Democracy, War, and Wealth Lessons from Two Centuries of Inheritance Taxation Supplementary Materials

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Data for Inheritance Tax Rates

We have constructed a new data set recording key features of inheritance taxation for nineteen countries from 1816 or the date of national independence to 2000.¹ The taxation of inherited wealth has taken three major forms over the last two hundred years.

First, some countries adopted stamp duties levied on the documents necessary to transfer the property of an estate. This was the most common form of inheritance taxation in the 19th century and generally involved very low rates or even fixed fees. The British probate duty, first established in 1694, is a good example of this phenomenon. Often, small estates were exempted from these taxes, and they also did not always apply to all types of wealth.

Second, countries adopted inheritance taxes for which the tax is on the beneficiary of the estate. In the early development of inheritance taxes, the rates for these taxes varied greatly depending on the identity of the beneficiary. In some countries, children were taxed at the lowest rates, if at all, while in others spouses were taxed the least. Variation based on the identity of the beneficiary could be dramatic. For example, the initial German federal inheritance tax enacted in 1906 exempted spouses and direct descendants but taxed non-relatives at a maximum rate of 25%. These taxes also included exemptions for small estates, and they often had progressive rates that depended on the size of the transfer.

Third, some countries implemented estate duties for which the tax is levied on the estate itself rather than the beneficiaries. These taxes also include exemptions and often progressive rates, but they do not typically vary by the identity of the beneficiary.

Inheritance taxes are much more commonly found in civil law countries, whereas estate taxation has been more widespread in common law countries, but this is not a hard and fast rule. In some cases countries have also simultaneously maintained an estate tax and an inheritance tax. To further complicate matters, laws in some countries call what is in fact an estate tax an inheritance tax. In this paper, for simplicity we refer to all forms of bequest

¹The replication data set for this article is available at Yale University's Institution for Social and Policy Studies data archive at http://isps.research.yale.edu/research-2/data/. We have also produced a Comparative Inheritance Taxation Database available at http://isps.research.yale.edu/research-2/data/. This database includes additional descriptions of the key features of each country's inheritance taxation laws as well as electronic copies of all relevant national legislation used to create the data employed in our study.

taxation as inheritance taxes, and in constructing this data set, we combine the taxes where necessary to determine the total amount of inheritance taxes at a given time. The remainder of this section describes the data sources for our primary measure of the extent of inheritance taxation—the top rate of inheritance tax for direct descendants inheriting cash.

Australia

The Australian government levied a federal estate tax from 1914 to 1979. Information on the Australian estate tax is mainly from the Australian Treasury's July 22, 2009 response to our inquiry in June 2009. The top rate schedules were cross checked with the online information at a website maintained by the Australian Attorney-General's department, http://www.comlaw.gov.au, and secondary sources such as Duff (2005).

Austria

All information was compiled directly from the applicable legislation. All legislation is available online via the Austrian National Library's ALEX webpage at http://alex.onb.ac.at/. For some historical information on the Austrian inheritance tax legislation, see Schanz (1901) and Dorazil (1975).

Belgium

Belgian data are taken from two primary sources. The first one, covering the period up to the 1990s, is called *Pasinomie*, a government publication that announces all changes in Belgian law. Publication of this series began in 1833, and its exact title has changed a few times. From 1833 to 1941, it was published under the name "Pasinomie, ou, Collection complète des lois, décrets, arrêtés et règlements généraux qui peuvent être invoqués en Belgique" (Bruxelles: Librairie de jurisprudence de H. Tarlier). For 1942 to 1944, the title is "Bulletin usuel des lois et arrêtés et Pasinomie reunis" (Bruxelles: Bruylant). From 1945 onwards, the title changed to "Pasinomie: Collection complète des lois, arrêtés et règlements généraux qui peuvent être invoqués en Belgique" (Bruxelles: Bruylant).

The second source used is a free government online database made available by the Ministry of Justice at http://www.ejustice.just.fgov.be/doc/rech_f.htm. It provides access to the *Moniteur Belge*, the official government gazette, for the last decade or so. All in all, about 250 laws were examined in an iterative process, and the actual frequency of legal changes is considerably higher than secondary accounts might lead one to believe.

Secondary sources that were consulted to cross-check the validity of our data series include de Wilde d'Estmael (2004) and van Gysel (2008), as well as a review in the 1912 *Pandectes Belges* (Picard et al. 1912), which lists numerous laws on inheritance taxation on pages 24 to 28 and as well as pertinent literature up to that point.

Canada

The Candian federal estate tax was in place from 1941 to 1971. A narrative history of the estate taxation in Canada can be found in Perry (1955, 1989), Carter (1973), and Duff (2005). We used primary sources to extract the detailed schedules from pertinent Canadian statutes. Relevant legislations are included in *Statutes of Canada* in volumes containing statutes ratified in 1941, 1946, 1958, 1968, and 1971.

Denmark

For Denmark, all information was compiled directly from the applicable legislation, which can either be accessed online at https://www.retsinformation.dk/ and https://www.lovtidende.dk/ or in printed form in the *Dansk lovregister* (Copenhagen: G.E.C. Gad, 1929 and later). For detailed background on the historical development of Danish inheritance taxation, see the article by Munkholm Povlsen and Krog Thomsen (1982). In addition, Giuliani Fonrouge (1937) has some information on Danish inheritance taxation up to the early 20th century.

Finland

For Finland, all information was compiled directly from the applicable legislation, which is published under the title *Suomen Säädöskokoelma*. This government publication which

announces all changes in Finnish law was published under the name Suomen Asetuskokoelma from 1917–1980, and the title changed to Suomen Säädöskokoelma from 1981 onwards. The publisher is Valtioneuvoston Kanslia, Helsinki, and the printer Valtioneuvoston Kirjapaino for 1917–1965, Valtion Painatuskeskus for 1966–1996, and Edita from 1996 onwards.

For recent background information, see the report by the Finnish Tax Administration (2009) at http://www.vero.fi/nc/doc/download.asp?id=2142;271836 and Rytöhonka (1996). For arguments presented for and against inheritance taxation in Finland, see Kohonen (2007) at http://www.vatt.fi/file/vatt_publication_pdf/k411.pdf.

France

The French case is one of the best documented ones. Several major monographs examine inheritance taxation in France, with the most comprehensive ones being Daumard (1973) for the 19th century and appendix J in Piketty (2001) for the 20th century. In addition, chapter 5.3 in Beckert (2008) provides ample background information on the major legislative changes. Other secondary sources consulted include Capgras & Domergue (1935), Coutot (1925), Dupeyron (1913), Faure (1922), Malaurie (2008), Perraud-Charmantier (1956), Say et al. (1894), and Schanz (1901).

Unfortunately, the secondary literature does not treat the myriad of changes in French inheritance tax law comprehensively, as a look at the actual legislation quickly makes clear. An effort was thus made to collect all relevant legislation affecting the taxation of inheritances. From 1948 onwards, the data series is based directly upon French legislation, as reprinted in the *Recueil Dalloz* (Paris: Dalloz), with the most recent information taken from the government website http://www.impots.gouv.fr.

Germany

An overview of the key German inheritance tax laws and changes up to 1996 can be found in Viskorf et al. (2001). Specific information on rates is taken from the government publication *Die deutsche Erbschaftsbesteuerung vor und nach dem Kriege* for the period from 1906

(introduction of a federal inheritance tax) to 1928, Model (1953) for the time from 1929 to 1953, Kisker (1964) for 1954 to 1963, and directly from the applicable laws (found in the Bundesgesetzblatt (BGBl)) for the subsequent period. The most recent changes are covered by a memo available online at http://www.rechtliches.de/info/_ErbStG.html (accessed: July 7, 2009). In addition, chapter 5.2 in Beckert (2008) provides a detailed narrative account of the changing inheritance tax legislation in Germany in the 20th century, while Schanz (1901) lays out the more than twenty different sub-national inheritance tax laws that were in effect in the 19th century.

Ireland

All information on Ireland was compiled directly from the relevant Irish legislation, which is available in its entirety online at http://www.acts.ie/ and, for the most recent years, http://www.irishstatutebook.ie/home.html. Irish legislation always mentions what is being modified, and thus we have a complete overview of the Irish inheritance tax laws going back to 1922.

Italy

All information on Italy was compiled directly from the relevant Italian legislation, which is partly available and searchable online via the website www.normeinrete.it (this covers the years from 1905 onwards, yet is incomplete even for this period). Nearly all of the legislation had to be copied from printed collections of laws, though, most notably the two series Collezione celerifera delle leggi, decreti, istruzioni e circolari for the time up to the 1920s and Lex – Legislazione italiana: raccolta, cronologica con richiami alle leggi attinenti e ricchi indici semestrali ed annuali from the 1920s onwards.

Our results were cross-checked with those referred to in the secondary literature (which, however, is generally less comprehensive than our work and moreover sometimes contradictory from one source to the next). The sources in Italian that we have consulted include Battiato (1974), Gallo-Orsi (1994), Garelli (1896), Grisolia Gesano (1958,1962), and Serrano (1974).

We also cross-checked our info using two articles in German, namely Schanz (1901) and von Odkolek (1904).

Japan

Tax rates from 1997 onward are provided by the National Tax Agency. The agency website www.nta.go.jp provides statistical information on all taxes from 1949. The tax rate from 1953–2006 can be found in a book on personal tax relation law (Basic Taxation Law) edited by the National Tax Administration of Japan in 2006. The tax rate from 1905–1952 can be found in a 1954 publication by the Ministry of Finance (MoF) called "The Historical Recapitulation of the Internal Taxation's Tax Rate and Payment Period." It provides the rates and detailed summary of all relevant inheritance taxes up to 1954.

An analysis of historical tax changes can be found in the volumes of the "History of Taxation in Meiji/Taisho Era" and "History of Taxation in Showa Era," both edited by the MoF. The books provide accounts of tax changes and political and economic circumstances surrounding the introduction or modification of inheritance taxes. Another useful source is Hiromitsu Ishi (1989) The Japanese Tax System (Oxford: Oxford University Press).

Netherlands

Information on inheritance tax rates in the Netherlands is based upon the pertinent Dutch legislation, which has been published in the *Staatsblad* (van het Koningrijk der Nederlanden)} since 1813. Secondary sources consulted include Drukker (1957), Schanz (1901), Wattel (1881), and Zwemmer (2001).

New Zealand

For New Zealand, all information was compiled directly from the applicable legislation. Reprints of the legislation for 1908–1931 can be found in "The Public Acts of New Zealand (Reprint), 1908–1931" (Wellington: Butterworth, 1932–1933). From 1936 onwards they are contained in the publication "Statutory Regulations: Being the Regulations Issued under

the Regulations Act, 1936, from 1st August, 1936, onwards" (Wellington: E. V. Paul, Govt. Printer) and partly online at Knowledge Basket New Zealand's http://legislation.knowledge-basket.co.nz/index.html. Copies of the earliest pieces of legislation were sent to us by the staff at the National Library of New Zealand. For detailed background information, see the article by McKay (1978) and the relevant passages in Goldsmith (2008).

Norway

Information on inheritance tax rates in Norway is based upon a July 21, 2009, reply by the Norwegian Royal Ministry of Finance to a request for this information sent out in June 2009. The information provided in turn mainly draws upon a 557–page report on the Norwegian inheritance tax ("Arveavgift") that was compiled by the Royal Ministry of Finance.

South Korea

The data for 1962–2009 were obtained directly from the Korean National Tax Agency. The data from 1950–1962 were collected from the "National Law Code Information Center," which makes information available online at http://www.law.go.kr. The initial rate and the information on the "Cho-Seun" inheritance tax that applied during the Japanese occupation of Korea can be found in "Cho-Seun Inheritance Tax Code" (1934) by Murayama Michio (who was the responsible officer of the Cho-Seun Administration). Note that we were unable to collect information on Korean taxation prior to the Japanese occupation.

Sweden

The official collection of Swedish statutes, Svensk Författningssamling (1825–), starts in 1825. Our data series was constructed by accessing original legislation, by using online sources to identify amendments and new statutes, and with the help of secondary sources. In particular, the entire list of amendments for 1941:416 \S 28 is taken from the Notisum online database at http://www2.notisum.com/rnp/sls/fakta/a9410416.htm. Secondary sources consulted include Eberstein (1956), Englund and Silfverberg (1997), and Ohlsson (2009).

Switzerland

Switzerland never had an inheritance tax at the federal level. To verify this information, we consulted the relevant passages in Schoenblum (1982, 2009) and Steinauer (2006) as well as the monographs by Boulenaz (1961) and Huber (1946), which provide information on the subnational level while mentioning the absence of a federal-level inheritance tax at the time of their publication.

United Kingdom

The British inheritance tax in the nineteenth century was enforced under several titles which were merged and unified as a single estate tax in 1894. The data prior to 1894 is from the primary sources containing relevant British statutes available in several volumes of *The Statutes of Great Britain*. For extracting the rates for legacy, probate, and stamp duties, we have cross-checked secondary sources such as Dowell (1965), West (1908), and Shultz (1926) with the original statues. We used the abridged statutes included in the appendix of *The Death Duties* (Green, 1936), to confirm the timeline for major changes in inheritance tax legislation in the nineteenth century.

Information on the period from 1894 to 1971 is taken from the 7th edition of "Green's Death Duties," which contains information on the rates of estate duty in appendix III. Information on subsequent changes is compiled directly from the *Acts of the UK Parliament*, which are available online at http://opsi.gov.uk/acts. The information contained in Lawday & Mann (1971) and the acts was cross-checked with the help of Chown (1975) and Barlow et al. (2008), among others. In addition, contextual information on key legislative changes was obtained from various newspaper reports in the Times of London.

United States

There is a comprehensive body of secondary literature on the American inheritance taxation. West (1908) contains a detailed review of federal inheritance taxation starting in 1797 up to the beginning of the twentieth century. In addition to the federal case, West (1908) includes a

detailed summary of the inheritance taxation on the state level during the nineteenth century. The data for the early twentieth century is from Shultz (1926). Federal estate tax law was introduced in 1916 and amended multiple times during the twentieth century. Among the recent sources, we have used Beckert (2008), Luckey (2005), and Jacobson et al (2007) to report on the evolution of the federal estate tax rates.

Data for Income Tax Rates

France

For purposes of measuring the top marginal tax rate in France Piketty (2001 ch.4) provides full schedules showing marginal income tax rates for France for the years 1915 to 1998. He also reports a series for the top marginal tax rate that takes into account surcharges (majorations), including those levied only on certain types of households, such as those without children (p.325, 566). His goal is to consider the marginal tax rate faced by the household in the most unfavorable position. Our goal is slightly different in that we seek exclusively to measure the marginal tax rate faced by the richest households. In addition, we also face some uncertainty whether any surcharges of the sort reported by Piketty for France have been taken into account in the other country series that we use. In order to maximize the likelihood of inter-country comparability, we constructed a top rate series for France based exclusively on the top marginal rates (barèmes d'imposition) reported in Piketty (2001 Tables 4-1 to 4-5).

Japan

Moriguchi and Saez (2007 Table A0) report statutory top marginal tax rates for Japan for all years 1886-2005.

Netherlands

For the top rate Salverda and Atkinson (2007 p.455) report effective top share tax rates for the period following the establishment of the modern Dutch income tax 1914-1999. We use the series for the effective tax rate on the top 0.05% income group. For the period prior to 1914 we rely on Vording and Ydema (2009).

Sweden

Roine and Waldenström (2008) report top share tax rates for the years 1903-2004 including both the state (national) income tax and the communal (local) income tax. We use their series for the highest marginal tax rate.

United Kingdom

For the top rate during the period between 1900 and 1919 we refer to the standard rate of income tax as reported in Mitchell (1988) and to super tax rates as reported by Mallett and George (1929 p.399). For the period between 1920 and 2002 we use data on the top marginal tax rate on wage income provided by Anthony Atkinson and Andrew Leigh.

United States

We use the top marginal tax rate as reported in Senate Committee on Finance (2001). The rates presented are statutory top marginal tax rates, and these include any surtax.

Variable	Observations	Mean	Standard Deviation
Top Rate	2,798	17.141	22.276
$War\ Mobilization$	2,798	0.038	0.191
Universal Male Suffrage	2,798	0.643	0.479
$Competitive\ Elections$	2,798	0.670	0.470
$No\ Upper$	2,795	0.496	0.500
Direct Elections	2,795	0.860	0.347
$Secret\ Ballot$	2,795	0.784	0.412
Electorate~25	2,798	0.785	0.411
Electorate 50	2,798	0.727	0.446
Electorate 75	2,798	0.708	0.455
Left Executive	2,798	0.167	0.368
GDP per capita	2,555	6,682	5,603

 ${\bf Table\ A-1:\ Descriptive\ Statistics,\ 1816-2000,\ Annual\ Data.}$

Additional Results

			5-year	\mathbf{Data}			10-year Data	Data	Annual Data)ata
	Countr	Country Fixed Effects	Effects		Lag DV		Country FE	Lag DV	Country FE	Lag DV
	(1)	(2)	(3)	(4)	(5)	(9)	(7)	(8)	(6)	(10)
$Top Rate_{t-1}$				0.871	0.876	0.663		0.385		0.932
				(0.039)	(0.037)	(0.061)		(0.123)		(0.010)
				0.000	0.000	0.000		0.002		0.000
$War\ Mobilizaton_{t-1}$	24.307	23.191	19.158	16.196	16.317	16.743	26.275	24.290	5.556	1.587
	(6.013)	(6.407)	(5.737)	(3.368)	(3.366)	(3.608)	(12.293)	(10.826)	(2.244)	(0.671)
	0.001	0.002	0.004	0.000	0.000	0.000	0.047	0.025	0.023	0.018
Direct Elections _{t-1}	-2.694	-0.988	1.899	0.147	0.186	0.226	-0.050	0.694	-0.006	0.049
	(8.562)	(8.461)	(2.875)	(1.355)	(1.583)	(1.487)	(3.853)	(2.208)	(2.399)	(0.550)
	0.757	0.908	0.517	0.914	0.906	0.879	0.990	0.753	0.998	0.930
Left Executive _{$t-1$}		0.544	1.926		2.592	3.872	3.687	4.816	1.236	0.615
		(5.725)	(3.696)		(1.547)	(1.698)	(6.808)	(3.318)	(2.040)	(0.269)
		0.925	0.609		0.094	0.023	0.595	0.147	0.552	0.022
$GDP \ per \ capita_{t-1}$		0.001	0.001		-0.000	0.001	0.002	0.001	0.001	0.000
		(0.002)	(0.001)		(0.000)	(0.000)	(0.002)	(0.001)	(0.001)	(0.000)
		0.805	0.345		0.781	0.172	0.318	0.242	0.358	0.413
Period Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-specific Time Trends	$N_{\rm o}$	$N_{\rm o}$	Yes	No	$N_{\rm O}$	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	No	$N_{\rm O}$	$N_{\rm O}$	Yes	$N_{\rm O}$	Yes	$N_{\rm o}$
R-squared	0.709	0.716	0.835	0.878	0.875	0.893	0.844	0.839	0.830	0.963
Number of Observations	543	515	515	542	514	514	254	253	2,534	2,533

Table A-2: War Mobilization, Democracy, and Inheritance Taxation, 1816-2000: Direct Elections Measure of Democracy. The and 10 include a lagged dependent variable and report panel-corrected standard errors in parentheses and p-values. Specifications in columns 2, 3, and 5-10 include control variables for lagged partisan control of government and lagged GDP per capita. All table reports the results of pooled-cross-sectional OLS regressions of the variable Top Rate on the variable War Mobilization lagged one period and the variable Direct Elections lagged one period. The specifications in columns 1-3, 7, and 9 include country fixed effects and report robust standard errors clustered by country in parentheses and p-values. The specifications in columns 4-6, 8, specifications include period fixed effects.

			5-year	· Data			10-year Data	Data	Annual Data)ata
	Country		Fixed Effects		Lag DV		Country FE	Lag DV	Country FE	LagDV
	(1)	(2)	(3)	(4)	(5)	(9)	(7)	(8)	(6)	(10)
$Top Rate_{t-1}$				0.871	0.876	0.663		0.384		0.932
				(0.039)	(0.037)	(0.061)		(0.123)		(0.010)
				0.000	0.000	0.000		0.002		0.000
$War\ Mobilizaton_{t-1}$	24.581	23.383	19.054	16.194	16.314	16.738	26.070	24.243	5.529	1.593
	(6.025)	(6.504)	(5.672)	(3.369)	(3.367)	(3.610)	(12.249)	(10.831)	(2.237)	(0.671)
	0.001	0.003	0.003	0.000	0.000	0.000	0.047	0.025	0.024	0.018
Secret $Ballot_{t-1}$	4.151	4.014	-1.099	0.145	0.164	0.633	-2.460	1.465	-2.018	0.278
	(5.396)	(5.512)	(2.544)	(1.294)	(1.257)	(1.197)	(3.416)	(2.068)	(1.902)	(0.423)
	0.452	0.476	0.671	0.911	0.896	0.597	0.481	0.479	0.303	0.510
Left Executive _{$t-1$}		0.320	1.980		2.591	3.888	3.721	4.903	1.252	0.614
		(5.655)	(3.676)		(1.547)	(1.698)	(6.721)	(3.265)	(2.031)	(0.263)
		0.956	0.597		0.094	0.022	0.587	0.133	0.545	0.020
$GDP \ per \ capita_{t-1}$		0.001	0.001		-0.000	0.001	0.002	0.001	0.001	0.000
		(0.002)	(0.001)		(0.000)	(0.000)	(0.002)	(0.001)	(0.001)	(0.000)
		0.821	0.364		0.784	0.181	0.320	0.261	0.362	0.444
Period Fixed Effects	Yes	Yes	Yes	m Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-specific Time Trends	$N_{\rm O}$	$N_{\rm O}$	Yes	$N_{\rm O}$	$N_{\rm O}$	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	$N_{\rm o}$	$N_{\rm O}$	$N_{\rm O}$	Yes	$N_{\rm o}$	Yes	$N_{\rm o}$
R-squared	0.710	0.717	0.835	0.878	0.875	0.893	0.844	0.840	0.831	0.963
Number of Observations	543	515	515	542	514	514	254	253	2,534	2,533

Table A-3: War Mobilization, Democracy, and Inheritance Taxation, 1816-2000: Secret Ballot Measure of Democracy. The table and 10 include a lagged dependent variable and report panel-corrected standard errors in parentheses and p-values. Specifications in columns 2, 3, and 5-10 include control variables for lagged partisan control of government and lagged GDP per capita. All reports the results of pooled-cross-sectional OLS regressions of the variable Top Rate on the variable War Mobilization lagged one period and the variable Secret Ballot lagged one period. The specifications in columns 1-3, 7, and 9 include country fixed effects and report robust standard errors clustered by country in parentheses and p-values. The specifications in columns 4-6, 8, specifications include period fixed effects.

			5-year	Data			10-year Data	Data	Annual Data	ata
	Country	y Fixed	Effects		Lag DV		Country FE	${\rm Lag~DV}$	Country FE	LagDV
	(1)	(2)	(3)	(4)	(2)	(9)	(7)	(8)	(6)	(10)
$Top Rate_{t-1}$				0.872	0.876	0.655		0.381		0.932
				(0.039)	(0.037)	(0.061)		(0.122)		(0.012)
				0.000	0.000	0.000		0.002		0.000
$War\ Mobilizaton_{t-1}$	23.643	22.429	18.567	14.252	14.376	14.648	26.425	24.399	5.546	1.579
	(5.844)	(5.825)	(5.531)	(3.730)	(3.766)	(4.047)	(11.796)	(10.743)	(2.180)	(0.747)
	0.001	0.001	0.004	0.000	0.000	0.000	0.038	0.023	0.020	0.034
Electorate 25_{t-1}	-5.970	-4.137	-1.267	-0.763	-0.926	-1.746	-3.545	-4.131	-2.348	-0.116
	(5.634)	(6.213)	(2.695)	(2.585)	(2.484)	(2.247)	(5.128)	(3.956)	(1.859)	(0.839)
	0.303	0.514	0.644	0.768	0.709	0.437	0.498	0.296	0.223	0.890
Electorate 50_{t-1}	096.2	7.083	4.902	-0.181	-0.038	2.690	6.467	5.338	4.288	0.567
	(4.039)	(4.335)	(3.263)	(3.190)	(3.133)	(3.008)	(4.990)	(4.943)	(2.839)	(0.806)
	0.064	0.120	0.150	0.955	0.990	0.371	0.211	0.280	0.148	0.482
Electorate 75_{t-1}	-6.139	-4.032	-2.696	-0.313	-0.495	-0.949	-2.482	-1.262	-2.547	-0.189
	(5.609)	(4.852)	(3.704)	(2.445)	(2.518)	(2.440)	(4.079)	(3.920)	(2.937)	(0.614)
	0.288	0.417	0.476	0.898	0.844	0.697	0.550	0.747	0.397	0.758
Left $Executive_{t-1}$		0.517	1.973		2.450	3.785	3.711	4.847	1.232	0.618
		(5.516)	(3.670)		(1.540)	(1.679)	(6.740)	(3.289)	(2.036)	(0.305)
		0.926	0.597		0.112	0.024	0.589	0.140	0.553	0.043
$GDP \ per \ capita_{t-1}$		0.001	0.001		-0.000	0.001	0.002	0.001	0.001	0.000
		(0.002)	(0.001)		(0.000)	(0.000)	(0.002)	(0.001)	(0.001)	(0.000)
		0.768	0.337		0.751	0.065	0.329	0.221	0.342	0.396
Period Fixed Effects	Yes	Yes	m Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-specific Time Trends	$N_{\rm O}$	$N_{\rm O}$	m Yes	$N_{\rm O}$	$N_{\rm O}$	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	m Yes	$N_{\rm O}$	$ m N_{0}$	$N_{\rm O}$	Yes	$N_{\rm o}$	Yes	$N_{\rm o}$
$\operatorname{R-squared}$	0.712	0.718	0.837	0.877	0.873	0.892	0.845	0.840	0.832	0.964
Number of Observations	544	516	516	543	515	515	254	253	2,537	2,536

Table A-4: War Mobilization, Democracy, and Inheritance Taxation, 1816-2000: Electorate Size Measure of Democracy. The table one period and the variables Electorate 25, Electorate 50, and Electorate 75 lagged one period. The specifications in columns The specifications in columns 4-6, 8, and 10 include a lagged dependent variable and report panel-corrected standard errors in reports the results of pooled-cross-sectional OLS regressions of the variable Top Rate on the variable War Mobilization lagged 1-3, 7, and 9 include country fixed effects and report robust standard errors clustered by country in parentheses and p-values. parentheses and p-values. Specifications in columns 2, 3, and 5-10 include control variables for lagged partisan control of government and lagged GDP per capita. All specifications include period fixed effects.

			5-year	Data			10-year Data	Data	Annual Data) ata
	Country		Fixed Effects		Lag DV		Country FE	Lag DV	Country FE	Lag DV
	(1)	(2)	(3)	(4)	(5)	(9)	(7)	(8)	(6)	(10)
$Top Rate_{t-1}$				0.868	0.873	0.646		0.363		0.926
				(0.039)	(0.037)	(0.063)		(0.123)		(0.010)
				0.000	0.000	0.000		0.003		0.000
$War\ Mobilizaton_{t-1}$	25.968	24.928	19.827	16.451	16.489	17.470	27.149	25.755	5.802	1.718
	(6.324)	(6.741)	(6.039)	(3.377)	(3.397)	(3.662)	(12.475)	(11.023)	(2.156)	(0.672)
	0.001	0.002	0.004	0.000	0.000	0.000	0.043	0.019	0.015	0.011
$No\ Upper_{t-1}$	12.220	14.198	5.087	0.882	0.601	3.728	4.545	6.150	2.365	1.062
	(6.095)	(7.077)	(6.913)	(1.079)	(1.063)	(1.259)	(6.383)	(2.445)	(5.405)	(0.381)
	0.000	0.060	0.471	0.414	0.571	0.003	0.486	0.012	0.667	0.005
Left $Executive_{t-1}$		-1.043	1.674		2.452	3.646	3.413	4.479	1.159	0.539
		(5.306)	(3.784)		(1.522)	(1.692)	(6.856)	(3.266)	(2.091)	(0.263)
		0.846	0.664		0.107	0.031	0.625	0.170	0.586	0.041
$GDP\ per\ capita_{t-1}$		0.001	0.001		-0.000	0.001	0.002	0.001	0.001	0.000
		(0.002)	(0.001)		(0.000)	(0.000)	(0.002)	(0.001)	(0.001)	(0.000)
		0.771	0.352		0.770	0.197	0.315	0.239	0.357	0.388
Period Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-specific Time Trends	$N_{\rm O}$	$N_{\rm O}$	Yes	$N_{\rm o}$	$N_{\rm O}$	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	$N_{\rm o}$	$N_{\rm O}$	$N_{\rm O}$	Yes	$N_{\rm O}$	Yes	$N_{\rm O}$
R-squared	0.726	0.738	0.837	0.879	0.876	0.894	0.845	0.843	0.831	0.964
Number of Observations	543	515	515	545	514	514	254	253	2,534	2,533

Table A-5: War Mobilization, Democracy, and Inheritance Taxation, 1816-2000: No Upper Measure of Democracy. The table reports the results of pooled-cross-sectional OLS regressions of the variable Top Rate on the variable War Mobilization lagged one report robust standard errors clustered by country in parentheses and p-values. The specifications in columns 4-6, 8, and 10 include and 5-10 include control variables for lagged partisan control of government and lagged GDP per capita. All specifications include period and the variable No Upper lagged one period. The specifications in columns 1-3, 7, and 9 include country fixed effects and a lagged dependent variable and report panel-corrected standard errors in parentheses and p-values. Specifications in columns 2, 3, period fixed effects.

		5-ye	5-year Data		10-ye	10-year Data	Ann	Annual Data
	Lag~DV	1	and Country Fixed	ed Effects	Lag DV and	d Country FE	Lag DV a	and Country FE
	(1)		(3)	(4)	(5)	(9)	(7)	(8)
$Top Rate_{t-1}$	0.772		0.772	0.763	0.581	0.586	0.932	0.933
	(0.046)		(0.046)	(0.047)	(0.100)	(0.100)	(0.012)	(0.012)
	0.000		0.000	0.000	0.000	0.000	0.000	0.000
$War\ Mobilizaton_{t-1}$	15.698		15.338	14.899	24.281	23.911	1.581	1.666
	(3.714)	(4.005)	(3.803)	(4.080)	(10.922)	(11.246)	(0.746)	(0.749)
	0.000		0.000	0.000	0.026	0.033	0.034	0.026
Universal Male Suffrage $_{t-1}$	-0.409				0.999		0.449	
	(1.973)				(3.444)		(0.407)	
	0.836				0.772		0.270	
Competitive $Elections_{t-1}$			-0.925	-0.437		-1.283		0.348
			(1.476)	(1.501)		(2.948)		(0.489)
			0.531	0.771		0.663		0.476
Left $Executive_{t-1}$		3.571		3.651	5.415	5.802	0.600	0.583
		(1.656)		(1.668)	(3.172)	(3.116)	(0.304)	(0.308)
		0.031		0.029	0.088	0.063	0.048	0.058
$GDP\ per\ capita_{t-1}$		0.001		0.000	0.000	0.000	0.000	0.000
		(0.000)		(0.000)	(0.001)	(0.001)	(0.000)	(0.000)
		0.172		0.189	0.544	0.658	0.425	0.412
Period Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.885	0.884	0.885	0.884	0.816	0.816	0.964	0.964
Number of Observations	543	515	543	515	253	253	2,536	2,536

Table A-6: War Mobilization, Democracy, and Inheritance Taxation, 1816-2000: Lagged Dependent Variable and Fixed Effects Specifications. The table reports the results of pooled-cross-sectional OLS regressions of the variable Top Rate on the variable dependent variable and period and country fixed effects. Each column reports the OLS estimate, panel-corrected standard errors War Mobilization lagged one period and selected democracy measures also lagged one period. All specifications include a lagged in parentheses, and p-values.

	Democ	racy and	Democracy and War Interacted	\mathbf{racted}	Partisanship	Partisanship and War Interacted
	(1)	(2)	(3)	(4)	(5)	(9)
$Top \ Rate_{t-1}$		0.871		0.879		0.879
		(0.040)		(0.039)		(0.039)
		0.000		0.000		0.000
$War\ Mobilizaton_{t-1}$	36.248	4.120	21.493	23.951	21.570	15.302
	(14.932)	(9.026)	(13.904)	(5.292)	(6.244)	(3.985)
	0.026	0.648	0.140	0.000	0.003	0.000
Universal Male Suffrage _{t-1}	4.214	-2.879				
	(5.745)	(1.710)				
Universal Male Suffrage _{t-1} * War Mobilization _{t-1}	-14.946	11.618				
	(14.636) 0.321	(9.301) 0.212				
Competitive elections _{t-1}			-0.233	-0.158		
			(6.778)	(1.195)		
			0.973	0.895		
Competitive Elections _{t-1} * War Mobilization _{t-1}			2.788	-15.973		
			(14.681)	(5.623)		
			0.852	0.005		
Left Executive _{$t-1$}					-0.477	2.610
					(5.901)	(1.530)
					0.937	0.088
Left Executive _{t-1} * War Mobilization _{t-1}					8.808	-5.656
					(8.986)	(8.628)
					0.340	0.512
Period Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	$N_{\rm o}$	Yes	$N_{\rm O}$	Yes	$N_{\rm O}$
R-squared	0.712	0.878	0.710	0.879	0.710	0.877
Number of Observations	544	543	544	543	544	543

Table A-7: War Mobilization, Democracy, and Inheritance Taxation, 1816-2000: Interactions between War Mobilization and between the measures. Columns 5-6 report results of pooled-cross-sectional OLS regressions of the variable Top Rate on the variable War Mobilization lagged one period, the variable Left Executive lagged one period, and the interaction between the Democracy and Partisanship Measures. Columns 1-4 report results of pooled-cross-sectional OLS regressions of the variable Top Rate on the variable War Mobilization lagged one period, selected democracy measures lagged one period, and the interaction measures. Specifications 1, 3, and 5 include country and period fixed effects and report robust standard errors clustered by country in parentheses and p-values. Specifications 2, 4, and 6 include a lagged dependent variable and period fixed effects and report panel-corrected standard errors in parentheses and p-values.

		Anr	Annual Data	
	Country I	Country Fixed Effects	Lagged De	Lagged Dependent Variable
	(1)	(2)	(3)	(4)
$Top Rate_{t-1}$			996.0	0.967
			(0.009)	(0.009)
			0.000	0.000
$War\ Mobilizaton_{t-1}$	7.427	8.978	1.520	1.431
	(2.695)	(3.157)	(0.717)	(0.736)
	0.013	0.011	0.034	0.052
Universal Male $Suffrage_{t-1}$	7.303		-0.423	
	(6.030)		(0.340)	
	0.242		0.213	
$Competitive\ Elections_{t-1}$		6.366		-0.167
		(5.524)		(0.408)
		0.264		0.682
Left $Executive_{t-1}$	0.280	-0.065	0.382	0.363
	(3.270)	(3.287)	(0.278)	(0.276)
	0.933	0.984	0.213	0.189
$GDP \ per \ capita_{t-1}$	0.001	0.001	-0.000	-0.000
	(0.002)	(0.002)	(0.000)	(0.000)
	0.666	0.633	0.619	0.794
Period Fixed Effects	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	$N_{\rm o}$	$N_{\rm O}$
R-squared	0.721	0.720	0.963	0.963
Number of Observations	2,537	2,537	2,536	2,536

Table A-8: War Mobilization, Democracy, and Inheritance Taxation, 1816-2000: Annual Data. Columns 1-2 report results of pooled-cross-sectional OLS regressions of the variable Top Rate on the variable War Mobilization lagged one period, selected democracy measures lagged one period, and control variables. These specifications include country and period fixed effects and report robust standard errors clustered by country in parentheses and p-values. Columns 3-4 report results of pooled-cross-sectional OLS regressions of the variable Top Rate on the variable War Mobilization lagged one period, selected democracy measures lagged one period, and control variables. These specifications also include a lagged dependent variable and period fixed effects and report panel-corrected standard errors in parentheses and p-values.

	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000
UK	3.3	8.3	09	63.8	90	97.5	88.8	91.3	09	40	40
USA	0	0	73	25	81.1	91	91	71.8	20	28	39.6
France	0	0	20	33	40	09	09	09	09	22	54
Japan	5.5	20.4	36	36	65	52	20	75	75	50	37
Sweden	0	12	13	18.5	45.3	53.8	59.6	2.99	85	65	56.5
Netherlands	0	3.2	12.9	11	9.4	61.7	54.7	53.3	53	42.6	45.5

Table A-9: The Top Marginal Rate of Income Taxation Across Six Countries. See Data appendix for sources.

References

- [1] Barlow, John Lesley King, and Anthony King. 2008. Wills, Administration and Taxation Law and Practice. 9th ed. London: Sweet & Maxwell.
- [2] Battiato, Salvatore Enrico. 1974. La tassazione dei transferimenti della ricchezza a titolo gratuito. Milano: Dott. A. Giuffrè Editore.
- [3] Bertaud, Jean-Paul. 1988. The Army of the French Revolution: From Citizen-Soldiers to Instrument of Power. Princeton University Press.
- [4] Boulenaz, André. 1961. Die Erbschafts- und Schenkungssteuern unter besonderer Berücksichtigung der schweizerischen Verhältnisse. Winterthur: P.G. Keller.
- [5] Capgras, J.-P., and E. Domergue. 1935. *Tableaux Barèmes Pratiques des Droits de Succession*. 3rd ed. Paris: Tableaux Barèmes Pratiques.
- [6] Carter, George E. 1973. "Federal Abandonment of the Estate Tax: The Intergovernmental Fiscal Dimension." *Canadian Tax Journal* 21(3): 232-246.
- [7] Chown, John. 1975. A Guide to Capital Transfer Tax. London: Kogan Page.
- [8] Coutot, Maurice. 1925. L'aggravation des impôts sur les successions: Ses conséquences financières, économiques et sociales. Meulan: Imprimerie Auguste Réty (Dissertation, Université de Paris).
- [9] Daumard, Adeline. 1973. Les fortunes françaises aux XIX^e siècle: Enquête sur la répartition et la composition des capitaux privés à Paris, Lyon, Bordeaux et Toulouse d'après l'enregistrement des déclarations de succession. Paris: Mouton.
- [10] de Wilde d'Estmael, Emmanuel. 2004. Les droits de succession. 4th ed. Bruxelles: Creadif.
- [11] Det Kongelige Finansdepartment. 2001. "Arveavgift." Norges Offentlige Utredninger 2000(8).
- [12] Dorazil, Wilfried. 1975. Kommentar zum Erbschafts- und Schenkungs steuergesetz samt Erbschaftssteueräquivalentgesetz, 2nd ed.. Wien: Manzsche Verlags- und Universitätsbuchhandlung.
- [13] Dowell, Stephen. 1965. A History of Taxation and Taxes in England: From the Earliest Times to the Present Day Volume 3 Direct Taxes and Stamp Duties. London: Frank Cass.
- [14] Drukker, M. 1957. Beschouwingen over de Successiewet 1956. Amsterdam: N.V. Uitgeverij Fed.
- [15] Dupeyron, André. 1913. L'impôt sur les successions. Bordeaux: Imprimerie de l'université (Dissertation, Université de Bordeaux).
- [16] Eberstein, Gösta. 1956. Den svenska arvslotts- och gåvobeskattningen. 2nd ed. Stockholm: Norstedt.

- [17] Englund, Göran, and Christer Silfverberg. 1997. Beskattning av arv och gåva. 11th ed. Stockholm: Norstedts Juridik.
- [18] Faure, Henri. 1922. La taxe successorale instituée par la loi du 31 décembre 1917, modifiée par la loi du 25 juin 1920. Rennes: Imprimeries Réunies (Dissertation, Université de Rennes).
- [19] Finnish Tax Administration. 2009. *Inheritance Tax.* Publication of the Finnish Tax Administration 35e.09, 1 January.
- [20] Gallo-Orsi, Gianfranco. 1994. "La disciplina tributaria delle successioni e delle donazioni." In Rescigno, Pietro. ed. Succesioni e donazioni. Vol. II. Padova: CEDAM, pp. 371–385.
- [21] Garelli, Alessandro. 1896. L'imposta successoria. Torino: Fratelli Bocca.
- [22] Giuliani Fonrouge, Carlos M. 1937. Impuesto a la transmisión gratuita de bienes: Doctrina, legislación nacional y extranjera, jurisprudencia argentina y norteamericana. Buenos Aires: El Ateneo.
- [23] Goldsmith, Paul. 2008. We Won, You Lost. Eat That! A political history of tax in New Zealand since 1840. Auckland: David Ling.
- [24] Green, G. M. 1936. The Death Duties. London: Butterworth & Co.
- [25] Grisolia Gesano, Erminia. 1958. Rassegna di giurisprudenza sulla imposta di successione. Milano: Dott. A. Giuffrè Editore.
- [26] Grisolia Gesano, Erminia. 1962. Rassegna di giurisprudenza sulla imposta di successione (aggiornamento al 31 decembre 1961) e rassegna di giurisprudenza sulla imposta sul valore netto globale dell'asse ereditario. Milano: Dott. A. Giuffrè Editore.
- [27] Huber, Emil. 1946. Die Besteuerung der Erbschaften und Schenkungen in der Schweiz. Aarau: H. R. Sauerländer & Co.
- [28] Jacobson, Darien B., Brian G. Raub, and Barry W. Johnson. 2007. "The Estate Tax: Ninety Years and Counting." *Statistics of Income Bulletin*, Summer: 118-128.
- [29] Kisker, Klaus Peter. 1964. Die Erbschaftsteuer als Mittel der Vermögensredistribution: Eine empirische und theoretische Untersuchung. Berlin: Duncker & Humblot.
- [30] Kohonen, Anssi. 2007. "Perintö- ja lahjaverotus: Näkökulmia talous-teoriasta, maailmalta ja Suomesta." Discussion Paper 411, Valtion taloudellinen tutkimuskeskus (Government Institute for Economic Research), January.
- [31] Lawday, D. J., and E. J. Mann. 1971. *Green's Death Duties*. 7th ed. London: Butterworths.
- [32] Lindert, Peter. 2004. Growing Public: Social Spending and Economic Growth Since the Eighteenth Century. Cambridge University Press.

- [33] Luckey, John R. 2005. "A History of Federal Estate, Gift, and Generation-Skipping Taxes." CRS Report for Congress, updated January 3.
- [34] Malaurie, Philippe. 2008. Les Successions, Les Libéralités. 3rd ed. Paris: Defrénois.
- [35] Mallett, Bernard and Oswald George. 1929. British Budgets, Second Series 1913-14 to 1920-21. London, Macmillan.
- [36] McKay, Lindsay. 1978. "Historical Aspects of the Estate Tax." New Zealand Universities Law Review 8 (April): 1-32.
- [37] Model, Otto. 1953. Handbuch zum Testaments- und Erbschaftsteuerrecht. Köln: Verlag Dr Otto Schmidt.
- [38] Moriguchi, Chiaki and Emmanuel Saez. 2007. "The Evolution of Income Concentration in Japan, 1886-2005: Evidence from Income Tax Statistics", working paper, Northwestern University and University of California Berkeley.
- [39] Munkholm Povlsen, Janne Britt and Eva Krog Thomsen. 1982. "Et bidrag til belysning af arveafgifternes historie." *Justitia* 5 (2): 1-100.
- [40] Ohlsson, Henry. 2009. "The legacy of the Swedish gift and inheritance tax, 1884-2004." Working paper 2009:13, Uppsala University, Department of Economics.
- [41] Perraud-Charmantier, A. 1956. Manuel pratique des successions: Toutes successiones Civiles, militaires, agricoles; Parts réservées; Formalités; Impôts. 3rd ed. Paris: Librairie Générale de Droit et de Jurisprudence.
- [42] Perry, J. Harvey. 1955. Taxes, Tariffs, and Subsidies: A History of Canadian Fiscal Development. Toronto: University of Toronto Press.
- [43] Perry, J. Harvey. 1989. A Fiscal History of Canada: The Postwar Years. Toronto: Canadian Tax Foundation.
- [44] Picard, Edmond, N. d'Hoffschmidt, and Jules de le Court. 1912. Pandectes Belges Inventaire gènèral du droit belge à la fin du XIXeme siècle Vol. 104. Bruxelles: Ferdinand Larcier.
- [45] Piketty, Thomas. 2001. Les hauts revenus en France au XXème siècle. Paris: Grasset.
- [46] Roine, Jesper, and Daniel Waldenström. 2008. "The Evolution of Top Incomes in an Egalitarian Society: Sweden, 1903-2004", Journal of Public Economics. vol.92 pp.366-387.
- [47] Rytöhonka, Risto. 1996. "Inheritance and Gift Tax Revised." European Taxation. 36 (10): 322-326.
- [48] Salverda W. and A.B. Atkinson. 2007. "Top Incomes in the Netherlands over the Twentieth Century" in A.B. Atkinson and Thomas Piketty (eds.) Top Incomes Over the Twentieth Century: A Contrast Between Continental and English-Speaking Countries, Oxford University Press.

- [49] Say, Léon, Louis Foyot, and A. Lanjalley. 1894. *Dictionnaire des Finances*. Vol. II: E-Z. Paris: Berger-Levrault.
- [50] Schanz, Georg. 1901. "Studien zur Geschichte und Theorie der Erbschaftssteuer (Fortsetzung)." Finanzarchiv 18(2): 53-195.
- [51] Schoenblum, Jeffrey A. 1982. Multistate and Multinational Estate Planning. Vol. II. Boston, MA: Little, Brown.
- [52] Schoenblum, Jeffrey A. 2009. Multistate and Multinational Estate Planning. Vol. 2. 2009 ed. Chicago, IL: CCH.
- [53] Senate Committee on Finance. 2001. "Overview of Present Law and Economic Analysis Relating to Marginal Tax Rates and the President's Individual Income Tax Rate Proposals", prepared by the Staff of the joint committee on taxation.
- [54] Serrano, Francesco. 1974. Le imposte sulle successioni. 6th revised and expanded ed. Torino: Unione Tipografico Editrice Torinese.
- [55] Statistisches Reichsamt. 1930. Die deutsche Erbschaftsbesteuerung vor und nach dem Kriege. Statistik des Deutschen Reichs, Bd. 376. Berlin: Reimar Hobbing.
- [56] Statutes of Canada. 1941. 5 Geo. VI, Ch. 14; 1946, 10 Geo. VI, Ch. 46; 1958, 7 Eliz. II,
 Ch. 29;1968, 17 Eliz. II, Ch. 33; 1971, 20 Eliz. II, Ch. 63.
- [57] Statutes of Great Britain. 1796. 36 Geo. III, Ch. 52; 1804, 44 Geo. III; 1815, 55, Geo. III, Ch. 184;1881, 44 & 45 Vict., Ch. 12; 1888, 51 & 52 Vict., Ch. 8.
- [58] Steinauer, Paul-Henri. 2006. Le droit des successions. Berne: Stämpfli Editions SA.
- [59] Van Gysel, Alain Charles. 2008. Précis du droit des successions et libéralités. Bruxelles: Bruylant.
- [60] Viskorf, Hermann-Ulrich, Josef Glier, Heinrich Hübner, Wolfgang Knobel, and Stephan Schuck. 2001. Erbschaftsteuer- und Schenkung steuergesetz, Bewertungsgesetz (Auszug): Kommentar. Herne/Berlin: Verlag Neue Wirtschafts-Briefe.
- [61] von Odkolek, August Freiherr. 1904. "Die italienische Erbschaftssteuerreform." Zeitschrift für Volkswirtschaft, Sozialpolitik und Verwaltung 13: 265–302.
- [62] Wattel, H. M. J. 1881. De Beginselen van het Oud-Hollandsch Recht, het Wetboek van Lodewijk Napoleon en den Code Civil, in Betrekking tot Huwelijksgoed, Testamentaire Beschikking, Erfopvolging en Boedelscheiding. 2nd ed. Leiden: B. Blankenberg.
- [63] Zwemmer, J. W. 2001. "De dood als belastbaar feit." WKoninklijke Nederlandse Akademie van Wetenschappen, Amsterdam.