existing Research using the iPEHD Data

A lot of research in economic history has used data from the iPEHD by now. This research is briefly described in this section. For those papers already published in academic journals, the iPEHD website provides ready-made datasets and codes in Stata to replicate the tables published in the papers. In addition, many more projects are currently under way and will be added to the website as publications become available. There is also a non-technical survey that summarizes some of the research conducted using the iPEHD data: Becker and Woessmann (2011a), "The Effects of the Protestant Reformation on Human Capital."

6.1 Protestant Economic History and Education

Becker and Woessmann (2009), "Was Weber Wrong? A Human Capital Theory of Protestant Economic History" (started in 2006, first working-paper version released in 2007): This paper uses data from several censuses (Population 1871, Occupation 1882, Education 1886) and additional sources (including the Income Tax Statistics 1877) to show that the higher economic prosperity of Protestant relative to Catholic counties can be accounted for by Protestants' higher literacy (presumably spurred by instruction in reading the Bible), suggesting that explanations based purely on differential work ethics may have limited explanatory power.

Becker and Woessmann (2008), "Luther and the Girls: Religious Denomination and the Female Education Gap in 19th Century Prussia": Using data from the first Prussian census in 1816, among others, this paper shows that a larger share of Protestants in a county's population decreased the gender gap in basic education.

Becker and Woessmann (2010), "The Effect of Protestantism on Education before the Industrialization: Evidence from 1816 Prussia" (first working-paper version released in 2009): This paper shows that Protestantism led to more schooling already in 1816, before the Industrial Revolution, ruling out that Protestant education just resulted from industrialization.

Becker and Woessmann (2011b), "Knocking on Heaven's Door? Protestantism and Suicide": Using data from 1816-21 and 1869-71, this paper finds a substantial positive effect of Protestantism on suicide.

6.2 Education and the Industrial Revolution

Becker, Hornung, and Woessmann (2011), "Education and Catch-up in the Industrial Revolution" (first working-paper version released in 2009): This paper combines schoolenrollment and factory-employment data from 1816, 1849, and 1882 to show that – in contrast to the state-of-the-art view based on British evidence – basic education was significantly associated with non-textile industrialization in both phases of the Industrial Revolution.

Cinnirella and Hornung (2011), "Landownership Concentration and the Expansion of Education": Combining data from several censuses that effectively span the entire 19th century (1816, 1849, 1864, 1886, and 1896), as well as data from a 1866 classification of soil composition, this paper finds that landownership concentration, a proxy for the institution of serf labor, had a negative effect on school enrollment which diminished in the second half of the century.

6.3 Fertility and Education

Becker, Cinnirella, and Woessmann (2010), "The Trade-off between Fertility and Education: Evidence from before the Demographic Transition" (first working-paper version released in 2009): This paper uses data from the 1849 census and other sources to show that a

trade-off between child quantity and quality existed already in the 19th century and that causation between fertility and education runs both ways.

Becker, Cinnirella, and Woessmann (2012b), "The Effect of Investment in Children's Education on Fertility in 1816 Prussia" (first working-paper version released in 2010): Using data from the 1816 census, this paper finds a significant negative causal effect of education on fertility – evidence for a child quantity-quality trade-off – already several decades before the demographic transition and shows that it is robust to accounting for spatial autocorrelation.

Becker, Cinnirella, and Woessmann (2012a), "Does Parental Education Affect Fertility? Evidence from Pre-Demographic Transition Prussia" (first working-paper version released in 2011): Combining data from three censuses – 1816, 1849, and 1867 – this paper finds a negative residual effect of women's education on fertility, despite controlling for several demand and supply factors.

7. Additional Features of the iPEHD Website

The iPEHD website contains a number of additional features. For example, it provides a collection of thematic maps, produced using ArcGIS, that visualize the geographical distribution of several interesting variables across the Prussian territory. One such example is shown in Figure 1 above.

Furthermore, iPEHD is certainly not the only project dealing with historical Prussian data at the county level. Other projects provide such services as maps, information on territorial changes, additional data, and other material on Prussian counties. Links to websites of several of these projects, whose work is highly appreciated and can be viewed as complementary to iPEHD, are provided on the iPEHD website.

Finally, the iPEHD website contains a section on frequently asked questions, providing answers to standard problems encountered by iPEHD users.

8. Conclusions

The data contained in iPEHD, originally collected by the Royal Prussian Statistical Office, is an impressive collection of information whose quality, already in the 19th century, is generally regarded as excellent. Now digitized from censuses located in archives, these county-level data provide information on education, occupation, income and tax measures, industry, agriculture,

demographics, religion, and more. This database should facilitate future quantitative research on the economic history of 19th-century Prussia.

However, while iPEHD provides the service of supplying the historical data in a digitized and structured way and suggests ways on how to merge the data from different sources, researchers need to think carefully how to use the data in the context of their specific research projects. For instance, building panel datasets from the different census waves with varying administrative boundaries is a complex task that requires particular thought, meticulous care, and acquaintance with the structure of the original data. More generally, anybody planning to use the raw data contained in iPEHD should make sure to be well acquainted with the data structure and specifics as described in this documentation.

We hope that iPEHD provides a major service to researchers interested in Prussian economic history. Anybody who uses data from iPEHD is kindly requested to cite this paper as a source. Please also send one electronic copy of any work that uses data from iPEHD to iPEHD@ifo.de.

References

- Becker, Sascha O., Francesco Cinnirella, and Ludger Woessmann. 2010. "The trade-off between fertility and education: Evidence from before the demographic transition." *Journal of Economic Growth* 15, no. 3: 177-204.
- Becker, Sascha O., Francesco Cinnirella, and Ludger Woessmann. 2012a. "Does parental education affect fertility? Evidence from pre-demographic transition Prussia." *European Review of Economic History*: forthcoming.
- Becker, Sascha O., Francesco Cinnirella, and Ludger Woessmann. 2012b. "The effect of investment in children's education on fertility in 1816 Prussia." *Cliometrica* 6, no. 1: 29-44.
- Becker, Sascha O., Erik Hornung, and Ludger Woessmann. 2011. "Education and catch-up in the Industrial Revolution." *American Economic Journal: Macroeconomics* 3, no. 3: 92-126.
- Becker, Sascha O., and Ludger Woessmann. 2008. "Luther and the girls: Religious denomination and the female education gap in nineteenth-century Prussia." *Scandinavian Journal of Economics* 110, no. 4: 777-805.
- Becker, Sascha O., and Ludger Woessmann. 2009. "Was Weber wrong? A human capital theory of Protestant economic history." *Quarterly Journal of Economics* 124, no. 2: 531-596.
- Becker, Sascha O., and Ludger Woessmann. 2010. "The effect of Protestantism on education before the industrialization: Evidence from 1816 Prussia." *Economics Letters* 107, no. 2: 224-228.
- Becker, Sascha O., and Ludger Woessmann. 2011a. "The effects of the Protestant Reformation on human capital." In *The Oxford Handbook of the Economics of Religion*, edited by Rachel M. McCleary. Oxford: Oxford University Press: 93-110.
- Becker, Sascha O., and Ludger Woessmann. 2011b. "Knocking on heaven's door? Protestantism and suicide." CESifo Working Paper 3499. Munich: CESifo.
- Cinnirella, Francesco, and Erik Hornung. 2011. "Landownership concentration and the expansion of education." CESifo Working Paper 3603. Munich: CESifo.
- Galloway, Patrick R., Eugene A. Hammel, and Ronald D. Lee. 1994. "Fertility decline in Prussia, 1875-1910: A pooled cross-section time series analysis." *Population Studies* 48, no. 1: 135-158.