Crafting a Future:
How Union Electricians Experience and Respond to Deskilling, Job Degradation, and Redundancy

Thesis

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ABSTRACT

Despite a shift toward the knowledge and service sectors, research shows that blue collar labor remains an important facet of the U.S. economic system. Skilled blue collar labor offers workers extrinsically and intrinsically rewarding work which is largely immune from globalization. However, recent research has failed to address the challenges craft workers face from deskilling, degradation and redundancy and, most importantly, the agency of workers in responding to these structural challenges. Using semi-structured interviews and analyses of various official and unofficial documents, this analysis provides a case study of electrical construction workers that examines the challenges to craftwork and how workers respond to them. Findings indicate that workers respond to these processes in a variety of ways including retraining, expanding their jurisdiction and developing new business strategies. But these strategies have been mixed in their effectiveness in solving these challenges. Findings also reveal that maintaining the rewarding nature of craftwork will depend on the effectiveness of worker responses to these challenges and structural conditions which will either support or oppose these measures.
Dedication

I would like to dedicate this thesis to my family, especially my mother and father who have offered me their love and support my entire life. I would also like to dedicate this paper to all the craft workers throughout the nation.
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I would like to thank Dr. Steven Lopez for all the guidance and help he offered me during my data collection and, of course, the actual write up of this thesis. Furthermore, I would like to thank Dr. Rachel Dwyer and Dr. Randy Hodson for their participation on my committee and all their helpful insights and suggestions. I would also like to thank my family and friends who supported me throughout my research process, especially for picking me up whenever I got frustrated or faced what seemed to be an insurmountable wall. Finally, I would like to thank all those associated with IBEW Local 58 who took the time to talk to me about their lives and experiences with electrical work.
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INTRODUCTION

The post-Fordist society is dominated by the concept of the “knowledge economy,” where knowledge workers engage in the labor of ideas, separate from tangible “manual” work. This knowledge work is often viewed as the only route to success in the new economy (Reich 1991). However, few people recognize that craftwork remains important in the post-Fordist economy. Craft workers, especially those in the building trades like electricians, carpenters and plumbers, are vital in constructing and maintaining our nation’s infrastructure. This type of work is intellectually and physically challenging which makes it very intrinsically rewarding (Rose 2004; Crawford 2009). Moreover, the skilled trades\(^1\) are also extrinsically rewarding and offer a road to a middle class standard of living (Crawford 2009).

It has recently been argued that craftwork is largely immune to many of the challenges of the post-Fordist economy including deskilling and globalization (Blinder 2006; Crawford 2009). However, this research has underestimated the threat that deskilling poses to craft work. Furthermore, this argument ignores how working conditions can be degraded (Blum 2000) or craft workers can be made redundant through the productivity increases of labor saving technology (Rifkin 1995). Finally, research that

\(^1\) The Blue Collar skilled trades are treated as a specific type of craftwork throughout this paper.
has recognized the presence of these three threats has overlooked the agency workers have in responding to them.

This paper offers a qualitative analysis of craftwork in post-Fordist construction. Using in-depth interviews, I analyze how a Detroit local of unionized electricians have experienced and responded to the threats of deskilling, degradation and redundancy. These responses include retraining, the expansion of their jurisdiction and new business development strategies. While these strategies have served to reduce the negative consequences of the threats to craftwork, they do not eliminate the threats and, therefore, are not a lasting solution. In short I argue that craftwork remains highly rewarding in the post-Fordist economy, but this characteristic of craftwork is not guaranteed. The continued existence of the intrinsic and extrinsic value in craftwork lies with the effectiveness of worker response to continued structural threats. The failure of craft workers to find a solution to these threats will mean the demise of an entire avenue of rewarding work, reducing the agency of working class families to escape post-Fordist dehumanizing labor.
PREVIOUS RESEARCH

Discussions on the post-Fordist economy are dominated by the idea that America has adopted a “knowledge economy.” This view was popularized by the groundbreaking work of Robert Reich (1991). According to Reich, the only viable route in the new economy is to engage in the purely cognitive work of manipulating data, words or ideas. He argues that “knowledge work” is high paying and satisfying. In contrast, jobs in the service and routine production sectors experience low wages through competition with immigrant labor, outsourcing and offshoring. Since Reich, many theorists have made similar claims about the post-Fordist “knowledge economy” (Bell 1976; Castells 2001; Florida 2002; Powell and Snellman 2004; Robinson 2001).

However, this work ignores the fact that a large portion of high paying craft work still exists, especially in the construction sector which currently employs about 8% of the workforce (Thiebolt 2002) and suffers from a long term skilled labor shortage (Wang et al. 2008).

Crawford (2009) is instrumental in pointing out this flaw in recent scholarly work and in setting a mandate to study skilled manual labor in the post-Fordist society. He shows that “knowledge work” is not the only viable type of work in the new economy. Like “knowledge work,” craft work supplies satisfying and high paying jobs. Craft work

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2 See Bacon et al. (2010) and Sennett (2008) for recent discussions of craft work outside of the construction industry.
continues to be an important route to a middle-class standard of living for blue collar workers and is likely to remain so. Crawford builds on previous work and shows that craft work combines cognitive and physical tasks (Rose 2004), so workers are rewarded by overcoming intellectual and physical challenges and by the tangible product of their labor. Moreover, unlike “knowledge work” and routine production, the majority of craftwork must be performed in person, which protects it from globalization (Blinder 2006). Finally, since craft work has survived a century of attempts to deskill and eliminate it (Braverman 1974), the craft work that remains today is unlikely to suffer from complete deskilling. Therefore, according to Crawford, craft work represents a beacon of stability in an increasingly turbulent occupational sea.

While much of what Crawford says about craft work in the post-Fordist economy is true, he fails to fully recognize the threats to this type of work that exist in the contemporary economy. Most obviously, the housing crash that began in 2007 interrupts a long period of growth in construction craft employment; the skilled trades are not, after all, recession-proof. But beyond this there are three serious threats to the survival of high wage, satisfying craft work in the post-Fordist economy: deskilling, degradation, and redundancy.

Contrary to Crawford’s optimistic account, craft work can still be, and is actively still being, deskilled. Technology and workplace policies continue to be introduced which separate the cognitive and manual tasks involved in craft labor (Braverman 1974; Steiger and Form 1991; Steiger 1993; Silver 1986; Thieblot 2002). Though there is much debate about how widespread deskilling is in our economy, the process is well documented in
many occupations (see Spenner 1983). The process of deskilling is perhaps most salient to craft workers because their work is defined by their skill and the melding of the conceptualization and execution of their work.

Even when craft work is not deskillled, it can still be degraded (Blum 2000). Whereas deskilling threatens to take away the interesting aspects of the work, degradation removes the conditions that make the work fulfilling and enjoyable. There are many factors in creating enjoyable working conditions. The most obvious are wages and benefits, safety, comfort, stability, worker protections and the pace of the work (Blum 2000; Kalleberg 2009). Less obvious sources of degradation are job fragmentation and the amount of control the employer wields over the workforce (Spenner 1983; Blum 2000). These workplace conditions are especially relevant to focus on during a down economy when market pressures are especially influential in determining how work is performed.

Finally, where work can be neither deskillled nor degraded, technology can be implemented to make workers redundant. Previous discussions on technology in the workplace have focused on how it affects skill and working conditions, especially on whether it deskillles work or whether it automates unskilled work while upskilling the remaining jobs (see Zuboff 1988 or Form 1987). However, this discussion ignores the effects that technology can have on work regardless of how it affects skill. As Rifkin (1995) makes clear, technology that increases productivity reduces the need for a large labor force (i.e. makes workers redundant). Therefore, labor saving technologies that increase the productivity of workers simultaneously reduce the need for other workers
who perform the same task. Nevertheless, as can be seen in the case of West Coast longshoremen, workers can respond to technology change and, if done successfully, can experience positive changes to their skill level and working conditions (Finlay 1988; Schwarz-Miller and Talley 2002). So while labor saving technology does not necessarily decrease the amount of skill workers need and, in many cases, can improve working conditions of those working, it negatively affects many workers who find themselves unemployed due to the productivity increases.

Surprisingly, little research on skilled construction has considered the threats of deskilling, degradation and redundancy or how craft workers respond to these challenges. Instead, research has focused on filling the perceived labor shortage (Wang et al. 2008; Berik and Bilginsoy 2005; Worthen and Haynes 2009), gender and minority representation (Berik and Bilginsoy 2006; Paap 2006; Moccio 2009; Worthen and Haynes 2009; Menches and Abraham 2007), the organization of the building trades (Silver 1986; Silver 1990; Steiger and Form 1991; Stinchcombe 1959; Eccles 1981; Strauss 1956; Northrup 1992), craft culture (Riemer 1977), jurisdictional disputes (Cummins 1926; Taft 1946; Allen 1986), costs and productivity (Northrup 1992; Allen 1984, 1986; Theiblot 2002), safety (Baradan and Usmen 2006; Probst et al. 2008)) and the union control of markets (Condit et al 1998). A few researchers have recognized the existence of deskilling, degradation and redundancy (Moccio 2009; Paap 2006), but have glossed over worker response to these processes.

In this paper, I begin filling in this gap in ethnographic research and explore how deskilling, degradation and redundancy are affecting a Detroit local of the International
Brotherhood of Electrical Workers (IBEW) and how the Local has responded to keep their trade alive. In what follows, I argue that while craftwork is quite meaningful and has been a successful career for many workers in the new economy, the continued success and meaningfulness relies on the effectiveness of the craft workers’ agentic strategies to respond to the continued structural challenges of deskillng, degradation and redundancy. So far, these responses have reduced the effects of these threats, but have failed to offer real solutions.
DATA AND METHODS

Using qualitative methods, I collected data on IBEW Local 58. Local 58 is one of two I.B.E.W. locals within the metro-Detroit area. Local 17 represents Outside Linemen (power line workers), whereas Local 58 primarily represents Inside Wiremen (construction electricians). Local 58 was chosen as a site to study how craft workers experience and react to the post-Fordist economy for several reasons. First, 58 was chosen because it represents electrical workers. Skilled electrical workers are regularly needed in all sectors of the economy, especially the “knowledge” economy which is reliant on dependable power and information transfers. Electrical work is also extremely dangerous, so unskilled workers are wary to work with electricity. These two factors make skilled electrical workers very valuable in the post-Fordist economy.

Second, electrical construction is dynamic by nature. Post-Fordism did not force Local 58 to become flexible, it always has been flexible. Workers, contractors and the Local regularly have to adapt to economic and technological changes. Not only does the Local offer a diverse training and retraining curriculum to address these changes, it also has very little jobsite bureaucracy and regularly deals with a fluid construction labor force. This fluidity is, in part, achieved by the union’s management of “the book.” The book is the list of all I.B.E.W. electricians currently looking for work. Centralizing the hiring process benefits both workers and contractors. Contractors gain access to an ample
skilled labor force, which is crucial in a cyclical market that continuously expands and contracts the required workforce. Workers are benefited from this system because it simplifies the search for work and because workers can more equally share the burden of unemployment. Workers who have spent the longest continuous period listed on the book get priority status when a contractor requests workers.\footnote{There are several exceptions to this shared burden, the two most important to recognize for this analysis are that workers who possess special skill sets can go back to work out of turn when these skills are required and that core workers are rarely laid off by employers so, for the most part, avoid the book altogether (see Appendix 1 for a more detailed account of the book).}

Third, Local 58 was chosen because it successfully maintains many of its Fordist benefits in the post-Fordist society. As of 2003, Local 58 members enjoyed an hourly wage of $33.25 plus benefits. These benefits include several pension programs (one managed by the international organization (IO), a more generous one through the National Electrical Benefit Fund and their largest one managed by the Local), an annuity, unemployment sub pay, and insurance. Furthermore, workers are entitled to an overtime rate of time and a half after the state mandatory 40 hours a week \textit{and} after 8 hours per day. All Saturday work is time and a half and Sunday is double time. This overtime wage system allows electrical workers to substantially increase their yearly income and is implemented to offset the regular periods of unemployment one experiences in the construction industry.

Finally, though Michigan still heavily relies on the industrial sector, it is currently in search of a new economic frontier. Local 58 and the Southeastern Michigan Chapter of the National Electrical Contractors Association (NECA) are at the forefront of this search. Not only are they building a skilled labor force in developing markets like Green
Energy, they are also becoming active partners in the creation of these markets. Therefore, they are in a good market position to capture much of Michigan’s 2015 legislatively mandated 10% Renewable Energy infrastructure.

The majority of members in Local 58 are Journeymen Inside Wiremen (JIW) who have gone through a five year program as an indentured apprentice with the Joint Apprenticeship Training Committee (JATC) – a committee formed by both union and contractor representatives. During the apprenticeship, electrical skills are acquired through a combination of fieldwork and classroom training. Apprentices become adept in manual electrical skills (e.g. conduit bending, pulling wire, rigging, terminating wires, etc.) and cognitive electrical skills (e.g. reading blueprints, electrical theory, circuit logic, code, etc.). The program involves 8 hours of class every other week, with students working on jobsites the rest of the time. New apprentices earn 40% of the JIW rate (around $14 an hour plus benefits) and have scheduled pay increases based on experience. Apprentices are used by employers as a cheap semi-skilled labor force and are often relegated to the lower skilled job tasks. At the successful completion of the apprenticeship program, students earn their electrical license and become JIW.

After their apprenticeship, JIW can choose to continue their education through a variety of classes offered through the JATC. Many electricians opt to take these classes as a refresher on the skills they have already acquired or to become proficient or licensed in new areas (i.e. high voltage, low voltage, fire alarm, etc.). Finally, JIW can also become licensed Master electricians, though this more rare.
Local 58 also represents telecommunication workers, which are distinct from JIW. Journeymen Telecommunication Workers (JTW) work with systems that transfer sound and data and do not work with more than 120 volts. This classification is relatively new to the local with a separate apprenticeship being added in the late 1990’s. Apprentice telecommunication workers enter a 3 year program which, like the Inside Wiremen program, includes a combination of coursework and field experience. Telecommunication workers are not required to be licensed by the state and do not have an official code. Instead, these workers become certified in the BIXBY standards – one of the most extensive certification standards in telecommunications. Since no license is required, JIW can work in the telecommunication sector. However, this is rare (discussed later).

Local 58 has had great success in the economy so far, having near full employment during the boom of the 90’s and early 2000’s. However, the economic crash following this boom has made it painfully obvious that their position is not guaranteed. The cyclical nature of their market is exacerbated by redundancy, deskilling and degradation. Nevertheless, as previously stated, craftsmen are not passive receptors of these threats, instead, they actively fight to maintain the rewarding nature of their trade.

The data for this project include 20 interviews with respondents associated with Detroit’s IBEW Local 58 which I conducted, transcribed and coded. Among my respondents are current electricians, former electricians, telecommunication workers, union business agents, apprenticeship instructors, electrical contractors, representatives of the Southeastern Michigan Chapter of NECA and the business development agent hired
by Local 58 and the Southeastern Michigan Chapter of NECA. Conversations with my respondents lasted, on average, two to three hours. The shortest recorded interview lasted one hour while the longest lasted six hours. Follow up interviews were also conducted with several respondents as the need arose. Furthermore, internal documents, letters, pamphlets, and the websites of the Local 58, NECA and its members were analyzed for additional information. 4 In addition, I drew on a lifetime of experience as the son in a skilled tradesman in Detroit, Michigan, and numerous informal conversations I had with individuals in my personal social network who work in the skilled trades.

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4 Though my respondents include both male and female workers, throughout this paper I use masculine pronouns to refer to electricians. I do this for two reasons. First, while women do have a presence in the Local, the majority of workers are male. Second, and most important, both male and female respondents used this type of male dominated language in our conversations. Therefore, I have adopted the language of my respondents and refer to electricians in a masculine form throughout the paper.
THE ELECTRICIAN AS CRAFTSMAN

We are not rock breaking monkeys. We are skilled tradesmen. We work hard. Most guys out of local 58 give you a good days work and give you quality work. – Jeremy

My interviews supported Crawford’s (2009) view that electrical work is quite rewarding. Workers embrace the physical and mental tasks that they complete every day. As the quote above points out, they attempt to distance themselves from the perception that their work is just physical. In doing so, they regularly point out the educational requirements to earn an electrical license. Jeremy, who has been in the electrical trade for over 15 years, explains:

I would say that there is some pride in that that you have achieved, in the minimum, your journeyman license. It shows that you have gone to the next step and taken the test and gotten the education and training to do it proper.

As I mentioned before, these education includes a 5 year program that trains the would-be electricians in the physical and conceptual tasks required to complete electrical work. Electricians perceive this education as showing a dedication to the trade.

Though these electricians take pride in their conceptual work, they equally appreciate the physical demands of their job. Peter, an electrician who has been in the trade for 15 years, exemplifies statements made by several other respondents:
I don’t like sitting at a desk… it doesn’t interest me to sit all day at a computer. I like doing things with my hands and my head … I liked it [electrical work] a lot, it was good work, it was interesting. At the end of the day you felt like you accomplished something. Shuffling papers isn’t for me. I needed to do something where at the end of the day I could say “this is what I did today” and get a sense of accomplishment out of it.

Craftwork is a combination of both manual and cognitive tasks. Electricians appreciate the challenge of anchoring the abstract designs of knowledge workers (i.e. engineers, architects, etc.) into the real world. One electrician explains that “as these engineers try to come up with a better way, a better mouse trap, there is always things they overlook or… doesn’t meet every specific installation.” It is the job of the electrician to take something that “works on paper” and make it work in the real world.

An excellent example of how craftwork combines the manual and cognitive tasks is in the installation of conduit. Conduit is a pipe that is used to protect the wires that are run through it. A multitude of conduit types exist. However, the two types most often used by Local 58 members are electrical metallic tubing (EMT) or “thinwall” conduit and rigid metallic conduit (“rigid conduit”). Rigid conduit is made of sturdier material and offers more protection than its thinwall counterpart. Rigid is more likely to be used in the large industrial sector, especially in caustic environments. In turn, thin-wall is used primarily in the commercial sector. Both types of conduit arrive on the jobsite as a 10 foot length of straight pipe. The electrician then takes this straight pipe and fabricates it to
the specifications of the job. This fabrication includes shortening the pipes, connecting the pipes and, the more skilled aspect of it, bending the pipe.

Before any fabrication takes place, the electrician first engages in the cognitive task of planning the conduit run. Blue prints often only indicate that a wire must travel from Point A to Point B, with no specific course layout. Therefore, Jake, who has been an electrician for 30 years, explains:

…whenever I bend conduit I think about pulling the wire through it. Because it's, I try to explain that to my apprentices, it's not putting as many bends into a piece of pipe that makes you a good electrician. A good electrician will look and see what is the easiest way for me to get that wire through the conduit. The more bends you put in the conduit, the more resistance there is to pulling the wire. So, if you can figure a way to run straight conduit, you are a genius. But obviously you can’t do that. So the next step is to put the minimum amount of bends possible to get from point A to point B and make it easy to get your wire through there.

This route planning must take into account what has already been installed and what has yet to be installed (including what other trades will install). After the electrician conceptualizes this route, he begins installing it. When the route taken necessitates a bend or turn (as it usually does), the electrician must fabricate that bend or turn.

Electricians use a series of trigonometric formulas to calculate the location and degree of each bend on the straight pipe. Once the angles and locations are determined, electricians can use a variety of different conduit benders to fabricate them. These tools
range from simple handbenders – which use leverage and an electrician’s physical strength to bend the metal – to mechanical benders – which use electrical, hydraulic or ratcheting systems to bend the conduit. Handbenders are used to bend lighter weight “thinwall” conduit while the mechanical benders are needed to bend rigid conduit. Though fabricating angles in thinwall and rigid conduit use similar processes, it is recognized that rigid takes a more skill to install because the material is less forgiving. “[Thin-wall is] easier than rigid. Rigid you have to do more thinking, [you] don’t just cut it off to make it work” (Clarissa, over 20 years in the trade).

As one can see, conduit installation involves both cognitive work (planning the run, calculating the bends) and physical work (fabricating the bends, installing the run). Electricians take pride in performing this craftwork, and other work much like it, in a quality and timely fashion. They recognize that their labor costs more than their non-union counterparts, but justify these price differences by having skilled electricians who perform high quality work in a short period of time. As one electrician explains “quality, time or price. You can only pick two of those” (Kevin, tradesman for over 10 years). Other respondents expressed similar “you get what you pay for” ideals in defending their quality/time niche.

This niche is not as beneficial as it once was. In 2001, Local 58 members logged nine million work hours. In 2009, they only worked three million. This stark decrease in work hours shows that electrical work is very precarious. Both contractors and workers have been affected. Local 58 lost around 15% of their contractors and had almost 2,000 electricians unemployed, with many of these electricians waiting as long as two years to
go back to work. Being unemployed for such a long period of time meant their federal and Local unemployment benefits had run out. Electricians are attempting to adjust to these changes. Some follow the traditional process of traveling to work in other locals, but work is scarce throughout the country. Others have attempted to make themselves more marketable through more training (discussed later). Still others have left the local, either by plying their trade with other unions or in the non-union sector or by entirely leaving their craft behind. In light of these events, even successful electricians are wary to recommend the trade to others.

This precariousness is the result of several structural factors. First the cyclical nature of construction work. Second, globalization and deindustrialization have particularly affected the availability of work in traditional union construction strongholds. Union construction has always had a large presence on large industrial projects and large commercial projects (Thieblot 2002), but has been weaker in the residential market which is more resistant to globalization and deindustrialization.

Finally, when work is performed in these traditional strongholds, the Local must contend with new realities (see Whitford 2005). U.S. manufacturing is no longer controlled by large vertically integrated firms, but has turned towards decentralized production in the form of a web of supplier firms (Florida 1995; Prahalad and Hamel 1990; Sabel 1996; DiMaggio 2001, Powell 2001). Once large manufacturers have become purchasers and final assemblers. This system of suppliers promotes flexibility that allows domestic manufacturers to survive in the new economy. The push for flexibility also exists within the plant. The mass production techniques that dominated
American manufacturing for decades is being replaced by lean or flexible production (Womack et al 1991; Appelbaum el al. 2003; Macduffie 1995). This flexibility is pursued by adopting just-in-time inventories, employee involvement in recommendations, quality circles, job enlargement, decentralization, self managing teams, continuous improvement processes (Smith 1997) and a contingent labor force (Smith 1997; Vidal 2000). Production flexibility allows plants to quickly switch from making one product to another (Womack et al 1991).

These changes within the manufacturing that has remained in the Detroit area has drastically changed the way Local 58 does work in all sectors of the economy. New pressures exist to move away from quality/timely work and towards timely/cheap work. In fact, contractors and electricians often expressed concerns about how customers cared too little about the quality of the workmanship and too much about the price. The rest of this paper focuses on the processes of price reduction (redundancy, deskillin and degradation), how these processes have affected the Local and how the membership has collectively and individually responded to them.
CHALLENGES AND RESPONSES

Redundancy

In the past, large industrial projects were a giant windfall for electricians in Local 58. During the recession of the late 1970’s and 1980’s, the Belle River power house was built. This job required over one thousand electricians, many of whom worked steady for several years. However, when comparable projects occur today, they take fewer and fewer electricians and are completed in a shorter and shorter amount of time. Due to the environmental conditions of many these jobsites (e.g. caustic, flammable, etc.), the need for quality work outweighs many cost concerns. Therefore, these jobs are more resistant to the pressures of deskilling and degradation that are used on other jobsites to reduce cost. However, they are not immune to redundancy.

Enabling labor saving technologies have been introduced which decrease the amount of time a given task takes and often decrease the number of workers needed to perform a task, but do not decrease the skill requirements of the job or degrade conditions. One example of this is in explosion proofing electrical work. In flammable environments (i.e. oil refineries, coal pulverizing plants, etc), one must make sure that the electrical arcing (sparking between two points) that occurs inside a wire run (installed wiring) will not cause a cause a major explosion. In the past, this was done by weaving a fiber clothe between the wires, making sure that they are not touching each other or the
sides of the conduit, and then pouring in “Chico” – an explosion proof seal which comes in liquid form and solidifies like concrete – at every entrance and exit of the explosion proof run. This process contains the arcing inside the conduit run and prevents it from igniting the flammable environment causing a major explosion. This task is very time consuming because the weaving must be performed in a tight space after the conduit is installed.

Today, explosion proofing requires much less time than before due to new materials. The newest form of Chico eliminates the need to weave fibers around the wires. Instead, during its hardening process, it separates the wires from each other and the sides of the conduit. Weaving clothe around wires is not necessarily a skilled task, but, by eliminating it, explosion proofing is done much quicker. One electrician estimates that what would have taken him five hours using the old Chico now only takes one hour using the new Chico.

A variety of other technologies have been introduced with similar affects on productivity, without necessarily decreasing the level of skill. These technological introductions occurred slowly over a period of time. Most frequently, the enabling technology discussed by electricians were new tools. For example, corded power tools were replaced by battery operated power tools. This switch did not decrease the amount of skill, but it did eliminate the need to run extension cords throughout the jobsite and the need to bring in temporary power to some sites. Some enabling materials were also mentioned like pre-fabricated racks and hangers. These pre-fabricated materials come with much of the labor intensive work already performed (e.g. threading metal rods to
make hangers). However, the most common enabling labor saving technology mentioned by electricians is the manlift.

[Manlifts are] basically a unit with four wheels and they have a stick boom. You sit in your basket [on the boom] and work your controls. You can drive all around and lift yourself up and do whatever… [Before] when we worked we had to build a scaffolding to get to someplace high. So you had 5-6 guys building a scaffold, putting it all together. You go up, do your 10-15 feet of electrical work and then you come back down… You disassemble the scaffolding, move it over to where you are going to work next, with all these people. You’ve got 5, 6, 7 guys doing this electrical work moving your way through. Now these rigs come into play. Now I can go up in a rig and do what it would take all those guys all that time – building scaffolds doing what they had to do – now I can drive in with that rig by myself and start where we would have started way back when and do 10 times the amount of work by myself on one of these rigs. (Jake, 30 years experience)

Electricians understand that they are more productive than in the past. They can do the same job in less time with fewer people. Electricians often embrace this type of productivity increase and use it to legitimize their high wages:

Here is another example of “oh you electricians, you make too much money”

Yeah right. If you really want to compare apples to apples and do the math, look at what it took back then, with so many people. Even though we are making this much money, I can do this by myself with a rig we are renting which isn’t all that
expensive. So we are actually doing it a whole lot cheaper than what it used to be, even though we are making so much money. (Jake)

Though electricians use these technologies to legitimize their position, they recognize the harmful affect that it has for their work. Increased productivity means that jobs don’t last as long as they did in the past and can be completed with fewer people. Therefore, electricians, while embracing these changes, recognize that it is one of the causes of their high unemployment.

**Deskilling**

*Deskilling Labor Saving Technology*

Power tools and manlifts are examples of enabling labor saving technology. They allow workers to increase productivity without deskilling their work. However, deskilling labor saving technology and deskilling policies have also crept onto the jobsite. Workers most often mentioned these technologies and policies when discussing their bread and butter: auto plants.

Local 58 has traditionally found 40-50% of its work in auto related areas. These work opportunities not only occurred when new plants were being built, but also during regularly scheduled line changes during the warm summer months and the two weeks around Christmas. These line changes were right in 58’s wheelhouse; they required quality work done in a timely manner. When work was done slowly or incorrectly, production could not resume on time. Manufacturers were willing to pay for this quality and timely work. During these shutdowns, electricians regularly worked 12 hour days, seven days a week. As mentioned previously, any time after 8 hours a day electricians
receive overtime pay, all of Saturday is time and a half and Sunday is double time. Many electricians embraced this available overtime. They would save the money they made during these cyclical bouts of employment to provide for themselves and their family during periods of unemployment. A group of workers, the “Hungry 100,” was known for only working on overtime jobs. They would then take the rest of the year off. This allowed them to get their pension time in, keep their benefits going and provide for their family. However, with flexible production and new technologies, these regular periods of overtime are not as prevalent as they used to be.

With the introduction of flexible production techniques, instead of each vehicle model having its own dedicated line, multiple models began to be built on the same line. This flexibility achieved by the manufacturer means less work for electricians and other construction trades. Instead of having to do a line change in four different plants for four different vehicles, one line change is performed in one plant which assembles four different models. As electricians explain, it only takes a push of a button to switch which model is being produced, not months of work. Furthermore, the introduction of labor saving technology reduces the time it takes to perform major line changes. Owen, a JATC Instructor, estimates that with the drive for flexibility and the introduction of new technologies the time to complete a major line change has been reduced from 6-8 months to 6-8 weeks. The labor saving technologies that affect these line changes extend beyond the enabling technology previously discussed. A major reason for these short shutdowns is the introduction of deskillling technology in the form prefabricated materials (like “plug
and play” wiring and pre-built control panels) and cable tray (which is often used instead of conduit).

The primary work done during a shutdown is the reconfiguration of the conveyer system (i.e. making it longer, adding stops, etc.). In the past, a conveyer system could run for miles with hundreds of controls scattered throughout it. These controls used relay logic which is a hardwired logic system of switches (which lets the system know where objects are) and solenoids (command switches that give commands). When a switch is flipped, the circuit opens (or closes) which activates the solenoid. This in turn opens (or closes) a circuit and initiates the operation at that part of the assembly line (e.g. stopping the line to allow work to be done). Each switch and solenoid is wired into a large control panel (20 square feet) which consists of a series of relays. Each relay device on the conveyer system required two wires to be run from the device to the panel. One electrician estimated as many as 600 wires needed to be run to a subpanel and even more for a main panel. Each wire is then individually terminated on the control panel. In short, this system required a lot of labor on the electrician’s part. Workers needed to fabricate and install an entire bank of conduit (20-30 runs) from the panel to the devices, run wire through the conduit and terminate the devices. Each wire takes about 14 minutes to terminate, so an entire panel of terminations could take up to a month to finish. Terminating the panel, running the conduit, the relay control logic and running the wires are all physically and mentally labor intensive. It is the epitome of craft work.

This process has changed in the post-Fordist system. Automobile manufacturers have become customers of the manufacturing processes. Instead of building an
interconnected conveyer system within a plant, the manufacturers hire a vendor to design and build an automated robot cell to perform the individual assembly tasks needed. These robot cells are built offsite, often by cheap non-union labor, disassembled and shipped to the plant and then reassembled by electricians and other skilled trades. On these types of jobs, electricians are no longer construction workers, they are installation workers.

Except for emergency shutoffs, these new systems are controlled by Programmable Logic Controllers (PLCs), not relay logic. Instead of hardwiring a logic system in, controls are now operated through software. Therefore, a programmer, not an electrician, does a lot of the conceptual logic work. Since the majority of the work is done offsite, electricians no longer have to install the control devices, run a bank of conduit from the control panel to the devices, pull wire through the conduit or perform hundreds of terminations. Now, electricians merely run a pre-fabricated power supply cable from a pre-terminated control panel to a pre-terminated robot cell and then run a CAT-5 information cable so that the PLC can control the device.

Electricians refer to these prefabricated cables as “plug and play.” They are multi-conductor cables, which are cables formed of multiple wires (often around 30), with pre-fabricated ends made on them. Workers often disdainfully refer to these cables as extension cords. They no longer need to terminate each individual wire. Instead of running thirty wires and doing thirty terminations, electricians run one “plug and play” cable, push the male end into the female end and twist it to lock it in place. This plug and play wiring not only eliminates the terminations at the control panel and the device, but also at each junction box. A junction box allows access to the wiring in the middle of an
electrical run. Plug and play cabling uses a “mod box” instead of a traditional junction box full of terminations. Mod boxes are prefabricated junction boxes that use plug and play connections instead of hardwired terminations. But terminations are not the only tasks that plug and play cabling has removed. These plug and play cables are protected by a thick insulation which eliminates the need for them to be protected by conduit. Instead, these cables are run through cable tray.

“[Cable tray is] like flat piece of ladder. [It’s] made out of aluminum. [To install it] you nut and bolt it together. [There is] not as much measuring [as there is with conduit]. It comes preformed and pre-bent [so rarely needs to be altered or fabricated on the job]” (Clarissa). Another electrician compared its installation to an “erector set.” Instead of having to use trigonometric formulas to make turns in the cable tray run, like with conduit, an electrician merely bolts on a pre-fabricated angle piece.

PLCs, plug and play cables and cable tray are merely the most recent form of this type of deskillling labor saving technology. Before “plug and play” cables, a similar multi-conductor cable was used without the pre-fabricated terminations, but was also run in cable tray. Before that, a flexible metallic conduit was used which eliminated much of the conduit fabrication. As can be seen, this deskillling has, for the most part, been slowly introduced to the jobsite through a series of technological changes.

While electricians all agreed that PLC’s, plug and play wiring, “mod-boxes”, and cable tray has deskillled the work, the amount of deskillling was subjective. In reference to cable tray, some said it only decreased the skill “a little” while others expressed “quite a bit” of deskillling. There were more negative perceptions associated with plug and play...
cabling. Electricians believe this work does not require much training and some even stated that there is “no skill” involved. Thus the combination of these changes has reduced the skill requirements and the labor intensity of the work.

Unlike the enabling labor saving technologies, electricians do not embrace the deskillng technology. They recognize that this makes it so their work “doesn’t take much training” to complete. They refer to it as the “dumbing down” of their trade. This jeopardizes both their economic position and their status as craft workers. Workers frequently expressed their distaste for this technology. Lucas even declared “[this] is not the business I signed up for.” These technologies have made the work less rewarding and less meaningful:

It’s not as fun as it used to be. Something about when you had to do all this prep work [and] all this lay out… you know, it was fun. It was kind of, I guess we never really appreciated it just how creative the solutions were that people came up with. It was like, “wow that really looks good, nice job. (Owen, JATC Instructor)

As can be seen, electricians bemoan the reduced skill requirements of working with these new materials and the loss of creativity that can be used to perform a task.

While the labor intensity of electrical work has been decreased, this has increased the flexibility of the manufacturing process. When logic changes are made in the manufacturing process, a crew of electricians no longer need to be called in to disassemble the old relays, which were hard piped and wired in, and install the new relay logic. Instead, these logic changes can often be made by bringing in one PLC
programmer. Plug and play cabling increases the physical flexibility of the assembly setup. In the past, if a piece of equipment needed to be moved, a crew of electricians would need to be called into disconnect the power from the piece of equipment, tear out the old wire and conduit, run new conduit and wire, and terminate the wires on the machine once it was in its new location. Today, an electrician disconnects the cable, pulls the same cable to the new location and plugs it back in. Depending on where the piece of equipment is moving to, the electrician may need to run a new plug and play cable, but it is unlikely that a crew will be needed to install new conduit or tear out the old electrical system. This process of using flexible plug and play wiring creates a lot of flexibility in the physical layout. Imagine you wish to move your computer to the other side of your office. Which is easier and faster: installing a new receptacle on the other side of the office or running an extension cord from the old receptacle?

This drive for physical flexibility leads one contractor to recognize that the ideals of manufacturing construction are moving away from the quality that union electricians sell and more towards price.

Plants used to be built to last 100 years. But [those] plants were outdated and [the customers] needed new ones. [It’s] cheaper to build new plants than to renovate the old ones. These new buildings are built cheap… We used to have to build it to last. Now the customers just want us build it to last as long as they plan to use it.

(Warren, Electrical Contractor)

He goes onto explain that “the quality of workmanship is no longer there. We used to bank on that… We still do quality, but the companies won’t let us. They don’t want
quality.” It is the customer, not the electrical contractor, that decides what types of materials can be used and the quality required for installations. Therefore these lower quality and deskilling materials are common in commercial and flexible manufacturing settings. However, they are rare in heavy industrial settings – especially those in caustic environments – and production settings that do not require flexibility or frequent line changes. So in environments like steel mills and powerhouses, plug and play cabling and cable trays have not been widely used and instead still rely on traditional “pipe and wire.”

Conduit installation in these settings is currently implemented in much the same way as it was in the past. As Crawford predicted, the skill of conduit bending seems to be impervious to deskilling. The fabrication of conduit has never been successfully automated. There were attempts to implement pre-fabricated angles, much like with cable tray, but these efforts proved largely unsuccessful. Russell, who has been in the trade for nearly 30 years, had the opportunity to use pre-fabricated conduit angle pieces on the construction of a powerhouse in the 1980’s. In his experience, pre-fabricated bends were rarely made correctly – most of the angles were off by a few degrees. Moreover, attaching these pre-fabricated conduit angles means needing connectors at every angle which makes the run unstable and difficult to get “true.” Therefore, prefabricated angles in conduit lacked the aesthetic and functional properties needed for the quality and durable work which is required in many large industrial settings. Therefore, the traditional niche of quality work in a timely fashion is still viable in some markets, but a new strategy is needed in the flexible manufacturing sector.
Deskilling Policies

Labor saving technology and flexible manufacturing are not the only new structural constraint that these workers negotiate. Electricians feel pressure from new safety guidelines which they feel inhibit their ability to perform quality and timely work and tend to deskill many aspects of the job. Paap (2006) argues that construction workers relationship with safety is, in part, explained by their masculinity. Though my respondents often attributed past unsafe practices to proving one’s masculinity, they more often viewed their own relationship with safety as being determined by their craftsmanship.

Safety issues are almost out of control crazy. You used to be able to be on a ladder. Now you can’t climb over 6 feet [on a ladder] without being in a full body harness. A friend of mine was hanging up an exit light. The safety man said since he was on a ladder he needed two legs on the ladder and one hand on the ladder. You can’t do that on a ladder and do the work. So he had to get a lift. The lift took 2 hours to get into position. It would have taken 15 minutes without it. I can’t stand that… How can we get this done in a timely manner? I think that’s horrible. We are professionals, we want to do a good job and get it done quickly and if the contractor isn’t making money we aren’t making money. This nonsense is ridiculous. Has it saved lives? Probably. But I mean there has to be common sense out there too. You just can’t swing from beam to beam. There have been accidents. Has it helped? I don’t know. I don’t like the wasted time for the safety issues that are ridiculous. (Clarissa)
In this example, the worker complains of how a task that should have taken 15 minutes, took 2 hours because of the safety regulations; this task was not done in a timely manner. In other words, the work could not be completed in a craftsman like way.

Along these lines, electricians and contractors complained that safety regulations required redundant workers. For example, with manlifts, one needs a ground man ensuring the safety of the worker in the lift and to keep others clear. They feel that the ground man is inhibited in his ability to engage in craft work. This is because the ground man is prohibited from performing productive tasks like fabricating material that the man in the lift needs. So, though safety increases the need for workers on the jobsite, electricians feel that the workers will not be used to their fullest potential. This is especially important due to the cost pressures that union workers are under. An extra worker on the job who does not contribute to their productivity is seen as an unfair constraint.

Safety codes, such as requiring ground man, are established by OSHA and the customer and enforced on the jobsite by an individual hired by the Project Manager (PM) not by the electrical contractors. Electricians often spoke out against the interpretation of the safety code by these safety regulators. They felt that, while safety is necessary and a good thing, it can be taken too far and prohibit them from providing quality and timely work. Electrical workers feel that some of these problems with safety arise when regulators fail to understand the electrician’s skill set. Bruce, a recently retired electrician, states that “before [when] working in panels… [we] could work in a hot panel and do what we are trained to do… This is what we went to school for. We are trained to
do this when it's energized. They [regulators] don’t see it like that.” Therefore, while these safety procedures make the work safe, they also deskill it. Later in the interview, this electrician expressed the fear that some safety regulations, like having to shut down all power to a piece of equipment before doing electrical work, would not only cost Local 58 work because of increased time and cost to a job, but also totally eliminate the need for skilled electricians. “…If the machine is hot or energized, well you will need a qualified electrician to do that. If the panel is dead you can get anyone to do it, it's safe.” This harms the electrician’s market position by eliminating the need for their skill set.

This is not to say that electricians don’t appreciate the extra safety. They recognize that many of their past behaviors, like walking the steel (walking on the steel supports on a building without being tied off), saved time, but cost the lives of their brothers. Furthermore, many of the electricians I spoke with had at one time or another either refused to work in hazardous environments or filed reports with OSHA or the safety regulators when violations occurred. So while new safety regulations no doubt improve working environments overall, they remain a point of contention with the workers.

So while technology has increased productivity through enabling and deskilling electricians, safety regulations have impeded technological productivity increases. But safety has also deskill the work. Therefore, unlike Blum’s (2000) workers who were degraded without being deskillled, policies that improved working conditions have simultaneously deskillled electrical work.
Responses

Local 58 has not been passive in the deskilling process. They have actively searched for ways to remain competitive while avoiding deskilling. Contractors have found a temporary route in taking advantage of the new manufacturing processes. In turn, the JATC has simultaneously supported a complimentary solution through upskilling the workforce.

The post-Fordist assembly installation of using vendors to design and build stages in the assembly process opens up a new profit avenue for electrical contractors. Traditionally, electrical contractors made their profit by charging the customer more than what was needed to cover all material and labor costs. As these customers switched their focus from quality to price considerations, electrical contractors have lost their once large profit margins. However, these contractors have found profits from a new source. They now make profits off of the vendors who design and build the assembly processes. In fact, it is not uncommon for a contractor to bid a job to the customers at cost, solely relying on profiting off of the vendors. This profit is created by fixing problems in the vendor’s design or construction of the robot cells. One electrician gives the following example:

[The vendor] did some of the terminations… [and] I had to go through and check them. First the outside wasn’t tightened so I needed to tighten everything. Then I’d go through and pull on them [the terminated wires], 4-5 different ones came right out. 6 or 7 [of the] crimps came loose. There is not an excuse for that. If that happens inside the panel or worse if someone is working in there – even though
its supposed to be dead – and you bump it and it comes out, you have [a] live…
[wire and] it can do a lot of damage… There is no excuse for a crimp coming
loose... [But] that is good for us [because it gives us more work]… so now they
[the contractor] can bill them [the vendor] for time and material… It’s a good way
to make money. The more screwups we fix the better. It gets me away from doing
scheduled work but they [the contractor] are happy.

Therefore, electricians have found a home in their traditional quality and time niche in
the new system. This avenue of craftwork allows contractors to bid jobs to the customers
at a lower rate, while ensuring profit for the contractor and high wages for the workers by
troubleshooting and fixing vendor mistakes. However, this is not a long term strategy.
Eventually the vendors will improve the quality of their design or fix the mistakes
themselves so that they do not need to pay electricians to debug the machines.

Complimenting this high-quality, high-skill debugging, the JATC is attempting to
upskill the electrical workforce. Local 58 offers a variety of continuing education
opportunities for their members. These classes involve refresher courses in the traditional
skill set (i.e. electrical code updates, conduit bending, etc.) and courses outside the
traditional skills: instrumentation (work traditionally controlled by the pipe fitters),
telecommunication, PLC programming, fire alarms, high voltage, etc. Training in new
areas not only offers an organized response to the new economic realities, but also an
individual response. As an organization, having access to a wider skill set allows
contractors to bid in more areas. As an individual, a wider skill set allows one to work on
more types of jobs, which makes them more marketable to their employers. Instead of
having to hire a new worker with a required skill set, an employer can send someone who is already on the payroll.

The effectiveness of the training in protecting workers is mixed. First, some of these training programs are more about certifying the workers than training them. For example, most of the electricians I had spoke with had worked on fire alarm systems before, however, now one can earn a fire alarm certification. The benefit of the special training is that if an electrician is waiting on the book and a call is put in for someone certified in fire alarm work, he may be able to skip ahead of those who do not have that certification, even though those ahead of him are capable of performing the work. The contractor benefits during the bidding process by being able to say a certified fire alarm installer will be performing the work. Nevertheless many electricians expressed the opinion that this training is more for show or about credentialism than real skill acquisition.

A second problem faced by this training is that in some areas the credentials are not enough. After completing instrumentation training many electricians attempted to find work in this area. However, “…[the] training was so quick that ‘yeah you can do it, but its not really what we are looking for. You didn’t spend a year in it, you spent a few weeks and took a test and passed’” (Peter). So while electricians had the credentials, they did not have the experience required to find employment. It should be noted that electricians continue to view instrumentation as a skill set that promises to help their situation.
A final problem with this training is that many of the fields that electricians can be trained in already have an established workforce. Some of the areas that electricians can be trained in are not even bid on by electrical contractors (i.e. PLC programming). In areas that electrical contractors do place bids, like telecommunications, electricians still have a hard time finding work. Workers attributed this to two reasons. First, since JIW do not practice these skills as often, they are rarely as efficient as the specially trained workers. Second, because the JIW wage rate is higher than the wages of most of these established workforces. Therefore, whenever a project is large enough to bring in a specialized worker, contractors usually do so. That being said, some electricians have been able to work in these new areas. In some situations, it is cheaper for the contractor to send an electrician that is already on their payroll to a small job instead of hiring a new employee. One of the respondents I spoke with has worked steady with the same employer for about a decade, using both his low voltage and regular voltage training throughout this career. When he first became employed by the contractor, the contractor had won a contract doing low voltage work. However, the person they hired to perform this work was no longer available. My respondent was then put on that job and has worked steady with the contractor ever since. His diverse training has allowed him to be more marketable to his employer. Nevertheless, this situation is the exception, not the rule.

Overall, most electricians view training as their most promising response to the post-Fordist economy. This is especially true for those electricians who experienced long periods of unemployment. This training made them more marketable to contractors and
allowed them to skip ahead on the book to go to work quicker. However, while this training has been successful for individuals, it is not the magic bullet for Local 58’s problems. Jobs in many of these areas, while growing, remain few and far between. Contractors are more likely to hire specific techs in these areas (like low voltage) who are billed at a lower hourly rate. Furthermore, unless the training is backed up with a large market presence in these areas, it will not take a large number of workers off the book; it will remain a matter of “timing and position” for individuals trained in these areas. This is especially true when we recognize that these new fields are not immune to the threats that have already affected traditional electrical work.

In sum, the post-Fordist manufacturing system combined with labor saving technology has significantly reduced the amount of work available to electricians and, in many cases, has deskilled this work. No longer does a line change mean months of skilled work for a large number of people. It is done in a fraction of the time, with a fraction of the people and a fraction of the skill. Electricians are installation workers, not construction workers. However, this has created new opportunities for union electricians. By embracing the quality aspect of their traditional niche, electricians troubleshoot and fix problems in the design of these new systems. This troubleshooting is craftwork. Furthermore, it is not the customer that pays for this craftwork, it is the vendors, so it does not affect the contractor’s ability to bid the job at the lowest price. So there is not the pressure to deskill this type of work. Combined with this, electricians are being trained in new areas like telecommunications and instrumentation. Nevertheless,
troubleshooting and training have not completely offset the deskilling of traditional
electrical work and have yet to offset the loss of man hours in the Local.

Degradation

Finally, the last process that Local 58 must contend with is the degradation which
eliminates many of the rewarding aspects of work. Some of the degradation is a
byproduct of policies that should have had a positive effect on workers. An example of
this unintentional degradation are the safety policies which have made the work safer.
Electricians often complained that the safety regulations made their work more difficult
and less comfortable. For instance, a customer’s safety policies may require electricians
to wear protective suits in order to work on hot (powered) equipment. These suits impede
fine motor skills which makes the work more difficult. Furthermore, the protective suits
often make the extreme temperatures that electricians work in unbearably uncomfortable.
In one instance, an electrician complained that even temporary relief from the
uncomfortable protective gear was not allowed.

There were some jobs we needed to wear full sleeved Kevlar, whether you were
touching hot electricity or not. You had to have it on at all times. Ear plugs, safety
goggles, hard hats… Even if you took your hat off for a second [makes motion of
scratching head and of her hat being uncomfortable]. “No, put that hat back on!”
Its just nonsense… You [can’t even] take glasses off to wipe your eye…”

(Clarissa)

Finally, electricians complained that the punishments for violating safety standards fell
on the workers. Similar to what Paap (2006) saw with carpenters, electricians are often
put in situations where they felt that safety regulations could not be followed due to either the physical space or time constraints. Nevertheless, it is their responsibility to follow the safety protocol.

You have to be tied when you are 6 feet off the ground. If you are working in a commercial building with suspended ceilings and you are on an 8 foot ladder you have to be tied off. Where are you supposed to tie off at? The people in charge of safety they don’t care. It’s your responsibility to tie off safely. If they see you on a ladder not tied off you are kicked off the job for one day, 3 days, a week. That’s why it’s a little too extreme in that respect. (Bruce)

Therefore, while it is the customers or contractors who place these workers within these structural constraints, it is the workers who are punished when safety is not adhered to. This was not the case in the past. Before, instead of hiring a PM the customer would hire a General Contractor (GC). The GC was in charge of coordinating the trades and providing a safe worksite (installing rails, making sure holes were covered, general cleanup). Now, the PM tells the trades to work it out themselves and gives them the responsibility for providing their own safety and clean up. These responsibilities continue downwards until they finally rest on the shoulders of the workers. While the new safety regulations and their enforcement have degraded some of the working conditions, their overall effect has been positive and more attention should be placed on the degrading policies motivated at cutting costs.

The pressures to lower the price of electrical work has resulted in several price reduction tactics that have degraded electrical work. These policies take three forms:
deteriorating working conditions, decreasing compensation for electricians and increased hiring of unskilled and semi-skilled workers. Deteriorating working conditions are the result of official changes like the removal of seniority protections and unofficial changes like speedups. The pressures to lower costs have forced contractors to bid jobs within tighter and tighter margins. These tighter margins make the contractors push their workers to work harder and faster. This quickened pace makes the work less enjoyable. Electricians feel that they must always be “running” (working as fast as possible) and cannot take the time to enjoy what they are doing. These speedups also inhibit electricians from adequately training apprentices and protecting older workers.

In the past, many workers were forced to continue working well past their prime due to the absence of a pension program\(^5\). Contractors and other electricians recognized it was their place to protect these workers, to make sure that they were being taken care of in their old age. Since the trade was practically closed off to all those except the family and friends network during this period, this obligation was probably the result of both worker and family solidarity. Many of the electricians that entered the trade during this period expected similar treatment in the twilight of their electrical careers. They wanted to be in the trailer, away from many of the extreme conditions and the physical demands of construction work. However, many of the periphery tasks that the older electricians used to perform have been eliminated through labor saving technologies. Additionally, since profit margins are tighter, contractors feel that they cannot afford to protect these

\(^5\) Even after the pension programs were implemented, older workers were present on the jobsite because the programs were started late in their careers. Therefore, they had not earned enough pension hours to retire until well after the work had taken the toll on their bodies.
workers while still paying them full JIW wages and usually give periphery tasks to the lower paid semi-skilled and unskilled workers.

A similar process has occurred with training apprentices. Jobs are bid with small time, price and worker buffers so electricians have a difficult time taking time to teach apprentices and allowing apprentices to make their own mistakes. When a journeyman teaches an apprentice, he is either completely taken away from the task he was assigned or he takes longer to complete that task. A “good” journeyman will not only show an apprentice how to do a task, but will also explain the reasoning behind it. Some journeymen, if given the chance, will allow the apprentice the find their own solution for a given problem and then walk them through what would work, what wouldn't and why. Finally, in an ideal situation, an apprentice will be given the chance to perform the task. It is expected that the first time an apprentice performs a task he will not only take longer than a JIW, but is very likely to make mistakes. These mistakes can be very costly to a contractor. For example, one length of rigid conduit costs more than an electrician's hourly wage (before benefits). Therefore, now that jobs are bid within tighter price, time and worker margins, apprentices do not get as much of a chance to practice the trade as they did in the past.

Not only do journeymen have a hard time finding the time to teach them, but contractors are less willing to bear the costs of their mistakes. This unwillingness to bear the cost of training is related to the lack of protection of older workers. In hopes to avoid the costs of pricely mistakes, contractors use older electricians to perform many of the skilled, often physically demanding, tasks instead of using apprentices and younger
electricians. So instead of being in the trailer performing more of the menial, less physically demanding tasks, older electricians are forced to continue to work in the extreme conditions performing physically demanding tasks up until the end of their career. The contractor's provision of an enjoyable jobsite, bearing the costs of training apprentices and the protection of older workers are not contractual agreements. Instead they are unofficial “gentleman's” agreements, much like the two 15 minute breaks that workers have. Changing these unofficial agreements are very detrimental to the conditions of the jobsite, not because they are the most degrading, but because there is little workers can do to prevent the change.

The second strategy to lower costs involves directly lowering pay rates. In the past, Local 58’s overtime rate was double time, with all weekend work considered overtime. This overtime rate is now time and a half – except for Sunday’s which remains double time. Furthermore, during the 70’s, Local 58 established a 7 hour work day (35 hour week). This was a short lived victory, which, along with the double time overtime rate, was given up during the concessions of the 80s. More recently, in the current contract negotiations, Local 58 members agreed to a pay cut in their general contract and have signed special contracts with some of their traditional customers (i.e. Ford and Chrysler) to work at 90% of their current rate. Lowering the per hour price is not popular in the union for obvious reasons. “No one likes to do the same job for less” as one contractor explains. These price reductions make the cyclical nature of electrical work more harmful. When workers are told to only expect 9 months of work a year, reduced wages make the other 3 months much harder.
The final strategy implemented by contractors and the union is to reduce the project’s costs without lowering the skilled pay rate. This is achieved by the reintroduction of helpers (unskilled workers) and the steady increases in the JIW to apprentice ratio. Apprentices and helpers are hired at a fraction of the cost of Journeymen, so this significantly reduces the price that jobs can be bid at.

A new form of this strategy is currently being negotiated in Local 58. The IO, Local 58 leadership and NECA have proposed the introduction of two new categories of workers which have been implemented in other IBEW locals: Construction Electrician (CE) and Construction Worker (CW). The CE classification will perform similar work to the JIW classification and the CW is the apprentice classification of the CE. By acquiring experience and skills, a CW can become a CE who in turn, once again based on experience and skills, can become a JIW. This path entirely avoids the apprenticeship program and takes at least twice as long to complete, with no guarantees about ever reaching the JIW status. Like the JIW/Apprentice ratio, there will also be a JIW/CE/CW ratio. Finally, these proposed regulations allow a JIW to work as a CE. Those who work in these classifications will receive a fraction of wages and benefits of their JIW/apprentice counterparts.

The workers that I spoke with almost unanimously rejected this proposal and view it as a step in the wrong direction for the union. This rejection culminated in refusing to pass any contract that included the CE/CW proposal. The CE/CW proposals have taken several forms, but each form has been rejected by the general membership. In their original form the CE classification did not require the worker to possess an electrical
license. Electricians objected claiming that the local had been instrumental in passing legislation requiring electricians to obtain licenses, so why should they initiate a policy that avoids this? Therefore, in the next form the CE was required to obtain an electrical license. Adding this licensure policy created another rift. Electricians opposed the idea of having two wage rates for equally skilled workers who perform the same work.

The first guy will get journeyman’s wages, then the next few guys will get CE/CW than the 7th guy will be a JIW. That will be a disaster. You and me both have the same skills, but I was lucky enough to get the 7th spot, but am making $11 more than you. It’s the same thing that’s happening in the UAW plants. Its tough when you are doing the same job.

This shows that they fear that different pay rates for the same job will create a division in the workforce. This division is very likely, especially considering that the CE/CW classifications avoid the same apprentice socializing experience as the JIW.

JIW also oppose the CE/CW classification because they fear that they will be forced to work as CEs. Instead of hiring 20 JIW, a contractor can hire about 5 JIW and 15 CEs. So if JIW want to work, they will have to work as a CE; the choice between being unemployed or working as a CE is not a real choice. If Local 58 had near full employment this fear probably would not exist. However, with 2,000 unemployed JIW, the membership resists any endeavor to make fewer JIW needed on a jobsite.

The CE/CW issue has created a lot of internal strife in the union. This strife has led to many electricians calling into question the loyalty of both their local leadership and the IO. They view the IO as only a “dues collecting organization” that offers no real
benefits to them. As expressed by one electrician “our international is basically a dues collecting organization. They want a body count. They don’t care what you make, because you are going to pay your dues to them.” This perception was echoed by many of my respondents. These electricians often cited the fact that the IO attempted to universally implement the CE/CW classification. They gave an ultimatum to its locals: include the CE/CW classification in local contracts by Labor Day of 2010. This ultimatum was given to all locals, regardless of their current market share. So even locals with high market share (80-100%), were supposed to adopt this policy.

The membership of Local 58 (and some other locals) resisted these CE/CW proposals. They did not adhere to the IO’s ultimatum. As mentioned, the membership refused to pass any contract that included these classifications. But the CE/CW classification did not die with that refusal. The membership continues to fear that the local leadership will avoid a vote and force the classifications into existence. They feel that the local leadership will implement this policy in order to increase their political standing with the IO leadership. This perception was quite common. However, the leadership that I spoke to, while they supported the CE/CW classification, did so begrudgingly. They recognized that adopting these classifications meant the union was taking a step backwards, but they saw no other choice.

At the writing of this paper, the CE/CW classifications have not yet been implemented in Local 58. While the IO, NECA and the local leadership continue to push for these classifications to be added, an opposition movement has sprung up and found support within Local 58 and in other locals. The opposition movement engaged a protest
against the CE/CW classifications during the 2010 Labor Day parade and has acquired a website which was once affiliated with the local leadership, to track and oppose the CE/CW proposals. Finally, this opposition movement also acquired a strategy proposal by NECA, published in 2004, outlining their plan to push for the CE/CW classifications which they circulated around jobsites. This sparked even more outrage with the electricians, because they feel that the union leadership is looking out for the interests of NECA more so than their members.

While electricians oppose the implementation of these classifications and reject their union’s support of them, they understand the contractors support. Therefore, all hostility over the CE/CW classifications was aimed at the union leadership, not the contractors. Electricians realize that, due to the deskillling technology and the safety procedures that do not allow people to work on live wires, much of their work can be done by less trained individuals. Trained electricians only have to be called in to do the more technical work. This is the business model that non-union contractors engage in (Daneshgari 2004). Though electricians understand the financial rationale behind these practices, they reject the idea of this type of division of labor. This degraded jobsite organization decreases the number of true craft jobs available. If the goal is to decrease labor costs, several electricians expressed the willingness to take a pay cut instead of implementing the CE/CW program. “[Take] $5-6 an hour off the top of our checks. A lot of guys in public won’t like it, but privately will know its better [than the CE/CW].” This shows that many electricians are more worried about the degradation of the work
organization than their falling income. They see it as the job of the union to oppose such degradation, not push for it.

_Fighting Degradation_

Though the union has been a partner in some of the degradation of electrical work, they see this as a last resort. Union members are competing with an extremely degraded non-union workforce. Overall, non-union employers offer fewer benefits and already employ a fractured labor force by hiring one skilled electrician and a crew of semi-skilled or unskilled workers (Daneshgari 2004). Therefore, any degradation the union accepts is seen as a necessity for competing with a more degraded alternative. Nevertheless, other non-degrading strategies have been implemented in an effort to compete.

The first strategy has been to bring a union presence into the traditional non-union sectors of residential and small commercial. Capturing these markets is seen as a necessity for the union construction industry (Rabourn 2008). These construction markets often require fewer skills and lower quality work, so Local 58 cannot rely on their traditional niche to capture these markets. In the beginning, creating a presence was centered around union organizing both in their traditional markets and in the small commercial and residential markets. Throughout the mid-90’s and early 2000’s, Local 58 was one of the most successful I.B.E.W. organizing locals. The number of members and contractors increased significantly during this period. The strategy behind these organizing efforts was to unionize individual contracting companies and individual electricians in order to gain more control over the skilled workforce. However, this
organizing was not that effective in capturing small commercial and residential markets. Organizing efforts continue today, but at best they are considered a wash for Local 58. For each contractor they bring in, one of their established contractors goes out of business.

The union has moved beyond this traditional organizing and has attempted to compete in these areas based on price. This strategy involves two cost reduction programs. The first avoids degrading working conditions by using a targeting fund, paid into by the general membership, to subsidize work in these sectors. With the help of this fund, contractors are able to bid a small scale job at the “non-union” (lower) rate. The difference in this wage rate and Local 58’s wage rate is covered by this targeting fund. The second strategy has been to create a separate residential contract. In the past, all Local 58 electricians were paid the same rate, regardless of industry; electricians working on large industrial jobs were paid the same rate as those working on residential jobs. Now there is a new residential rate which has a wage and benefit package about 30% lower than the regular rate. Though this degrades work by reducing the wage, it is less degrading than other policies because it does not fractionalize the workforce inside that sector.

These two policies have not significantly increased Local 58’s presence in these markets. Though contractors have successfully bid jobs using these practices, the market increase has been negligible for several reasons. First, even at the lower wage rate of the residential agreement, there is a perception that Local 58 remains priced out of the market. One respondent argued that the package would probably have to be 50% lower
than the regular agreement to guarantee a larger market presence. Additionally, contractors are hesitant to bid this type of work due to inexperience in the market, smaller profit margins than the traditional union markets and electricians do not like working at this lower rate. Nevertheless, in 2009 there was some movement in this sector. With much of the large scale work disappearing, contractors are more likely to bid small scale work and, with fewer work opportunities, electricians are more likely to accept this lower wage. Not only is this residential rate comparable to the wage rate in many of the locals they could travel to, workers can avoid travel costs and stay in their own community by working at the residential rate. Nevertheless, union presence remains low in these markets.

Overall, with the cost reduction policies that have been implemented, Local 58 has begun to slowly regain market control in lost sectors. However, the economy has slowed the progress that the leadership had hoped to make. Partially due to these failures to regain a significant market share, some electricians adopted a defeatist attitude in regards to moving outside of their traditional niche and competing on price. At one union meeting one member exclaimed “if you want to compete with the non-union based on price then you should lower our rate to minimum wage, no benefits.”

The second strategy to fight degradation involves attempting to capture developing markets like Green Energy and the Michigan movie industry. This strategy implements traditional retraining programs by the union and non-traditional business development. In order to build relationships in these developing markets, Local 58 and
NECA have engaged in a joint venture and hired a Director of Business Development.

This marked the beginning of a new model in construction. In the past construction went out to bid and we [contractors and workers] react to it. In a down economy there is less opportunity to do that. So their [new] model was to have a more traditional sales model where they would actually go out and develop business and bring it into kind of that funnel so that it could be bid on. (Lydia, Director of Business Development)

Like with the post-Fordist supplier/producer relationship, business development agents work with potential customers in new and old markets in an effort to superserve them.

Renewable energy and the electric vehicle infrastructure markets have been at the forefront of these business development ventures. The hope is to become an active partner in these industries early on, to “make sure that all these new players know us [NECA and IBEW]” and know that these electricians are experts in the area. These relationships extend to all actors in the new market. Lydia describes the complexity of the electric car partnerships:

The Michigan Public Service Commission has a plug in electric vehicle task force. They started meeting at the beginning of this year. It’s made up of auto makers, utility companies, charging station manufacturers and other stake holders. We attend those meetings, help educate that body so that they make good policy decisions that don’t hurt us from competing in that area. We also help them with, in terms of, right now we are reaching out to the electrical inspector community. At the same time – that is kind of the policy track – at the same time I am meeting
with all the individual auto makers, all the individual charging station
manufacturers and I’m trying to get their business simply. I am saying here is our
group of contractors in North America. Here is our group in South Eastern
Michigan. We want to do your installation. What do we need to do to do that? We
were successful in capturing some of General Motors business… [We also] do
pieces of.. [the] installation [for several charging station manufacturers]… At the
same time we are positioning for [public] policy and educating, we are also
meeting with all these individual people that are also at that table trying to capture
that business…

She explains that:

Not everybody can do the work we do. This is a brand new industry and they need
the expertise and the experience that our people have with all types of
installations and they just need to apply it to that industry. But again, if they don’t
know about us and we are not kind of there at the table with them from the
beginning, and we have been for 6 months and they consider us a resource, it just
builds value and makes sure we can capture that work…

By engaging in these relationships, Local 58 has dramatically changed their market
position. They are no longer passive builders on projects. Instead, they have become
active members, helping to create and shape the nature of work.

This business development is relatively new. Therefore, we cannot say how
successful these strategies will be, but there has been some progress. In a joint venture
with Local 17, several Local 58 members worked on a wind turbine project. Furthermore,
several members have been trained and worked in the Michigan movie industry.

However, it is recognized that these new markets will not be the giant windfalls that large industrial projects used to be. Nevertheless, some work is better than no work. Future success in these markets will depend on these new relationships, the economy and government policies that encourage these markets’ development.

If the Local successfully gains a foothold in these markets early on, they should be able to create non-degraded standards of work. However, even if degradation can be avoided, deskilling cannot. Deskilling labor saving technology was used on the windmill project, so much so that, like cable tray, the construction was compared to an “erector set.” Therefore, capturing these new markets may only mean a new route to a paycheck for many electricians, not a new route to engage in their craft.
CONCLUSION

In contrast to the view that the knowledge work is the only viable route in our post-Fordist society, my analysis shows that craftwork has continued to be a steady feature across the American economic landscape. Craft work benefits from being a combination of cognitive and physical tasks. This combination allows them to demand high wages without fear of their work being exported. This paper attempted to fill in a gap in current research and explored how the processes of redundancy, deskilling and degradation have affected craftwork. Most importantly, this paper shows the agency that workers have in protecting the rewarding nature of their labor. Craftsmen do not passively accept the realities of deskilling, degradation and redundancy, but rather engage in training, unionizing their competition, subsidizing wages, and new business development strategies. These have not eliminated the threats of deskilling, degradation and redundancy, but they have softened the blow of these processes. These responses to the new economy speak to the power that organized labor continues to possess in our economic system. Labor’s power is not limited to their political mobilization nor the power of the strike. This research suggests that organized labor should look towards non-traditional means to regain their lost power in the new economy.

This study is limited in several ways. First, my data do not explain how non-electrical craftsmen experience the post-Fordist economy. Second, the research was
conducted in a strong union area, so does not speak to work outside of union strongholds where many recent jobs have been created. Finally, this study does not explain how widespread these detrimental processes or responses are nationwide, especially in non-construction craftwork.

Nevertheless, this research does begin to show the challenges that craftsmen face in the new economy. The primary question that this research brings to light is not whether craft workers are needed, but how many are needed. Local 58 is struggling to find a way to sustain a large labor force in light of a down economy, labor saving technology and degrading conditions, but the long term effectiveness of their responses are yet to be seen. As fewer craftsmen are needed in traditional markets, craftsmen must find a way to break into new markets, especially emerging markets that require substantial infrastructure like Green Energy. But whether craftsmen can control these markets while avoiding the processes deskillng and degradation has yet to be determined. The success of craftsmen relies on their ability to create new relationships in these markets, government policies that support these markets, an upswing in the national economy to help finance these markets and their continued creativity in responding to the challenges they face.
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APPENDIX: The “Book”

When members find themselves out of work they go to the local hall and sign the book, which denotes their availability to contractors who are seeking to hire more electricians. Contractors will put in a request to the hall for however many electricians they need for their job with an estimated length of the job. These job calls can be either short term (short calls) or long term. A short call means that the contractor needs workers for less than two weeks. A worker can take this call and maintain his position on the book. In contrast, a long call is any job that requires more than two weeks worth of work. If a worker works for more than two weeks, once he is laid off he goes to the end of the book. Electricians are offered these jobs in the order they have signed the book (so the person on the book the longest goes first). While waiting for their turn to be recalled, electricians have the option to travel and work in other locals. Some of the electricians I spoke with regularly travel and are happy to do so. As Lucas, who has been in the trade for almost 20 years, explains: “At one time I said if I could come home and work two months a year, you guys can have the other ten. Because I would be going around to all these places that you think you will go to when you retire, but you will never go to.” However, other electricians, especially those with families, were less willing to travel during bouts of unemployment.
The union’s management of this book benefits both electricians and contractors. By centralizing the hiring process, electricians avoid having to apply to new employers each time they are laid off. Layoffs occur frequently in a cyclical industry like construction, especially when no seniority protections exist. Additionally, by going back to work in the order they were laid off, electricians share the burden of experiencing unemployment. However, this burden is not always shared equally. Contractors reserve the right to decline any recalled worker. Therefore, even when it is an electrician’s turn to go back to work, the contractor may refuse to hire him. When this happens, the worker is placed back on the front of the list. A contractor can also lay off workers at any time. If the electrician has worked a day over two weeks, he must sign the end of the book. So even though a worker may have picked up a 6 month call, he may only work 11 days and become unemployed once again. Finally, this “shared” burden is often avoided by core workers whose employers recall them out of turn (through the last two methods discussed). Contractors are benefited by this system by being able to lay off core workers for short periods of time with the knowledge they can recall them once they are needed and by having access to an ample skilled labor supply beyond the ranks for their core workers.