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Globalization, Capabilities, and Distance: Theory and a Case Study (of China)

Pankaj Ghemawat and Thomas M. Hout

Abstract: This article examines how firm-level capabilities relate to competitive outcomes between multinational firms from advanced economies (MNCs) and challengers from emerging economies. It presents John Sutton’s theory of the “capability window” with new empirical evidence on competition between MNCs and Chinese firms inside China, in particular. Market share leadership by MNCs in China is found to be positively related to industry R&D- and advertising-intensities, and where leadership varies by segment, MNCs tend to lead in high-end segments and Chinese firms in low-end segments. The empirical research provides support for Sutton’s model but also suggests a set of extensions to it—most significantly the incorporation of horizontal distance alongside the vertical distance emphasized in the baseline model.

Keywords: Capabilities, Emerging Markets, Emerging Multinationals, Sutton, Capability Window, China, CAGE Distance Framework, AAA Strategies.

Recent years have seen a surge of interest in linking international/global strategy to new ideas about the broader field of strategy. An important example is provided by the refinement of theories of multinational firms (henceforth MNCs) in line with the resource-based view of strategy. Thus, international strategists’ discussions of firm-specific advantages (FSAs) and country-specific advantages (CSAs) now recognize that FSAs must have certain characteristics if they are to underpin sustained superior performance.¹

But despite progress in this and other respects, the emphasis in the international domain on the recombination of FSAs and CSAs—particularly with “new internalization theory’s”

consideration of host as well home CSAs and the development of subsidiary specific advantages (SSAs)² in addition to FSAs—is an awkward fit with the resource-based view that differences among firms as the result of unavoidable heterogeneity in specialized factors or factor combinations rather than of purposeful differentiation. More specifically, the resource-based view takes firms’ resource endowments as given and so in that sense, adopts a static perspective.³

A more dynamic referent is provided by work that strategy scholars have undertaken since the 1990s to extend the resource-based view by explaining how capabilities that enable firms to perform activities better than their competitors can be built and redeployed over long periods of time. Unlike resources in the resource-based view, such capabilities are to be developed rather than taken as given, as described more fully in a pioneering article by David Teece, Gary Pisano and Amy Shuen:

If control over scarce resources is the source of economic profits, then it follows that such issues as skill acquisition...and learning become fundamental strategic issues. It is this second dimension, encompassing skill acquisition [and] learning...that we believe lies the greatest potential for contributions to strategy.⁴

Teece, among others, has also sought to relate firm capabilities to theories of the multinational enterprise. Thus, Teece distinguishes between ordinary and dynamic capabilities and argues that firms from emerging economies often lag those from advanced economies with respect to even ordinary capabilities—and that MNCs from advanced economies can transfer and adapt such capabilities to compete in emerging economies, with the adaptation process itself being “partially a dynamic capability.”⁵

This paper digs deeper into competition between multinational firms from advanced economies and challengers from emerging economies. It draws on both new theory that endogenizes capability development in a globalizing context and new empirical evidence, from China. The basic theoretical model, due to John Sutton, the industrial organization economist, is presented briefly in Section I. Section II argues that China is a particularly interesting test-bed for Sutton’s model of globalization and capabilities. Section III presents the basic results about competition within China. Sections IV and V examine, respectively, matches between actual outcomes and Sutton’s baseline model of globalization, capabilities, and vertical differentiation/distance and directions in which that baseline model might usefully be extended: most importantly, to consider horizontal as well as vertical distance. Section VI concludes.

<h1>I. Sutton’s Baseline Model

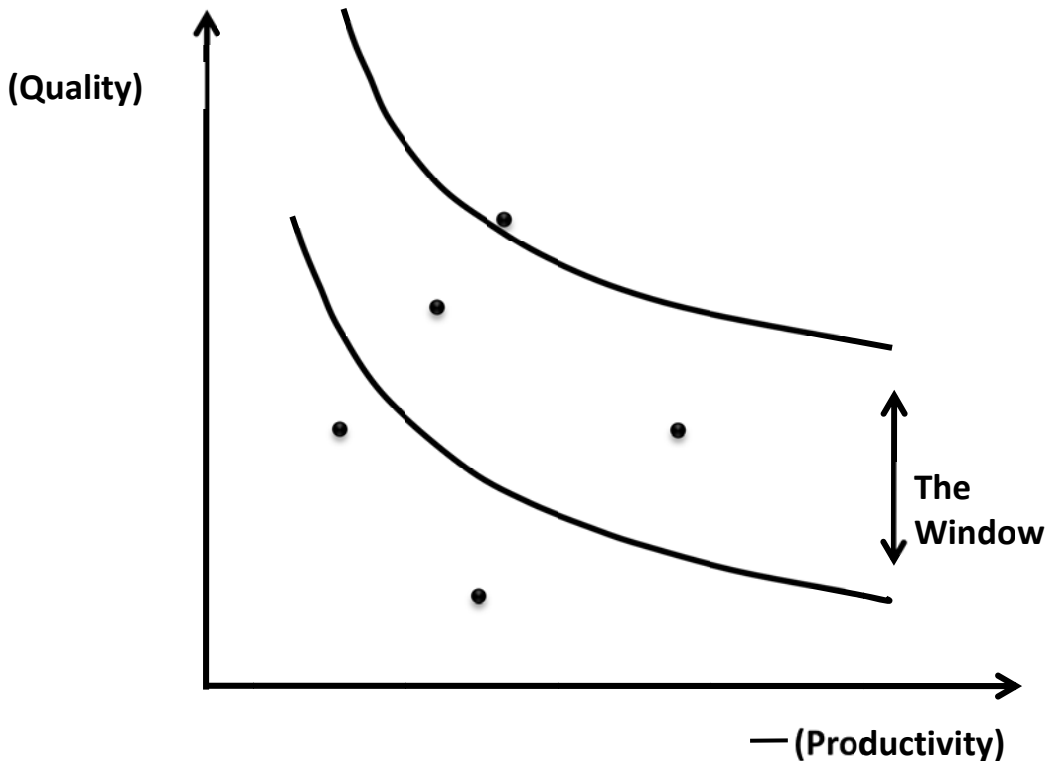
Sutton moves beyond the “better have better capabilities” notion of competition among global firms to embed endogenous capability development in a model of global competitive interactions.⁶ He works with the simplest possible notion of capability: quality divided by unit labor cost, i.e., focuses on capabilities as realizations from opportunity sets rather than in terms of the opportunity sets. The simplicity of focusing, in effect, on observables related to cost and differentiation helps with both measurability—a problem in most treatments of capabilities—and tractability, in the sense of letting Sutton model competition to develop capabilities between MNCs and local challengers. Sutton uses his “bounds approach” to pin down possible outcomes using a competitive logic that turns out to offer much more robust conclusions than game-theoretic models typically do.⁷ (Briefly, Sutton looks at equilibrium in the space of outcomes rather than equilibrium in the space of strategies.) His key results concerning competition among firms of differing capabilities can be summarized in terms of his “capability window.” Thus, in

Figure 1, firm A, which has the highest level of capability is viable, but so are B and C, whereas D and E are not.

Globalization shifts the window of capabilities that are viable (see Figure 1) upward over time. More specifically, trade liberalization causes the bottom of the window to move up, i.e. a higher level of wage-adjusted capability is needed to be viable. And the “great arbitrage” marrying advanced economy capability with developing country wages—of particular interest in the Chinese context—also causes the top of the window to move up: competition among MNCs to build up their capabilities intensifies as challengers improve their capabilities through transfers in. Note that the upward movement of the capability window is a gain from globalization—from a consumer perspective, more is available for less—that is distinct from the other gains traditionally emphasized in the literature and potentially larger than many of them.⁸

[insert Fig. 1 here]

Figure 1. Capabilities and the Window of Viability



While Sutton's model is quite general, it offers two fairly specific predictions about MNCs versus emerging challengers. First, MNCs should do better in industries that offer more potential for investments in sunk costs to boost operating margins, with the two key proxies being high advertising-to-sales and R&D-to-sales ratios (the traditional indicators of product differentiation possibilities). Second, in industries that can be partitioned into vertically differentiated segments, MNCs should be more likely to lead in the higher-end segments and emerging economy challengers in the lower-end ones.

II. China as a Test-Bed

One could, in principle, confront the two specific predictions from the previous section with competitive outcomes in any one of the 150+ countries that might be classified as emerging—or, in fact, any of the nearly 200 countries, in total, in the world today. But China

seems the ideal test-bed, for two reasons. First, China is one of the largest, if not the largest, markets in the world, especially in volume terms (see Figure 2 for China’s global market size rank across a sample of 40 industries—and note comparatively higher ranks in commodities and industrial products and capital goods, and comparatively lower ranks in services.) And second, while the United States and the European Union are each still larger, in terms of GDPs, than China, Chinese competitors would seem much more subject to vertical differentiation disadvantages than might be exposed, for instance, by a focus on the European Union versus the United States. There are likely to be more vertical differences in capability terms between Chinese challengers and western (and Japanese and S. Korean) MNCs than within the latter.

[insert Fig 2 here]

Figure 2. China’s Rank in Terms of Market Size, 2012⁹

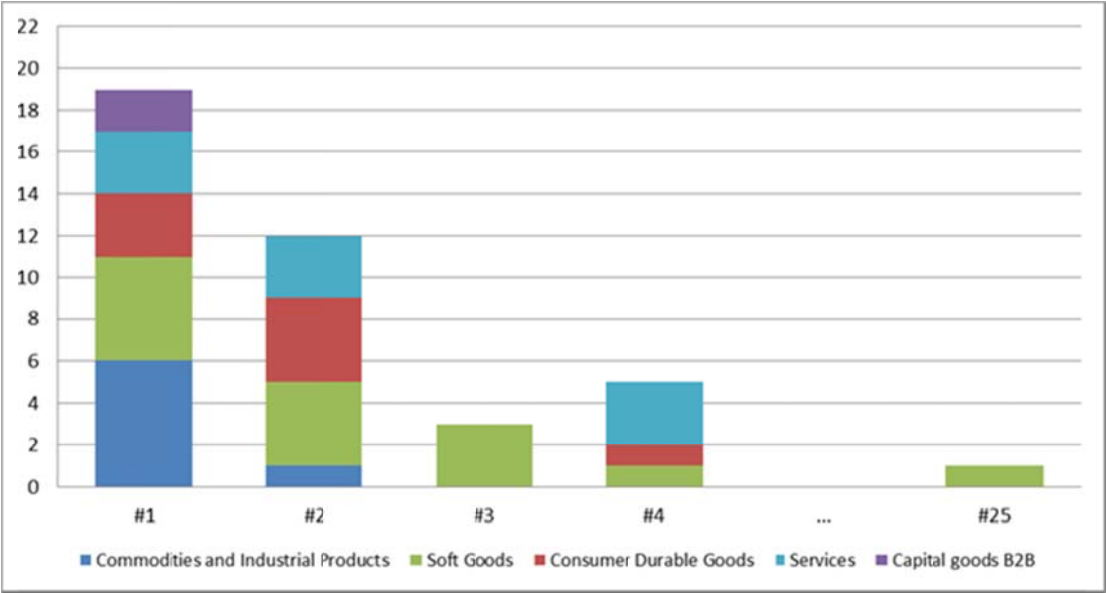


Figure 3 summarizes why these two aspects of China combine to make it so appealing a test-bed. In small markets, even modest cross-border economies of scale and scope can undercut the viability of local competitors relative to vertically differentiated MNCs who can to some extent spread fixed costs across multiple markets—if the MNCs bother to contest those markets,

of course. But China is a large market that is actually is being contested keenly by MNCs—and by local firms. It corresponds to the cell, shaded for emphasis, in the matrix that presents the most interesting ambiguities—and that looking at China lets us focus upon. Competition in—and out of—China sets up a test of whether vertically-advantaged MNCs—competitors from advanced countries typically still hold an edge in terms of marketing and technological knowhow—will win or lose ground to less vertically differentiated (lower cost/lower quality) emerging challengers, often locals. And while China was deliberately selected to be an outlier in terms of size, outcomes there may also afford some insight into the broader shift of many economic activities towards emerging economies, particularly the larger ones—although again, averaging across dozens of categories, China accounts for more than 40% of the big shift to emerging economies since 2000.¹⁰

[insert Fig 3 here]

Figure 3. Market Sizes, Vertical Capability Differences and Likely Winners

		Host Market Size	
		Small	Large
Vertical Capability Differences between MNCs and Emerging/ Local Challengers	Small	Uncontested?	Local Heroes
	Large	Global Champions	China/ Focus of Research

It is worth pointing out another particular (and specializing) attribute of China: it is a country where domestic firms, at least the private ones, actually are climbing the vertical ladder of capabilities. If this isn't happening, if there is a stunted domestic response (and there do seem

to be examples of emerging economies caught in such a bind), there is no point to the kind of analysis, domestic vs. foreign, attempted here: the all-too-predictable outcome is that locals will be wiped out in proportion of the degree of opening up.

Second, many sectors in China are still officially or unofficially closed to foreign competition—and there is even a sense that such official home-bias may be getting worse as China turns to a more domestically-driven, services-led growth model as well as continuing to emphasize the development of technological self-sufficiency.¹¹ The analysis in the next section focuses on sectors where the Chinese government does allow meaningful foreign competition.

These caveats noted, what basic patterns do we find when we look at contested sectors within China?

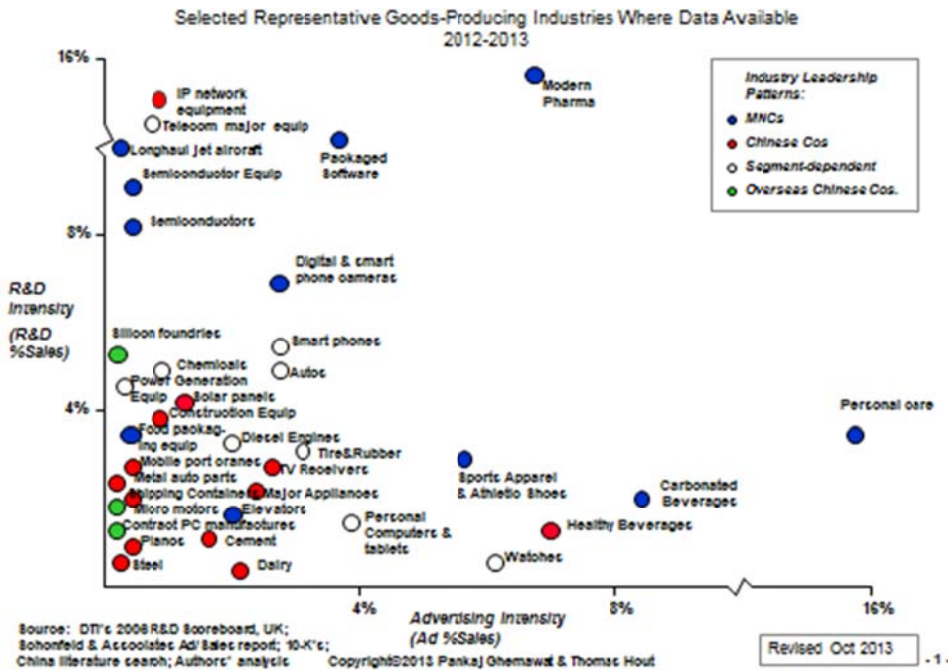
<h1>III. China Patterns

This section begins by presenting data from 2012–2013 about whether MNCs or Chinese companies lead within China in industries in which meaningful foreign competition is allowed. We then compare these recent data with the data we compiled on the same question for 2006 and published in 2008.¹² After these cross-industry analyses, this section digs a little deeper into patterns within industries in which leadership is segment-dependent.

The performance variable that we assemble data on, market share leadership, has its limitations, which are worth commenting on. Data on profitability or other bottom-line measures would usefully supplement or perhaps even substitute for such top-line focused data, but alas, the profitability data are unavailable. Significant data-gathering efforts were involved for purposes of “just” generating the market share leadership estimates presented here.

[insert Fig 4 here]

Figure 4. Leading Positions in China by industry: MNCs vs. Chinese Co's (2012-2013)¹³



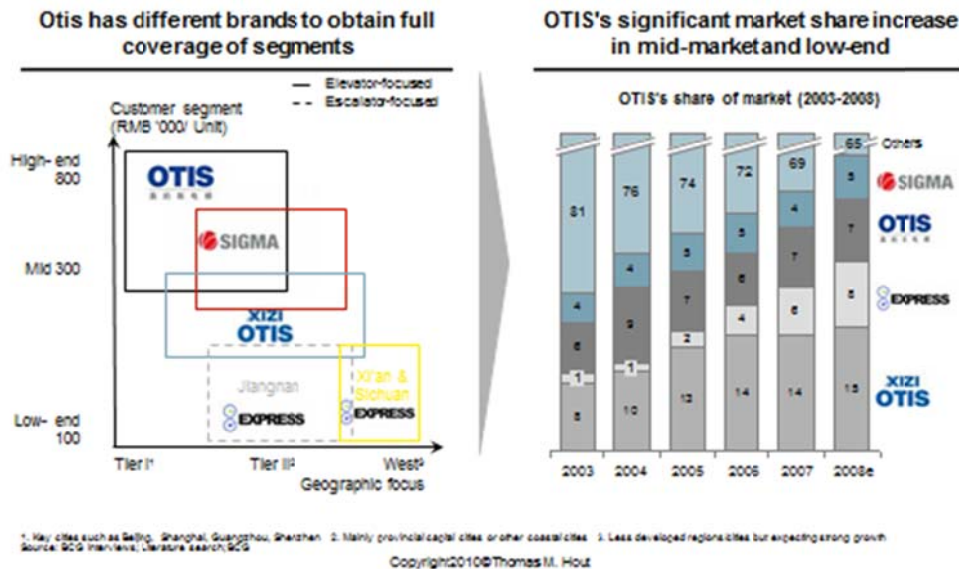
Based on 2012–13 data, ownership of leading positions in China is strongly dependent on industries' R&D- and advertising-intensities. Overall, Chinese companies strongest positions are in relatively low R&D and advertising intensive industries, and not coincidentally, China's early multinationals are mostly drawn from this same group (see "China's Multinationals" box). The more intensive in R&D and advertising an industry is, the more likely foreign multinationals are to lead. In the most R&D intensive industries—modern pharma, packaged software, long-haul aircraft, etc., foreign MNCs continue to lead. The only major exception to the rule about R&D-intensity is IP network equipment, currently dominated by Huawei Technologies and ZTE—and one arguably shrouded in some mystery insofar as links with and support by the People's Liberation Army are concerned. Huawei is the first high-tech Chinese MNC. MNCs also lead in industries such as personal care and carbonated beverages that are very advertising-intensive and, apparently, in ones that combine relatively high levels of the two, most notably sports apparel and athletic shoes. The most advertising-intensive industry in which Chinese companies

lead is healthy beverages, where local cultural insight is presumably more important than in colas (more on such cultural considerations below).

There are also industries in which MNCs lead even though they would seem to fall below the R&D-plus-advertising frontier that generally separates MNC-led industries from ones led by Chinese companies: industries such as elevators and aseptic food packaging. Elevators are dominated by Otis and aseptic packaging by TetraPak. Both got to China early (in the mid-1980s) and established a big installed base and network of local service operations, both of which are critical to success in these businesses. Otis has by far the largest set of maintenance contracts. At least early on, Otis had a design knowledge advantage in putting together customized high-rise systems and mastering safety specifications although probably several Chinese companies can now match it on these dimensions. Otis builds its hardware in China except for some safety-related parts that are still single-sourced from the US and Europe, and according to its head of operations in China, its Chinese plants now achieve the same yields and quality—or improve on them—as legacy operations in the US. And it has been very effective in setting up separate companies and product lines to cover all of China’s market segments: see Figure 5.

[insert Fig 5 here]

Figure 10. OTIS's Multi-brand Strategy and Market Share Gains



Source: Boston Consulting Group, 2008

TetraPak also began with superior system knowledge that helps dairies reduce cost and improve quality and its dominance came under investigation in summer 2013 by the Chinese anti-monopolies authority for tie-in sales. The business has a filling/packing machine side and a package side (a la razor and razor blade). Aseptic packaging may account for a third of the cost of a carton of milk in China, and TetraPak now also makes most of its hardware in China. The tainted milk scandals in China a few years ago probably helped TetraPak relative to competitors as it tilted the market toward foreign-owned dairies where TetraPak's market share is highest. And it is reputed to be a tough competitor that meets price competition selectively where it has to.

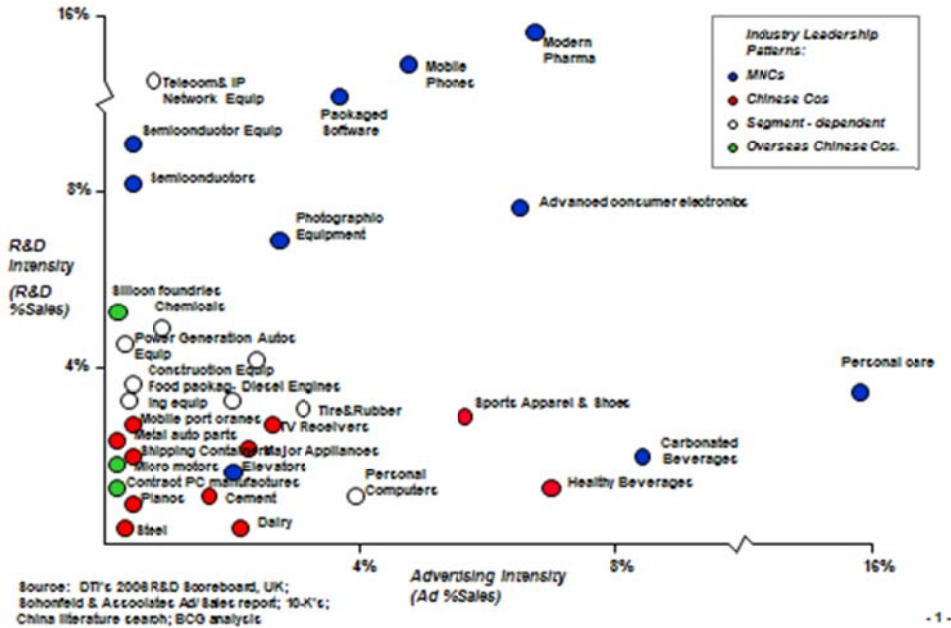
<h2>Shifts Over Time

It is also interesting to compare the data for 2012–2013 with similar data we compiled earlier for 2006 (and published in 2008)—see Figure 6. Perhaps the most striking aspect of the comparison is how little change there has been over six-plus years to the broad pattern identified

above, in terms of industries with high R&D- and advertising-intensities being relatively likely to be led by MNCs, and industries with low R&D- and advertising-intensities being more likely to be led by Chinese (or overseas Chinese) companies.

[insert Fig 6 here]

Figure 6. Leading positions in China by industry (2006-2007)



That said, there have been some changes. The period between 2006 and 2012–13 has seen some strengthening of Chinese positions, especially in IP network equipment (lumped together with telecom equipment in 2006) and in popular-priced smartphones. Solar panels is another high R&D-intensity industry in which they have taken over leadership—again, amidst the backdrop of an international row about governmental support. Three of the four leading silicon-based solar panel producers globally—Trina, Ying Li, and Jinko—are Chinese. Construction equipment leadership was formerly segment dependent but Sany now rivals Komatsu for overall leadership. And Chinese producers still lag on quality and at the high-end, but do now lead, overall, in the local consumer electronics market.

Also note, though, that the changes haven't *all* been one-way. MNCs have re-taken the lead in sports apparel and shoes (Nike and Adidas principally) as well as in food packaging since 2006. And many MNCs continue to dominate their industries in China, including P&G in personal care products; Intel, Qualcomm, and MediaTek in semiconductors; and, Applied Materials in semiconductor producing equipment. And there are many other businesses (not displayed in these exhibits because of limitations in confirmed data) from high-tech components like avionics and small jet engines to niche consumer businesses such as soluble chocolate drinks and fine wine. So the determining issue for MNCs successfully competing in China is not simply in which industries they are allowed to play, but the absolute level and rate of change of the capability demands of the industry.

Segment-Dependent Leadership

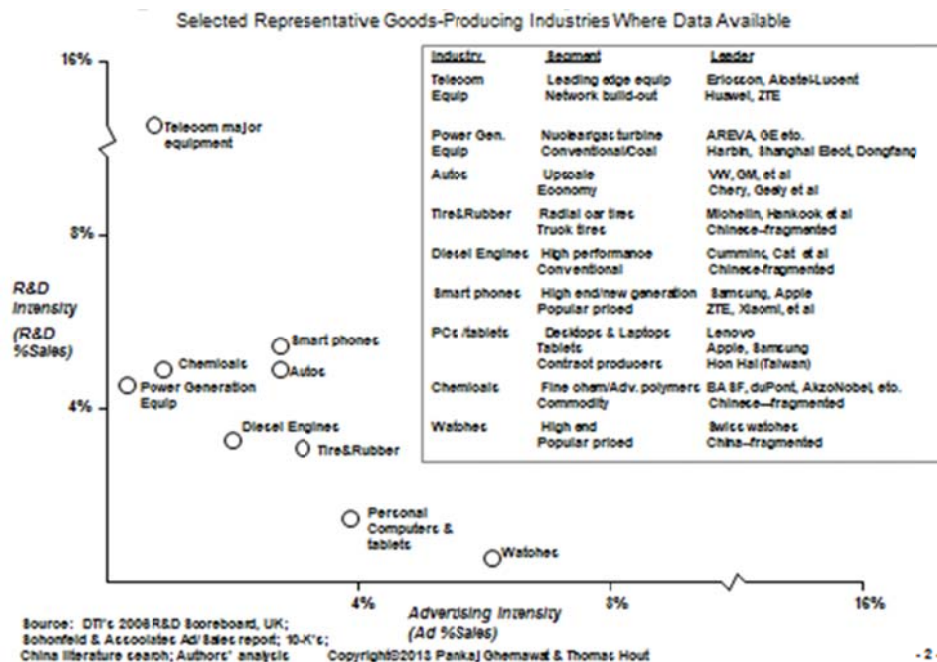
Figure 4 (and for that matter, Figure 6) classify leadership in a number of industries as segment-dependent. Figure 7 breaks them down into vertical segments. Basically, advanced country multinationals lead in the higher-end segments whereas Chinese competitors do comparatively better in lower-end segments. Consider some examples of such “vertical differences”:

- Machine tools: China acquired many struggling European and American machine tool makers and now leads in many basic numerically-controlled machines but has not yet mastered design of complex, highly flexible, multipurpose machines. China is easily the largest machine tool market in the world, explaining why its Shenyang Group is the world's largest producer. But MNCs such as Japan's Yamazaki Mazak and Germany's Trumpf lead the higher-end in China and globally.

- ERP Software: China’s UFIDA dominates the small and medium size enterprise market for enterprise software, but Germany’s SAP leads in large, complex customers. China does not compete in many packaged software categories, but where it does it usually starts in the less sophisticated segments and develops from there.
- Airframes: China’s Comac markets a regional 100-passenger jet, the ARJ21, but not yet a long-haul airplane where the systems design and control challenges are far greater. Of course, China’s level of “quality” here is rising, and the longer-term question is will wage differences disappear before quality and productivity parities are achieved. But this is a very long-run question.

[insert Fig 7 here]

Figure 7. Leadership by Segment in Vertically Segmented Industries in China (2012–2013)



A similar pattern is observed in the 2006 data on vertically segmented industries.

[insert China Multinationals text box here]

China's Multinationals

China has produced a first generation of multinationals in a fashion consistent with the notions of vertical and horizontal distance in capabilities. China's first exports were processing exports where the offer was low-cost assembly of products designed, branded, and mostly manufactured elsewhere. Next came contract outsourcing where a substantial Chinese company would manufacture more of the product, again designed and branded elsewhere. Many of China's best-known multinationals today—including Wanxiang in auto parts, Haier in home appliances, Galanz in microwave ovens—got started this way. These contract manufacturers over time worked to narrow the vertical distance from their OEM customers, first in manufacturing, then design, and finally marketing and distribution on the path to becoming multinationals.

Other Chinese companies became multinationals by becoming globally preferred suppliers of products under their own brand where there was no strong advanced market incumbent. Pearl River Pianos in upright pianos, Goodbaby in baby strollers, and China International Container Corporation (CIMC) in shipping containers are examples. These three companies in particular are now global market leaders in their product category. Finally, there are bigger-ticket capital goods companies that took a long time to gain acceptance against strong advanced market incumbents where the vertical capabilities challenge includes deep technical knowledge, reliability, user training, etc.. Examples are Huawei in IP and telecom equipment, Shanghai Zhenhua in port cranes, and Lenovo in computers. Apart from Huawei, all these multinationals compete in low to medium R&D and advertising intensity industries.

Chinese multinationals followed up export success with direct investment overseas, and a few now have more foreign sales than domestic. An estimated two-thirds of Huawei's revenues come from abroad, mostly from emerging markets. Similarly, Shanghai Zhenhua's and CIMC's revenues are estimated two-thirds foreign, roughly equally divided between advanced markets and emerging markets. China's capital goods multinationals' early successes were more in emerging markets where barriers to customer acceptance are lower. Goodbaby's and Lenovo's revenues are also majority overseas but more distributed across advanced and emerging markets. Lenovo's presence in advanced markets grew mainly from its acquisition of the IBM personal computer business.

China's multinationals are essentially young, non-state owned companies, started in the 1980s (or 1990s) after private enterprise was opened up. Haier began as a township enterprise but flourished only after being liberated from this status. Lenovo was started by state-employed scientists but was never a state-owned enterprise, and Huawei famously by ex-military people. Many others were launched with offshore (mostly Hong Kong or Singapore) customer sponsors or money or governance, including CIMC and Pearl River Piano. Shanghai Zhenhua was a mostly privately-funded venture of a state-owned corporation. Many of China's big well-known state-owned oligopolies such as China National Offshore Oil Corporation (CNOOC) or China State Construction Engineering Corp. operate overseas and had international project origins, but are not multinational in the sense of competing on their own merits in foreign markets with local corporations.

Some Chinese multinationals are acquisitive, enter new businesses aggressively, and are now effectively conglomerates. Wanxiang Group, for example, began in auto parts then diversified into financial services, clean energy and electric vehicles, natural resources, and real estate. CIMC leveraged container design and manufacture knowledge in entering highway truck trailers, cold chain logistics, and offshore engineering equipment.

<h1>IV. Matches with Sutton's Model

To summarize what has been learned from Section III, go back to the cell, shaded for emphasis, in the matrix at the end of Section II. The data on China clearly indicate that whether MNCs or local companies are likely to lead locally is strongly dependent on industries' R&D- and advertising-intensities. While the Chinese data are novel, this basic finding is not: the success of multinationals from advanced economies in R&D- and advertising-intensive sectors reminds us of the basic theory of the (horizontal) multinational enterprise developed more than 40 years ago by Richard Caves,¹⁴ in which such intangible assets, and the increasing returns to scale that underlie them, are what typically propel companies to expand across national borders. Interest in intangible assets has only increased with the surging intensity of investments in them. Thus, in the United States, which leads on this metric, gross business investment in intangibles increased from slightly over 4% of nonfarm business output at the end of World War II to nearly 14% by 2007—with about one-half of the total being accounted for by investments in R&D and brand equity—while the rate of investment in tangible assets hovered between 10% and 12%.¹⁵ In addition, investment in information technology (IT) in the form of both hardware and software came to account for a significant chunk of total investment as well. A similar surge in intangible asset investment-intensities is apparent in Chinese macro data, although such macro estimates do tend to be much higher than what micro, company-level data would suggest. (In addition, questions have been raised about the productivity of Chinese investments in intangible assets.)

Sutton's baseline model, in addition to its formal attractions, helps one think about these patterns in the context of competition to develop capabilities. As low-wage competitors up their game—the bottom of the window of viable capabilities in Figure 1 shifts upward. To maintain their relative positions, vertically-differentiated MNCs have to shift the top end of the window

upward as well. Industries in which there are actually opportunities to do so—industries that MNCs can continue to lead—tend to be the ones in which it is possible to sink costs into improving products and operating margins by enhancing intangible assets associated with image/reputation and knowhow. These are, of course, roughly proxied for by advertising-intensity and R&D-intensity respectively. For example, P&G is China’s largest television and digital advertiser. Applied Materials is the industry’s biggest spender on R&D and in fact moved its corporate R&D director to China as it becomes a leading-edge market.

Since Sutton’s work is explicitly based on a vertically differentiated structure, it is, additionally, a good theoretical referent for the finding that in industries in which leadership is segment-dependent, MNCs lead in the higher-end segments whereas Chinese competitors do comparatively better in lower-end segments. Some of the trade data hint at the importance of vertical distance as well. Thus, comparisons of the similarity of China’s exports to Japan’s find that only a bit more than 50% of China’s exports “compete” with Japan’s, up from one-third 20 years ago—more than India (<40%) but less than South Korea and Germany (>70%). (Of course, such comparisons don’t fully capture differences in specs, and will be skewed by China’s large volume of processed exports.) And while China both imports and exports capital goods, imports are mostly from advanced economies and exports mostly to other emerging economies.

Sutton’s treatment of the role of competitively-price intermediates in boosting competitiveness in low-wage countries also finds some support in China. In his model, any economy unable to move into world class intermediates must continue to lower its wage in to compete in the final product. This makes bringing world-class intermediates to the lower wage economy critical to avoiding a wage squeeze and allows local vertically rising enterprises to tolerate rapidly rising wages without losing competitiveness as the move of high-priced

intermediates from advanced countries to lower-wage local producers helps offset rising wages. Of course, this is yet another source of vertical pressure on MNCs from advanced economies. And again, several apparent examples of this dynamic at work can be cited in the Chinese context. Thus, early on, Chinese auto companies stayed alive by importing high-value components and sub-systems and acting as assemblers. Now, China has backward integrated into these intermediates (based on both domestic initiatives and inbound FDI by MNCs), reducing MNCs' vertical differentiation. If it hadn't done so, it is hard to see the domestic auto industry surviving as its labor-intensive assembly model would have been squeezed hard by rising wages and intermediates that continued to be costly. Airframes, discussed briefly above, supplies a similar example. The Comac ARJ21 mentioned above incorporates components from 19 major European and US aerospace suppliers, including a GE engine, Honeywell's fly-by-wire, and Rockwell Collins avionics system. Each of these suppliers is moving more value-added including R&D to China.

Such examples also fit with Sutton's broader emphasis on upgrading—and Chinese managerialist discourse on becoming world class. Upgrading is also visible in China's international economic relationships, particularly China's processing trade, which brings in inputs free of import duties under contract to export the finished products to a foreign buyer who will be responsible for their distribution and marketing.¹⁶ Processing (examples: consumer electronics assembly, and cutting and sewing of apparel based on imported fabrics) drove China's big expansion of trade in the 1990s, accounting for as much as 55% of exports and more than 45% of imports by the end of that decade, and is seen as a success in no small part because it addressed the problem of expensive imported inputs. Its decline since then, to less than 45% of exports and 30% of imports by 2011, is *prima facie* evidence of migration of additional business

functions (international marketing and distribution) to China-based entities.¹⁷ Other trade-related indicators of upgrading include:

- The increased domestic value added of exports associated with the shift away from processing—although the picture is complicated by the increasing domestic value content of processing exports from levels as low as 20% in the second half of the 1990s and decreases for ordinary exports from levels as high as 95% as more advanced imported intermediates have been plugged into ordinary Chinese exports.
- The increase in the share of total high-tech exports that are non-processed (although much of the increase is due to MNCs’ China operations—Siemens, GE, Airbus, etc.).

Upgrading by Chinese competitors also obviously presses their vertically differentiated MNC competitors.

There are other reasons as well, though, for the pressures experienced by MNCs in China in recent years. To understand them, and to make sense of some additional features of competition in and out of China, one has to move beyond Sutton’s baseline model.

<h1>V. Extensions

One of the additional reasons MNCs have experienced significant pressure within China in recent years—and which we wrote about in a *Harvard Business Review* article under the title “Whose Technology Is It?”¹⁸—has to do with pressures exerted by the Chinese government on MNCs to transfer technology to Chinese entities through mandatory transfer requirements; high duties on imported MNC intermediates; limitations on access to public procurement markets; and so on. As we wrote back then, “Foreign companies dominate most of China’s high-tech industries, accounting for 85% of the high-tech exports from China in 2008....Exports of cellular telephones and laptops, for instance, had less than 10% Chinese content—and foreign-owned

factories accounted for most of it.”¹⁹ This dominance prompted Beijing in 2009 to designate ten pillar industries—including high-speed air and rail transportation, clean power generation, and information technology—as part of its Indigenous Innovation initiative aimed at increasing “created in China” technology content. Beijing sees these as China’s next generation export industries once revaluation of the renminbi makes current low-tech exports uncompetitive. The government has, for targeted industries, issued sets of complex and shifting rules limiting foreign investment ownership, restricting market access, and insisting on local content and the transfer of proprietary foreign technology to state-owned companies and agencies.

Since then, there has probably been some upgrade of the relative status of Chinese private companies in this technology transfer thrust, for example in LED lighting where China is showing a trajectory much like it did earlier in solar panels. But the overall effort itself is state-led and—orchestrated—and continues. So this is a reminder of the proposition, obvious perhaps, but not included in Sutton’s baseline model of competition in capabilities, that **state policy can, and sometimes does, appear to matter a great deal in its influence on outcomes**, for example in fast rail and wind turbines where state-owned enterprises (SOEs) dramatically grew market share first in China, then in emerging markets.

Most SOEs in China are protected oligopolies and do not compete directly with MNCs so vertical capability differences are opaque but other evidence suggests they can be significant. Illustratively, China only recently has an operational aircraft carrier, reflecting its weakness in complex systems including design and operational coordination among ship, avionics, aircraft, escorts, remote refueling, personnel skill, and distributed decision-making. US carrier operations are built on public/private capability partnership; China’s almost solely on public. Elsewhere,

some SOE capability bright spots appear, for example in aluminum smelting and domestic cell phone operators.

A second extension has to do with the notion that local companies can hold significant home court advantages, that MNCs can suffer some relative disadvantages. In Sutton's baseline model, local firms aren't able to do anything that vertically differentiated MNCs can't: rather, the latter chose not to emulate the former because they would only reduce their profitability by doing so (in models of vertical differentiation, more vertically differentiated positions yield higher operating margins). But looking at competition within China, there does seem to be evidence of scarce capabilities not just toward the top of the quality ladder—Sutton's point—but also lower down in a way that creates opportunities not necessarily available to MNCs:

- *Cultural attunement* or the internal ability to spot (and address) emerging segments faster than MNCs. Local consumer goods companies employ more eyes and ears, especially “nonstandard” types such as fast-moving opportunists, and rely less on brand recognition and more on capturing emergent market space and customers in transition. Chinese housewives' disaffection with food contamination is an example: small, clean Chinese companies registered some overnight successes as a result. For example, Joyoung in Shandong province created a home soymilk maker which presses fresh soybeans into juice, giving homemakers an alternative to pesticide-contaminated soymilk in supermarkets. In five years, this machine became a \$300 million business. Another example is Chinese-owned popular-priced restaurant chains like Hai Di Lao upstaging traditional leaders like US-based KFC with more varied regional menus and creative service packages to diners.

- *Administrative ties* or favoritism: local companies often have an advantage over MNCs in mobilizing around new opportunities as they know local Party-state gatekeepers, can offer them quid pro quos including some benefits that MNCs' ethical codes preclude, and are benefited by China's industrial and trade policies that explicitly favor local producers. For example, Sany took over volume leadership from Komatsu in excavators and ready-mix concrete trucks by selling to small leasing companies (as opposed to large regional contractors, the traditional customer), which in turn rent their equipment to small, local contractors get public projects through connections. Sany navigates this contracting landscape better than MNCs.
- *Geographic clustering*, which makes local capability pools more than the sum of their parts because of spillovers. China's early export successes like lighters, toys, and shoes were almost all from clusters with good availability of complements; local authorities that helped entrepreneurs access resources; and intense local competition at the end product level. Many China exports are still clustered, e.g., auto parts and solar panels. Thus, the city of Wuxi is the home to Suntech, Konca, and Jietion Holdings—all major solar players.

In addition to specifying some influences on relative competitive position that go beyond vertical distance, this (partial) list also starts to suggest an integrative way of thinking about the kinds of considerations captured in Sutton's baseline model and the extensions highlighted in this section. It is useful to begin by noting that Sutton's model of competition among firms from different economies is based on differences in country income and resultant differences in capability levels that lead to different "quality" levels, where high quality underpins price premia and the viability of higher-wage firms. In other words, the positions of firms from different

countries change over time in just three variables: (vertical) quality, in regard to which more is always better, wages, and productivity. This structure ignores country differences other than economic and specifically, income-related ones: the cultural, administrative, and geographic distances referred to in the three bullet points above. Many of these components of distance involve horizontal rather than vertical distance, which suggests one way of thinking integratively about them. **The CAGE distance framework originally proposed in Ghemawat²⁰ suggests modeling international differences in terms of cultural, administrative, and geographic distances between countries—which typically involve horizontal distance—as well as economic distances that include the vertical subcomponent focused on by Sutton.** Since this framework has already been discussed extensively elsewhere, it won't be reproduced here. Take a look, instead, at a direct application to the question with which this section began: the kinds of disadvantages that multinationals might face with respect to local companies. See Figure 8.

[insert Fig 8 here]

Figure 8. Possible Disadvantages for MNCs versus Local Companies

Cultural	Administrative	Geographic	Economic
<p>Disadvantages in achieving a local face: language, tradition, identity (TV prog. vs. cement)</p> <p>Disadvantages at catering to preference heterogeneity (horizontal distance**)</p> <ul style="list-style-type: none"> • Idiosyncratic tastes (fish sausage, boxer shorts) • Design diff. (home appliances) • Differences in standards (electrical equipment) • Differences in sizes/ packages (processed foods) • Differences in target segments (portable radio/ cassette players in U.S. vs. Japan) <p>Entrenched tastes for local products</p> <p>Local biases in demand (“buy local” campaigns)</p> <p>Lack of social connectivity/ networks</p>	<p>Host government discrimination against foreign products/firms.</p> <p>Generally most likely when:</p> <ul style="list-style-type: none"> • High governmental involvement <ul style="list-style-type: none"> - regulation (healthcare) - procurement/funding (construction) - political salience (TV broadcasting) - state ownership (infrastructure) - anointed national champions (aerospace) - national security concerns (telecommunications) • Organized domestic resistance to displacement (agriculture, textiles) • National patrimony effects (natural resources) • Size/salience/strategic character (automobiles) • Asset specificity and the scope for holdup problem (infrastructure) <p>Negotiations with host government hindered by activities elsewhere in the world (e.g. Disney and China re the Dalai Lama)</p> <p>Constraints imposed by home government (e.g., on bribery)</p> <p>Multiple regulatory requirements</p> <p>Hostages to home-host relationships (e.g., Motorola in China)</p>	<p>High transport costs. Generally most likely when:</p> <ul style="list-style-type: none"> • Low value to weight/bulk • Hazards/differences in transportation • Perishability <p>Lack of required transportation/communications infrastructure</p> <p>Intense local supervision requirements</p> <p>Other local perf. requirements for value activities (many services)</p>	<p>Cost disadvantages (e.g., labor/mgr. costs, restructuring/innov. investments)</p> <p>Know-how disadvantage if differences in suppliers, channels, business sys. or reg.</p> <p>Lack of appropriate technology</p> <p>Disadvantages at providing variety/agility/responsiveness</p> <p>Susceptibility to global pricing squeezes (e.g., suppliers to soft drink manufacturers, retailers)</p> <p>Higher opportunity costs or hurdle rates (e.g., home shareholders unfamiliar with local markets)</p> <p>Eff. of local competition from tough selection environments; dilution of profitability by expanding there</p> <p>Late-mover disadvantages</p> <p>Less perceived commitment to a particular market</p>

Source: Pankaj Ghemawat, *Redefining Global Strategy* (Harvard Business School Press, 2007).

Looking outside, some of the markers of horizontal distance between China and the West also seem to imply relative proximity for China with emerging economies and account for its relative success exporting to them. As Figure 9 shows, the 2000–2012 period has seen a huge shift. Back in 2000, 60% of countries imported more than twice as much from the United States as from China. Now, 55%, mostly in the South and the East, import more than twice as much from China.

[insert Fig 9a and 9b here]

Figure 9a. US versus China Export Dominance, 2000

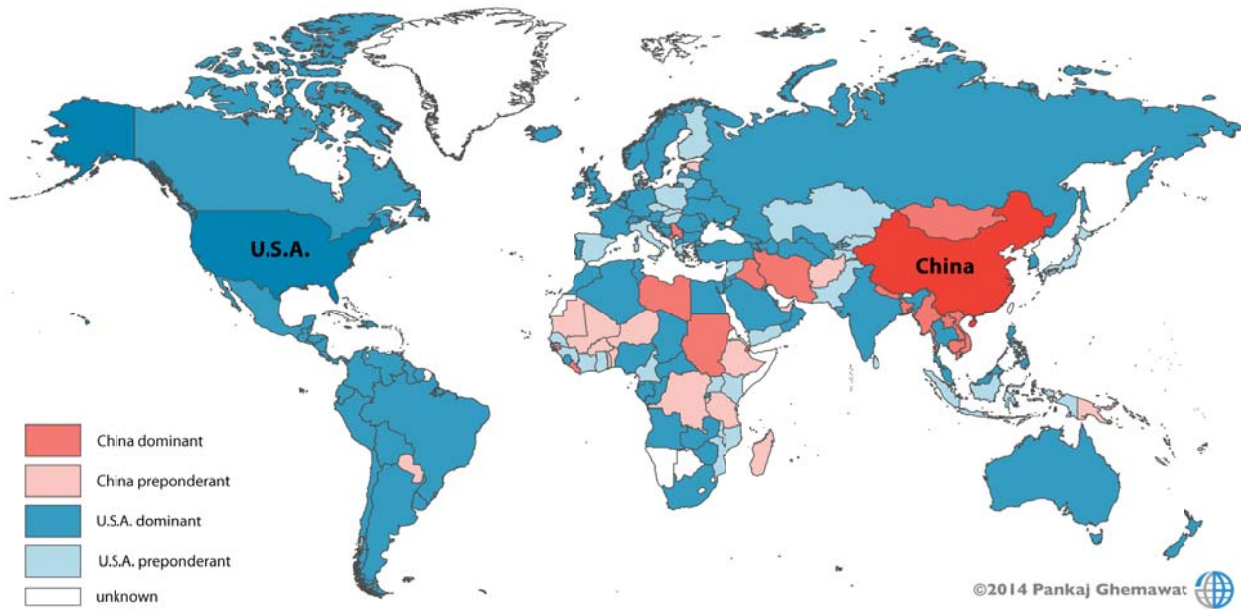
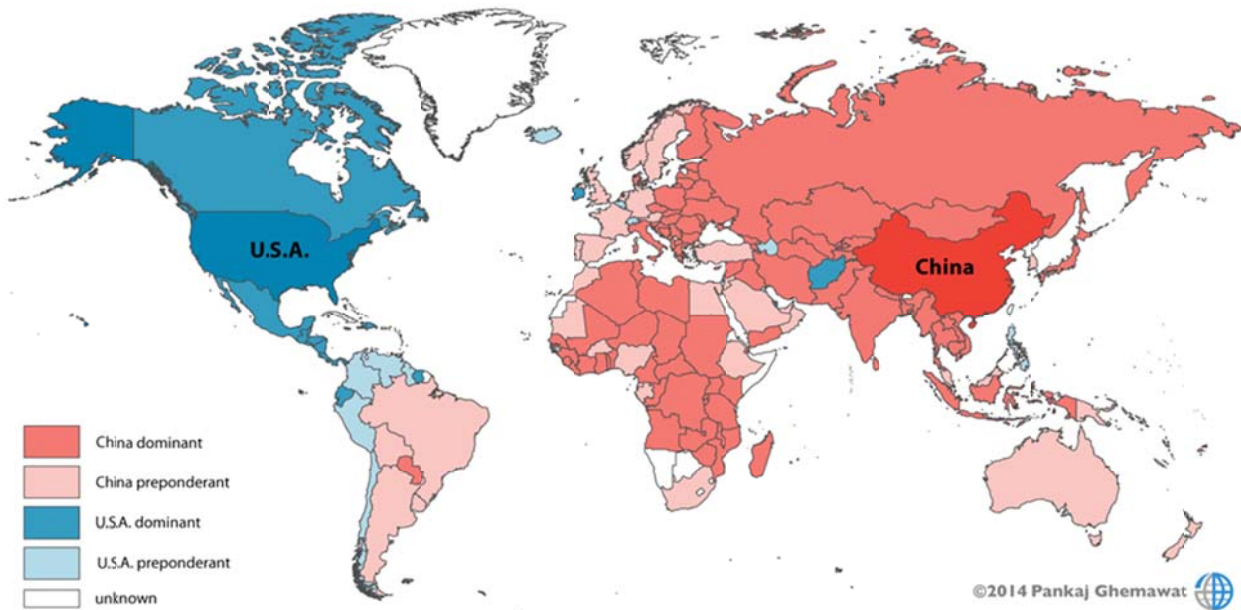


Figure 9b. US versus China Export Dominance, 2012



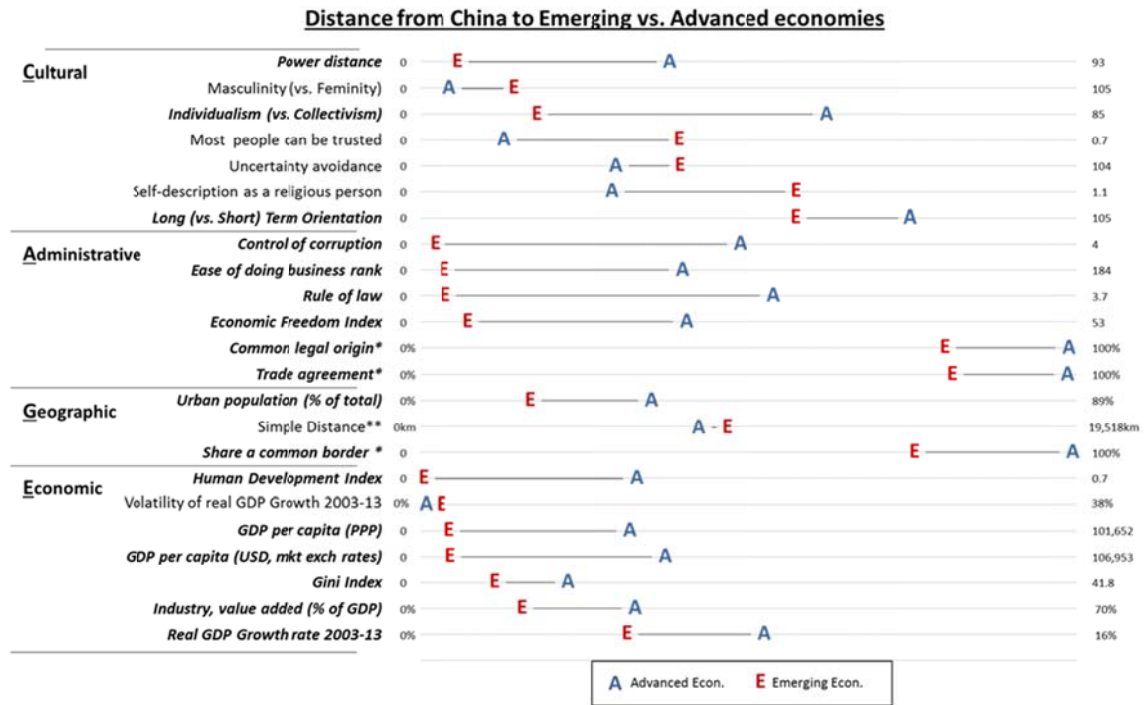
Note: China dominant implies Chinese exports to a country are more than double the US exports. China preponderant implies that China's exports to a country exceed, but are less than double US exports. US dominant and US preponderant are defined similarly. Source: IMF's Direction of Trade Statistics (DOTS).

Digging a bit deeper, most of China's machinery/equipment exports are to other emerging markets, and are mostly B2B. (In contrast, most consumer goods exports are to the United States and Europe where technology transfer powered by processing trade eroded quality and productivity differences, so wage arbitrage has long driven trade—but is itself now under pressure.) Power generation equipment, fast rail rolling stock, even major home appliance exports from China go mostly to the rest of Asia, Africa, etc. While these trading partners generally aren't "vertical" equals of China, vertical quality distances—across procurement processes as well as product/ offer levels—from China seems significantly less than from the advanced West (in line with a general correlation with levels of income and institutional development). And it is generally reinforced by proximity to China along other, noneconomic dimensions (principally related to the first three letters of the CAGE framework—cultural, administrative and geographic).

The broader implication of recognizing the importance of horizontal as well as vertical distance is that it suggests that even controlling for (vertical) quality and productivity differences, there may be more than one best place for making something. And indeed, Sutton's analysis of vertical differentiation can be superimposed on models of horizontal spatial competition to show that horizontal distance causes variations in the lower end of the window of viable capabilities, with requirements being particularly relaxed in "exotic" markets and likely to be met by local competitors in markets that are also large. So both those attributes of the Chinese market matter—its size but also its large horizontal distance, along many dimensions and subdimensions from the West (although Japan is a bit closer)—see Figure 10.

[insert Fig. 10 here]

Figure 10. Distance from China to Emerging vs. Advanced Economies²¹



Notes:

For unilateral variables (labeled without *), distance from China reflects the weighted average (based on GDP) of the absolute value of the difference between China’s value for each variable and that for all other emerging and all advanced economies. Axes for unilateral variables extend from zero to the maximum difference (in absolute value) among all country pairs. Variables are sorted by China’s distance to Emerging economies, from closer to further, within the CAGE categories. Bold italics format of the variable name indicates there is a shorter distance from China to Emerging economies than to Advanced economies.

* Bilateral and binary. Defined as 1 if a country lacks a given type of commonality or proximity with China, otherwise 0. For instance, in the case of “Common legal origin,” the farther to the left the marker is, the more countries share a common legal origin with China.

**Bilateral and continuous. Only “Simple distance” falls into this category, and it reflects weighted average (based on GDP) of China’s geographic distance to every other emerging and to every advanced economy.

China’s administrative (as well as economic) similarity to other emerging economies is particularly striking. Across all of the types of administrative and economic distance measured in Figure 10, except the volatility of its GDP growth, China is more similar to other emerging economies than it is to advanced economies. Geographically, China is also closer to other emerging economies except with respect to simple geographic distance—and even that comparison is reversed if Japan is excluded from the analysis. Culturally, there is a mixed pattern

with China sharing, for example, high power-distance and collectivism with other emerging economies, while having higher generalized levels of trust and lower religiosity more typical among advanced economies.

A final extension to Sutton's baseline model that will be highlighted here relates to what an expanded conception of the space of international differences implies for the space of international (or global) strategies. In Sutton's model of vertical distances, there is just one strategic imperative for firms, whether high-wage or low-wage: vertical upgrading. This is a nontrivial conclusion from what is, in many respects, a general model of international competition and therefore important. But it does focus on a small subset of distances—only income differences, really—and so should be augmented in strategy- as well as distance-space.

We find it natural to **turn to the AAA strategies—adaptation, aggregation, and arbitrage—that Ghemawat originally developed to categorize firm-level responses to CAGE distances across countries.**²² **The AAA strategies embody a broader set of possible responses to a broader range of differences across countries than just vertical distances—one that encompasses horizontal distance as well.**

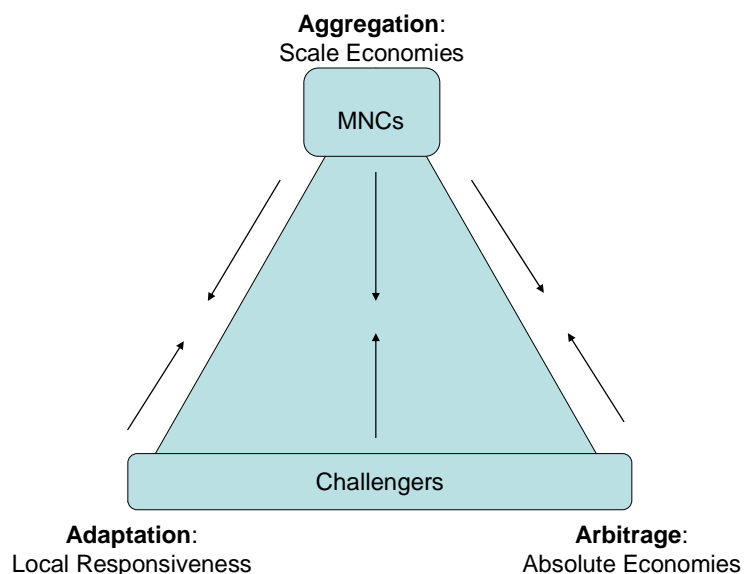
More specifically, *adaptation* to achieve local responsiveness is neither necessary nor feasible—except in terms of vertical positioning—in Sutton's model. Also missing are regional and other *aggregation* strategies aimed at achieving cross-border economies of scale and scope—even though regional groupings often account for 50%–60% of most international flows,²³ and the vast majority of even the Fortune Global 500 derive the bulk of their sales from their home region. The problem with pure verticality is that there is no sense of countries—provinces even—being located in multidimensional space at varying distances from each other. All that are allowed are variations in position along a unidimensional (vertical) continuum,

without any other obvious way for country A and B, say, to be closer to each other and better candidates for aggregation, than with country C which is far from both. And finally, *arbitrage* to exploit differences does appear in Sutton’s model, but it is of a specific economic sort. There is no provision, for instance, for international expansion based on cultural arbitrage (e.g., the advantages of French origins in perfumes or Italian in luxury handbags) or for that matter, of administrative arbitrage (across differences in tax or regulatory systems, for example). Yet when one actually looks at competition in and out of China, one observes the broad range of AAA strategies. And conceptions of horizontal distance are essential to making sense of some of the patterns observed, e.g., China’s dominance of exports to the rest of Asia and Africa.

Beyond articulating a range of strategic possibilities, the AAA set-up suggests a structure for thinking about the interactions between MNCs and local challengers in emerging economies: see Figure 11.

[insert Fig 11 here]

Figure 11. AAA Strategies and Multinationals versus Challengers



The graphic evokes for us as much as anything else a race toward the middle, even though neither side is likely to give up entirely on its initial type(s) of advantage. In this race toward the middle, MNCs try to get more adapted to China or to arbitrage more effectively out of China if attention is focused on the globalization of production rather than the globalization of markets (or, obviously, both). All this takes organizational patience, attitudinal changes, and considerable investments in the development of locally relevant capabilities. Some MNCs succeed, but many continue to struggle with this AAA balancing act, since in striving to adapt and arbitrage, they can't give up on aggregation, which remains their key strength relative to local competitors. (Of course, not all MNCs fit this typical profile. For example, Philips was for decades more oriented toward adaptation than aggregation given its strong country-centered management structure—leaving it vulnerable efficient aggregators such as Matsushita.)

Meanwhile, local challengers continue to cultivate the adaptation and/or arbitrage advantage/s that got them started but also often typically have to make a start at aggregation en route to becoming truly multinational, i.e., to competing on an equal strategic footing with existing MNCs. Unless, of course, the challengers elect not to become multinational or have some other attribute that renders the additional A of aggregation unnecessary (e.g., an arbitrage strategy sustained by proprietary access to cheap resources, as in the case of Gazprom and Russian natural gas). Otherwise, bulking up on one or more intangibles with cross-border applicability—marketing, technology and, in many cases, management capabilities—is indicated.

The notion of this kind of dynamic at work, in which both types of firms face a range of competitive outcomes based on strategic choices, new capabilities, and execution prowess as

well as basic industry conditions is consistent with, or certainly not contradicted by, the analysis of competition within China presented earlier.

<h1>VI. Summary

Examples as well as some systematic evidence have been used to make the points that looking at MNCs interactions with local firms in the largest such lab, the Chinese market, both suggests that Sutton's moving window of viable capabilities gets at a real dynamic of real interest, but also that much of what is observed suggests the criticality of bringing horizontal differences back into the picture. Three specific propositions about China were advanced in this regard (in bold text in the previous section). First, state policy can and sometimes does appear to matter a great deal in its influence on outcomes. Second, The CAGE distance framework originally proposed in Ghemawat (2001) suggests modeling international differences in terms of cultural, administrative, and geographic distances between countries—which typically involve horizontal distance—as well as economic distances that include the vertical subcomponent focused on by Sutton. Third, the AAA strategies—adaptation, aggregation, and arbitrage—that Ghemawat originally developed to categorize firm-level responses to CAGE distances across countries embody a broader set of possible responses to a broader range of differences across countries, and apparently usefully so.

Notes

¹ For the original FSA/CSA matrix, see Alan M. Rugman, *Inside the Multinationals: The Economics of Internal Markets* (New York: Columbia University Press, 1981). and for attempts to extend the analysis, see among others Alan M. Rugman and Alain Verbeke, “Subsidiary-Specific Advantages in Multinational Enterprises,” *Strategic Management Journal* 22, no. 3 (2001): 237–250. and Donald Lessard, Rafael Lucea, and Luis Vives, “Building Your Company’s Capabilities through Global Expansion,” *MIT Sloan Management Review* (2013), <http://sloanreview.mit.edu/article/building-your-companys-capabilities-through-global-expansion/>.

² See Nguyen, Quyen T. K., and Alan M. Rugman. “Multinational Subsidiary Sales and Performance in South East Asia.” *International Business Review* (2014). doi:<http://dx.doi.org/10.1016/j.ibusrev.2014.07.001>, <http://www.sciencedirect.com/science/article/pii/S0969593114001061>.

³ Rumelt, Richard P., Dan Schendel, and David J. Teece, eds. *Fundamental Issues in Strategy: A Research Agenda*. Boston, Mass.: Harvard Business School Press, 1994, 7.

⁴ David J. Teece, Gary Pisano, and Amy Shuen, “Dynamic Capabilities and Strategic Management,” *Strategic Management Journal* 18, no. 7 (1997): 514-515.

⁵ David J. Teece, “A Dynamic Capabilities-Based Entrepreneurial Theory of the Multinational Enterprise,” *Journal of International Business Studies* 45, no. 1 (2014): 19.

⁶ John Sutton, *Competing in Capabilities: The Globalization Process* (Oxford: Oxford University Press, 2012).

⁷ Sutton, John. “One Smart Agent.” *The Rand Journal of Economics* 28, no. 4 (Winter 1997): 605–628.

⁸ For more on gains from globalization, see chapter 4 of Pankaj Ghemawat, *World 3.0: Global Prosperity and How to Achieve It* (Boston, Mass.: Harvard Business Review Press, 2011).

⁹ Market size is measured by the country’s domestic consumption/sales in volume, or in value if volume data unavailable. Based on 40 industries, the full listing of which and their classification into the categories shown on the chart are available upon request. Data source is Euromonitor Passport except for the following: Bank Deposits from World Bank “Financial Development and Structure Dataset”- updated Nov. 2013; Cement [BCA1] from International Cement Review “An overview of global cement sector trends: Insights from the Global Cement Report 10th Edition”; Chemicals from McKinsey “What’s next for international chemical companies in China?” (2013), Cefic Chemdata International “Chemicals Industry Profile: Facts and Figures 2011”; Electric motors from UN Comtrade and Euromonitor Passport; Gold from World Gold Council “Gold Demand Trends”; International Phone Calls from Telegeography International Traffic Database; Machine Tools from KPMG “China Machine Tools Market 2004”, and Gartner Research “The World Machine Tool Output & Consumption Survey 2013”; Rice from UN Comtrade, FAO, and University of Arkansas – Division of Agriculture “World Rice Outlook”; Steel from World Steel Association “World Steel in Figures 2013.”

¹⁰ This 40% is based on analysis of China’s contribution to emerging economies’ shares of world totals shown in Figure 1.5 of Pankaj Ghemawat and Steven A. Altman, “Depth Index of Globalization 2013,” (2013), <http://www.ghemawat.com/dig/>.

¹¹ European Chamber, “Business Confidence Survey 2014,” *European Chamber Publications* (2014).

¹² Pankaj Ghemawat and Thomas Hout, “Tomorrow’s Global Giants? Not the Usual Suspects,” *Harvard Business Review* 86, no. 11 (2008).

¹³ Industries were selected on three criteria. One, competition between Chinese and foreign MNCs is allowed by the Chinese state and is relatively open to market forces, the state’s biased hand in procurement or regulation in some higher tech industries such as telecom equipment notwithstanding. Two, there is an active Chinese competitor in the industry. This meant that long haul jet aircraft, for example, is excluded because China has no entrant as yet. Three, data from a variety of sources was available for estimating relative market shares between Chinese and foreign MNCs. Industries where market share data is unreliable were excluded. Market leadership was estimated based on a variety of data within each industry, and data sources vary greatly by industry. In most industries reported, formal published data is not adequate so alternative sources are used. These include: Estimates from industry publications and feature stories written about the industry; interviews with industry executives; and estimates by experts and consultants who are knowledgeable about the industry. All industries have multiple segments, but those in which leadership, MNC versus Chinese, was distinctly different between high- and low-end portions of the market are reported on a segment basis.

¹⁴ Richard E. Caves, “International Corporations: The Industrial Economics of Foreign Investment,” *Economica* 38, no. 149 (1971).

¹⁵ Carol A. Corrado and Charles R. Hulten, “How Do You Measure a ‘Technological Revolution’?,” *The American Economic Review* 100, no. 2 (2010).

¹⁶ Manova, Kalina, and Zhihong Yu. “Firms and Credit Constraints Along the Global Value Chain: Processing Trade in China.” *National Bureau of Economic Research Working Paper Series* No. 18561, (2012). doi:10.3386/w18561, <http://www.nber.org/papers/w18561>.

¹⁷ Janet Zhang, “China Trade Structure Review 2012,” *Gavekal Dragonomics*, April (2012), <http://research.gavekal.com/content.php/6725-DG-China-Trade-Structure-Review-2012-by-Janet-Zhang>.

¹⁸ Thomas M. Hout and Pankaj Ghemawat, “China Vs the World: Whose Technology Is It?,” *Harvard Business Review* 88, no. 12 (2010).

¹⁹ Thomas M. Hout and Pankaj Ghemawat, “China Vs the World: Whose Technology Is It?,” *Harvard Business Review* 88, no. 12 (2010), 97.

²⁰ Pankaj Ghemawat, “Distance Still Matters: The Hard Reality of Global Expansion,” *Harvard Business Review*, September 2001.

²¹ Data for this figure were drawn from the following sources: Power Distance, Masculinity (vs. Femininity), Individualism (vs. Collectivism) and Uncertainty avoidance, from The Hofstede Centre; Most people can be trusted, and Self-description as a religious person from World Value Survey (wave 5 2005–2009); Control of corruption and Rule of law from World Bank Worldwide Governance Indicators; Ease of doing business rank from the World Bank “Doing Business 2013: Smarter Regulations for Small and Medium-Size Enterprises”; Economic Freedom Index from the Heritage Foundation Economic Index of Freedom 2013; Common legal origin, Trade agreement, Share a common border, and Simple distance from Centre d’Etudes Prospectives et d’Informations Internationales (CEPII); Urban population (% total), Gini Index and Industry, value added (% of GDP) from World Bank World Development Indicators; Volatility of real GDP Growth 2003–13, GDP per capita (PPP), GDP per capita (USD, mkt exch rates) and Real GDP growth rate 2003–13 from IMF World Economic Outlook Database (April 2014).

²² See Chapters 4–7 of Pankaj Ghemawat, *Redefining Global Strategy: Crossing Borders in a World Where Differences Still Matter* (Boston, Mass.: Harvard Business School Press, 2007).

²³ Pankaj Ghemawat and Steven A. Altman, “DHL Global Connectedness Index 2012,” (2012), http://www.dhl.com/en/about_us/logistics_insights/studies_research/global_connectedness_index/global_connectedness_index_2012/gci_results.html.

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