RESOURCES *for the* FUTURE

From Fabrics to Fossils: What Can the Decline of US Textile Manufacturing Teach Us About the Energy Transition?

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Abstract

The imperative to reduce greenhouse gas emissions will almost certainly lead to a major economic transition for the people and places where coal, oil, and natural gas are produced, processed, and consumed at certain facilities, such as power plants. Although the needed scale and speed of the energy transition is unique (National Academies of Science, Engineering, and Medicine 2021), previous economic transitions may provide insight for decisionmakers at the local, regional, and national levels. In this analysis, we draw insights from textile manufacturing, which has undergone multiple transitions in the United States. We focus on public policies that were designed to support this industry and its workers during disruptions, and we draw four key lessons for the energy transition:

1. **Advanced planning and notification are crucial.** This concept applies to individual workers, plants, and communities and extends further to reflect the importance of developing a predictable, long-term timeline for energy transition that allows all actors to plan appropriately for the future.
2. **Employment is more than a paycheck.** Policymakers need to carefully consider the social dynamics associated with employment and transition. Workers value the identity and community created by their employment, and programs that preserve these connections are more likely to be successful.
3. **Flexibility is important.** Each worker has a unique set of circumstances and preferences. Programs that restrict eligibility based on arbitrary criteria or impose tight timelines for benefits are unlikely to allow the flexibility that would benefit individuals and families as they make decisions about their future.
4. **We can do better.** Evidence on the benefits of federal Trade Adjustment Assistance (TAA) is mixed at best, particularly for textile workers. The energy transition will need to improve on these outcomes if it is to be truly equitable.

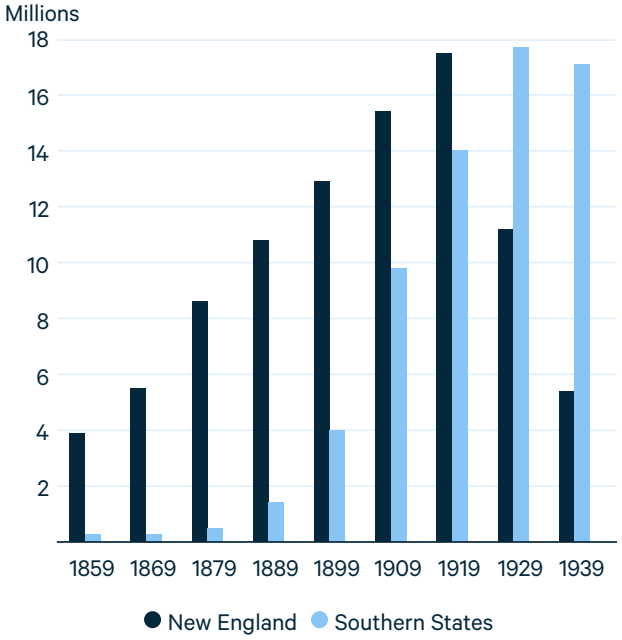
1. From North to South

Like the energy industry, the textile industry has been geographically concentrated in certain US regions and has migrated over time, beginning in the Northeast. The first factory in the United States was a water-powered cotton mill in Pawtucket, Rhode Island, which began operations in the early 1790s (Koistinen 2014, 10). By the 1830s, cotton textiles, based primarily in New England, had become one of the nation's leading manufacturing sectors, and it was the largest employer in New England through World War I (Koistinen 2014, 14).

But economic factors eventually drove the industry south. This shift, which established the Carolinas and surrounding states as the home of textiles, was driven

by abundant cheap labor and a relatively low cost of construction (Minchin 2013, 22). As Figure 1 shows, the number of active spindles (the tools that spin cotton or other fibers into yarn) shifted dramatically in the early twentieth century, with Southern spindles overtaking those in the Northeast in the 1920s and dominating them by the 1930s.

Figure 1. Active Cotton Spindles in New England and the Southern States



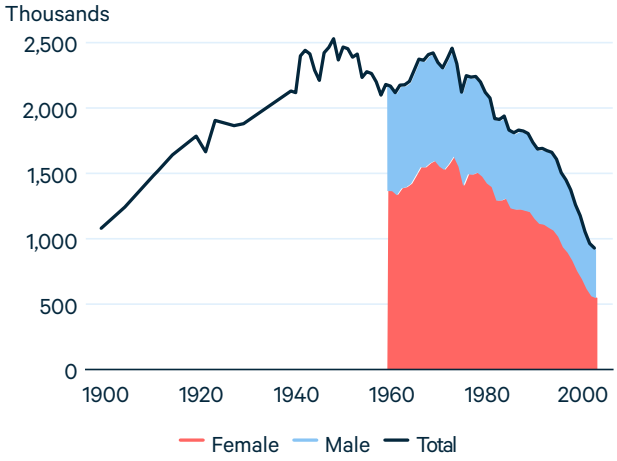
Source: Koistinen (2014, 22).

A variety of factors help explain the South's "advantage" of lower labor costs. Like many northern mills, Southern textile facilities near the turn of the twentieth century relied heavily on low-skilled workers and child labor (Dowd Hall et al. 2000, 57–60). But the South's lower education rates and larger pool of struggling agricultural workers willing to accept lower wages—in many cases, accompanied by their children—help account for the lower costs (Dowd Hall et al. 2000, 57–60; C. S. Fischer and Hout 2006, 13). In addition, textile manufacturing, like much of the rest of the southern United States in the early twentieth century, was highly segregated. In the rare cases when African Americans were employed, they were typically paid the lowest wages for the most demanding work (Dowd Hall et al. 2000, 66–67) or, in at least one case, hired to undercut unionization efforts and wages for white workers (Silva 2017, 63).

In the Northeast, the disruptions that resulted for communities and textile workers were significant, and New England policymakers worked to slow the transition with a variety of tools. Seeking to level the playing field with the lower-cost South, Northeastern policymakers reduced corporate taxes and attempted to enact nationwide labor standards to weaken the South's "advantage," though these efforts were unsuccessful (Koistinen 2014, 68). It appears that these policies focused primarily on supporting businesses, as we were not able to identify any specific policies that were designed to assist workers or communities experiencing disruptions.

Once in the southeast, the industry grew rapidly. Although regional employment data are not available, national employment in textiles and apparel manufacturing more than doubled from 1900 to 1950, reaching a peak of more than 2.5 million in 1950 (Figure 2). Figure 2 also shows that women were a large majority of employees, a topic that we return to in the following section.

Figure 2. US Textile and Apparel Manufacturing Employment



Source: US Census (1975, 670–71) for 1899 to 1939; BLS (2021) for 1939 through 2003. Gender data available only from 1959 onward.

The second major transition in textiles began in the 1970s, as automation and offshoring combined to dramatically reduce domestic employment (Minchin 2013, 6). As Figure 2 demonstrates, job losses accelerated in the mid-1990s with the passage of the North American Free Trade Agreement (NAFTA) in 1992 (Templeton 2004, 18). By 2003, US textile employment had fallen to roughly 900,000 workers, down 62 percent from its peak in 1950 (BLS 2021).

2. Local Challenges

The effects of this downturn were stark for many communities, particularly in the southeast. But unlike the transition from North to South, the federal government made a variety of efforts to support displaced workers.

Most jobs in textile mills did not require a college degree, provided health and other benefits, and were relatively secure, as evidenced by the long tenure factory workers had in multiple case studies (Templeton 2004, 100; Hodges and Lentz 2010, 25). Much like energy communities experience the closure of a power plant or mine, mill and factory closures considerably reduced the local tax base (Templeton 2004, 18; Morris, et al. 2021). Also like some energy facilities, textile manufacturers in some communities built and operated water utilities, and their closure posed challenges for municipalities who needed to continue operating this crucial infrastructure (Hodges and Frank 2014, 179; N. A. Fischer 2018).

Displaced workers faced a variety of challenges. First, they often had few marketable skills, as the industry's broad decline meant that they had little prospect of moving to competing businesses. For example, most workers in the Carolinas did not have the skills that would have allowed them to take advantage of the rapidly growing information technology sector.

Second, several case studies describe insufficient layoff notifications, such as one factory in North Carolina where workers learned that they would lose their jobs on the same day the factory closed. This lack of notification prevented workers from being able to plan their next steps and, as they sought immediate re-employment, led some to take new jobs that they would come to regret (Hodges and Lentz 2010, 27–29).

Third, as with many industries, textiles offered a sense of identity and community for workers. In one case study in the southeast, displaced workers said their identity was so linked to their job that they felt hopeless about the future following layoffs (Hodges and Lentz 2010, 28–29).

For most displaced workers, job quality declined. Although textile workers did not earn high wages, numerous case studies describe even lower wages, reduced benefits, and less job security after layoffs (Minchin 2009, 288; Storper and Scott 2009, 160; Templeton 2004, 133–34). Since the majority of workers were women, they may have faced discrimination that would impede them from entering certain male-dominated fields with higher wages (Lovell and Negrey 2001, 13; Bobbitt-Zeher 2011). Looking across the broader manufacturing sector, one multidecade longitudinal study found that displaced workers experienced wage losses of 13 percent on average (Kletzer 1998, 4).

3. Federal Solutions?

During these layoffs in the southeast, the Department of Labor (DOL) administered a variety of programs that were designed to support displaced workers. In the immediate aftermath of layoffs, "Rapid Response Services" were available to many textile workers, helping them obtain benefits, enroll in training programs, search for new jobs, and more (DOL 2021). Over the longer term, many workers were supported by the TAA program, which was established in 1962 and amended under NAFTA to offer additional support for workers displaced by increased trade with Canada and Mexico. Forty percent of eligible workers in the NAFTA-TAA program were in textiles and apparel from 1995 to 1999 (CRS 2021).

Evidence on the effectiveness of TAA is mixed. Look et al. (2021) reviewed several studies, finding that TAA training programs generally increased re-employment rates on the order of 10 percent, but the effects on earnings were less clear. Similarly, a study from the GAO (2000) found that only 60 percent of NAFTA-TAA participants were able to find work that paid 80 percent or more of their prior wages.

Case studies have examined some of the potential contributors to these disappointing outcomes and identified program inflexibility as one substantial issue. In a North Carolina case study, one displaced worker described how $200 in a savings account made her ineligible for emergency assistance after a plant closure (Hodges and Lentz 2010, 29). Other displaced workers described challenges associated with tight timelines. For example, support for retraining was only offered for two years after the layoff, meaning that displaced workers needed to identify a course of study and enroll immediately to maximize their benefits, limiting their ability to carefully assess their options (Hodges and Lentz 2010, 30).

At the same time, education and retraining programs mitigated the loss of identity that came with displacement. In the same case study, enrollees expressed appreciation for the sense of community created in education and training programs, as they were surrounded by former colleagues facing similar challenges (Hodges and Lentz 2010, 30).

4. Drawing Lessons

The textile and energy industries differ in many ways but share some important similarities. Both have provided major economic benefits in specific regions, including employment and support for public finances. Both have experienced considerable geographic shifts within the United States. And both have experienced major transitions driven by a mix of market forces and changes in government policy. Looking forward, the energy industry needs to undergo major changes, and decisionmakers are seeking to maximize the benefits and minimize the challenges of the transition that is necessary to prevent the worst impacts of climate change.

Based on the textile experience described here, we draw the following insights for policymakers in the energy transition:

1. **Advanced planning and notification are crucial.** This concept applies to individual workers, plants, and communities, and it extends further to reflect the importance of developing a predictable, long-term timeline for energy transition that allows all actors to plan appropriately for the future.
2. **Employment is more than a paycheck.** Policymakers need to carefully consider the social dynamics associated with employment and transition. Workers value the identity and community created by their employment, and programs that preserve these connections are more likely to be successful.
3. **Flexibility is important.** Each worker has a unique set of circumstances and preferences. Programs that restrict eligibility based on arbitrary criteria or impose tight timelines for benefits are unlikely to allow the flexibility that would benefit individuals and families as they make decisions about their future.
4. **We can do better.** Evidence on the benefits of federal TAA, particularly for textile workers, is mixed at best. The energy transition will need to improve on these outcomes if it is to be truly equitable.

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