Persistence of Fortune: Accounting for Population Movements,

There was No Post-Columbian Reversal[+]

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Abstract. We revisit the idea that colonized countries that were more (less) economically advanced in 1500 became poorer (richer, respectively) by the late 20th century. Using data on place of origin of today's country populations and the urbanization and population density measures used by Acemoglu *et al*. (2002) as indicators of level of development in 1500, we confirm a reversal of fortune for territories but find persistence of fortune for people and their descendants. The results are equally strong or stronger for three alternative measures of early development, namely years since transition to agriculture, state history, and the Comin et al. (2010) year 1500 technology index. They are also robust to changing end years, to inclusion of non-colonized countries or exclusion of "neo-Europes" and city states, and to the addition of various controls.

Keywords: Long-Run Economic Growth, Comparative Development, Colonized Countries, Early Development

JEL Codes: O40, O10, N10

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1. Introduction

In a much-cited paper, Acemoglu, Johnson and Robinson (2002, hereafter AJR) found that among the countries that emerged out of lands colonized by Europeans beginning in the late 15th century, there appeared to have occurred a "reversal of fortune" wherein countries that were more urbanized, densely populated, and thus richer or at least more technologically advanced in 1500 had become poorer by 1995. The finding closely paralleled the demonstration in Acemoglu, Johnson and Robinson (2001) that incomes were higher in 1995 in countries whose colonization had involved more European settlement than in ones where colonial rule focused on extraction of natural resource wealth and exploiting the labor of the local population. The authors used both findings to argue that it is the presence or absence of institutions promoting effort and investment, not geography, that determines the relative wealth and poverty of nations. The evidence of a reversal of fortune in the Americas and Australia is also a centerpiece of the argument for the primacy of institutions over geography as the ultimate determinant of comparative economic development in the recent book *Why Nations Fail* by Acemoglu and Robinson.

The present paper does not directly address the importance of geography versus institutions.[1] Instead, we simply revisit the factual question of whether there was a reversal of fortune—a phenomenon whereby rich countries became poor and poor ones rich—during the colonial era and its aftermath. We are able to reproduce the AJR reversal in terms of the territorial entities that constitute present-day countries. But we show that with respect to the people who live in countries, there is no support for a reversal. AJR demonstrated their reversal on the basis of two main indicators of development in 1500: the rate of urbanization and population density. We find that in

[1] Recent investigations of the data and empirical strategies of AJR (2001) and (2002) include Albouy (2012) and Auer (forthcoming). See also the discussion in Spolaore and Wacziarg (forthcoming).

the large fraction of AJR's once-colonized countries sample for which we can estimate year 1500 ancestry, the descendants of people from societies that were more urbanized and more densely populated in 1500 have higher, not lower, incomes today.

Having obtained this result, we also consider alternative proxies for pre-industrial development, some of which are less limited in terms of sample size and, perhaps, data quality. These indicators—time since transition to agriculture, history of state-level polities, and Comin, Easterly and Gong's (2010) year 1500 technology index—are all highly correlated with one another and with urbanization and population density in 1500, and all have been featured in studies of the effects of early development on modern growth. To the extent that the AJR hypothesis is correct, one would therefore expect them to show a negative effect on the recent per capita incomes of formerly colonized countries. We find that such a negative effect emerges in statistically significant form for two of the new variables, although only when we use an earlier end year (1960) or impose some restrictions on the AJR colonies sample. When we make the relevant adjustment for origins of country population, however, all three variables reiterate our main finding of persistence of fortune for people and their descendants, with high degrees of significance and with and without sample or end year changes.

After presenting our main results, we conduct robustness tests along several lines. We control for variables that reflect variations in geography, climate, religion, colonizing country, etc. We also report alternate estimates that extend the analysis from colonized to all non-European countries for which data are available, check the sensitivity of our results to the exclusion of four "neo-Europes" (U.S., Canada, Australia and New Zealand) and city states (Hong Kong and Singapore), check robustness to alternative end years, and consider estimates in which the sample is limited to only the Americas or to high immigration countries, as well as the complements of those samples. We find general robustness to controls and consistent indications of reversal for territories but persistence for people, regardless of year 1500 development indicator, end year, and sample.

Our paper contributes to the literature on long-run determinants of economic development that has recently been surveyed by Spolaore and Wacziarg (forthcoming). The view that early economic development, including early adoption of agriculture, has had a persistent impact on economic development has been laid out in papers by Bockstette, Chanda and Putterman (2002), Hibbs and Olsson (2004, 2005), Chanda and Putterman (2007), Putterman (2008), Comin, Easterly and Gong (2010), and, in the literature of biology and geography, by Diamond (1998). Acemoglu and Robinson (2012) identify Diamond's view as one of two geography-centered competitors to their institutional explanation of comparative development, the other being a more traditional geographic approach epitomized by the work of Jeffrey Sachs and collaborators (e.g., Gallup, Sachs and Mellinger, 1999). Glaeser *et al*. (2004) question the arguments of Acemoglu *et al*. (2001, 2002), arguing that the human capital brought by people to lands they settled in may be more important than the institutions they adopted, a view potentially consistent with our findings. Easterly and Levine (2012) find that European settlement during the colonial era is a good predictor of recent per capita income, while Ertan, Putterman and Fiszbein (2012) find that both European-descended population and institutions seem to affect current incomes. Nunn (2008) argues that it was not colonization, but the slave trade preceding the colonial era that is responsible for contemporary African development, while Gennaioli and Rainier (2007), Cinyabuguma and Putterman (2010) and Michalopoulos and Papaioannou (forthcoming) find effects of the centralization of power in ethnic groups or existence of pre-colonial states in Africa on contemporary provision of public goods, income, and economic growth. Putterman and Weil (2010) find evidence of persistence of economic advantage when accounting for migration of Asians, Africans and Europeans, but they do not investigate the relationship of their findings to the "reversal of fortune," which is the focus of our paper.

Our paper is not the first to address the tension between AJR's observation of a reversal of fortune in colonized countries and findings of persistence of advantage like those of Bockstette *et al*., Hibbs and Olsson, and Comin *et al*. In an earlier attempt to reconcile the two sets of findings, Chanda and Putterman (2007) noted that pre-modern development is a stronger predictor of growth rates during 1960 – 95 than of level of income in 1995 (see, e.g., Bockstette *et al*.). They suggested, and provided evidence to support the conjecture, that the apparent reversal of fortune during 1500 – 1995 is the net effect of a reversal during the colonial era (roughly 1500 to 1960) plus an as-of-then-incomplete catch-up process (or "reversal of the reversal") in the decades since de-colonization. In view of the possibility that reversal findings might be robust for the colonial era proper, we make a special effort in the present paper to check for reversal to 1960, which requires us to estimate ancestry shares for countries' year 1960 populations as opposed to the year 2000 population ancestry shares estimated by Putterman and Weil (2010). We find that when we control for ancestry in 1960, the colonial era reversal confirmed by Chanda and Putterman is no more robust than is the general 1500 – 1995 reversal of AJR. This indicates that accounting for the apparent conflict between the AJR reversal and the seemingly conflicting persistence results of Bockstette *et al*., Hibbs and Olsson, and Comin *et al*. by way of adjustment or control for migration has broad applicability, whereas the decomposition approach (distinguishing the colonial and post-colonial epochs of economic growth) may be useful for limited purposes only.

While not directly addressing the institutions versus geography debate, our findings are clearly pertinent to it. If migration of people, mostly from "old" to "new" worlds, adequately accounts for the apparent reversal of fortune among territories, then the argument that institutions are crucial to economic outcomes will need to depend on carefully constructed identification strategies in models that adequately account for multiple channels of causality including complex feedbacks between geography, institutions, and human capital in its broadest sense. How societies organize themselves economically and politically is almost certainly important to their economic well-being, but demonstrating this definitively turns out to be a complex task, with indications of a seeming reversal of fortune having the potential to obscure as much as they illuminate.

2. Empirical Strategy and Main Results

2.1 Urbanization and Population Density

We begin by reproducing AJR's results in simple regressions showing that both ex-colonies that were more urbanized in 1500 and ex-colonies that had higher population densities in 1500 had lower incomes in 1995. We use AJR's data for all variables, including the estimated urban share of population in 1500, which is from Bairoch (1988) and Eggimann (1999), estimated population density in 1500 based on McEvedy and Jones (1978), and 1995 real GDP per capita, originally from the World Bank. We then repeat the exercises replacing the urbanization rate or population density of each country with the average urbanization rate or the average population density of the countries in which the year 1500 ancestors of each country's year 2000 population lived, according to the World Migration Matrix 1500 – 2000 constructed for Putterman and Weil (2010).

Results for the original AJR samples, corresponding to the "base sample" columns in tables III and V of AJR, are shown in columns (1) and (4) of Table 1. Each is an exact replication.[2] Our migration data covers a large number of countries – one hundred and sixty-five, to be exact. However, to construct average urbanization rates of the countries in which each country population's ancestors lived in 1500—what we'll be

[2] To replicate AJR's result, we naturally follow their classification of which countries were colonized, which is in turn taken from LaPorta *et al*. (1999). Classifications differ from those of some other studies. For example, AJR treat Israel, Jordan and Syria as never colonized, whereas Ertan *et al*. make the opposite assessment. Both studies consider as colonized only countries colonized by Western European powers, so countries that emerged from the Russian empire and Soviet Union, and former colonies of Japan, are considered non-colonies for their purposes and ours.

calling "migration weighted" or "migration adjusted" urbanization rates—we need urbanization data for not just the colonized countries in AJR's sample but also the origin countries of the migrants. Since urbanization data in 1500 is sparse, the sample size falls from the 41 countries in AJR's regression to 28. For population density, for which estimates are more widely available, the sample size falls only from 91 to 83. To make sure that any qualitative change in results is not due to peculiarities of the available subsamples, we first re-estimate the AJR regressions on the smaller sample. The results displayed in columns (2) and (5) of Table 1 closely resemble those in the original regressions in magnitude, significance, and sign. In columns (3) and (6), we then show our regressions for the same samples of countries but replacing each country's territorial urbanization rate or population density in 1500 with the weighted average urbanization rate or population density of the countries in which the ancestors of the country's year 2000 population lived in 1500.[3] The resulting estimates are our first indication that what is a reversal for countries as territories is not such for populations: the coefficients on both key variables change sign and, while losing significance, are nevertheless significant at the 10% level. Without correcting for migration, a one standard deviation increase in urbanization is associated with roughly a 30 percent decrease in GDP per capita; however, a one standard deviation increase in migration adjusted urbanization is associated with a 27 percent increase in 1995 income. The "reversal" in results can also be observed in Figure 1. Panel A of Figure 1 plots log of GDP per capita in 1500 against the unweighted and weighted measures of urbanization.

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[3] For a given country, a "migration weighted" variable, say population density of 1500, is the weighted average of the year 1500 population densities of those countries in which the year 2000 population's ancestors were living in 1500, with the weights being ancestry shares. For Singapore, for example, migration weighted population density of 1500 equals 0.03 times population density 1500 of Malaysia plus 0.77 times population density 1500 of China plus 0.11 times population density 1500 of Indonesia, etc. If data are missing for countries in which a combined total of more than 10% of the current population's ancestors lived, we treat the observation as missing (which explains why sample sizes frequently drop); if a smaller share of the source population's values is missing, we re-weight each country by its share of ancestors from countries having data.

The change in direction is readily apparent. In panel B, we repeat the exercise for population density. Again the change in direction is obvious.

2.2 Alternative Proxies for Year 1500 Development

While urbanization rates and population density are useful metrics for capturing pre-industrial levels of development, urbanization data for 1500 is only available for a small sample of countries, and questions remain regarding the quality and conceptual appropriateness of the population density data.[4] It therefore makes sense to also look for evidence of reversal or persistence of fortune using other indicators or proxies for year 1500 level of development. The three alternative variables that we use have been shown elsewhere to be strongly correlated with year 1500 living standards, and two can also be viewed as indicators of the organizational and technological know-how that populations may have brought with them to new lands during the large-scale migrations that redrew the world ethnic, linguistic, and cultural map in the years since 1500.

The first is the number of years since people living within what is now the country's territory began to rely on agriculture more than on foraging as their major source of food. The associations between agriculture, sedentary life, appearance of cities and large scale polities, and other technological advances are much discussed in the archeological and historical literature, and duration of practice of agriculture has also been shown to be a predictor of current level of development by Hibbs and Olsson (2005). While Hibbs and Olsson calculate transition dates for nine world regions,

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[4] Quality problems revolve around the age and conjectural nature of many of the population estimates and difficulties assigning shares of population to individual countries in cases in which the authors provide estimates for a larger region only. The major conceptual problem is that in most countries, the large majority of the people are found in a small subset of the territory, often including river valleys, coastlines, and fertile plains, and the ratio of largely uninhabited to inhabited territory varies among countries as defined by their modern borders in a fashion that may reflect less on the level of development of the society than on geographic happenstance (examples include the surrounding of the Nile River Valley by large deserts, or the proximity of the main population centers of Canada, Sweden and Norway to largely unpopulated expanses of subarctic terrain).

Putterman and Trainor (2006) improve on this by calculating country specific dates. Like Putterman and Weil (2010), we use the latter data.

A second measure used is state history or *statehist*. This measure indicates the proportion of time in which the territory within the borders of a present-day country had a supra-tribal polity, how much of the territory that polity covered, and whether it was home-based or imposed from without. Years from 1 to 1500 C.E. are covered, with diminishing weight on the more distant past. Anthropologists and historians associate the emergence of states with more advanced technologies, larger populations, and greater social complexity. Studies including Putterman and Weil (2010, henceforth PW) and Chanda and Putterman (2007, henceforth CP) have found it to be a good predictor of modern development. CP also demonstrate its statistical association with the development of agriculture, as is expected from numerous historical accounts, and show it to be significantly positively correlated with year 1500 income estimates.[5] Our data are from a revised version, Putterman (2012), which differs from that used by PW only in including a few recently added country observations.[6]

A third proxy for year 1500 level of development employed by us is Comin *et al*.'s index based on use of 24 technologies in five sectors (agriculture, transportation, military, industry, and communications) around the year 1500 but prior to European contact. Comin *et al*. demonstrate the measure's ability to predict country incomes in year 2000 as well as the strengthening of that predictive power by accounting for migration using the data of PW. Ashraf and Galor (2011) show that level of technology prior to the industrial revolution is highly correlated with income but especially with population density, in line with expectations that technological advances result more in population than in income growth during the Malthusian era.

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[5] Year 1500 income, in this exercise of CP, is estimated by extrapolating from linear models based on the year 1500 income estimates for 32 countries by Maddison (2001).

[6] Data on state presence/history are also available for the years 1501 to 1950 but are not used in our analysis since we adopt *statehist* as an indicator of development before the era of European expansion.

Before putting our three additional proxies of year 1500 development to work in our additional checks for a reversal of fortune in the colonized or non-European worlds, we first check their correlations with each other as well as the urbanization rates and population densities. Table 2 shows that all of the three variables are strongly correlated with each other as well as with population density. With respect to urbanization there is more variation, with the state history variable exhibiting a strong positive association while millennia since agriculture exhibits a much weaker association.

Table 3 shows OLS regressions each of which attempts to predict income in 1995, the main dependent variable in AJR, when the sample is restricted to colonized countries. As mentioned, the three variables have earlier been shown to be positively associated with long term economic development when samples were not restricted to colonized countries. For each of these variables, we show both a regression using their value based on the country defined as territory and one using their value based on the average of values for the lands in which the current population's ancestors lived in year 1500 weighted by estimated ancestry shares. Columns (1), (3), and (5) indicate that none of the three variables have any positive effects on contemporary incomes, findings reminiscent of AJR's "reversal of fortune" although statistically insignificant. The ancestry weighted variable, on the other hand, is positive and statistically significant at the one percent level for each of the three variables.[7] While the pattern of results resembles Table 1 with regard to sign, in Table 3 the coefficients of each of the variables become significant once adjusted for ancestry, and R-square values also exhibit sizeable jumps.

Based on both AJR's and our alternative measures, fortunes appear to be persistent rather than reversed among the lineages of people who occupied ex-colonies

[7] In Table 3 we allow the sample to change with each proxy of development to allow as many observations as possible. However, these results also hold when we limit the sample to a restricted set of sixty common countries.

in 1995. Note that the sample, like AJR's, includes countries having largely locally descended populations (for example, India) and ones whose populations are mainly descended from post-1500 migrants (for instance, Singapore and Canada). In Figure 2, panels A, B, and C, replicate scatterplots for the three added variables in the same spirit as those for population density and urbanization in Figure 1. The change in the sign of the slope is readily apparent in all three cases.

3. Robustness Checks: Controls, Samples, and End Years

3.1 Robustness to Additional Controls

In Table 4, we perform robustness checks using five sets of controls for each of our proxies for year 1500 level of development. Results are displayed for each territorially based variable and for each ancestry weighted counterpart using the same dependent variable, 1995 per capita income. The controls are latitude, climate, an absolute measure of resources (coal, oil, metals and geography), indicators for colonizing powers, and an indicator for the main religion in the country. These are the same controls as are used in tables III and IV of AJR (2002).

In all cases, the estimates using the ancestry weighted measures maintain their positive coefficients. These are uniformly significant at the 1% level for the agriculture measure, significant but at varying levels for the state history and technology measures, and significant with only about half of the sets of controls for the urbanization and population density measures. The unweighted, territorially defined measures obtain negative coefficients, consistent with AJR and with our previous findings, except when the additional control captures differences in religion, or when the measure of development is the 1500 technology index. The negative coefficients, however, are usually significant only for urbanization and population density. In sum, there is strong evidence for persistence of ancestral populations' advantages surviving addition of the various sets of controls.[8]

3.2 Robustness to Alternative Samples

In *Why Nations Fail*, Acemoglu and Robinson give considerable attention to the fact that in the Americas, the places that became Mexico and Peru were home to densely populated agrarian civilizations whereas those that became the U.S. and Canada were more sparsely populated and home to many smaller tribes, some of them primarily reliant on foraging. Their attribution of a reversal of fortune, whereby the latter became the richer and the former the poorer countries, to a difference in institutions in and after the colonial era is one of the centerpieces of their argument for the primacy of institutions in determining economic growth. More broadly, intuition suggests that countries of the Western Hemisphere and Oceania (including Australia and New Zealand), where colonization led to the most dramatic changes in population origins, play a particularly important role in the reversal phenomenon identified by AJR. In columns 1 and 2 of Table 5, we revisit our regression exercises for the subset of countries in the Americas.

Only the estimates that use year 1500 population density as proxy for early development strongly support the idea of a reversal of fortune in the territorially based versions of these Americas-only regressions. In contrast, regressions for the same restricted sample using all five proxies for early development strongly indicate persistence of fortune for descendants of year 1500 ancestors. The results for population density are particularly striking because coefficients are highly significant for both the territorial and the ancestry weighted regressions, but with opposite signs. Moreover, the point estimate of the coefficient for migration weighted population density is much higher within the Americas than in the larger sample in Table 2. In fact, the point estimates are considerably higher also for the migration weighted value of

[8] In addition to these controls, we also checked for robustness to ethnic fractionalization. This did not change our results.

state history and for millennia of agriculture and are about the same for the technology variable. Of course, sample sizes are in all cases smaller than in our previous regressions for all colonized countries.

The Americas sample are only the most prominent subset of countries in which population origins changed substantially in the years following 1500, with other well-known examples including Australia and New Zealand, and some less prominent cases such as Fiji, Singapore and Taiwan. In columns (3) and (4), we broaden the sample from the Americas to all countries in which more than 20% of current populations were of foreign origin.[9] As column (3) indicates, evidence of a reversal for countries as territories is strengthened (relative to the Americas-only sample) for urbanization and population density, but weakened for the other three indicators, the coefficients on which were already insignificant and for two of which there is also a sign change. When we look at column (4), we see that the coefficients on the migration weighted versions of the original variables are positive and in the same four of five cases significant, as in the Americas sample. So, in the broader high-migration countries sample as in the narrower subset of the Americas alone, there is generally weak evidence of a reversal of fortunes for territories but strong evidence of persistence of fortunes for the descendants of year 1500 populations. Who moved to a high migration country from where makes a large contribution to explaining its income level today, according to these estimates.[10]

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[9] Of the 165 countries with populations above ½ million that are studied by Putterman and Weil (2010), 64 had 20% or more of the current population's ancestors originating elsewhere in 1500.

[10] It might also be of interest to see whether reversal-supporting results for the unadjusted measures and/or persistence-supporting results for the migration adjusted ones hold in the complements of the Americas and High Migration samples of columns (1) – (4). Online appendix Table A.2 shows results for former colonies not in the Americas, former colonies with migrant-descended population shares of 20% or less, non-European countries (including non-colonies) not in the Americas, and non-European countries with migrant-descended population shares of 20% or less. Coefficients on the unadjusted early development measures vary in sign and significance level depending on measure and sample, with only one statistically significant negative coefficient (supporting reversal of fortune), that for population density in colonized

AJR consider concerns that their results might be driven by the four "neo-Europes"—the U.S., Canada, Australia, and New Zealand. These countries stand out as having been relatively lightly populated and technologically behind in 1500 and having become predominantly European-populated members of the club of advanced industrial societies by 1995. The city states of Hong Kong and Singapore share with the neo-Europes the fact of having been populated after 1500 by people from countries with high year 1500 development indicators (in these cases, China) and having achieved relatively high incomes in the 20th century. We investigate the reversal or persistence of early advantages for the global sample of colonized countries minus the neo-Europes and city states in columns (5) and (6). Column (5) shows significant evidence of reversal for two territory-defined indicators, population density and technology.[11] When replaced by their migration weighted counterparts (column 6), we see that four of the five variables show a positive and statistically significant effect. Thus, although compared to the benchmark regressions in Table 3 the point estimate of the coefficient declines in all cases, confirming suspicions about the possible importance of the neo-Europes and city states, the qualitative result of persistence nonetheless stands.[12]

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countries excluding the Americas only. Coefficients on the adjusted measures are positive in all cases, are insignificant in all cases for urbanization, are significant for the non-European samples only for population density, and are significant in almost all samples for millennia of agriculture, state history, and technology of 1500, but always with smaller and less significant coefficients than in the complementary Americas only and high migration samples. Thus, there is considerable evidence of persistence of fortunes in the Old World and in low migration countries taken alone, but the Americas and the high migration countries appear to contribute disproportionately to the overall result.

[11] Since dropping only two of the 28 observations in column (2) of Table 1 causes the negative coefficient on urbanization to drop to statistical insignificance in column (5) of Table 5, it may be of interest to see what would happen if all six neo-Europes and city states were dropped from the larger 41 country sample of column (1) of Table 1. We perform this exercise (not shown) and find that in the resulting 35 country sample, the coefficient on urbanization also becomes substantially smaller and loses its statistical significance.

[12] In columns (5) and (6), compared to the benchmark regressions, in principle we drop six countries. However, not all variables have observations for all of the six countries. For example, data on technology in 1500 are available for more than 90% of source countries, allowing construction of the weighted measure for only two of the six—Hong Kong and Singapore. Thus, only two observations are dropped in these columns, in the case of the technology measure.

Finally, we also examine what happens when we add non-European countries that were never colonized. As the results in column (7) indicate, we continue to see reversal in territories, when using urbanization and population density as indicators of early development. It is interesting to note that this happens despite a considerable increase in the sample size for population density, though the coefficient falls in value compared to the results in table 3. When using the migration weighted variables, we again see a positive significant effect, denoting persistence of fortune, for all except urbanization. This is in keeping with most of our robustness tests so far.

3.3 Alternative End Years and the 'Colonial Era Only' Conjecture

To check whether there is anything unusual about the year 1995 as a representation of recent incomes, we also estimate and show, in Table 6, regressions with dependent variables income per capita in 1960 and income per capita in 2009 for country samples consistent with the exercises in tables 1 and 3. While 2009 estimations are undertaken simply to "update" the dependent variable,[13] our interest in 1960 merits further discussion. Over and above the fact that the year has commonly been adopted in the literature, by data driven necessity, as an initial year for the period of post second world war growth, we mentioned in the introduction that Chanda and Putterman (2007) treat it as a turning point in their attempt to reconcile results suggestive of persistence with the AJR reversal finding. Concerned with the tension between AJR's findings and the fact that indicators of early economic development are positively correlated with rates of economic growth after 1960 and, less robustly, with income in 1995, they speculate that AJR's finding of a reversal of fortune among former colonies between 1500 and 1995 might be attributable to an actual reversal associated with the colonial era, which for the most part had ended by or in the 1960s, coupled with a "reversal of the reversal" during the post-colonial years. Without considering population ancestries,

[13] Our choice of 2009 reflects the latest year for which we could possibly get GDP per capita numbers for the original observations. Nevertheless, we still do not have numbers for Zimbabwe and hence the number of observations is one less compared to tables 1 and 3.

estimates for which had not yet been compiled, they confirmed their conjecture of both a reversal up to 1960 and a catch-up trend after that year.

To perform an adequate check of whether CP's colonial era reversal finding is robust to the migration-accounting procedure used here, we need to account for the fact of further and in some respects different patterns of migration among regions between 1960 and 2000. We had in mind, in particular, the facts that the U.S., Canada, and Australia saw increases in the shares of their populations from non-European countries during those decades. In an attempt to cover all appreciable migrations affecting non-European countries during the period, we decided to construct a comprehensive matrix of the year 1500 locations of the ancestors of countries' 1960, as opposed to their year 2000, populations. Toward this end, we searched for comprehensive sources, ultimately locating suitable data in Özden, Parsons, Schiff and Walmsley (2011). Taking the PW migration matrix as an accurate reflection of population origins as of 2000, we subtracted off net migrations between 1960 and 2000 according to Özden *et al*. to construct a new world migration matrix for 1500 to 1960.[14]

Columns (1) and (2) of Table 6 display regressions that predict GDP per capita in 1960 with each of our five proxies of year 1500 level of development taken individually on the largest subset of AJR's once-colonized country sample for which the ancestry weighting can be calculated.[15] As with the estimates for 1995, the regressions for 1960 income obtain negative coefficients on the territory-based measures, this time being highly significant for both population density and technology. Also as with those estimates, however, there is no indication of the reversal being robust to accounting for

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[14] Since the PW matrix gives population shares rather than absolute numbers, since there is natural population increase over the decades in question, and since the Özden *et al*. data indicate absolute numbers of migrants, the calculations required to construct the 1960 matrix are somewhat more complex than suggested by the term "subtract off." Details on the construction of the new matrix are provided in the Appendix (available online).

[15] Unlike the income estimates for 1995 and 2009, which are from the World Bank World Development Indicators, our data for 1960 per capita GDP are taken from Maddison (2001), as in Chanda and Putterman (2007). For details on these and other data used, see the Data Appendix.

migration, with the coefficients on the ancestry adjusted versions of each measure being positive and with four of the five coefficients (those for all measures except population density) being significant at the 1 or 5% level. Among the changes of result due to replacing territory-based with population-based indicators is the change from a negative coefficient significant at the 1% level for year 1500 technology to a statistically significant coefficient of closely similar magnitude but opposite sign. Thus, a reversal of fortune between 1500 and 1960 is supported for territories, in the samples for which the migration adjustment can be performed, but we again find persistence rather than reversal, using our 1500 to 1960 migration matrix.

Columns (3) and (4) of Table 6 show the results for 2009 as the end year. Compared to the results for 1995 in tables 1 and 3, we see that the results are largely unchanged. In the case of the indicators' migration adjusted counterparts, in contrast, point estimates are uniformly larger and in two cases more significant. The strengthening of "persistence" findings over time could in part reflect accelerating or persisting "catch-up" phenomena in countries with historically advanced civilizations including China, India, and S. Korea, and in countries populated by migrants therefrom, e.g. Singapore and Taiwan.[16]

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[16] Note that 'catch up' by countries like China and India, with populations almost entirely descended from year 1500 residents, should make coefficients on both the unweighted and weighted early development indicators more positive or at least less negative. With regard to the unweighted indicators in particular, support for CP's observation that earlier developed countries have been catching up or 'reversing the reversal' since the colonial era could take the form of the coefficients becoming less negative and/or less significant in 1995 and 2009 than in 1960. This is clearly not the case for the coefficients on urbanization and population density in Table 6, but it does hold for the other three measures (compare columns (1) and (3) of Table 6 and for 1995, the relevant columns of Tables 1 and 3). Noting that the estimates in Table 6 cover only countries for which migration weighted values can be calculated, we also estimated versions of the column (1) and (3) regressions in which we included all colonized countries in the AJR sample for which data are available. In those regressions (not shown to conserve space), the idea that the reversal phenomenon (in terms of territories) has weakened since 1960 is supported for all indicators other than population density. On each of our three additional indicators (agriculture, state history and technology), in fact, the regressions yield a significant

3.4 Final Robustness Checks

Finally, we conducted additional robustness checks for the exercises in tables 5 and 6. Specifically, we repeated all the regressions in the two tables after controlling for the various geographic, political, and religious variables in Table 4. The results are presented in the online appendix tables A3 (for different country coverage) and A4 (for different end years).[17] To conserve space we mention only the results for the migration weighted measures of the five variables. Results for two of the variables, millennia of agriculture and 1500 technology, are particularly robust to this double test of alternative samples and additional control variables. Results for state history are robust for the samples in which only high immigration countries are included or when non-colonized countries are included. They are less robust to geographic controls when the sample is restricted to the Americas and when neo-Europes and city states are excluded. Results for population density are consistently robust to the additional variables when the sample is restricted to the Americas only or is expanded to include non-colonized countries. In online appendix Table A.4, where the control variables are included for regressions ending in alternative years, we see largely similar patterns. In particular, for the year 2009, results for millennia of agriculture, state history, and the 1500 technology index are robust to additional control variables. For 1960, results for state history are not as consistently robust while those for the other two measures continue to be significant. Population density and urbanization produce more varied results. Overall, these additional regressions continue to cement the evidence suggesting a persistence of fortunes for peoples.

4. Conclusion

The reversal of fortune finding of AJR (2002) suggests that by adopting or having imposed upon them better institutions than once more advanced counterparts, some of

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negative coefficient for 1960 but insignificant negative coefficients of smaller and decreasing absolute magnitudes in 1995 and 2009, respectively.

[17] The online appendix can be found at: http://www.brown.edu/Departments/Economics/Papers/2013/2013-4_appendix.pdf

the countries that Europe colonized between the 15th and 20th centuries were able to leapfrog ahead in their levels of economic development. We find that a reversal of fortune did occur among countries as territories—the chunks of real estate on which late 20th century countries are situated—but that for nations thought of as groups of people sharing linguistic and other features, and for their descendants, persistence rather than reversal is the rule. This is the case not only in the European-colonized world but also in the non-European world as a whole, in those non-European countries that experienced significant influxes of non-native migrants, considering the Americas only, and in the colonized world minus the extreme migration-and-development cases: the neo-Europes and the city states of Hong Kong and Singapore.

We find no evidence of an important subset of national groups converting themselves from relatively backward to relatively advanced by adopting better institutions.[18] The AJR reversal is instead associated with people from places hosting societies that were relatively socially and technologically sophisticated in 1500 migrating to places that had been relatively backward and that accordingly had relatively low population densities (which were further diminished by absence of resistance to Old World diseases). The most straightforward explanation of the reversal of fortune for

[18] We show simple indications of the relationship between pre-modern development and quality of contemporary institutions (as opposed to the institutions that prevailed early in countries' colonial eras) in Table A.5 of the Online Appendix. In columns (1) and (2), we regress each of our early development indicators (column (1)) and its migration adjusted counterpart (column (2)) on the Protection from Expropriation variable used by AJR. Much as when income itself is the dependent variable, coefficients for the unadjusted measures tend to be negative, those for the adjusted ones positive. Only one of the unadjusted indicators (population density) and two of the adjusted ones (millennia of agriculture and state history) obtain statistically significant coefficients, although the changes in signs and magnitudes for the AJR indicators (urbanization and population density) seem noteworthy. Qualitatively similar results, this time with larger numbers of significant coefficients, obtain in columns (3) and (4), where we substitute the World Bank's World Governance Indicators measure as dependent variable. Finally, we make Years of Schooling the dependent variable in columns (5) and (6), again seeing a similar pattern, this time with the positive coefficients for four of the five indicator variables being statistically significant. Whether causality runs from institutions and schooling to income, from income to institutions and schooling, or mainly from early development to income, institutions and schooling simultaneously, is an open question.

territories, then, would be that the connecting of "old" (Eurasia plus Africa) with "new" (Americas and islands of the Pacific and Indian oceans) worlds that began in the 15th century led to population transfers in which the technological and social advantages of peoples from the most advanced civilizations sank new roots in previously "backward" lands. To what extent establishment of institutions more inviting to settlement by such populations played a crucial role, in which case institutions can be said to have been an important determinant of reversal-for-territories, and to what extent those populations simply brought their social orientations with them, leading to the correlation between economic capability and facilitating institutions, is a question for further research.[19]

[19] The argument that institutions were the ultimate determinants of comparative development and that the migrations accounting for our regression results are merely channels through which institutions worked appears to confront some problems. For example, the considerable indigenous populations of central America and the Andes, populations whose presence largely accounts for the lower values of indicators like technology of 1500 in comparison to Canada and the United States, predated rather than being brought into being by colonial institutions. But presence of Amerindian populations in the former and not the latter countries is likely to have influenced both their subsequent population compositions and what institutions were adopted, as suggested by Acemoglu and Robinson's (2012) account. For another example, consider the large African-descended populations in countries of the Caribbean and northeast Brazil, which similarly help to explain those countries' lower values of our indicators. True, those populations' presence was brought about by population movement (the slave trade) induced by an institution (slavery). However, climate and soil-focused explanations for the establishment of the plantation economies in question (Engermann and Sokoloff, 2000, Easterly and Levine, 2003) would appear to have at least as much claim to causal primacy as do the institutions used to build the plantation economies during the centuries following 1500.

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Tables

Table 1: AJR's Reversal of Fortune

Dependent Variable: ln of GDP pc (PPP) in 1995						
	Reversal with Urbanization			Reversal with Pop. Density		
	(1)	(2)	(3)	(4)	(5)	(6)
Urbanization in 1500	-0.0783***	-0.0643**				
	(0.0234)	(0.0282)				
Migration Weighted Urb. (1500-200)			0.0901*			
			(0.0446)			
ln Population Density in 1500				-0.3767***	-0.3804***	
				(0.0532)	(0.0557)	
Mig. Weighted ln Pop. Den.						0.2138*
						(0.1199)
N	41	28	28	91	81	81
R^2	0.1935	0.1379	0.1109	0.3413	0.3707	0.0478

Notes: (i) All regressions contain a constant. (ii) Migration weighted variables use the 1500-2000 CE Putterman and Weil (2010) data and exlude countries for which greater than 10% of the ancestral population has no data. (iii) The sample consists of countries colonized by European states. (iv) OLS coefficients are reported in each column. *, **, and *** represent significance at the 10, 5, and 1% significance level, respectively. Robust standard errors are in parentheses.

Table 2: Correlates of Year 1500 Development

Variable:	Urbanization	ln Pop. Density	Millennia of Agr.	State History	Technology
Urbanization in 1500	1.0000				
	(n = 44)				
ln Pop. Density in 1500	0.7293	1.0000			
	(n = 44)	(n = 98)			
Millennia of Agriculture	0.3312	0.5054	1.0000		
	(n = 44)	(n = 91)	(n = 91)		
State History in 1500	0.6367	0.4570	0.6573	1.0000	
	(n = 43)	(n = 87)	(n = 87)	(n = 87)	
Technology in 1500	0.3982	0.5235	0.6600	0.7218	1.0000
	(n = 40)	(n = 73)	(n = 73)	(n = 70)	(n = 73)

Notes: (i) The sample consists of countries colonized by European states. (ii) Urbanization and population density are from Acemoglu et al. (2002). Millennia of agriculture is from Putterman and Trainor (2006). State history is from Chanda and Putterman (2007). Technology is from Comin et al. (2010).

Table 3: Persistence of Fortune with Additional Determinants of 1500 Development

	Dependent Variable: Log of GDP per capita in 1995					
	(1)	(2)	(3)	(4)	(5)	(6)
Millennia of Agriculture	-0.0531					
	(0.0615)					
Mig. Weighted Millennia of Agr.		0.3015***				
		(0.0709)				
State History in 1500			-0.2671			
			(0.4015)			
Mig. Weighted State Hist.				1.5054***		
				(0.4900)		
Technology in 1500					-0.2933	
					(0.5996)	
Mig. Weighted Tech. 1500						1.8787***
						(0.5145)
N	80	80	77	77	62	62
R^2	0.0070	0.2762	0.0064	0.1685	0.0058	0.2033

Notes: (i) All regressions contain a constant. (ii) Migration weighted variables use the 1500-2000 CE Putterman and Weil (2010) data and exlude countries for which greater than 10% of the ancestral population has no data. (iii) The sample consists of countries colonized by European states. (iv) OLS coefficients are reported in each column. *, **, and *** represent significance at the 10, 5, and 1% significance level, respectively. Robust standard errors are in parentheses.

Table 4: Robustness to Omitted Variables

	Dependent Variable: Log of GDP per capita (PPP) in 1995									
Controlling for:	Latitude		Climate		Resources		Colonizer		Religion	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
					Panel A: Urbanization					
Urbanization in 1500	-0.0643**		-0.0997**		-0.1000**		-0.0605		-0.0596	
	(0.0291)		(0.0396)		(0.0425)		(0.0366)		(0.0391)	
Mig. Weighted Urb.		0.1083*		0.0705		0.0791		0.1296**		0.1130**
		(0.0569)		(0.1138)		(0.0617)		(0.0582)		(0.0408)
N	28	28	28	28	28	28	28	28	28	28
R^2	0.1385	0.1377	0.6106	0.4779	0.5122	0.3314	0.1727	0.2264	0.2269	0.2927
					Panel B: Population Density					
ln Pop. Den. 1500	-0.3356***		-0.3305***		-0.3112***		-0.3223***		-0.3921***	
	(0.0559)		(0.0611)		(0.0523)		(0.0602)		(0.0709)	
MW ln Pop. Den.		0.1370		0.1941		0.0657		0.1921*		0.3334**
		(0.1122)		(0.1238)		(0.1039)		(0.1108)		(0.1301)
N	81	81	81	81	81	81	81	81	81	81
R^2	0.4276	0.1819	0.6001	0.4276	0.5786	0.3882	0.5008	0.3040	0.3927	0.2104
					Panel C: Millennia of Agriculture					
Millennia of Agriculture	-0.0489		-0.0334		-0.0019		-0.0785		0.0677	
	(0.0600)		(0.0659)		(0.0671)		(0.0599)		(0.0784)	
MW Mill. of Agr.		0.2574***		0.2762***		0.2236***		0.2279***		0.3802***
		(0.0750)		(0.0630)		(0.0669)		(0.0797)		(0.0749)
N	80	80	80	80	80	80	80	80	80	80
R^2	0.1681	0.3482	0.4071	0.5637	0.3949	0.5184	0.2813	0.3949	0.1157	0.4706
					Panel D: State History					
State History in 1500	-0.4621		-0.3677		-0.2502		-0.0983		0.5370	
	(0.3786)		(0.3968)		(0.3783)		(0.4262)		(0.4874)	
Mig. Weighted State Hist.		1.1292**		1.1143*		0.8462*		1.5545***		2.1817***
		(0.5503)		(0.6104)		(0.4756)		(0.4379)		(0.4513)
N	77	77	77	77	77	77	77	77	77	77
R^2	0.1709	0.2337	0.4188	0.4725	0.4212	0.4599	0.2439	0.3898	0.1183	0.4047
					Panel E: Technology					
Technology in 1500	-0.3840		0.3177		-0.6239		0.7270		1.1787	
	(0.6270)		(0.7735)		(0.5829)		(0.6873)		(0.7440)	
Mig. Weighted Tech.		1.8264***		1.9244***		1.6699***		1.3830**		2.3514***
		(0.5673)		(0.5841)		(0.5741)		(0.6164)		(0.5328)
N	62	62	62	62	62	62	62	62	62	62
R^2	0.0370	0.2053	0.3759	0.5264	0.2867	0.3931	0.3460	0.4148	0.2178	0.3984

Notes: (i) Latitude is absolute value of latitude; climate controls include variables for humidity, temperature, and soil measures; resource controls include variables for coal, oil, metals, and geography; colonizer includes indicators for the colonizing power; and religion includes an indicator variable for the main religion of the country. (ii) Migration weighted variables use the 1500-2000 CE Putterman and Weil (2010) data and exclude countries for which greater than 10% of the ancestral population has no data. (iii) The sample consists of countries colonized by European states. (iv) All regressions contain a constant. OLS coefficients are reported in each column. *, **, and *** represent significance at the 10, 5, and 1% significance level, respectively. Robust standard errors are in parentheses.

Table 5: Persistence with Alternative Samples

	Dependent Variable: Log of GDP per capita (PPP) in 1995							
Sample:	Americas Only		High Immigration		Excl. Neo-Europes and City-states		Including Non-Colonies	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Panel A: Urbanization				
Urbanization in 1500	-0.0495		-0.0787*		-0.0348		-0.0692**	
	(0.0333)		(0.0376)		(0.0263)		(0.0267)	
Mig. Weighted Urbanization		0.0634		0.0749		0.0712*		0.0540
		(0.0817)		(0.0610)		(0.0395)		(0.0476)
N	13	13	16	16	26	26	30	30
R^2	0.1979	0.0563	0.2466	0.0404	0.0612	0.1136	0.1406	0.0367
				Panel B: Population Density				
ln Pop. Den. in 1500	-0.3175***		-0.4737***		-0.2545***		-0.2213***	
	(0.0824)		(0.0608)		(0.0591)		(0.0801)	
Mig. Weighted ln Pop. Den.		0.7684***		0.5419**		0.0490		0.2462***
		(0.1992)		(0.2103)		(0.0976)		(0.0912)
N	25	25	44	44	75	75	105	105
R^2	0.3466	0.3587	0.4727	0.2131	0.1761	0.0037	0.1228	0.0737
				Panel C: Millennia of Agriculture				
Millennia of Agriculture	0.1073		0.0057		-0.0117		0.0525	
	(0.1695)		(0.1350)		(0.0460)		(0.0405)	
Mig. Weighted Millennia of Agr.		0.4506***		0.3939***		0.2048***		0.2107***
		(0.1071)		(0.0849)		(0.0666)		(0.0430)
N	25	25	43	43	74	74	104	104
R^2	0.0230	0.3825	0.0000	0.4069	0.0005	0.1630	0.0156	0.2000
				Panel D: State History				
State History in 1500	-0.5430		0.6877		-0.1952		0.1187	
	(0.4569)		(0.5965)		(0.3242)		(0.3512)	
Mig. Weighted State Hist.		2.6065**		3.1888***		0.8017*		1.5488***
		(1.1402)		(0.5297)		(0.4223)		(0.3937)
N	24	24	41	41	71	71	97	97
R^2	0.0262	0.2611	0.0245	0.4965	0.0050	0.0663	0.0014	0.1832
				Panel E: Technology				
Technology in 1500	-2.1178		1.1103		-1.0445**		0.3882	
	(1.6464)		(0.8843)		(0.4720)		(0.4554)	
Mig. Weighted Tech.		1.7524***		2.4628***		1.4327***		2.0668***
		(0.3557)		(0.6846)		(0.4749)		(0.4418)
N	18	18	32	32	60	60	72	72
R^2	0.0852	0.2302	0.0584	0.3557	0.0798	0.1336	0.0117	0.2515

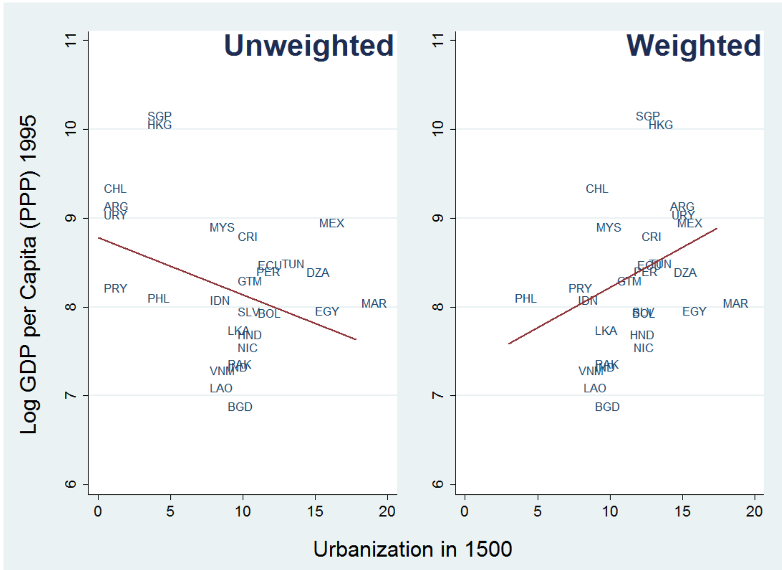
Notes: (i) All regressions contain a constant. (ii) Weighting by migration in columns (2), (4), (6), and (8) is done with 1500-2000 CE migration data from Putterman and Weil (2010). Countries for which greater than 10% of the ancestral population has no data are excluded. (iii) The "Americas Only" sample consists of countries within the Americas that were colonized by European states. The "High Immigration" sample consists of countries with less than 80% of the 2000 CE population derived from the indigenous 1500 CE population. The"Excluding Neo-Europes and City-states" sample excludes USA, Canada, Australia, New Zealand, Singapore, and Hong Kong. The"Including Non-Colonies" sample consists of all non-European countries for which we have data. (iv) OLS coefficients are reported in each column. *, **, and *** represent significance at the 10, 5, and 1% significance level, respectively. Robust standard errors are in parentheses.

Table 6: Persistence of Fortune in Alternative Years

Dependent Variable:	1960 GDP per capita		2009 GDP per capita	
	(1)	(2)	(3)	(4)
	Panel A: Urbanization			
Urbanization in 1500	-0.0408		-0.0517*	
	(0.0239)		(0.0302)	
Mig. Weighted Urb. in 1500		0.0909**		0.1077**
		(0.0424)		(0.0440)
N	28	28	28	28
R^2	0.0944	0.1922	0.0868	0.1541
	Panel B: Population Density			
ln Pop. Den. in 1500	-0.2917***		-0.3932***	
	(0.0504)		(0.0688)	
Mig. Weighted ln Pop. Den. 1500		0.1541		0.3040**
		(0.1074)		(0.1415)
N	75	75	80	80
R^2	0.3133	0.0353	0.2920	0.0689
	Panel C: Millennia of Agriculture			
Millennia of Agriculture	-0.0783		-0.0378	
	(0.0557)		(0.0715)	
Mig. Weighted Millennia of Agr.		0.1842***		0.3724***
		(0.0579)		(0.0789)
N	74	74	79	79
R^2	0.0226	0.1503	0.0026	0.3045
	Panel D: State History			
State History in 1500	-0.5048*		0.0490	
	(0.2969)		(0.4394)	
Mig. Weighted State Hist. in 1500		1.0458***		2.0659***
		(0.3601)		(0.5329)
N	72	72	76	76
R^2	0.0292	0.1084	0.0002	0.2260
	Panel E: Technology			
Technology in 1500	-0.8647**		0.0284	
	(0.3958)		(0.6443)	
Mig. Weighted Tech. in 1500		1.1301**		2.4872***
		(0.4302)		(0.5836)
N	55	55	61	61
R^2	0.0882	0.1202	0.0000	0.2623

Notes: (i) All regressions contain a constant. (ii) Weighting by migration in column (2)is done with the 1500-1960 CE migration matrix constructed from data in Özden et al. (2011) and Putterman and Weil (2010) (see Appendix for details). Additional migration weighted estimations–i.e., column (4)–use the 1500-2000 CE Putterman and Weil (2010) data. Countries for which greater than 10% of the ancestral population has no data are excluded. (iii) The sample consists of countries colonized by European states. (iv) OLS coefficients are reported in each column. *, **, and *** represent significance at the 10, 5, and 1% significance level, respectively. Robust standard errors are in parentheses.

Figures



(A)

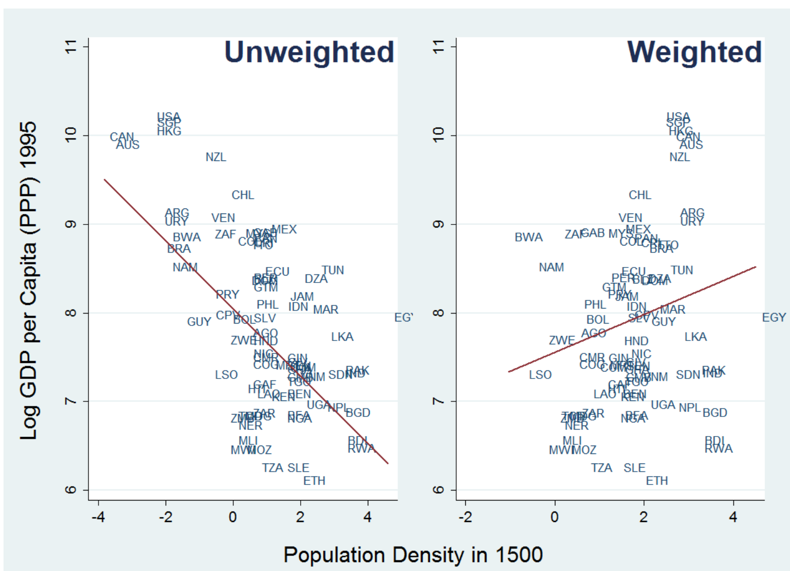
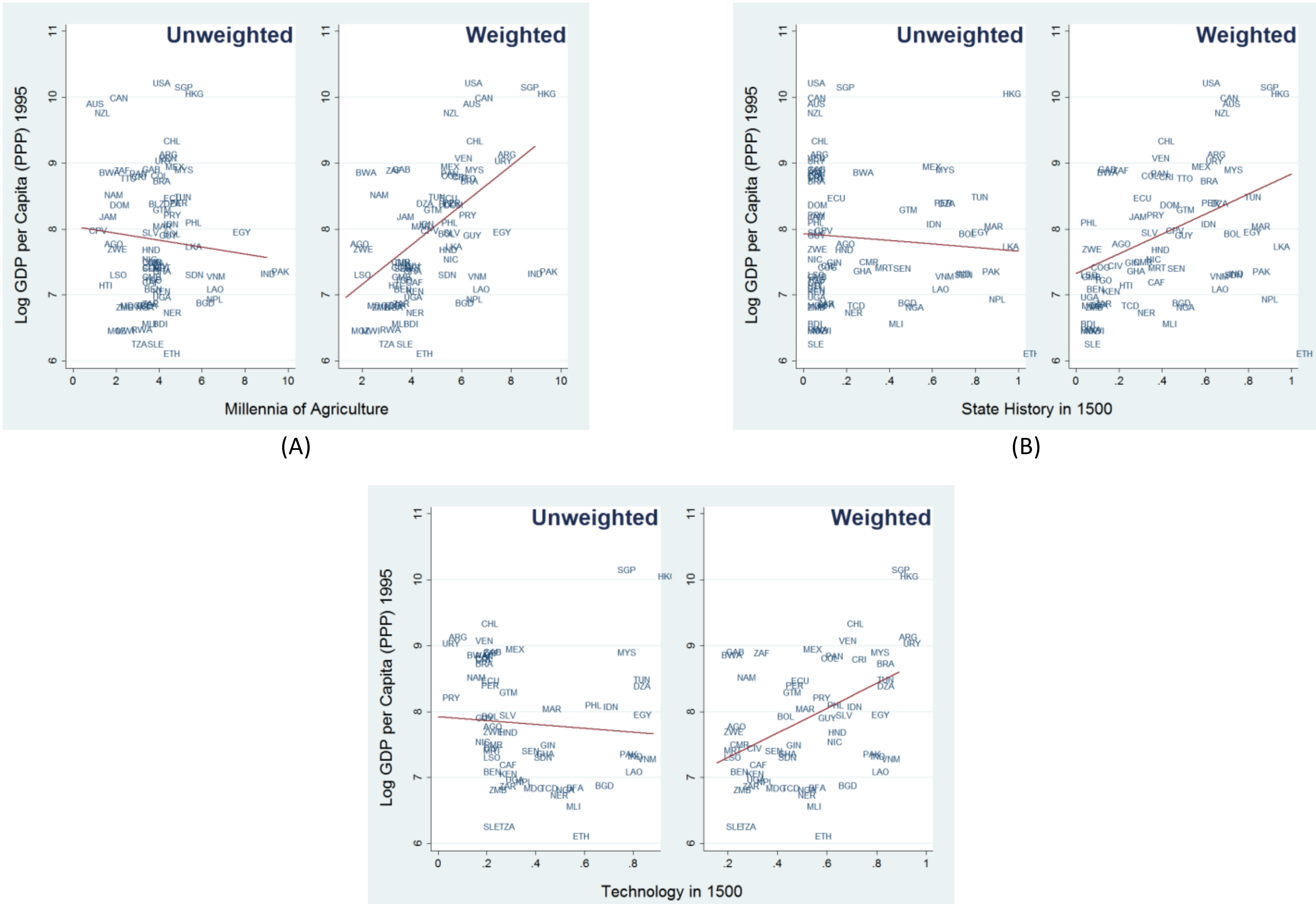


Figure 1:
Persistence with AJR's Measures of Year 1500 Development



(C)

Figure 2:
Persistence with Alternative Measures of Year 1500 Development

Data Appendix

Climate: Climate variables include humidity, temperature, and soil quality measures. Humidity is the average percent of humidity recorded at differing times during the day and comes from Parker (1997). Temperature data are average temperature and monthly highs and lows in centigrade, from Parker (1997). Soil quality variables are climate classifications for differing ecological zones; these data come from Parker (1997). All data are by way of Acemoglu *et al*. (2002).

Colonizer: Colonizer variables include indicator variables for the European colonizer country. These include British, French, German, Spanish, Italian, Belgian, Dutch, and Portuguese. The data are from La Porta *et al*. (1999) by way of Acemoglu *et al*. (2002).

GDP per capita 1960: Maddison estimates for PPP converted GDP per capita in constant 2007 dollars. Found in Avakov (2010).

GDP per capita 1995: PPP converted GDP per capita in 1995. Data are from the World Bank's World Development Indicators (1999) by way of Acemoglu *et al*. (2002).

GDP per capita 2009: PPP converted GDP per capita in 2005 chain dollars. Data are from the World Bank's World Development Indicators (2012).

Latitude: Absolute value of latitude scaled between 0 and 1. Data are from La Porta *et al.* (1999) by way of Acemoglu *et al*. (2002).

Migration Weighting: Migration weighted (also called "ancestry weighted") measures have been created for urbanization, population density, millennia of agriculture, state history, and technology. Each measure for 1500 development has two migration weighted measures: 1500-2000 CE and 1500-1960 CE.

The 1500-2000 weighting is done with the Putterman and Weil (2010) migration matrix, which estimates the fraction of the year 1500 ancestors of each country's 2000 CE population that lived within the contemporary borders of each country. Migration weighting simply assigns weights to the 1500 measures of development of the source countries proportionate to their ancestry shares. For example, if 50% of the ancestors of Country X's year 2000 population lived in Country Z in 1500 and if there were no other sources of migrants to Country X between 1500 and 2000, then Country X's migration weighted measure of historical development will give equal weights to the (unweighted) measures of countries X and Z.

Migration weighting for 1500-1960 uses migration data for 1960-2000 from Özden et al. (2011) to adjust the migration matrix of Putterman and Weil (2010). Özden *et al*. (2011) list the numbers of migrants between each pair of countries between 1960 and 2000. Using these numbers and population estimates for 1960 and 2000 and assuming the ancestry shares for 2000 in Putterman and Weil (2010) to be accurate, we work out corresponding year 1500 ancestry shares for each country's population as of 1960. For example, a non-trivial fraction of the US's population is derived from Mexican immigrants since 1960. In order to remove this portion of the population to create population compositions for

1960 based on historic origins, it is incorrect to simply allocate less of the US's population to Mexico. This is due to the fact that the Mexican population is derived from a number of source populations, most importantly: Spain, Mexico, and a number of African countries. Therefore, when removing Mexican immigrants from the 2000 population, we assign these immigrants to the 1500 source countries with the use of Putterman and Weil migration matrix.

For both weighting measures, we have incomplete country data for our historic measures of development. If a country's weighting is incomplete due to a lack of data for source countries, we perform one of two actions: 1) If less than 10% of a country's population's ancestors lived in source countries for which we lack the historic development measure in question, we reweight the country's composition based on the source countries for which we have data and calculate a weighted average accordingly. 2) If data are missing for countries accounting for more than 10% of a country's year 1500 ancestors, we exclude the country from the sample.

Millennia of Agriculture: The number of millennia a country has practiced agriculture until 2000 CE. These data are from Putterman and Trainor (2006).

Population Density in 1500: Total population relative to arable land. Data are from McEvedy and Jones (1978) by way of Acemoglu *et al*. (2002).

Religion: Religion variables include the percent of a country belonging to the following religions: Roman Catholic, Protestant, Muslim, and "Other". The data are from La Porta *et al*. (1999) by way of Acemoglu *et al*. (2002).

Resources: Resource variables include indicators for being landlocked, an island, or whether a country has produced coal since 1800. These data are from Parker (1997), DK Publishing (1997), and World Resource Institute (1997) and Etemad and Toutain (1991), respectively. The percent of the world's gold deposits in 1995, the percent of the world's iron deposits in 1995, the percent of the world's zinc deposits in 1995, the percent of the world's silver deposits in 1995, and thousands of barrels of oil reserves in 1995 are also included in resources. These data are from Parker (1997). All data are by way of Acemoglu *et al*. (2002).

State History in 1500 CE: An index of state antiquity for the period 1 CE to 1500 CE. Forms of institutional organization are assigned a hierarchical value between 0 and 1 for each 50 year period. These data are then aggregated to form the state history index. The data are from Putterman (2012).

Technology in 1500 CE: An index capturing state-level development in agriculture, transportation, military, industry, and communications in 1500 CE. The presence of a technology is typically assigned an ordinal value of either 0 or 1. The individual technology scores are then aggregated to form the index. Data are from Comin *et al*. (2010).

Urbanization in 1500: Fraction of the population in 1500 CE living in an urban area with a population minimum of 5,000. Data are from Bairoch (1988) and Eggimann (1999) by way of Acemoglu *et al*. (2002).