Creativity over Time and Space

Appendix - For Online Publication

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A.I Some prominent examples

We now describe in greater detail a few European cities that became amazing creative clusters in specific periods. Our goal in this subsection is to gain a better sense of our data, and also to show that they are consistent with anecdotal and historical evidence on creative cities. Throughout we focus on birth of famous creatives, since this is the variable of main interest.

Florence and the early Renaissance. Florence became a Commune during the XII century, and Bosker et al. (2013) code it as a Commune during the XIII-XV centuries, consistently with the principle of dating Commune on the basis of the institutions in place at the beginning of each century. City autonomy was established in two waves during the XII century, and both coincided with the death of a German Emperor (i.e. a period of power vacuum at the center).[1]

Appendix Table A.3 lists the famous creatives that according to Freebase were born in Florence or its vicinity in the period 1100-1499, namely from the century of transition into Commune until it becomes a Signoria. During this period Florence became the cradle of the Renaissance movement. This is reflected in our data. No famous creative is born until 1239, and then there is an impressive acceleration, with the apogee reached during the XV century, when Florence was the city in our sample with the highest number of famous births relative to population (cf. Figure 2).

Several historians have emphasized the important role of civic capital in stimulating Florentine creativity, and its link with Communal institutions. Quoting from Clarke (1926), chp. II :"Renaissance civilisation is primarily an urban civilisation; its greatest contributions to art and literature come from the towns. Florence was the centre of this great movement; by the beginning of the fourteenth century she had already produced the first Renaissance architect of secular buildings,

[1]The first official record of the establishment of a Commune in Florence dates 1138 (not long after the death of the German Emperor Henry V); after temperorarily losing its independence due to Frederick Barbarossa, Florence became again a free city towards the end of the XII century, taking advantage of the death of Frederick's successor, Henry VI - cf. Najemy (2008).

Arnolfo di Cambio; the first great Renaissance painter, Giotto; the first modern historian, Villani; and the first modern poet, Dante. The city was a unit small enough to develop rapidly patriotism, consciousness of individual responsibility and a spirit of emulation, a development which found artistic expression, in a manner unknown in half-organised, half-populated monarchies." - see also Brucker (2015). Other famous creatives born in Florence (or its vicinity) during this period and listed in Table A.3 include the painters Cimabue and Botticelli, the architect Brunelleschi, the explorer Amerigo Vespucci, the historian Niccolò Machiavelli and many others. Note that some famous creatives that spent the early part (or most) of their lives in Florence are not listed in Table A.3. In particular, the historian Villani was born and died in Florence but for some reason he is not included in Freebase. The architect Arnolfo di Cambio was born not far from Florence, but Florence is not the city in Bairoch (1988) closest to his birthplace - the closest city is Poggi Bonci. Likewise, Leonardo is assigned to Pistoia, the closest city to his birthplace (Vinci), although he spent his formative years (and several productive periods) in Florence. Despite such omissions, Florence emerges in our data as an exceptional creative cluster. Communal institutions in Florence also stimulated innovations by preserving a decentralized and competitive market for artists. Quoting from De Marchi and Van Miegroet (2006), p. 74: "... though in the course of the 15th century the Medici family acquired more and more power, Florence remained a republic; there was no Ducal Court. For this reason and because commissioning bodies were many, with a variety of goals, there was no “single dominating authority” around which taste might coalesce."

Antwerp and Amsterdam, and the emergence of a market for paintings

Communal institutions spread in several Belgian and Dutch cities a few centuries later than in Italy. Bosker et al. (2013), code Antwerp and Amsterdam as a Commune from 1300 and 1400 until the end of the sample, respectively. Here too, transition into Commune was followed by diffuse and important artistic innovations, particularly in paintings. Antwerp is the most creative city in our sample in the XVI century; Amsterdam is the most creative in the XVII century (and the second most creative in the XVI century). Appendix Tables A.4 and A.5 list the famous creatives in Freebase born in Antwerp (or its vicinity) between 1200 and 1599 and Amsterdam between 1200 and 1699. There is no famous birth until one century after the transition into Commune, while the XVI and XVII centuries stand out as exceptional, particularly for painters. Thus, the well known and remarkable clustering of painters in these two cities is fully captured by our data.

According to art historians, city institutions played an important role in the agglomeration of innovative artists in these two cities, although the mechanism is different than in Florence. Antwerp and Amsterdam were important trade centers. This facilitated the emergence of a market for paintings - cf. De Marchi and Van Miegroet (2006). First, merchants were an important source of demand for paintings - both local merchants as well as foreigners who travelled to the city to exchange other goods. Second, the market and transport infrastructures created to exchange goods

were also used in the market for paintings, enabling a local production in excess of the local demand (i.e. Belgian and Dutch paintings were exported all over Europe). Competition amongst different painters for a large and heterogeneous demand, as well as an open and welcoming culture amongst local guilds, encouraged new entries and innovation in varieties. Interestingly, the use of existing market infrastructures to foster a market for paintings was encouraged by city authorities: "In the case of Antwerp the city authorities played a central role, adapting to paintings and prints an older marketing institutions - the display hall, used for textiles at fair times in Bruges. ... A second distinctive feature in Antwerp was the deployment of cloister-like structures known as *panden*, some of them operating for the selling of paintings on a year-round basis. Strikingly, the city authorities took an active role in promoting these dedicated sales venues." - De Marchi and Van Miegroet (2006), p. 86,87. More generally, "Guild openness, civic encouragement, widespread dealing, plus specialization and division of labor practiced in the many crafts making up the painters' guild, and especially between masters' workshops, as well as a marketing and exporting orientation– all these features marked Antwerp as an environment for the production and sale of paintings the like of which had not been seen before", ibid, p. 89.

Paris and Vienna in the XVIII and XIX centuries

Finally, we turn to two more recent creative clusters, Paris in 1700-1899 and Vienna in the second half of the XIX century. Paris is close to the top of the distribution for *Immigrants* in our sample during the XVIII and XIX centuries (less so for *Births*), and Vienna is in the top 5% of the distribution for *Births* in the XIX century.

This is consistent with direct historical and anecdotal evidence. The poet and art critic Guillaume Apollinaire wrote in 1913: "In the XIX century Paris was the capital of the art.". Some decades later, Vienna emerged as the cultural capital of Europe, hosting the Vienna Circle in philosophy, the Vienna school of music with a new generation of composers, the Vienna School of Medicine, the Vienna school of economics, and large numbers of great architects, artists and scientists. The famous creatives included in Freebase and born (or who died) in Paris and Vienna during this period sum to several hundreds, too many to be listed in a table. Appendix Tables A.6 and A.7 instead report the names of creatives born in these two cities and included in the database by Yu et al. (2016), that only considers the most influential individuals. What is striking in these two tables is not only the number of easily recognizable historical figures, but also the breadth in terms of disciplines.

Anecdotal evidence suggests that important agglomeration effects are at the heart of the success of these two cities in attracting and giving birth to famous innovators. Many painters such as Cézanne, van Gogh and Pissarro expressed the view that having been in Paris was essential for their artistic achievements: "There is a theory that I heard you profess, that to paint it is absolutely necessary to live in Paris, so as to keep up with ideas" (Paul Gaugin to Camille Pissarro,

1881, quoted by Galenson 2009, p. 282). Vienna is even more remarkable than Paris, in that interactions and spillover effects between artists and scientists were commonplace and particularly fruitful. Eric Kandel, winner of the Nobel prize in medicine and also born in Vienna, describes how Viennese painters such as Klimt and Schiele were deeply influenced by the exchange of insights about unconscious mental processes with members of the Vienna School of Medicine. "One of the characteristic features of Viennese life at the time was the continual, easy interaction of artists, writers, and thinkers with scientists. The interaction with medical and biological scientists, as well as with psychonalists, significantly influenced the portraiture of these (..) artists" (Kendal 2012, p. xv). Similar interactions were taking place between musicians, poets, architects, philosophers, scientists. Other famous creatives born in Vienna (or its vicinity) during this period and listed in Table A.7 include the composer Arnold Schoenberg, the philosopher Ludwig Wittgenstein, the psychologist Melanie Klein, the architect Otto Wagner, the physicist Ludwig Boltzmann and many others.

Transition into Commune occurred much earlier for both cities, and so it cannot explain the rise of creativity in these two cities. Nevertheless, the emergence of Vienna as a creative cluster was shortly preceded by national political reforms. "In 1848 Austria's liberal middle class became energized and forced the country's absolute, almost feudal monarchy, .. to evolve along more democratic lines. The ensuing reforms were based on a view of Austria as a progressive, constitutional monarchy...characterized by a cultural and political partnership between the enlightened middle class and the aristocracy. This partnership was designed to reform the state, to support the secular cultural life of the nation, and to establish a free market economy, all based on the modern belief that reason and science would replace faith and religion." - Kandel (2012), p. 8. Vienna was the main beneficiary of these progressive reforms. After the reforms, the city "attracted talented people, especially Jews, from all over the empire...(and) benefitted from an influx of talented individuals from different religious, social, cultural, ethnic and educational backgrounds" - Kandel (2012), p. 9. Thus, although city institutions were not involved, the example of Vienna tells a similar story as the rise of other creative clusters in earlier centuries.[2]

A.II Details on Data Sources

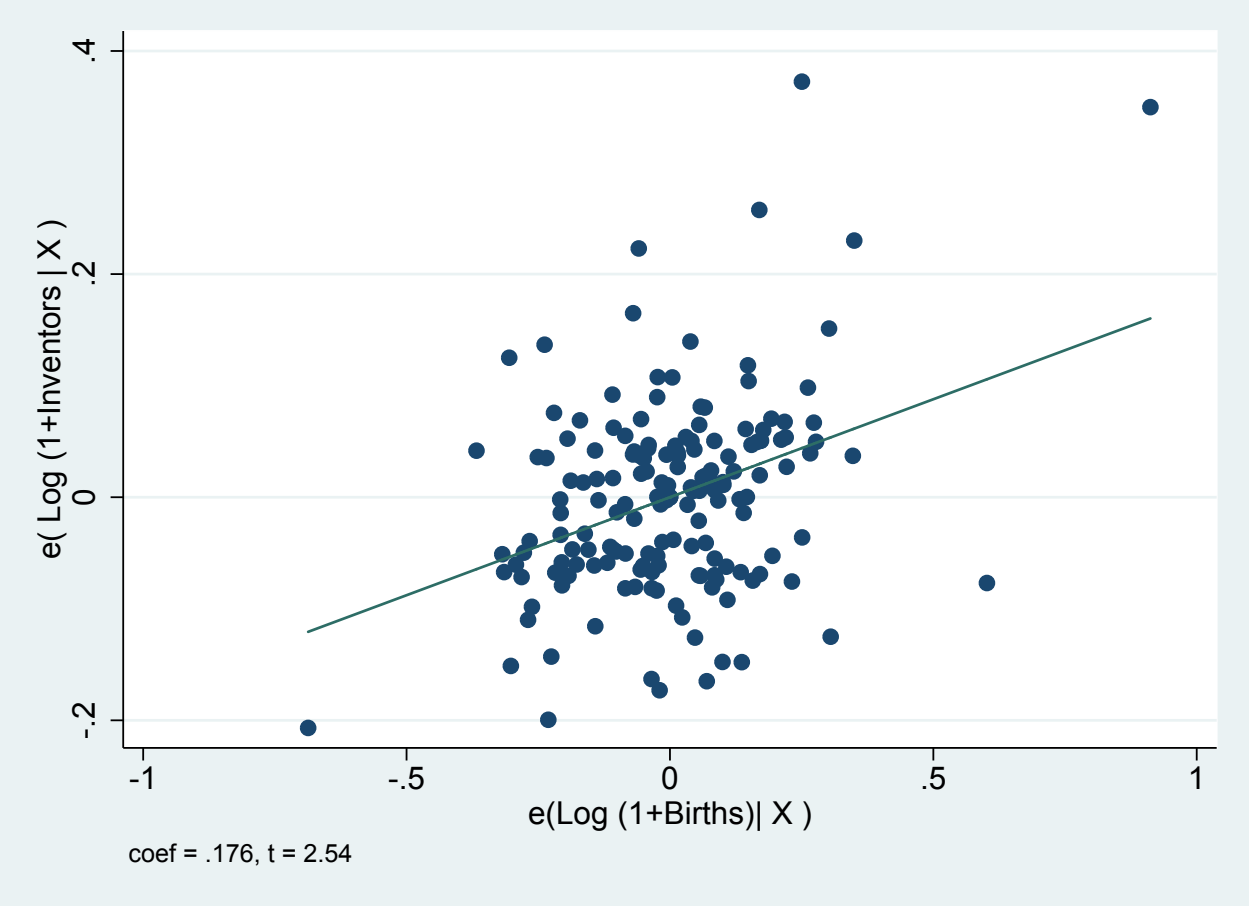
Wages The main source is Allen (2001), who in turn relies also on other studies. In addition, we used the data gathered by Bennassar (1999), Boulton (1996), Cabourdin (1968), Feliu (1991), Gibson and Smout (1995), Rappaport (2002), and Scholliers and Avondts (1977).

[2]The case of Paris is more complex, since Paris was already a very creative city during the XVIII century, before the French revolution.

Protestant Cities Our data on protestant cities has been collected using several sources covering the different parts of Europe. For Prussia we used 19th century information from the Ifo Prussian Economic History Database (Becker et al., 2014). For the Netherlands we used the 1795-1971 Dutch Censuses (DANS, 2005). For Switzerland we used census data from the Federal Statistical Office (FSO, 2012). For Hungary we used retrospective data on religion retrieved from the 2011 census (HCSO, 2013). For the Czech Republic we used a dataset with information collected in the 1921, 1930, 1950, 1991, 2001, and 2011 censuses (CSU, 2017). For England and Wales we retrieved data both from the Online Historical Population Reports Website (OHPR, 2007b), and from Field (2012). Census data from the OHPR (2007a) was used to retrieve data for Scotland. Finally for Northern Ireland we relied on data edited by Canny (2001).

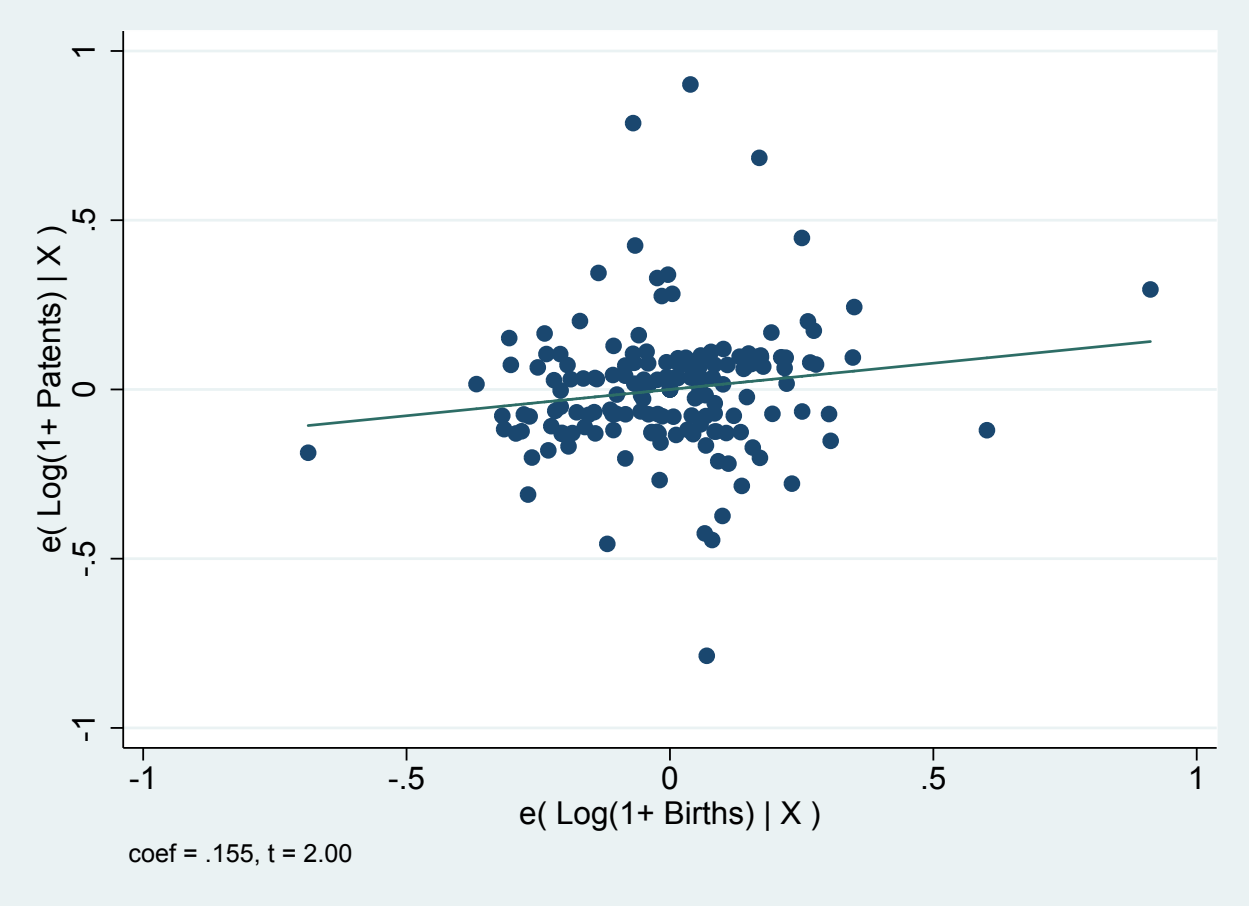
A.III Additional Figure and Tables

Figure A.1: Famous Creatives and Inventors, added-variable plot



We control for City FE, Century FE, Large state, Bishop, Archbishop, Capital, Plundered, Commune, Population, University. Standard Errors clustered by Region.

Figure A.2: Famous Creatives and Patents, added-variable plot



We control for City FE, Century FE, Large state, Bishop, Archbishop, Capital, Plundered, Commune, Population, University.Standard Errors clustered by Region.

Figure A.3: Real Skilled Wages for 5 Prominent Cities

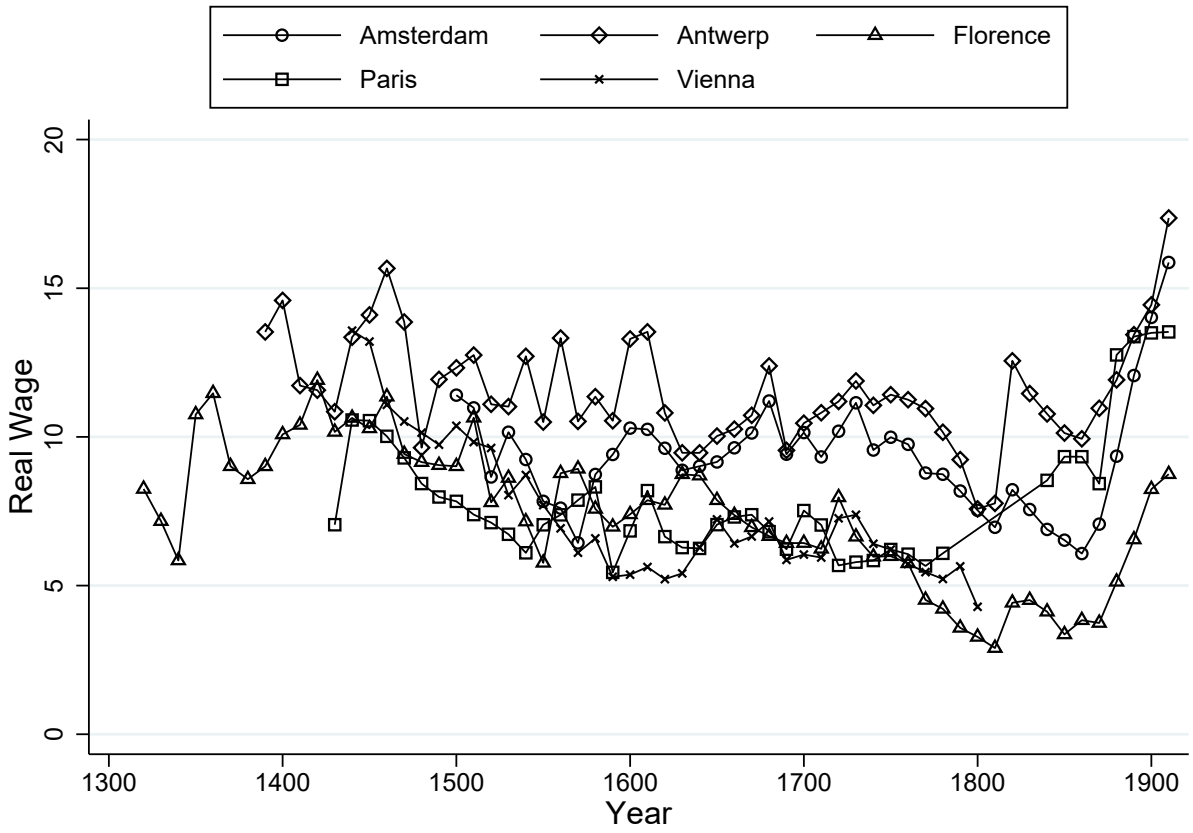
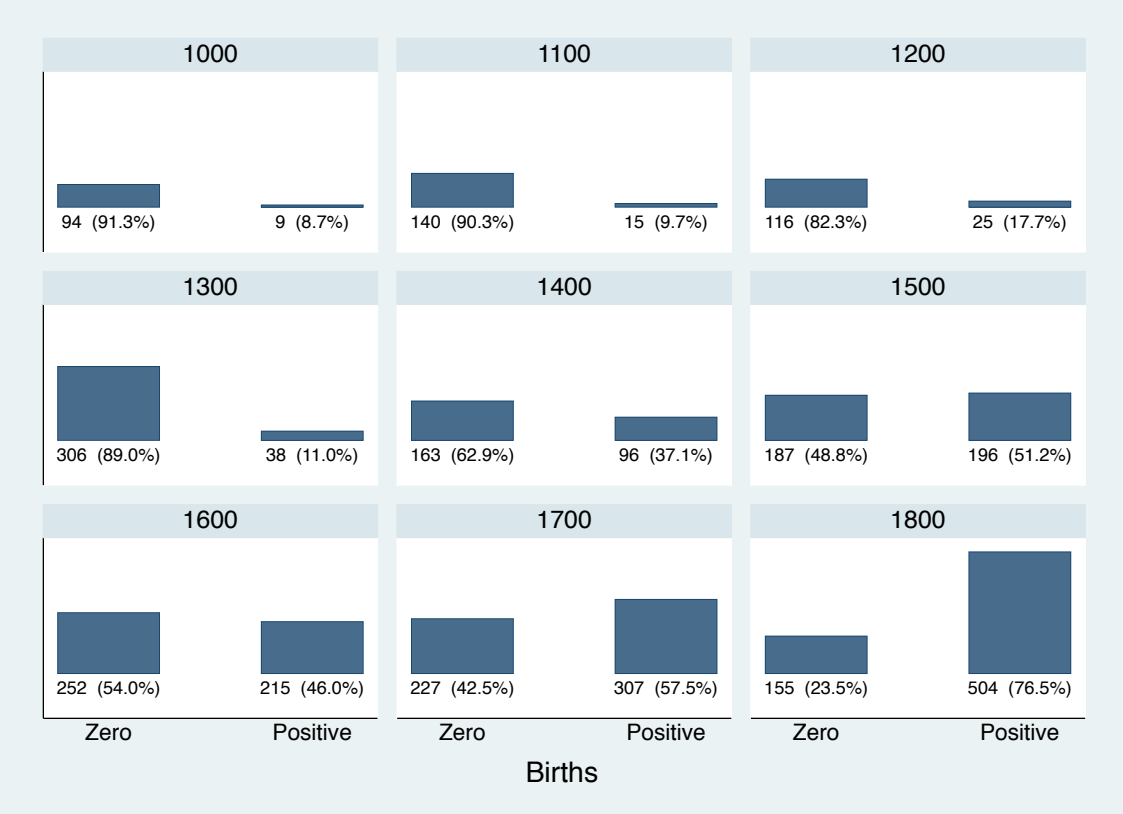
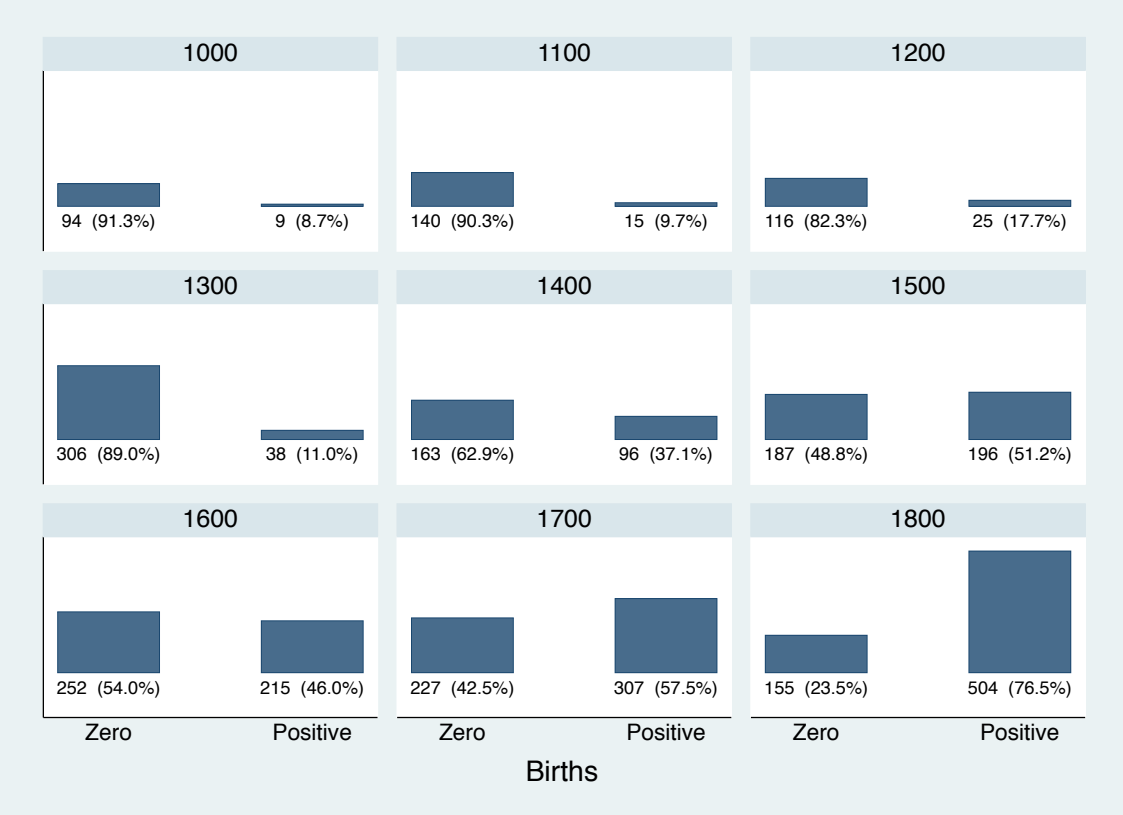


Figure A.4: Share of Cities with Zero and Positive Births, by Century



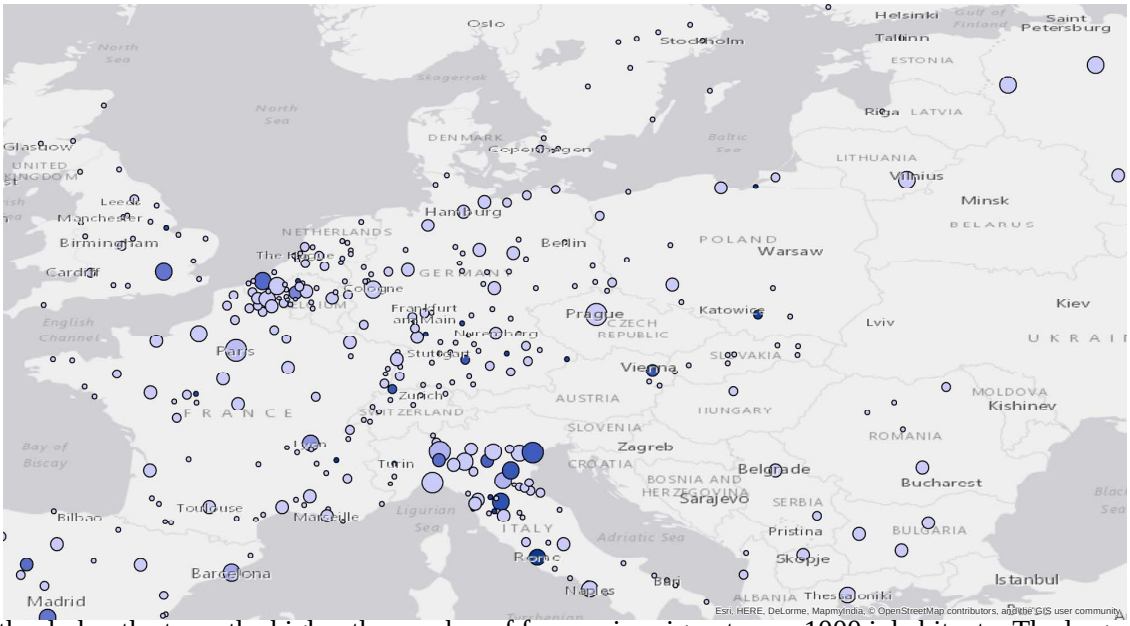
The Figure reports the share of cities by century with zero *Births*

Figure A.5: Share of Cities with Zero and Positive Immigrants, by Century



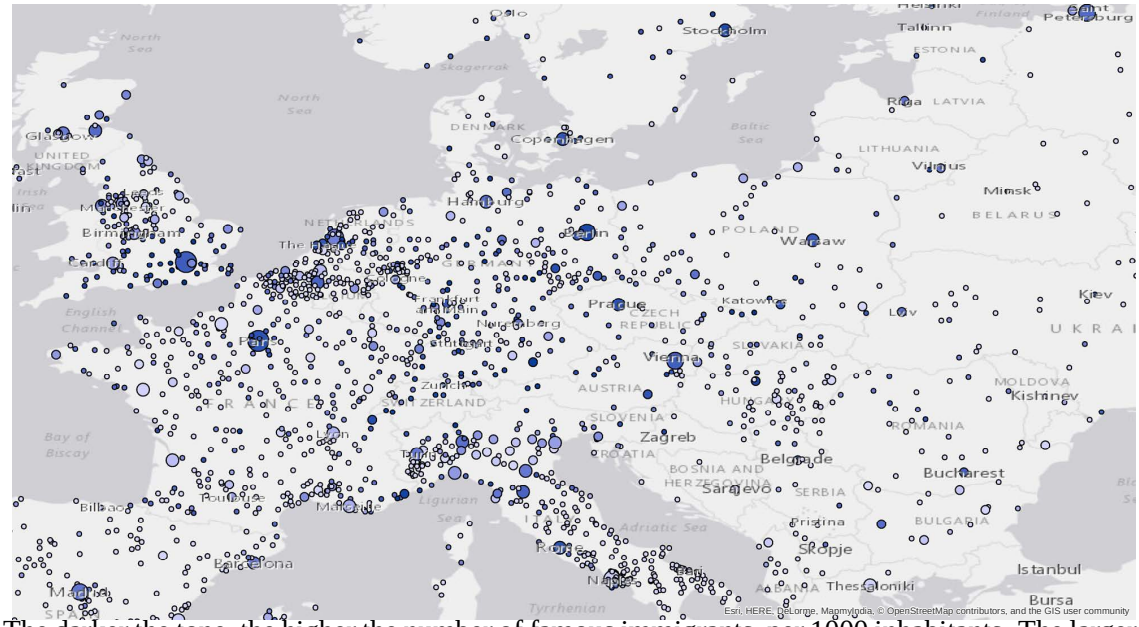
The Figure reports the share of cities by century with zero *Immigrants*

Figure A.6: Spatial Distribution of Immigrants, XVth century



the darker the tone, the higher the number of famous immigrants, per 1000 inhabitants. The larger the circle, the larger the population of the city.

Figure A.7: Spatial Distribution of Immigrants, XIXth century



The darker the tone, the higher the number of famous immigrants, per 1000 inhabitants. The larger the circle, the larger the population of the city.

Figure A.8: Commune Status over Time

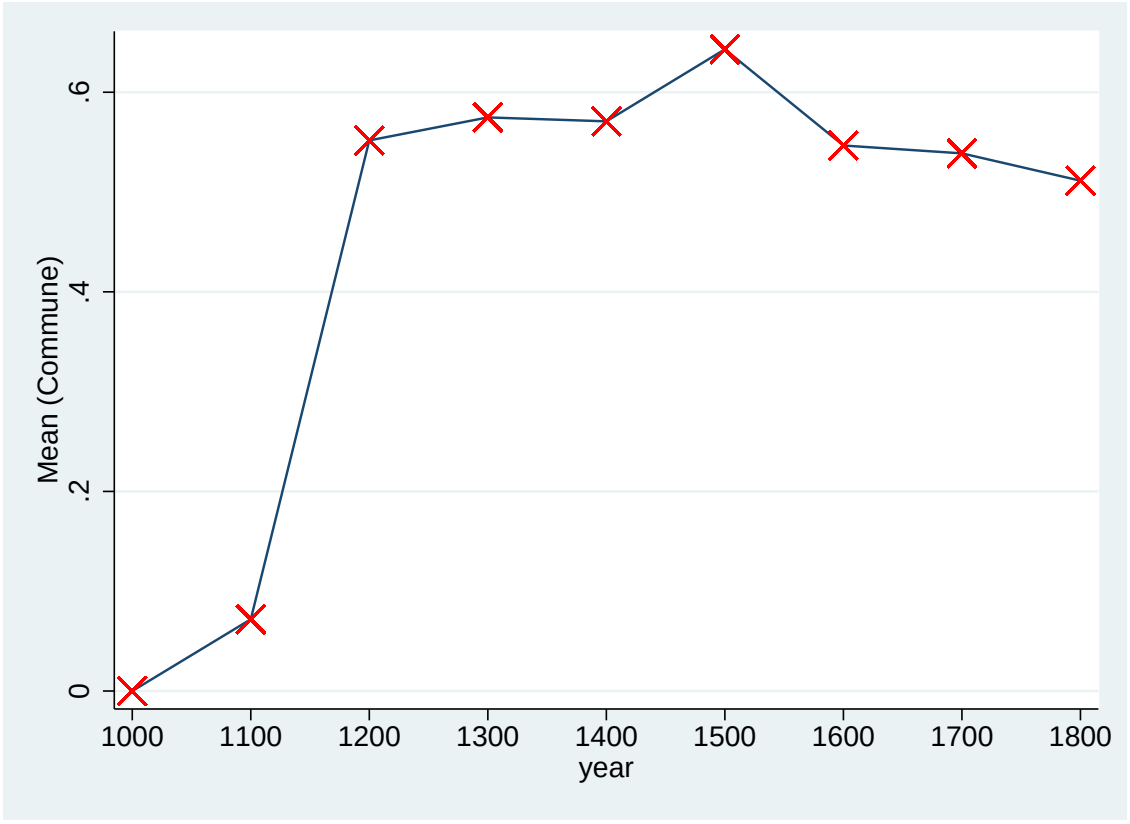


Figure A.9: Entry into Commune Status

Figure A.10: Exit from Commune Status

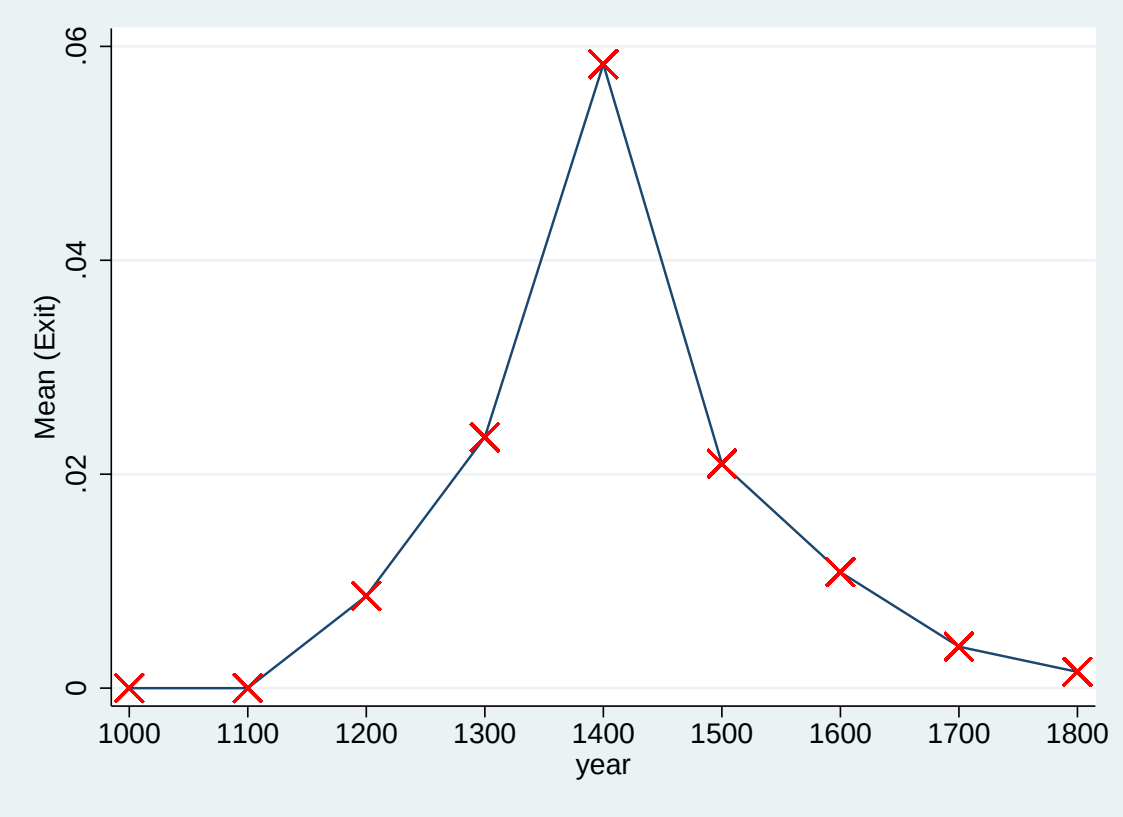


Table A.1: Polymaths

	Number of people
Performing arts + Non-performing arts	1072
Performing arts + Humanities and Sciences	40
Performing arts + Business	15
Non-performing arts + Humanities and Sciences	1245
Non-performing arts + Business	211
Humanities and Sciences + Business	181
Total two categories	2764
Performing arts + Non-performing arts + Humanities and Sciences	180
Performing arts + Non-performing arts + Business	10
Performing arts + Humanities and Sciences + Business	2
Non-performing arts + Humanities and Sciences + Business	55
Total three categories	247
All four categories	5
Total	21906

Note: Many of the creative individuals we considered achieved fame in multiple fields. For example, each of those listed under “Non-performing arts + Humanities and Sciences" achieved prominence both as a non-performing artist and in some field of the humanities or sciences, though not as a performing artist or in business.

Table A.2: Time Coverage of Data on Wages

City	Period
Amsterdam	1500-1910
Antwerp	1373-1913
Augsburg	1502-1803
Barcelona	1500-1804
Cambridge	1450-1700
Canterbury	1450-1700
Cavaillon	1600-1785
Dover	1450-1700
Edinburgh	1553-1642
Florence	1326-1913
Gdansk	1535-1814
Ghent	1835-1914
Krakow	1409-1910
Leipzig	1520-1913
London	1264-1913
Lviv	1520-1800
Lyon	1500-1592
Madrid	1520-1913
Milan	1520-1913
Munich	1427-1765
Naples	1514-1806
Oxford	1264-1913
Paris	1400-1911
Strasbourg	1395-1875
Valencia	1392-1785
Valladolid	1502-1560
Vienna	1440-1913
Warsaw	1558-1913

Note: Data do not necessarily cover the whole period as reported here; some gaps may be present.
Sources: Allen (2001), Bennassar (1999), Boulton (1996), Cabourdin (1968), Feliu (1991), Gibson and Smout (1995), Rappaport (2002), and Scholliers and Avondts (1977)

Table A.3: Born in Florence (1100-1499)

Name	Year of Birth	Year of Death	Place of Death	Occupation
Gaddo Gaddi	1239	1312	Florence	Painter
Cimabue	1240	1302	Pisa	Painter
Guido Cavalcanti	1255	1300	Florence	Poet
Dante Alighieri	1265	1321	Ravenna	Poet
Giotto di Bondone	1267	1337	Florence	Painter
Taddeo Gaddi	1300	1366	Florence	Painter
Antonio Pucci	1310	1388	Florence	Poet
Giottino	1324	1357	Florence	Painter
Baldassarre Bonaiuti	1336	1385	Florence	Historian
Giovanni di Bicci de' Medici	1360	1429	Florence	Banker
Palla Strozzi	1372	1462	Padova	Banker
Andrea Stefani	1375	1460	Lucca	Composer
Filippo Brunelleschi	1377	1446	Florence	Architect
Lorenzo Ghiberti	1378	1455	Florence	Sculptor
Donatello	1386	1466	Florence	Sculptor
Cosimo de' Medici	1389	1464	Florence	Banker
Fra Angelico	1395	1455	Rome	Painter
Lorenzo il Vecchio	1395	1440	Florence	Banker
Michelozzo	1396	1472	Florence	Architect
Paolo Uccello	1397	1475	Florence	Painter
Paolo dal Pozzo Toscanelli	1397	1482	Florence	Astrologer
Filarete	1400	1469	Rome	Architect
Luca della Robbia	1400	1482	Florence	Sculptor
Filippo Lippi	1406	1469	Spoleto	Painter
Matteo Palmieri	1406	1475	Florence	Historian
Bernardo Rossellino	1409	1464	Florence	Sculptor
Piero di Cosimo de' Medici	1416	1469	Florence	Banker amd Patron
Agostino di Duccio	1418	1481	Perugia	Sculptor
Andrea del Castagno	1421	1457	Florence	Painter
Benozzo Gozzoli	1421	1497	Pistoia	Painter
Giovanni di Cosimo de' Medici	1421	1463	Florence	Banker
Lucrezia Tornabuoni	1425	1482	Florence	Writer
Antonio Rossellino	1427	1479	Florence	Sculptor
Antonio Pollaiuolo	1429	1498	Rome	Painter
Pierfrancesco di Lorenzo de' Medici	1430	1476	Florence	Banker
Marsilio Ficino	1433	1499	Florence	Philosopher
Andrea del Verrocchio	1435	1488	Venezia	Painter
Andrea della Robbia	1435	1525	Florence	Sculptor
Cosimo Rosselli	1439	1507	Florence	Painter

Jacopo da Sellaio	1441	1493	Florence	Painter
Piero Pollaiuolo	1443	1496	Rome	Painter
Sandro Botticelli	1445	1510	Florence	Painter
Francesco Botticini	1446	1498	Florence	Painter
Domenico Ghirlandaio	1449	1494	Florence	Painter
Lorenzo de' Medici	1449	1492	Florence	Writer
Baccio Pontelli	1450	1492	Urbino	Architect
Antonio da Sangallo the Elder	1453	1534	Florence	Architect
Girolamo Benivieni	1453	1542	Florence	Poet
Amerigo Vespucci	1454	1512	Sevilla	Explorer
Pietro Accolti	1455	1532	Rome	Cardinal and Writer
Benedetto Buglioni	1459	1521	Florence	Sculptor
Lorenzo di Credi	1459	1537	Florence	Painter
Piero di Cosimo	1462	1521	Florence	Painter
Lorenzo di Pierfrancesco de' Medici	1463	1503	Florence	Banker
Niccolo Machiavelli	1469	1527	Florence	Historian
Pietro Torrigiano	1472	1528	Sevilla	Sculptor
Giovanni Francesco Rustici	1474	1554	Tours	Painter
Mariotto Albertinelli	1474	1515	Florence	Painter
Giovanni Rucellai	1475	1525	Rome	Poet
Jacopo Nardi	1476	1563	Venezia	Historian
Franciabigio	1482	1525	Florence	Painter
Francesco Guicciardini	1483	1540	Florence	Historian
Ridolfo Ghirlandajo	1483	1561	Florence	Painter
Antonio da Sangallo the Younger	1484	1546	Terni	Architect
Jacopo Sansovino	1486	1570	Venezia	Sculptor
Girolamo della Robbia	1488	1566	Paris	Potter
Pietro Aron	1489	1550	Florence	Composer
Lorenzetto	1490	1541	Rome	Sculptor
Agnolo Firenzuola	1493	1543	Prato	Poet
Rosso Fiorentino	1494	1540	Paris	Painter
Benedetto Accolti jr	1497	1549	Florence	Cardinal and Writer

Note: Souce is Freebase. If an individual is born or dies in a small city not included in the Bairoch et al. (1988) sample, we assign it to the closest city in the sample, within a threshold of 71 Km (corresponding to the 95th percentile of the distance distribution).

Table A.4: Born in Amsterdam (1200-1699)

Name	Year of Birth	Year of Death	Place of Death	Occupation
Pieter Aertsen	1508	1575	Amsterdam	Painter
Lambert Sustris	1515	1584	Venezia	Painter
Dirck Volckertszoon Coornhert	1522	1590	Gouda	Writer
Hendrik Laurenszoon Spiegel	1549	1612	Alkmaar	Writer
Jan Pieterszoon Sweelinck	1562	1621	Amsterdam	Composer
Jacob van Heemskerk	1567	1607	Gibraltar	Explorer
Pieter Corneliszoon Hooft	1581	1647	Denhaag	Historian
Laurens Reael	1583	1637	Amsterdam	Admiral
Simon Episcopius	1583	1643	Amsterdam	Theologian
Gerbrand Adriaensz Bredero	1585	1618	Amsterdam	Poet
Hendrick Avercamp	1585	1634	Kampen	Painter
Andries Bicker	1586	1652	Amsterdam	Merchant
Esaias van de Velde	1587	1630	Denhaag	Painter
Nicolaes Tulp	1593	1674	Denhaag	Surgeon
Pauwels van Hillegaert	1596	1640	Amsterdam	Painter
Thomas de Keyser	1596	1667	Amsterdam	Painter
Salomon de Bray	1597	1664	Haarlem	Architect
Isaac Commelin	1598	1676	Amsterdam	Historian
Michael van Langren	1598	1675	Bruxelles	Astronomer
Cornelis de Graeff	1599	1664	Amsterdam	Merchant
Pieter Codde	1599	1678	Amsterdam	Painter
Philip Vingboons	1607	1678	Amsterdam	Architect
Salomon Koninck	1609	1656	Amsterdam	Painter
Jan Asselijn	1610	1652	Amsterdam	Painter
Andries de Graeff	1611	1678	Amsterdam	Merchant
Philip de Koninck	1619	1688	Amsterdam	Painter
Gerbrand van den Eeckhout	1621	1674	Amsterdam	Painter
Jan Baptist Weenix	1621	1660	Utrecht	Painter
Jan Abrahamsz Beerstraten	1622	1666	Amsterdam	Painter
Reinier Nooms	1623	1667	Amsterdam	Painter
Lambert Doomer	1624	1700	Amsterdam	Painter
Willem Schellinks	1627	1678	Amsterdam	Painter
Jan Hackaert	1628	1685	Amsterdam	Painter
Jan de Bisschop	1628	1671	Denhaag	Painter
Johann van Waveren Hudde	1628	1704	Amsterdam	Mathematician
Adriaan Koerbagh	1632	1669	Amsterdam	Philosoper
Baruch Spinoza	1632	1677	Denhaag	Philosoper
Willem Drost	1633	1659	Venezia	Painter
Frederik de Moucheron	1633	1686	Amsterdam	Painter

Adriaen Backer	1635	1684	Amsterdam	Painter
Olfert Dapper	1635	1689	Amsterdam	Writer and Physician
Jan Swammerdam	1637	1680	Amsterdam	Biologist
Meindert Hobbema	1638	1709	Amsterdam	Painter
Jan Weenix	1640	1719	Amsterdam	Painter
Karel Dujardin	1640	1678	Venezia	Painter
Johann Ludwig Hannemann	1640	1724	Kiel	Chemist
Nicolaes Witsen	1641	1717	Amsterdam	Writer and Diplomat
Burchard de Volder	1643	1709	Leiden	Philosoper
Abraham Storck	1644	1708	Amsterdam	Painter
Albert Meijeringh	1645	1714	Amsterdam	Painter
Romeyn de Hooghe	1645	1708	Haarlem	Sculptor
Nicolaes de Vree	1645	1702	Alkmaar	Painter
Johannes Voorhout	1647	1723	Amsterdam	Painter
Petrus Houttuyn	1648	1709	Leiden	Botanist
Govert Bidloo	1649	1713	Leiden	Poet, Physician and Playwright
Johannes Verkolje	1650	1693	Delft	Painter
Johannes van der Bent	1650	1690	Amsterdam	Painter
Jan Griffier	1652	1718	London	Painter
Jan Hoogsaat	1654	1730	Amsterdam	Painter
Dirk Dalens	1657	1687	Amsterdam	Painter
Johannes Schenck	1660	1712	Duesseldorf	Composer
Abraham Alewijn	1664	1721	Jakarta	Poet and Jurist
Rachel Ruysch	1664	1750	Amsterdam	Painter
Caspar Commelijn	1668	1731	Amsterdam	Botanist
Cornelis de Graeff II.	1671	1719	Monnikendam	Banker
Jan van Huysum	1682	1749	Amsterdam	Painter

Note: Souce is Freebase. If an individual is born or dies in a small city not included in the Bairoch et al. (1988) sample, we assign it to the closest city in the sample, within a threshold of 71 Km (corresponding to the 95th percentile of the distance distribution).

Table A.5: Born in Antwerp (1200-1599)

Name	Year of Birth	Year of Death	Place of Death	Occupation
Jacobus Barbireau	1455	1491	Antwerp	Composer
Anna Bijns	1493	1575	Antwerp	Writer
Jan Sanders van Hemessen	1500	1566	Haarlem	Painter
Hieronymus Cock	1510	1570	Antwerp	Painter
Cornelis Floris de Vriendt	1514	1575	Antwerp	Sculptor
Hubert Waelrant	1517	1595	Antwerp	Composer
Abraham Ortelius	1527	1598	Antwerp	Cartographer
Matthew Wesenbeck	1531	1586	Wittenberg	Jurist
Denis Calvaert	1540	1619	Bologna	Painter
Joris Hoefnagel	1542	1601	Vienna	Painter
Gillis van Coninxloo	1544	1607	Amsterdam	Painter
Bartholomeus Spranger	1546	1611	Prag	Painter
Martin Delrio	1551	1608	Leuven	Theologian
Leonardus Lessius	1554	1623	Leuven	Theologian
Hans Jordaens	1555	1630	Delft	Painter
Jan de Wael I	1558	1633	Antwerp	Painter
Jan Gruter	1560	1627	Heidelberg	Philologist
Joos de Momper	1564	1635	Antwerp	Painter
Jacob de Gheyn II	1565	1629	Denhaag	Painter
Abraham Janssens	1567	1632	Antwerp	Painter
Sebald de Weert	1567	1603	Sri Lanka	Explorer
Joris van Spilbergen	1568	1620	Bergen-Op-Zoom	Explorer
Frans Pourbus the younger	1569	1622	Paris	Painter
Ambrosius Bosschaert	1573	1621	Denhaag	Painter
Jacobus Boonen	1573	1655	Bruxelles	Bishop
Sebastian Vrancx	1573	1647	Antwerp	Painter
Hendrick van Balen	1575	1632	Antwerp	Painter
Pieter Neeffs I	1578	1656	Antwerp	Painter
Frans Hals	1580	1666	Haarlem	Painter
Artus Wolffort	1581	1641	Antwerp	Painter
Caspar de Crayer	1582	1669	Ghent	Painter
David Teniers the Elder	1582	1649	Antwerp	Painter
Jacques l'Hermite	1582	1624	Callao	Merchant
Caspar Barlaeus	1584	1648	Amsterdam	Poet
Willem van Nieulandt II	1584	1635	Amsterdam	Painter
Gijsbrecht Leytens	1586	1656	Antwerp	Painter
Jan Wildens	1586	1653	Antwerp	Painter
Andries van Eertvelt	1590	1652	Antwerp	Painter
Daniel Seghers	1590	1661	Antwerp	Painter

Francisco Pelsaert	1590	1630	Jakarta	Merchant
Lucas de Wael	1591	1661	Antwerp	Painter
Cornelis de Wael	1592	1667	Rome	Painter
Jacob Jordaens	1593	1678	Antwerp	Painter
Dirk van Hoogstraten	1596	1640	Dordrecht	Painter
Jacob van Es	1596	1666	Antwerp	Painter
Cornelis Schut	1597	1655	Antwerp	Painter
Justus Sustermans	1597	1681	Florence	Painter
Pieter Claesz	1597	1660	Haarlem	Painter
Adriaen van Utrecht	1599	1652	Antwerp	Painter
Anthony van Dyck	1599	1641	London	Painter

Note: Souce is Freebase. If an individual is born or dies in a small city not included in the Bairoch et al. (1988) sample, we assign it to the closest city in the sample, within a threshold of 71 Km (corresponding to the 95th percentile of the distance distribution).

Table A.6: Born in Paris (1700-1899)

Name	Year of Birth	Occupation
Francois Boucher	1703	Painter
Emilie du Chatelet	1706	Mathematician
Alexis Clairault	1713	Mathematician
Claude-Adrien Helvetius	1715	Philosopher
Jean le Rond d'Alembert	1717	Mathematician
Anne Robert Jacques Turgot, Baron de Laune	1727	Economist
Louis Antoine de Bougainville	1729	Explorer
Pierre de Beaumarchais	1732	Writer
Donatien-Alphonse-Francois de Sade, Marquis de Sade	1740	Writer
Antoine Lavoisier	1743	Chemist
Jacques-Louis David	1748	Painter
Adrien-Marie Legendre	1752	Mathematician
Elisabeth Louise Vigee Le Brun	1755	Artist
Claude Henri de Rouvroy, comte de Saint-Simon	1760	Philosopher
Anne Louise Germaine de Stael	1766	Writer
Antoine-Jean Gros	1771	Artist
Jean-Baptiste Biot	1774	Physicist
Sophie Germain	1776	Mathematician
Augustin Louis Cauchy	1789	Mathematician
Gaspard-Gustave Coriolis	1792	Physicist
Jean-Baptiste Camille Corot	1796	Painter
Nicolas Leonard Sadi Carnot	1796	Engineer
Jules Michelet	1798	Writer
Adolphe-Charles Adam	1803	Composer
Charles Lucien Bonaparte	1803	Biologist
Prosper Merimee	1803	Writer
George Sand	1804	Writer
Alexis de Tocqueville	1805	Historian
Gerard de Nerval	1808	Writer
Baron Haussmann	1809	Architect
Alfred de Musset	1810	Writer
Eliphas Levi	1810	Writer
Theodore Rousseau	1812	Painter
Charles-Valentin Alkan	1813	Musician
Eugene Viollet-le-Duc	1814	Architect
Charles Gounod	1818	Composer
Hippolyte Fizeau	1819	Physicist
Leon Foucault	1819	Physicist
Nadar	1820	Photographer

Charles Baudelaire	1821	Writer
Frederic Passy	1822	Economist
Alexandre Dumas	1824	Writer
Pierre Jules Cesar Janssen	1824	Astronomer
Jean-Martin Charcot	1825	Physician
Gustave Moreau	1826	Artist
Marcellin Berthelot	1827	Chemist
Edouard Manet	1832	Painter
Edgar Degas	1834	Painter
Camille Saint-Saens	1835	Composer
Georges Bizet	1838	Composer
Alfred Sisley	1839	Artist
Sully Prudhomme	1839	Writer
Emile Zola	1840	Writer
Auguste Rodin	1840	Sculptor
Claude Monet	1840	Painter
Stephane Mallarme	1842	Writer
Anatole France	1844	Writer
Sarah Bernhardt	1844	Actor
Charles Louis Alphonse Laveran	1845	Physician
Gustave Caillebotte	1848	Painter
Joris-Karl Huysmans	1848	Writer
Paul Gauguin	1848	Painter
Vilfredo Pareto	1848	Economist
Charles Robert Richet	1850	Biologist
Henri Louis Le Chatelier	1850	Chemist
Antoine Henri Becquerel	1852	Physicist
Henri Moissan	1852	Chemist
Rudolf Diesel	1858	Inventor
Georges-Pierre Seurat	1859	Artist
Henri Bergson	1859	Philosopher
Pierre Curie	1859	Physicist
Georges Melies	1861	Film Director
Paul Signac	1863	Painter
Pierre de Coubertin	1863	Historian
Paul Dukas	1865	Composer
Gaston Leroux	1868	Writer
Andre Gide	1869	Writer
Paul Langevin	1872	Physicist
W. Somerset Maugham	1874	Writer
Maurice de Vlaminck	1876	Artist
Louis Renault	1877	Inventor
Andre Citroen	1878	Engineer

Francis Picabia	1879	Painter
Roger Martin du Gard	1881	Writer
Jacques Maritain	1882	Philosopher
Maurice Utrillo	1883	Artist
Robert Delaunay	1885	Painter
Nadia Boulanger	1887	Musician
Maurice Chevalier	1888	Actor
Gabriel Marcel	1889	Philosopher
Jacques Ibert	1890	Composer
Marcel Dassault	1892	Engineer
Jean Renoir	1894	Actor
Andre Frederic Cournand	1895	Physician
Basil Liddell Hart	1895	Writer
Frederic Joliot-Curie	1897	Chemist
Louis Aragon	1897	Writer
Georges Dumezil	1898	Linguist
Francis Poulenc	1899	Composer

Note: Souce is Yu et al., (2016). If an individual is born or dies in a small city not included in the Bairoch et al. (1988) sample, we assign it to the closest city in the sample, within a threshold of 71 Km (corresponding to the 95th percentile of the distance distribution).

Table A.7: Born in Vienna (1800-1899)

Name	**Year of Birth**	**Occupation**
Johann Strauss I	1804	Composer
Johann Strauss II	1825	Composer
Otto Wagner	1841	Architect
Ludwig Boltzmann	1844	Physicist
Arthur Schnitzler	1862	Writer
Gustav Klimt	1862	Painter
Richard Adolf Zsigmondy	1865	Chemist
Gustav Meyrink	1868	Writer
Karl Landsteiner	1868	Biologist
Alfred Adler	1870	Psychologist
Arnold Schoenberg	1874	Composer
Hugo von Hofmannsthal	1874	Writer
Fritz Kreisler	1875	Musician
Robert Barany	1876	Physician
Lise Meitner	1878	Physicist
Martin Buber	1878	Philosopher
Otto Weininger	1880	Philosopher
Stefan Zweig	1881	Writer
Melanie Klein	1882	Psychologist
Anton Webern	1883	Composer
Alban Berg	1885	Composer
Erich von Stroheim	1885	Film Director
Karl von Frisch	1886	Biologist
Erwin Schrodinger	1887	Physicist
Ludwig Wittgenstein	1889	Philosopher
Egon Schiele	1890	Painter
Fritz Lang	1890	Film Director
Anna Freud	1895	Psychologist
Friedrich Hayek	1899	Economist

Note: Souce is Yu et al., (2016). If an individual is born or dies in a small city not included in the Bairoch et al. (1988) sample, we assign it to the closest city in the sample, within a threshold of 71 Km (corresponding to the 95th percentile of the distance distribution).

Table A.8: Correlation between Births, Immigrants, Population and Commune

	Births	Immigrants	Population	Commune
Births	1			
Immigrants	0.56	1		
Population	-0.03	0	1	
Commune	0.13	0.11	0.1	1

Table A.9: Real Wage of Skilled Workers and Population

Log(Population) intervals:	100 years	50 years (from 1700)
L1.Wage	0.188	0.065*
L2.Wage	0.003*	0.080*
L3.Wage	-0.175	0.019*
L4.Wage	0.180	0.067*
L5.Wage	0.107	-0.121*
$F^{L.Wage}, pv$	0.0353	0.0001

In each column we include 5 lags of the variable Wage (10 years intervals). The variable Wage represents the average real wage of skilled workers over the decade. The dependent variable is Log(Population). Its frequency of observation is 100 years in the first column and 50 years in the second column, where we consider only observations from 1700 onwards, when Population is observed every 50 years. $F^{L.Wage}, pv$ is the p-value of the F-test of joint significance of the lags of the variable Wage. Period dummies always included.

Table A.10: Commune, First Stage

	(1)	(2)	(3)	(4)
Regional Commune	1.450***	1.381***	1.446***	1.434***
	(0.207)	(0.205)	(0.338)	(0.337)
Large state		-0.053***	-0.020	-0.015
		(0.019)	(0.032)	(0.032)
Bishop		0.126***	-0.016	-0.012
		(0.037)	(0.054)	(0.054)
Archbishop		0.077	-0.109*	-0.107
		(0.048)	(0.065)	(0.065)
Capital		0.080	-0.005	-0.004
		(0.050)	(0.055)	(0.055)
Plundered		-0.032	-0.025	-0.024
		(0.024)	(0.033)	(0.033)
Log (Population)			0.051***	0.049***
			(0.012)	(0.012)
University			-0.012	-0.012
			(0.054)	(0.054)
Spatial Lag of Log (1 + Births)				0.185**
				(0.094)
Observations	7,227	7,227	3,110	3,110
Number of ID	657	657	657	657
Adjusted R-squared	0.446	0.454	0.427	0.427

Dependent Variable is Commune. Standard errors (clustered at the NUTS 2 region level) in parentheses. Period Dummies and City FE always included. * p<0.1, ** p<0.05, *** p<0.01.

Table A.11: Commune and Births, 2SLS Regressions, using the Yu et al. data

	(1)	(2)	(3)	(4)
Commune	0.229**	0.259**	0.260**	0.237*
	(0.113)	(0.116)	(0.123)	(0.122)
Spatial Lag of Log (1 + Births)				0.473**
				(0.209)
Observations	2,961	2,961	2,961	2,961
Adjusted R-squared	-0.171	-0.170	-0.171	-0.164
Fstat, instrum., 1st stage	21.60	19.04	17.03	16.96
Baseline Controls	NO	YES	YES	YES
Additional Controls	NO	NO	YES	YES

Dependent Variable is Log (1 + Births Yu et al.). Standard errors (clustered at the NUTS 2 region level) in parentheses. Period Dummies and City FE always included.

Table A.12: Commune and Births: Distinguishing Positive and Negative Transitions

	(1)	(2)	(3)	(4)
	Positive		Negative	
	OLS	2SLS	OLS	2SLS
Commune	0.049***	0.171*	0.066***	0.118
	(0.017)	(0.098)	(0.022)	(0.117)
Fstat, instrum., 1st stage		13.56		8.57
Observations	2,812	2,717	2,665	2,569
Adjusted R-squared	0.380	0.203	0.363	0.173

In this Table we estimate the effect of institutional transitions in the two directions separately. When estimating the effect of entry into Commune, we drop the city-century observations following a negative transition (from Commune=1 back to Commune=0). When studying the effect of exits, we drop the city-year observations prior to a positive transition (from Commune=0 to Commune=1). Dependent Variable is Log (1 + Births). Standard errors (clustered at the NUTS 2 region level) in parentheses. Period Dummies, City FE and full set of city-level controls always included. *p<0.1, ** p<0.05, *** p<0.01.

Table A.13: Summary Statistics for the Dependent Variable in the Gravity Model

Variable	**Mean**	**(Std. Dev.)**	**Min.**	**Max.**	**Percent of Zeros**	**N**
Immigrants (dyadic obs.)	0.008	(0.13)	0	14	99.42	366763

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