



Economic Evidence on the Globalization of Markets

In 1983, the *Harvard Business Review* published a celebrated—and controversial—article by Ted Levitt titled “The Globalization of Markets.” A quote from its introduction will convey the flavor of its arguments:

“The globalization of markets is at hand. With that, the multinational commercial world nears its end, and so does the multinational corporation. The multinational corporation and the global corporation are not the same thing. The multinational corporation operates in a number of countries, and adjusts its products and practices in each—at high relative costs. The global corporation operates with resolute constancy—at low relative cost—as if the entire world (or major regions of it) were a single entity: it sells the same things in the same way everywhere.”ⁱ

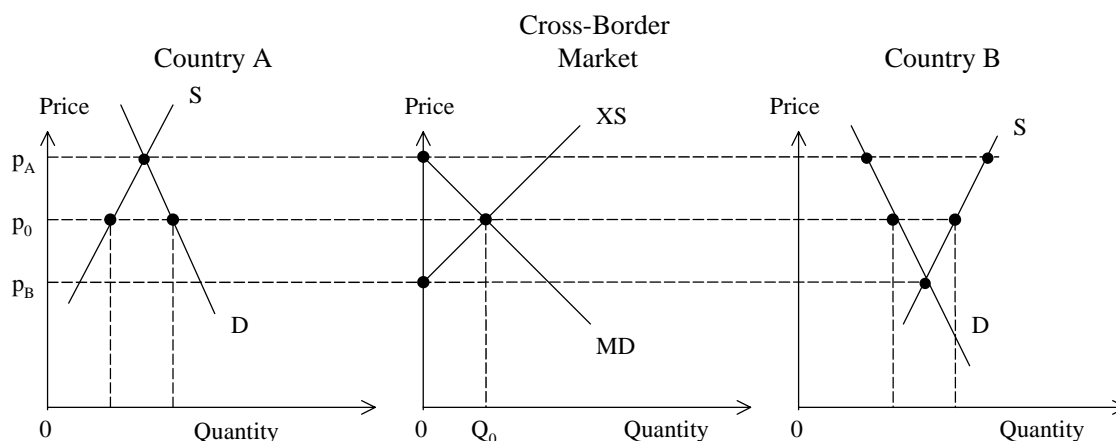
Implicit in Levitt’s vision of globalization are two ideas about convergence: that product markets are coalescing around the world, and that as a result, one strategy—involving the replication of the same business model or value proposition in different countries—is becoming dominant for companies that would compete internationally. How does this vision look nearly twenty years later, at the turn of the millennium? This note reviews the systematic evidence in the context of the microeconomic model of market integration that is presented next. While market integration is just one (economic) aspect of globalization, it is one of particular interest to business managers.

I. The Microeconomics of Market Integration

In the Competition & Strategy course, you studied supply-demand curves, but within the context of a single market. Supply-demand analysis can also be applied to the integration of different markets. Consider, for the sake of simplicity, the case of two countries and one homogenous product.ⁱⁱ If the two countries are entirely separated from each other, i.e., are autarkies, then prices in them will be given by the intersection of the supply-demand curves in each of them (p_A and p_B), and will not be equal to each other except by pure coincidence. Thus, in **Figure 1**, the autarky price is higher in country A (the first panel) than in country B (the third panel).

Now, what happens if we integrate these two product markets by allowing trade between them? Let us start by looking at the extreme case of complete integration in which trade becomes frictionless—in which product in country A can costlessly be transported to country B and vice versa. Then the producers in country B who were just inactive in autarky will find it profitable to sell some of their product in country A. And the price will end up equalizing in the two markets at some level in between the autarky prices, p_A and p_B .

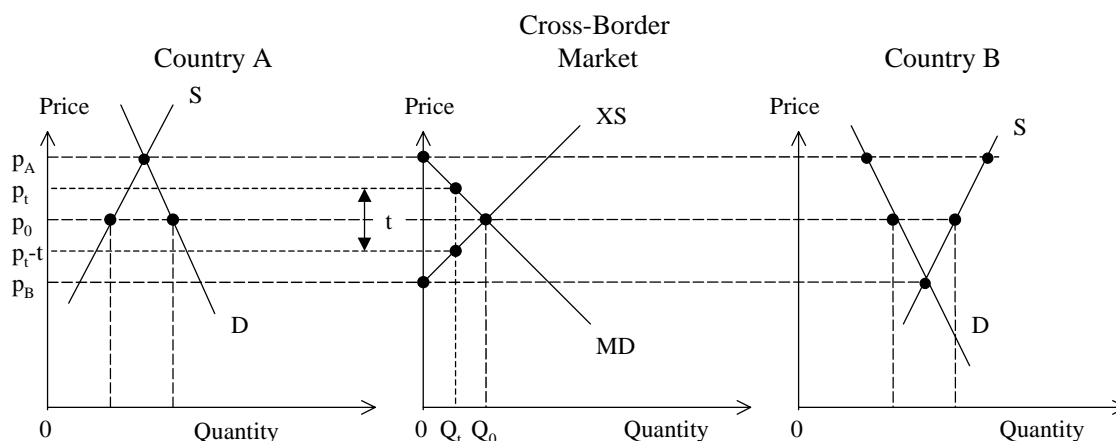
Figure 1 Trade with Complete Integration



Supply-demand analysis permits a more precise prediction. To see this, construct two new curves: country A's import demand curve and country B's export supply curve. Import demand in a country is the excess of domestic demand over domestic supply at a particular price, and export supply is the reverse. These curves are traced out in the middle panel of **Figure 1**. Thus, country A's net demand for imports equals 0 when imports are priced at p_A but increases as that price decreases. And country B's net supply of exports equals 0 at price p_B but increases as that price increases. The equilibrium with complete integration is given by the intersection of the import demand and export supply curves in the middle panel, at the price p_0 . The quantity of trade corresponding to this equilibrium is given by Q_0 .

The same basic apparatus can be used to analyze the continuum of cases between zero and complete integration. Suppose now that the extra cost of exporting a unit of product from country B to country A instead of selling it at home is t —which can denote, most obviously, tariffs, transportation, or other transaction costs or differences in tastes that translate into reduced willingness-to-pay for foreign products. If the price p_0 corresponding to the complete-integration equilibrium prevails in both markets, it is no longer worthwhile for producers in country B to export to country A. Exports from B to A can be profitable only if the price in A is at least t higher than in B. But without exports, there will be excess demand in A and excess supply in B. As a result the price in A will rise from p_0 , and the price in B will fall from p_0 , until there is a difference of t between them. To see how to pin down the precise price levels, consider **Figure 2**, which, in terms of the (export) supply and (import) demand curves depicted, is the same as **Figure 1**. Focus on the middle panel. Take a ruler and keeping it vertical, start out at Q_0 and move leftward until there is a vertical gap of t between the export supply and import demand curves. The corresponding quantity, Q_t , gives the extent of trade at this incompletely integrated equilibrium, and prices are given by p_t in country A and $p_t - t$ in country B. As t , which measures the extent to which markets are segmented as opposed to integrated, increases, the quantity traded falls and price dispersion goes up between the two markets (up to a maximum of $p_A - p_B$). By implication, quantity and price outcomes contain information about the level of market integration even when the effective height of barriers to integration (summarized, here, as t) cannot be observed directly—which is arguably often the case.ⁱⁱⁱ The evidence presented in this note focuses, for this reason, on outcome-based measures rather than cost-based measures of market integration.

Figure 2 Trade with Incomplete Integration



In sum, the analytical apparatus suggests that both quantities of flows and integration of prices are useful outcome-based indicators of the extent of cross-border market integration. But because of the practical problems of testing for price-integration, some of which will be noted in due course, most of the evidence on market integration to date has focused on quantities rather than prices, as will this review. Section II of this note focuses, as did Levitt, on the integration of product markets. Section III goes beyond the product-market perspective to take a factor or resource market perspective: it looks at some of the evidence concerning the cross-border integration of markets for capital, labor, and knowledge. Two broad questions are asked about each type of market. How did its level of cross-border integration change over some recent—ideally long—period? And how completely was it integrated by the millennium? Section IV concludes by summarizing the findings that cut across different types of markets and discussing some of the implications.

II. Product Markets

This section will begin by looking at the most obvious quantity measure of product market integration, trade flows. It will then look at foreign direct investment stocks and, finally and more briefly, cross-border price integration.

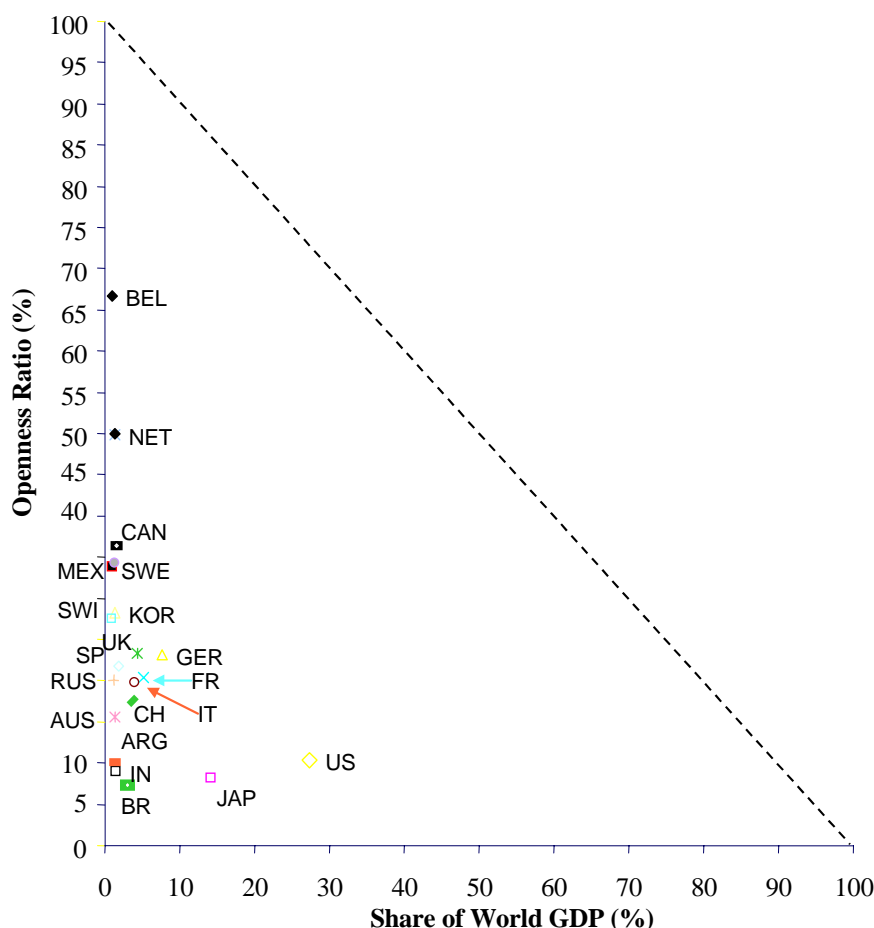
Trade Flows

In the five or so years after the publication of Levitt's article, world exports divided by gross world product, or world GDP (the usual normalization in this context) remained stuck in the 11-12% range, as they had been since the early 1970s. In the last 10 years for which data are available, however, they zoomed upward to breach the 17% mark—a larger increase in percentage terms than that experienced between 1950 (from the 7% mark) and the late 1980s. This suggests rapid recent increases in the globalization of product markets, at least by this measure.

But to economists who study international trade, the issue of why there isn't even more of it is more interesting than the higher and higher records being set. To see the room for increase, consider a hypothetical benchmark in which national borders didn't affect buying patterns at all. In such a situation, buyers in a particular nation would be as prone to obtain goods and services from foreign producers as domestic ones, and the share of imports in total domestic consumption would equal 1 minus the nation's share of world product.^{iv} For example, since the U.S. economy accounts for about one-quarter of Gross World Product, the U.S. import/GDP ratio would, at this benchmark, equal 1 minus the U.S. share of world production, or .75, as would, under the first-order assumption of balanced trade, the U.S. export/GDP ratio. However, the actual ratios are only about one-sixth as large as these hypothetical levels!^v

The line with slope -1 in **Figure 3** traces out this hypothetical benchmark of perfect product market integration as national shares of world product vary. It also plots the position of the 20 largest nations in these terms. Notice that most of the nations cluster close to the origin and all fall well below the hypothetical maximum—including the two high-fliers, Belgium and the Netherlands.^{vi}

Figure 3 Actual vs. Perfect Product Market Integration



Sources: GNP Rankings based World Development Bank's World Development Indicators, 2000. Import/Export Data from WTO.

While the hypothetical benchmark suggests significant barriers to cross-border product flows, it also embodies a number of extreme assumptions. A real example that points in the same direction is provided by Canadian provinces' patterns of trade with each other versus with the U.S.—patterns for which data are available, and which have the added advantage of involving trading partners that are close to each other along a number of dimensions. As of 1988, trade linkages between Canadian provinces were 20 times as large as their linkages with the 30 U.S. states that traded the most intensively with Canada—despite the fact that Canada and the U.S. share a common land border and language (mostly) and have friendly relations with each other, making theirs the largest bilateral trading relationship in the world.^{vii} The free trade agreement signed in 1988 between the two countries did reduce this domestic multiple by the mid-1990s, but only to 12 (and with the multiple remaining stuck at 30 to 40 in the case of services).^{viii} Cruder data suggest a multiple of about 6 for trade within as opposed to between the member states of the European Union.^{ix} Given the regionalization of world trade that has taken place, the multiples of domestic-to-international economic exchange would obviously be higher if one were comparing trade within countries with trade outside the regional blocs to which they belong. By implication, borders still seem to matter a great deal for cross-border trade flows.

Foreign Direct Investment Stocks

Trade isn't the only way in which the cross-border integration of product markets might be accomplished: foreign direct investment (FDI), which involves product-specific investment across borders, is an obvious alternative. It is customary to look at FDI stocks rather than flows because of FDI's long-term character and, relatedly, the volatility of FDI flows. Gross world product or GDP supplies, once again, a convenient normalization.

The world's stock of FDI, after stagnating at less than 5% of world output in the 1960s and 1970s, more than doubled since Levitt's article appeared, to nearly 12% of world output by 1997. As in the case of trade, however, while the recent increase was impressive, the absolute level attained was less so. Lacking an obvious hypothetical benchmark of the sort explored in the previous subsection, perhaps the easiest way of seeing this is to compare current FDI levels with historical ones, as in **Table 1a**. Note that it was only in the 1990s that FDI came to exceed the previous (pre-World War I) peak in its share of gross world product (whereas international trade surpassed its prewar peak in the 1960s).

Table 1a World FDI Stock as a % of World Output

913	960	975	980	985	991	997
.0	.4	.5	.8	.4	.5	1.8

Note: Figure for 1913 is an estimate.

Sources: 1913-1991: World Investment Report 1994; 1997: World Investment Report 1999.

Table 1b Outward FDI Stock as a % of GDP

	914	938	960	980	985	990	995	997
France								
	1.1	7.8	.8	.7	.0	.2	2.0	3.6
Germany								
	1.1	.8	.1	.3	.7	.2	1.1	4.4
Japan								
	.8	.9	.2	.9	.3	.9	.7	.5
United Kingdom								
	2.3	8.5	5.0	5.0	1.9	3.8	8.3	9.1
United States								
	.2	.5	.2	.1	.2	.9	0.0	0.6

Sources: 1980-1997: World Investment Report 1999; 1914-1960: FDI data from John Dunning, "Changes in the Level and Structure of International Production: The Last One Hundred Years" in Mark Casson, ed., *The Growth of International Business*, 1983. 1914 and 1938 GDP data from Jones-Obstfeld Saving and Investment Data for 13 countries, available online: www.nber.org/databases/jones-obstfeld/index.html. 1960 GDP data from IMF Int'l Financial Statistics Yearbook, 1990.

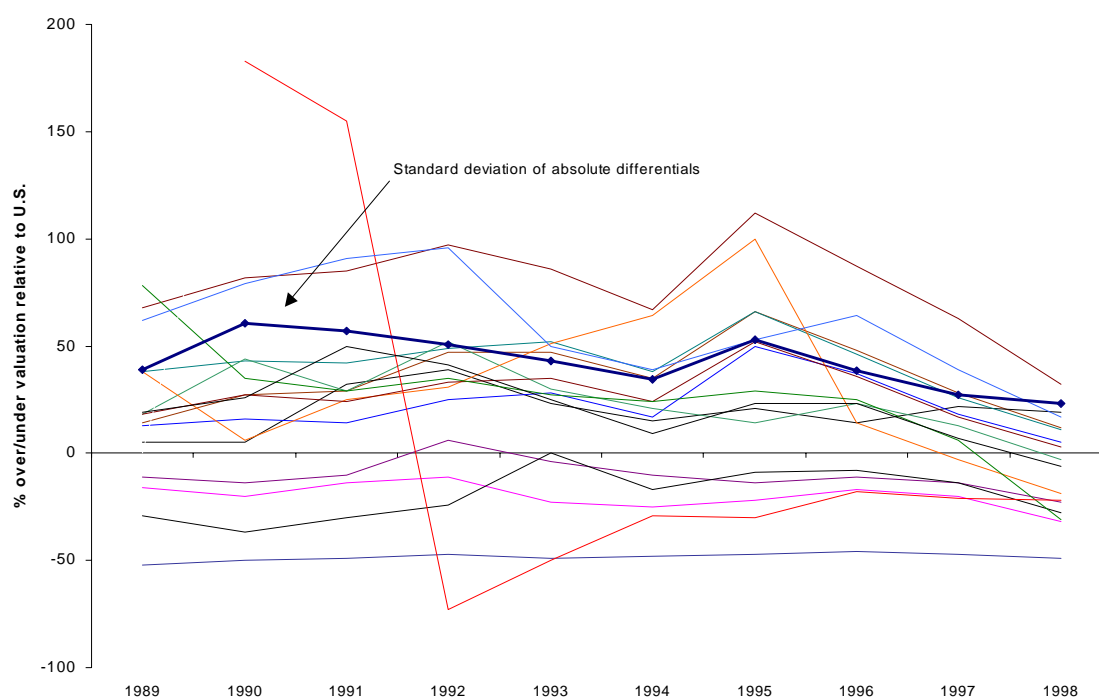
Table 1b breaks out these historical aggregates for the five largest sources of FDI. The two countries that had the highest outward FDI-to-GDP ratios in 1914, the United Kingdom and France, both report sharply lower ratios in 1997, despite large increases since 1980. Germany, which was third in 1914, edged past its prewar record as well as France in the late 1990s. The U.S. ratio, which was not affected as much by the two wars as Germany's, finally pushed past its previous (interwar) peak in the 1990s as well. The ratio for Japan increased steadily, at least through 1990, but remained significantly smaller than the ratios for the four other countries mentioned above. Overall, while FDI has surged since the 1980s, the data do not suggest anything like a qualitative increase in the ratio of FDI stocks to gross economic activity over the course of the 20th century.

Price Integration

Viewed in terms of prices rather than quantities, the ultimate in market integration is achieved when two (or more) markets are yoked together by the so-called Law of One Price (LOP), i.e., prices equalize across them. Implicit in LOP is a (strong) zero-arbitrage-profits principle. Note that the degree of price integration of product markets can be high even when the quantity flows across them are limited, e.g., for some commodities whose local prices are pegged to world benchmark prices, particularly ones with high value-to-weight ratios. Except for (nearly) perfect commodities, however, tests of price integration generally hampered by the lack of data on local currency prices of identical products across countries. For an apparent and widely-cited exception to this rule that nevertheless illustrates the difficulties of using dispersions in product prices across markets to draw inferences about product market integration, consider the Big Mac.

The Big Mac, in addition to being an iconic global product whose local prices are readily observable, has the advantage of being produced by or under the supervision of a global parent, McDonalds, that is known for its zeal in standardizing its product offerings worldwide. But problems remain. First of all, Big Mac offerings aren't, in fact, identical everywhere: ketchup, for example, is included in the basic price in some countries but can add as much as one-fifth to basic prices in others. Second, Big Mac prices should probably be seen in the context of an integrated product line pricing strategy, implying that prices of substitutes as well as complements should be brought into the picture. Third, construction of a weighted basket of product prices would still miss out on the non-product attributes of the McDonald's experience, which can vary greatly from country to country: in its U.S. home base, for example, McDonald's draws primarily lower-income customers for a relatively utilitarian eating experience but in Asia, it can be a place to see and be seen, particularly for teenagers. Fourth, even if one can overcome all the difficulties of controlling for differences in product and service offerings, differences in prices across countries might reflect the differences in costs of nontradeable inputs such as land and labor, differences in taxes, price supports or the like, or even the misalignment of exchange rates that do not convey information about the extent of cross-border integration of product markets (as opposed to other kinds of markets). Finally, McDonalds obviously enjoys some market power in the sense of facing downward-sloping demand curves in its various country markets and should, according to economic theory, set its price-cost margin in a particular country to equal the inverse of the price-elasticity of demand that it effectively faces there (which will vary with consumer preferences and incomes, and with the intensity of competition locally).

Having noted all these caveats, consider – if you still have the appetite – the data in **Figure 4** that were generated by *The Economist* to calculate its Big Mac Index, comparing the prices of that hamburger in different cities after converting local prices to U.S. dollars at official exchange rates. The data indicate that these prices vary considerably (albeit asymmetrically) around the U.S. baseline and, while they sometimes exhibit sharp reversals, are converging, if at all, only in the long run. Statistical analysis of Big Mac price data fails to uncover any significant trend.^x And studies of broader sets of products and services generally come to similar conclusions about the volatility and persistence of deviations from LOP. Cross-country price dispersions tend to be large and to die down at a slow pace, and there is little evidence of recent movement toward smaller dispersions or speedier dampening.^{xi}

Figure 4 Big Mac Index

Source: The Economist, various issues.

III. Resource Markets

Product markets aren't the only type of market that might become more integrated across borders as a result of globalization: the cross-border integration of resource or factor markets of various types represents a distinct set of mechanisms for economic globalization. This section presents and discusses evidence on the extent of cross-border integration of markets for capital, labor and knowledge, in that order. Both quantity and price-based measures of integration are looked at wherever possible because the analytical apparatus laid out in Section I can be applied, with some reinterpretation, to (certain types of) resources as well as products.

Capital Resources

The previous section's focus on FDI can be broadened to look at international capital flows over the last 100 years.^{xii} Note that because of identities in national income accounting, countries' net capital flows can be measured as the reverse of their current account balances. Data on net capital flows divided by GDPs for 12 countries suggest that this index of capital mobility has increased in recent decades but was higher still around the beginning of the 20th century (see **Table 2**). Note that the impressive performance 100 years ago was accomplished in spite of informational and contracting problems that were probably much more severe back then given the lack of generally accepted accounting principles and commensurately weak reporting requirements.

Table 2 Size of Net Capital Flows since 1870
(mean absolute value of current account as % of GDP, annual data)

Period	RG	US	AN	EN	RA	ER	TA	AP	OR	WE	K	S	II
1 870-89	8.7	.2	.0	.9	.4	.7	.2	.6	.6	.2	.6	.7	.7
1 890-1913	.2	.1	.0	.9	.3	.5	.8	.4	.2	.3	.6	.0	.3
1 914-18	.7	.4	.6	.1	-	-	1.6	.8	.8	.5	.1	.1	.1 ^a
1 919-26	.9	.2	.5	.2	.8	.4	.2	.1	.9	.0	.7	.7	.1
1 927-31	.7	.9	.7	.7	.4	.0	.5	.6	.0	.8	.9	.7	.1
1 932-39	.6	.7	.6	.8	.0	.6	.7	.0	.1	.5	.1	.4	.2
1 940-46	.8	.5	.3	.3	-	-	.4	.0	.9	.0	.2	.1	.2 ^a
1 947-59	.1	.4	.3	.4	.5	.0	.4	.3	.1	.1	.2	.6	.9
1 960-73	.0	.3	.2	.9	.6	.0	.1	.0	.4	.7	.8	.5	.3
1 974-89	.9	.6	.7	.2	.8	.1	.3	.8	.2	.5	.5	.4	.2
1 989-96	.0	.5	.0	.8	.7	.7	.6	.1	.9	.0	.6	.2	.3

Source: Maurice Obstfeld and Alan Taylor, "The Great Depression As A Watershed: International Capital Mobility Over the Long Run," NBER Working Paper 5960, March 1997.

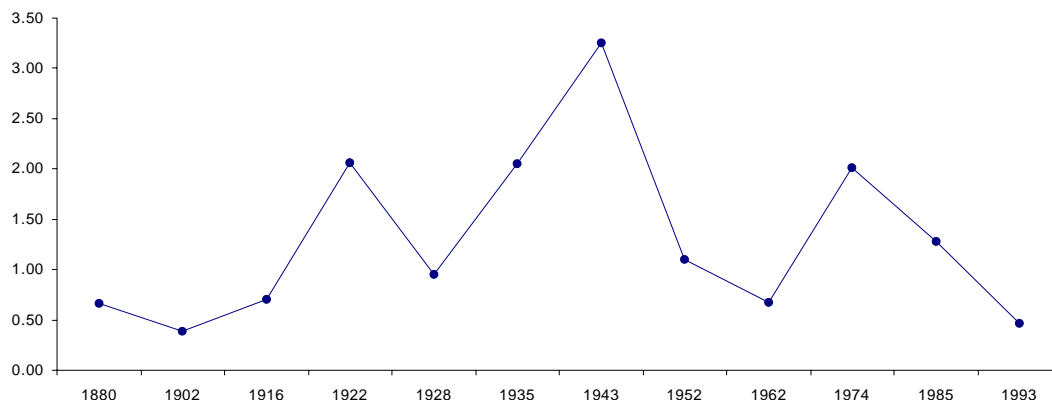
International financial crises represent the flip side of international capital mobility. Once again, historical comparisons suggest that international financial crises, particularly in emerging markets, are not without precedent. Thus, data on the currency and banking crises experienced by 21 countries between 1880 and 1998 indicate that the most severe crises, on average, were in the interwar period, followed by the prewar period; postwar crises, in contrast, have been milder in terms of the drops in output experienced, and shorter-lived.^{xiii} And even when the sample is restricted to emerging countries, current levels of instability do no worse than "match" prewar levels, in which the gold standard acted as a crisis transmission belt and emerging countries, at least, tended to lack lenders of last resort.^{xiv}

In addition to these historical comparisons, quantity-based measures also permit some inferences about the absolute level of cross-border integration of capital markets. As in the case of trade, the professional curiosity of economists has focused on smaller-than-expected flows (or stocks). Probably the most famous "anomaly" of this sort is the one uncovered by Martin Feldstein and Charles Horioka (1980), who calculated a 90% correlation between domestic savings and domestic investment across a panel of countries, much higher than benchmark models which assume perfect capital mobility would lead us to expect. Another anomaly that points in the same direction concerns what is called home-country bias: investors in each country hold much larger proportions of their wealth in the form of domestic securities than they would with internationally well-diversified portfolios. Thus, by one estimate, U.S. investors should have held more than half their wealth in foreign equities in the 1980s, instead of the less than 10% that they actually held.^{xv}

Price-based measures of capital market integration – with price integration reinterpreted in terms of the equalization of rates of return on common or comparable securities across national boundaries – supply additional evidence about the continued segmentation of capital markets. One benchmark example is provided by a comparison of one-year interest rates on sterling-denominated assets sold in London and in New York over the last 100-plus years.^{xvi} **Figure 5** tracks the standard deviation of differences in returns in the two cities as an inverse measure of capital market integration. The data

indicate significant cross-border integration of capital markets prior to 1914, the breakdown of that integration in the interwar period, and its slow restoration in the postwar period. Qualitatively similar conclusions are suggested by comparing real rather than nominal returns, although that does increase the standard deviation of the dispersion of returns, presumably reflecting the effects of currency risk, both nominal and real.^{xvii}

Figure 5 Standard deviation of nominal return differentials

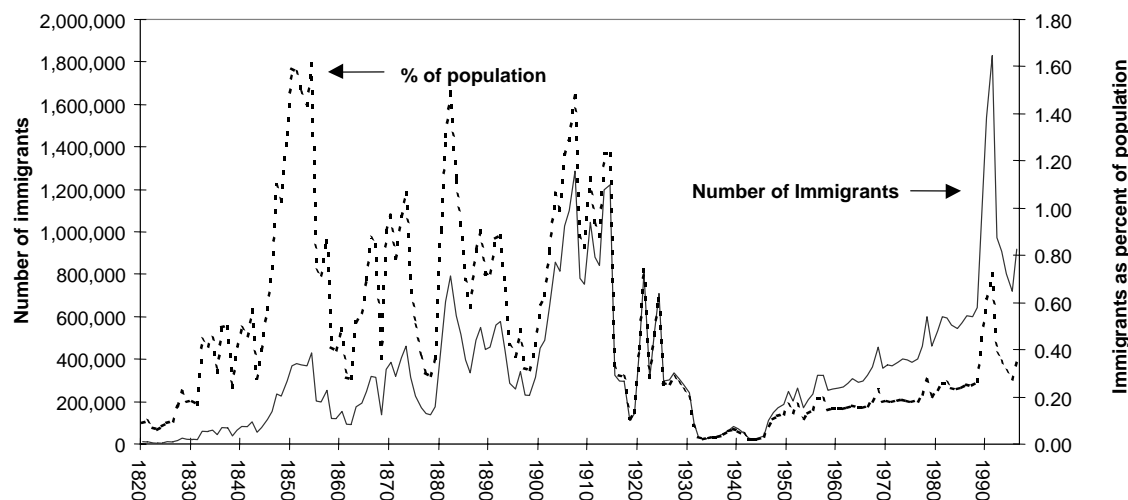


Source: Maurice Obstfeld and Alan Taylor, "The Great Depression As A Watershed: International Capital Mobility Over the Long Run," NBER Working Paper 5960, March 1997.

Labor Resources

While data on cross-border flows are sparser for labor markets than for product or capital markets, they generally suggest both that such flows of labor have increased significantly in recent decades *and* that they remain smaller, as percentages of the relevant populations, than they were 100 years ago. The most systematic time series for 100+ years pertains to inflows into the United States, by far the largest single receiver of immigrants, and the only rich country that continues to provide for large-scale immigration. **Figure 6** indicates that while official U.S. immigration levels surged to an all time high in absolute terms in the 1990s, their size relative to the U.S. population is still much lower than it was about 100 years ago. Adjusting the recent U.S. data for illegal immigrants does not change this basic conclusion. Or to compare stocks rather than flows, census data indicate that 14% of the U.S. population was foreign-born at the turn of the century, compared to 8% today.^{xviii}

Figure 6 U.S. Immigration Data (1820-1996)



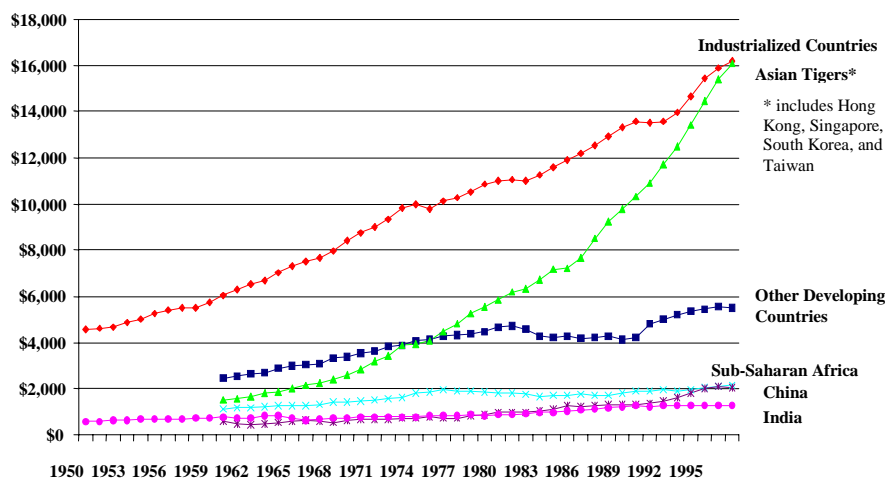
Source: U.S. Census Bureau.

Looking more broadly, the period between 1880 and 1915 seems to have been the heyday of international migration, particularly from Europe to “receiver” countries in the Americas and Australia, as displacement of people from the land in industrializing “senders” combined with declines in transportation costs, growing wealth and remittances from earlier emigrants to lead to large cross-border labor flows to.^{xix} Over this period, 32 million people migrated from Europe, most of them to the United States, compared to about 12 million such migrants between 1820 and 1880, and much smaller numbers earlier on.^{xx} In addition, there were perhaps 12 million net migrants—mostly “coolie” or indentured labor—from India, China, and other Asian countries to the rest of the world between 1820-1915; once again, the period after 1880 accounted for the bulk of these flows.^{xxi} The transatlantic slave trade accounted for the transportation of about 12 million people as well, but was earlier in its timing, with significant flows starting in the 16th century and peaking in the 18th century, which accounted for more than half the total.^{xxii}

Unlike these earlier data, which concentrate on levels of net migration (i.e., net of return migration), postwar data, particularly for European countries, are couched in terms of gross migration. Conflating various estimates, it is possible to calculate post-war gross migrations to the OECD countries as exceeding 100 million, and taking place mostly between 1965 and the 1990s.^{xxiii} But a significant fraction of this total is accounted for by return flows, rough elimination of which leaves us with net flow estimates comparable to the 40 million or so calculated for the period between 1880 and 1920. To put these figures in normalized perspective, note that the world’s population amount to 1.5 billion in 1900, and 4 billion in 1975.

Turning from quantity to price-based measures, the most obvious indicator of cross-border integration of labor markets would be the cross-border convergence of wages. Data on the evolution of average per capita incomes (a rough and ready proxy for average wages) indicate that while incomes in industrialized countries have tended to converge, a few Asian “tigers” have been the only countries able to break away from the rest of the developing world and catch up with industrialized world (see **Figure 7**).^{xxiv} More sophisticated tests confirm this conclusion and indicate that the failure of most developing countries to catch up can be reconciled only with a weaker notion of convergence, conditional convergence.^{xxv} Conditional convergence allows for differences in the steady state incomes toward which different economies are trending based on differences along dimensions such as investment, education, and population growth. Human capital turns out, in attempts to fit conditional convergence models to the data, to have a particularly marked effect on the predicted extent of convergence.

Figure 7 Convergence? GDP per Capita Across Economic Groups, 1950-1997 (PPP-Adjusted)



Source: Bruce Scott, Economic Strategies of Nations, adapted from the Penn World Tables and the World Bank.

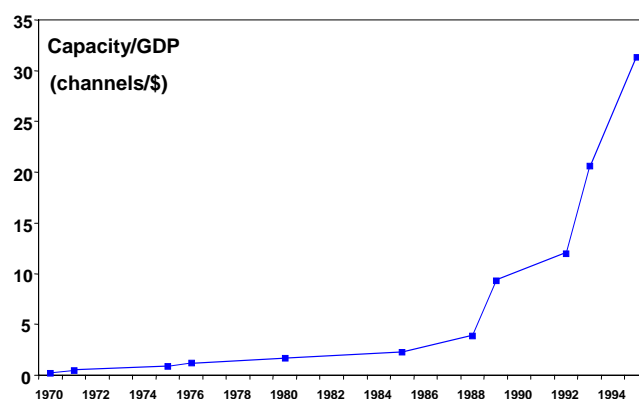
Knowledge Resources

The cross-border flows that have already been discussed can carry knowledge across national borders as well since it can be congealed in products, embedded in capital equipment, vested in skilled personnel, *et cetera*. Given the topics already covered in this note, the coverage in this subsection will focus on cross-border flows of knowledge in pure, disembodied form. In addition to rounding out the coverage, this focus has the advantage of offering a relatively simple benchmark: since disembodied knowledge has a “nonrival” character—i.e., since its use in one market, whether defined in geographic or product-related terms, should not preclude its application to others—perfect cross-border integration in this context should imply that knowledge, once developed anywhere in the world, is available everywhere else as well. In terms of the analytical apparatus laid out in Section I, one might think of supply curves that coincide with the x-axis everywhere—reflecting zero variable costs—once knowledge has been developed somewhere.^{xxvi}

The conceptual simplicity of focusing on disembodied knowledge flows does, however, exact an empirical price: because of their intrinsic intangibility, such flows are particularly hard to measure. The evidence available to be presented in this subsection is correspondingly sketchy. It tentatively suggests, however, that there have been substantial increases in cross-border knowledge flows over time and, a bit more definitely, that cross-border integration in this regard nevertheless remains very incomplete. Consider these inferences in turn.

As far as technological knowledge is concerned, one indicator that supports the inference of increased cross-border knowledge flows over time is provided by cross-border licensing. While such licensing is not new—international royalties accounted for a significant component of James Watt’s receipts from his steam engine patents in the early 19th century, for example—the available data, along with informational and contracting problems that were even more acute early on than they are now, suggest that the voluntary transfer of knowledge across national borders takes place to a much greater extent than used to be the case. Concerning more general managerial knowledge, the post-World War II period, in particular, has seen the development of new types of organizations and organizational forms that have facilitated knowledge transfer as well. Franchising, which really emerged in its modern form in the United States in the 1950s, is one example. And management consulting firms, which began their international expansion at roughly the same time, are regarded as having evolved into major channels for the international diffusion of new managerial techniques.^{xxvii} Of course, the spread of multinational enterprises, intent on applying the same technological and managerial knowledge to more and more markets points in the same direction. So too does the explosion in cross-border information transmission capacity since the early 1980s (and earlier), as tracked in **Figure 8**.

Figure 8 Bulk Flow Capacity* Expansion



*Note: capacity = undersea cable capacity + satellite transmission capacity; Source: TeleGeography.

These increases in cross-border knowledge flows notwithstanding, there are also numerous indications of the continued geographical localization of knowledge. The direct evidence on the size of knowledge transfer costs, while fragmentary, is suggestive: one influential study concluded that transfer

costs accounted for an average of 19% of total project costs – and ranged from 2% to 59% – in a sample of technology transfers in the chemicals, petroleum refining, and machinery sectors.^{xxviii} Patent citations supply a more outcome-based perspective: thus, a study of five large industrialized countries concludes that patents whose inventors reside in the same country are typically 30 to 80% more likely to cite each other than inventors from other countries, and that on average, these citations come one year sooner.^{xxix} Yet another outcome-based perspective that points in the same direction is supplied by the observation – extrapolated from the module on location in the Competition & Strategy course – that location matters for international competitiveness in large part because of locally-dense information flows, as exemplified most vividly by internationally successful clusters.^{xxx} While it would be an exaggeration to say that location is destiny, such perspectives do serve as a reminder that the availability of notional information transmission capacity may be necessary for knowledge to travel, but is far from sufficient.

IV. Conclusions

One plausible reading of the evidence presented in the previous two sections is that the dynamics of economic globalization have paralleled each other in different types of markets. Most measures of the international integration of markets have increased dramatically in recent decades, with a few shattering previous records, typically set in the late 19th or early 20th century. Yet the absolute level of cross-border integration of such markets remained seriously incomplete at the end of the 20th century. This last conclusion seems to apply to regional and even local borders as well as national ones, although this note focused, for brevity, on nation-states rather than regions or cities as the unit of analysis.

These conclusions may or may not strike the average reader as very definite. It is worth pointing out, however, that they do have very definite, and favorable, implications for the added value of thinking explicitly about globalization and strategy. With either totally segmented or totally integrated country markets, we would effectively be back to the single-country base case that is implicit in much of strategic thinking, negating the value of adding the globalization angle to strategic analysis. An intermediate level of globalization, with partial integration across country markets, is *the* state of the world in which it can pay to work with a more complex model than the single-country one. And within the intermediate category, situations in which globalization is increasing imply a higher payoff to thinking more globally than situations in which it is holding steady or declining.

ⁱ Theodore Levitt, “The Globalization of Markets,” *Harvard Business Review*, May-June 1983, p.92.

ⁱⁱ Note that the analysis here is partial rather than general equilibrium in nature.

ⁱⁱⁱ Michael M. Knetter and Matthew J. Slaughter, “Measuring product-market integration,” NBER Working Paper 6969, February 1999, pp. 3-4.

^{iv} Jeffrey A. Frankel, “Assessing the Efficiency Gain from Further Liberalization,” Conference on *Efficiency, Equity and Legitimacy: The Multilateral Trading System at the Millennium*, June 2000.

^v The disparity is even greater if one recognizes that the denominator of the ratio should really be a measure of gross sales rather than a value-added measure like GDP.

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^{vii} John McCallum, “National Borders Matter: Canada-U.S. Regional Trade Patterns,” *American Economic Review*, Vol. 85 (June 1995):615-23.

^{viii} John F. Helliwell, *How much do national borders matter?* (Washington, D.C.: Brookings Institution Press, 1998) chapter 2.

^{ix} Helliwell, 1998, chapter 3.

^x Knetter and Slaughter, 1999, pp. 11-12.

^{xi} For a survey of the literature, see Kenneth Rogoff, “The Purchasing Power Parity Puzzle,” *Journal of Economic Literature*, Vol. 3 Issue 2 (June 1996):647.

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- xiii Foreign direct investment currently accounts for roughly one-half of total foreign investment, but its share was significantly smaller at the start of the 20th century. See Bloomfield (1968), pp. 3-4: cited in Bordo et al.
- xiii Michael D. Bordo, Barry Eichengreen, and Douglas A. Irwin, "Is Globalization Today Really Different than Globalization a Hundred Years Ago?" NBER Working Paper 7195, June 1999.
- xiv Note that the spread of domestic safety nets does increase the likelihood that banking crises will turn into currency crises.
- xv Karen K. Lewis, "Puzzles in International Financial Markets," Chapter 37 in *Handbook of International Economics, vol. III*, ed. By G. Grossman and K. Rogoff, (Amsterdam: Elsevier Science, 1995).
- xvi Maurice Obstfeld and Alan Taylor, "The Great Depression As A Watershed: International Capital Mobility Over the Long Run," NBER Working Paper 5960, March 1997.
- xvii Obstfeld and Taylor. For further discussion of currency risk, see Jeffrey A. Frankel, "Measuring International Capital Mobility: A Review," *American Economic Review*, Vol. 82 No. 2 (May 1992):197.
- xviii Nicholas D. Kristof, "The World: A Better System in the 19th Century?," *The New York Times*, 23 May 1999 p. 5.
- xix Subsequent stagnation and decline reflected tightening of what had previously been very liberal immigration policies by receivers, particularly the United States. See O'Rourke and Williamson, p. 187.
- xx A. G. Kenwood and A. L. Lougheed, *The Growth of the International Economy, 1920-1960*, (London: Allen & Unwin, 1989).
- xxi David Held, Anthony G. McGrew, David Goldblatt and Jonathan Perraton, *Global Transformations: Politics, Economics, and Culture*, (Stanford: Stanford University Press, 1999), pp. 293-295, 311.
- xxii P. Curtin, "Africa and Global Patterns of Migration," in *Global History and Migrations*, edited by Wang Gungwu, (Boulder, Colo.: Westview Press, 1997).
- xxiii Held, McGrew, Goldblatt and Perraton, 1999, pp. 311-2.
- xxiv Note the caveat that the extent of catch-up by the Asian tigers would look somewhat less remarkable if the data in Figure 7 were updated to take account of the Asian currency crisis.
- xxv Robert J. Barro and Xavier Sala-i-Martin, *Economic Growth*, (New York: McGraw-Hill, 1995).
- xxvi Of course, the fixed costs that are frequently incurred in developing or applying new knowledge inject elements of monopoly into the situation that cannot be fully addressed with perfectly competitive models of the sort underlying the discussion in Section I. This complexity is ignored in the present treatment, although it will be revisited in a note to be handed out later.
- xxvii John Micklethwait and Adrian Wooldridge, *A Future Perfect: The Challenge and Hidden Promise of Globalization*, (New York: Crown Business, 2000).
- xxviii D. J. Teece, "Technology Transfer by Multinational Firms: The Resource Cost of Transferring Technological Know-How," *The Economic Journal*, Vol. 87, No. 346. (June 1977), pp. 242-261.
- xxix Adam B. Jaffe and Manuel Trajtenberg, "International Knowledge Flows: Evidence from Patent Citations," *Economics of Innovation and New Technology*, Vol. 8, pp. 105-136.
- xxx The other (overlapping) reasons for the localization of international competitiveness identified by Porter (1990) are sophisticated local demand and the local availability of specialized inputs and complements as well as basic factors of production.