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**What Makes a District?
“Created” Externalities in Craft-Like Manufacturing—the Garment Industry**

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What Makes a District?

“Created” Externalities In Craft-like Manufacturing -- The Garment Industry

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This paper is based upon field research and data analysis on garment districts in the United States, the UK, France, and Italy. Peter Doeringer is the overall coordinator of the project and is responsible for the New York City study. Bruno Courault, Lynn Oxborrow, Daniella Bigarelli, and Paolo Crestanello respectively direct the district studies in France, the UK, and Italy. The materials presented in this paper draw upon various papers and reports prepared by this team. We acknowledge support for this research from the National Science Foundation under Grant No. 0328635, the Fiscal Policy Institute and the Garment Industry Development Corporation, the Alfred P. Sloan Foundation, the International Labour Organization, and the Harvard University Center For Textile and Apparel Research. We are grateful for assistance from Sarah Crean and Seth Myers for the New York City materials and Elisabeth Parat for the French materials. We also thank participants in presentations organized by Society for the Advancement of Socioeconomics, the Federal Reserve Bank of Boston, the Centre for Research in the Arts, Social Sciences and Humanities at Cambridge University and GIDC in New York City as well as Frederick Abernathy, John T. Dunlop, Janice Hammond, and David Weil. Brad Rice provided very helpful research assistance.

Alfred Marshall is the most widely-cited source for defining what makes an industrial district (Marshall, 1890). For Marshall, districts emerge when one or more key local externalities for firms are present: (1) human capital efficiencies from shared pools of labor with industrial skills and knowledge, (2) transaction efficiencies of communication and transportation from proximity to specialized suppliers and buyers, and (3) knowledge spillovers from production know-how, technological developments, and knowledge about customers and markets. Marshallian externalities are internalized at the district level as firms locate and expand in response to local opportunities for market externalities. However, from the perspective of individual firms, they are positive externalities of locating in the district.

Subsequent research has extended our understanding of what makes a district by introducing the concept of a network of interdependencies among industry sectors (Chinitz, 1961) and documenting the externalities of organizational relationships and district cultures as further sources of efficiency advantage. Italian garment districts are well-known for collaborative production relationships and sharing of knowledge among local suppliers (Brusco, 1982; Bigarelli, 2000; Bigarelli and Crestanello, 2004); Saxenian's "regional advantage" documented the role of regional business cultures in promoting knowledge spillovers (Saxenian, 1994); Porter (1994) emphasized the importance of active competition among spatially-concentrated clusters of firms; and the mediating role of social relationships among workers and entrepreneurs in facilitating the blending of active cooperation with active competition has also been highlighted (Piore and Sabel, 1984; Reid, Smith, and Carroll, 2008).

A major gap, however, remains in our understanding of the micro-foundations of local externalities making it difficult to explain the dynamics of why districts with similar firms and endowments evolve differently overtime (Montana and Nenide, 2008; Newlands, 2003). While we know that externalities and knowledge spillovers are critical to innovation, we do not know exactly how this happens and have little analysis of the internal organization of firms in relation to district development (Motoyama, 2008). The micro-foundations of Marshallian externalities are rooted in the economics of atomistic markets in which individual firms have little independent influence on collective externalities. Yet many modern districts are dominated by large firms that have considerable local market power to shape local externalities (Giarratani, Gruver, and Jackson, 2007; Lundequist and Power, 2002; Doeringer, Evans, Terkla, 2002).

We have chosen initially to study the micro-foundations of district externalities in the apparel industry. Apparel is well known for being geographically concentrated in districts and regions and has long been cited as an example of an industry that relies heavily on Marshallian district externalities (Hoover and Vernon, 1962, Segal, 1960). While it was once a major industry in industrialized countries, it has experienced sharp declines – beginning in the United States in the mid 1970s, in France and the UK in the 1980s, and in Italy in the 2000s -- as imported clothing displaced domestic production and as mass-market retailers with sophisticated off-shore sourcing practices replaced independent retailers as the primary outlets for domestic production.

The loss of markets has disproportionately affected the large manufacturers that developed mass-production techniques to serve the growing demand in the early post-war period so that garment districts in high-wage countries are increasingly populated by large firms that have abandoned manufacturing and by small and very flexible firms serving a variety of small-scale markets. The prevalence of small and flexible firms and the replacement of mass markets with niche markets are suggestive of the craft-based industrial districts engaged in flexible and specialized production that are featured prominently as an alternative to mass production in Piore and Sabel's *Second Industrial Divide* (1984). However, the qualities that we observe in the garment districts we are studying are not typically those of skilled and largely-autonomous work groups engaged in flexible and specialized production. Rather we find districts with large, as well as small, craft-like firms and a variety of new organizational relationships among firms of different sizes of which networks of independent artisans and autonomous work groups are only one example.

Instead of a return to districts based on craft production systems that often preceded the era of mass production, new models of districts are emerging in which flexibility and innovation are the key characteristics, regardless of size of firm or type of specialization. The firms that remain are increasingly “craft-like” in that they serve markets characterized by differentiated products, smaller orders, and often time-sensitive production, and their products are often sold through craft-like retail venues – boutiques and boutique-like specialty chains. Survival in this market environment requires special kinds of human capital – entrepreneurial skill for designing

or adapting products and organizing quick and flexible production and a skilled and experienced workforce that can switch products and complete production quickly.

Flexibility and innovation in these new districts can take the form either of intensified effort incentives embedded within a district culture of “command and control” hierarchies or of new products and new organizational arrangements being developed within a district culture of collaboration. We see these new incentives and innovative practices as resulting in a new class of “created” district externalities – externalities that arise from strategic business conduct and that affect the collective efficiency of industrial districts – that build upon the traditional externalities of shared labor and knowledge and contribute new sources of district advantage (Sammorra and Belussi, 2006; Camuffo, 2003).

This paper documents the emergence of “new” industrial districts using evidence from a longitudinal and retrospective study of garment districts in France, Italy, the UK, and the United States. These studies find that traditional district externalities continue to matter as much or more to the smaller craft-like firms that survive than to the larger firms that are disappearing. Proximity to customers, fashion designers, and suppliers remains essential to information and transaction efficiencies because orders are small and production is time sensitive (Uzzi, 1996; Cranton and Minehart, 2001); ready access to skilled and experienced labor pools is important for maintaining labor reserves because the remaining demand for domestic production is more volatile and uncertain; and both proximity to customers and suppliers and the presence of shared labor pools are critical conduits for knowledge about products, skills, and production processes in volatile and uncertain markets.

The transformations from large-scale to craft-like production and from traditional to new garment districts has occurred to varying degrees in the districts studied. These differences reflect national factors – economic structure, income levels and consumer preferences, and social and industrial policies – and different combinations of traditional and created advantages at the district level. In addition, the speed and severity of import penetration is also a factor shaping how districts respond to change. Gradual import penetration allows firms to respond in ways that create new district efficiencies that draw heavily on existing business practices. More sudden and severe import shocks disrupt these practices and result in newly-created externalities that

represent more radical departures from the past. The most dramatic rupture with the past is found in the French garment district Cholet, which was exposed to the sharpest import shocks of all of the districts studied and which created a variety of district externalities that almost completely transformed the Cholet garment district. Conversely, the Italian districts studied are among the strongest examples of path-dependent district adjustment. Being sheltered from import penetration by strong demand from independent retailers has allowed these districts to adapt in ways that build upon their existing externalities.

Nevertheless, comparing the experience of these districts reveals three distinct patterns in the way firms and districts have responded to globalization that transcend national differences. The first focuses on strengthening traditional Marshallian externalities through training programs to upgrade the skills of local labor pools, subsidies for commercial space and research and development, and support for the dissemination of knowledge and know-how. The second involves building market incentives for higher effort and lower costs within districts. The third can be broadly described as Schumpeterian innovation by firms – new products, new and more collaborative supply chain relationships, entry into new markets, and new avenues for sharing knowledge – that collectively improve district advantage.

The following section summarizes the major industry structural characteristics of the apparel industry and the major trends that have affected garment districts in the four countries studied. Because these districts have much in common in terms of products, technologies, and market trends, there is a shared context for understanding how local clothing firms are contributing to new district externalities.

The Transformation of Garment Districts

The changes that have occurred over the last three decades in apparel supply chains, clothing retailing, and business strategies of apparel firms in the United States, the UK, France, and Italy have been addressed in a series of research papers by the authors (for example, Bigarelli, 2000; Bigarelli and Crestanello, 2008; Courault and Trouve, 2000; Courault and Doeringer, 2008; Crestanello and Dalla Liberra, 2005; Doeringer and Crean, 2006; Doeringer and Watson, 2000; Oxborrow, 2007). Rather than repeating the findings of these country studies, the balance of this paper will focus on the transformations in a specific group of garment

districts. However, some national context is useful as background for understanding how different districts evolve. This section will summarize the national trends using the United States experience, the country with the longest period of import penetration, while noting major exceptions in the other countries.

Employment Decline

Throughout the first half of the post-war period, apparel industries in the United States and Europe flourished as market demand expanded, large firms benefited from economies of scale and scope, and import competition remained relatively low. The 1970s, however, marked the turning point for the industry as clothing imports began to penetrate domestic markets. Between 1970 and 2005, loss of markets to clothing imports resulted in employment declines of 88% in the UK, 80% in the United States, and 76% in France. Italy, which remains a net exporter of clothing, avoided employment declines until the 1990s, but by 2005 Italian apparel employment was 28% below its 1970 level (Table 1)

<Table 1 goes here>

Changes in Retailing

While the proximate cause of employment decline is imports, the timing of import penetration is very much related to changes in the structure and sourcing practices of retailers and large manufacturers. The rise of mass merchandisers and new specialty chains in the United State in the late 1970s and a decade later in the UK was based substantially on their ability to develop overseas supply chains that provided products of high value to price ratios. However, the significant presence of large department and variety stores with efficient domestic supply chains somewhat slowed the market penetration by new mass retailers with offshore suppliers. Similarly, a strong independent retail sector provided an even more effective buffer against import penetration in Italy until the 2000s.

The most extreme example of the effect of retailing on national garment industries is in France where new mass-market specialty chains specializing in short-cycle “mass fashion” products quickly revolutionized clothing retailing during the 1980s by outsourcing production and offering rapidly-changing fashion products at relatively low prices. These specialty chains quickly displaced the large sector of independent retailers that offered individualized fashion

products supplied on a two-season cycle by networks of domestic manufacturers and wholesalers.

Changes in the structure of retailing also affected the control over branded products and the market power of retailers. The traditional structure of retailing in the United States involved a hierarchy of retail sectors. Department stores (Bloomingdales, Nordstrom), were the principal segment for products from manufacturers who controlled branded designs. Variety chains like J.C. Penney and Woolworths sold lower-priced “house brands” supplied by large domestic manufacturers and their contractors and similar products were offered through catalog chains such as Sears Roebuck and Montgomery Ward. Small chains and independent specialty shops have accounted for only a small fraction of U.S. clothing sales since the 1970s.

Control over product innovation and brand names allowed many large manufacturers to exercise buying power over suppliers, to set markups and define minimum order sizes, and to dictate ordering and delivery schedules for retailers. In the United States, beginning in the early 1970s, the ability to drive supply chains in this way began to shift from manufacturers to retailers (Gereffi, 1994). New mass retailer chains (specialty stores like the Gap and the Limited, and low-priced general merchandise chains like Wal-Mart) entered the market and competed aggressively against traditional retailers by developing their own product innovation capacity, establishing their own store brand names, and reducing prices by sourcing from new offshore suppliers rather than domestic manufacturers. As these new mass retailers gained market share, both traditional retailers and large manufacturers also began to source offshore, and independent retailers virtually disappeared.

Between the growth of new retailers and consolidation among traditional retailers, buyer concentration increased substantially in U.S. retailing. The market share of the four largest women’s wear specialty chains rose from 11% to 30% between 1972 and 2002 (U.S. Census of Retail Trade, 1972, 2002) and mergers and acquisitions increased the market share of the four largest department store chains to 72% in 2002, up from 39% in 1972 (Table 2B). In addition, there was market entry by low-price mass merchandisers such as Wal-Mart and Target and the four largest firms in this new retail segment accounted for 95% of sales by 2002. This competition for retail market share between new and traditional retailers accelerated import penetration while at the same time increasing buyers’ power over prices and delivery schedules

in supplier markets both domestically and internationally.

<Tables 2A & 2B go here>

The mix among retailing segments varies substantially among these countries. For example, independent retailers are no longer significant in the United States, whereas they remain the single most important sector in Italy (Table 2A). In the UK, specialty stores (Next, H & M) have had the largest share of the retail clothing market, at about 25% since the late 1980s, followed by mid-market variety stores (Marks and Spencer, B&S) whose market share has fallen from 21% in 1988 to 12.5% in 2005. Department stores (John Lewis, Debenhams) slightly increased their market share from 8.8% to 9.6% in this same period, but the major growth occurred among discount stores (Asda, Tesco) whose market share tripled, going from 3.6% in 1988 to 10.9% (Oxborrow, 2007).

In France, the traditional structure of retailing was for major brand-name products to be sold through large luxury department stores (Au Printemps and Galleries Lafayette) with lesser brands of good quality and well-designed clothing being sold through a large sector of independent retailers. Low-end clothing was sold through hypermarket chains (Monoprix, Prisunic). Traditional specialty chains were the single most important retail clothing category in France.

French clothing retailing, however, was particularly affected in the 1980s by a large group of new specialty chains (Camaieu, Etam) offering fashionable-looking women's wear products at relatively modest prices and sourced from Asia and North Africa. These specialty chains quickly took substantial market share from independent specialty stores and regional specialty chains and competed directly with department stores in markets for casual women's wear. More recently, large "hypermarkets" (discount stores like Carrefour and Leclerc) have also been a major factor in lower-end markets.

Italy represents the major exception to the U.S. and European pattern in that small-scale and independent shops continue to be the dominant retailing segment with almost an almost 50% share of the market. While large specialty chains (such as Benetton and Max Mara) and other large retailers (department stores (Coin, La Rinasente), hypermarkets, and variety stores) are gaining market share, these categories each accounted for less than 20% of clothing sales (2005) in the Italian market (Bocconi University, 2007). The strength of the independent retail sector

has sustained small craft-like producers in districts like Carpi while fashionable Italian branded manufacturers like Benetton and Diesel have their own retail specialty chains consisting of stores that provide a shopping experience similar to that of independent retailers.

Nevertheless, the overall trends are similar for all countries in that the market share of independent shops has been falling, and that of department stores market has remained more or less flat, while new specialty chains and large low-price retailers are gaining market share. In These countries have all experienced entry by large and aggressive mass market retailers during the 1980s. This retail challenge was led by specialty chains in the U.S. the UK, and most dramatically in France, and also by large discount retailers.

The Shift from Large Firms to Craft-like Firms

A striking feature of the decline of the apparel industry has been the substantial shift in the relative importance of large and small firms. Small firms have always far outnumbered large firms in the apparel industry, but as late as 1980 there was a small but significant large firm sector engaged in mass production that accounted for a large share of employment and output in the United States and most of the European countries studied. Five percent of U.S. apparel establishments had 250 or more employees in 1980. The UK large-firm sector (establishments with 200+ employees) accounted for 3% of all establishments while the corresponding figure for France was 9%. Italy, however, has historically had very few large firms. In 1971, there were only 140 firms with 250 or more employees (0.16%) while in 2005 there were fewer than 50 firms in this category.

By 2004, the most recent year for which data comparisons are available, the size distributions of firms in United States, the UK, and France has come to resemble that of Italy as large firms have mostly disappeared in these three countries (Table 3). Only 1% of U.S. apparel establishments have 250 or more employees and the corresponding figures for the European countries are all substantially lower, with only 0.4% of UK establishments having 250 or more employees, 0.3% in France, and 0.1% in Italy. Conversely, 79% of U.S. apparel establishments employed fewer than 20 workers, with percentages in the other countries being even higher – 88% in the UK, 93% in France, and 94% in Italy. Nevertheless, there is evidence at the district level that large firms can survive if they have craft-like qualities of flexibility and quick responsiveness to market changes.

<Table 3 goes here>

Changing Product Specialization

Declining employment and the disappearance of large firms has been accompanied by changes in the product specialization and concentration of employment in many local garment districts. Most garment districts have always had a dominant specialization – men’s suits in Chicago, hosiery in Philadelphia, and women’s wear in New York.

There are also specializations in fabric -- knitted or woven products, wool, cotton, linen, silk, and synthetics – and in market segments defined by fashion content, quality, and price. Basic commodities (knit underwear, hosiery, and household good) change very little from year to year and are mass-produced, sometimes using capital-intensive technology while fashion-basic products (dress shirts, casual slacks, and knit sportswear) have product cycles of 2-3 years and are produced using labor-intensive mass production techniques and highly-specialized labor. Among more fashionable women’s wear products the segments range from “quick fashion” products featuring lower quality fabrics and rapid style changes to fashion products with high design content, costly fabrics, and excellent quality (higher-priced ready-to-wear fashion products, designer collections, and haute couture) with relatively small markets and product cycles of a season or less.

Districts often have secondary specializations and the type and the degree of specialization often change over time. As the industry has declined in the United States, for example, capital intensive specializations such as hosiery and household furnishings (like curtains and draperies) have become more prominent. The largest garment districts of New York City and Los Angeles, however, continue to produce a wide range of labor intensive sportswear, women’s wear and other clothing products. During the 1990s, these districts gained a larger share of U.S. women’s wear production and Los Angeles displaced New York City as the leading producing district in the mid 1990s.

A comprehensive study of garment district specialization in the United States during the 1990s (Rice, 2008) has shown that overall specialization has increased while at the same time employment is becoming concentrated in the largest districts. This study also finds that increasing specialization reduces the rate of employment decline. Our European district studies also show high levels of product specialization, often in women’s and children’s wear, and at least in France there has been a consolidation of employment in a smaller number of districts.

Hierarchical Contracting Networks

A distinctive structural characteristic of the industry is its reliance on quasi-vertical integration of production based on various kinds of contracting networks (Uzzi, 1996; Kranton and Minehart, 2001; Doeringer and Crean, 2006). Traditionally, networks in the United States were based on hierarchical contracting by manufacturers and retailers either directly to contractors or through intermediaries known as “jobbers”. Large, and usually brand-name, manufacturers design products, buy fabric, perform pre-assembly activities like pattern-making and cutting, and assemble much of the production internally, while using smaller contractors for periods of peak production, simpler products (such as pants for 2-piece suits), and specialized tasks such as hand-sewing. For less standardized and higher fashion products, “jobbers” or small manufacturers often serve as intermediaries between large buyers and small contractors. Jobbers may acquire and cut fabric, but their main role is to commission contractors to assemble and sew garments according to designs supplied by branded manufacturers and retailers. The efficiencies of this contracting system are those of low transaction costs coupled with a reserve production capacity that is quick, flexible, and competitively priced.

Contracting of assembly work is a common feature of European districts as well, although with significant national variations. France followed the U.S. hierarchical contracting model closely, but with lesser reliance on jobbers or other intermediaries. Manufacturers were responsible for designs, fabric acquisition, and some cutting as assembly, with one or more tiers of contractors and subcontractors performing the more seasonal and specialized components of production. UK supply chains had more vertical integration than those in the United States and France, with large textile suppliers owning captive apparel manufacturing facilities that would also contract seasonal work to small contractors, while the U.S. jobber model was commonly used for less-standardized products. In addition, the largest variety stores used “close contracting” arrangements with large suppliers to control and coordinate fabric acquisition and manufacturing. During the late 1980s and early 1990s, these strong vertical relationships disintegrated as outsourcing increased and a mixture of direct buying relationships between retailers and smaller local suppliers and of indirect relationships through intermediaries (both wholesalers and jobbers) took their place.

Contracting in Italy is less hierarchical and more collaborative than in the other countries, largely because large manufacturers and retailers are less common in Italian supply chains and the production networks of small contractors retain substantial entrepreneurial responsibility for

production. The “lead firms” (some large like Benetton and Diesel, but mainly small firms) in these collaborative networks are responsible for design, fabric acquisition, and the marketing of their products to both independent domestic retailers and to a variety of retailers in other countries. However, in contrast to the command and control management of hierarchical contracting and vertical integration arrangements found elsewhere, a relatively large fraction of production for these lead firms is delegated to networks of small and specialized firms that are allowed to organize production among themselves under the overall coordination of their lead firms.

Comparing District Responses to Globalization

Three major types of response to globalization are found in the district studies: (1) reinforcing traditional Marshallian externalities, (2) strengthening market and effort incentives, and (3) fostering innovation. Each of these response strategies are examined in this section (Table 4).

Strategy	Districts
Reinforcing Marshallian Externalities	Nottingham (UK) Roanne (France)
Market and Effort Incentives	New York City, Leicester (UK),
Innovation	Carpi & Veneto (Italy), Cholet (France),

Reinforcing Marshallian Externalities: The Roanne Garment District

The Roanne region has long specialized in knitwear and is known for its high-quality sweaters and knitted shirts (Rerat et al., 1990). Roanne’s primary customers are independent retailers, department stores, and an emerging market among mail order companies.

Before World War II, knitwear production in Roanne was conducted primarily by small and specialized craft-like firms. Demand growth in the 1950s, along with the capital-intensive nature

of knitwear technology and the advantages of vertical integration between knitting and clothing assembly favored the development of larger firms. However, the large firms relied on small contractors and craft workshops for finishing and dyeing processes and specialized skills gave these small firms a measure of economic independence from the large firms. Nevertheless Roanne's small firm sector occupied a dependent position within a hierarchical contracting system controlled by large firms (Rérat et al., 1990).

The combination of the efficiencies of large scale production and hierarchical contracting, specialization in high-end knitwear products, and established market niches among independent retailers and department stores were temporary buffers against international competition and the growing influence of new national retail specialty chains in France. By the early 1990s, however, the decline in the independent retail sector and increased competition from fashionable Italian knitwear following led Roanne's most-progressive large firms to delocalize their production while the less progressive large manufacturers had closed along with the contractors and specialized firms that depended on them for orders. Employment in the mid 1990s (firms with 20 or more employees) was less than one third that in the mid-1970s and only about 120 manufacturers and 280 contractors and independent craft workshops survived.

Responses to District Decline

The principal response in Roanne was to strengthen the traditional externalities of the region – its pool of experienced workers -- and to stimulate knowledge spillovers. Apparel firms and the local industry association sought government funding for an ambitious training program for employees at all levels from managers to technical specialists and production workers (the *MUTEX* program). Training was seen as a way of enriching skills of the district labor pool and the *MUTEX* program also sought to increase knowledge spillovers among the region's apparel firms by making participation in the training program conditional upon a willingness to share business strategies and experiences with others (Houssel, 2004).

Fifty firms (knitwear manufacturers, contractors, and related firms in the supply chain) initially participated in the *MUTEX* program and 2,450 employees and managers were trained in first two years of operation (Courault and Parat, 1998). An additional 20 firms joined the

program between 1999 and 2000. The vast majority, however, elected not to join the *MUTEX* effort because they were unwilling to share such proprietary information.

Despite the narrow focus of the *MUTEX* program on training and knowledge sharing, the program became the catalyst for a broader set of innovative responses. Training turned out to be the pretext for bringing firms together to realize more important benefits from informal discussions among the participants. The sharing of ideas and the brainstorming that it provoked, proved central to the development of new business collaborations in the region, including the idea of promoting a regional brand image. It also prompted firms to consider how their specific competencies could fit most efficiently into collaborative supply chains, thereby helping the district to shed its traditional hierarchical relationships and adapt quickly and decisively to the changing competitive environment.

Local manufacturers began to cultivate new business relationships with retailers outside the region and some manufacturers obtained orders for the first time from apparel specialty chains that had not previously purchased mid-priced knitwear from Roanne. At the same time, production became more stable within the region as both large and small manufacturers began to diversify into woven garments to balance the seasonal demand for knitwear.

The transformed production system in Roanne is illustrated by three medium-sized women's high-fashion knitwear firms that built a strong network of local contractors, finishing firms, and fabric suppliers based on cooperative contracting relationships in place of the previous contracting hierarchies. This network provided the quick and flexible manufacturing platform for a series of further innovations -- increased design capabilities, development of branded products and coherent knitwear collections, intensified sales and marketing efforts, new supplier arrangements with large retailers, and diversified production into woven clothing (Parat and Courault, 2000). One of these firms went a step further by establishing a continuous design and creation capability to introduce new products throughout the year and founded a chain of retail boutiques to provide markets for its products. While these firms are also outsourcing production, they have kept much of their manufacturing capacity in Roanne (particularly the shorter production runs), along with their design and marketing activities.

The experience in Roanne is one of mixed success. The 70 firms that participated in *MUTEX REPRESENTED* only a small fraction of Roanne's apparel industry. These were among the most progressive firms in the region, while the majority of firms that chose not to participate continued their traditional strategies. Most of the participating firms prospered and those that did not largely experienced severe business difficulties including the failure of two well-known large manufacturers, *Le Gaillard* and *Desarbre* (Le Monde, 2003). While jobs are still being lost to outsourcing, the *MUTEX PROGRAM* placed Roanne's remaining firms on a much stronger competitive footing and the Roanne district is developing its own brand image (R erat, et al., 1992; Courault and Parat, 1998; Houssel, 2004).

Nevertheless, most of Roanne's contractors remain focused on the surviving larger manufacturers within the region. Because these manufacturers are losing their traditional base of independent retailers, this inward market focus has been an obstacle to success and the Roanne contractors are still searching for strategies that will help them to develop new markets to replace the traditional independent retailers.

Market and Effort Incentives: The New York City and Leicester Garment Districts

These districts share in common a reliance on market competition and hierarchical contracting incentives as the primary sources of efficiency. In addition, New York City has developed a new form of effort incentives. Absent are collaborative supply chains and the range of innovative activity is limited.

New York City

The largest U.S. garment districts, New York and Los Angeles, have long benefited from traditional agglomeration economies provided by shared pools of labor, efficient local contracting relationships, and the transaction and information efficiencies derived from proximity to suppliers and customers (Kranton and Minehart, 2001; Uzzi, 1996). In addition, these garment districts have been able to cut costs by relying on a low-wage immigrant workforce, the productivity incentives of piece-rate compensation, and sweatshop labor conditions (Doeringer and Watson, 1999).

The New York City garment district has always had a disproportionate share of small, craft-like firms that served women's wear markets as well as a significant number of large manufacturers whose in-house manufacturing capacity was augmented by small contractors. This

gave the district the capacity to quickly produce a wide variety of styles and types of clothing in both large and small orders. During the 1930s, for example, orders for the spring season placed in December could be delivered beginning in January (Carpenter, 1972) and reorders could be supplied in a week to ten days (Magee, 1930). By the end of the 1930's, the New York City garment industry was producing 125,000 different styles of dresses in small lots of 250 to 1,000 or more (Hochman, 1941).

The New York garment district flourished during the immediate post-war period, fueled by strong domestic demand for fashionable women's wear at moderate prices along with little competition from imports. Growing markets helped manufacturers to increase in size and add additional contractors, particularly those manufacturers with strong product design capabilities and well-established brand names.

The Efficiencies of the Hierarchical "Jobber System"

The New York City garment district relies heavily on the "jobber system" of hierarchical contracting, particularly to deal with volatile demand for fashion-sensitive women's wear products. Manufacturers, and later retailers, either contract directly with small firms that can expand and contract their output and employment at relatively low cost or through "jobbers" who organize contractors to cut fabric into "parts", sew the parts into fully assembled garments, and trim and finish the garments (Uzzi, 1996). Typically, each jobber works with a stable group of contractors with whom fluctuating orders are shared during each clothing season and this core group can be augmented by temporary contractors in periods of peak demand.

Jobbers are responsible for supplying finished garments to manufacturers and retailers at a fixed price and their profits depend on the difference between the price they negotiate with manufacturers and the cost of contracted production. Contractors, in turn, have to organize volatile production efficiently, fill orders quickly, and minimize labor costs. Jobbers rely on competition among contractors for orders to control unit costs while contractors controlled costs and promote speed and flexibility by relying on pools of low-wage and largely immigrant labor, piece rate pay incentives to motivate effort and speed production, and sometimes on sweatshop working conditions to reduce costs of plant and equipment. The jobber system reinforces traditional garment district externalities by reducing transaction costs in the contracting process,

providing quick access to local labor pools, and facilitating the sharing of product and production knowledge through continuing relationships among large buyers, jobbers, and key contractors.

Employment in the New York garment district reached its peak in the mid-1970s and then began a long decline. The New York garment industry has seen a 65% drop in jobs from 1980 to 2001 (Chart 1). Declines continued in the 2000s with a further 53% loss of jobs between 2000 and 2006 and a 42% decrease in the number of firms (Table 5A). Large suppliers have disappeared to the point where those with 100 or more employees are officially reported while 90% of all firms have fewer than 50 employees and account for 96% of all employment (Table 5B).

<Chart 1 goes here>

<Tables 5A & 5B go here>

While New York City remains a major U.S. fashion center, housing the design and buying offices of many manufacturers and retailers, the demand for high-end fashions has been falling (Agins, 2000) and most retailers now rely largely on imports. Few large manufacturers do any manufacturing and instead focus on design, brand marketing, and sourcing from offshore supply chains. Even some smaller manufacturers have begun to outsource their production through collaborative arrangements with offshore production facilities in nearby countries, such as the Dominican Republic, and sometimes in China. What is left of domestic manufacturing is now concentrated among small manufacturers and jobbers and their small contractors.

Two substantial changes have occurred, however, as production has declined in the New York garment district. One is that its district advantages have helped it to gain a larger share of national apparel employment, rising from about 17% in 1980 to almost 25% by 2001, and this trend has continued between 2000 and 2006. At the same time, the district has become more specialized than it was during the early period of post-war prosperity. Its specialization is women's wear and its share of national women's wear production has been growing steadily (Chart 2). In 1981, only half of New York City's apparel workers were involved in the production of women's wear, but that percentage has steadily risen to 65% in 1991 and to 71% in 2001.

<Chart 2 goes here>

Our surveys reveal that women's wear firms, along with most of the other firms that survive in New York, now serve small niche markets. The highest value-added and most stable niches are in high quality, high-end women's fashion products, custom-made men's clothing, fashion women's wear for regional chains and independent shops, and clothing using exotic technical fabrics that require considerable care and skill in manufacturing. Customers often include branded manufacturers (such as Ralph Lauren and Talbots), leading department stores (such as Barneys and Neiman-Marcus), and designers such as Liz Claiborne.

More vulnerable niche markets include various middle-level products that are highly specialized -- surgical garments and "plus" size women's garments -- or involve special orders such as repair work on damaged shipments, rework of products that are not selling, and fill-in orders for low-end dresses and sportswear. This set of niche markets is characterized by small orders that are often commissioned through jobbers who contract with small suppliers and require supply speeds that cannot be achieved by large domestic suppliers or offshore suppliers. For example, the order fulfillment time for just-in-time inventory replenishment by large domestic suppliers is about 2-3 weeks (Abernathy et. al, 1995) and our field research suggests comparable supply speeds are currently available from Mexico and the Caribbean basin. However, 15% of the New York City suppliers surveyed can fill orders within a week or less and 40% can fill order in 2 weeks or less.

Leicester

The East Midlands region is one of the most significant regional concentrations of textiles and apparel supply in the UK with Leicester and for a long time Nottingham being the largest districts. The region is characterized by small firms -- average size 13 workers -- although the region has historically had a higher concentration of large firms than others in the UK. As of 2005 region had 700 establishments employing fewer than 8,800 workers in woven apparel and another 100 establishments of knit and crochet garments.

As recently as the 1990s, three patterns of buyer-supplier relationships were present in the region: closely-managed partnerships, informal and market-based supply chain networks supplying quick response products for large fashion chains, and some collaborative engagement between suppliers and smaller fashion-led retailers. These relationships had evolved to be able

to serve the growing quick-turnaround needs among large-retailers that were striving to reduce inventories and the fast-fashion needs of smaller specialty retailers.

The rise of outsourcing and the pressures to cut costs and rationalize supply chains, however, has sharply reduced the regions markets and eliminated both the closely-managed supply chain partnerships and the collaborative relationships with smaller chains. The markets that remain are largely those of emergency repair work and short-cycle products.

Leicester specializes in women's wear using both knitted and woven fabrics and mainly aimed at young fashion markets. Companies focus on contract manufacture rather than branded products, and Innovation is low. As in much of the UK industry, relationships between buyers and small suppliers in Leicester are largely marked by low levels of commitment and trust, incompatible corporate cultures, and often adversarial commercial relationships.

Responses to Globalization

The New York City and Leicester garment districts have seen an intensification of traditional incentives of both markets and hierarchies. Both of these incentives have been strengthened in Leicester while New York City has developed a new type of effort incentive that combines both market forces and the incentives of the jobber system hierarchy. Leicester also has a new group of innovative contractors that are developing a design capacity while New York has been less successful in this area.

Market Incentives

Apparel firms in New York and Leicester face strong competitive pressures in both factor and product markets that encourage them to minimize factor costs, eliminate wasted time and materials, and move as rapidly as possible towards product specializations that take advantage of the agglomeration externalities of their districts. The efficiencies of market incentives have long been augmented by the transaction and information efficiencies of the hierarchical jobber system and the effort incentives of piece-rate pay. Market incentives have not only contributed to lower costs, but they have enhanced fast and flexible production under the jobber system. In Leicester, market incentives are becoming more important as the use of intermediaries such as jobbers has diminished.

Hierarchy Incentives

The hierarchical jobber system remains at the heart of the New York City garment

district, although there are also direct contracting relationships with large buyers. The traditional hierarchical relationships between contractors and buyers also remain in Leicester, but they are diminishing somewhat in importance as direct relationships with retailers increases. The traditional incentives of hierarchy, however, are being adopted in an intensified form by some retailers that keep their suppliers on “trial” status with unfavorable payment terms and limited orders for long periods, suppliers’ samples are given to lower cost competitors for manufacturing, penalties are levied for minor quality and delivery problems, orders are cancelled after fabric is purchased, and even those suppliers that have achieved “permanent” status are threatened with “delisting”.

Excess Capacity Incentives

Beginning with the employment declines of the 1970s, however, a new type of “effort” incentive emerged in the jobber system as a result of excess production capacity and the intensification of the threat of business failure among contractors.

Excess capacity is common in declining industries where capital retains its useful life long after it has been fully depreciated and the New York City apparel industry is no exception. The typical apparel firm in our field research sample has 20-25 employees and the capacity to produce 2,000 to 5,000 units a week. However, even after excluding sample shops, about one third of the firms surveyed typically receive orders averaging only 500 or fewer units. Even unionized shops, which tend to be larger and operate at somewhat higher levels of capacity utilization, still have enormous unused capacity. For example, the average employment of unionized contractors is 26, but they have the capacity to employ a workforce that is 60% larger. Similarly, they produce an average of 2,292 units a week, but have the potential to produce an average of 5,907 units a week for a capacity utilization rate of 39%. Excess production capacity is particularly severe among the smallest and the largest firms in our sample (Chart 3). Our estimates of excess capacity suggest that as many as half the contractors in New York City are economically redundant under present circumstances and that current output could be sustained with far fewer workers.

<Chart 3 goes here>

In addition to low overall capacity utilization, many small contractors are not capturing the full advantages of their workforce skills and ability to produce high-end quality products.

Our survey data documents considerable excess quality capacity as well as underutilized production capacity (Chart 4). For example, all 6 firms in our sample producing budget products can also manufacture moderately priced products, 5 can produce “better” quality products, half can do bridge and designer quality products, and one can even do haute couture collections. Although moving up to better quality and higher fashion products becomes more difficult at each level, two-thirds or more of the firms are capable of manufacturing products at least one step higher in quality and half are capable of moving up two steps or more. In short, there is a capacity to move up to higher value-added production that is not being tapped in the New York City garment district.

<Chart 4 goes here>

The average rate of excess capacity in the New York garment industry is far greater than the seasonal variation in demand and is far more than is needed to serve peak demand in a declining industry. Given the efficiencies of speed and flexibility of the jobber system and the strong pressures of competition in the New York City industry, it is hard to explain why there is so much excess capacity in the New York industry.

Normally, excess capacity should be reduced by eliminating the least productive contractors so that the survivors can operate at efficient levels of output. The exit of firms may not occur immediately because dying firms only need to cover marginal production costs, but exit should be relatively quick in the apparel industry because it is labor and fabric intensive and capital depreciation is a minimal buffer to exit. When the industry first began to decline, the district did shed its least capable firms, while retaining enough excess capacity among core contractors to meet peak demand.

What appears to be occurring more recently is that excess capacity is deliberately maintained by jobbers and manufacturers as an incentive to higher effort. Contractors are competing for orders more aggressively by working harder and cutting costs – speeding up production lines, working longer hours, providing better service to buyers, allowing safety and working conditions to deteriorate, and ignoring minimum wages and social insurance payments – the typical elements of a “sweatshop” industry.

Jobbers and manufacturers optimize these effort incentives by adjusting excess capacity

among their contractors through the allocation of orders among a larger number of contractors than is necessary for efficient capacity utilization. While inefficient levels of excess capacity increase production costs and employing extra contractors increases coordination and transaction costs for jobbers, the ability to use their buying power to motivate greater effort, better service, and cost-cutting sweatshop practices can potentially offset these costs.

Jobbers maximize their profits by choosing the number of contractors and the capacity utilization rate that equates the marginal costs and the marginal profits of excess capacity among their core contractors (see Appendix for a formal treatment of effort incentives). As long as contractors cover their variable costs, they remain in business and those that fail can easily be replaced in a declining industry. These incentive effects of excess capacity may explain why the number of firms falls far more slowly than employment as the industry declines.

The extra profits that jobbers and manufacturers can earn from strategic excess capacity are protected from entry competition by the firm-specific organizational capital accumulated by jobbers through established relationships with their core contractors and core customers. Organizational capital also stabilizes jobber-contractor relationships because jobbers face replacement costs if contractors quit or are discharged and contractors that change jobbers are perceived as disloyal and costly to hire.

This system of “carrot” and “stick” incentives of maintaining excess capacity and allocating orders among core contractors within relatively stable contracting relationships accords with the findings of our field research. Jobbers explain their retention of core contractors in paternalistic terms. Their contractors have given them many years of loyal service and jobbers feel obliged to share whatever orders they receive among their core contractors in order to keep them in business. When contractors exit from the industry, it is their decision rather than that of their jobber, and jobbers then share the work that remains with their smaller group of core contractors.

From the contractors’ perspective, however, jobbers are exploitive – only giving them enough orders to barely survive, always trying to cut prices, being slow to pay, asking for special considerations such as priority deliveries, paying unusually low prices for very small orders, and forcing the contractors to be at their beck and call at all times to discuss production and scheduling issues, often through face-to-face meetings at the jobbers’ offices. To some extent, sweatshop practices, paternalistic contracting, and reciprocal loyalty between jobbers and

contractors have always been a source of efficiency for the jobber system because they preserve the returns to investments in relationship-specific knowledge made by both jobbers and contractors. Contractors know their jobber's products and customer needs and jobbers know the strengths and weaknesses of their different core contractors. This knowledge allows for better communication of product and production information and allows contractors to fill orders more quickly and efficiently when compared to "arms-length" contracting. Because the industry is declining and orders are shrinking, however, contractors' dependence on their jobbers has increased and the effort incentives of the jobber system have been intensified by excess capacity.

Product Innovation

Leicester had a group of traditional contractors that worked through various intermediaries to provide quick-response production to fashion-oriented specialty chains, but global sourcing largely eliminated this market. In its place, however, is a cluster of about 60 small and medium-size, fast-turn suppliers that specialize primarily in apparel design and limited volume manufacture. These suppliers have the capacity to rapidly and regularly update their portfolio of styles and to move quickly from product development to production.

The main asset of these firms is their catalogue of samples ready to put into production. They firms generate samples within 2-3 days. Lead times from orders to delivery are 2 to 3 weeks for UK production if fabrics are available. Their clients include high volume and low cost specialty chains, middle market and lower volume fashion leaders and supermarket and discount chains with whom the fast-design, fast fashion firms are increasingly contract directly, rather than through intermediaries.

Firms in this fast fashion cluster typically have 10 to 30 employees with additional labor being recruited to support busy periods. What sets them apart from other small contractors in the district is that they have 5-8 employees engaged in design, quality assurance, sourcing, and business development and sales compared to the more common practice of having one owner-manager responsible for sales and production management and a part-time designer. It is this design and sales team that supports rapid product innovation. In turn, retailers value the fashion input of these suppliers, to inject newness into collections and ensure that emerging fashion trends are captured.

Seasonal collections are no longer the main product of these fast-fashion firms that continually develop new designs. Much of the design and product development, however, is limited to style progression and adapting popular trends. The designers describe the weekly cycle of new styles as “*churning them out*”.

In addition, Leicester has a thriving community of new design-led micro-businesses with 2-3 employees serving a variety of markets from exclusive and custom-made high-end fashion to freelance design and technical services for the mass market. These firms are being started by recent graduates of fashion and design programs in the region as well as by designers who have lost their jobs as part of the restructuring of large firms. They often develop their own collections and branded products that are sold through their own boutiques and also through small retail outlets. Success is limited, however, and there are high rates of business failure.

About one quarter of the firms in the New York City sample also have design capabilities and can make patterns and samples, and 80% of these firms have the operating capital needed to purchase fabric. These are the foundations from which entrepreneurial contractors have been able to become “full package” suppliers or full-fledged manufacturers. These entrepreneurial efforts are being supported by an industry association, the Garment Industry Development Corporation (GIDC), that is fostering partnerships between contractors and younger designers, working with contractors and retailers to promote “full package” supply chains in the district, conducting business for contractors and skills training for their employees, and helping to open export markets. The development of this product innovation capacity by contractors, however, is far behind that in Leicester.

Managing Outsourcing

A number of the firms in the fast fashion cluster in Leicester outsource production to lower labor cost countries, in order to offer retailers a choice of price, volume and lead time options. Most of the fast fashion firms have contracting relationships in low-cost locations -- Eastern Europe, Turkey, Morocco, and sometimes in the Far East. However, managing overseas capacity is very resource intensive for the smaller firms and has often been abandoned.

Innovation Strategies: The Cholet, Veneto, and Carpi Garment Districts

The third type of district response to globalization involves intensive reliance on

innovations in products, organizational relationships, and business strategies. Innovations range from those that adapt existing district practices (Carpi and Veneto) to those that radically transform district cultures (Cholet). Nevertheless, these districts that rely on innovation strategies are converging around a common set of practices based on frequent product innovation, increased flexibility, product innovation, and collaborative supply chain relationships, and in some cases include downstream integration into retailing, and the management of outsourcing.

Veneto

Veneto is an old textile and apparel region located in the Northeast of Italy with large garment districts in Treviso, Vicenza, Padua and Verona. It is home to 686 final firms and 2,508 subcontractors employing respectively 23,716 and 31,349 workers (2004), and numerous self-employed artisans (Table 6).

<Table 6 goes here>

During much of the post-war period, Veneto was characterised by the presence of large and vertically-integrated apparel firms that employed thousands of workers and often engaged in hierarchical contracting. Beginning in the mid-1970s, however, Benetton and other many large firms began a process of vertical disintegration in which production was largely transferred to a network of small, flexible, and lower-cost subcontractors, while the large firms specialized in design and marketing activities. Employment in the Veneto apparel industry increased into the 1980s and remained stable in the early 1990s. However, between 1993 and 2004 the Veneto industry lost 1,650 firms (-34%) and 31,000 jobs (-35%), particularly among contractors as large firms began to outsource production. Meanwhile the region is retaining manufacturing activities where labor costs are less important -- the production of samples, reorders of merchandise, fast production and products made with expensive materials – and new types of vertical integration are emerging as some large firms establish production facilities abroad and as companies like Benetton and Diesel expand their own retail chains.

Carpi

The Carpi garment district is located near Modena in the Emilia Romagna region. The knitwear industry came into being after World War II and grew rapidly during the 1950s with employment increasing from 1,700 in 1951 to 6,400 in 1961. Employment continued to rise in the 1960s and 1970s, reached a peak of around 15,000 in 1981 as the district diversified into woven clothing products, and then slowly declined until the early 1990s when even sharper declines set in. Between 1990 and 2006, the knitwear and clothing industries in Carpi experienced a 49% drop in the number of firms and a similar loss (48%) in employment (Table 7). The value of production, however, fell by only 8% in constant prices during this period and has been increasing since 2000 as production has shifted towards higher value-added products. By 2006, the apparel industry of Carpi had 1,158 firms with 7,239 employees -- 310 are lead firms with 3,678 employees and 848 sub-contractors with 3,561 employees

<Table 7 goes here>

In contrast to the Veneto districts, Carpi consists almost exclusively of small and medium-size firms that are completely independent of large manufacturers (Table 8). Small-scale “final” firms produce and market medium to high-end, but unbranded, fashion products of their own design. The main market for these products is small independent retailers and wholesalers, although Carpi manufactures some house brands for larger European retailers.

<Table 8 goes here>

Final firms rely heavily on the many small subcontractors that are specialised in a single stage of production. Production runs are very small among these local subcontractors with orders of mostly 100 – 400 units. These local contractors are very small and flexible (an average of 4 employees per firm), they concentrate mainly on one single production stage, and half employ no wage labor. Only a small fraction of contractors are able to perform or organize the entire production process. The majority of the subcontracting firms make prototypes, samples and small production runs, and they collaborate in making sample collections. Among the subcontractors of the district the largest groups consists of knitwear weavers and embroidery firms (both capital-intensive), followed by firms specializing in the final stages of

the production cycle -- ironing, quality control and packaging. Unlike the hierarchical contracting relationships that once characterized Veneto and that continue in New York City, Carpi's contractors work with many different final firms and the largest may also work with final firms outside the district.

Unlike Veneto, the declines in employment and firms in Carpi have been disproportionately concentrated among final firms, particularly the handful of large final firms producing standardized men's wear (sportswear, knitwear, shirts) and a number of smaller final firms engaged in the production of *pronto moda* (quick-response production of medium-low quality, but fashionable, products with a time to market of 10-15 days). Among contractors, the firms that have suffered the most drastic downsizing are those that perform the more labour-intensive sewing operations.

By the end of the 1990s, Carpi's production was concentrated among medium and small firms, but by the 2000s the composition of firms in Carpi has shifted towards somewhat larger mid-sized final firms (50-249 employees) and sub-contractors (10-49 employees), while the share of its very largest and very smallest firms has declined. The net result is that, while Carpi remains a district of small and medium-size firms the average size of firm has increased along with the share of output accounted for by the largest final firms.

Cholet

Before World War II, Cholet was primarily a textile area involving small-scale 'workshops' (mainly specializing in linen) and small and medium-size industrial firms producing cotton textiles. The transformation from a textile region to a garment region began during World War II when Cholet textile traders began to manufacture simple children's wear products and the growth of post-war demand helped Cholet's apparel industry to grow substantially into a broad-based garment industry based on large-scale mass production methods.

The apparel industry was well-established by the 1960s and 1970s and it had come to specialize in women's and children's wear. The largest firms (such as *Albert* and *Newman*) had developed well-known regional brands that were sold to independent retailers and small regional chains. By the late 1970s, large firms employed about 8,000 people and they engaged in hierarchical contracting with smaller firms that accounted directly or indirectly for another 6,000 workers.

However, the growth during the 1980s of new specialty chains selling lower-cost, imported apparel products destroyed Cholet's traditional markets. Employment in medium and large firms (those with 20 or more employees) fell to 8,439 by 1993, and to 6,178 by 2003. All of the large firms that relied on the efficiencies of mass production manufacturing and hierarchical contracting closed during the 1980s and 1990s.

The loss of its traditional markets and the mass closing of most of its large firms triggered a major restructuring of the Cholet clothing industry. These visible changes, however, were accompanied by a number of less-visible transformations in the business strategies and economic relationships among the firms that remained. What is remarkable about these transformations is that they originated with contractors who were previously dependent upon large manufacturers for orders and direction. The remaining contractors were able to find new markets, adopt new business strategies, and develop new business relationships and the few large firms that survived went through a similar transformation. These changes facilitated a new emphasis within the district on higher fashion and better quality products and the firms that remain have developed new competencies linked to the creation and development of products, speedier manufacturing and logistics, and newly-developed supply chains.

District Responses

All three of these districts have responded to the shocks of globalization by introducing significant innovations in products, supply chains, and other business strategies. While the extent of the job losses due to rising imports and the trends in the mix between large and small firms varies among these districts, the common elements in the district responses outnumber the differences. Craft-like flexibility and entrepreneurial behavior characterize both smaller contractors and larger final firms, even in Veneto where large final firms remain the driving force in the region. Hierarchical contracting has been abandoned everywhere in favor of collaborative supply relationships within the districts. Product innovation is increasing both in terms of numbers of products and their fashion content. Outsourcing of production tends to be managed locally, at least for less standardized and more fashionable products. And the development of branded products and downstream integration into retailing are present in all the innovative districts, including Carpi.

Craft-like Entrepreneurial Conduct

The dominant characteristic of the firms that survive in these three districts is the prevalence of entrepreneurial conduct. For example, the speed and severity of the demand shock in Cholet quickly destroyed traditional markets and most of the large firms that had provided economic leadership in the district. As the era of large firms ended, their contractors that survived had found new sources of orders and new lines of business – finding new customers, turning to medium and high fashion products, and entering new markets related to global outsourcing.

Italy's labor crisis of the 1970s provided a similar shock to the Veneto region, which led to an innovative restructuring of production in which large and inflexible firms transferred much of their manufacturing to small and flexible contracting networks. A second shock hit Veneto's contractors beginning in the 1990s as large firms outsourced relatively standardized production. This led to a winnowing of contractors with the survivors repositioning themselves to serve smaller niche markets for more expensive products requiring quick delivery times.

Unlike the other districts, Carpi was always a district of small and entrepreneurial lead firms that designed their own products that were sold under their own brands to a large domestic market of independent retailers. This market has been largely protected against the shocks of global outsourcing until recently when Carpi began to lose markets to imports. In response, the district's entrepreneurial conduct has been redirected towards improving the quality and range of its products, diversifying distribution channels, and seeking new markets.

Craft-like entrepreneurial behavior is not limited to small firms. The large firms that survive in Cholet and the large firms that are dominant in Veneto also rely on entrepreneurial conduct – developing new markets, product innovation, and supply chain reorganization. The few large firms that survived, for example, chose between two new strategic options – continuing their core business by outsourcing production to low wage countries or developing strong brand names.

Districts that are dominated by entrepreneurial firms and innovation acquire a very different culture from those of traditional districts dominated by command and control hierarchies and entrepreneurial districts provide a hostile environment to traditional firms. Innovation increases competition and contributes to the destruction of the old industrial model built on scale

economies, mass production, and hierarchical contracting. Entrepreneurial firms are more outward looking in their search for new markets and have more efficient supply chain relationships, both locally and globally. Local supply chain collaborations foster collective problem-solving and collective innovation in ways that had not occurred in hierarchical supply chains. In the case of these three districts, the promotion of outsourcing by entrepreneurial firms has also contributed to the decline of traditional firms.

Craft-like Product Innovation and Specialization

All three districts invested heavily in product design and product innovation. In Cholet and Veneto these investments were made primarily by large firms to strengthen their brand names whereas small lead firms were the innovators for non-branded products in Carpi. Product innovation in all cases was biased towards specialization in more fashionable and higher value-added products that were suitable for quick and flexible production.

Many Veneto firms have increased the flexible part of their production by augmenting the two traditional seasonal collections (spring/summer and autumn/winter) with additional off-season collections and by offering a larger number of products. Between 1993 and 2004 the percentage of such production rose from 17% to 25%. Similarly, Benetton changed its traditional production calendar of two seasonal collections with 80% of the production for orders collected before the selling season and only 20% by reorders and mid-season product introductions (“flash” products), by creating split seasons (Moda 1 and Moda 2) and making mid-season introductions of two micro-collections (“Trends” and “Design”). This proliferation of products outside of the regular seasonal cycle of fashion programs obliges firms to have faster and more flexible production in order to reduce the time-to-market and to monitor the market demand constantly.

Under the pressure of growing competition in the low and medium price bands, Carpi has followed a pattern of product innovation based on a strategy of upgrading and repositioning products towards the medium-high end of the market and has substantially increased its employment of professional designers. Currently, 61% of the final firms produce for the medium-high end products and 13% produce for luxury markets, only 14% make products of medium-low quality, and the remaining firms serve other markets. The district has also

diversified the range of products by adding many kinds of woven clothing products for women and girls. Traditional knitwear production is no longer the main specialization of the district. Almost 90% of the output of the district is based on designs by local final firms, with only 7% of designs supplied by large retailers. The 300 final firms in the district are estimated to offer almost 98,000 product models a year or over 325 models per firm. As a result, production runs are getting shorter and faster.

The development of brand names has also been a dimension of product innovation. During the past 20 years, Cholet has become the leading district for branded children's wear; Veneto is dominated by large brand name suppliers such as Diesel. Even Carpi is seeing many firms investing in the promotion of their own brands (Blumarine, Liu-Jo, A-style and Gaudi) in order to become more visible to final consumers, though few of them yet have well-known brands.

Greater product specialization has accompanied these changes. Cholet, for example, is primarily a producer of higher-end children's wear, with small and medium-size firms serving high fashion markets (*Christian Dior, Yves Saint Laurent, Kenzo*) and others focusing on lower-priced market niches -- "quick fashion", mid-level fashion, and sportswear, while Veneto remains broadly specialized in branded products and is moving towards the high end of the market. Women's wear production has increased in Carpi, especially for young women, whereas that of men's wear has fallen.

Not all product innovation is successful, however, as shown by the experience in Carpi with introducing *pronto moda* products -- medium-low quality products that are quickly designed and brought to market (in contrast to products known as "programmato" that are designed one year in advance of sales and are produced on the traditional seasonal calendar). In the 1980s, the *pronto moda* firms anticipated the "quick response" strategies adopted by the Italian large producers, reducing the time to market to ten-fifteen days, from design of the item to delivery of the finished product. At the end of the 1980s, *pronto moda* production accounted for 40% of the district turnover, but during the 1990s it dropped to 14% as consumers paid greater attention the relationship between price and quality.

Craft-like Flexibility and Speed

Serving smaller and more fashionable niche markets has enhanced the value of speed and flexibility of production. The near total disappearance of large firms in Cholet in the 1980s left

behind a quick and flexible response capability for supplying samples and other niche markets where speed is important. Similarly, only 17% of the Veneto subcontractors now produce on long runs compared to 58% in 1993. Because of the preponderance of small firms and contracting networks, craft-like flexibility has long been a part of the Carpi district.

Even large firms became more craft-like in that they specialized in more skilled activities such as design, marketing and coordinating outsourcing. Interestingly large firms in both Cholet and Veneto are becoming more flexible by reorganizing large scale production more distinctly into more flexible and less flexible segments. The outsourcing segment is specialized in less flexible production of standardized products, the more flexible production is contracted through collaborative networks of small local contractors, while the large firms specialize in the most flexible areas of design, increased product differentiation, and marketing.

Collaborative Supply Relationships

The demands of new niche markets, shorter product cycles, and faster production have brought major changes in organizational relationships within supply chains and innovations in both vertical and horizontal supply chain relationships have become more prominent in the three districts studied.

In place of the hierarchical, “command and control” relationships between dominant large firms and their dependent contractors, small and mid-size firms in Cholet have developed a variety of more collaborative relationships among themselves -- formal joint ventures, co-contracting and informal collaborations among independent firms, and “kinship networks” of firms owned or managed by members of the same family. These networks provide the district with the flexibility both to serve higher-fashion markets where order sizes are smaller and the pooled production capacity to operate on a relatively large scale when necessary.

While Cholet’s firms have their own market niches and customer bases, these collaborations have allowed many contractors to develop the capacity for producing the entire products from models and samples and to full collections. One such partnership among four high fashion contractors brought together design and product development, fabric purchasing, and warehousing and shipping with manufacturing in Cholet and outsourcing abroad. While

hierarchy and dependency continue to influence relationships with large buyers outside the region, those contractors that have diversified into product design and the management of outsourcing are developing increasingly collaborative business relationships with many of these buyers.

Collaboration by contractors with their final firms in preparing the collections and providing various additional services has long been noted as a strength of the Carpi district. However, the growing fragmentation of orders and the growth of short production runs is causing frequent interruptions in production and discontinuous work so that excess capacity is becoming more common in the district, particularly among knitwear weaving firms.

Managing Outsourcing

Outsourcing and other sources of import penetration have become more common in all three districts, but much of this outsourcing is coordinated by firms in the district. The coordination allows the districts to control the balance between domestic and imported production, and has further sharpened the distinction between large-scale production of lower quality products and more craft-like production for niche markets. This may change, however, as the quality of the products made abroad is increasing and foreign producers have begun to accept orders for short production runs.

In Veneto, outsourcing is managed mainly by the large branded firms. Firms like Grotto and Campagnolo have replaced their Veneto contractors with vertically-integrated factories in Eastern Europe, North Africa, and South Asia. Benetton has adopted a different approach by inviting its contractors to set up firms in Eastern European countries to take advantage of the organizational relationships with its existing contracting chains to supply mass-produced products at lower costs. In addition, several small artisan entrepreneurs have established new firms in Eastern European countries, mainly Romania, to serve as satellite suppliers for their own final firms (Crestanello and Tattara, 2006).

Carpi also experienced sourcing outside the district beginning in the 1970s when local firms delocalized part of their production to lower cost districts in Italy – first to the neighbouring regions of the Lombardy, Veneto, and Emilia Romagna and in the 1980s to Southern Italy. In the

late 1990s and the early 2000s, some medium and small final firms (20 to 100 employees) have invested in in East European production facilities and the district has been sourcing the more standardized and basic products with medium-long production runs (in excess of 5,000 units) to China, Turkey, and Eastern Europe. Today, 64% of the production is done by regional subcontractors (half of it located in the district), 21% by subcontractors in other Italian regions, and 15% by subcontractors abroad. As in Veneto, the increased quality of products and the growth of very small orders with shorter production times has favored local subcontractors.

In Cholet, both larger brand firms and smaller contractors are engaged in outsourcing. Those large firms that remain in Cholet, like *Groupe Salmon Arc-en-Ciel (GSA)*, rely almost exclusively on foreign contracting to low wage countries, first to Morocco and later on to Romania, while strengthening their own design capability, producing sample collections for their traditional retail clients, and developing their own brands. As in Veneto, some contractors have also begun to manage delocalized production for large companies in the region and elsewhere.

Vertical Integration Into Retailing

Veneto has a well established group of large manufacturers, with well-known brands that sell through their own stores or through a network of franchising outlets. The surviving large firms in Cholet that developed their own brands have also adopted this model. The best example of this combination of branding and manufacturer-owned retailing is *Catimini*, a producer of a range of high-fashion, high-quality, high-priced, and branded children's wear products. By the end of the 1990s, *Catimini* had acquired about 200 shops in France and other countries and supplied about another 100 franchise operations. Because of the small size of final firms and the lack of well-known brands, only a few medium sized final firms have their own stores or control franchising chains and this limitation is likely to have a larger impact on Carpi in the future and its domestic market among independent retailers continues to contract.

Conclusions

This paper documents the micro-foundations of newly-emerging district externalities in the apparel industry being created by the firms that survive in the face of growing import competition. The case studies of garment districts presented in this paper show that surviving firms tend to be more "craft-like" in their conduct than those that fail in that they are quick and

flexible in their production methods and tend to serve markets for more individualized products with short product cycles.

The specific adjustments in each district introduced by these craft-like firms tend to be path dependent in that they are shaped by the institutional history of the district and the nation-specific structure of downstream retailers and other buyer markets, but when economic shocks are sudden and severe, history is less important and there are major discontinuities in the evolution of district practices. New York City, Roanne, Carpi, and the Veneto region all show a strong imprint of path-dependent district evolution. The Cholet district is the best example of a shock that created a widespread and unanticipated transformation from a district that relied on traditional externalities, traditional efficiencies of hierarchical contracting, and economic leadership by large firms to one in which small contractors are the leaders in product and organizational innovation.

The responses of these craft firms to global competition can be explained by one of three models of new agglomeration economies – stronger traditional externalities, intensified effort incentives, and entrepreneurial innovation. Regardless of the industrial structure, degree of path dependence, and the rate of district transformation, there are strong similarities in the adjustment strategies among the districts represented within each model of response to global competition.

The Los Angeles garment district exhibits many of the same kinds of market and effort incentives as the New York City district (Bonacich and Appelbaum, 2000; Ross, 2004; Rosen, 2002) as does much of the Leicester (UK) district. The Nottingham (UK) district resembles Roanne in many ways with its reliance on governmental programs to strengthen traditional externalities. Similar adjustment characteristics are found in the innovative districts of Carpi, Veneto, and Cholet, despite major differences among these districts in product specialization, size of firm, and severity of competitive shocks.

The model of strengthening traditional district externalities through various forms of training and technical assistance is likely to prove insufficient in the long-term to overcoming the disadvantages of high wages, outdated plant and equipment, and the transfer of manufacturing knowhow and experience to offshore suppliers in an era where large buyers are using their market power to continually improve the efficiencies of global sourcing. The example of Roanne's Mutex program reveals the limitations of this approach, but it also shows that such programs can facilitate transitions towards more entrepreneurial responses in unanticipated ways.

The most obvious candidate for ensuring future district survival is the entrepreneurial model of district innovation. One could see a bright future in which the garment districts that survive will be those where craft-like and entrepreneurial firms of all sizes continue to use their speed, flexibility, and network advantages to support greater product innovation, secure organizational improvements in supply chains, coordinate domestic with offshore contracting, and promote downstream integration into retailing.

The variants of this entrepreneurial district model that can now be found in France as well as Italy, offer a competitive alternative that relies on adding value to products and production processes rather than depending on higher effort and other cost-cutting measures to remain competitive in global apparel markets. Innovative districts have found a variety of niche markets and branding strategies that are less vulnerable to global competition by linking quality and speed to fashion, while remaining price-competitive in more standardized products by managing the delocalizing of production to nearby countries with lower wages. However, innovation is hard to sustain and can often be quickly imitated so that it may be a difficult model to sustain in the long term.

The incentives model of the New York garment district is unmatched at motivating effort, flexibility, and speed among contractors. These qualities, along with other cost-cutting sweatshop methods have allowed New York to serve a wide variety of market niches that are too small, too specialized, and too time sensitive to be entered by the lowest cost foreign suppliers. So long as such niches are available, New York offers a quick and flexible manufacturing capacity that can handle a wide range of products and order sizes. However, our survey of manufacturers and contractors finds that foreign competition is perceived as the dominant threat to the New York industry. A number of manufacturers serving markets with relatively high-value and time sensitive products are beginning to move all or most of their current production to the smaller suppliers in the Caribbean and there are few signs of new markets emerging in New York to replace those that are lost.

The New York garment district has also shown little ability to generate the kinds of innovations that are found in Cholet, Veneto, and Carpi, or even that found in Leicester's fast fashion cluster. Large manufacturers, jobbers, and retailers have preempted opportunities for entrepreneurial product design and they also control the major outsourcing and commercial links with global markets. Only a handful of New York's small manufacturers and jobbers have

connections to global markets, mostly through outsourcing and joint ventures with foreign suppliers, while contractors have no connections whatsoever. The jobber system locks contractors into hierarchical and dependent contracting relationships that deter the kinds of collaborative relationships with other contractors that are found in Cholet and Carpi. And most important, by keeping contractors at the margin of survival by creating excess production capacity and by adopting effort incentives, dependent contractors have little time or resources to develop new markets.

Our survey also finds that in the midst of substantial decline, the New York City apparel industry is still attracting new firms and new capital. Over one fifth of the firms in our survey had entered the market since 2000 and many of the owners of these new firms reported various forms of entrepreneurial and strategic behavior. This new generation of owners is well aware of the current business environment of excess capacity, import competition and capital shortages. Unlike the older generation of business owners who entered the garment industry in a more prosperous market environment and are now focused on issues of day-to-day survival, these new entrepreneurs are prepared to address these problems. Nevertheless, truly entrepreneurial firms are rare in New York City and the district remains vulnerable to import competition and declining demand.

Each of these district models has its own logic for improving district advantage and raising the odds of district survival and each also has downside liabilities. The obvious question is whether there is a “best practice” model that has the capacity for sustaining district advantage?

The answer to this question depends on the metric for measuring success. The readily-available measures of district performance are largely limited to employment, the viability of firms, and the value-added by district product. While none of these measures is likely to yield precise and unbiased measures of district-level trends in an industry like apparel where the boundaries are fluid between legal and observable firms and worker and those in the unobserved underground economy, they are consistent with the predictions of the different district models.

At the national level, long term employment declines appear very similar among the countries studied, with the exception of Italy which has experienced relatively slower rates of job loss until recently. However, there are wide variations in rates of job loss at the district level and we observe in the United States that larger districts have been gaining employment share and that proximity to fashion centers and greater specialization can substantially slow the rate of job loss

at the district level even though the industry is declining nationally.

Business failure appears to be occurring at about the same rate as job losses in most of the districts studied. However, the number of apparel establishments and fallen at a slower rate than in employment in the United States, both nationally and in the major garment districts of New York City and Los Angeles. This divergence between rates of business failure and rates of job loss is consistent with the industry deliberately maintaining excess production capacity for incentive purposes at the same time that the firms that adjust employment in the face of declining demand.

Value-added, however, has clearly been growing most rapidly among the innovative districts as firms develop products with higher fashion content, better fabrics, and shorter product cycles, and increase their reliance on the outsourcing of lower value-added products. District models that are less engaged in innovation, as represented by New York and Roanne, have not been as successful in moving to higher value-added products. New York, in particular, has a wider range of product specializations than the other districts and it seems to be moving towards lower, rather than higher, value-added products.

However, all of these district models remain subject to competition and market discipline has proved an unrelenting force in the garment industry. Traditional district externalities, even when augmented by extra effort incentives, have their limits as buffers to competition. By definition, innovation and entrepreneurial conduct can trump comparative advantage, but innovation is risky, uncertain, and sometimes easy to imitate. Even when districts develop more efficient firms and stronger externalities, they often end up in competition with one another where their specializations overlap, as in the case of Roanne's high end knitwear competing head to head with similar products made in Italy.

Looking at the history of these districts, however, what is striking is the amount of change and adaptation that has occurred -- Cholet went from a textile to an apparel district and changed specializations several times, New York City adapted to continual ethnic and linguistic changes in its labor pool and has experienced many shifts in product specialization. Leicester has adapted to the loss of large and vertically-integrated firms that once led and the subsequent decline of the jobber system. Veneto adapted to the massive decentralization of production by large firms, and Carpi survived a failed experiment in Pronto Moda production and the more recent delocalization of production. The persistent market declines from globalization present a

severe challenge to the future of apparel districts and raise questions about whether any of the new district models can sustain the tradition of successively adapting to changing markets, but the long-term resilience of the industry and its ability to respond with radical changes when faced with the most severe crises should not be discounted.

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Table 1 Apparel Employment Trends: U.S., U.K., France, Italy
(Employment in '000s)

	U.S.	U.K.	France	Italy
1970	1,196	357	368	370
1980	1,079	276	256	414
1990	869	157	157	415
2000	442	135	120	299
2005	243	57	88	265
% chng. 1970- 2000	-63.0	-62.2	-67.4	-19.2
1970- 2005	-79.7	-84.0	-76.1	-28.4

U.S. = production workers 1970-90 SIC, NAICS 2000, 2005

Italy data for 1971, 1981, 1991, 2005

UK data for 2004

Table 2A Composition of Retailing by Category

	Specialty	Department	Variety	Discount	Mail Order	Independent
	%	%	%	%	%	%
U.S.						
mens	33.0	14.5	8.0	5.2		
womens	59.0	30.3	2.6	9.9		
childrens	24.8	7.0	4.5	6.3		
U.K. 2003	27.5	9.0	17.5	11.5	6	9
France 2005	38.2	5.4	see Spec.	15.3	8.7	18.7
Italy 2005	19.3	18.4	see dept.	see dept.	other 4.5	47.8

Table 2B: Concentration Ratios In Retailing

	CR3	CR4	CR5	CR8	CR10
U.S. 2002					
Clothing (4481)		27.6		36.7	
Dept. (452111)		72.1		93.6	
Disccount (452112)		95.0		99.5	
Variety (4529901)		83.5		86.7	
UK 2002	22.5		28.9		41.8
France 2005	18.4		26.5		39.5
Italy 2005	6.5		8.6		

**Table 3: Distribution of Apparel Firms By Employment Sized Class
2004**

	% <20	% 20-49	% 50-249	% >249
U.S. 2004	78.9	12.7	17.3	1.0
France 2004	93.3	4.4	2	0.3
Italy 2004	94.1	4.5	1.3	0.1
UK 2004	88.5	8.1	3.1	0.4

SME Statistics UK 2004 (excludes textiles and knitwear)

Chart 1

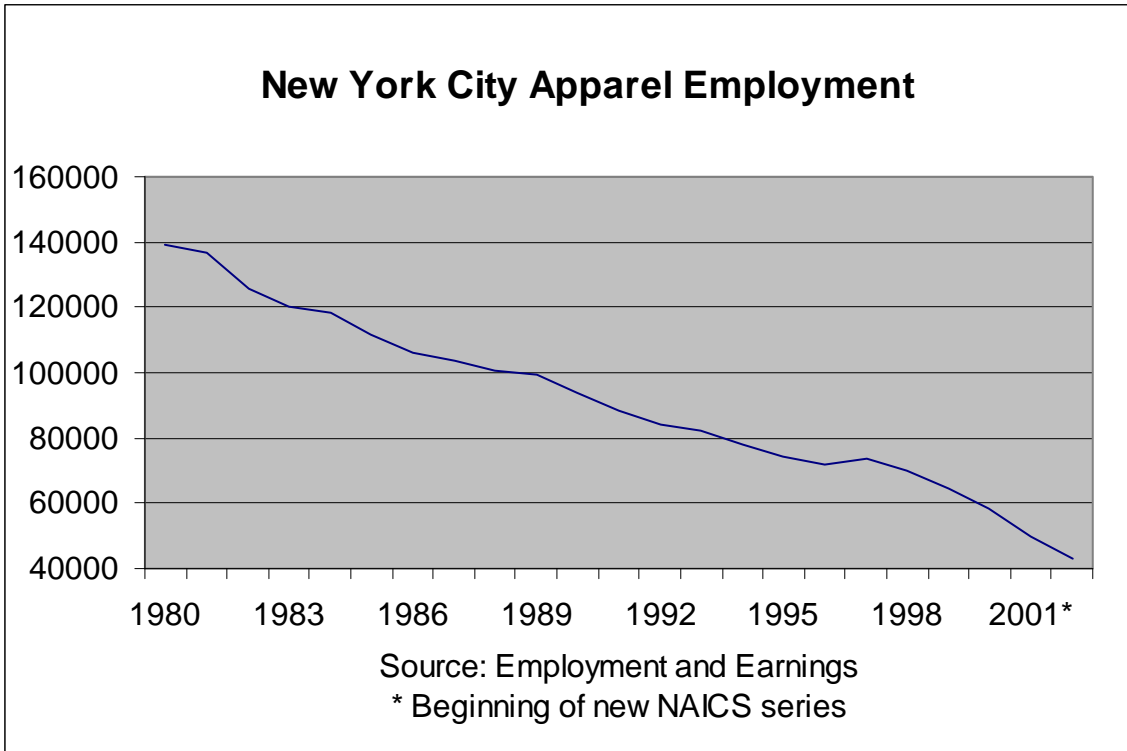


Table 5A: Apparel Establishments and Employment, New York City

County	Estab. 2000	Estab. 2006	% chng.	Employ. 2000	Employ. 2006	% chng.
Bronx	60	24		1,085	358	
Kings (Brooklyn)	665	376	43	10,992	5,189	52.8
New York (Manhattan)	1,568	961	38.7	30,207	14,101	53
Queens	444	232	47.7	8,191	4,027	50.8
Richmond (Staten Is.)	6	5	16.7	60	60	
Total	2743	1598	41.7	50,535	23735	53

Table 5B: Distribution of Establishments by Employment Size Class, New York City

County	2000			Total	2006			Total
	Estab <20	Estab<50	Estab>100	Estab. 2000	Estab <20	Estab<50	Estab>100	
Bronx	38	53		60	19	23		2
Kings (Brooklyn)	480	622		665	284	395		3
New York (Manhattan)	1,127	1,411		1,568	760	911		9
Queens	341	404		444	172	208		2
Richmond (Staten Is.)	4	6		6	3	5		
Total	1990	2496	48	2743	1238	1542	24	15
Percent Distribution	72.2	90.1	1.7		77.5	96.5	1.5	

Chart 2

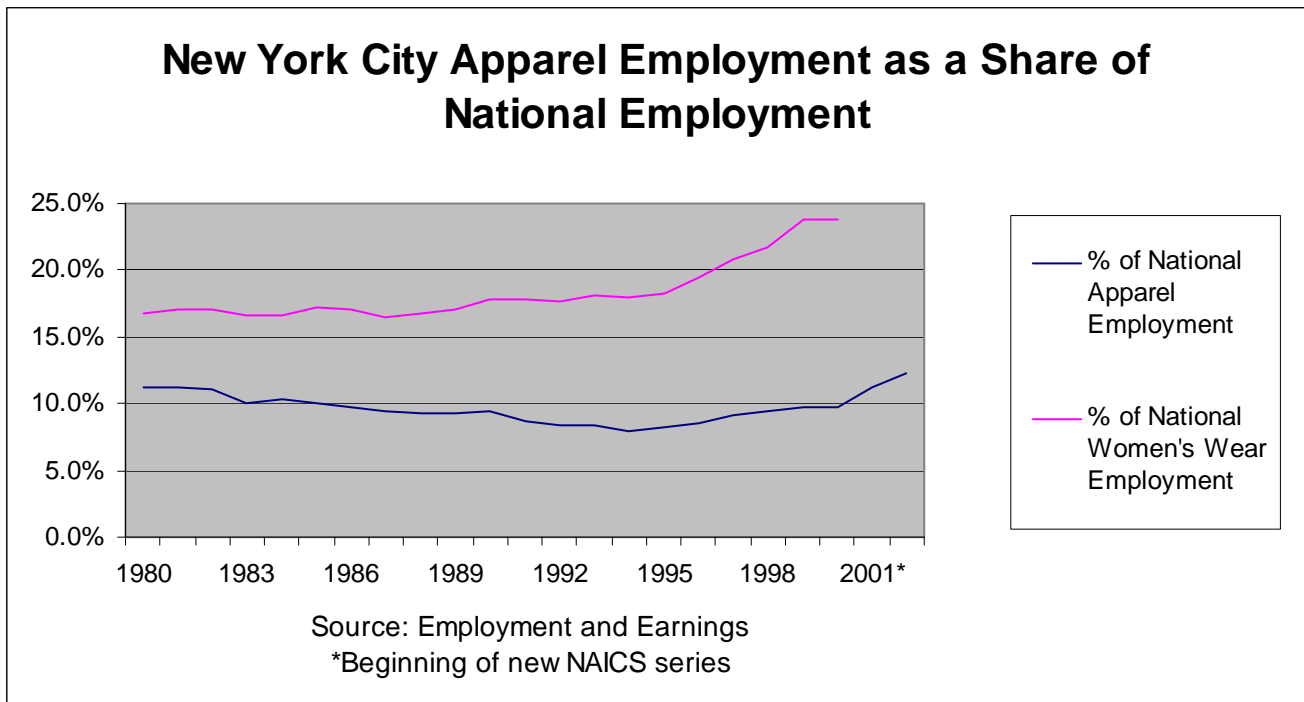


Chart 3

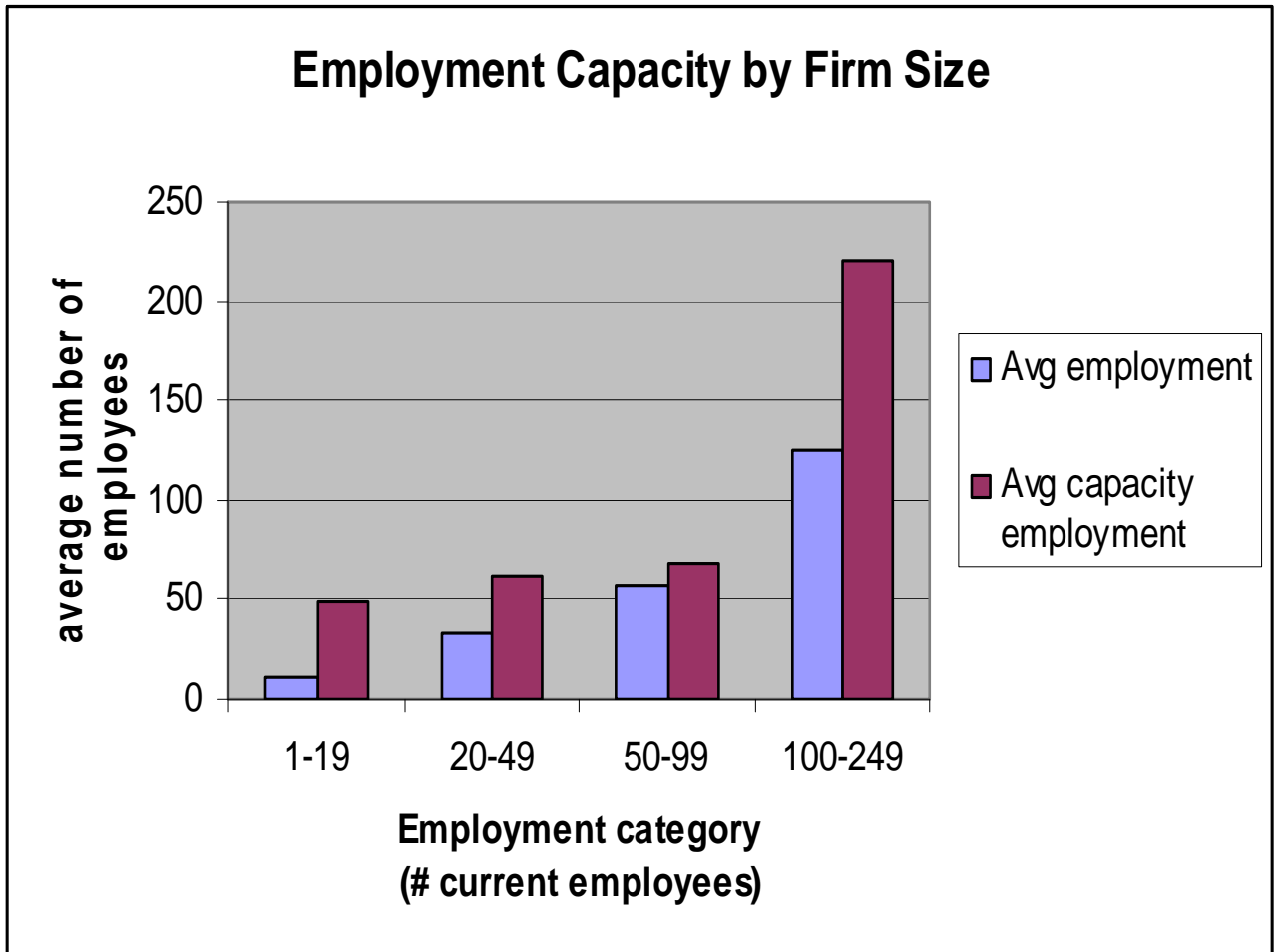


Chart 4

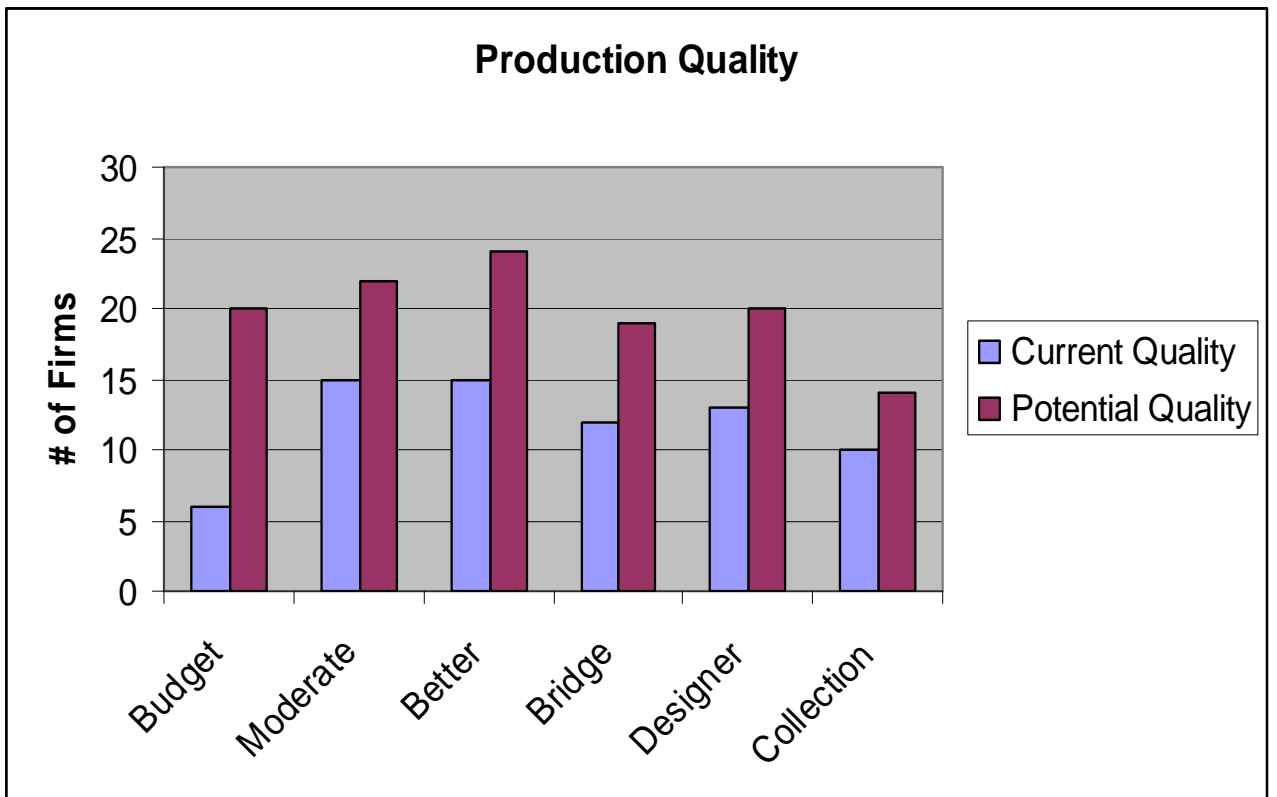
Actual Production and Capacity For Fashion Production

Table 6 - Firms and employment in Veneto Apparel Industry * (2004)

	Final firms		Subcontracting firms		Total	
	Workers	Firms	Workers	Firms	Workers	Firms
1 - 19		489	4,286	2,152	19,383	2,641
20 - 49		104	3,330	305	7,894	409
50 and more		93	16,100	51	4,072	144
Total		686	23,716	2,508	31,349	3,194

* *excludes the smallest artisan firms without employees;*

Source: Veneto Apparel Observatory – CREI, 2006

Table 7 – Main characteristics of the Carpi district, 2006

	2006
Population	92,000
Total employees	38,000
Knitwear and clothing industry:	
- Firms	1,158
- Turnover (million euros)	1,273
- Export	30.3%
- Employment	7,278
- Percentage of total manufacturing employment	50.0%
- Percentage of female employment	66.3%
- Percentage of entrepreneurs, artisans and self-employed workers	28.1%

Source: R&I – Observatory of textile and clothing industry in the Carpi district, 2007

**Table 8 – Firms and employment in the knitwear and clothing industry by size and type of firms,
1990-2006**

	Firms				Employees			
	1990		2006		1990		2006	
	a.v.	%	a.v.	%	a.v.	%	a.v.	%
Final firms								
1-9 employees	383	65.0	197	63.1	1,872	24.6	902	24.5
10-49 employees	189	32.1	103	33.1	3,486	45.9	1,878	51.1
50-249 employees	15	2.5	10	3.2	1,483	19.5	898	24.4
250-499 employees	2	0,3	-	-	761	10.0	-	-
Total	589	100,0	310	100,0	7,603	100.0	3,678	100.0
Subcontractors								
1-9 employees	1,548	92.8	756	89.2	4,358	68.1	1,993	56.0
10-49 employees	120	7.2	91	10.7	1,987	31.0	1,514	42.5
50-249 employees	1	0.0	1	0.1	58	0.9	53	1.5
Total	1,669	100.0	848	100.0	6,403	100.0	3,561	100.0

Source: R&I – Observatory of textile and clothing industry in the Carpi district, 2007

Appendix

The Economics of Effort Incentives in the New York City Garment District

The optimization process is for jobbers maximize profits by adjusting the number of their core contractors (N) and the level of capacity utilization of contractor i (U_i), conditional upon the jobber's volume of orders (O), the cost function of (MC_i) of core contractor i, and the unit price of contracts (P).

Formally, the profit function for the jobber in each time period t is:

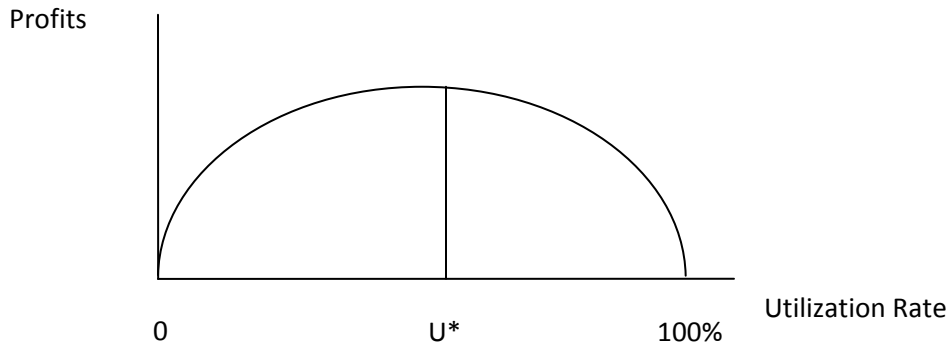
$$\text{Max } f(N_t, U_{it}, O_t, MC_{it}, P_t)$$

In a simple model where contractors have identical cost functions and $P = MC$, the number of core contractors (N) is a function of U for any given level of orders (O). Since jobbers do not produce for stock, contracting depends on the orders a jobber receives. Once a jobber has orders in hand, U becomes the strategic variable of interest in maximizing profits.

Assuming a convex profit function, jobbers will select an optimal U^* which balances the marginal gains from the incentive efficiencies of lowering capacity utilization and the marginal losses from inefficiencies of contractors producing below full capacity (see Graph 1). If orders are declining over time, the numbers of core contractors attached to each jobber should fall, but more slowly than under the traditional jobber system.

Graph 1

The Jobber Profit Function



In addition, the hierarchical incentives of the jobber system inhibits movements towards specializations that capture district agglomeration economies by delaying the exit of contractors. Not only do jobbers try to maintain excess capacity by allocating orders to contractors that might

otherwise leave the industry, but the incentives for cost-cutting in the jobber system often allow contractors that do not draw upon the New York garment district's agglomeration economies to remain in business. SMEs in the Cholet district, however, were able to more quickly establish their new specialization in higher-end children's wear, while the manufacturers that adhered to traditional specializations in mass-produced children's wear and hierarchical contracting relationships were forced to leave the industry relatively quickly. Estimates from our study of garment district specialization in the United States suggest that New York City is somewhat below the national average in moving towards its specialization in women's wear and that more rapid specialization would have reduced job losses (Rice, 2008).

Methodology

The New York case study draws upon survey data collected during a series of in-depth studies that Sarah Crean, Seth Myers, and Peter Doeringer conducted with a representative sample of 34 domestic apparel firms in the New York City garment district in 2003 and a counterpart survey in 2003 of 116 unionized apparel contractors in New York City provided by the UNITE trade union. The Cholet study is based on surveys conducted in 1991 by Bruno Courault and a second set of surveys in 1996-1997 by Courault and Elisabeth Parat. A total of 113 apparel and textile firms participated in the French study, of which 38 were surveyed in both time periods. Materials prepared by Lynn Oxborrow are derived from on-going field and survey research on the garment industry of the East Midlands first under the auspices of the Nottingham Apparel and Textile Observatory and later at Nottingham-Trent University. Daniella Bigarelli and Paolo Crestanello have long-established research and policy responsibilities through their work with their industrial associations -- Ricerche e Interventi di Politica Industriale del Lavoro (Carpi) and Centro Ricerche Economiche Industriali di Vicenza.