Why Not In *Australia*?

Economic Growth in the Age of Mass Migration

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We offer an historical account of the comparative development of the American and Australian economies over the nineteenth century. Both were resource-rich, high-income settler economies that are often compared. In the mid-nineteenth century, Australia enjoyed the highest GDP per capita in the world but lost her preeminent distinction to America by the century's end. In the United States, endogenous technological and organizational change induced by its much larger market produced a more rapid rate of economic growth. America's advantage lay in her head start. Australia joined the club of settler economies too late to capture the full potential of her natural resource endowments in the nineteenth-century environment.

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The title of our paper is inspired by Paul M. Romer's widely cited article, "Why, indeed, in America?" In that article Romer notes that, according to neoclassical growth theory, differences among countries in their levels of income and rates of economic growth should be explained in terms of exogenous differences in rates of saving and in investments in education. As he points out, however, this framework fails to explain differences in growth rates between Britain and the United States. In Romer's words:

> …differences in saving and education do not explain why growth was so much faster in the United States than it was in Britain around the turn of [the

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> twentieth] century. In 1870, per capita income in the United States was 75 percent of per capita income in Britain. By 1929, it had increased to 130 percent.[1]

Romer dismisses differences in educational attainment or in the savings rate as explanations for the relatively more rapid ascendance of the American economy. The improvements in the educational attainment of the British and American labor forces were comparable and any differences in savings rates bore little correspondence to differences in capital accumulation since a high proportion of British savings were invested abroad. Indeed, the United States was a primary destination for British foreign investment.

The point of departure for our own study is that we believe that the same conclusion – that is, that neoclassical growth theory is too spare and that history matters – can be drawn from a comparison of the growth experiences of the Australian and American economies over the late-nineteenth and early-twentieth centuries. In 1870, per capita income in the United States was only 74 percent of that in Australia. By 1929 it had increased to 131 percent.[2] At the same time, advances in Australian educational attainment grew apace with those in the United States and, like the United States; much of Australian domestic saving was heavily supplemented by direct foreign investment from abroad.[3] Real gross domestic product per capita for Australia and the

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[1] Romer, Why, indeed, in America?, p. 202. Romer's calculations are based on Maddison's 1995 real gross domestic product (GDP) per capita estimates. See Maddison, *Monitoring the world economy*, pp. 194-7. Revisions by Maddison in 2003 suggest that the relative improvement in U.S. real per capita GDP may not have been as great as the earlier figures suggest. See Maddison, *World economy*, pp. 72-5. Using Maddison's revised numbers Romer's statement would have to be rewritten to read as follows: "In 1870, per capita income in the United States was 76 percent of per capita income in the *United Kingdom*. By 1929, it had increased to 125 percent." Nonetheless, Romer's basic point retains its validity. We might add, however, that because of the greater magnitude of the depression in the U.S., the relative standing of the U.S. in 1933 was 91 percent and the U.S. did not recover to 125 percent of the U.K. until 1942. See Maddison, *The world economy*, Tables 1C and 2C, pp. 59-63 and 87-8.

[2] Calculated from Maddison, *World economy*, Table 2c, pp. 87-8. Because of the greater severity of the Great Depression in the United States, per capita GDP was only 99 percent of Australia's in 1933.

[3] Butlin, Australian national accounts, p. 126.

United States according to Maddison's recent estimates are shown in Figure 1. The figure displays two alternative Australian estimates for 1861-1911. The heavy line is based on the recent work by Bryan Haig.[4] The alternative is based on the better-known estimates of Noel Butlin.[5] For the period 1911-1938, Maddison accepted the series proposed by Haig, but "would like to see more detail of [Haig's] evidence before adopting his estimates for 1861-1911."[6] In any case, according to all three estimates, Australia was in advance of the United States in 1870 but fell behind by the onset of the First World War.

(Figure 1 about here.)

Perhaps an even clearer indicator of differences in the development of the Australian and American economies during in this time period is the share of primary products in total output. Primary products played similarly large roles in the Australian and U.S. economies as late as 1870. The respective shares of total commodity production in the two countries were 66 and 54 percent. In 1929, primary products still accounted for almost half (46 percent) of Australian commodity output whereas in the U.S. their share had fallen to 11 percent.[7] Over the period the United States had developed a diversified group of internationally competitive manufacturing

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[4] Haig, New estimates.

[5] Butin, *Australian domestic product.*

[6] Maddison, *World economy*, p. 75. We favor the Haig series, which also gains support from the work of McLean and Pincus, Did Australian living standards stagnate?

[7] Primary products as a share of total output calculated from Vamplew, *Australians*, Table ANA 50-64, p. 133; and Gallman, Commodity output, Table 4, p. 26. Also see Carter, Sutch, *et al.*, *Historical statistics*, Table Ca192-207.

industries while Australia remained largely tied to its natural resource base (Figure 2).[8] In other words, the American economy *industrialized* over the course of the nineteenth and early twentieth century; while the Australian economy moved toward industrialization but its development was far more limited.

(Figure 2 about here.)

Drawing on the work of a number of economic historians, Romer argues that the ascendance of the American over the British economy in the late nineteenth and early twentieth centuries was due to its combination of resource abundance and large markets.[9]

> [L]arge markets – which were also populated [in the U.S.] by relatively homogeneous consumers – mattered, because they encouraged firms to incur the design and setup costs necessary for long production runs of standardized goods assembled from interchangeable parts. As Rosenberg emphasizes, they also mattered because they induced large markets for specialized machines. The differences in incentives created by market size were presumably of great consequence when populations differed by a factor of 10 or 20 and flows of goods between nations were still relatively limited.[10]

We argue that this point is directly relevant to the comparison between Australia and the United States. Both countries laid claim to large, thinly-populated continents that were rich in

[8] Major primary commodities as a percentage of total commodity exports calculated from Mitchell, *International historical statistics*, Table F-1, pp. 539, 542, 545, 558 and 559 and Table F-3, pp. 617, 618, 622, 628, 649, and 650. The marked decline in primary commodities as a share of total Australian exports between 1893 and 1902 was due to a severe drought that substantially reduced wool, grain, and meat production; Butlin, Australian national accounts, p. 127.

[9] See Rosenberg, Technological change, Why in America?, and Commercial exploitation of science; Sokoloff, Inventive activity; Wright, Origins of American industrial success; and Abramovitz and David, Convergence and deferred catch-up.

[10] Romer, Why, indeed, in America?, p. 205. Romer cites Rosenberg, Technological change, and Why in America?

minerals and other natural resources. Even the timing of their resource discoveries was closely coincident. The most well known example is the discovery of gold in the Sierra Nevadas of California in 1849 that prompted successful explorations in New South Wales and then Victoria beginning in 1851.[11] Both countries inherited their legal and social institutions from England. Both countries were "Settler Societies," that is, nations created through a process of large-scale migration from well-established states to land-abundant, politically unorganized regions. The settlers overwhelmed the indigenous peoples and established institutions designed to promote their own economic, political, and social well-being. The trajectories of their economic and social development often proceeded in parallel as a result of similar dynamic interconnections with the world economy. Most prominent among these were fluctuations in world commodity prices, waves of intercontinental immigration, and oscillations in the flow of foreign capital.

Even within the category of "settler economies," scholars describe Australia and the United States – and also Canada and New Zealand – as a group apart. Daron Acemoglu, Simon Johnson, and James Robinson highlight the distinctiveness of the long-term development of the United States, Canada, New Zealand, and Australia as compared with other countries around the world.[12] They refer to these four countries as a group as the "neo-Europes" and open their critique of the role of geographic factors in economic development by highlighting the economic success of this group today relative to societies that were seemingly more developed 500 years ago. Angus Maddison refers to the same four countries as the "Western Offshoots." His per capita real GDP estimates suggest a 22-fold increase in this measure of economic performance

[11] Potts and Potts, *Young America*, p. 4, credit Edward Hammond Hargraves, "newly returned from California," with the first gold discovery in Australia in an area north of Bathurst, NSW, just to the west of the Blue Mountains, in 1851. Much more substantial gold deposits were discovered soon after in Victoria.

[12] Acemoglu, Johnson, and Robinson, Reversal of fortune.

between 1820 and 2001 – the most rapid rate of increase of any of his country groupings and a rate that put them well ahead of the rest of the world by the end of the period.[13]

Yet there was one enormous difference between Australia and the United States. In 1820, when Australia had a population of 334,000, the United States was home to nearly 10 million.[14] Moreover, as Romer notes, as early as 1820 the United States had a "transportation system and a commercial infrastructure that effectively linked most of its citizens into a truly national market."[15] In other words, the American market encompassed its entire population even as early as 1820. By 1870 the Australian population had risen to 1.8 million, but by then the American population was 40 million.[16]

Why were the populations of these two seemingly similar countries of such different sizes? Demographers distinguish among three sources of population size and its increase: initial population, net natural increase, and net immigration. In the case of the Australia-U.S. comparison the difference in population at 1820 and later is explained by two of these elements, initial population and immigration. Net natural increase was high in both countries. Our own preliminary calculations suggest child-woman ratios of greater than 0.8 for Australia in the middle third of the nineteenth century and above 0.6 for both countries throughout the nineteenth century. These levels are very high by international, historical standards, even for developing countries today. Since mortality in both Australia and the United States was relatively low, we

[13] Maddison, *World economy*, pp. 87-8.

[14] Maddison, *World economy*, p. 81.

[15] Romer, Why, indeed, in America?, p. 204.

[16] Maddison, *World economy*, p. 81.

conclude that it would have been difficult if not impossible for Australia to have added much more population by net natural increase alone.[17]

Both Australia and the United States were major immigrant-receiving countries during the nineteenth and early-twentieth centuries. Between 1815 and 1930 Australia received an estimated 3.4 million immigrants from abroad while the United States received 35.1.[18] The roughly ten-fold difference in the number of intercontinental immigrants arriving in the two countries is roughly proportional to the difference in the resident populations of the two countries.[19] We show this in Figure 3, where we plot immigrant arrivals to Australia and the United States as a share of the respective resident populations at the time.[20] While the series for Australia is more volatile than that for the United States, the order of magnitude in the two countries is similar. By this standard, the Australians were quite successful in attracting immigrants. The lower influx of migrants to Australia than to the United States reflected and maintained the initial population differences evident in the early years of the Age of Mass Migration.

(Figure 3 about here.)

[17] These child-women ratios exaggerate the difference in the rates of natural increase because of the unbalanced sex ratio in Australia. In 1825 Australia had an adult sex ratio over 4, while that of the U.S. was nearly balanced. See Vanplew, *Australians*, p. 25.

[18] Baines, *Emigration from Europe*, p. 2. Baines' estimate for the United States is the sum of the Europeans who came directly to the United States plus 2.5 of the 4.7 million who initially emigrated to Canada before coming to the United States.

[19] Williamson, Migration to the New World, and Pope and Withers, Wage effects.

[20] There is a gap in U.S. immigration data for 1860-66 spanning the U.S. Civil War. No data is presented for Australia for 1915-1919 because troop movements associated with World War I distort the figures.

The small size of the Australian population in 1820 is easily explained by differences in the timing of first settlement. The first permanent English settlement in America occurred in Jamestown Virginia in 1607; the first permanent English settlement in Australia occurred in Sydney in 1788. Thus, at the time of Australia's first settlement America was already an independent nation with a population of almost four million and over 150 years of colonial history.

If Romer is right that scale was crucial to economic development in the nineteenth and early twentieth century, then Australia's only option for speeding its rate of growth and industrialization during this period was to attract more immigrants. Thus, the question "Why Not in Australia?" becomes "Why Didn't Australia Attract More Immigrants?" The available literature offers four different (though not mutually exclusive) answers to the question. These are the high cost of the transoceanic voyage to Australia, Australian land policy, the government's policy toward immigration, and limitations in the "absorptive capacity" of the Australian economy.

TRANSOCEANIC TRANSPORTATION COSTS

The cost of passage to Australia during the Age of Mass Migration was substantially greater than the cost to immigrant-receiving countries in the Americas. In the first half of the nineteenth century sailing ships departing Europe could reach the United States in an average of 44 days but because of the sensitivity of sail ships to weather conditions, there was considerable variation around the average. J. D. Gould's survey of transatlantic shipping records reveals that voyage length ranged between 27 and 88 days.[21] The voyage to Australia required three to four

[21] Gould, European inter-continental emigrations, p. 613.

months and the range of travel times was considerably greater.[22] Given these substantial differentials in both the average and range of travel times to the Americas as compared with Australia it is not surprising that a number of studies have found transportation costs help account for differences in the flow of migrants to the two countries.[23]

Yet while high transportation costs undoubtedly deterred migration to Australia, we are hesitant about giving it a featured role since the relative cost of transportation to Australia fell over the nineteenth century but her share of international immigrants also fell instead of rising as a transportation-driven explanation would lead one to expect.

The speed, comfort, safety, regularity, and accessibility of transoceanic passenger travel increased considerably over the nineteenth century, especially after the introduction of the steamship. Gould estimates the magnitude of these improvements for the transatlantic crossing as follows:

> The average time from Europe to U.S.A. in 1867 was still 44 days by sailing vessel, but in that year the steamers could do the trip in about 14 days. The White Star line had cut this to 9 days 16½ hours by 1875, and to 7 days 15½ hours by 1890. Before World War One Cunard's *Mauretania* has crossed the Atlantic in less than 4½ days. (She was not, of course, typical of emigrant ships, though she did carry large numbers of steerage passengers.).[24]

Because the time spent in port is unlikely to have dropped as rapidly as top travel speeds and because shorter travel times obviate the need to stop enroute for restocking, we suspect that

[22] Haines, Nineteenth century, p. 3.

[23] Kelly, International migration; Pope, Contours; and Taylor, Mass migration.

[24] Gould, European inter-continental emigrations, p. 613.

the reduction in travel time between Europe and Australia was proportionately greater than that between Europe and America. *Ceteris paribus*, such a relative reduction in transportation costs ought to have attracted an increasing share of European immigrants to Australia as compared with the United States over the second half of the nineteenth century. But in fact, the trend in the relative attraction of immigrants was toward the United States, not Australia, during this period.

LAND POLICY

Brinley Thomas suggested that differences between Australian and American land policy may have influenced the relative attractiveness of the two countries for immigrants. He points to the powerful influence of Edward Gibbon Wakefield's doctrines which urged the government to sell colonial lands at prices that were high enough to cover the cost of assisting immigrants in their passage to the colonies. This policy was in stark contrast to the American policy of putting federal land into the hands of settlers at very low prices. In Thomas's view, the high cost of Australian land strongly discouraged immigration to that country. Thomas quotes approving from the writings of Thomas Brassey who made the point in a colorful fashion.

> New South Wales alone contains 375,000 square miles; and a large proportion of this unoccupied territory possesses every natural advantage for agricultural development. But so long as the price of land in our Australian colonies remains at £1 an acre, when 160 acres can be obtained in America for nothing, it is not likely that an English tenant farmer, with only a small capital at his command, will undertake the much longer and more expensive voyage to Australia, in preference to the shorter and infinitely cheaper passage across the Atlantic to America.[25]

[25] Brassey, *Work and wages*, p. 208, as quoted in Thomas, *Migration*, p. 204.

We have two concerns with this argument. First, the price of land is only a small portion of the total cost of farm making. Far more important are the expenses of land-clearing, home and barn building, livestock and seed, and the expense of sustaining oneself while awaiting the fruits of the first year's crop. Our second concern is that, perhaps for the reasons just stated, even in the United States where the price of unsettled farmland was low, few immigrants pursued this occupation. In 1850, for example, when over half of the gainfully-occupied native born white males were farmers, fewer than 20 percent of foreign-born males were engaged in this sector. Instead, the foreign-born were concentrated in various manufacturing operations and in the construction of roads, railways, and other internal improvements.[26]

IMMIGRATION POLICY

The infamous "White Australia" policy almost certainly discouraged immigration from Asia and Southern and Eastern Europe, but can it account for the differentially smaller flows of immigrants to Australia relative to the United States? We begin with some background.

With one important exception, the United States conducted an essentially open borders immigration policy until the 1920s when the passage of the Quotas Acts imposed stringent numerical and country-of-origin restrictions. The exception was policy toward Asians, put into effect by the Chinese Exclusion Act of 1882. After a surge of Chinese immigration in response to the California gold rush during the 1850s and the railroad construction boom during the 1870s, the Act of 1882 barred Chinese laborers. The number of Chinese admitted dropped from almost 40,000 in 1882 to less than 300 two years later. The *de facto* exclusion of Japanese immigrants,

[26] Carter, Sutch, *et al.*, *Historical statistics*, Tables Ba1131-1144 and Ba1145-1158.

accomplished by the "Gentleman's Agreement" of 1907-8, resulted in a similar drop in the number of immigrants to the United States from Japan.[27]

Australian immigration policy regarding entry restrictions developed in a fashion that was similar to that in the United States.[28] After Britain secured its claim to the continent and no longer viewed settlement by nationals of competing European powers as a threat to its sovereignty, it essentially opened the boarders of Australia to settlers from around the world. According to James Jupp, the governing principle was that "anyone could enter Australia freely but that only the British would actually be paid to do so…"[29] This principle remained in effect until the 1880s. British immigrants still dominated in the flow, but, especially during the 1850s gold boom, Australia attracted many Americans, Germans, and Chinese as well.

The arrival of the Chinese prompted the first Australian measures designed to selectively restrict migration. In 1855, New South Wales and Victoria passed legislation limiting the number of Chinese passengers that any one vessel could bring and imposing an entrance tax on Chinese for which the ship captain was made responsible.[30] Over time similar policies were adopted by the other colonies so that by 1886, "…a barrier to restrict the immigration of Chinese was erected all round Australia with the exception of the Northern Territory."[31] The arrival of immigrants from India, Ceylon, Afghanistan,

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[27] Barde, Carter, and Sutch, Immigration.

[28] For a history of American immigration restrictions see Barde, Carter, and Sutch, Immigration.

[29] Jupp, From free entry, p. 16.

[30] Willard, *History of the White Australia policy*, p. 65.

[31] Willard, *History of the White Australia policy*, p. 67.

Syria, and Japan during the 1890s sparked a movement to restrict all non-Western-European people, not just the Chinese.[32]

Shortly after Federation in 1901, Australia passed the Immigration Restriction Act that allowed the country to exclude anyone deemed unsuitable. James Jupp writes:

> In contrast to previous colonial acts, which had specifically mentioned the Chinese, this power of exclusion was not defined in racial or ethnic terms. Such terms were confined to Pacific Islanders … and to nominated groups excluded from the possibility of naturalization…. Exclusion as immigrants was achieved by a combination of administrative discretion and of an understanding with the shipping companies, which had a monopoly on passenger movement to Australia. Nowhere was White Australia entrenched in statute form, and as late as the 1960, ministers could proclaim (truthfully and untruthfully at the same time) that there was 'no White Australia policy'.[33]

In his comparison of immigration flows to Australia and Argentina, Alan Taylor argues that Australia's restrictive immigration policy was the principal reason why immigration rates were much higher in Argentina than in Australia and why immigration contributed so much more to Argentine population growth.

> The key finding in the chapter is that by a policy choice which excluded migrants (whether for reasons of race, culture or economics) a country such as Australia could inhibit immigration by muting the response of low-wage workers to potential wage-gap gains. In contrast, Argentina, although her migrants were no more responsive to wage

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[32] Willard, *History of the White Australia policy*, p. 99.

[33] Jupp, From free entry, pp. 18-9.

> gaps than those going to Australia, inevitably faced larger inflows … simply by opening the door to the poor masses of southern Europe.[34]

Can the same argument be applied when comparing Australia and the United States? In part, the answer is yes. In 1900, Italians accounted for 4.7 percent of the foreign-born population of America but only 0.7 percent of that in Australia. At the same time, the British accounted for 26.9 percent of the foreign born population in America but fully 79.8 percent of that in Australia.[35] It is certainly plausible that if Australia had been more open to immigration from Southern Europe it would have attracted more immigrants overall.

Yet this cannot be the entire story. During the nineteenth century Australia attracted not only fewer immigrants from Southern and Eastern Europe, but also fewer immigrants from the British Isles. Moreover, the difference in the number of U.S.- verses Australia-bound emigrants from the British Isles was increasing over time. This differential is displayed in Figure 4.[36] The graph plots annual data collected by the immigrant-receiving countries for the period 1820 through 1900. From an historically strong attraction for Australia during the 1850s gold rush, the Australian share of British emigration to the two destinations fell precipitously so that by the 1890s the number of British immigrants to Australia was less than 20 percent of the number who emigrated to one of the two receiving countries.

(Figure 4 about here.)

[34] Taylor, Mass migration, p. 92. The ellipses in the quotation signal the omission of the words "and the threat of greater demographic burdens." We do not know what "demographic burdens" Taylor has in mind. Our analysis emphasizes demographic benefits.

[35] Carter, Sutch, *et al.*, *Historical statistics*, Table Ad354-443, and Vamplew, *Australians*, pp. 12-13. Note that the census date for the United States is 1900 while that for Australia is 1901.

[36] Data on immigration to Australia by country of origin appears not to be available in Australia sources for the period 1901-1929.

Moreover, the share evidence tells only part of the story. The volume of British emigration varied greatly from year to year. Since volume, not share, is relevant for Romer's economies of scale argument, we present in Figure 5 annual estimates of the number of British Isle emigrants to Australia and the United States. Overall, the bulk of British Isle emigrants chose America. The choice of America over Australia was especially pronounced during the Irish famine era when the mass exodus from the British Isles was at an all time high. The figure also displays the enormous emigration from the British Isles during the latter part of the nineteenth century, most of which was directed to the United States as opposed to Australia. The implications for population composition by country of birth are presented in Figure 6.

(Figures 5 and 6 about here.)

ABSORPTIVE CAPACITY

A fourth suggestion in the literature is that there may have been some absorptive constraints that would prevent immigration flows from becoming too large in any given year relative to the resident population. In this view, Australia did not attract more immigrants because it did not have the capacity to sustain more immigrants than it did, in fact, accept. Gould argues this point explicitly when he writes:

> The truth is that the attractiveness of the U.S.A. as a country of immigration is to be understood and explained in terms of its ability to absorb relatively large numbers of immigrants *because of its own size*.[37]

[37] Gould, European inter-continental emigrations, p. 605. Emphasis in the original.

Gould does not describe what such constraints might be, but it is not difficult to imagine them. We suggest the following: the short-run limitation to the carrying capacity of passenger steamers, temporary job shortages as immigrant flows swamp local labor markets, housing shortages, and social and political hostility to too many, too fast. Evidence from conditions in the South Australia gold fields during the 1850s is consistent with this view. Contemporary accounts describe tent cities springing up in the outskirts of Melbourne where clean water, sanitation, and other urban amenities were poorly provided. Employment was perhaps an even more important consideration. The nineteenth century Australian economy remained tied to its extractive base. This was a sector in which the elasticity of output with respect to labor inputs was relatively low. For wool and wheat, the primary export commodities at this time, the primary determinant of output was sheep raised or acres sowed, but not necessarily agricultural laborers employed. By contrast, international demand for more labor-intensive products such as textiles and machinery can be presumed to have been more sensitive to wage rates and therefore labor supply. Absorptive capacity arguments are therefore strongly tied to arguments relating to the industrial development of the economy.

TIMING, OR THE IMPORTANCE OF HISTORY

As we noted earlier, the United States already had a population of almost four million and more than 150 years of colonial history at the time Australia was first settled. At the close of the Napoleonic Wars, the European population of Australia was less than 15,000; in America more than twice this number were employed in canal-building alone.[38] The strong American demand for laborers on its vast internal improvement projects of the time prompted employer efforts to recruit labor in Europe. Way writes:

> Engineers from the Erie Canal made a fact-finding trip to England in 1816, and news of opportunities in North America percolated among the navies. The following year, Canvass White, a New York engineer, returned to England and recruited a force of experienced Irish workers. By the end of the 1818 season there were significant numbers of Irish on the Erie. The seeming plethora of jobs and higher wages in North America made migration an attractive proposition for both experienced canallers and labourers in general, especially as Ireland and Britain slid into agricultural crisis in the 1820s. To tap this labour supply, canal companies and contractors sent over recruiting agents, and several states set up immigration commissions.[39]

As a result of these solicitations and the subsequent chain migration that they launch, the United States received 323,000 immigrants from Great Britain and Ireland (with over two-thirds of them from Ireland) during the twenty years following 1820, when American immigration statistics first appear, and before the first waves of famine migrants arrived. The total for the next eleven years, which includes the peak years for the famine migrants, was 1,363,000 (with over three-

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[38] Compare Vamplew, *Australians*, p. 25 and Way, *Common labor*, p. 55.

[39] Way, *Common labor*, p. 94.

quarters from Ireland).[40] Over the same two periods Australia received 64,000 and 143,000 U.K. migrants respectively.[41] Not only are the Australian totals lower in both periods, but also importantly, Australia received a small number of famine migrants even in comparison to its base population. These calculations suggest that Australia missed out on an initial flow of immigration that the United States enjoyed. Perhaps it was this initial shock that first triggered the Smith-Romer effects that were then reinforced and sustained by the other mechanisms we have described. The famine-induced immigration events came too early for Australia to benefit. She was too young, too small, and too far away. She had the further misfortune of coexisting with an attractive intervening opportunity in the path of potential immigrants. The U.S., then, with its head start on economic development proved hard to catch. If this suggestion withstands closer scrutiny, we could say Australia joined the club of settler economies too late to capture the full potential of her natural resources.

CONCLUSIONS

We opened this paper emphasizing the similarities between Australia and the United States during the nineteenth century. We conclude by emphasizing their differences. The American economy industrialized over the course of the nineteenth century; and, while the Australian economy moved toward industrialization over the same period of time, its movement was far more limited. We attribute these differences to the timing of their establishment relative to the large-scale intercontinental immigrations of the nineteenth century. The American

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[40] Carter, Sutch, et *al.*, *Historical statistics*, Table Ad106-120.

[41] Haines, Nineteenth century, Table 1.

economy was well enough developed to be able to attract and absorb the large numbers of the first waves of emigrants. These produced relatively more rapid growth of the American economy that, in turn, made it increasingly attractive to later migrants. This self-reinforcing process continued throughout the Age of Mass Migration until the 1920s when restrictive legislation brought the mass immigrant flows to the U.S. to a halt.

If these conjectures withstand the test of additional research, then they have three important implications. First, the current fashion that categorizes Australia, Canada, New Zealand, and the United States as a single type may be appropriate in the twenty-first century, but is quite inappropriate in the nineteenth and early twentieth centuries. The nineteenth century American economy was quite different from that of the other three countries, with Australia, Canada, and New Zealand looking a lot more like Argentina than the United States. Scholarly attention needs to be directed toward developments during the twentieth century, since it was only then that the economic structure of these countries began to resemble that of the United States. Second, the impact of the so-called "White Australia" policy may be overrated. We suggest that Australia would have experienced difficulty in attracting large numbers of European immigrants during the nineteenth century even in its absence. At the same time, our focus on the importance of market size raises an intriguing counter-factual: how would nineteenth-century Australian economic development have looked if the Australians had welcomed the Chinese. Finally we argue that history matters. It was not the timeless characteristics of North American geography or its legal and social institutions that gave the United States the economic edge in the nineteenth and twentieth centuries but its history of early settlement and development. At the time of mass exodus from Europe in the second third of the nineteenth century, the United States was unique in its ability to absorb large numbers of immigrants. That these immigrants chose America instead of Australia was the key to America's industrial success.

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List of Figures:

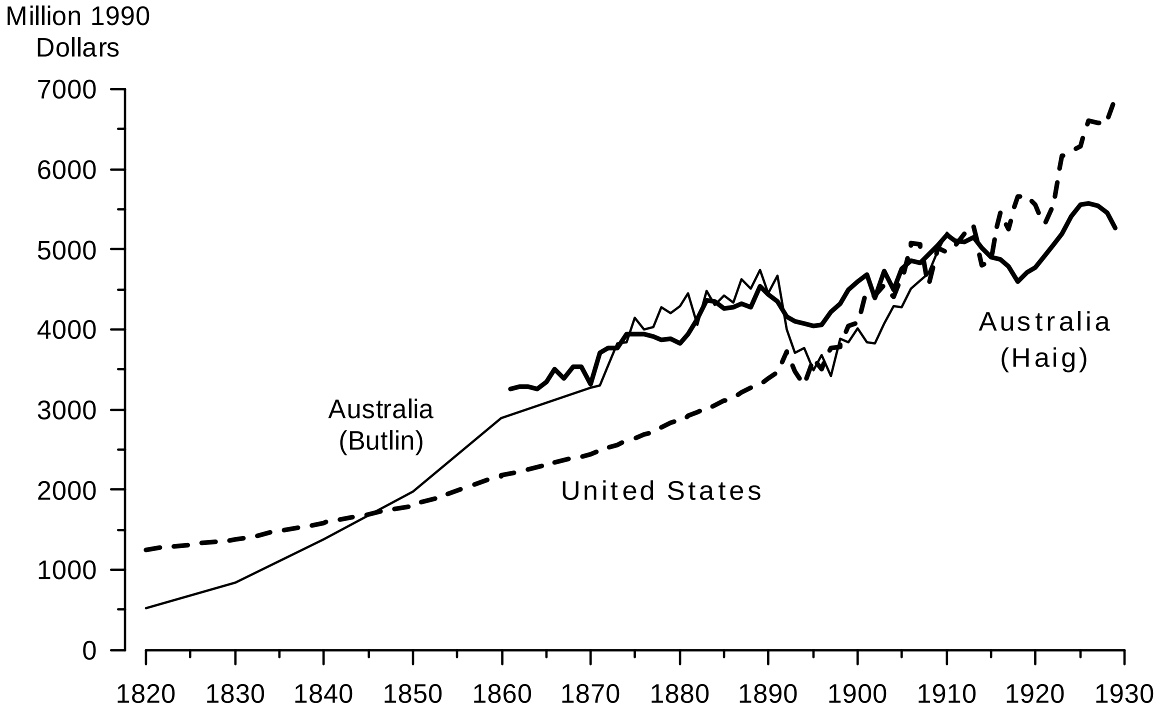

Figure 1. Real gross domestic product per capita, Australia and the United States, 1820-1929

Sources: Maddison, *World economy*, Tables 2c and 2-4.

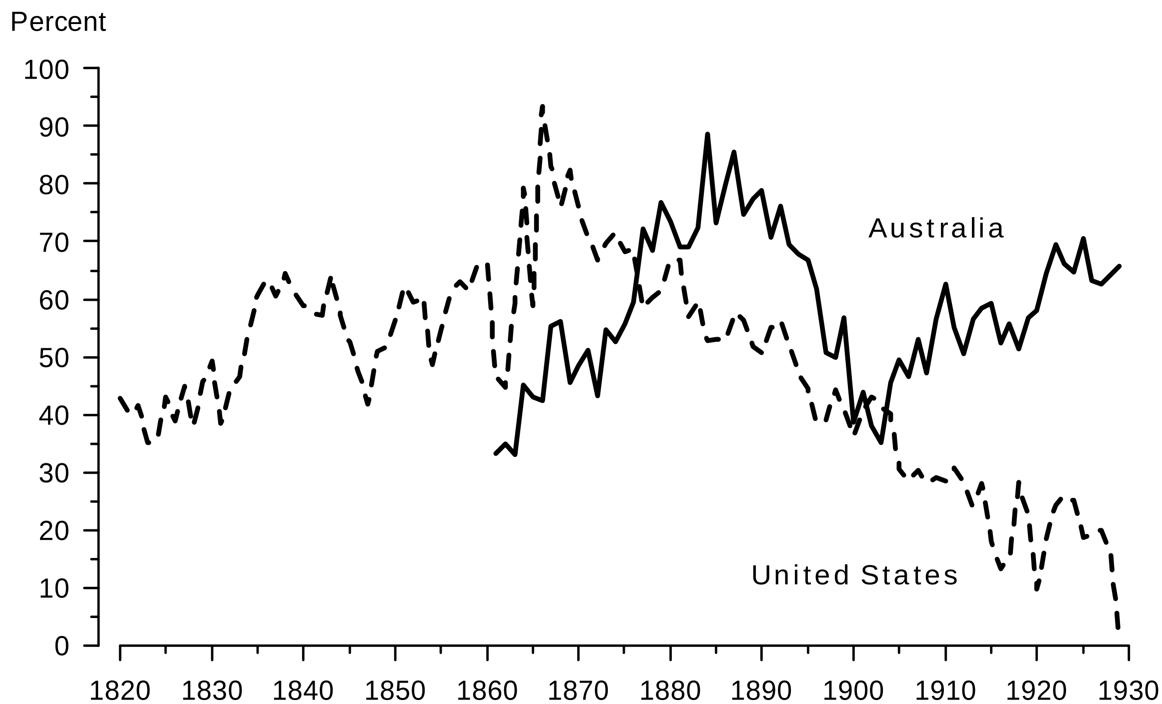

Figure 2. Primary commodities as a percentage of total commodity exports, Australia and the United States, 1820-1929

Source: Mitchell, *International historical statistics*, Tables F-1 and F-3.

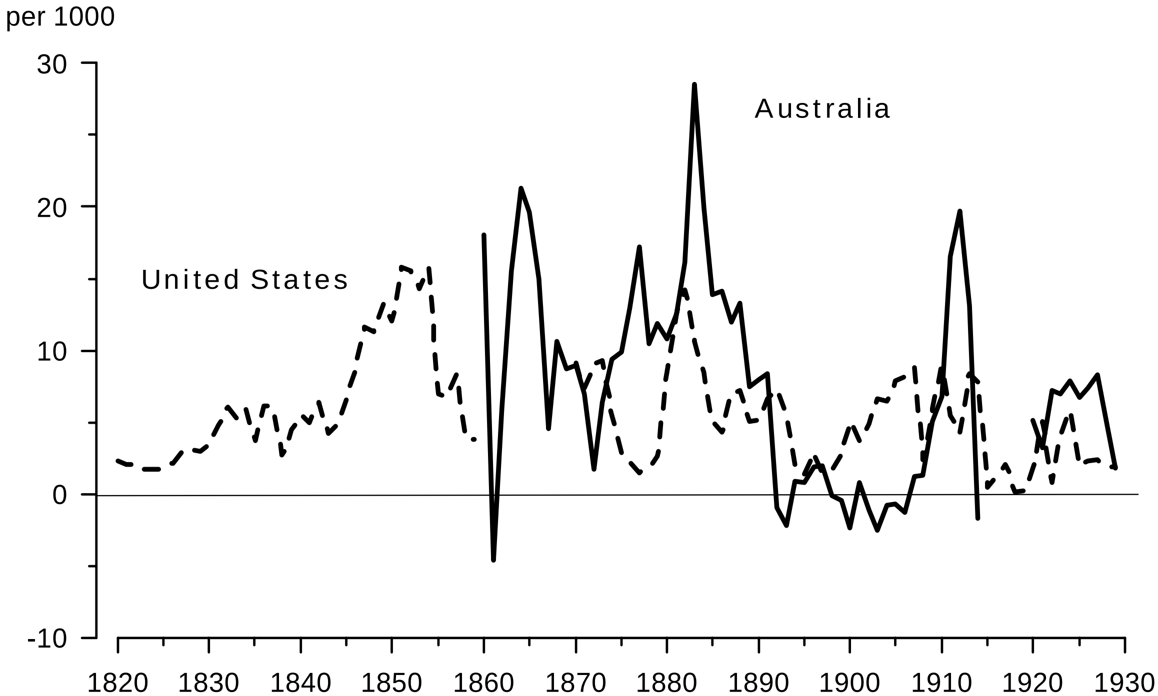

Figure 3. Immigrant arrivals, net immigration per thousand in the resident population, Australia and the United States, 1820-1929

Source: Carter, Sutch, *et al.*, *Historical statistics*, Series Aa7 and Ad16-24, Vamplew, *Australians*, pp 6-7; and Maddison, *World economy*, Table 2a.

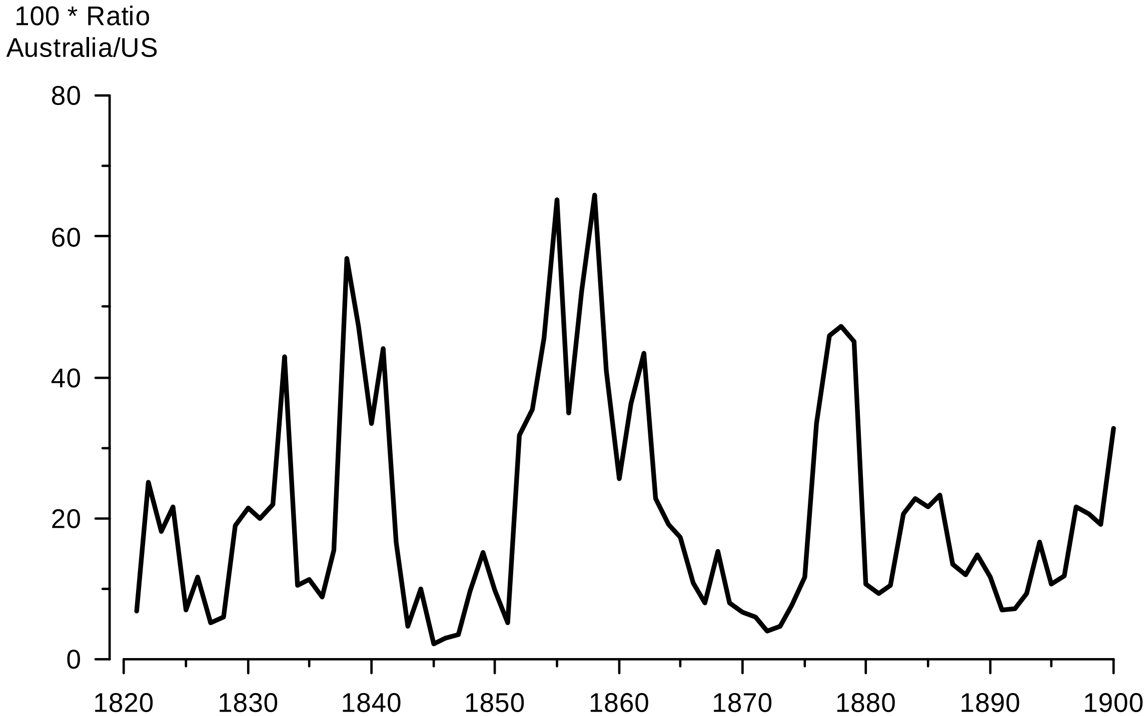

Figure 4. United Kingdom emigrants to Australia relative to United Kingdom emigrants to the United States, 1820-1900

Source: Haines, *Nineteenth century*, Tables 1 and 2; Carter, Sutch, *et al.*, *Historical statistics*, Series Ad106-120.

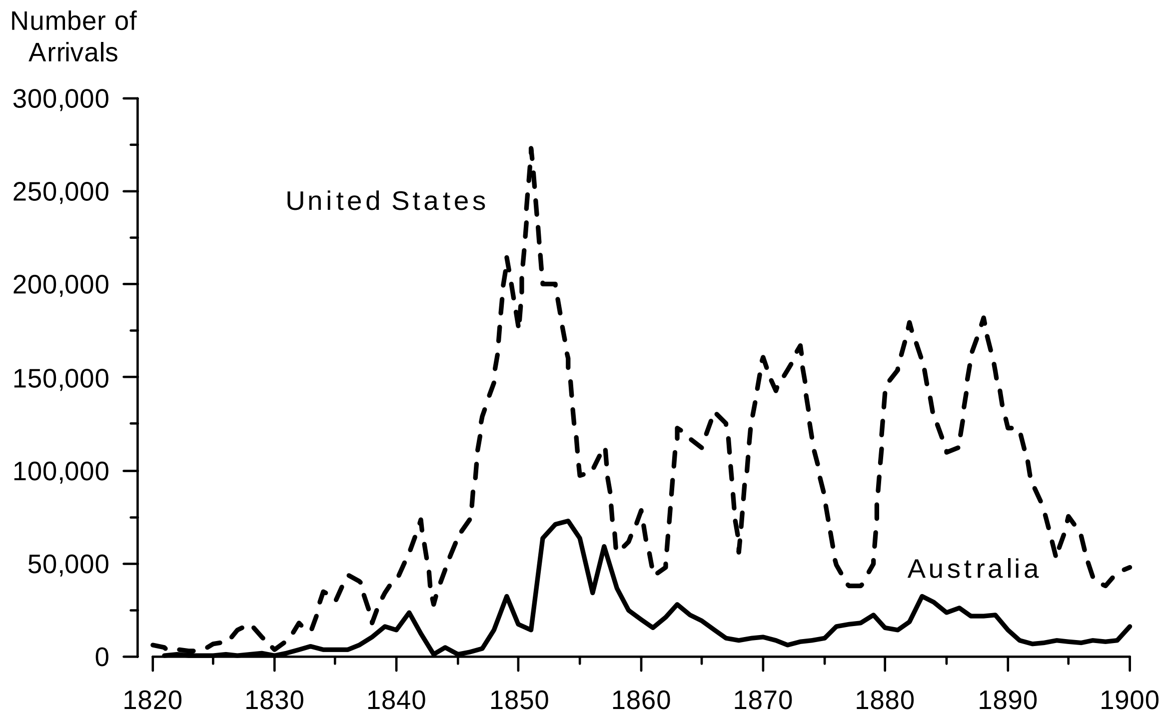

Figure 5. United Kingdom emigrants to Australia and the United States, 1820-1900

Source: Haines, *Nineteenth century*, Tables 1 and 2; Carter, Sutch, *et al.*, *Historical statistics*, Series Ad106-120.

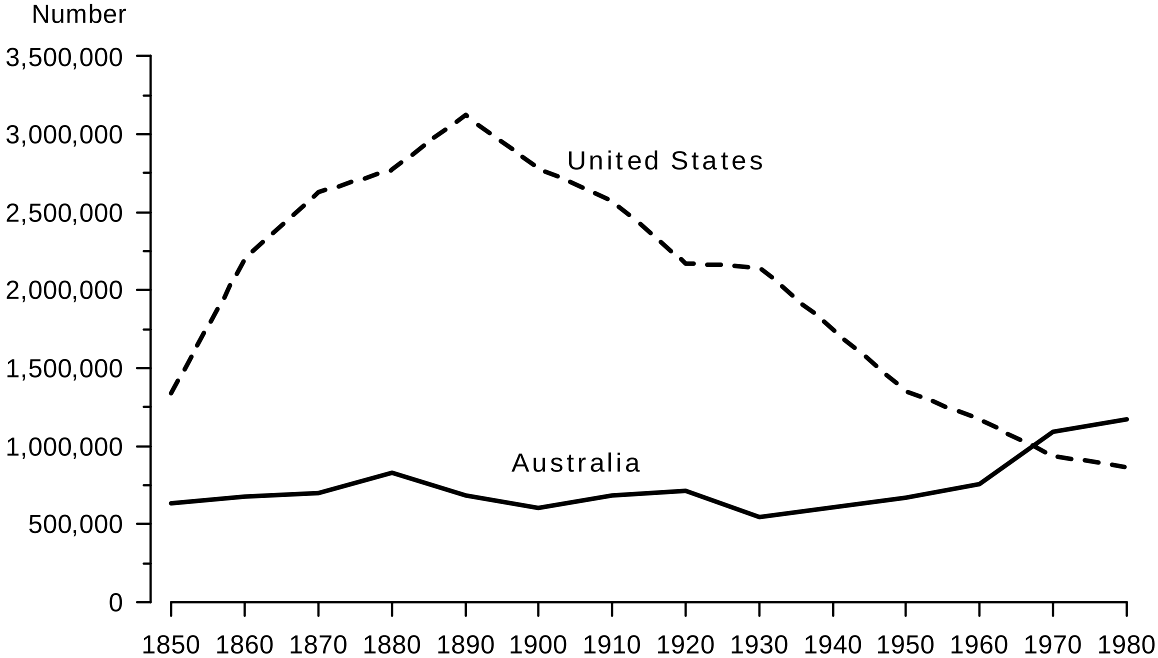

Figure 6. Population born in the United Kingdom by country of residence, 1850-1980

Source: Vamplew, *Australians*, Table IEO 42-54; and Carter, Sutch, *et al.*, *Historical statistics*, Series Ad354-433.