Barcode Empires: Politics, Digital Technology, and Comparative Retail Firm Strategies

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Abstract: Like other service sectors, information technology has dramatically altered the growth and character of the retail trade sector in the affluent economies. Nevertheless, significant variation exists in the typical strategies of retail firms in different countries. This article explores this variation and proposes both an ideal type and an explanation. It argues that the problems of markets and hierarchies in retailing were set in motion by a series of political fights starting in the 1960s and 1970s. This demonstrates that once again that technical outcomes are not determined by the technology itself, but by social and political rules. Future technology platforms, such as e-commerce of mobile commerce, should be expected to follow similar political logics. As retailing firms spread around the globe, this has important implications for national competition policy.

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I. **Introduction**

The economies of the advanced, formerly industrial democracies are undergoing a radical transformation. Similar to other economic revolutions, this metamorphosis is entangled with technology. Unlike previous industrial divides, however, this transformation is driven by services, not manufacturing (Zysman et al. 2007). Services, once a productivity quagmire, are now recognized as a source of productivity growth and engine of the economy, altering the structure of employment, the division of labor, and the location of value in the economy (Triplett and Bosworth 2004; Levy and Murnane 2004).

One of the most radical reorganizations has occurred in the retail trade sector. Over the past 30 years, information technology (IT) has both transformed the sector – including its major players, its geographic location, and the character of its firms – and the basic equation of how value is captured in the consumer retailing value domain. There have been common transnational patterns during retail's metamorphosis, including two interwoven movements: the increase in the advantages of and the presence of scale in retailing and a dramatic rise in the power of retailers through information gathering and analysis.

At the same time, how the retail revolution has unfolded differs dramatically by country, including the character of firms, power relations in the economy, and tangible outcomes like wage and price levels for workers and consumers. This article will use the retailing case as a test case for the larger services transformation research agenda. The evidence shows that the importance of the services revolution goes beyond the growing contribution services to economic activity in the advanced economies. In addition,

retailing underlines a broader story about how digital technology transforms service activities, re-organizes the service components of the economy, and reshuffles relationships between service firms, workers, producers, and policy-makers. In doing so, it highlights the numerous challenges and conflicts that emerge in a political economy where IT-enabled services are central to employment and productivity. Surprisingly, many of these broader political, social, and economic implications are yet to be systematically studied.

Sector-specific research in comparative context provides an essential tool for examining the services transformation. Sectors control for a variety issues, highlighting where variation in political, social, and institutional variables alters market and firm outcomes. Sector cases, therefore, allow an investigation of how common technological developments are mediated and interpreted across different sets of formal institutions, political coalitions, markets, and social settings. They also allow insights into the correct level of analysis for studying economic and political change. The nodes of contestation evolve during any economic transformation, while level of governance questions are particularly important for Europe with its patchwork of political actors and regulations. Sector studies illuminate at which level the primary political action is occurring, quickly updating models of political, technological, and economic change.

The data show that retailing provides an excellent starting point for two reasons. First, the pace of retailing growth has undeniably changed. Secondly, examining firm outcomes in retailing, it is clear that business strategies cannot be reduced to either a techno-determinist story or simply a tale of labor markets, wages, and labor skills. The problems of markets and hierarchies in retailing are in fact being resolved by a variety of

political fights, demonstrating once more that technical outcomes are not determined by

the technology itself, but by social and political rules.

Table 1. Average Annual Service Labor Productivity Growth, 1977-2007						
	Denmark	Germany	UK	US	France	EU-15
IT Using Service Sectors						
Retail trade	*2.4*	*1.3*	*2.8*	*2.2*	*3.1*	*1.8*
Financial Intermediation	4.3	1.9	2.4	1.7	2.1	2.1
Average	3.3	1.6	2.6	1.9	2.6	1.9
Non-IT Using Service Sectors						
Community Social and Personal Services	0.4	1.1	0.3	-0.1	0.8	0.4
Hotels and Restaurants	-1.8	-0.5	0.2	0.3	-1.0	-0.5
Real Estate, Renting, and Business Services	-1.2	0.4	1.0	-0.1	0.1	-0.5
Average	-0.9	0.3	0.5	0.0	0.0	-0.2
Total Economy	1.6	2.2	2.2	1.4	2.3	2.0
Source: EU KLEMS Database						

Table 1 above shows productivity data for various service sectors across five

countries from 1977-2007. Note that retail productivity growth exceeded national growth

in four of the five case countries. These are not small changes. Distribution is a large

sector that captures 10-15% of the jobs and value in every advanced economy. It is also

located between producers and consumers, making it ideal to study the conflicts between

social and economic goals inherent to the service sector. The transformation from

nations of shopkeepers to nations of retailers, therefore, provides a perfect comparative

window into how technology transforms not only a sector, its employment, and its firms,

but also its political actors, political fights, and an enormous value domain in the economy.[1]

Importantly, the retailing revolution is both influenced by and has radical implications for politics and coalitions. How retailers organized politically in the 1960s and 1970s to win fights with independent small-shop retailers over rules on such issues as prices, planning, opening hours, and store size and construction locked in particular modes of interaction with suppliers and workers, prompting unique business-model configurations in the search for efficiency and competitive advantage. Tracing forward, these initial political and economic plans continue to shape the business strategies and political alliances of large retailers in the current era – one where growth stems from using technology in core processes to create innovation.

Although the marriage of technology and scale has opened a variety of new business strategy opportunities for retailers, firms have implemented quite different processes of routinization, data analysis, and value capture across borders. The article highlights three nationally-specific competitive strategies in modern general merchandise retailing. Each has a different primary focus for creating value and exhibits variation in how technology is used, product strategy, labor strategy, supplier-relations, and value-added strategy.

Retailers did not adopt one or another of these strategies simply because one is more efficient. In fact, the basic business models of retailers across the affluent

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[1] Retailing services were traditionally just the final step in delivering producer products to consumers, but as we will see, the value captured by retailers has rapidly expanded to cover nearly every facet of consumer goods (including branding, marketing, and even production), basic consumer services such as finance, and even technology domains such as data analysis or web hosting. It is notable that when WikiLeaks, the controversial non-profit, came under web attack in November of 2010, it initially turned to Amazon, an on-line retailer to host its site.

economies in the 1960s and 1970s were highly similar, built on the same basic economic ideas, and even disseminated by a limited number of retail gurus, most notably Bernardo Trujillo of National Cash Register. Strategies began to diverge, however, as national political actors, institutions, and levels of power forced retailers to form coalitions with a variety of political partners (including labor, suppliers, and broad political party coalitions). How retailers managed these political choices then shifted firm economic calculations, pushing retailers them toward three ideal types, each of which makes money, distributes value, and works with other economic and political actors in very different ways. Again, each strategy is not about differing levels of efficiency, but different, conditioned trajectories of growth and competition.

The first is the American strategy of **lean retailing.**[2] Lean retailing is a cost-squeezing strategy, best embodied by the American behemoth Walmart. Lean retailing emerged where political outcomes were based on a market logic and retailers could use market advantages to dominate other partners. Retailers employ a low-cost, low-service, high turnover strategy based on squeezing costs and contested relationships with labor, suppliers, and local governments. Retailers pass some of the savings from cost-savings on to consumers, while largely excluding workers and suppliers from the gains.

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[2] The name invites parallels to lean production, with its focus on just-in-time production, lean inventories, and horizontal networks of suppliers organized around a final "assembly" firm. The parallel with lean production should not be taken too far, however, as there are numerous differences. Outside of the logistics, "lean" inventories, and just-in-time delivery, lean retailing resembles Fordism more than it does a Japanese automaker, with unskilled workers and repetitive tasks. Whereas some of the features of the logistics features of lean production are present in all of the successful models of retailing – most notably a reduction in inventories in relation to sales and more frequent just-in-time delivery of goods, the lean retailing model best approximates the acute cost focus across the board. It is also worth noting that the term lean production was first applied to the automobile industry as a comparison with supermarkets (Magee, 2007).

Technology has helped retailers gain the upper hand in these relationships, as firms use technology to gather information, and the information gathered as a club.

Relational contracting, seen in the Danish case and the German case, is a cost-sharing strategy built on a base of broad political coalitions. It competes by creating long-term savings from cooperative political and economic relationships with workers, suppliers, and social partners. Retailers use technology as an enabler in these relationships, allowing them to up-skill workers and identify areas of collaboration with suppliers.[3]

The final strategy is the **vertical integration** strategy seen in France and the United Kingdom. It is a complementarity strategy where retailers compete by adding value through private label products and services in store. In these countries retailers compete against suppliers, but have formed more limited coalitions with political and labor partners. In fact, retailing policy in these countries has developed into an area of perpetual contestation, where retailers consistently fight with workers and suppliers over the rules of the game. Consequently, retailers employing the vertical integration model use technology to break free of past relationships and add value to product and service offerings.

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[3] The relational contracting model is often accused of being either caused by high wages or simply supported by high prices. Although wages are certainly higher than in the lean retailing United States, a causal arrow should not be drawn from high wages to firm strategies. For one, other nations with high wage levels (such as France) have quite different firm tendencies. In addition, wages are often well above minimum wage levels and their persistence suggests benefits to retailers, which will be elaborated later in the paper. On costs, there is little evidence that costs explain the majority of firm strategies or productivity in these countries – and as Walmart learned in Germany – are often be quite competitive with more liberal countries. If anything, high costs are the result of the same factors that drove firm strategies, broad coalitions more focused on social concerns than simply lowering consumer prices.

This paper will present significant evidence not only that each of these strategies exists, but also that each is persistent and high competitive. Nevertheless, they should not be interpreted as the only game in town, simply as archetypes of nation-specific tendencies. Many of the features discussed, such as the use of product data in supplier negotiations, technology to train workers, or added services and private labels are features of leading retailers across the world. What is different, however, is the level and character of each across national borders.

The rest of this article will trace the development of these business models. A first section will highlight the variety of potential opportunities opened by the marriage of digital technology and scale, elaborating the political fights that pushed firms down different paths, and presenting evidence of each strategy and its mode of competition. A next section will suggest how new technology platforms may affect each model in different ways. Finally, a conclusion will outline how these changes coupled with retail globalization shift the priorities of policymakers working on the retail sector.

II. **From Bricks to Clicks: Stages of Retail Development**

As with other information technology (IT)-enabled service sectors, the evolution of the retail sector occurred in stages. As retailers grew in size, they first used digital tools to capture information and routinize processes, such as checkout, ordering or stocking. Next, more sophisticated demand management tools began analyzing the data streams from point-of-sale (POS) databases, opening the opportunities to re-organize shop-floors, supply chains, and find complementarities (McKinsey 2001).[4]

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[4] McKinsey found four major areas where retail firms use IT, all of which have consequences for how information is gathered, used, and corresponding organizational change. McKinsey broke their retail IT systems into central functions (store solutions, merchandise planning & management, and supply chain systems) and support IT systems.

We can identify several major stages of the digital revolution in retail trade. While the precise timing of each varies cross-nationally, the first stages began in retailing during the 1970s and expanded in the 1980s while shifts in value capture began in the 1990s and continue today.

The earliest stages involved the use of technology to *increase economic and information power*. Retailers first used barcode technology, scanning system, and basic purchasing software to *codify information and routinize* activities. Next, they began using more complicated merchandise planning and demand management software to begin *organizing and analyzing* the stream of sales data routinization produced. Along with complementary store changes (such as decreased warehouse space and increased sales floor space) these technologies allowed larger stores, larger store networks, increased product diversity and knowledge, all while reducing non-sales inventories. Increased scale led to clashes with small shopkeepers and national politicians around store size, location, purchasing power, price rules, and anti-trust and competition issues.

The marriage of technology and scale led both *new business possibilities and fights over information use*. Once retailers had implemented basic digital technologies and built large-scale retailer networks, they sought to use both their informational and economic power to *capture new value and offer new services*. IT plus improved data allowed increased supplier integration, network rationalization, customer niche targeting, efficient customer response (ECR) technologies, loyalty programs, reduced risks with private labels, worker up-skilling, and more. Opportunities for business model extensions included offering new services in store (financial, basic medical, food services, advertising, etc.), controlling and streamlining distribution and wholesaling, or

creating and branding products. Competition between retailers and with suppliers and wholesalers has created political clashes around data use (privacy), supplier-relations (including terms of payment), and even what services retailers can offer.

The 1960s was not the beginning of large retailers, as enormous retail firms have existed for some time. However, digital technology has changed the retail market from one where large firms were the exception to one where they are the rule. It has done so by reducing the risks associated with scale, increasing the advantages of that scale, and providing tools for scale management.

For example, in 1945, sales at Sears and Roebuck, the largest US retailer, passed $1 billion (around 0.45% of US GDP or $11.90 billion in 2009 equivalent dollars).[5] Sears struggled with its size. In 1946, General Wood, then president of the company noted its problems, stating, "I have been in an unusual position to observe the problems that 'bigness' brings to a business" (Emmet and Jeuck 1950, p. 365). The solution was massive decentralization, breaking the firm into five almost wholly autonomous territories, and within each stores still had considerable flexibility. In 1964, a *Forbes* article decreased Sears as "number one in the U.S., and also number 2, 3, 4, and 5" (Katz 1987, p. 15). Even with its successful decentralization, Sears was the anomaly, able to succeed at its size only because it set the market, telling consumers what to buy rather than simply providing it, helping reduce demand management risks.

Fast forward to 2009. That year, Walmart totaled $406 Billion in sales, the equivalent of 2.84% of GDP[6], six other retail firms (Home Depot, CVS, Kroger, Costco,

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[5] Using CPI. Using a GDP deflator method, it is equivalent to around $9.90 billion.
[6] This is not to say that Walmart (or Sears) accounted for this portion of GDP (since the sale price includes far more value added than that produced by the retailer alone), simply that the dollar value of their sales were equal to this percentage.

Target, and Walgreen) had revenue equivalent or larger to Sears' 1945 level of GDP,

another five (Sears, Lowe's, SuperValu, Best Buy, and Safeway) had sales above $40

billion, and eleven more had revenues at or above $11.90 billion, the 2009 dollar

equivalent of Sears' 1945 level.[7] In dollar equivalents, all 23 of these firms would have

been America's largest retailer in 1945. How was this explosion of enormous retail

empires possible? The answer begins with the barcode.

Digital information has fundamentally changed retail firm size by allowing

retailers better information about sales, better response times, better communication with

store networks, and reduced risk through better demand management. The beginning of

the scale revolution in retail trade was the digital routinization of basic activities. Prior to

the full onset of the digital era, earlier technological advances, such as electronic registers

had moved the sector partially in this direction. With the implementation of barcode

technology (see Nelson1997), scanners, and the digital storage of sales and stock

information, however, in-store operations and automation jumped forward. These basic

digital technologies allowed the automated gathering and storage of information provide

the basis for each of the other stages described below. The fundamental feature of the

digital revolution is the ability to create, store, transfer, and manipulate digital

information, and barcode technology is the point at which digital information is created.

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[7] And this only counts pure retail firms – the list would certainly be longer if we included sales of firms with retail as part of their portfolios. Firms are: Rite Aid, Publix, Amazon.com, Staples, Macy's, TJX, J.C. Penney, Kohl's, Gap, Toys "R" Us, and Office Depot, which went bankrupt in 2009.

Basic digital product and sales information then cascades through the rest of these stages.[8]

The ability to store information about product price and stock levels through barcodes revolutionizes store operations. In addition to accelerating the movement toward self-service in retail, stores are able to reduce inventory checks (a timely and costly procedure), speed-up checkout times, and generally create the types of innovations toward larger-volume formats, reaping the benefits of greater scale while keeping organizational challenges in check.[9] In addition, IT has also provided a valuable tool for headquarters to effectively manage large chains of stores. IT allows a central location to communicate with stores, gather the incredible stream of information from various locations for analysis, and coordinate larger distribution networks more seamlessly. Data on electronic data interchange systems (EDI), which are used to automatically place orders with suppliers, shows the increasing routinization of retail. Hwang and Weil (1998) find that the use of EDI by retail firms increased from 33 to 83 percent in the period from 1988 to 1992 alone.

Once product information is digitized, retailers can begin analysis of sales information, allowing superior management of both inventories and price decisions. Retailing occupies a critical economic location between manufactures and consumers. For retailers, therefore, understanding what products consumers demand and at what

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[8] It is likely that the next round of base technologies, this time driven by sensor technologies like Radio Frequency Identification (RFID), may send similar upward ripples through the sector, re-shaping activities just as dramatically as the bar code.

[9] The benefits of digital systems are neither automatic nor universal. Jones, Kalmi, and Kauhanen's (2011) study of Enterprise Resource Planning (ERP) implementation in a retail chain initially dropped sales and inventory turnover by 7%. Sales recovered, but more rapidly when workers had broad training regimes. Finally, timing matters. Those establishments which establish ERP later saw inventory turnover recover faster.

price is a fundamental component of providing retail services. While barcode technology allowed retailers enormous labor savings, equally large savings have accrued from the analysis of the point-of-sale (POS) data that barcodes generate. Since the mid-1990s, nearly every major global retailer has kept data on every purchase made across their store networks, often using loyalty cards to tie these purchases to particular customers.[10] The analysis of this data allows firms to better understand and manage consumer demand in a number of ways including: better matching of inventory to customer demand, even below the product level to features such as color, better understanding of the relationship between prices and sales, more efficient use of shelf space and more efficient store layout through recognizing sale complementarities, reduced inventory and fewer out-of-stock situations, and the potential to evaluate and optimize advertising, even at a personal level.

Again, this is not simply about cost cutting, but also about improving sales through better store layouts, keeping goods on the shelves, and generally matching demand. Dobson et al. (1998) find that in the United Kingdom between 1980-94 retail sales (in real terms) per outlet increased by 53% and per employee by 23%.

Technology also allows reduced overheads and smaller stock warehouses, which can be seen in data on assets and liabilities in retail trade over time. Looking at French retailers, Dawson (2005) finds that assets and liabilities were down to 47.4% and 53.6% of sales, respectively, in 2001. This is compared to 63.1% for assets and 59.4% for sales in 1984. Gaur et al. (2005) support this finding from a new direction, demonstrating that greater capital intensity leads to increased inventory turnover (and lower margins). In other words, investing in information technology has helped retailers to further increase

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[10] Rules about how firms can gather and disseminate individual sales data are critical and subsequent firm strategies vary by location.

turnover and lower inventories relative to sales, increasing returns on capital. As a percentage of sales, retailers can hold on to fewer goods and incur fewer liabilities as a percentage of assets. Taken together, therefore, effective demand management allows productivity gains on capital, space, and labor. The ability to keep items in stock allows storage space to be reduced or even eliminated, increasing productivity in terms of sales per square foot. Buying products from suppliers as they are needed cuts down on overstocked inventory, increasing capital productivity. Finally, retailers can now place goods in complementary locations, carrying more of what consumers want placed by other goods they buy them with, which increases sales of both.

To recap, digitally captured sales information and analysis allowed retailers to routinely achieve scale and use scale advantages to handily out compete small independent retailers without similar capacity. Holmes (1999) report for the Federal Reserve Bank of Minneapolis summarizes many of these findings. It models the adoption of new information technologies in the retail industry, arguing that barcodes and increased delivery offered a variety of new business strategies built around increasingly large retail networks.[11]

Increasing business opportunities have been multiplied by similar IT-transformations of industries that complement retail, such as transportation. On-board computers (OBCs) and electronic tracking has increased capacity utilization and tied

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[11] In a telling American-centric slip, the author of the Federal Reserve study entitled the report, "Bar codes lead to frequent deliveries and superstores", focusing on how increased delivery will increase store size. Arguments on size have clear limits, as the largest retail stores today need for more than one truck a day to keep stocked. A Walmart Supercenter can stock 200,000 unique products, and daily sales are far more than one semi-truck. While it is true that small stores may not have sufficient sales to fill up a large truck's space, this argument misses the ability of dense small store networks, such as those found in Japan, with German discounters, or Danish Co-ops, to make use of the potential of more frequent delivery to multiple stores.

transportation more tightly into firm networks. This follows the expectation of

Bresnahan and Greenstein (1997), who argue that productivity growth in services

requires co-invention across firm networks.[12]

Once firms had scale and a stready information stream about what customers were

buying, when they were buying it, and under what store and price conditions, they faced

an array of new business challenges and opportunities. How should they integrate

technology into existing patterns of labor implementation – should they use information

to automate or enable workers? Should they share sales data with their suppliers? How

should they gather information from and connect with customers to better individualize

service provision? Finally, what additional value opportunities were available? Which

should be attacked with partners and which should be captured alone?

The answers to these questions are neither simple, nor inherent in the

technological capabilities of digital tools. Looking ahead to the outcome, we find that

firms have solved them in a multitude of ways. Why? The answer lies in political deals

about the distribution of wealth in the economy, as political fights pushed firms toward

nationally-specific calculations about the market, firm, and relational contracting choice

for firms poised by Williamson (1985).

Interestingly, many of the divergences in digital strategy appeared before digital

technology was central to core retail processes (for a much longer discussion of the

political fights, their national character, and the outcomes sketched below, see Watson

2011). The majority of powerful retailers in the global economy are actually relatively

new firms. Unlike many industries, essentially every major global retailer is a recent

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[12] Co-invention may provide an explanation for why later adoption leads to more seamless
integration of new technology tools (Jones, Kalmi, and Kauhanen, 2011).

company, with few leading retailers existing with any size prior to the 1950s.[13] By the 1960s, however, a new class of retailers had emerged across the affluent economies. These retailers were spurred common social and economic changes in the post-war period and process innovations including self-service, ample automobile parking, larger stores, and more product diversity. In all countries scale retailers emerged in a similar fashion, promoting self-service and the stack it high and sell it cheap philosophy.

The rapid growth in scale retailers, however, soon created clashes with independent shopkeepers, long a fixture of both the economy and the ballot box. Independent shopkeepers wanted protection from what they saw as either unfair or socially disruptive aspects of scale retail development including predatory pricing, out-of-town development, large stores, and their scale more generally. A political conflict was brewing, and both sides began to mobilize coalitions to fight for their preferred regulatory outcomes. How retailers built these coalitions was quite different by location, motivated by different political challenges from opposition groups of varying power and institutional resources.

Retailers are among the most connected actors in the economy, interacting with a variety of economic, political, and social groups. Politically, they must manage relationships ranging from international trade organizations and national regulators down to municipal governments. Within national economies, they connect with consumers, suppliers and producers, manufacturing firms, and wholesalers.

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[13] This is particularly unusual in Europe, where only 29% of its 156 FT Global 500 firms were founded after 1901. Eighteen firms on the list were primarily retailers. Of these, only one was founded prior to 1901. Twelve were founded after 1946 and eleven were founded in 1957 or later. For data, see the Bruegel database of Corporate Birthdates: http://www.bruegel.org/8358.

The development of the three national models of retail capitalism described above is best explained by how retailers built these political partnerships in the 1960s and 1970s. The form and function of each national coalition proved a critical determinant in subsequent nation-specific business strategies; building and maintaining successful coalitions not only forged economic partnerships, it also influenced ongoing regulatory strategies for national retail sectors.

Retailers facing the most fragmented and decentralized national environments (as in the United States) faced the least organized opposition and consequently needed the fewest political partners. They faced the most liberal regulatory environments and formed lean retailing business strategies built on low levels of cooperation with workers, suppliers, and governments. In the most highly consensual and corporatist countries, by contrast, powerful external and internal opposition groups led retailers to build broad political coalitions that germinated relational contracting business models. These business strategies forced retailers to integrate labor and manufacturing partners into business strategy or face political, social, and economic consequences. These coalitions agreed to higher levels of buffering regulation in return for political and economic alliances. Finally, vertical integration retailers emerged in environments with powerful but fragmented opposition groups by mobilizing weak, short-term coalitions where advantageous for development, such as local political partnerships, minor worker concessions, and selective cooperation with industry.

Each coalition re-shaped the economic calculations of retail firms, pushing them toward different strategies of labor relations, supplier connections, product strategies, value added-services and ultimately the digital strategies that now underpin each of these

dimensions of business competition. Although it is not in the scope of this article to fully

detail each model, the data below provides quick evidence that they are real and

sustained.

Selected Country Retail Characteristics:

United States

Leading Retailers:	Walmart, Kroger, Target, Costco, Albertsons, Safeway
Labor Conditions:	6% unionization (2009), 42% below 2/3 median wage (2003), 28% part-time (2007), $12.75 average wage (2007)
Key Policies:	N/A

United Kingdom

Leading Retailers:	Tesco, J Sainsbury, WM Morrison, Kingfisher, Marks & Spencer
Labor Conditions:	14% collective bargaining coverage (2006), 49% below 2/3 median wage (2003), 51% part-time (2006), $15.23 average wage (2007)
Key Policies:	Spatial Planning

France

Leading Retailers:	Carrefour, Casino Group, Auchan, Intermarche, E. Leclerc
Labor Conditions:	3% unionization (2009), 18% below 2/3 median wage (2003), 28% part-time (2006), $16.09 average wage (2007)
Key Policies:	Spatial Planning, Price/sales rules, High employment protection legislation

Denmark:

Leading Retailers:	Dansk Supermarked, Coop Danemark.
Labor Conditions:	30% unionization (2010), 72% bargaining coverage (2006), 23% below 2/3 median wage (2003), 50% part-time (2006), $21.84 average wage (2007)
Key Policies:	Spatial Planning, High levels of labor cooperation/negotiation

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Sources: Russell Sage Foundation (2008), US BLS-CPS (2010), OECD (2010), Danmark
        Statistik (2010), UK ASHE (2010), INSEE (2010)

Comprehensive data on technology strategies are difficult to assess, but data in

table 4 from Kurt Salmon and Associates on Efficient Customer Response, a good proxy

for the digital interactions between retailers and suppliers and customers, shows a large

difference in the lean retailing US versus European firms.

Table 4. ECR Implementation Strategy Status, US versus Europe

ECR Strategies (% of firms responding yes)

	US (1995)	Europe (1997)	Difference
Efficient Store Assortment	55	29	26
Efficient Promotions	54	21	33
Efficient Replenishment	47	31	14

Source: Kurt Salmon Associates, as reported in Kurnia et al. (1998)

Table 5. Private Label Sales as a % of Total Sales, Food Retailing

	1995	1997	2002	2003	2005
Lean Retailing					
US	8	14	16	12	14
Vertical Integration					
UK & France	23	24	30	30	32
Relational Contracting[14]					
Denmark & Germany	12	11	19	18	25

Sources: Boston Consulting Group (2003), A.C. Nielsen (1997, 2005)

A similar divergence in product strategy development has emerged, driven by the

vertical countries. Data in table 5 show that not only do the vertical integration countries

lead in private labels as a percentage of sales, but there has been little convergence. Sales

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[14] The relational contracting countries have closed the gap a bit, but it should be noted that this small convergence is driven largely by German hard discounters, whose strict low cost private label focus is qualitatively different than the broad basket of private label goods seen in the UK or France.

of private labels in the UK and France were 15% higher than in the US in 1995 and 18%

higher in 2005. In addition, these numbers hide qualitative differences in how private

label goods are used, primarily simply as low-cost alternatives in the United States versus

high value added products at a variety of price and quality points.[15]

III. **From Bricks to Clicks: New Platforms, New Politics**

The next technology platforms will create similar potential, perils, and politics.

Accordingly, it is appropriate examine how each of the different models of physically-

based retail capitalism will fare going forward, as retailers will face new pressures,

including purely electronic retail services and the commodification of existing digital

strategies. Digital technology also opens new opportunities, including the opportunity to

offer new digital services or open new distribution streams based on new technologies.[16]

What value domains might retailers tackle next based on the trajectory of both national

firm tendencies and domestic political coalitions and where are the political pressure

points that will arbitrate new distributions of wealth?

Although the scope of the existing retail transformation has been vast, there are

signs that further transformations await. The changes described above have pertained

primarily to traditional brick and mortar stores. Although still in its infancy, experiments

in and the expansion of e-commerce (internet) and mobile commerce (cell-phone based)

have also increased the number of retail business models. As the ways in which

consumers can connect to manufacturers have increased, so too have the ways in which

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[15] For instance, Tesco, a British firm, has eleven private label orange juices at eight price points
and eight private label yogurt brands at seven price points Kumar and Steenkamp (2007).

[16] An example of the new service opportunities can be seen in the burgeoning cloud computing
business of Amazon.com. Although this strategy certainly emerged partially due to Amazon's
technological expertise, its server capacity and technical infrastructure are not wholly unique in
the retailing world. Other large retailers have similar opportunities should they choose to expand
their digital strategies.

retailers have offered services to connect them, from companies which offer a wide of

products like Amazon.com to niche sites that connect consumers with hard to find items.

Table 6. American Retail Sub-Sector Market Share, 1992 & 2007

NAICS Code	Kind of business	1992	2007	Change[17]
	Per capita spending, total	**7,120**	**13,259**	
	Total (excl. motor vehicle and parts dealers)	5,475	10,249	
	Percent Share			
441	Motor vehicle and parts dealers	23	23	0
442	Furniture and home furnishings stores	3	3	0
443	Electronics and appliance stores	2	3	0
444	Building mat. and garden equip. and supplies dealers	7	8	1
445	Food and beverage stores	20	14	-6
446	Health and personal care stores	5	6	1
447	Gasoline stations	9	11	2
448	Clothing and clothing access. Stores	7	6	-1
451	Sporting goods, hobby, book and music stores	3	2	-1
452	General merchandise stores	14	14	1
453	Miscellaneous store retailers	3	3	0
454	Nonstore retailers	4	7	3

Table 6 shows the rise of e-commerce as a force in American retailing, with

internet retailers constituting the vast majority of the "non-store retailers" category.[18]

The data show that non-store retailers were the only sub-sector that significantly

increased market share between 1992 and 2007. In addition, this figure shows that where

consumers spend across sub-sectors is largely static in the United States, with the

exception of non-store retailers and the decline in food and beverage stores.[19] Note that

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[17] Numbers may not compute due to rounding.

[18] The category also includes the forerunner of e-commerce firms, the catalogue retailer.

[19] This oversimplifies a bit. Even a static group may actually have a high level of internal change. For instance, even though general merchandise stores (NAICS 452) shows little change, this

$7120 in 1992 is a roughly equivalent share of GDP per capita as $13259 in 2007

(Measuringworth.com).

Additionally, these numbers largely exclude the next rising retailing stream:

mobile commerce. Although mobile commerce sales totaled only $69 billion in 2010,

they are expected to explode in the next five years, and projections suggest that mobile

commerce sales will total more than $600 billion by 2014 (Kenney and Pon, 2011).

Although still relatively small compared to the global retail market, $600 billion dollars is

50% more than the total sales for Walmart in 2010 ($405 billion).

The purely digital provision of retail services via e-commerce will intensify many

of the trends started by the digital revolution while opening new lines of conflict,

especially in Europe where e-commerce will place increasing pressure on national

regulatory differences, price levels, and product offerings.[20] It will also open new

political fights between physical and digitally-based retailers over rules of the game.

Extended the arguments of this dissertation forward, the prediction would be that these

political battles – over digital signatures, privacy, consumer protections, content

regulation, copyright, new distribution patterns, and taxes[21] – would follow the

established patterns of policymaking.[22] There are suggestions that that this is the case,

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hides the fact that within the sub-sector department stores experienced declines in sales (as a % of
per capita spending) while discount and warehouse mass-merchandisers experienced sharp
increases.

[20] One story from an interview at the EU illustrates that retailers will push back. Electronic goods
often sell at quite difference prices in France (more expensive) than in England. While the
internet should change this, it largely has not. Why? While electronic goods like DVD players
and TVs are sold more cheaply via the internet from England to France, a secondary market in
manuals has sprung up, where French manuals now cost roughly the price difference between the
two countries.

[21] See J. Gibbs et al. (2003) for a somewhat dated view of which countries have passed e-
commerce specific regulations in which areas.

[22] Some rules will cut across the digital-physical divide and become more general societal fights.
One good example is data privacy, which matters for both physical and online retailers as they

with American e-commerce rules being driven by market forces and market winners,

French rules being hotly contested by the retailers and producers, and Danish frameworks

being heavily negotiated by a variety of social partners.[23]

Similarly, e-commerce, and accelerating productivity will also bring changing

relationships with national governments who have slowly updated their of view retailers

as simply sheltered domestic players. This suggests that once again there will be political

conflicts over the distribution of wealth as retailers press to protect their formerly

sheltered sector and the fights of the 1970s are replayed, this time with the previous

victors on the defense.

IV. **Conclusions: New Dilemmas and Global Markets**

For firms, digital competitors are not the only worries. Although future

evolutions in technology will certainly drive further reorganizations in the strategies of

retailing firms, equally great will be the challenges from the increase in retailing

regionalization and globalization, driven by the spread of transnational retailers both

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gather information about their customers (and for online retailers, their visitors). For physical
stores in the US and increasingly the UK, loyalty cards are the primary method of linking sales
data to individual customers, but loyalty cards are not the only way to tie consumer information
to sales data. Ito-Yokado, the firm that now owns the 7-eleven franchise, has workers enter basic
customer information (age, gender, local or visitor) into computers before ringing up purchases.
The way data is gathered is certainly one of the variables most affected by regulation, notably
privacy laws. Differential privacy laws mean that European companies are more likely to collect
aggregate data from the cards instead of customer specific data. In addition, it is harder from
them to share the data with third parties. If they were to gather individual data, they need consent
agreement on the front end. This also makes future mergers harder if merged companies want to
use any individual data across products. See Newman (2008) for more on cross-national data-
privacy regulation and a special thanks to Abe Newman for helping me think through this
complicated subject.

[23] In France, the fights are often about whether to replicate/update the rules that existed in
physical distribution. For instance, the 1981 Lang Law prohibited the sale of books for less than
five per cent below the price set by publishers. In November 2010 the French government
extended the law to include e-books.

within regional free trade associations like the European Union (EU) or the North American Free Trade Agreement (NAFTA) and around the globe.

Pressure on national retailing tendencies will therefore come from foreign as well as domestic competition. These new entrants will bring with them strategies honed in quite different regulatory settings. In the short term, these challengers may be ill-equipped for competition in new markets. As the growing literature on transnational retailing is increasingly finding (Coe and Wrigley 2007) entrants remain enmeshed in the national social practices of their host economy. This has typically led to difficult transitions for new entrants, highlighted by Walmart's colossal failure to enter the German market in the late 1990s and early 2000s. Many of the challenges are still political. Walmart struggled to cut deals with wholesalers, producers, and workers used to a very different way of doing business. The technical specifications of Walmart's strategy may have worked, but the political dimension was an utter failure (Christophersen, 2007).

Walmart's failure is not an isolated case. Despite considerable global growth, particularly in developing markets, Carrefour – the world's number two retail – has also had numerous failures, including flops in Japan, Russia, Korea, and the United States. Nevertheless, the increasing number of cross-border success stories suggests that retailers are finding better ways to adapt their business models to new regulatory environments, preserving the strengths they honed at home while addressing the weaknesses of these models abroad.

Regionalization, particularly within the EU has been one solution, as regional markets are more likely to approximate the regulatory conditions of home markets. In

grocery retailing, Mesic (2009) reports that in 2004 the ten leading retailers in Europe

averaged 30% of their sales in foreign markets, the majority of which are in Europe.

National governments will also face challenges from the dramatic changes in the

retailing sector. For one, employment patterns in retailing are also changing in response

to digitization. The rise of digital retailers (of both physical and digital goods) coupled

with the increasing replacement of workers with digital tools (such as self checkout

kiosks) has begun to change the link between economic growth and employment in the

retail trade sector. Retailing growth has traditionally been highly linked with retail

employment; in the past retailers that sought to increase output had few alternatives to

simply increasing hours worked. As the graph below showing the hours and output of the

constituent retail sub-sectors demonstrates, this relationship is weakening.

Output and Hours, US Retail Trade
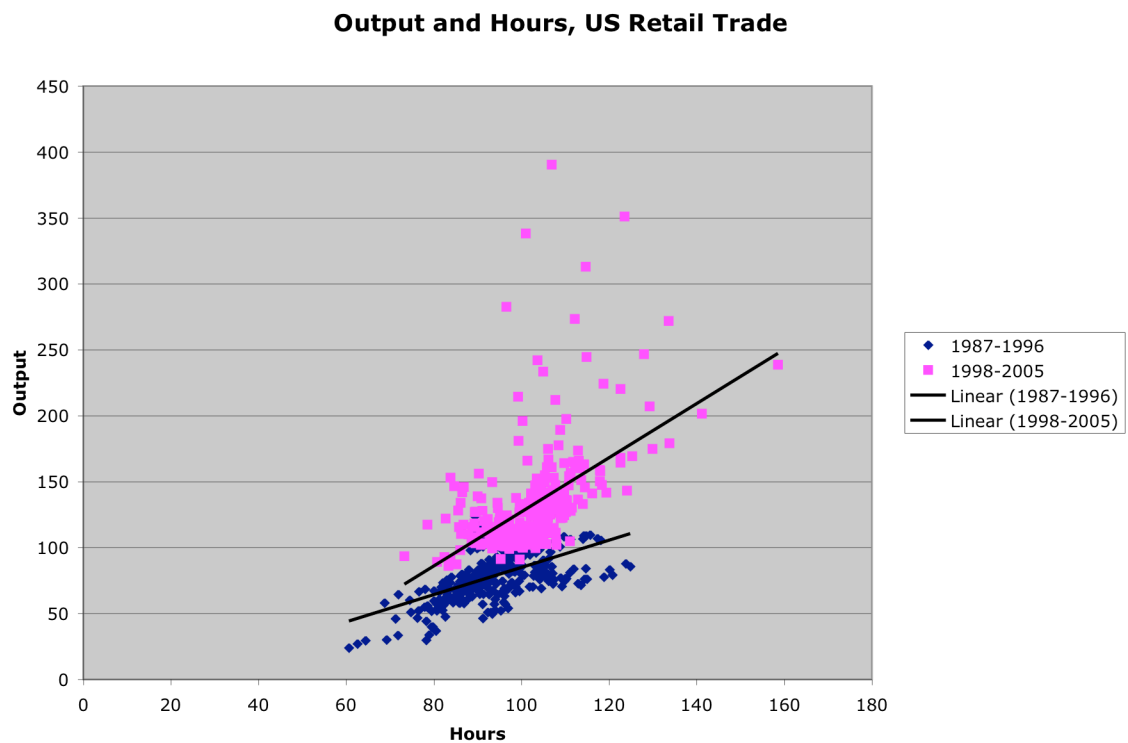
From 1987-1996 a line fitted to an index of hours worked to an index of output

has a slope of 1.04. An extra hour worked increased output by another unit. From 1998-

2005, the slope is 2.05. Now an extra hour worked increases expected output by two

units. Suddenly, retailers have options other than adding labor when they seek to

increase output.

The changing way retailers view employment has been starkly apparent during

the recent Great Recession. In the past during downturns, retailing was often a fairly

sheltered sector, where firms kept employment steady even during tough economic times.

For instance in the recession of 1974-1975, total employment dropped by 2.7 million jobs

(-4.2% of the total) while retailing only lost 61,000 jobs (-0.6% of the retail total).

Similarly, during the 1981-1982 recession, total employment dropped by 2.7 million jobs

(-3.5% of the total) while retailing only lost 40,000 jobs (-0.4% of the retail total). (BLS

2010).[24]

In contrast, from March 2008-March 2010, retailing lost over a million jobs,

representing 13.5% of the total private sector job losses for the period (BLS 2010). This

is a percentage roughly in line with retail's percentage of total jobs in the economy and

shows that at least in this downturn retailing moved more like a productive sector of the

economy than a Baumol-afflicted sheltered sector.

Together, this means job creation strategies will need to account for the growing

difficulty of creating jobs in the retail sector. In his 2011 State of the Union address,

President Barack Obama referred to "all the good jobs from manufacturing to retail" that

have come as the result of technological innovation. Unfortunately for the President's

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[24] Historical seasonally adjusted monthly employment data. Total employment is for total private sector. Measured from peak of employment pre-recession to nadir. Does not follow NBER definition of the recession, simply charts employment's fall during recession.

argument, the United States lost 4.2 million manufacturing employees between 1997-

2007 (EU KLEMS database). There are signs that retailing may be next.

Nevertheless, the final view of the retail revolution should not be a gloomy one.

There are enormous opportunities from retail's transformation, from better (if perhaps

fewer) jobs to new value to be captured in foreign markets. Certainly, accelerating

productivity, retail internationalization, and e-commerce will all necessitate changing

relationships between national governments and retailers. Those countries slow to update

their view of retailers as simply sheltered domestic players will miss out while those

attentive to the needs of retailers and consumers may reap considerable benefits. How

any benefits should be distributed, however, remains a political question. This suggests

that once again there will be political conflicts over the distribution of wealth as retailers

press to protect their formerly sheltered sector and the fights of the 1970s are replayed,

this time with the previous victors on the defense.

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