Urbanization without Growth in Historical Perspective

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WEB APPENDIX REFERENCES


FIGURE A.1: Urbanization and Economic Development for Selected Intermediary Years in 1500-1950

Notes: The figures shows the estimated relationship between urbanization and log GDP per capita for the indicated years. Sample sizes are 1500 (24), 1800 (25), 1870 (46), 1950 (159). The main sources for the urbanization rate (%) are Bairoch (1988); Acemoglu, Johnson & Robinson (2002); Malanima & Volckart (2007); United Nations (2014); Jedwab & Moradi (2015). We use Maddison (2008); Bolt & van Zanden (2014) to obtain log per capita GDP (PPP, constant 1990 dollars).

FIGURE A.2: Urbanization and Economic Development for Selected Intermediary Years in 1950-2010

Notes: The figures shows the estimated relationship between urbanization and log GDP per capita for the indicated years. Sample sizes are 1950 (159), 1970 (159), 1990 (159), and 2010 (159). The main sources for the urbanization rate (%) are Bairoch (1988); Acemoglu, Johnson & Robinson (2002); Malanima & Volckart (2007); United Nations (2014); Jedwab & Moradi (2015). We use Maddison (2008); Bolt & van Zanden (2014) to obtain log per capita GDP (PPP, constant 1990 dollars).
FIGURE A.3: Urbanization to GDP per Capita Ratio, 1500-2010

Notes: This figure shows the ratio of urbanization to log per capita GDP for the world in each year. The sources are the same as in Figure 1 of the main text.

FIGURE A.4: Yearly Correlation between Urbanization and Economic Development, Slope and Constant with Confidence Intervals, 1500-2010

Notes: The figure shows the confidence intervals for both the slope and the constant. Standard errors are high for earlier years due to the smaller number of observations. For each year, we regress the urbanization rate (%) on log per capita GDP (PPP constant 1990$) and show the coefficient and the constant. See the notes of Figure 1 for the list of sources used to construct the data.
FIGURE A.5: Urbanization and Economic Development, Panel Regression with Country Fixed Effects and Year Fixed Effects, 1500-2010

Notes: This figure shows the coefficient of log per capita GDP and the constant for each period, when running a panel regression with 159 country fixed effects and 13 year fixed effects. The panel data set is unbalanced as data is missing for many country-year observations (we only use data for 1,319 observations instead of 159 x 13 = 2,067 potential observations). To obtain the coefficient of log per capita GDP for each year, we interact log per capita GDP with year fixed effects (1500 is the omitted year). To obtain the constant for each year, we interact year fixed effects as it gives us the constant for each year relative to the omitted year 1500. The dashed vertical line represents the year 1910. The sources are the same as in Figure 1 of the main text.

FIGURE A.6: Urbanization and Economic Development, For Developing Countries Only, 1500-2010

Notes: This figure shows the coefficient of log per capita GDP and the constant for each year, when restricting the sample of 159 countries to developing countries only. “Developing countries” are defined as countries whose log per capita GDP is lower than 9.42, the log of the level of per capita GDP of Slovakia in 2010. We use Slovakia because it was the last country to graduate as a developed country before the year 2010 according to International Monetary Fund (2009). The dashed vertical line represents the year 1910. The sources are the same as in Figure 1 of the main text.
FIGURE A.7: Urbanization and Economic Development, For Countries with Income Per Capita below the Median, 1500-2010

Notes: This figure shows the coefficient of log per capita GDP for each period, when restricting the sample of 159 countries to developing countries with income per capita below the median. The median log per capita GDP in 2010 is 8.5. The dashed vertical line represents the year 1910. The sources are the same as in Figure 1 of the main text.

FIGURE A.8: Distribution of the City Threshold when an Urban Definition Based on a Threshold is used, 1950-2010

Notes: This figure shows the kernel distribution of the threshold used to define a locality as a city when an urban definition based on a threshold is used. 81 countries use this type of urban definition, whereas 78 countries use a more administrative definition. The dashed vertical line represents the median city threshold, 2,500 inhabitants (the mean threshold is 4,362 inhabitants). Data on the urban definition used by each country comes from United Nations (2014).
FIGURE A.9: Urbanization and Economic Development, Controlling for the Urban Definition, 1500-2010

Notes: This figure shows the coefficient of log per capita GDP and the constant for each year, when controlling for the urban definition, via a dummy equal to one if the country used an a definition based on a population threshold (e.g., $X = 1,000$, $5,000$ or $10,000$ inhabitants) rather than an administrative definition (the government arbitrarily defines some localities as cities) for most of the 1950-2010 period. We also control for the threshold for countries using this type of definition. Data on the urban definition used by each country comes from United Nations (2014). The dashed vertical line represents the year 1910. The sources are the same as in Figure 1 of the main text.

FIGURE A.10: Urbanization and Economic Development, Restricting the Sample to Countries using a City Threshold Close to 5,000 Inhabitants for their Urban Definition, 1500-2010

Notes: This figure shows the coefficient of log per capita GDP and the constant for each period, when restricting the sample to countries using a definition based on a threshold for most of the 1950-2010 period, and excluding the countries with a threshold below the 10th percentile (1,000) or above the 90th percentile (10,000). We thus only consider the countries with a threshold close to 5,000 inhabitants, which is the threshold used by Bairoch (1988); Malanima & Volckart (2007) for the pre-1950 period. Data on the urban definition used by each country comes from United Nations (2014). The dashed vertical line represents the year 1910. The sources are the same as in Figure 1 of the main text.
FIGURE A.11: Urbanization and Economic Development, Excluding Sub-Saharan African Countries, 1500-2010

Notes: This figure shows the coefficient of log per capita GDP and the constant for each year, when excluding 48 Sub-Saharan African countries. The dashed vertical line represents the year 1910. The sources are the same as in Figure 1 of the main text.

FIGURE A.12: Urbanization and Economic Development, Including Continent Fixed Effects, 1500-2010

Notes: This figure shows the coefficient of log per capita GDP and the constant for each year when including 6 continent fixed effects: North America, South America, Europe, Africa, Asia and Oceania. We do not show the effects before 1870 as the number of observations is too low (below 25) to include continent fixed effects. The dashed vertical line represents the year 1910. The sources are the same as in Figure 1 of the main text.
FIGURE A.13: Urbanization and Economic Development, When Excluding Outliers for the Urbanization Rate-Income Ratio, 1500-2010

Notes: This figure shows the coefficient of log per capita GDP and the constant for each year, when excluding 56 countries for which the ratio of the urbanization rate to log per capita GDP is below the 10th percentile or above the 90th percentile in 2010. This allows us to drop the outliers in terms of urban definition and other unobservable characteristics. The dashed vertical line represents the year 1910. The sources are the same as in Figure 1 of the main text.

FIGURE A.14: Employment Share of Industry and Services and Economic Development, 1500-2010

Notes: This figure shows the coefficient on log per capita GDP and the constant for each year when using total employment share of industry and services (%) instead of the urbanization rate. Industry and services are two predominantly urban activities (Gollin, Jedwab & Vollrath, 2013). Data on industrial and service is only available from the year 1980, from World Bank (2014). The dashed vertical line represents the year 1910. The sources are the same as in Figure 1 of the main text.
FIGURE A.15: Urbanization and Economic Development, For Non-Recession Observations, 1500-2010

Notes: This figure shows the coefficient of log per capita GDP and the constant for each year, when restricting the sample to non-recession observations only. “Non-recession observations” are country-year observations for which income per capita is at least higher than income per capita for the same country in the previous period. This allows us to drop the observations that may have experienced urbanization without growth simply due to the fact that they experienced a severe recession. There are insufficient observations prior to 1800 to make any useful analysis. The dashed vertical line represents the year 1910. The sources are the same as in Figure 1 of the main text.

FIGURE A.16: Urbanization and Economic Development, Controlling for Short-Term Fluctuations by Using Moving Average (+/- 10 Years) for Log Per Capita GDP, 1500-2010

Notes: This figure shows the coefficient of log per capita GDP and the constant for each year, when controlling for short-term fluctuations by using moving averages (+/- 10 years, so 20 years in total) to estimate log per capita GDP. We focus on the period 1960-2000 because we cannot use 20-year moving averages for other years. The dashed vertical line represents the year 1910. The sources are the same as in Figure 1 of the main text.
FIGURE A.17: Urbanization and Primary Education as an Alternative Measure of Income Per Capita, 1500-2010

Notes: This figure shows the coefficient of the primary completion rate (%) which we use as an alternative measure of income per capita and the constant for each year. The education data is only available from the year 1950. The education data comes from Barro & Lee (2013). The dashed vertical line represents the year 1910. The sources are the same as in Figure 1 of the main text.

FIGURE A.18: Urbanization and Years of Education as an Alternative Measure of Income Per Capita, 1500-2010

Notes: This figure shows the coefficient of the average number of years of education which we use as an alternative measure of income per capita and the constant for each year. The education data is only available from the year 1950. The education data comes from Barro & Lee (2013). The dashed vertical line represents the year 1910. The sources are the same as in Figure 1 of the main text.
FIGURE A.19: Urbanization and Economic Development, Using Population Weights, 1500-2010

Notes: This figure shows the coefficient of log per capita GDP and the constant for each period, when using the total population (2010) of each country as weights. The population of each country is obtained from United Nations (2014). The dashed vertical line represents the year 1910. The sources are the same as in Figure 1 of the main text.

FIGURE A.20: Urbanization and Economic Development, Using Area Weights, 1500-2010

Notes: This figure shows the coefficient of log per capita GDP and the constant for each period, using the area (sq km) of each country as weights. The area of each country is obtained from United Nations (2014). The dashed vertical line represents the year 1910. The sources are the same as in Figure 1 of the main text.
FIGURE A.21: Share of Large Cities in Developing vs. Developed Countries, Using Other City Thresholds, 1700-2010

Notes: The main sources of the data are the same as for Figure 7. “Number” shows the relative share of cities in developing countries in terms of number of cities above 300,000 inhabitants. “> 500,000”, “>2 Million” and “>5 Million” show this relative share when restricting the sample to cities above 500,000, 2 million and 5 million inhabitants, respectively. We do not show the year for which we have fewer than 5 cities. “Developing countries” are defined as those with log per capita GDP lower than 9.42 in 2010 (roughly $12,000), equivalent to the level in Slovakia in that year. Slovakia was the last country to graduate to the category of developed countries before the year 2010 according to International Monetary Fund (2009). The grey dashed line represents the year 1910.

FIGURE A.22: City Living Standard Rank versus Size Rank, Historically and in 2010

Notes: This graph displays the relationship between city living standards and city size for 61 cities of more than 300,000 inhabitants in 2010 and 61 city-year observations of more than 300,000 inhabitants pre-1910 (we use multiple observations for a same city). For each period, we rank the cities by living standards and city size and show the correlation between the two (the linear fit is estimated using as weights the population of each city-year observation). City living standards are proxied by city product indexes in 2010 and welfare ratios for the pre-1910 period. The sources used to obtain the welfare ratios for the pre-1910 period (estimated for a “bare bones” basket) are the same as for Figure 8.