

## **THE TRANSITION OF EMPLOYMENT PRACTICE TO IMPROVE LABOR PRODUCTIVITY: CLINTON COUNTY, NEW YORK**

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**ABSTRACT:** *Employer strategies differ significantly in a liberal market economy, like the United States, from a coordinated economy, like Germany and Japan. The outcomes are reflected in employer-employee relationships, turnover costs, recruitment and training approaches, workplace satisfaction, and job security. To explore the impacts of these challenging issues on labor productivity, especially in a rural region, we select Clinton County, New York, as our case study. Both employers and employees in the region are sampled and interviewed, focusing on their first-hand experience on day-to-day challenges and their understanding of alternative employment strategies. Organizations such as workforce and education institutions are interviewed to gain more in-depth insights on supporting programs for labor development. Potential solutions are proposed for transforming the region's employment practice to achieve more long-term and sustainable employer-employee relations, better work ethics and workplace environment, to improve overall labor productivity. Practical and policy recommendations are urged to facilitate such transitions.*

**Keywords:** *labor productivity, coordinated market economy, rural employment, long-term employment relationship.*

### **INTRODUCTION**

The relationship between an employer and their employees can have a significant impact on the productivity of an organization. Previous research has shown that the extent to which employees feel valued within their organization greatly influences their “buy-in”, thus affecting how efficiently they work. Likewise, strong social relationships between the employers and the employees have been shown to result in improved workplace satisfaction, quality of life, and decreases in employee turnover. However, the predominant employment practice found in the United States does not prioritize a long-term employment relationship, which lowers overall productivity and causes both financial and social capital loss to businesses and the communities they reside in. This strain found between employer and employee is particularly challenging for rural communities, where (as compared to large urban areas) unemployment is frequently high and formal education levels are low. To identify the primary employment challenges that firms face in the US context, we focus on Clinton County, which is a predominantly rural region in northern New York state. Based on statistics and semi-structured interviews with business managers and key informants, we identify some of the main challenges faced by manufacturing firms in this region, including extremely high employee turnover, lack of accessible transportation, and technical and personal skill gaps. Such issues can likely be attributed to the prevailing employment practices, calling for major transitions if we are to improve overall labor productivity and quality of life. We engage with the Coordinated Market Economy (CME) model in countries like Germany and Japan, to propose practical and policy recommendations for the challenges identified and improving labor productivity through education, coordination and regional policy incentives. The CME model emphasizes on fostering mutualistic relationships between employers and employees, and with the local community, offering skills training, enhanced benefits packages, and long-term career-building paths. We recognize the difficulties of transitioning to such a more sustainable employment practice in the United States context.

## LITERATURE REVIEW

Labor productivity is shaped by many forces in the workplace. The quality of both the physical and mental environment plays an important role. How the employers manage labor recruiting, training, and retainment form the overall framework and is largely defined by the political-economic structure the country takes.

### **Drivers of Labor Productivity**

Workforce or labor productivity is often referred to as the efficiency of production within an organization, or “a ratio between the output volume and the volume of inputs” (Krugman, 1994). It is one of the many determining factors of long-term organizational success. It can be measured across scales, ranging from the national, e.g. Gross Domestic Product per capita of a country, to the individual, e.g. employee productivity (Rutherford & Gertler, 2002). When focusing on individual and team productivity within manufacturing firms, Webber et al. (2017) consider that “Productivity is the preferred measure of firm-level efficiency and perceived to reflect resource use rates”. This micro-level approach to understanding labor productivity focuses more on firm-level analysis and allows for a deeper understanding of what drives success and failure in particular firms. In this study, we adopt this micro-level approach and add social dimensions, including work environment quality, soft skill proficiency, and organizational culture and values, to the definition of labor productivity, to investigate opportunities for improvement and to form policy recommendations.

Labor productivity is considered to be influenced by several factors, including workplace quality (Ajala, 2012; Leblebici, 2012), employee work habits such as “attitude and focus” (Webber, Elliot & Goussak, 2015), physical and mental health (Martinsson, et al., 2016; Lerner & Henke, 2008) and employee retention and turnover. Turnover, defined as the “quits and layoffs” of employees from a firm (Bloch, 1979), has a costly impact on productivity, with firms spending an average of \$15,000 replacing a mid-level salary employee, which comes out to roughly 33% of the employee's annual wages (Work Institute, 2017). Organizational productivity has been observed to correlate highly with turnover rate (Oginni & Omoyele, 2018). In addition to replacement costs, turnover leads to further challenges such as workplace safety concerns and moral damage (O’Connell & Kung, 2007; Nelson & McCann, 2010). Organizational performance seems to decrease with higher turnover (Hancock et al., 2013). While some amount of turnover is unavoidable and can be beneficial for a company, too much of it can be challenging.

Skills gap between the available workforce and technical job requirements, especially in the manufacturing settings, is frequently cited as a major challenge to labor productivity, with many researchers suggesting that there is a direct relationship between the level of vocational training within a workforce and their resulting productivity (Budría & Telhado-Pereira, 2009; Dearden et al., 2006; Sala & Silva, 2013). However, recent research has begun to challenge this line of thinking. Weaver & Osterman (2017) contend that in the majority of manufacturing examples, the aforementioned “skills mismatch” is frequently overstated. While three-quarters of manufacturing plants in the United States do not show signs of hiring difficulties, they estimate an upper bound of 16-25% of manufacturing establishments to have potential skill gaps (Weaver & Osterman, 2017: p. 302). Likewise, Capelli (2014) is critical of US employers shifting the onus for training upon the public sector, and suggests that this ignores firm’s own abilities for meeting their needs through higher wages, training and more. The conflicting evidence shown by these claims suggests a need for further investigation into the realities of skills mismatch in the United States manufacturing sector, particularly across different geographic contexts.

With the vocational training argument being contested, it is important to explore other potential drivers of employee retention and turnover. Research suggests that these drivers can range from micro-level challenges, such as low wages or insufficient benefit packages, transportation challenges, low perceived work appreciation (Lewis, 2015), organizational policy and personal factors (Oginni & Omoyele, 2018) to systemic, macro-level challenges on the national scale such as differences in labor market structures (See Croucher et al., 2012).

### **Differences in political-economic models**

A political-economic approach helps to understand the drivers of labor productivity by dissecting the economic model through the lens of governance framework, regulating measures, and education systems. An example of such an approach builds upon the varieties of Capitalism (Hall and Soskice, 2001). Two “ideal” types of market economies can be distinguished: Liberal Market Economy (LME) and Coordinated Market Economy (CME). This approach places firms at the center of analysis for achieving competitiveness and comparative advantages. Both LME and CME have the free market as the underlying coordinating principle. Based on the coordination between firms and other economic agents, analysis concerns: 1) industrial relations or employment relations, which deals with contracts, bargaining, and work environment; 2) vocational training and education, where both firms and workers invest in resources to improve specific skills; 3) corporate governance, regarding the firms and investors; 4) inter-firm

relationships, between the firms and their suppliers, clients and competitors; and 5) employee relationships (Hall and Soskice, 2001). While there are some valid criticisms to the varieties of capitalism approach (See for example Peck & Theodore, 2007; Crouch et al., 2009), the analysis of varieties of capitalism is not the focus of this study.

In an LME, firms rely primarily on market forces for operations, coordination, and problem-solving. This is typical for Anglo-Saxon economies such as the United Kingdom, United States, and Australia. There is limited government intervention. But in a CME, firms are also subjected to regulations via non-market mechanisms, such as collective contract negotiation and more strict state regulations. Examples are continental Europe and Scandinavian countries such as Germany and Sweden, and Japan (Amberg, 2008; Colvin, 2006; Molina & Rhodes, 2008). Besides different ways of coordinating relationships, the systems of education and training are an inseparable part of the market economies. One type of education builds on general education and emphasizes the importance of tertiary education to achieve personal success and social mobility. Such systems are typical for LME, which produces a highly flexible labor force, but disadvantages people who are not academically inclined. On the other hand, CME relies more on an education system that includes strong vocational training and provides people who are not strong in academics with a more viable economic future. It also produces a lower number of people in its labor force with tertiary degrees (Sala & Silva, 2013). However, it is also recognized that the competitive advantages a firm achieves highly relate to its ability of research and development (R&D), which demands a strong labor force with high educational levels. While the United States boasts a rigorous innovative power over many other countries benefiting from a strong tertiary education system, the CME model tries to strike a balance between higher-end and lower-end labor by emphasizing the general education up to 18 years of age with choices of regular or vocational colleges afterward. It's still up for debate what is considered a good balance and how to achieve so.

## METHODS

While the main purpose of this study is not to contribute to the debate of which model is better, we build our analysis upon the key components of these models to understand what factors influence labor productivity significantly. Figure 1 shows our analytical framework, adapted from (Ruch, 1994). Task capacity evolves as the industry and technology advances, and varies by companies. Uncontrollable interference is included to capture any unexpected intervening circumstances. Our analysis and derived policy recommendations are focused on the improvement of individual capacity and individual efforts. We add affordability of personal resources and sense of security to our analysis as we discover their importance during our study. Besides personal abilities and continuous knowledge and skills improvement, the employees' ability to afford necessary personal resources has a significant impact on their productivity. Examples of such personal resources include a stable living environment, private cars or other transportation options, and affordable childcare. They affect the ability of the workers to show up at their workplace and focus on their daily tasks. The sense of security shapes a worker's stress level, and can be improved if their employer provides better healthcare and benefit packages or if there are other resources available to help them deal with uncontrollable interferences. Therefore, in this study, labor productivity is measured by not only economic gains (such as GDP per hour worked) but also social welfare and psychological wellness.

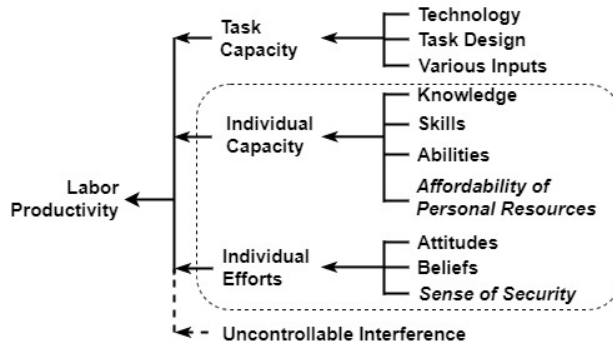


Figure 1. Conceptual framework for labor productivity. Adapted from Ruch, 1994.

Focusing on Clinton County, NY, both first-hand and second-hand data are obtained and processed. Census and statistical data were compiled to provide a fundamental understanding of the population density, educational composition, economic output and labor force in the county. We also summarize the available educational resources, both academic and vocational. To better understand the relationships between workers and their employers, we conduct semi-structured key informant interviews on a small sample of workers and administrators from several representative manufacturing companies, including the region's largest employers. These interviews include businesses (N=3), vocational training programs (N=2), and business and workforce development organizations (N=2). This variety of key informants allowed us to gain a diverse understanding of the unique challenges and advantages that exist within Clinton County from multiple perspectives, as well as how some organizations (such as the vocational training programs) are seeking to address these challenges head-on. To complement the small sample size, we reach out to local industrial leaders and workforce experts through snowball sampling to gain their insights. For existing conditions and challenges, we focus on pre-college age workforce training. But recommendations for future improvements include all regional educational institutions of all levels.

The questions are guided by three thematic sections: the interviewees relationship to the company, the current state of the interviewee's operation (including their perceived challenges), and the strategies they have tried to address any of the challenges. In the third section of the interview, we allow for an open dialogue about any potential solutions, and any actual and anticipated challenges in the implementation.

Interviews are transcribed and analyzed for meaningful patterns using a deductive coding framework. This process identifies common themes and patterns throughout the interviews to inform our conclusions. All individuals, companies, and organizations remain anonymous. The respondents are classified by their organization type, which we categorized as workforce development organizations, manufacturing companies, or vocational or educational training programs. These are coded as W#, M#, or V#. M1, M2, and M3 are all branches of large international manufacturing companies. The numbers of full-time employees are 130, 300, 30 respectively. The workforce development organizations (W1, W2) work in tandem with each other, and directly with dozens of large-scale manufacturers in the region. The vocational training programs (V1, V2) provide varied levels of soft and hard skills training. V1 works with an average of 400 middle school participants on an annual basis, while V2 works with over 100 young adult trainees in manufacturing fields such as welding, construction and digital design. V2 also has industry connections with over 250 regional businesses.

## **THE CASE: CLINTON COUNTY, NY**

Clinton County is a rural region centered around a small urban area, the city of Plattsburgh, which features a labor force with relatively low education levels. It has suffered from the closure of the air force base in 1995 as a major employer. As the largest and most productive county in the North Country Region, Clinton County has an estimated population of 80,695 in 2018. The median household income was \$52,759 between 2013-2017 and an average of 13.2 % of the population lived in poverty (U.S. Census Bureau, 2019). The median household income was \$52,759, below the New York State median of \$62,765, but about the same as the surrounding Hamilton, Franklin, and Essex counties (\$55,587, \$50,733, and 55,294 respectively). Unemployment was 5%, just a little higher than the New York State average of 4.7%, while Essex and Franklin Counties are at 4.9% and 5.4%. The average poverty rate among the four counties is 14.6%, which is below the NYS average of 15.1% (U.S. Census Bureau, 2019).

According to fDi magazine, a publication of the London Financial Times, the city of Plattsburgh in Clinton County ranks as the second best "micro-city", which covers municipalities with populations under 100,000 in the United States, measured by population forecasts, gross domestic product, total inward and outward foreign direct investment, infrastructure investments, strategies and tools for foreign direct investment, among other factors. Plattsburgh scores high in all categories (Mullen, 2015). Plattsburgh was also recently rated number 8 in the country for corporate facility investment by Site Selection Magazine (Heath, 2015).

With over 8,000 people regionally employed in manufacturing jobs, manufacturing effectively holds the county's economy together (Collins & Douglas, 2015). The industrial sector represents up to 6% of total employment in the North Country Region (Collins & Douglas, 2015). Wages vary by types of manufacturing, ranging from \$26,853 for furniture manufacturing to \$60,037 for chemical manufacturing in 2019 (TDCNNY, 2019). Clinton County is primarily a secondary manufacturing region for products such as equipment and parts for buses, cars, and trains. The respondents interviewed in this study are working primarily in transportation equipment manufacturing, where the average salary is \$53,667 and employs an average of 887 people in Clinton County annually (TDCNNY, 2019).

Figure 2 highlights our study area with land uses and population distribution. Some of the large employers, including our survey samples, are concentrated in and around the City and Town of Plattsburgh, with a few in the Moores and Altona area in the north. Many of their workers live in nearby towns and villages, with very low population density and long travel distances in general. In the absence of extensive regional public transportation, a personal vehicle is necessary for their commuting trips.

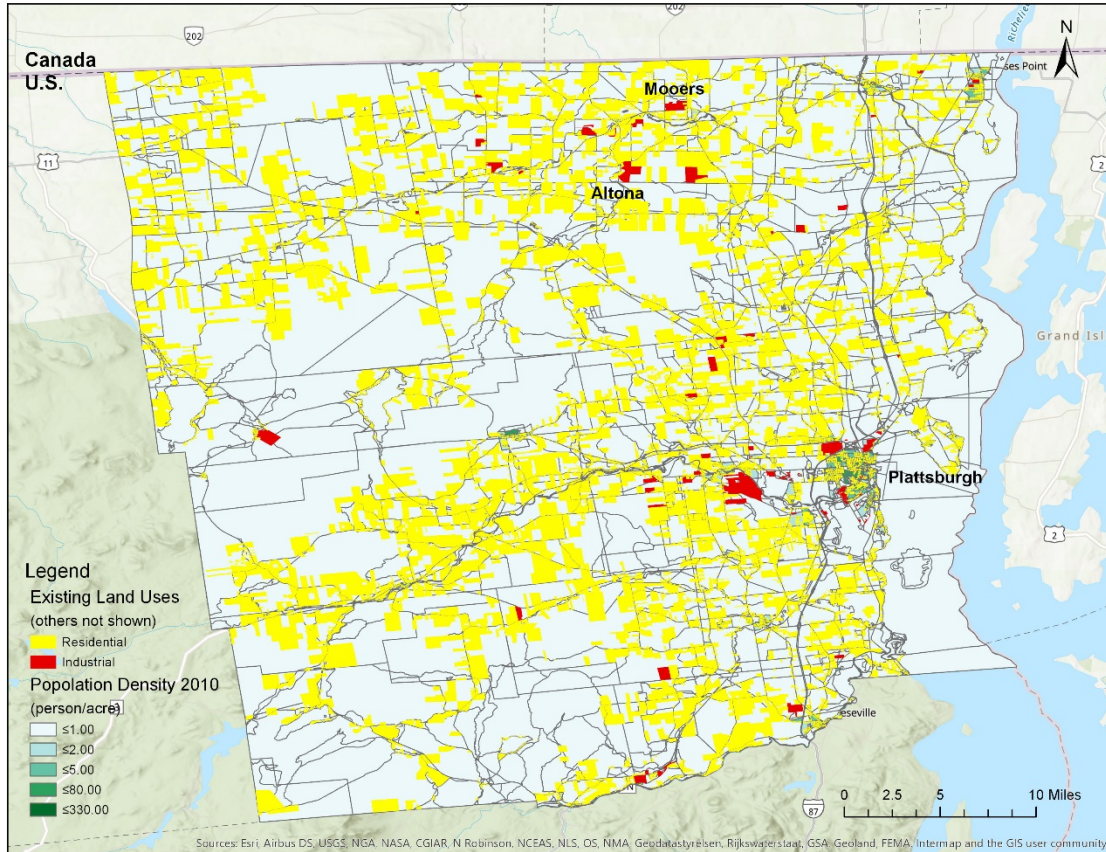


Figure 2. Current residential and industrial land uses, and population density in 2010, Clinton County, NY. Data source: Clinton County Planning Department, NY.

## KEY FINDINGS

We identify several major challenges faced by the manufacturing companies in Clinton County, including employee retention, transportation to/from work, and skills gap. This skills gap is in both technical (hard) skills and professional (soft) skills.

### Employee Retention

Employee retention can be a massive and expensive issue for manufacturing companies. In terms of recruitment, there is no singular hiring channel in Clinton County. Both employers and employees take various routes among local newspapers, internet websites, private hiring agencies, and government agencies, which mount to higher costs compared with a consolidated resource portal scenario.

Employers have to go through the costly and time-intensive process of replacing lost employees, which directly impacts their financial balance. This is particularly costly in manufacturing, where assembly skills often require training processes. Frequent losses of employees directly correlate with a loss of time and efficiency. High levels of employee turnover challenge labor productivity considerably, as many of our respondents have recognized and are keen on addressing. A respondent from M1 states that in 2017 between 12-15% of their total employees had

to be replaced. On average, regional manufacturing firms experience a turnover of 198 jobs (Jobs Gained+Jobs Lost) per quarter (U.S. Census Bureau, 2019). While perhaps not seeming to be an overtly high number, when considering the relatively small size of the Clinton County community, this rate of turnover can have considerable impacts on both the community and the firms. In fact, the turnover rate in Clinton County is higher than the state-wide averages, with the average quarterly turnover rate between 2016 and 2019 being .065%. This is comparable with New York State as a whole, which has an average quarterly turnover rate of .059% (U.S. Census Bureau, 2019).

### **The Perceived Transportation Challenge**

Transportation challenges have been long discussed in the context of employment in Clinton County, considering its vast rural territory, lower-income profile, harsh winter climate, and very limited public transportation service. However, we receive conflicting responses from the interviews, ranging from never hearing about it being a huge challenge to worrying about it as a constant concern. Such divergence is expected with small samples like ours. However, respondents from W1 and W2 have worked with hundreds of companies in the region with thousands of employees and have observed the patterns and needs of a much more expansive assistance for commuting trips. They believe that transportation is a significant issue, with many families owning one car at most and having conflicts getting to work. The situation could get more challenging if combined with automotive mechanical failures and additional trips to childcare, schools, and medical services. Due to the distance that employees need to travel, and the lack of efficient public transportation, these transportation issues will likely persist if not directly addressed.

### **Skills Gaps**

The most significant issue about the Clinton County labor force that arises from our interviews seems to be a skills gap, including both “hard” technical skills and “soft” professional skills. According to a manager from a manufacturing firm (M3), “The region is not lacking in jobs. The real challenge is finding people who have skills/potential, people who want to work; and who will routinely show up for work.”

We began this study anticipating a hard skills gap, considering the educational levels in the region and the demanding technical skills required for advanced manufacturing. The findings show large variations in required positional skill levels across the region. An interviewee from W1 thinks that most jobs in the region require medium to high skill levels, while a respondent from W2 claims relatively low skill level requirements. This discrepancy may have been simply caused by the differences in their professional realms. W2 mainly deals with manufacturing jobs while W1 works with the entire regional workforce.

Technological advancement presents a separate challenge. A respondent from W1 observes that the most pressing issue is to fill the continuously widening skills gap caused by technological advancements. As technology evolves, the workers also need to advance their skills to remain qualified. An employee from the same organization corroborates this observation. They believe that skilled labor is in high demand and that companies are having difficulties finding qualified workers for these positions. For example, M3 has long been troubled by machine repair turnaround time, and has started the process of establishing a new repair depot in the region to facilitate timely repairs. But they are having trouble finding people qualified to work with the complexity of the machines.

The issue of soft skills quickly becomes the focus of our discussion during the interviews, which include personal abilities to interact effectively and harmoniously with other people and maintain a reasonable level of responsibility and productivity at the workplace. Respondents from W1, W2, M1, M3, and V1 all claim to be highly concerned with this challenge, but have had little luck in addressing. In more details, they are concerned with issues such as wanting to come to work, punctuality, shaking hands, teamwork abilities, effective communication, and simply behaving professionally at the workplace. In industries that require intensive teamwork to assemble high precision products, these skills are invaluable. But such soft skills are very difficult to gauge during recruitment or to change in people once they are hired.

Some interviewees (W2, M1) believe that: 1) these issues started in the home and are generational, and 2) soft skill training is traditionally excluded from our school education. Home and school are regarded as the two most important sources of skills transfers in a person’s development. The interviewees express concerns that if the younger generation was not brought up by responsible influences, professionalism would be difficult to develop.

### **Proposed Solutions from the Interviews**

In addition to the challenges, our key informant interviews also explore potential solutions. For example, to improve employee retention rates, companies in the area often resort to continuous in-job training and promotion incentives. If an employee is willing to work hard, the company will be willing to train them to do any job within their facility. Such incentives allow for an employee to pursue an individualized promotion route that fits his, or her, skill sets. It also creates a stronger personal relationship with the company leading to a higher level of loyalty. Similarly,

one manager interviewee thinks that companies with an “enlightened management style” have a better chance at retaining employees, emphasizing trust building between employees and employers. An HR director interviewee expresses a similar opinion, attributing their company’s high employee retention rates to their willingness to pay top of the market salary and offer strong benefits packages.

There are many thoughtful ideas for addressing the skills gaps, some of which had already been put into work. For example, North Country Workforce Development Board (NCWDB) provides technical employee training funded by a mix of state, federal, and private funds. While effective, this process has been reported to be riddled with issues. First, there is a power disparity between the employees and the employers. Upon completing the training process, the employees are given some guarantees, the most significant of which is that they would not be fired for a set period. While such guarantees are excellent incentives for the employees to participate in these extra training, the employers view this system as flawed and unfair. The employers lack the same basic guarantee, as the employees with improved skills could simply leave after receiving their paid training. This risk renders some employers hesitant to invest time and money in training their employees.

Some companies implement punitive policies to address absenteeism. Such policies state that a lack of professionalism would lead to a swift termination. For example, after missing 3 days of work within 90 days, the employee would be placed on a probationary “Corrective Program”, in which continued misconduct would lead to termination. However, such punitive approaches are not always effective. One manager discloses that he has tried many types of policy changes to encourage the employees to show up to work on time, and has gotten to a point where he no longer believed policy changes would be effective. According to him, their high turnover rates are almost entirely from employee absences and company policy violations.

Alternatively, companies could try addressing the causes of absenteeism. One employee believes that the best way is through an “innovative management style”, which takes into consideration individualized needs that could affect labor productivity. Two particular challenging issues are pointed out, i.e. transportation and childcare. It is observed that many parents would rather go on unemployment than having to pay high childcare costs. If the employer were to integrate solutions for these two challenges in their company benefits, there could be increased commitment to coming to work. The reduced stress on the employee’s side could also result in a higher quality of work and a friendlier work environment.

Education is consistently pointed out as a long-term solution for closing the technical and soft skills gaps. This includes both school and home education, which should work together and reinforce each other. Students should have the opportunities to learn valuable workforce skills in their regular curriculum to prepare for the workforce. Such a program has already been implemented in some schools in Clinton County. One example is the “Project-Based Learning” (PBL), designed for 7th and 8th-graders. Students are divided into several groups of 7-12 children, and are tasked with designing a fictional company that would benefit the local community. Each student is assigned unique responsibilities and roles, such as CEO or architect. The results are presented at a school event, which consistently has a 98% caregiver turnout rate. Feedback confirms that PBL teaches children responsibility and work ethics at a young age. Students learn the importance of attendance and being responsible for a specific part of a project. Since the implementation of PBL, attendance rates have gone up and disciplinary actions down. Attributing this success to the PBL program, the educator interviewee wishes to see more regional schools implementing alternative learning programs similar to theirs.

Vocational schools in the region provide another solution to the technical skills gap, training high school-age students in job skills such as carpentry, welding, forestry, automotive mechanics, electricity, computer science, and design. Much like the Boards of Cooperative Educational Services (BOCES) programs offered throughout the country, they allow interested students to pursue non-academic career paths. Currently, there are limited choices of career paths and does not offer any courses on manufacturing-related skills. There is potential for these vocational schools to collaborate with local employers to develop curricula for training student’s specific skills needed by local companies and help foster long-term employer-employee relationships as seen in the German apprenticeship programs.

We also find that historically employers have a difficult time communicating with outside agencies about their workforce and training needs (Rutherford, 2006). The lack of awareness of regional training programs amongst the interviewees perhaps suggests this as well. Local policy makers should step in and explore options to facilitate knowledge and needs transfer between the private and public sectors.

## **DISCUSSION**

The challenges faced by the respondents in our research mirror those of hundreds of small manufacturing communities across the United States, including skills gaps, productivity losses, transportation challenges, and

employee turnover. We find that the technical “hard” skills issue, frequently discussed in the literature, is of less concern to the employers than the “soft” skills issue in Clinton County. Instead, social and workplace skills of many workers are found to be severely lacking. Lateness, absences, dress code violations, and general attitudes of apathy plague many of these businesses, leading to inefficient workplace practices. These challenges frequently result in the severance of employees, further affecting the overall productivity of the workplace.

Building on this concern, a high turnover rate seems to have become one of the main challenges companies have to face, forcing them to spend vast sums of time and money in the hiring and training processes. The causes of the soft skills gap are debated, but common suggestions are focused on social and cultural inadequacy that are creating less committed workers. Beyond that, a pervasive stigma against trade and “blue-collar” work is mentioned to be another barrier, which is found in many areas of the country.

To help combat these challenges, some potential solutions have been provided and implemented in the region, as we have summarized in the above sections. Therefore, we propose the following practical and policy recommendations, to help the region to improve labor productivity in the local manufacturing settings.

### **Practical Recommendations**

First, we recommend a collaborative regional attempt to create effective partnerships between companies and the local vocational, secondary, and post-secondary schools in a rural region like Clinton County. The North Carolina Triangle Apprenticeship Program (NCTAP) is an excellent example, which is an apprenticeship program designed to integrate basic training on technical, methodological, and social skills for students. The program lasts four years, starting in the 11th grade of high school. Classes are designed under different modules, leading to an Associate’s Degree in mechanical engineering technology or automotive systems technology at local schools and community colleges with paid, on-the-job training at participating employers. Such partnerships prove to be highly effective for both the business and the workers, where the business gains skilled employees with a proven track record of specialized experience, and the employee gains a variety of skills that can be tailored to fit the demands of the region and help to create a successful career.

In some cases, large-scale employers could reach out to education programs and initiate apprenticeship programs. This is particularly beneficial if the employers require very special skills and have a large demand for labor, such as the BMW Automobiles manufacturing plant in Spartanburg, SC. Adapted from the German apprenticeship model, this plant takes on over 100 apprentices at a time, to whom they offer part-time employment, a fully funded associate’s degree, and likely employment after the training period (PBS NewsHour, 2014). Such a program offers a viable alternative to the traditional academic route to a university education, while still providing viable career prospects and a living wage. It also helps generate warm relations between the employers and employees (Wittig, 2017). BMW’s commitment to this apprenticeship program provides a pertinent example of adapting the vocational training to in the context of the United States.

Second, firms should make efforts to shift the way they view their employees, away from traditional LME approaches of profit maximization, and toward a model that values employees’ personal and mental wellbeing. We understand that this shift would take a longer time to realize. One example of such a practice would be to allow for reduced hours in times of financial hardship and economic downturns, rather than outright lay-offs. Research shows that reduced work hours (or furloughs), shortened workweek, and reduced wages potentially allow companies to lower their operating costs without losing their trained workforce (Bacon et al., 2010; Hallock et al., 2011). Such initiatives also bring psychological benefits such as increased motivation by the workforce not fearing for a layoff, improved sense of security, and reduced feelings of betrayal. A longer-term benefit obviously is the quick recovery of full production capacity once economic conditions improve (Lightfoot, 2015). Studies on employees’ perception of fairness of reduced work hours return interesting results. If they were asked as a hypothetical question, the workers consider it less fair than layoffs without severance packages. But if furloughs were implemented before they were actually laid off, the workers report to view it as a fairer treatment. A plausible interpretation is that the employees assume that they were not a candidate for a layoff (Sucher & Winterberg, 2014). Therefore, complementary mechanisms should be applied to ensure the success of a reduced work hour scheme at an economically difficult time, such as government-sponsored training programs during their days off, and continuous provision of welfare benefits. Employers can also consider subsidizing transportation costs or creating shuttle systems to facilitate their employees’ commute and reduce transportation related challenges. If several large companies collaborate on a comprehensive shuttle service, it would cut down costs for each company and benefit smaller companies who wouldn’t be able to afford such service on their own.

It is worth pointing out the importance of government collaboration in the above recommendations, which is essential to the success of innovative workplace transformation. Also, government support of vocational programs has a long history in the United States, with federal funding for vocational training predating traditional educational



funding by nearly 40 years (Ainsworth and Roscigno, 2005). However, such vocational support has been met with mixed results, and in some cases may require a significant remodel to improve long-term workplace productivity.

### **Policy Recommendations**

We propose the following policy recommendations, to complement the above practical actions, to help improve regional labor productivity. Joint efforts are essential among all beneficiary parties. Governments at both the municipal and state levels could chime in and facilitate such collaboration through incentive public policies.

First, a steering committee should be formed that consists of educational administrators and industry representatives in the region. The main task is to continuously explore opportunities for collaboration, especially in terms of applications of academic work in marketable products, employment relationships, incentives for long-term cooperation, and beyond. The committee will also oversee the funding streams, emphasizing reinvesting in research and development. A key lesson learned from successful cases (such as the NCTAP) is to incorporate the collaboration into the existing (or to create new) curricula, leaving several clear career paths. This way, the joint effort will be tied into the students' professional future, improving the employment relationships and labor productivity while reinforcing the momentum of the collaboration.

Second, the state-level government should provide incentives to encourage or reward such collaborations. Examples are tax exemptions or returns, state-sponsored scholarships, matching seed funds, and preference when allocating resources. While the educational institutions and the industries are the key players, state incentives could set a friendly environment for a long-term partnership, and attract more firms and talents to the region. Such a scale of economies will reinforce the improvement of labor productivity in the region.

Third, firms should be educated about alternatives to their current employment strategies. Instead of a market-driven short-term employment approach, they could also consider what has been working well in the Coordinated Market Economies, such as apprenticeship programs, long-term contracts, flexible working hours, and supplemental training sessions.

Lastly, fostering an understanding and supportive local community will be very beneficial for a lasting education-industry collaboration. While the pressure for all students to obtain a bachelor's degree remains, public events exposing the residents and firms to plausible alternatives could potentially make a difference in their decision-making moments. Such events could be led by local workforce organizations and sponsored and supported by local businesses and industries. Examples of such events include guest speakers from successful education-industry collaboration cases, themed multi-day exhibitions of these cases, game design to facilitate the understanding of possible alternatives of labor practices, etc.

### **Limitations and Future Research**

There are a few notable limitations to our research. Foremost, the sample size of the key informant interviews is too small for any generalized conclusions. The main goal of this study is to begin understanding the labor productivity situation in Clinton County, and to jump start conversations about different labor models and practices which haven't been observed in this region. We attempt to compensate for this small sample size by selecting and interviewing experts who have been working with many manufacturing companies in supporting roles for decades. Their insights are outcomes of extensive communications and observations with both the employers and employees. Such limitation calls for further research in the future, expanding the sample to include more firms and workers in the region and similar socio-geographic regions.

Additionally, we find that contractual conflicts prevent us from discussing in detail with the employees directly. Their insights are critical for a more robust understanding of their day-to-day challenges in the workplace and what potential effective changes for labor productivity improvements are. Future research policy should better understand and incorporate their experiences and preferences.

With rapid shifts in technology and the potential for automation, the manufacturing sector is facing uncertain times. This leaves the study once again vulnerable, as high-skill jobs may become more competitive, and low-skill jobs may become automated in the near future. Future studies would ideally look into improving the ability of employers to communicate needs with vocational programs, and voicing concerns of technological advancement.

We also recognize the important roles played by trade unions in the German apprenticeships schemes, while the US is notable to exclude them from most public policy forums. Future research that includes interviews with some local unions will be essential for the successful transition of labor practices in the county.

## CONCLUSION

This preliminary study identifies the key challenges facing the manufacturing industry in Clinton County, NY. Through interviews of several key informants, we are able to develop an understanding of the labor productivity challenges of the regions, including skills gaps, productivity losses, transportation challenges, and employee turnover. Strategies for solving these challenges are explored through interviewees' best practical knowledge, literature reviews comparing LME and CME models, and best practices references. We conclude with both practical and policy recommendations that complement each other with joint efforts from local business, schools and educational institutions, workforce development organizations, and local and state governments. Further cultural transformations are also essential for successfully improving labor productivity, including educating the general public about alternative labor models and career routes, facilitating discussions and collaboration among businesses, local communities, and government agencies, and aiming for a long-term shift from the traditional LME labor model with adapted elements from the CME model. We recognize such a shift will likely be difficult and would require coordinated efforts from all the actors involved: government in providing financial and policy support, businesses in offering opportunities for collaboration and improved benefits and salaries, and workers, regarding what they demand from the workplaces in which they make their living. While it may never directly replicate the economies of Germany or Japan, Clinton County has an opportunity to learn from these alternative strategies and transit to an innovative employment model for similar regions across the country.

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