Factor Endowments, Trade Direction, and Growth Performances of the Americas and East Asia in the Nineteenth and Twentieth Centuries

Hongyi Harry Lai

University of California at Los Angeles

Factor-endowment based trade with the leading economy helps to explain the differing growth performances of East Asia and Latin America. Between 1830 and 1945, labor-abundant Britain, the most advanced country, traded heavily with land-abundant Americas, the U.S. in particular. The latter were able to generate faster growth than was most of East Asia. After WWII, however, with Britain's decline and the rise of the land-abundant U.S., labor-abundant East Asia traded more heavily with the U.S. and thus grew faster than did land-abundant Latin America.

Factor-endowment based trade and economic ties with the secondary advanced economy (first the U.S. and then Japan) played important roles in the pre-WWII growth of Japan, Southeast Asia's growth in the 1970s and the 1980s, and its economic crisis in the mid-1990s.

E-mail: hlai@ucla.edu

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Hongyi Harry Lai, University of California at Los Angeles

INTRODUCTION

The stark contrast between the successful industrialization of the East Asian economies and the sluggish development of the Latin American countries in the last four decades has become a fascinating research topic. The mainstream literature has largely attributed the success of the Four East Asian NIEs (newly-industrialized economies), namely, Hong Kong, Taiwan, Korea, and Singapore to their peculiar characteristics. These traits include export orientation, high investment ratios, sound economic policies,[1] respect for education, strong work ethnic,[2] as well as the state's promotion of technocrats and efforts on industrialization and egalitarian income distribution.[3] The mainstream view implies that absence of these factors caused the economic failure of Latin America.

Apart from the mainstream, Lawrence Lau, Jong-Il Kim, and Alwyn Young, and recently Paul Krugman argued that mass inputs of human and physical capital produced rapid growth in East Asia.[4] Their view implied that the inability of the Latin American governments to mobilize these inputs caused the sluggish growth in these countries.

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[1] Kuznets 1988; Balassa 1988; Lee and Naya 1988; and Page 1991.
[2] Oshima 1988.
[3] Lucian Pye quoted in Woo 1990, 423.
[4] Krugman 1994; Young 1994.

Another group of economists argued that geography such as disease-breeding tropical climate, soil-washing tropical rain, or lack of coastal ports had impeded growth of Sub-Saharan Africa, Latin America, and South Asia, but not that of East Asia.[5]

Only a few economists suggested that factor endowments played a role. According to Ranis and Fei, natural-resource-poor East Asia had to export manufactured goods in order to generate foreign exchange for its development. Thus since the early 1960s, the Four NIEs had aggressively developed their manufacturing sectors into an exporting powerhouse. As a result, they had joined the ranks of industrialized countries. Natural-resource-abundant Latin American countries relied on the export of unprocessed agricultural products to generate foreign exchange. Varying terms of trade at the fluctuating external market of these products caused these countries to oscillate between import-substitution and trade liberalization and left them with unfinished industrialization.[6]

The above approaches shed light on the faster growth of East Asia than Latin America in the post-war period. High savings and well-educated labor resulted from an emphasis on education provided necessary physical and human capital for development. East Asian states' mass mobilization of human and physical capital contributed to growth. Governmental intervention paved the way for development as long as it established and enforced the rules for the smooth operation of the market. It failed when it distorted the market. The geography argument makes a good point that unfavorable weathers, such as frequent typhoons and flood, prevented a few Central American

[5] Sachs (1997) summarizes this geography-based argument advanced by David Bloom, Theo Panayotou, Steve Radelet, Jeffrey Sachs, Jeffrey Williamson, and others.
[6] Ranis and Fei 1988, 100-32.

economies and other countries like Bangladesh from utilizing their resources for growth after WWII. Ranis and Fei focused on the linkage between economic policies and factor endowments in East Asia and Latin America after WWII. They could explain why the Four NIEs had larger trade and grew faster than did Latin America in the post-war era.

Nevertheless, all these arguments neglected the impact of the East Asian and Latin American factor-endowments on the trade between these economies with the leading economy. They also neglected the impact of the trade with the leading economy on growth of the Third World countries. As a result, they could not explain why land-abundant North and Latin America and West Africa participated more actively in world trade and grew faster than did most of East Asia between the mid nineteenth century and the early twentieth century. In addition, they could not explain why East Asia except Japan failed to generate fast growth even though most of these favorable social, political, economic, and geographic traits were present during this period. Nor did they explain why in the post-war era East Asia had participated in trade more actively and had grown more rapidly than it did in the last century.

In this paper I suggest that factor endowments are an important, albeit not the only factor in growth of East Asia and Latin America. I argue that the most advanced countries tend to trade with the developing economies in the two regions whose factor endowments complement their own. The latter thus enjoyed larger trade and faster growth than did the other developing countries. Prior to WWII, especially WWI, land-scarce Britain, the leading economy traded heavily with the land-abundant U.S. and Latin America in the developing world. The latter thus grew faster than did most of East Asia. After WWII labor-abundant East Asia, rather than Latin America, was an ideal

complementary trading partner for the land-abundant U.S., the leading economy. The former thus generated phenomenal growth.

In the final section, I expand my argument to the medium-size developing countries and the No. 2 or No. 3 advanced economies in East Asia and Latin America. I propose that factor-endowment-based trade with the No.2 advanced economy helped to explain rapid growth of Japan prior to the WWI, that of Southeast Asia after WWII, and to some extent its recent economic crises.

THEORY

Heckscher and Ohlin identified three production factors, i.e., labor, land, and capital.[7] Ohlin also took into account any possible number (n) of factors.[8] They suggested that in each country the goods made of abundant factors would be less expensive than those made of scarce ones. They theorized that since the ratio of the endowed factors varied across countries, a country would specialize in producing goods mostly made of abundant factors at home, export a portion of the goods, and import goods made of factors scarce at home.[9]

A number of tests have been done on the Heckscher-Ohlin (HO) theorem. In 1953 Leontief looked at the ratio of labor and capital in the U.S. trade and found a paradox which seemed to contradict the theorem.[10] Leamer used Leontief's data to reexamine the paradox. He found that the U.S. would better regarded as a capital rather than labor

[7] Heckscher and Ohlin 1991, 87-88.
[8] Ibid., 95.
[9] Ibid.
[10] Leontief 1953.

abundant country and that the paradox did not exist.[11] In an extensive study Leamer found that the patterns of imports and exports of fifty-eight developed and developing countries in 1958 and 1975 could be well explained by their factor endowments.[12] Thus these studies support a central view of the HO theory that resource endowments explain trade structure.[13] I will apply this HO premise in my paper.

In this paper I propose that the less developed countries (LDCs) in East Asia and Latin America whose factor endowments complement that of the leading economy are more likely to grow rapidly than are other LDCs. This hypothesis is based on three premises. The first premise is that the LDCs whose factor endowments complement that of the leading economy tend to have larger trade with the latter and larger trade than do the other LDCs. The HO theorem suggests that the endowments of developed and developing countries determine the pattern of trade between them. Should the theorem and my premise stand, we will find that the land-abundant Americas traded more with the labor-abundant Britain prior to the WWI, and labor-abundant East Asia traded more with the land-abundant U.S. after WWII. My following discussion indicates that this is indeed the case. For the sake of simplicity, I use labor, land, and capital in this paper.

The second premise is that the LDCs trading more with the leading economy than do the other LDCs will grow faster. This is so because of three positive effects of trade.

First, trade can not only expand production and increase national income, but can also generate dynamic change in comparative advantage. Heckscher, Ohlin, and Adam

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[11] Leamer 1980.
[12] Leamer 1984.
[13] This factor-abundance theory is a relaxed version of the HO model. Two studies tested strict HO hypotheses using fewer factors in fewer countries than in Leamer 1984. The findings of both studies seemed to favor a relaxed version of the HO theory. See Bowen et al 1989, pp. 791-2, 805; and Davis et al

Smith suggested that after trade a country shifted its under-used yet abundant resources into the production of goods. It then used the surplus of these goods to exchange with other countries for goods made of scarce factors at home. Thus trade led to more efficient use of resources and higher national income.[14] Romer suggested that with trade firms could specialize in production of intermediate inputs, resulting in less expensive intermediate inputs and hence faster economic growth.[15] Finally, a country can become industrialized by upgrading its comparative advantage from resource-intensive exports, to unskilled labor-intensive exports, to skilled labor-intensive exports, to capital-intensive exports, and to knowledge-intensive exports.[16]

Second, trade with the leading economy also yields positive externalities. Developing countries can learn from the technological innovation, entrepreneurship, and management of the dominant economy. They also need to do so to increase its trade.[17] In addition, growth of the exporting and supporting sectors creates employment. Meanwhile, re-investment of gains from trade helps capital accumulation and preparation of elements crucial for growth, such as infrastructure, technology, and human capital.[18]

Third, trade with the leading economy induces a developing country to adopt less distortionary policy and reduce rent-seeking activities. In order to promote exports, a developing country would have to accept international prices and exchange rates, minimize export subsidies, and encouraging cost-minimization and quality-control.[19]

1997.

[14] Meier 1989, 381-82, quoting Smith and Mill; and Heckscher and Ohlin 1991, 45-46.

[15] Edwards 1993, 1389, quoting Romer.

[16] Meier 1989, 412.

[17] Ibid., 382-83, 392-93.

[18] For re-investment of gains from trade for capital accumulation, see Corden quoted at the preceding source.

[19] Krueger 1989, 403.

Empirical studies also lent support to the theorized gains from trade. Michalopoulos and Jay found that external economic orientation had a positive and highly significant impact on growth of 39 countries between 1960 and 1966.[20] Their finding was confirmed in surveys of ten countries by Balassa and Krueger, two recent studies by Sachs and Warner and Edwards, and a study on East Asia.[21] In addition, Dollar found that the degree of outward orientation of 95 LDCs between 1976 and 1985 was highly correlated with per capita GDP growth, even after controlling for their levels of development.[22] Leamer found that a clearly positive relationship existed between the growth rates of GDP per capita of 30 developing countries for 1970-82 and his indices of their openness of trade, a better measure of external economic orientation.[23] Empirical studies also verified part of the above logic of export-led growth literature. Feder found that more open trade policies led to an optimal allocation of recourses and higher productivity.[24]

The third premise of my argument is that the leading economy serves as the largest potential export market and provides considerable resources for growth of the LDCs.[25] Through trading with the former, a LDC can expand its market far beyond its own borders and specialize and excel in export industries in which it has comparative advantage.

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[20] Michalopoulos and Jay 1973.

[21] Balassa 1978; Krueger 1978; Sachs and Warner 1995; Edwards 1991; and Ito and Krueger 1995 on East Asia.

[22] Dollar 1992.

[23] Leamer 1988.

[24] Feder 1983.

[25] Kindleberger even suggested that a committed leading economy could help maintain free trade and economic stability in the world. Britain promoted free trade between the 1840s and 1916. The U.S. championed a liberal economic order after WWII. See Kindleberger 1973. It followed that the leading economy opened its market to the developing countries more consistently than did the other developed

I should clarify several points here. First, by a leading economy, or an economic superpower, I mean an advanced country with the largest share in world trade. It usually has yet does not necessarily have the highest aggregate or per-capita economic output. Second, trade between the developing and the leading economies or between the developing countries, is mainly affected by factor endowments and is inter-industry. Meanwhile, trade among the developed countries is based on economies of scale and is intra-industrial.[26] Third, by factor-endowment-based trade, I mean reciprocal trade, or trade amid competition from nations. With high tariffs on its exports imposed by the metropole a colony might benefit little from trade despite heavy trade with the metropole. Fourth, other than factor endowments, the cycles of expansion and contraction of world trade, as Rogowski and Maddison pointed out, also affected the developmental policies of these countries.[27] For example, depression and wars in Europe between the 1910s and the 1930s resulted in a smaller export market and fewer manufactured imports for Latin America. As a result, the land-owning class benefiting from free trade in the preceding decades lost its political leverage in Latin America. Government started to favor workers and capitalists and adopt import-substitution industrialization.[28]

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countries.

[26] See Helpman and Krugman 1985; and Krugman and Obstfeld 1994, 138.

[27] See Rogowski 1989; and Maddison 1989. According to these two authors, international economic cycles, such as expanding trade and sustained growth between 1840 and 1913, autarky and international conflict between 1913 and 1948, and renewed golden age of trade and growth between 1948 and 1973, shaped growth conditions, domestic coalitions, and economic policies of developing countries.

[28] Rogowski 1989, 74-75.

EMPIRICS

Britannica (1830-1945) and Growth of the Americas

I refer to the period of British economic dominance as Britannica. Britannica started in 1830. With the largest share (21.6 percent) of world trade and the highest manufacturing output per capita,[29] Great Britain became pre-eminent in the world

Table 1: Shares of Manufacturing Production and Trade (the world = 100%)

	Production			Trade	
	U.K.	U.S.	All Developed Countries	U.K.	U.S.
1830	9.5	2.4	39.5	21.6	5.4
1860	19.9	7.2	63.4	25.2	9.1
1880	22.9	14.7	79.1	23.0	10.5
1900	**18.5**	**23.6**	89.0	19.3	10.8
1913	13.6	32.0	92.5	16.8	10.8
1938	10.7	31.4	92.8	13.7	10.7
1953	8.6	44.8	93.5	**9.6**	**15.8**
1980	4.1	31.2	88.0	5.7	11.6
1990				5.8	12.8

Sources: Bairoch 1982, Table 2; Mulhall 1892, 128; Woytinskies 1955, 38, 49, 50; Mitchell 1982a, 453, 702; Mitchell 1993, 427; UN 1961; 1975; 1981; 1990/91.

Notes: Data in bold indicate important changes. Data on trade for 1900 are those for 1901.

[29] Mulhall 1892, 128; Bairoch 1982, Table 9.

economy around 1830.[30] Britannica reached its peak around 1860. In 1860 Britain accounted for one-quarter of world trade and one-fifth of the world manufacturing output (Table 1). Its level of industrialization was the highest in the world.[31] Its absolute economic dominance continued until 1880, when it accounted for 23 percent of trade and manufacturing production in the world (Table 1) and maintained the highest level of industrialization in the world. The output of Britain fell behind that of the U.S. after 1900. So did its output per capita after 1913. However, it retained its dominance in world trade until the end of WWII. Since I trace growth of East Asia and Latin America to their trade with the leading economy, I take the end of WWII the end of Britannica and the beginning of Americana. The strikingly different land-labor endowments of the two leading economies had a profound effect on the economic landscape in the Third World in the recent two centuries.

Factor endowments— land, labor, and capital, the 1860s to the 1950s

Painstakingly-compiled statistics on productive land per capita in major countries paint a helpful picture (Table 2). The three categories of countries, namely, densely, moderately, and sparsely populated had respectively less than five, at least five but less than twenty, and twenty or more acres of productive land per capita. Capital is the other major factor of production. While detailed and systemic data are lacking, Bairoch's indexes of per capita levels of industrialization provide us with a measure of endowments

[30] Britain's 9.5 percent share of world manufacturing output was second to China's 30 percent. However, its output per capita was over four times and its trade over three times of that of China. See Bairoch 1982, Table 9; Mulhall 1892, 128.
[31] Bairoch 1982, Tables 4 and 10.

Table 2: Acres of Productive Land Per Capita (Ranked): 1875-89 and 1946-49

Country	1875-89	Country/Area	1946-49
Abundant in labor		Abundant in labor	
United Kingdom (U.K.)	*1.42*	Singapore	0.08
Japan	1.76	Japan	0.95
Switzerland	2.33	Taiwan	0.98
China	*2.38*	U.K.	1.06
France	*2.70*	China	1.97
Spain	4.44	Trinidad	1.98
Moderately abundant in land		France	2.64
Trinidad (Caribbean)	*5.66*	Indonesia	4.27
Malaya (1933)	7.31	Spain	4.29
Russia	*7.48*	Moderately abundant in land	
Siam/Thailand (1923-4)	8.65	Thailand	*5.20*
		Malaysia	*6.21*
Abundant in land		United States	11.77
Chile	*25.43*	Chile	11.99
United States	*34.91*	Costa Rica	16.18
Mexico	*43.79*	South Africa	18.52
Costa Rica	*62.49*	Russia	*19.54*
Canada	*101.81*	Mexico	19.96
Brazil	*102.27*	Abundant in land	

Cape Colony/South Africa (1875)	124.27	Ethiopia	22.24
Australia & N. Zealand	*174.40*	Argentina	29.40
Argentina	*216.44*	Brazil	29.96
		Canada (1941)	102.27
		Australia	130.36

Sources: Mulhall 1892; Mitchell 1982a; 1982b; 1992; 1993; UN 1949-70; Li et al 1981; Yan et al 1955; CSST 1937-80; SDSSFMS. 1935; UCLALAC 1955-56; 1995; Ho 1978; Hansen 1947-56; Pockney 1991.

Notes: Italic numbers are estimates. Productive land includes land for grain and crops, pastures, forests, fallow, and potentially productive land. European land data exclude land under rice crops.

Table 3: Per Capita Levels of Industrialization

(U.K. in 1900 = 100; 1913 boundaries)

	1830	1860	1913	1928	1953	1980
United Kingdom	25	64	115	122	210	325
United States	14	21	126	182	354	629
Third World	6	4	2	3	5	17
China	6	4	3	4	5	24
India	6	3	2	3	5	16
Brazil	-	4	7	10	13	55
Mexico	-	5	7	9	12	41
Developed Countries	11	16	55	71	135	344
Europe	11	17	45	52	90	267
Belgium	14	28	88	116	117	316
France	12	20	59	78	90	265
Germany	9	15	85	101	138	393
Italy	8	10	26	39	61	231
Russia	7	8	20	20	73	252
Switzerland	16	26	87	90	167	354
Outside Europe						
Canada	6	7	46	82	185	379
Japan	7	7	20	30	40	353

WORLD	7	7	21	28	48	103

Source: Bairoch 1982, Tables 4 and 9.

Note: Data on Europe includes all the European countries in the table, as well as Austria-Hungary, Sweden, and Spain. Data on the developed countries comprises the above European countries, the U.S., Japan, and Canada.

of capital (Table 3). The following patterns of endowments of labor, land, and capital in Tables 2 and 3 warrant our attention. Between the mid-nineteenth and the turn of the twentieth centuries, Britain and, to a lesser degree, Belgium and Switzerland, were the most-capital-abundant countries in the world, well endowed with labor yet scarce in land. Several countries did not become capital-intensive until the early twentieth century. They included the land-abundant U.S., labor-abundant Germany and to a lesser extent, land-scarce France. After WWI, Britain remained very well endowed with capital and labor and scarce in land. Thickly-populated Japan, Italy, Portugal, Spain, and Austria-Hungary and land-abundant Russia remained relatively-scarce in capital for most of the period of 1860- 1953.[32] As far as the Third World is concerned, between 1840 and 1960, East Asia were abundant in labor yet scarce in capital and land, and Latin America was abundant in land yet scarce in capital and labor. Undeveloped Southeast Asia enjoyed abundance in land from the mid-nineteenth till the early twentieth century.

Trade with Great Britain and growth of the U.S. and Latin America

If the HO model is right, two inferences from the above factor endowments should

be true. First, among the developing countries, labor- and capital-abundant yet land-scarce Great Britain would trade primarily with the land-abundant ones in the period of Britannica (1830-1945). Trade data confirm it. Foodstuffs, livestock, and raw materials accounted for 92.7 percent of the British imports in 1860, and 80.7 percent in 1927.[33] Cotton was one of the key raw materials. Since the U.S. was the largest country abundant in land suitable for crops, especially grain and cotton, it was a leading producer of food and fiber and the largest import origin for Britain between 1854 and 1900.[34] The share of the U.S. in British imports grew from 6.1 percent between 1834 and 1836, through 19.7 percent between 1854 and 1860, to 22.4 percent in 1889.[35] Capture of the lion's (the largest) share of the British import market lent a strong impetus to growth of the U.S., enabling it to rise as the leading economy.

The second inference from the HO model is that in addition to the U.S., land-abundant yet labor- and capital-scarce Latin America was also a better complementary trading partner of capital- and labor-abundant Britain than land- and capital-scarce East Asia. The East Asian and Latin American exports to Britain confirm this inference. As Britain ascended as the leading economic and trading state in the world after 1830, the share of goods from Latin America in British imports grew from 4.1 percent between 1854 and 1856, through 10.5 percent in 1860, to 17.7 percent in 1927.[36] Meanwhile, the share of China, Japan, Hong Kong, and Taiwan in British imports was declining from over 5.2 percent between 1854 and 1860, through 2.3 percent in 1868, to 1.7 percent in

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[32] Ibid., Table 4; Mulhall 1892; Table 2.
[33] Mitchell 1982a, pp. 521-22.
[34] Mulhall 1892, 128-34; and Mitchell 1982a, 451-53, 497, 509-10.
[35] Ibid.
[36] Mitchell 1982a, 452-53, 497, 505-07.

1927.[37]

Different shares of Britain in exports of these countries in Table 4 also support the second inference from the HO model. The average shares of Britain for the periods of 1864-1940 and 1953-1990 tended to be higher in the Latin American than East Asian exports (Table 4). For example, the annual average shares of Britain in the East Asian economies' exports between 1864 and 1940 ranged from 0.4 to 7.6 percent, whereas

Table 4: Share of Britain in Exports of East Asia and Latin America: 1864- 1990 (Exports of each country = 100%)

Years	China	Japan	Taiwan	Malaya	Argentina	Brazil	Chile	Trinidad (and Tobago)
					Average			
1864- 1940	7.6%	5.5%	*0.4%*	18.2%	23.3%	21.7%	30.8%	48.2%
1953- 1990	3.2%	2.9%	2.6%	7.6%	9.3%	3.9%	8.0%	15.4%
1864- 1990	5.6%	4.4%	*1.5%*	14.4%	17.9%	15.4%	22.0%	36.5%

Sources: See the Appendix.

Notes: Unless stated otherwise in this and the following tables, italic numbers stand for estimates, underlined ones anomalous cases, and blank cells missing data. Similarly, the data for 1864-1940 is the average of those for 1864, 1870, 1880, 1890, 1900, 1910, 1920, 1930, and 1940, and the data for 1953-90 the average for 1953, 1963, 1970, 1980, and 1990. That for 1864-1990 is the average of these years. 1864 is the earliest year when data for several countries are available. See the Appendix for the data of the anomalous cases.

those of Latin American ones from 21.7 to 48.2 percent. The 18.2 percent average share

[37] Mulhall 1892, 132; and Central Statistical Office of Britain 1883, 36-9; 1929, 293-95.

for Malaysia, land-abundant Malaya at that time (Table 2), resembled the Latin American pattern (Table 4). Thus all the above empirical evidence clearly supports my inferences from the HO model that under Britannica the Americas were better complementary trading partners of Britain than was East Asia and that the former would trade more actively with Britain.Benefiting from its heavier trade with Britain, Latin America grew much faster than did East Asia prior to the end of WWII (Table 5). Judged by the average growth rates of these two regions, in the three periods between 1900 and 1950 the gross domestic product (GDP) per capita of the six major Latin American countries grew faster than did the three East Asian economies. It even grew faster than did France, Germany, Japan, the Netherlands, and the UK on average (Table 5). The growth performance of Latin America is also comparable to the rising leading economy—the U.S.[38] Even though 1900-13 and 1913-29 were two of the more peaceful periods in East Asia, the pace of East Asian development still lagged behind that of Latin America.

Data on the levels of industrialization of China, Brazil, and Mexico between the mid-nineteenth and the early twentieth century (Table 3) confirm the contrasting development in these two regions. In 1860, the per capita levels of industrialization of China, Brazil, and Mexico were comparable. Respectively, they were 4, 4, and 5 percent of the British

[38] However, as Table 3 shows, the U.S. grew much faster than did Latin America between 1860 and 1913. Stanley Engerman and Kenneth Sokoloff suggested that subtle differences in factor endowments in these two regions affected their institutional arrangement, policies, and development. See Engerman and Sokoloff, "Factor Endowments."

Table 5: Average Annual Compound Growth Rates in GDP Per Capita: 1900-1989

	1900-13	1913-29	1929-50	1950-73	1973-80	1980-89	1900-89
Argentina	2.5	0.9	0.6	1.9	0.6	-2.5	0.9
Brazil	2.3	2.5	2.6	3.9	4.6	0.0	2.8
Chile	2.4	1.6	0.6	1.2	1.8	1.2	1.3
Colombia	2.1	2.1	1.6	2.2	2.6	1.2	1.9
Mexico	1.8	0.1	1.5	3.2	3.6	-1.0	1.6
Venezuela	0.4	2.3	3.2	2.6	0.6	-2.4	1.7
Average	1.9	1.6	1.7	2.5	2.3	-0.6	1.7
Korea	0.8	1.3	-1.4	5.2	5.4	7.2	2.5
Taiwan	0.3	2.1	-0.9	6.2	6.2	5.9	2.9
China	0.3	0.4	-1.3	3.7	3.7	7.9	1.8
Average	0.5	1.3	-1.2	5.0	5.1	7.0	2.4
Korea and Taiwan	0.6	1.7	-1.2	5.7	5.8	6.6	2.7
USA	2.0	1.7	1.5	2.2	1.0	2.2	1.8
Japan	1.2	2.4	-0.2	8.3	1.8	3.5	3.2
UK	0.7	0.3	1.3	2.5	0.9	2.3	1.4
Western Countries	1.2	1.5	0.5	4.7	1.8	2.1	2.1

Source: Hofman, 1993, Table 1; Maddison 1989, Table 3.2, 119-30; SSBPRC 1994, 32, 59.

Note: Underlined data indicate anomalous years when China conducted little trade with the U.S. The

average of Western countries includes France, Germany, Japan, the Netherlands, and the UK.

level in 1900. However, from 1860 to 1953, the overall growth of

China was slower than was that of Brazil and Mexico. Between 1860 and 1913 the per capita level of industrialization of China dropped by one quarter whereas those of Brazil and Mexico increased respectively by three-quarters and two-fifths. Between 1913 and 1928 the Chinese level gained by one third, the Brazilian level by over two-fifths, and the Mexican level by over one quarter. Between 1928 and 1953, the Chinese level rose merely by a quarter, whereas the Brazilian and Mexican levels both gained by about one-third. By 1953, the Chinese per capita level of industrialization was merely 5 per cent of the British level in 1900, whereas those of Brazil and Mexico were respectively 13 and 12 per cent (Table 4). Bairoch's data do not include Argentina. However, works by Diaz Alejandro and Maddison depict Argentine development. Argentina's GDP per capita grew by 119 percent between 1880 and 1913, and by 16.5 percent between 1913 and 1928.[39] Between 1900 and 1929, the Argentine GDP per capita was remarkably high in the Third World, equivalent to 71 to 79 percent of the average of the sixteen major western countries, or 46 to 64 percent of that of Britain. In 1950 it was still 65 percent of that of the former, or 55 percent of the latter.[40]

Whereas most major Latin American economies performed well, only one East Asian economy, namely Japan grew rapidly in this period. In 1860, the Japanese level of industrialization was equivalent to only 7 percent of the British level in 1900. It nearly tripled to 20 percent in 1913, then grew by one half to 30 percent in 1928, and by one

[39] Diaz Alejandro 1984, 331.

third to 40 percent of the 1900 British level in 1953 (Table 3).

Several factors, especially trade with the U.S., account for Japan's exceptional performance. First and foremost, after the late 1860s, as a result of the Meiji Restoration, Japan actively traded with the West. Since 1878 the U.S. surpassed the U.K. and remained the largest export market for Japan for most of the ensuing years until 1934. In 1880 and 1927, respectively 42.3 and 35.3 percent of Japan's exports went to the U.S., while merely 9.2 and 2.7 percent headed toward Britain.[41] Extensive trade with the U.S. provided strong momentum for growth of Japan. Second, Japan's modernization efforts at home, such as construction of western educational, financial, and bureaucratic systems and infrastructure, paid off handsomely. Third, prior to WWII, Japan was the only relatively-developed Asian country. The U.S., as a secondary trading state, could provide a sizable export market and a growth impetus for one or two East Asian countries.

Americana (1945- Present) and the Rise of East Asia

Factor endowments

Americana, or US dominance in world trade, began only after WWII. At the end of WWII, four decades after becoming the biggest industrial economy, the U.S. finally surpassed Britain in its share of world trade (Table 1). In 1953, the U.S. accounted for 16 percent of world trade, well above the British share of 9.6 percent. It produced 44.8 percent, almost half of the world manufacturing output (Table 1).

The previous discussion on Britannica has delineated the factor endowments in the world between the 1880s and the 1940s. What is relevant for the coming discussion is

[40] Maddison 1989, 19.

the following post-WWII pattern reflected in Tables 2 and 3. Most of East Asia was abundant in labor yet scarce in capital and land, while most of Latin America and part of Southeast Asia were abundant in land yet scarce in capital and labor. Specifically, China had much less capital per capita than Brazil and Mexico due to its slower growth during Britannica. Indonesia and part of the Caribbean such as Trinidad and Tobago were still underdeveloped and had become densely populated. In the developed world we find thickly-populated Western Europe as well as the land-abundant U.S. and Canada, the champions of extensive growth in the Americas under Britannica. Approaching yet still trailing these advanced countries were land-scarce Italy, Spain, and Japan and land-abundant Russia.[42]

Trade with the United States and growth of East Asia

On the basis of the above factor endowments, we can draw two inferences from the HO theorem. First, East Asia was a better complementary trading partner of the U.S. than was Latin America. Second, the export market for Latin America would thus be shrinking, while that for East Asia, which was in the U.S., would be expanding.

Available data confirm these inferences. The first piece of evidence is the significance of Britain for Latin American exports and that of the U.S. for East Asian exports. The shares of Britain in the exports of most Latin American countries under Britannica (1864- 1940) tend to outweigh those of the U.S. during Americana (1953-1990 in Table 6). The opposite is true for most of the East Asian economies during both Britannica and Americana (Table 6).

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[41] Mitchell 1982b, Tables F1 and F2.

Table 6: Shares of Britain and the U.S. in Exports: 1864- 1990 (Exports = 100%)

East Asia

Period	China		Japan		Taiwan	
	U.K.	U.S.	U.K.	U.S.	U.K.	U.S.
Britannica (1864-1940)	7.6%	**11.9%**	5.5%	**26.7%**	*0.4%*	***3.9%***
Americana (1953-90)	3.2%	**10.5%**	2.9%	**26.5%**	2.6%	**25.0%**
Both eras (1864- 1990)	5.6%	**11.6%**	4.4%	**26.6%**	*1.5%*	***14.4%***

Latin America

Period	Argentina		Chile		Trinidad & Tobago	
	U.K.	U.S.	U.K.	U.S.	U.K.	U.S.
Britannica (1864-1940)	**23.3%**	10.0%	**30.8%**	20.1%	**48.2%**	18.3%
Americana (1953-90)	9.3%	**12.6%**	8.0%	**27.9%**	15.4%	**38.0%**
Both eras (1864- 1990)	**17.9%**	11.0%	22.0%	**23.1%**	**36.5%**	24.9%

Notes: Refer to notes on data under Table 4 and in the Appendix. Data in bolds are discussed in text.

Sources: Same as those cited for Table 4.

Furthermore, composition of trade in Latin America, East Asia, and the U.S. reflected their factor abundance. It also suggested a larger potential market in the U.S. for East Asia than Latin America. Between 1963 and 1970, the U.S. imports in the order of importance were finished manufactures, semi-manufactures, crude materials, manufactured foods, and crude food. Their respective shares in the U.S. imports in 1970

[42] Bairoch 1982, Table 4.

were 56.2, 18.2, 10.3, 8.8, and 6.5 percent in 1970. Its leading exports were capital- or technology-intensive goods. It was a net exporter in finished manufactures, natural resources, and crude food.[43] By the early 1980s manufactures accounted for over 50 percent the U.S. imports, while food (including live animals and beverage) and inedible crude materials took up less than 12 percent.[44] In parallel, since 1965 manufactures had surpassed agricultural goods, crude materials, mineral fuels, and even processed agricultural goods as the leading exporting goods in South Korea and Taiwan.[45] By the early 1980s the East Asian NIEs exported mainly labor- or capital-manufactures.[46] In contrast, between 1955 and 1990, agricultural goods and minerals were the leading exporting goods of most Latin American countries, and petroleum products were also important exports for only a few Latin American countries.[47] Thus the potential market in the U.S. for the manufactures from East Asia would be larger than that for the agricultural goods, fuel, or minerals from Latin America.

As a result, with the resumption of world trade after WWII East Asia became an increasingly significant import origin for the U.S., while Latin America were gradually losing their shares in the U.S. imports. In 1955 the share of Taiwan, Hong Kong, and South Korea in U.S. imports remained at a negligible 0.24 percent. It increased to 2.3 percent in 1965, 5.1 percent in 1975, and a remarkable 10.2 percent in 1990.[48] In stark contrast, the share of Latin America in U.S. imports fell from a whopping 31.7 percent in

[43] The U.S. Bureau of the Census 1976, 889.
[44] U.S. Department of Commerce 1984, 838.
[45] NBSROK 1971, 351; CEPDROC 1992, p. 194.
[46] Page 1991, Table 3.
[47] UCLALAC 1995, 640-45. The data between 1955 and 1990 indicate that petroleum was the predominant export item for Venezuela between 1955 and 1990. It became the leading export item for Mexico and Ecuador between 1980 and 1990, and for Panama between 1965 and 1980. UCLALAC 1995, 645.

1955, to 20.5 percent in 1965, to 16.6 percent in 1975, and to 13.5 percent in 1990.[49] This contrast is consistent with the above inference from the HO model.

While the general pattern points to the direction of the HO model, a puzzle of Latin American trade exists in Table 6. Between 1953 and 1990, all three Latin American countries exported more to the U.S. than to Britain. It appears as if they took advantage of the U.S. import market during Americana.

The puzzle disappears when we examine these countries' share in world trade. A change in their share reflects a change in their trade volumes and trading and growth opportunities relative to the other countries in the world. On the other hand, the shares of exports to Britain and the U.S. in their exports do not. Thus, even if a Latin American country exported more to the U.S. than to Britain, its share in world trade could had declined, and its opportunities for trade and growth relative to the other countries could had been severely reduced. Thus I shall examine East Asian and Latin American shares in world trade to gauge their trade opportunities.

As Table 7a shows, East Asia (China and the Four NIEs) apparently increased its share of world trade from 3.8 percent during Britannica (1861- 1938) to 5.1 percent during Americana (1953-90). The increase in the share of the four East Asian NIEs was even more impressive, from 2.2 to 3.9 percent. In contrast, the share of Latin America as a whole of world trade declined from 7.7 to 6.4 percent.

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[48] U.S. Department of Commerce 1950; 1970; 1980; 1991.
[49] Ibid.

Table 7a: Share of World Trade by Major Regions: 1861- 1990 (World = 100%)

Years	Britain	U.S.	Latin America	South America	Central and Southern North America	China and the Four NIEs	The Four East Asian NIEs
1861-1938	21.00%	8.80%	7.71%	5.08%	*2.62%*	*3.82%*	*2.15%*
1953-90	7.31%	13.2%	6.39%	3.82%	2.57%	5.11%	3.90%

Table 7b: Share of World Trade by Selected Countries: 1861- 1990 (World = 100%)

Years	Argentina	Chile	Trinidad and Tobago	Japan	China	Korea	Taiwan	Singapore	Hong Kong
1861-1938	1.29%	0.56%	0.13%	1.63%	1.72%	0.34%	0.28%	*1.07%*	*0.46%*
1953-90	0.64%	0.32%	0.16%	4.98%	1.21%	0.82%	0.77%	1.13%	1.18%

Sources: Mulhall 1880; 1892; Mitchell 1982a; 1982b; 1993; Woytinskies 1955; Li et al 1981, appendices; BTGB 1899-1913; 1929-38; CSOGB 1856-1927; Curtis, 1889; UN, 1955; 1961; 1981; 1983/4; 1991; 1993/4; SSBPRC 1994; CEPDROC 1974; 1992.

South America, the larger and more land-abundant portion of Latin America, witnessed a clear decline in its share of world trade, from 5.1 percent during Britannica to 3.8 percent during Americana (Table 7a). In parallel, Argentina's share dropped sharply from 1.3 to 0.6 percent, and Chile's from 0.56 to 0.32 percent (Table 7b).

Central and Southern North America, consisting of the Caribbean, Central America, and Mexico, was the smaller part of Latin America. Its share in world trade dropped slightly from 2.62 percent during Britannica to 2.57 percent during Americana. Such a

modest, rather than significant decline may be attributed to first factor endowments and then improved transportation and geographic location. After rapid population growth part of the Caribbean, such as Trinidad and Tobago changed from a moderately populated area in 1846 to a region as densely-populated as Western Europe. [50] Three previously sparsely-inhabited Central American nations became as thickly populated as Greece and Spain.[51] Thus after WWII both the Caribbean and Central America would trade more with land-abundant U.S. Trinidad and Tobago, for example, exported primarily to Britain during Britannica, and the U.S. under Americana (Table 6). Meanwhile, its share in world trade increased from 0.13 to 0.16 percent (Table 7b). This case supports the HO model. In addition, Central and Southern North America traded extensively with the U.S. after WWII because of their proximity to the U.S. and improved transportation.

Thanks to their huge export market in the U.S. and the expansion of their trade in the era of Americana, East Asian economies were able to generate more rapid growth than were their Latin American counterparts. Between 1950 and 1989, GDP per capita of Korea and Taiwan grew by more than 5 percent a year, even faster than those of the developed countries. The average growth rates of GDP per capita of the Latin American countries for 1950-73 and 1973-80 were less than half of those for Taiwan and South Korea. They even turned negative in the 1980s (Table 5).

China is the only East Asian economy whose share in world trade declined during Americana (Table 6). This is due to the fact that China conducted little or no direct trade with the U.S. because of their strained relationship between 1953 and 1971. After we exclude the anomalous years of 1864-1880 and those of 1950-70, we find that China

[50] Rogowski 1989, Table 2.5.

exported more to the U.S. than to Britain in the periods of 1864-1940 and 1953-1990 (Table 6). Since China opened its door to the world in 1979, trade based on comparative advantage boomed. Exports from populous China to the land-abundant U.S. skyrocketed from 0.98 billion in 1980 to 21.5 billion US$ in 1994, raising the share of the U.S. in its exports from 5.4 to 17.7 percent.[52] Meanwhile, China's exports soared from 18.1 to 121 billion, and its weight in world exports from 0.9 to 2.9 percent,[53] larger than its 2 per cent share between 1861 and 1870, the peak of Britannica. Thanks to its strong exports, GNP per capita of this populous country grew by 8 percent a year between 1980 and 1993.[54]

POSSIBLE OBJECTIONS

The first counter-argument is that Latin America failed to grow rapidly in the post-war period due to their inward-looking growth policies. It is true that Latin America would have larger trade and had grown faster had it adopted a more onward-looking strategy. However, two questions arise. First, why did East Asia abandon import-substitution in the early 1960s while Latin America continued it? The existing literature points to domestic coalitions benefiting from protectionism and the dependency and Structuralist economic theories.[55] I suggest another reason which has been ignored. Latin America suffered from a decline in its export market as Britain declined and as the U.S. became the leading economy. Import-substitution and the dependency theory seemed as a

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[51] Ibid., Table 4.4.
[52] EBCCS 1992, II: Appendix 3; and MFTECC 1995, 409-15, 403-4. If we take into account the indirect exports from China to the U.S. through Hong Kong, the percentage could go up significantly to around 32%.
[53] Ibid.
[54] SSBPRC 1994, 32.
[55] See Rogowski 1989 for a theory on the positions of capitalists, land-owners, and labor on trade under the expansion or retraction of world trade. See Taylor 1998 for the existing literature on the topic and the role of the dependency and Structuralist theories.

natural, albeit inefficient response. They were increasingly detrimental to growth over time. In contrast, labor-abundant East Asia stood to gain from the rising land-abundant U.S. That is why East Asia ended import-substitution and engaged in trade after the 1950s.

A second question is "Could Latin America do as well as East Asia did had it embraced open trade between the 1960s and 1980s?" Fortunately, Chile stood as the only widely-praised active participant in trade in Latin America. Chile indeed did relatively well during 1980 and 1989 when Latin America fell into an economic slump and suffered from an averaged 0.6 percent of annual decline in its GDP per capita (Table 5). Even though Chile had pursued a liberal trade policy since the early 1970s, it still could not stop the slippage of its share in world trade from 0.56 percent during Britannica to 0.32 percent during Americana (Table 7b). Its growth rate of GDP per capita at 1.8 percent between 1973 and 1980 and 1.2 percent between 1980 and 1989 were dwarfed by the averages of Taiwan and South Korea. The latter were respectively 5.8 and 6.6 percent.

The other counter-argument is that the terms of trade of primary commodities declined in the long run[56]. It follows that such a decline would had inflicted more harms on the exports of primary commodities and growth of land-abundant Latin America than it did on those of labor-abundant East Asia. However, empirical studies showed that term of trade of primary commodities either experienced no declining trend,[57] or a negligible decline at best.[58] The purchasing power of exports of all primary commodities in terms of manufactures is a better measure of the income effect of price changes. It improved by

[56] Prebisch 1950; and Singer 1950.
[57] Cuddington and Urzua 1989.
[58] Grilli and Yang 1988.

4.5 percent a year from 1900 to 1913, 0.4 percent a year from 1921 to 1938, and 4.2 percent a year from 1955 to 1983.[59] Between 1967 and 1987 when Hong Kong, Singapore, and South Korea were outgrowing Argentina, Brazil, and Mexico, the terms of trade of manufactures for the former were experiencing a decline averaging 0.4 percent a year. In contrast, the latter enjoyed a growth averaging 0.1 percent a year.[60]

CONCLUSION

Factor-endowment-based trade helps to explain the puzzling contrast in the growth performances of East Asia and Latin America in the last two centuries. Countries whose factor endowment complemented that of the economic superpower might enjoy a larger trade volume with the leading economy and faster growth than the other countries.

A recent study of 97 developing economies seemed to provide further evidence for the main argument of this paper. This study indicated that economies with rich natural resources in 1971 grew slower than those with scarce resources during the period of 1971- 89. The authors reasoned that abundant resources might hinder open trade policy and sound welfare.[61] I propose a different explanation. When the land-abundant U.S. replaced the resource-scarce Britain as the leading economy after WWII, developing countries rich in natural especially agricultural resources, might had lost much of their export markets and most of their external impetus for growth. In contrast, economies with poor natural resources had found a large market for their labor-intensive products in the U.S. and could grow rapidly.

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[59] Grilli and Yang 1988, 26.
[60] Lucke 1993, Table A2.
[61] Sachs and Warner 1995.

A modified version of my argument can also explain growth of developing countries in terms of their trade with secondary advanced economies in East Asia and Latin America. From the 1870s to the 1930s, labor-abundant Japan capitalized on its heavy trade with the land-abundant U.S., a rising economy, and grew rapidly. Similarly, relatively land-abundant Thailand and Malaysia had taken advantage of a large export market in and a large amount of investment from Japan since the 1970s. Rich natural resources such as petroleum, coal, rubber, and palm helped Indonesia to develop its export market in and attract investment from Japan. Thailand, Malaysia, and Indonesia thus entered a golden era of growth in the 1970s and the 1980s. Meanwhile, due to geographic proximity, South Korea relied heavily on the Japanese investment and its export market in Japan. However, since the early 1990s, the Japanese economy has gone into a financial crisis. Japanese demand for exports from the Southeast Asian countries and South Korea might have turned weak. Speculative Japanese investment in these countries created financial bubbles and short-term boom. A devalued Japanese currency further slow downed growth of these countries' exports, increased their imports, reduced their foreign currency earnings, and worsened their debt-servicing problems. An underdeveloped financial market, heavy governmental intervention, and weak financial disciplines in these countries further aggravated the problems. All these prepared a hotbed for the recent financial and then economic crises in these countries.

While trade induces growth in East Asia and Latin America, some developing countries in these regions might benefit more from trade and could grow much faster. They are the economies in these regions, whose factor endowments complement that of the leading economy or secondary advanced economies. These economies can export

heavily to the latter and enjoy more resources and opportunities for growth. The outstanding examples are the Americas and Japan prior to WWII as well as East Asia and most of Southeast Asia between the late 1960s and the early 1990s.

APPENDIX: DATA IN TABLES 4 AND 6

The sources for Table 4 are as follows: Mitchell 1982a, 702-03; Mitchell 1982b, Tables F1 and F2; 1993, Tables E1 and E2; Li et al 1981, 514-18; CSOGB 1856-1927; 1965; 1982; 1992; 1993; MFTECC 1992; 1995; EBCCS 1992, 370, 383; CEPDROC 1974, 199; 1992; Yano Ichiro 1991, 325; DFJ 1905, 178; 1916, 166; 1929, 240; 1939, 274; Ho 1978, 392; T'u 1993, 1622; DSM 1990, 155, 157; Ludwig 1985, 323, 432; Curtis 1889, 92; UCLALAC 1995, Part 2, 746; CSOTT 1991, 181.

Table 4 excludes the anomalous cases for Taiwan, China, and Japan. During the anomalous years between 1900 and 1940 the share of Britain in Taiwanese exports is negligibly small. We must be cautious in interpreting the data. In these years Japan turned Taiwan, its colony, into its agricultural producer and processing center and thus monopolized Taiwan's trade.[62] In 1953, years after the Japanese lost control over Taiwan, the share of Britain in Taiwan's exports soared from around 0.5 percent in 1940 to 6.6 percent. In 1963, with a clear decline of the British economic power, this share fell to 1.1 percent.

China and Japan also had anomalous years of trade with Britain prior to 1881. These data are thus excluded in their averages for the periods of 1864-1940 and 1953-90. Around the mid-nineteenth century, unable to confront the militarily superior Britain, China and Japan entered trade treaties and subjected their trade to its strong influence. These treaties were in effect in the anomalous years. Meanwhile, Britain, with its advanced fleets, reached East Asia far ahead of other western countries. It dominated East Asian trade for decades in the nineteenth century. Decades later, with other major western countries arriving and strongly contending for trade with East Asia, British dominance of East Asian trade dramatically declined. Since the HO model emphasizes factor endowments, rather than transportation or monopoly, we can take British dominance of exports of China and Japan as anomalous cases.

In Table 6 the averages for China's and Japan's exports to Britain prior to 1953 exclude the

anomalous cases mentioned in the Appendix I, while those for their exports to the U.S. include those years. The average for China's exports to the U.S. since 1953 is that for 1980, 1990, and 1994. These years are used because China's exports to the U.S. were almost non-existent between 1952 and 1971 due to their strained political relations. Their direct trade started to take off only after 1978.

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[62] Tú 1993, 162.

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