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Crawford Schneider April 9, 2018

Local Coordinated Market Outcomes in a National Liberal Market Economy: the Greenville Model

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Abstract

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In 2013, nearly 80% of the 25,000 students that graduated from Greenville Technical College were employed or continuing their education. The majority of those graduates obtained skills specifically directed at immediate entrance into the workforce. The county, previously known as the textile capitol of the world, has been able attract significant foreign direct investment in advanced manufacturing by promoting its highly skilled workforce. Greenville's institutional ecology, led by Greenville Technical College and the Greenville Workforce Development Board, provides industry-wide portable skills to under and unemployed workers in Greenville County, uncommon in a liberal market economies like the United States. As such, Greenville represents both a practical and empirical puzzle. It is not only a hybrid between classic liberal market economies and coordinated market economies within the varieties of capitalism literature but it also provides policy makers with an example of interconnected institutions effective in industry-wide skills provision.

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Section I: Introduction

In 2011, a Deloitte study revealed that 82% of US manufacturing companies were experiencing labor shortages in "middle-skill" jobs, which average an annual salary of $60,000, and require education beyond high school, but not a full four-year degree (Newman, 2016). The National Skills Coalition found in 2015 over 50% of jobs required "middle-skill", and the "middle-skill" profile is only becoming more valuable, with 48% of job projected openings between 2014 and 2023 requiring "middle-skill" abilities (United States' Forgotten Middle, 2015). Unfortunately, the labor market has been skewed by an insistence from educators and political leaders alike, that a four-year degree is the only path to long term financial security. Out of this societal expectation came a generation of students who collectively took on debilitating amounts of debt, only to graduate with college degrees that are of little practical use. According to the US Bureau of Labor Statistics, over 53% of recent college graduates are under or unemployed (Wyman, 2015). Even in the midst of a dramatic labor market shift, the United States has been unsuccessful in adjusting education to meet demand.

One interesting exception to the lack of "middle-skill" workforce development is occurring in the upstate of South Carolina, specifically, in Greenville County (Kanter, 2003). Greenville is home to 215 companies from 18 countries including Michelin and BMW. The robust foreign direct investment has resulted in an unemployment rate (3.4%) well below the national average and one of the highest median household income levels in the state (Greenville-Mauldin-Easley, SC Economy at a Glance, 2018).

The key factor in the success of Greenville County is workforce development, led by Greenville Technical College (GTC), rated by US News and World Report as one of the best technical colleges in the country (Kanter, 2003). Since 2003, GTC has graduated nearly 25,000

technically educated students and in 2013, 79.2% of graduates were employed in their field of study or continuing their education (Greenville Technical College Annual Accountability Report, 2013). Greenville's success merits public policy directed investigation.

In addition to its substantive importance, Greenville is significant for its potential to address debates on the various forms through which market economies train workers. Over the last twenty years, scholars of skill formation have begun to examine education through the lens of the varieties of capitalism (VoC) literature. Varieties of capitalism takes an institutionalist view of national economies. The theory is that national economies have financial systems, industrial relations traditions, and inter-firm collaboration practices that facilitate the provision of certain types of skills. The institutional structures fall into two types, coordinated market economies (CME) and liberal market economies (LME).

In coordinated market economies patient capital, union-based labor power, inter-firm cooperation, and strong industrial relations create institutional incentives for firms to invest in training systems that provide industry-wide portable skills. At the opposite end of the spectrum, in liberal market economies, profit dependent capital, management power, weak unions, and market-driven firm interaction, result in a *lack of* investment in industry-wide portable skills. Liberal market economies provide general skills to the entire population. Any additional industry or firm directed skill formation is accrued through private transactional investments. The very basic theory is that institutional structure influences firm behavior, and therefore, the United States, a classic liberal market economy, should not, and in most cases does not, provide portable industry-wide skills (Hall & Soskice, 2001).

Greenville is an outlier, or rather a puzzle. Firms in Greenville operate within the United States, a decidedly liberal market economy. That very fact should undermine Greenville's ability

to incentivize collaboration and investment in industry skill. But that is not the case. Rather, as I will demonstrate in this thesis, the provision of industry-wide portable skills is robust. Thus, Greenville is important not only to public policy officials intending to address the coming "middle skill" labor shortage but also for scholars, as it poses serious theoretical questions regarding institutional coherence.

This paper will attempt to address the following questions: Without traditional coordinated market economic institutions such as unions and industry associations, how has Greenville been able to develop a skill formation regime capable of training portable skills? What are the institutions that support Greenville Technical College in its provision of portable industry skills? And finally, do we observe institutional equivalence and/or complementarity within the Greenville institutional ecology?

I will argue that Greenville plays host to a traditionally incoherent set of institutions. Thus, I will argue it is a varieties of capitalism hybrid. My argument, based on Campbell and Pedersen's 2007 study of Denmark, is that Greenville County is not a pure LME nor is it a pure CME but rather a hybrid that has created a set of equivalent institutions to take the place of traditional CME essential organs. If, through my qualitative case study of Greenville, we find a new set of institutions that constitutes a workforce development regime that is efficient in the provision of industry-wide skills, we will provide support to the growing literature on hybrids (Campbell & Pedersen 2007; Crouch 2005; Hall & Gingerich 2009; Allen, 2004). Greenville could be a first of its kind case for a new set of complementary institutions, different than those of traditional liberal market economies, different than those of traditional coordinated market economies, and different than those of hybrids previously examined.

My examination will proceed as follows. In Section II, I will present the varieties of capitalism theory that informs my investigation. I will also describe my research method and design. In section III I will establish the presence of portable, industry-wide skills followed by Section IV where I will impose the traditional varieties of capitalism institutional structure onto Greenville and attempt to classify it within the accepted formulation of institutional coherence. Section V will present the institutional ecology that supports the provision of established skill outcomes. Section VI will present examples of institutional equivalence and complementarity within the ecology. And finally, I will give a brief overview of the Greenville workforce development system's origins in Section VII and conclude with a discussion of key points and limitations.

Section II: Theory and Methods

Subsection A: Origins of Varieties of Capitalism

The organization of capitalist societies has long been a central focus of comparative political economy. Theories of optimal economic organization have been the focus of constant ideological disagreements. In the second half of the twentieth century, researchers focused on the benefits of unimpeded markets, characterized by an absence of non-market coordinating institutions (Olson, 1982; Janoski & Hicks 1994) These scholars did not concern themselves with institutional pressures on firms. In the liberal economic tradition, firm preferences are exogenous to the institutional setting, so any interference would presumably distort the efficiency of the market (Allen, 2004). Scholars presumed that national economies, pressured by increased globalization, would be forced to converge on liberal market policies characterized by low regulation, labor market flexibility, and minimalistic tax structures (Friedman & Friedman 1979).

Unfortunately, for those who espouse the preeminence of unmitigated markets, scholars attempted, and failed, to prove the convergence theory. Neoclassical orthodoxies notwithstanding, "economies have to be understood as socially embedded clusters of institutions" (Coats, 2005). The idea that institutions could increase the likelihood of achieving economic success led to a diverse group studies examining coordinating institutions (Esping-Andersen 1990; Weir & Skocpol 1985). The intellectual gap, between those who favored greater institutional interference in national economies, and those who favored none at all, was bridged, in part, by Alexander Hicks and Lane Kenworthy's 1998 study *Cooperation and Political Economic Performance in Affluent Democratic Capitalism*. They argued "cooperative institutions offer a key to understanding cross-national variation among affluent capitalist democracies." (Hicks and Kenworthy 1998).

Hicks and Kenworthy, understanding the ability to compare economic outcomes based on classifications of underlying institutional structures, contributed to the foundation for the varieties of capitalism literature led by Peter Hall and David Soskice.

Subsection B: Assumptions Made By Varieties of Capitalism

Before we dive too deeply into the varieties of capitalism literature it is prudent to examine the theory's basic assumption: Institutions shape firm behavior.

> *Firms located within any political economy face a set of coordinating institutions whose character is not fully under their control. These institutions offer firms a particular set of opportunities; and companies can be expected to gravitate toward strategies that take advantage of these opportunities. In short, there are important respects in which strategy follows structure. For this reason, our approach predicts systematic differences in*

> *corporate strategy across nations, differences that parallel the overarching institutional structure of the political economy. (Hall and Soskice, 2001: 15).*

In short, varying sets of national economic institutions provide different opportunities to firms, which in turn, adjust their strategies, to reflect the institutional structure.

The unit of analysis for the varieties of capitalism literature is the firm. Scholars examine the interaction between firm behavior and external institutions (Remington, 2016). The quality of those relationships is often what determines firm success (Hall and Soskice, 2001). For example, interaction between firms and institutions facilitates credible commitments. This relationship reduces "the uncertainty actors have about the behavior of others and allows them to make credible commitments to each other" (Hall and Soskice, 2001: 10). With an understanding of the basic institutional theory underpinning varieties of capitalism we can now define the institutional differences between the two types of economic structures.

Subsection C: Pure Form Varieties of Capitalism

Per the varieties of capitalism literature, there is no one system that results in broad based socio-economic success. Rather, the literature defines two distinct organizational structures that can support a coherent and successful economy. On one end of the spectrum are liberal market economies (LME), like the United States and United Kingdom, and on the other are coordinated market economies (CME) such as Japan and Germany. Each type creates a level of institutional coherence, which scholars of varieties of capitalism tout as a prerequisite to strong economic growth.

Given institutional coherence leads to robust economic growth there should be a convergence at each end of the capitalist spectrum (Hall & Soskice, 2001). Developing

economies will inevitably gravitate toward coordinated or liberal market strategies in their purest forms. Inherent in that argument is the idea that institutionally mixed or hybrid economies are economically disadvantaged.

In liberal market economies firms coordinate their activities primarily through hierarchical relationships and competitive market arrangements. A market relationship, in this case, is defined as the exchange of goods and services through formal, arms-length contracting (Hall & Soskice 2001:8; Coats, 2005). Similarly, relations between firms and workers are transactional and individualistic. Investment risk and reward is privatized, both for individuals seeking new skills and firms investing in human capital. Under the liberal market scheme government's role in education is to provide general skills. Beyond that, citizens are responsible for acquiring any additional knowledge (Remington, 2016).

Conversely, coordinated market economies facilitate economic cooperation through non-market mechanisms (Campbell & Pederson 2007). Within these economies there is significant collaboration between government, business, and labor. Human capital is provided by joint investment not transactional bargaining (Hall & Soskice 2001:8; Coats, 2005; Hall and Gingerich, 2009). In short, economic decisions are driven by collaboration, not competition.

Subsection D: Complementary Institutions

An essential aspect of the varieties of capitalism theory is the presence of institutional complementarities. Institutions are complementary, "if the presence (or efficiency) of one increases the returns from (or efficiency of) the other," (Hall and Soskice 2001: 17). For example, where there are dense networks of business associations, the vocational training system is expected to operate at higher levels of efficiency. The idea of complementary institutions posits that countries with a particular type of institution in one sphere of the economy are likely

to develop complementary institutions elsewhere. Moreover, an effort to reform one institution within the economy should yield negative economic results if unaccompanied by parallel reforms in other spheres. In this section, we will examine four institutional differences between coordinated market economies and liberal market economies. The table below provides an overview. Pure forms of either remain consistent across all four institutions.

Table 1: Varieties of Capitalism Institutional Comparison

Varieties of Capitalism Comparison		
Institution	*Coordinated Market Economy*	*Liberal Market Economy*
Financial System	Long-term capital	Short-term capital
Industrial Relations	Cooperative	Transactional
Education and Training System	Industry-wide skill	General skill
Inter-Company Relations	Collaborative	Competative

Financial systems vary in the way capital is allocated. In coordinated market economies capital is allocated based on firm specific information obtained through coordinating institutions like industry associations. Investors evaluate the long-term health of a firm, not only short term profitability and share prices, providing firms an extended timetable to realize return on investment. Conversely, in liberal market economies, public information, like stock price and near term growth potential, is the most important factor in the allocation of capital. Generally, that serves as an incentive not to invest in skill formation because of the extended timetable for return on investment (Hall & Soskice, 2001).

Industrial Relations differ based on how much power labor wields within the firm structure. In coordinated market economies, there is a structural bias towards consensus building. The workforce is involved in firm level strategic decisions. This may lead to slower structural adjustments as firms are caught in negotiation; but labor has greater job security and generally receives more human capital investment. In liberal market economies relations between management and labor rely on market principals i.e. the relationship is fundamentally

transactional. Top management has significant control over the direction of the firm and retains the right to hire and fire at will (Hall & Soskice, 2001).

The *education and training systems* are separated by the role of government and the incentive structure for workers. In coordinated market economies, government, industry associations, and labor unions come together and share costs of providing portable industry-wide skills to workers (Culpepper, 2001). In liberal market economies, governments provide universal general skills and leave any additional skill formation to firms and individuals (Thelen, 2001).

Inter-firm relations in coordinated economies are not only encouraged but are facilitated through industry associations. In liberal market economies firms are generally competitive. The two structures provide different opportunities to firms. In CMEs, firms are pre-exposed to collaboration whereas LMEs firms, lacking any structural relationship building institutions, default to internal operations (Hall and Gingerich, 2009).

Each of these institutions presents incentives or disincentives for solving collective action problems, such as joint workforce development. The literature cites a few circumstances in which firms are more likely to invest in skills. Primarily, when labor mobility is low, firms are willing to invest in skill formation because there is limited risk of sunk investment. Furthermore, the majority of firms in an economy engaging in training constitutes an incentive for the remaining firms to set up training programs. But, it is important to remember that investment in industry wide skill, or lack thereof, in the varieties of capitalism formulation is a function of the institutional ecology surrounding a firm. In the next section we will examine a hybrid case and begin to view Greenville through the varieties of capitalism lens.

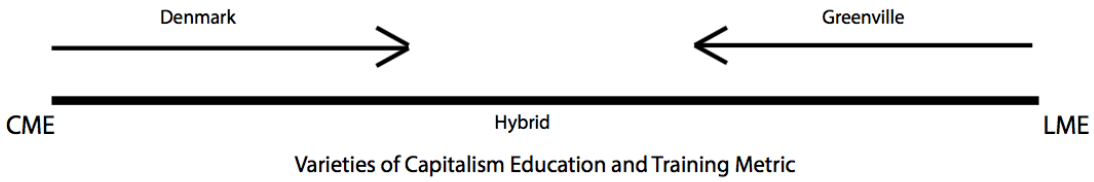
Subsection E: Hybrid Case

The argument, outlined in the previous subsections, that economies conform to one of the two varieties, has not gone unchallenged. While Hall and Soskice provide evidence to support their assertion, others have offered contradictory studies calling into question the supposed economic detriments of hybrids (Kenworthy, 2006).

Campbell and Pedersen in their 2007 study of Denmark provided one of the more convincing arguments against the institutional coherence theory. Prior to institutional reforms undertaken in the late 1980s and early 1990s, Denmark was classified as a pure CME. After the country experienced lackluster growth in the latter half of the 20th century they began to liberalize, "the Danes translated certain aspects of neoliberalism—the ideological cornerstone of many LME policies during the 1980s and 1990s—into traditional Danish CME practice," (Campbell & Pedersen, 2007: 324). Specifically, the country decentralized its industrial policy, increased flexibility in the labor market, and liberalized their vocational education system through, among other things, an infusion of competition. By only liberalizing three institutions Denmark purposefully meshed liberal market and coordinated market approaches. Blending CME and LME features produces institutional incoherence that should lead to an inefficient economic system. But, they found is that in the latter half of the 20th century, and the beginning of the 21st century, Denmark's economy performed as well as, if not better than, Sweden, Germany, and the United States, all three of which are considered institutionally coherent economies (Campbell and Pedersen, 2007: 314).

Not only does the Denmark case provide evidence against the economic necessity of institutional coherence, but it also exists as a complementary case to Greenville on the vocational education metric. Campbell and Pedersen examined the *liberalization* of the Danish vocational

training system, while my case addresses a *coordination* of the Greenville vocational training system. In this sense Greenville is a sister case to Denmark. During the reform period Denmark made three liberal market oriented adjustments to vocational training. Denmark decentralized curriculum development, increased competition between technical schools, and made vocational training available to the unemployed. These same institutions are present in the Greenville workforce development system, yet they were achieved through coordination, not liberalization. As such, we can see the two cases meeting in the proverbial middle[1], as the graphic below illustrates. Furthermore, both cases support similar policy and theoretical claims (Campbell and Pederson 2007:319).



The Danish case is an example of hybrid success. It proves that complementarity is more complex than the original varieties of capitalism formulation. My examination of Greenville will attempt to support the Campbell and Pedersen finding, by showing that efficient provision of industry-wide skills is possible in the absence of traditional complementary coordinated market institutions.

[1] Interestingly, given the collective action problems associated with collaboration, the movement from the liberal market side of the spectrum to the coordinated market side of the spectrum is less likely than the trajectory of Denmark, making the Greenville case even more intriguing and academically important (Martin 2005: 56).

Similar to Denmark, Greenville presents itself as a case where institutional coherence is low but growth is high[2]. However, unlike the Denmark study this case is not interested in overall economic growth but rather the efficient provision of skills. Given Greenville is a smaller governmental unit within the larger United States, several confounding variables complicate the process of assigning credit or blame for economic success or failure, to the perceived institutional incoherence of Greenville, or the demonstrated institutional coherence of the United States (Hall & Soskice, 2001).

Therefore, my research accords with challenges to assumptions of institutional coherence and adds to dissenting literature by presenting Greenville as a successful hybrid. I will provide evidence that the vocational education system in Greenville operates efficiently without supporting coordinated market economic institutions. Instead, Greenville has developed a set of nontraditional institutional complementarities that support the skill formation regime.

Subsection F: CME vs LME Skill Outcomes

The varieties of capitalism literature deserves much of the credit for bringing skill formation strategies to the forefront of political science analysis. In order to understand the type of skill formation regime found in Greenville we must distinguish between (a) the types of skills provided and (b) the incentives for investment.

One of the fundamental assertions of varieties of capitalism is that actors in coordinated market economies are, on the whole, more willing to invest in "specific and co-specific assets" – assets that can be readily employed in another function (Hall and Soskice, 2001: 17). In the case

[2] Greenville is the fourth fastest growing city in the country by population. Between July 1, 2015 and July 1, 2016 the population of Greenville increased by 5.8% (The South Is Home to 10 of the 15 Fastest-Growing Large Cities, 2017).

of workforce development this manifests itself as investment in portable, industry wide skills. Conversely, in liberal market economies actors are incentivized to invest in "switchable assets," – general skills that can be reasonably transferred between firms and industries.

It is important to remember that the type of skill a firm provides is a function of the institutional structure in which it is operating. Firms in coordinated market economies have a greater ability, given the institutional environment, to engage in non-market-based coordination, which leads them to invest in portable skills (Streeck and Thelen, 2004).

In order to verify the hypothesis that Greenville provides industry-wide skill, we must define types of skill, of which there are three:

1. Firm specific skills. Firm specific skills are the least portable type of skill and are provided within a single firm. This type of skill, most common in the United States, provides workers with just enough knowledge to complete their tasks but does not over-invest, out of fear the laborer will take their knowledge to a competitor i.e., they will be poached and the investment will be sunk.
2. Industry-wide skills. Industry wide skills, oftentimes acquired through vocational schools with industry input, are easily transferable *between* firms *within* a specific industry. Industry wide skills, in most cases, require a level of coordination and authoritative certification most commonly found within CMEs.
3. General Skills. General skills are those skills that have value regardless of industry or firm. These skills carry a high degree of portability and are oftentimes provided by a mandatory government education system.

Within CMEs there are several different types of vocational training systems. They are differentiated by skill specificity and firm involvement. There are "firm specific variant training"

systems, “school based occupational training” systems and “workplace occupational training” systems (Busemeyer, 2009). Understanding each of these types will provide clues as to what to look for in Greenville. Skill specificity or skill portability is often the defining factor when distinguishing between the three types. Importantly, portability requires authoritative certification of skills. Without an authoritative certification system, the portability of skills is low, regardless of the content. “The higher the vocational specificity of the education system i.e. the stronger the mechanisms of standardized, authoritative skill certification, the higher the real portability of vocational skills,” (Busemeyer, 2009: 382-383).

A formalized apprenticeship or an authoritative skill certification scheme are two possible certification processes. In some countries, vocational qualifications are consistent across the entire economy. This type of certification requires detailed regulation and top down implementation from a government entity or industry association. Without authoritative skill certification, educational degrees mostly serve as general reflections of learning aptitude.

The second distinguishing metric between skill formation systems is level of firm involvement. Skill systems vary widely when it comes to firm involvement in skill provision. Generally, the higher the level of firm involvement the more firm-specific skills become. Some CMEs have low or “superficial” levels of firm involvement where companies have little input on curriculum. Other types of CMEs utilize apprenticeships programs and encourage firm input into curriculum.

Table 1 Skill regimes in industrialized democracies

		Firm involvement in skill formation processes	
		Superficial	**Deep**
Vocational specificity of education system	**Low**	General skill system (USA)	Firm-based skill system (Japan)
	High	School-based occupational skill system (Sweden)	Workplace-based occupational skill system (Germany)

Reprinted from "Asset specificity, institutional complementarities and the variety of skill regime in coordinated market economies," by Marius R. Busemeyer, 2009, *Socio-Economic Review*

Table 1, provides a summary of the four types of skill formation systems (Busemeyer, 2009). In the traditional VoC literature Japan, Sweden, and Germany are all considered coordinated market economies while the USA is considered a liberal market economy. An understanding of skill formation in these three CMEs will help frame the investigation into Greenville.

- In Japan, firms control the provision of skills through in-house training centers. However, the content of the skill the firms provide is broad and industry based, which is the main reason Japan is generally considered a coordinated market economy (Lauder, 2001). There are no authoritative certification mechanisms, severely limiting portability. Firms have been able to retain control of the skill formation process thanks to strong enterprise unions, which also facilitate robust inter-firm coordination. The Japanese CME system "combines a firm-based training regime with dualist industrial relations" (Busemeyer, 2009: 391).
- Sweden is classified as an integrationist skill regime. School-based occupational training is integrated into comprehensive upper secondary school, with the aim of abolishing distinctions between academic and vocational skill. This type of

regime provides workers with highly portable skills but lacks substantive firm involvement. Students choose from around 90 programs which consist of two years of vocational training and two to four years of academic training (Opper, 1989: 40). There are no apprenticeships or workplace training schemes. The main institution ensuring the longevity of the Swedish system is strong organized labor on the national and industry level (Esping-Andersen, 1990).

- The German state has a workplace based occupational skill system. They support dual apprenticeships which provide a combination of theoretical vocational school training and firm-based on-site skill formation, demonstrating the high level of firm involvement. Both firms and complimentary institutions are involved in curriculum development and knowledge dispersion. Portability is high with nationally recognized training profiles covering some 300+ occupations (Streeck et al. 1987). Inter-firm collaboration takes place in local Chambers of Commerce which are "semi-public bodies with obligatory membership for all companies within a local district" (Busemeyer, 2009: 394). These chambers are responsible for overseeing the implementation of the national training regimen. Thus, they serve an oversight function ensuring employers are hiring based on pre-negotiated skill sets. Finally, industrial relations are characterized by significant labor influence facilitated by work councils.

These three examples provide reference points for our evaluation of the Greenville system. The next section will detail the methodological process for the investigation.

Subsection G: Methods

I examine Greenville as a deviant case study. The deviant case method evaluates a case in relation to a common theory. A case is deviant if it demonstrates some surprising value or is poorly explained by the multivariate model. "The deviant case is closely linked to the investigation of theoretical anomalies" (Gerring, 2007: 109). In this case, we are comparing the Greenville institutional ecology model to the varieties of capitalism model to explain industry wide skill provision which, in the context of the varieties of capitalism model, constitutes a surprising outcome poorly explained by the accepted literature. Of course, we must remember that deviance is "model dependent". The Greenville case is deviant in the context of the varieties of capitalism literature but may not be when compared to another model.

The goal of a deviant case study is to probe for new explanations for observed outcomes. In our case, what are the functionally equivalent institutions helping support the provision of industry skills? As with many deviant case studies our investigation is exploratory in nature. We hope to "culminate in a general proposition – one that may be applied to other cases in the population" (Gerring, 2007: 109).

Beyond a theoretical basis as a deviant case, there is significant literature calling for localized, qualitative studies to examine causal linkages through the varieties of capitalism lens. Case studies are particularly helpful in teasing out the localized political and economic structures that lead to robust workforce development programs (Busemyer, 2009: 388). In addition to Busemeyer, Blyth also calls for in-depth examinations of linkages, a task that lends itself to a single localized case study. He comments that, "the concepts of complementarity, feedback, increasing returns, and the like all suggest a rather static and indeed functionalist picture" in the varieties of capitalism literature (Blyth, 2016). Kenworthy adds to Blyth's concern by arguing

that aggregate analysis of countries is necessary but not sufficient; "I [Kenworthy] am not suggesting that aggregate analyses are useless, but rather that they should be considered only preliminary, a partial step in the investigation of causal linkages" (Kenworthy 2005: 86).

To address these calls for investigations of causal linkages and feedback loops, I chose a qualitative design in an effort to unearth the substance of institutional linkages, not only their existence. As such, this study is based on eleven interviews and extensive independent research. I chose to interview Greenville leaders with intimate knowledge of the workforce development system. A full list of the interviewees and their positions can be found in the references section.

Section III: Greenville Skill Outcomes

Subsection A: Industry-Wide Skill Provision

In Section I subsection A of this paper, I provided evidence that the Greenville Technical College system has strengthened the county's workforce by training displaced or under-skilled workers and facilitating their entry into industry. We must now return to one of the original questions. What *kind* of skill does the Greenville system provide? Defining the type of skill will allow for direct comparison to traditional CME skill outcomes. If, as we suspect, Greenville provides industry-wide skill, we must then analyze if Greenville itself is a CME. If we find that it is, our hypothesis of hybrid status will be proven wrong. If we find that it is not, we will attempt to discern where it falls on the spectrum. To answer these questions I will draw on interviews that provide insight into Greenville Technical College outcomes. Citations will refer to an interview number. The associated information can be found in the references section.

Fred Payne, a county council member, and former director of the Greenville Technical College Foundation, summarized Greenville Technical College offerings by saying "Greenville Tech has a focus on technical education. It is possible to obtain a liberal arts degree in hopes of moving on to a four year institution, but the fundamental focus is technical education." (Interview 4). Mr. Payne's sentiment was reinforced by Kelvin Byrd, a former Michelin employee, Associate Dean of the CMI and department head of the Mechatronics program at Greenville Technical college. He described the Greenville Tech approach as providing a solid industry foundation, or as he described it a "basic knowledge and understanding of industry skills," (Interview 6).

To confirm their assertions I profiled the mechatronics and welding education programs at the Center for Advanced Manufacturing (CMI), one of Greenville Technical College's campuses. Students that graduate CMI[3] programs find employment at advanced manufacturing firms including Michelin, Bosch, GE, and BMW.

The welding and mechatronic programs are purposefully industry centric. The instructors are former industry employees and the curriculum is continuously evolving to meet industry standards. The programs last 14-15 weeks. At the end of the mechatronics programs students earn certificates of applied sciences in mechatronics I or mechatronics II. Similarly, at the conclusion of the welding program, which is accredited through the National Center for Construction and Research, students receive the national welding certification, allowing them to market their skills throughout the advanced manufacturing industry (Interview 6).

[3] The CMI was jointly funded by the county, which contributed $25 million, and the state which gave $7 million. The majority of equipment at the CMI is donated by private business, and it is strategically located near Clemson university, an engineering middle school, and a magnet high school for math and science.

The majority of certifications come directly from Greenville Technical College. As previously stated, "the stronger the mechanism of standardized, authoritative skill certification, the higher the real portability of vocational skills" (Busemeyer, 2009: 382). Both Kelvin Byrd and Liz Feather, director of research at the Upstate Alliance, spoke to the trust placed in GTC. That trust acts as a functional equivalent to a more structured certification system. Firms, when they hire graduates of GTC, have a level of confidence in the skill set that the worker possesses. In this sense, Greenville Tech acts as its own authoritative certification mechanism (Interviews 5 & 6).

Students who desire industry-wide training but do not have the time or money to take on an extended course load, often enroll in the QuickJobs program. The QuickJobs program provides rapid industry training, focused entirely on immediate employment. The program, which lasts no more than 15 weeks, leads to employment in a variety of industries including health care, IT and manufacturing. QuickJobs not only allows Greenville to rapidly train and reallocate labor but it also provides workers a pathway to greater financial stability on a shortened timetable. For example, a student could move from an $8 an hour job as a cashier to a $17 an hour job as welder in three months. Students do not have to finish the program to be hired; once the employer is confident in their skills they can move directly into the workforce (Interview 1). GTC, through the CMI and Quick Jobs, is not the only institution providing industry-wide skill training.

Subsection B: K-12 Public Education

The K-12 public education system emphasizes career oriented industry wide vocational education. As is the case in traditional coordinated market economies, the skill formation system

in Greenville County introduces students to vocational trades while they are in lower, middle and high school. Early exposure to career based education helps debunk the idea that vocational and technical education is inferior to four year academic programs. Students in Greenville are consistently reminded the purpose of the education system is to prepare for a career[4]. To achieve that goal the Greenville public schools work in coordination with GTC.

The State Occupational Training Advisory Committee of South Carolina found that almost 97% of school districts say articulation efforts with technical colleges have been somewhat to very effective. In 57.8% of these districts formal agreements have been executed to directly link the curriculum in high schools to that of the technical colleges (South Carolina State Council on Vocational and Technical Education, 2016). Greenville County is no exception. Greenville is home to four "career centers"[5] which serve as mini technical colleges for high school students (Interview 7). Students in the Greenville school system attend vocational classes at the centers for a few hours each day. Dr. Whirl commented on the integration, "We work to coordinate education across the levels and sectors – K-12, tech colleges, universities, to meet anticipated future demand for labor,"[6] (Interview 1).

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[4]Business needs are stressed throughout the K-12 education system. The business community expects a focus on STE(A)M education. STE(A)M stands for science, technology, engineering, (art), and math. The inclusion of art into the guiding principals of the curriculum functions to foster creativity. Advanced manufacturing executives require this because in their industry creative problem solving is essential (Interview 8).

[5] The four career centers are J. Harley Bonds, Golden Strip, Enoree, and Donaldson

[6] Integration doesn't only happen between the K-12 system and Greenville Technical College. It also occurs between GTC and Clemson university particularly at the Center for Advanced Manufacturing. An academic collaboration between GTC and Clemson pairs students pursuing masters in engineering at Clemson University with GTC students pursuing two year mechatronics degrees. Clemson students come up with theories in their classes and the Greenville Tech students help them apply theory to CMI machines. This type of interaction mimics a workforce environment both sets of students are likely to encounter (Interview 8).

Subsection C: Firm Specific Training

While GTC and Greenville county schools primarily focus on providing a broad base of industry skills, Greenville Tech also is highly sophisticated in its provision of firm specific training. Firms can utilize ReadySC or Greenville Technical College to customize training programs. ReadySC, examined in more depth in section V subsection B, is the first workforce institution firms work with when they decide to locate in Greenville. As part of the South Carolina Technical Education System, it is deeply integrated with Greenville Technical College.

Born out of the 100 day promise[7], ReadySC is a dynamic institution that customizes training programs for prospective or expanding firms. Existing companies in need of firm specific skill programs work directly with GTC. For example, a company can get in contact Kelvin Byrd, associate dean of the CMI, and request fifteen highly trained mechatronics employees within a month. The firm may ask to cut 8 out of the 16 classes and add a week-long seminar on firm specific functions, and Greenville Tech is able to customize a course and provide the labor (Interview 6).

This type of firm responsiveness is essential to the success of Greenville County. The ability to deliver results on short notice and with precision develops trust in the institution, which supports the authoritative certification function of the College. Moreover, firm specific responsiveness distinguishes Greenville's workforce development system from traditional

[7] The 100 day promise was an initiative Governor Fritz Hollings began as a investment recruitment tool. He would tell prospective firms, if you choose to locate in South Carolina we will provide a fully trained workforce within a 100 days (Interview 1). The training was facilitated by the special schools program which was renamed ReadySC in 2007. The organization still has the same purpose, to rapidly train labor, at little or no cost to the firm (Poland, 2013).

coordinated market economy systems, which are constrained by union and industry association oversight. In that environment training firm specific skill would be viewed as not only undercutting the collective institution but also using joint investment to benefit a single firm.

The South Carolina Technical College system which, as previously stated, includes Greenville Technical College and ReadySC, is afforded significant flexibility. The level of institutional oversight is minimal. GTC is only responsible to its area commission and the Greenville County Council. That freedom provides the skills regime with the flexibility to adjust to the needs both specific firms and industries overall.

Subsection D: Apprenticeships

In addition to school-based programs, firm and industry skills are provided through Apprenticeship Carolina. The apprenticeship structure in Greenville is based on that of the German system. Robbie Dunaway, technical training manager at Michelin, specifically mentioned studying the German model while constructing their own corporate program (Interview 7). The presence of apprenticeship programs that operate outside the firm is an unexpected outcome in the United States, according to the varieties of capitalism literature. Theoretically, firms operating in liberal market economies would fail to invest in formalized apprenticeships, instead, opting to train their employees exclusively within the firm.

Formalized apprenticeship schemes provide industry based skills that allow for greater mobility across firms (Streeck, 1996; Thelen and Kume, 1999). Graduation from an apprenticeship program provides a level of certification that is functionally equivalent, on the local level, to formal accreditation. For example, a student that completes a GE sponsored

apprenticeship program in mechatronics will, after completion of the program, have the skills to work at Michelin, Bosch, and other advanced manufacturing firms.

To incentivize formalization of apprenticeship programs, South Carolina provides tax breaks to participating firms. Greenville Technical College, through its technical scholars program, acts as a complimentary institution to firm specific apprenticeship programs. The tech scholars program, which both Michelin and BMW utilize, sponsors students at Greenville Tech during their apprenticeship. In 2013, Greenville Technical College "assisted 13 companies in registering for apprenticeships" (Greenville Technical College Annual Accountability Report, 2013). In total, Apprenticeship Carolina has served 26,864 apprentices and supports 918 programs (Apprenticeship Carolina).

Each firm has a slightly different variation on apprenticeships based on its workforce needs, investment ability, and commitment desires. General Electric takes fifteen students into their apprenticeship program, during which time they are employees of the firm. Their tuition is fully paid for and they are compensated as employees. GE insists that their students are in a separate class, and sends representatives to interact with and mentor the students in an effort to mitigate poaching. In all firm specific GTC course instructors encourage students to remain with the firm that sponsored their education and while poaching certainly happens, Mr. Byrd said it was, at the current time, not a debilitating issue (Interview 6).

BMW's program is not customized to the firm. The company makes jobs available for application and selects students to sponsor. The firm pays for the two-year industry wide degree without a guarantee their investment will be returned. If the student does become a full-time BMW employee, which every apprentice has to date, they receive a starting salary of $30 an hour (Interview 6). In the last five years, 108 people have completed the BMW apprenticeship

program, graduating with zero debt, a $60,000 per year salary, and an industry-wide skill set (Moore, 2017). The following mini case study profiles the Michelin Youth Apprenticeship Program. The case not only highlights a formal apprenticeship scheme but also demonstrates the level of articulation between the K-12 system and GTC.

Case Study One: Michelin: Apprenticeship formalization and labor market constraints

Robbie Dunaway, technical training manager at Michelin North America, based the firm's apprenticeship program on the German model. The Michelin Youth Apprenticeship Program begins a student's path to competency in mechatronics or industrial electronics at the age of sixteen. The firms ability to begin training at sixteen hinges on the formalization of the program. Legal requirements would have prohibited the program if it was not integrated into the public school system.

The program recently recruited their first five high school students. Apprentices begin the study of mechatronics at the Golden Strip Career Center, while they are in their junior year of high school. Throughout the program students spend around 20 hours a week at the plant and receive a salary of $12 an hour.

After they complete their high school apprenticeship they move into the tech scholars program at Greenville Technical college at which point their pay increases to $16 an hour, in addition to full tuition. By the end of the tech scholar program, apprentices join the workforce with a starting salary between $50,000 and $60,000 a year.

Superintendent Dr. Burke Royster commented, "this partnership represents the single largest commitment of an employer and the greatest potential for additional apprenticeships for students at the high school level," (GCS).

Scott Clark chairman of Michelin North America, laid out the firm's long term goal, "it is our vision to roll this program out across the state in all the communities where Michelin has manufacturing facilities. With the Youth Apprenticeship Program and the relationship we have with Greenville County Schools, Greenville Technical College, and other technical schools, Michelin is taking a huge step forward in workforce development in the state of South Carolina," (Michelin, GCS Hold First 'Signing Day' for High School Youth Apprentices, 2018).

At the end of the program there is no obligation to join the firm, although very few tech scholars do not move into full time employment. In response to a poaching inquiry Mr. Dunaway said it is bound to happen but the company wants to be a good corporate citizen; if students leave, the company still contributed to overall workforce development.

However, if students do leave, corporate citizenship comes with a hefty price tag. Why then is Michelin taking that risk? Is it not more cost efficient to train employees inside the firm, limiting their ability to transfer skills and securing firm investment? Furthermore, why are we witnessing such high investment from Michelin without union pressure?

Mr. Dunaway unintentionally addressed these questions when he mentioned the reasoning behind training high school students. The population of Greenville county, particularly the manufacturing population, is fully employed. Thus, the company invested in high schools, enticing prospective employees with a host of benefits. The labor market conditions create competition between firms for skilled labor and requires firms to increase workforce investment (Interview 7). This phenomenon will be examined in more depth in section V subsection C.

This section demonstrated that the Greenville vocational education system is focused on the provision of portable industry-wide skills while maintaining the ability to satisfy firm specific needs. With the types of skill established we will now compare Greenville to the classic CME institutional structure.

Section IV: Classifying Greenville

As discussed above, the Greenville system provides portable industry-wide skill to workers, an outcome expected from coordinated market economies. With that in mind, we must ask, is Greenville a coordinated market economy? To address that question we will review the four reinforcing institutions that Hall and Soskice argue must be present in a CME. The institutions are complementary, meaning one cannot function efficiently without the presence of the others. If we accept their logic, given what we know about skill outcomes, we should find evidence of CME institutions throughout the county.

> *Financial systems* vary in the way capital is allocated. In coordinated market economies capital is allocated based on firm specific information obtained through coordinating institutions like industry associations. Investors evaluate the long-term health of a firm, not only short term profitability and share prices, providing firms an extended timetable to realize return on investment. Conversely, in liberal market economies, public information, like stock price and near term growth potential, is the most important factor in the allocation of capital. Generally, that serves as an incentive not to invest in skill formation because of the extended timetable for return on investment (Hall & Soskice, 2001).

I was unable to obtain information regarding underlying firm financial systems. Thus, I cannot definitively say if there are CME financial systems operating within Greenville. However, I will make a few assumptions based on my knowledge of firms in the area. First, there are several companies including Michelin, a French firm, and BMW, a German company, that have financial headquarters in coordinated market economies in Europe. It is reasonable to assume that their access to capital is at least partly intertwined with the European banking system, providing those companies a longer time frame for return on investment. However, Greenville is a county within the United States, a decidedly liberal market economy. Thus, the majority of firms in Greenville, we can assume, operate with an eye to short-term profit and do not have the extended investment time horizons of their European counterparts.

The influence of the US stock market and banking sector in Greenville leads us to believe that the financial system of Greenville county is not characteristic of a coordinated market economy. Under our set of assumptions, we can conclude that while Greenville may not be completely LME, it is certainly not CME. It is more likely that Greenville is a hybrid on the financial systems metric.

> *Industrial Relations* differ based on how much power labor wields within the firm structure. In coordinated market economies, there is a structural bias towards consensus building. The workforce is involved in firm level strategic decisions. This may lead to slower structural adjustments as firms are caught in negotiation; but labor has greater job security and generally receives more human capital investment. In liberal market economies relations between management and labor rely on market principals i.e. the relationship is fundamentally transactional. Top management has significant control over

the direction of the firm and retains the right to hire and fire at will (Hall & Soskice, 2001).

The lack of unions in Greenville severely limits labor's ability to influence firm decisions. Of the four complementary institutions of a coordinated market economy, industrial relations is the institution most blatantly absent in Greenville County. There is an aversion to unions in Greenville to the point where they will exclude firms that intend to allow for unionization (Interview 3). Furthermore, there do not seem to be any functionally equivalent institutions to facilitate labor influence.

The *education and training systems* are separated by the role of government and the incentive structure for workers. In coordinated market economies, government, industry associations, and labor unions come together and share costs of providing portable industry wide skill to workers (Culpepper, 2001). In liberal market economies, governments provide universal general skills and any additional skill formation to firms and individuals (Thelen, 2001).

In the previous section, we provided evidence that industry-wide skill, along with, in some cases firm specific skill, is provided in Greenville County. The provision of skills is undertaken by Greenville Technical College and its SC Technical College System partners: ReadySC, Apprenticeship Carolina, and the Center for Manufacturing Innovation. The industry-wide outcomes and level of coordination allows us to classify Greenville as a CME, in terms of outcomes, on the education and training metric.

Inter-firm relations in coordinated economies are not only encouraged but are facilitated through industry associations. In liberal market economies firms are generally competitive. The two structures provide different opportunities to firms. In CMEs, firms

> are pre-exposed to collaboration whereas in LMEs firms, lacking any structural relationship building institutions, default to internal operations (Hall and Gingerich, 2009).

Greenville Technical College is the key mechanism for facilitating cooperation between firms. It brings firms together in industry advisory boards that assist trainers in curriculum development (Interviews 1, 3, 6, 7). Interestingly, Greenville achieves cooperative inter-firm relations without powerful unions or industry associations with enforcement power. GTC is able to accomplish a few of the functions of traditional business associations but there are relevant differences. Most notably the advisory boards are voluntary and do not have enforcement powers when it comes to curriculum standards or poaching. In sum, on the inter-firm relations metric Greenville, once again, achieves CME outcomes without CME institutions.

It is evident that the Greenville system is not a coordinated market economy even though it does provide industry-wide portable skills through robust inter-firm collaboration. Greenville lacks traditional industrial relations and widespread financial systems characteristic of a CME, thus solidifying its hybrid status.

This finding is at least partially inconsistent with one of the main arguments of Hall and Soskice. Without industrial relations and long term financial decision making, widespread investment in industry directed skills should be nonexistent, or at least highly inefficient. The rule of complementarity should, in theory, push Greenville towards a perfect liberal market economic skill formation strategy. However, that is not the case, leaving us with several unanswered questions.

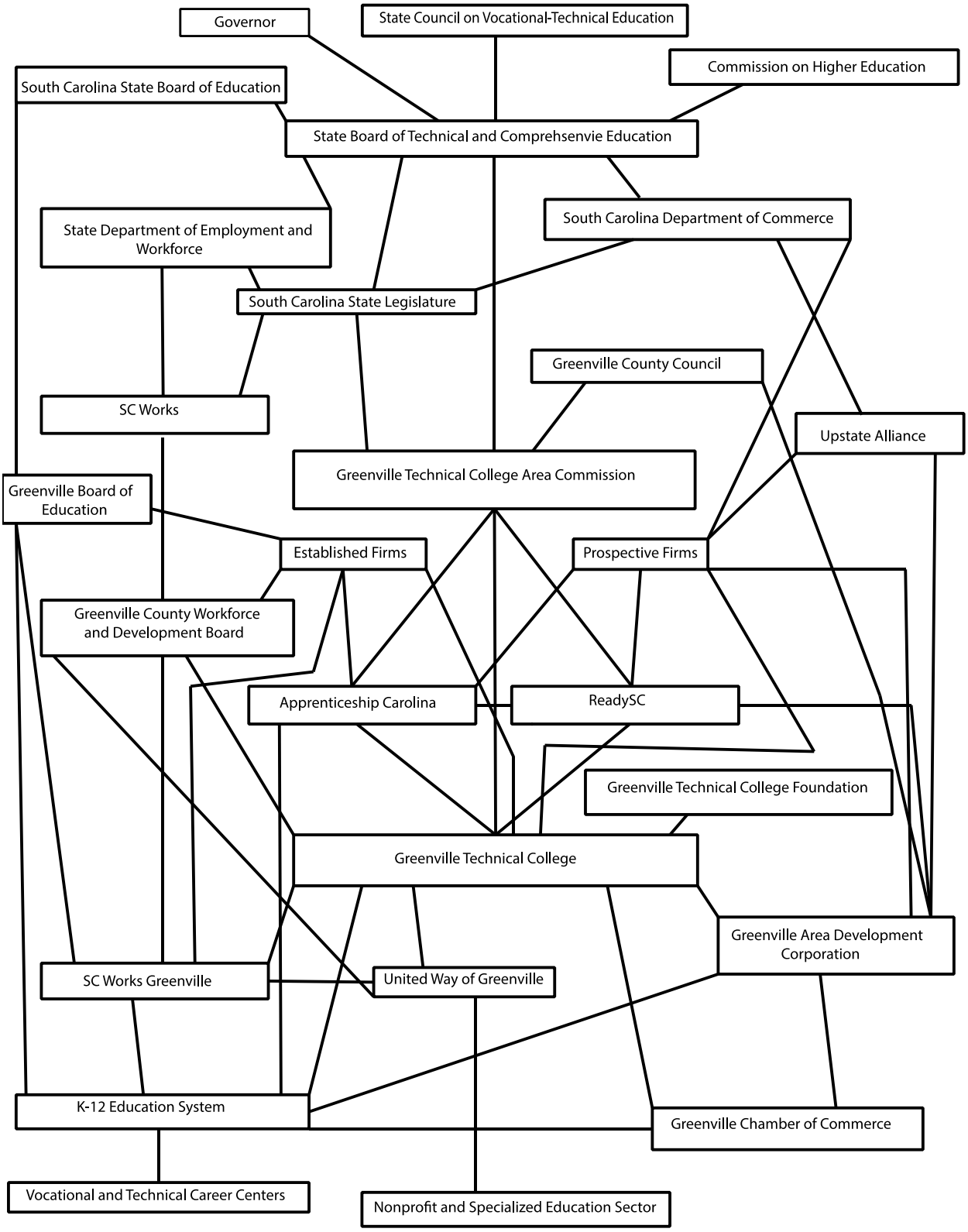
As previously examined, Greenville does not have an environment where, universally (we assume), all companies are able, financially, to engage in long term investment. So why do

so many firms invest in industry-wide skills through GTC? It does not have industry associations with enforcement power to credential curriculum and stop poaching. Yet poaching is not pervasive and credentials are generally accepted. How? Finally, there is a lack of labor representation in firms, yet firms through tuition assistance, apprenticeships, and donations to GTC are sinking significant investment into workforce development. Why?

In short, Greenville has coordinated its workforce development without complimentary CME institutions. Now the question must be, how is Greenville doing it? The two next sections will attempt to answer these questions by laying out the entire Greenville system and examining examples of functional equivalence.

Section V: Institutional Ecology

Greenville is not a coordinated market economy. It lacks unions, industry associations with enforcement powers, long term investment institutions, and national authoritative certification systems. However, Greenville does provide robust industry-wide skill. To accomplish this Greenville has established a complex system of interconnected institutions. The following schematic provides an overview of the institutional ecology and its linkages. The depicted organizations are complementary institutions with a remarkable level of overlap and integration, essential for the smooth operation of the Greenville workforce development system.



This schematic was created based on information from all listed interviews as well as: South Carolina Code of Laws Unannotated; Greenville Technical College; SC Works Greenville Center Overview; Workforce Development Board

The schematic is highly complex, yet it retains a general structure. From top to bottom, the institutions become more localized. For example, the State Board of Technical and Comprehensive Education is found at the top of the schematic, while Greenville County's oversight board, the Greenville Technical College Area Commission, is found in the middle of the schematic, just above Greenville Technical College itself.

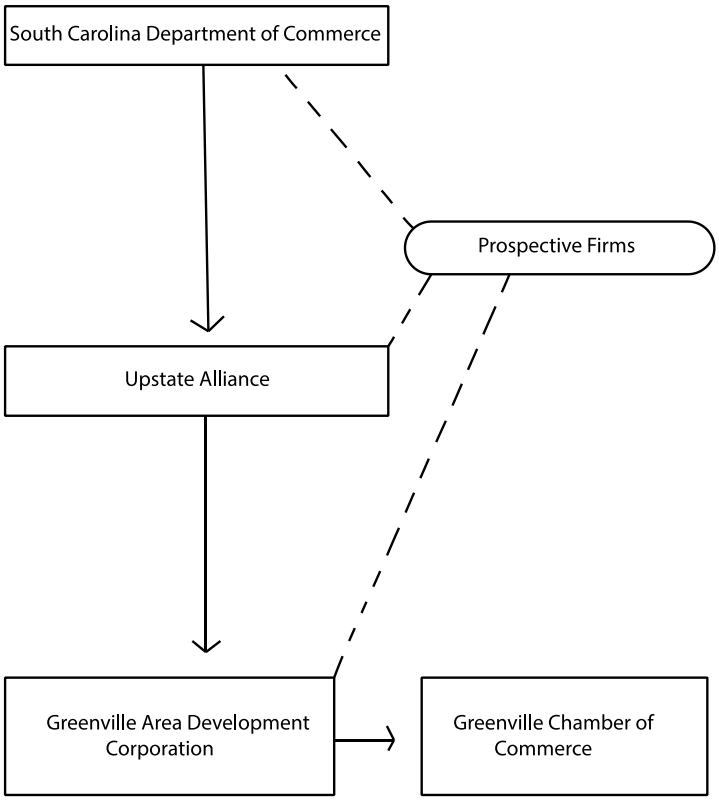
The schematic is also organized based on institutional concentration. On the left side of the graphic are institutions that mainly serve established firms or the pre-existing workforce while on the right side, are institutions that aim to expand the employment base through investment attraction.

Of course, the horizontal and vertical distinctions are not iron clad, especially given the significant amount of overlap between institutions, but it provides a structure for understanding the various linkages. While I decided to include state level institutions in the schematic, there will be a deliberate focus on local institutions throughout this section given Greenville County is the specific focus of this examination.

For the purposes of simplicity, I have divided the larger schematic into three institutional sub-groupings: economic development organizations, workforce development institutions, and political and oversight bodies. Beginning with the economic development cluster I will take each grouping in turn and outline its responsibilities and linkages.

Subsection A: Investment Promotion Cluster

Below is a flow chart that frames our discussion of how Greenville county recruits foreign direct investment.



Prior to the establishment of the Upstate Alliance in 2000 and the Greenville Area Development Corporation in 2001, the seat of power when it came to economic development and investment promotion was the Greenville Chamber of Commerce. The first president of the Greenville Chamber designed the county's network of textile firms. Throughout the textile boom in the mid 1900's the Chamber was the center of business, in part because the majority of members were textile executives. Once the textile industry moved offshore the influence of the Chamber waned (Interview 9). The county council and Greenville Technical College began to

take a leading role in economic development throughout the 1990s until the formation of the GADC and the Upstate Alliance.

The economic development of Greenville, to a large extent hinges on the success of the *Upstate Alliance*. The Alliance was formed in 2000 by the 10 counties[8] that constitute the upstate of South Carolina, along with private businesses and workforce development organizations[9] (Interview 5). All members financially contribute to the Alliance which executes a dynamic international marketing strategy responsible for promoting the northwest corner of the state. The Alliance markets the upstate as a one economic development unit, promoting the interests of the upstate without favoring any county or city. The "regional" perspective is instrumental in the success of the entire upstate and was reiterated by Greenville based representatives. Both Elizabeth Feather, director of research for the Upstate Alliance, and Tony Smith, project manager at the Greenville Area Development Corporation, expressed appreciation for the regional strategy employed by the Upstate Alliance (Interviews 5 and 8). By shouldering the burden of international marketing the Upstate Alliance allows Greenville to retain its locally focused institutions. Without the Alliance raising Greenville's national profile, the institutional structure would be pressured to expand its scope, possibly jeopardizing the cohesive and streamlined institutional ecology currently in place.

In theory, any project brought to the upstate is not only beneficial for the host county, but also the surrounding counties which are rewarded with spillover benefits. Often, when firms move into a county in the upstate, a large portion of their workforce will commute from

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[8] The ten counties that make up the "Upstate" which are represented by the Alliance are Abbeville, Anderson, Cherokee, Greenville, Greenwood, Laurens, Oconee, Pickens, Spartanburg, and Union.

[9] Technical college and private business representatives are members of the executive committee. Currently, Ronnie Booth, president of the Tri-County Technical College and Max Metcalf, Government and Community Relations for BMW are both on the board.

neighboring municipalities. For example, when BMW chose Spartanburg for its largest US manufacturing plant, much of their workforce commuted from Greenville County. Furthermore, all large investments boost demand for goods and services from a host of other industries, including various original equipment manufacturers which employ high skill workers throughout the upstate (Interview 5). The result of this collaboration is mitigated regional competition, limiting the need for development corporations to bid against each other.

As the schematic demonstrates, prospective firms can approach the State Department of Commerce, the Upstate Alliance, or go directly to the Greenville Area Development Corporation. Often, larger projects will start with the State Department of Commerce which will distribute an RFP to the Upstate Alliance. The Alliance will pool responses from any of the ten counties and then present them to the prospective firm. Once a site is selected, the process is handed off to the local development corporation, which, in our case, is the Greenville Area Development Corporation (Interview 8).

The *Greenville Area Development Corporation (GADC)*, is a quasi-public 501 (C) 3, that leads the business recruitment process for Greenville County. The GADC was created in 2001 after the establishment of the Upstate Alliance. The impetus for its founding was a 1994 South Carolina law that permitted counties to grant tax concessions to prospective firms. The Greenville Area Development Corporation was given control of that process, formally removing economic development responsibilities from the Chamber of Commerce (Interview 2). While the development corporation has the power to dole out tax breaks and abatements they are intentionally conservative and, per GADC CEO Mark Farris, of the 150 tax concessions they have awarded since the founding, only five have not reached their job creation or capital investment goals. In those five cases the incentives were revoked. The GADC is more concerned

with quality investments than quantity. By stressing workforce over tax benefits in the recruitment process they can entice firms that want to invest in Greenville over the long term.

Once a company is considering Greenville, the economic development partners work to put together a pitch. The pitch includes an incentive package, from the GADC, and a business environment report, spearheaded by the Greenville Chamber of Commerce. The Chamber puts an emphasis on workforce development resources available to prospective firms (Interview 8). In the final recruitment stages the linkage between the investment promotion cluster and the workforce development cluster takes center stage. The GADC, Chamber, GTC, and ReadySC work together to pitch Greenville's workforce development capabilities rather than tax incentives characteristic of a 'race-to-the-bottom strategy'.

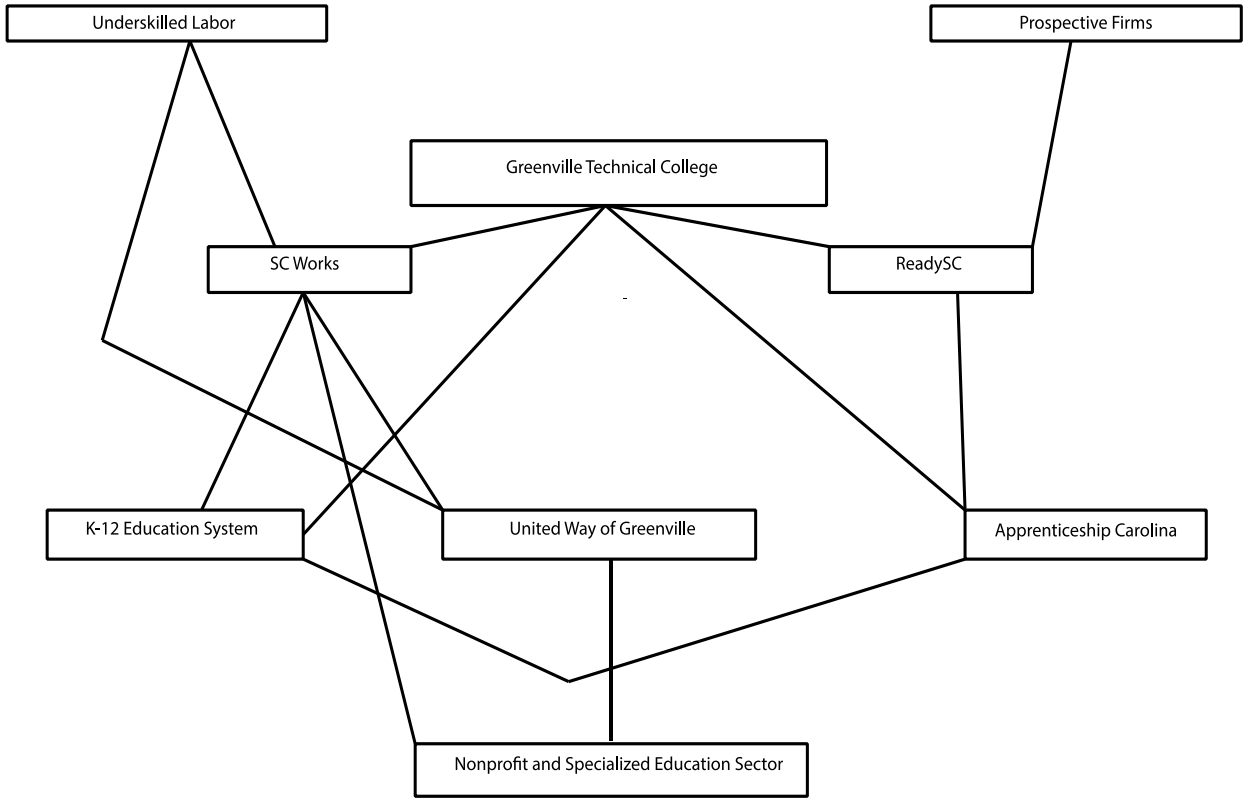
As discussed below, the GADC operates under political pressures. The GADC needs to please both the county council[10] and the Greenville state legislative delegation, an important linkage between the investment promotion cluster and the political cluster. GADC focuses on high wage and high capital investment projects. These types of investments have significant tax benefits for both the county and the state. The state generates more revenue through wage and sales taxes if there are a greater number of medium to high paying jobs. The county, on the other hand, generates most of its income from property taxes, so they encourage business development projects that require construction projects (Interview 2). Political pressure has pushed the GADC to put substantial effort into building and expanding their advanced manufacturing cluster which provides average to above average salaries and high capital investment in extensive facilities. It is important to pause here and reflect on the positive incentives of the South Carolina tax

[10] The GADC is funded 70% with public money, primarily from the county council[10], and 30% from private contributors, much of which is from existing businesses (Interview 2).

structure, which provide motivation to GADC to pursue business investment that will bring high paying jobs and significant capital expeditures – a hallmark of long term investment.

Subsection B: Workforce Development Cluster

There are six main workforce development institutions in Greenville County: Greenville Technical College, SC Works, Apprenticeship Carolina, ReadySC, Greenville Public Education, and the United Way of Greenville. All play important roles as links between the state, county, prospective firms, local government, incumbent workforce, and the future workforce. Below is a schematic focused on coordination between workforce development institutions.



Greenville Technical College is the epicenter of workforce development in Greenville County. The South Carolina Technical college system is organized so that each tech college serves around 8-10% of the state's population. Greenville Technical College, given the population of the county, is solely responsible for Greenville (Interview 4). Thus, GTC has only one set of county level institutions to coordinate with, significantly simplifying institutional linkages. In comparison, Tri County Technical College and Spartanburg Technical College both serve three counties, each with its own group of oversight bodies. Greenville Tech's singular focus on Greenville county aligns with the service areas of both SC Works Greenville and the Greenville County school system. Single county institutions lead to a level of coordination not possible in more complex ecologies. We will examine this phenomenon in depth in section V subsection A.

In its current form Greenville Technical College offers a wide variety of courses and programs in six broad categories: academic advancement & support, arts and sciences, business, health and wellness, public service, and technology. The following charts gives an overall view of what GTC has to offer:

Table 2: Greenville Technical College Academic Offerings

Academic Advancement and Support Programs
College Skills; English as a Second Language, Transitional Studies
Arts and Sciences Academic Departments
Biological Sciences; English; Honors; Humanities; Mathematics; Physical Sciences; Social and Behavioral Sciences; Speech; Visual Arts
Business Programs
Accounting; Administrative Office Technology; Management; Marketing; Supply Chain

Management
Health and Wellness Programs
Animal Studies; Computed Tomography; Cosmetology; Culinary Institute of the Carolinas; Dental Programs; Diagnostic Medical Sonography; Emergency Medical Technology; Fire Science Technology; Health Information Management; Magnetic Resonance Imaging; Massage Therapy; Medical Laboratory Technology; Nursing; Occupational Therapy Assistant; Patient Care Technician; Personal Trainer; Pharmacy Technology; Physical Therapist Assistant; Radiologic Technology; Respiratory Care; STAT (Simulation Technologies and Training) Center; Surgical Technology; Sustainable Agriculture
Public Service Programs
Criminal Justice, Early Care & Education; Human Services; Paralegal
Technology Programs
Aircraft Maintenance Technology; Architectural Engineering Technology; Auto Body Repair; Automotive Technology; Building Construction Technology; CNC (Computer Numerical Control) Program; Computer Technology; Construction Engineering Technology; Diesel Equipment Technology; Electronics Engineering Technology; Engineering Design Technology; Heating, Ventilation, Air Conditioning/Refrigeration (HVAC/R); Machine Tool Technology; Mechanical Engineering Technology; Mechatronics Technology; Truck Driver Training; Welding

Source: (Greenville Technical College)

The chart showcases the breadth of education available at GTC. While Greenville Tech provides opportunities for students to move from two-year programs into a four-year college to pursue a bachelor's degree, its main focus is workforce-directed vocational and technical education. Its role within Greenville is to funnel workers directly into the labor force once they have obtained

the necessary skills (Interview 8). It is common for students to attend Greenville tech for as little as a few months until a job becomes available. Many such students are referred to GTC by SC Works.

SC Works oversees the Workforce Innovation and Opportunity Act (WIOA) funding, from the US Department of Labor. WIOA created 'American Job Centers' to provide comprehensive services to workers, job seekers, and employers. In South Carolina, American Jobs Centers operate under the name SC Works (Workforce Innovation and Opportunity Act Fact Sheet).

SC Works functions on the state and local level, providing services to bring employers and job seekers together. In South Carolina, there are 12 'workforce regions' that divide up the 46 counties by population. Greenville County is its own workforce region. We will explore the impact of the institutional simplicity of Greenville in section V subsection A, but it is worth mentioning, in brief, that the fact there is only one SC Works organization for Greenville County, greatly simplifies the provision of workforce services. Just like GTC, SC Works Greenville only has to coordinate with one technical school, one county council, and one school board, differentiating Greenville from other counties in South Carolina (Interview 10).

Fundamentally, SC Works Greenville operates as a one-stop-shop for workers in need of re-skilling, referrals, or any other type of employment help. SC Works provides up to $12,000 of training per worker to help find gainful employment. On top of that the federal government provides $800,000 to retrain adults, $900,000 for youths, and $700,000 for rapid response re-employment in the event a factory closes (Interview 3). When a worker, displaced, disabled,

under skilled or otherwise debilitated, comes to them with a need, a workforce associate directs that person to one of their workforce partners[11] (Interview 10).

On the demand side of the labor market, firms go to SC Works with employment needs. The office will attempt to fill the vacancies with skilled workers pulled from an internal database. SC Works Greenville has industry facing employees that are in constant conversation with business officials in the county. The industry associates and workforce associates, coordinate to ensure firm needs are fulfilled (Interview 10).

The Greenville County Workforce Development Board is the oversight body for SC Works. The Board consists of 17 local stakeholders, 50% +1 of whom must be industry professionals. The emphasis on industry input is critical. SC Works is the quarterback of the workforce development cluster – ensuring all parties are operating with maximum efficiency. Mandating that over half of the Board are industry officials ensures county policy remains firm focused.

Robbie Dunaway, technical training manager at Michelin North America and Jermaine Whirl of Greenville Technical College, are members of the Board[12] (Workforce Development

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[11] Mandatory WIOA partners include:

1. Employment and training programs authorized under the WIOA for adults, dislocated workers, and youth;
2. Adult education and literacy programs;
3. Vocational Rehabilitation programs;
4. Senior Community Service Employment programs (i.e., AARP, Goodwill);
5. Post-secondary vocational education programs (college and technical education);
6. Trade Adjustment Act programs;
7. Veterans employment and training programs;
8. Employment and training programs through Community Action Agencies;
9. Employment and training programs through public housing authorities;
10. Unemployment Compensation programs; and
11. Programs authorized under the Second Chance Act of 2007 for the responsible reintegration of ex-offenders;
12. Job Corps;
13. Indian and Native American Programs
14. *Source: (Workforce Innovation and Opportunity Act Fact Sheet)*

Board). The board is also required to have representation from social services as well as adult education and re-entry programs. Utilizing the wide array of expertise among board members, SC Works negotiates agreements with partner organizations to provide a cohesive strategy for workforce development in Greenville (Interview 7).

Apprenticeship Carolina is a state level organization that is part of the SC Technical College System. Its goal is to facilitate, utilizing tax incentives, firm adoption of apprenticeship programs. More than 26,000 people have enrolled in apprenticeships since its inception in 2007 (Moore, 2017). Apprenticeship Carolina works with existing and prospective businesses to drive up demand but they are not "responsible for the recruitment or hiring of individuals into specific apprenticeship programs," (Apprenticeship Carolina). That duty falls to each individual technical college. The partnership between technical colleges and Apprenticeship Carolina allows for tech colleges to remain focused on curriculum while Apprenticeship Carolina engages with firms (Interview 8).

ReadySC, like Apprenticeship Carolina, is part of the technical college system. It is a dynamic and innovative state institution that assists prospective and expanding firms in the development of firm specific curriculum at little or no cost to the employer (Interview 1). The program trained its 250,000th South Carolinians in 2008 and was ranked a top five state economic development workforce training program for the 25th consecutive year (Poland, 2013). ReadySC works with Greenville Technical College to provide a fully skilled workforce to firms in the first day of operation in Greenville. ReadySC uses state funding for its training programs,

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[12] The Greenville County Workforce Development Board is currently working on a re-habilitation program to integrate incarcerated adults back into the workforce. It is only through collaborative institutions like the GCWDB these types of initiatives take place because without commitment from business to hire workers neither the incarcerated nor the government will invest in what would be a sunk investment (Interview 7).

allowing local funding to be directed elsewhere, increasing the allocative efficiency of vocational education dollars (Interview 1).

The ReadySC team develops curricula using a discovery, design, deliver process. Through this three-step process ReadySC processes firm need, creates a program to skill the workforce, and then coordinates with local workforce development institutions to carry out the training through customized programs or adapted industry courses (Interview 8). Instructors are reassigned or hired as needed and provided any necessary training to achieve firm objectives. Ready SC is the most dynamic firm focused institution in Greenville county (Interview 3 and 5).

An often overlooked workforce institution is the *K-12 Education System* examined briefly in section III subsection B. Yet again, we encounter the theme of county coherence as there is only one school district in Greenville, overseen by one board of education (Interview 4 and 8). Other counties in South Carolina have two or three school districts. The county board of education works to coordinate curricula with technical colleges, universities, and in some cases firms themselves, in an effort to address labor force demands.

Business leaders advocated for an emphasis on science, math and engineering. The district responded by founding an elementary and middle school both focused on engineering[13], and has integrated vocational and technical education into their county wide curriculum, utilizing career centers that focus exclusively on workforce directed study (Interview 3).

Finally, *United Way Greenville* plays an important role in the efficient provision of skills. The United Way is the main funder of non-profit organizations in Greenville, many of which help mitigate opportunity costs of student investment in skill development (Interview 3). The

[13] The elementary school for engineering is directly across from the Center for Manufacturing Innovation (Interview 6).

United Way funds organizations that provide resume help, clothing, mental health services, biological health services, child care, etc. Often, the associated costs of obtaining skills outweighs the perceived benefits, resulting in a low skill trap where at risk workers don't have the time, mobility, or information to make significant investments in skills. In Greenville, a robust non-profit sector attempts to remedy many of the obstacles that stand in the way of skill upgrading. In total, the United Way sponsors five child care organizations, three clothing providers, eight mobility assistance groups, seven continuing education institutions, and twenty employment matching services (Interview 11). All of these nonprofits provide a vital support system for workers looking for economic upward mobility, solidifying the United Way Greenville, as an essential part of the Greenville skill provision machine.

Subsection C: Political Oversight Cluster

At the top of the technical education oversight hierarchy is the *State Board of Technical and Comprehensive Education*. The board consists of 13 members, 11 of which are appointed by the Governor. The superintendent of Education and the Secretary of Commerce serve as ex-officio members. One member must be from each of the seven congressional districts, with advice and consent of the state legislature. There are four "at-large" members appointed by the governor, one with experience in vocational education and one with experience in federal job training (South Carolina Code of Laws).

In examining the State Board it is important to note a few nuances that could go unnoticed, but in reality, play an essential role in the success of the state's technical education system. First, the provision that there must be one member from each congressional district helps avoid in-state competition that could lead to a "race to the bottom," where counties give larger

and larger tax cuts coupled with fewer and fewer workforce development requirements to attract investment. The geographic diversity ensures all counties in South Carolina feel the impact of economic growth. The remaining members are equally as important and represent key linkages. The seat reserved for the superintendent of Education connects the primary education system with the post secondary technical education system, and the Secretary of Commerce represents business interests on the board and ensures its policies and procedures are in line with industry needs.

The Board cooperates with several other state level institutions including the State Council on Vocational-Technical Education. This Council, consisting of thirteen members, is required by the federal Carl D. Perkins Act of 1984 (South Carolina State Council on Vocational and Technical Education, 1990: 5). The Act provides almost $1.3 billion in federal support for career and technical education programs in all 50 states. The council, like the SC Works organization, is an important linkage between the state of South Carolina and the federal government. In order to receive federal funding for career and technical education, South Carolina must establish a Council and consult with it on a regular basis (Interview 10). Interestingly, the Council also serves as the State Occupational Training Advisory Committee (SOTAC) which examines articulation linkages between primary and secondary educational institutions.

Also operating on the state level is the *South Carolina State Legislature.* Its role is to enact legislation to promote career and technical education. In 1962, the legislature passed the bill that created the technical education system. In 1967, the legislature established the Commission on Higher Education, intended to coordinate between two and four year academic institutions (Interview 3). According to Dr. Jermaine Whirl, this restructuring created tension

between the newly established Commission on Higher Education and the State Board of Technical and Vocational Education, which was better positioned to oversee vocational and technical education (Interview 1). The first instance of legislative activity was highly beneficial to workforce oriented education while the second created unnecessary tension and distorted the chain of command, highlighting the importance of informed legislators.

In 1994, the legislature moved to vest greater control of tax incentives in county governments by allowing them to grant tax benefits to prospective firms, leading to the founding of the GADC (Interview 8). Aside from enacting legislation the county's state legislative delegation appoints members to the Greenville Technical College Area Commission (Interviews 4).

The *Greenville Technical College Area Commission* is the main institution overseeing GTC. The Commission is the governing board of the college and is responsible for oversight of the College and the employment of the president. While it is not involved in day to day operations, the Commission has a hand in all large strategic decisions. The Area Commission has 12 voting members appointed by the Greenville County Legislative Delegation (Interview 1). This linkage connects the Greenville delegation to the College, increasing their knowledge of, and dedication to, the institution. There are six residency specific members which ensure all parts of the county are represented, as well as six at large members selected by the Delegation. One is nominated by the county council, one by the school district board of trustees, and one by the Greenville County Workforce and Investment Board –important overlaps that ensure consistent workforce policy. Often, there is personnel overlap between the County Council and the Area Commission (Interview 3), ensuring continuity of workforce development strategy.

The *County Council* is the only elected body within the institutional ecology. They serve as the link between the development policy of the county and the county citizenry, and as such, the Council is highly sensitive to constituent needs. The Council views economic development as their primary goal (Interview 4). They contribute to both the Greenville Area Development Corporation (around one million dollars a year) as well as the Upstate Alliance ($150,000 per year) (Interview 8).

They also have oversight responsibilities. The GTC leadership emphasized the need to "keep the county council happy" indicating the political body imposes influence over workforce development policy (Interview 3). Further solidifying their influence, the county council must approve any appointments to the Area Commission. The County contributes around 10% of the Greenville Tech budget and often provides additional funding for any major capital improvements with substantial economic development benefit, such as the Center for Manufacturing Innovation (Interview 4). Even amidst oversight and financial influence the County Council maintains a policy of non-intervention, allowing institutions and leaders to remain focused on their primary objectives, without undue intervention (Interview 3).

The Council has several members with deep experience in economic development and education. For example, Joe Dill, a member of the council, is a former chairman of the Greenville County School Board; Liz Seman formerly served on the board of directors of the Greenville Chamber of Commerce, and Fred Payne, who was interviewed for this study, served as the Executive Director of the Greenville Technical College Foundation[14]. The tendency for

[14]The Foundation is a 501 (C) 3 that supports Greenville Technical College. Acting as a private entity, the Foundation raises money in support of Greenville Tech. They focus primarily on capital improvements but also fund scholarships for low income students to attend the college. The Foundation donated money for the Center of Manufacturing Innovation and for 400

local leaders to serve an institution within the Greenville ecology prior to holding political office increases the expertise of the Council.

Section VI: Institutional Equivalence and Complementarity

The varieties of capitalism literature is grounded in complementarity. In both liberal market economies and coordinated market economies there are sets of institutions that, together, support efficient workforce provision. However, the Denmark case, examined in Section II, subsection E, calls into question assertions that strict adherence to the traditional "coherent" institutional structure is required for the functionality of complementary institutions.

Greenville, as we have demonstrated thus far, does not demonstrate institutional coherence. Of the four institutions previously examined we find two, at least semi classic liberal market oriented institutions (financial systems and industry relations) and two coordinated market oriented institutions (inter-firm collaboration and skill formation). While not coherent in a traditional varieties of capitalism formulation, Greenville is host to several complementary institutions that we will examine in this section.

Subsection A: County Coherence

The Greenville system thrives on linkages. Every institution we have examined works intimately with several other organizations in the ecology. Coherence and clear division of responsibility are crucial to the success of such a dense institutional ecology. The process of

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housing units for students who live outside of Greenville County. Last year the Foundation raised over 6 million dollars (Interview 4).

creating linkages and dividing responsibility is simplified in Greenville, given their lean, localized set of governance institutions.

Let us first examine Greenville Technical College itself. As previously mentioned, the South Carolina Technical College System was crafted so that one technical college is responsible for serving between eight and ten percent of the population. The population of South Carolina is roughly 5.024 million people. The population of Greenville County is 491,863 people, just under 10% of the overall state population (The South Is Home to 10 of the 15 Fastest-Growing Large Cities, 2017). Therefore, GTC was assigned to exclusively serve the citizens of the Greenville County. Comparatively, Piedmont Technical College is responsible for seven counties (Interview 3).

We find similar county coherence in the SC Works system. The South Carolina installation of American Job Centers, divides up the state's 46 counties into 12 "workforce regions". Greenville County is the only county in the state classified as a single workforce development region. There is one SC Works coordinator, one Workforce Development board, and one SC Works Center that serve the county (Interview 10).

Finally, Greenville County also only has one school district, with one school board, one superintendent, and one set of vocational education career centers. In comparison, neighboring Spartanburg, a county of similar size, has seven school districts in total (Interview 4).

The level of institutional county coherence is essential to linkage efficiency. Firms in Greenville only have to coordinate with one set of county institutions. Furthermore, when local leaders from invested institutions come together to solve workforce development problems, there are 5 to 6 decision makers in the room. In Spartanburg that number could be upwards of twenty, each with differing opinions, given their varying constituencies and organizational preferences.

In the case study of the Michelin apprenticeship program, Scott Clark, chairman of Michelin North America, expressed his desire to expand the program into other counties (Michelin, GCS Hold First 'Singing Day' for High School Youth Apprentices). However, there are serious feasibility questions should Michelin attempt to start such a program in an area of the state with a more complex institutional structure. If, for example, they attempted to develop a program in Spartanburg, which of the seven school districts would they work with? Given Spartanburg Tech covers three counties, which county council would approve the program? Which workforce development region would they coordinate with? All of these questions require time and money to solve. The Greenville advantage is that there are differentiated institutions with clear lines of communication all singularly focused on the success of Greenville County.

Subsection B: Advisory Boards

In classic coordinated market economies, firms collaborate within industry associations to develop curriculum. We already know industry-wide skill provision exists in Greenville, but how is industry input facilitated? Greenville Technical College is the main mechanism for industry to influence the curriculum development process.

Each individual program, whether it serves an entire industry or a sub-industry[15], has an advisory council of industry representatives. Advisory boards work with administrators and instructors to develop curricula. During the development stage of an industry program, GTC administrators will either present a pre-existing curriculum to adjust or will work with industry leaders to develop a new program. Often, the industry will provide instructors and equipment to

[15] For companies in the advanced manufacturing industry, every four to five years, a committee of industry leaders and GTC representatives form a DACUM. A DACUM focuses on broad, forward looking industry skill demands, differentiating a DACUM from an advisory board which has a more granular focus.

ensure the direct translation of newly acquired knowledge into the workplace. The advisory boards, over the duration of the programs existence, meet twice a year, at a minimum, to suggest updates to the curriculum (Interview 6). It is essential to understand that at GTC, curriculum is not stagnant. The instructors are constantly tweaking courses based on new technologies and best practices. The advisory boards are at least a partial functional equivalent of traditional CME industry associations, representing a crucial feedback loop between business and education.

The following case study will highlight how Greenville Tech and industry leaders work together to develop curricula.

Case Study Two: Commercial Construction and Institutional Influence

Forty-five people move into Greenville County every day. The population explosion necessitates a growing construction industry. Three of the county's largest construction companies, which shall remain nameless due to confidentiality concerns, recognized the need for greater commercial development but were constrained by a lack of skilled labor.

The firms, aware that Greenville Technical College had a residential construction program inquired about a commercial construction curriculum. Residential and commercial construction require a different set of skills and thus a new program had be developed to retrain workers. Greenville Technical College provided the three firms, which make up the advisory board for the commercial construction program, the residential program curriculum and asked for adjustments to meet their long and short term needs.

After reviewing input from the three firms, Greenville Tech produced a curriculum plan that would train a workforce in commercial construction skills and techniques.

Initially, the firms' incumbent workforce was put through a three week training program, paid for by the sponsoring firms. After all existing labor had been trained, the program was made available to the public. Completion of the program is a pre-requisite for employment with any of the three firms, providing legitimacy to the authoritative certification credentials of Greenville Tech.

This case study supports the primary argument made by varieties of capitalism scholars – strategy follows structure. "Firms located within any political economy face a set of coordinating institutions whose character is not fully under their control. These institutions offer firms a particular set of opportunities; and companies can be expected to gravitate toward strategies that take advantage of these opportunities," (Hall and Soskice, 2001: 15). In this case we witness three firms all facing a vexing labor shortage crisis. The firms would be highly unlikely to create a joint curriculum without Greenville Technical College. They do not have the skill set or funding to develop an industry wide educational program without institutional support. The presence of Greenville Tech constituted an institutional incentive to cooperate (Interview 3).

Subsection C: Investment Promotion

In section IV subsection B, we discussed the structure of the investment promotion apparatus but we did not address how it connects to the workforce development cluster. Throughout the Greenville economy there is extensive investment in workforce development. Firms, especially advanced manufacturing firms, offer tuition assistance, salary during training programs, and health care prior to full time employment. In traditional coordinated market economies this level of investment is a function of collective bargaining facilitated by strong

national unions. But there are no unions of significance in Greenville County, so why are firms so keen on heavily investing in workforce development?

Greenville uses free market forces to increase the pressure on firms to invest in workforce development. When labor markets are tight, industry must increase investment in skill formation programs. The underlying mechanism is very simply supply and demand. When the demand for labor is greater than the supply, firms, in need of skilled workers, must increase incentives and/or engage with prospective employees earlier. Robbie Dunaway of Michelin cited the tight labor market as the reason for engaging with high school career centers (Interview 7).

Counterfactually, if a labor market is bloated, with a higher supply of labor than demand for labor, firms will have little incentive to engage in industry wide skill. Rather, they are more likely to train internally because there is little incentive for an employee to leave and recruitment of new workers is less competitive.

The question now becomes how does Greenville tighten the labor market? The answer lies in economic development institutions increasing demand for labor. The Upstate Alliance and Greenville Area Development Corporation must continually recruit firms in order to solidify the incentives for workforce development. Without a constant influx of new firms looking for workers, the labor market would expand to the point where firms would start training internally. South Carolina, the Upstate, and Greenville have developed a highly efficient investment recruitment system that has solidified South Carolina[16] and Greenville County[17] as foreign direct investment leaders (SC Recognized for per Capita Foreign Direct Investment, 2016). The ability

[16] fDI magainze named South Carolina as its national FDI champion in 2016.
[17] Greenville in 2016 generates the most FDI per capita in the country according to fDI magazine.

of Greenville County to consistently recruit new business is essential to the survival of its workforce development system.

Unfortunately, tight labor markets give rise to a second collective action problem: poaching. Poaching employees from competitors undercuts firm incentives to invest in skills. If there is no guarantee a firm's investment will be returned by full and continued employment of the worker, the firm will not make the investment. Under tight labor market conditions firms may feel the need to poach workers. However, during conversations with Greenville workforce representatives we found poaching was not a pervasive issue, even amidst a tight labor market (Interview 6). Why?

Greenville is able to avoid poaching during times of a constricted labor market by offering alternative institutional mechanisms to address labor needs. Poaching hurts all firms. If one firm poaches a highly skilled worker it could set off a chain reaction where all firms begin stealing labor, to the detriment of the entire industry. Thus, firms will oftentimes look for an alternative. Greenville has several institutional alternatives including ReadySC, GTC customized curriculum, and Apprenticeship Carolina. Firms utilize these institutions to satisfy their labor needs, rendering poaching, in Greenville, functionally irrelevant.

Let us return to the construction case study to illustrate the impact of the labor market. All three construction firms were operating in the same tight labor market (Interview 3). As we have explained, in tight labor market conditions, firms are willing to invest in skill formation. If they do not, the firm will be at a comparative disadvantage –they would miss out on potential profits in the commercial construction sector because they failed to invest in the cultivation of skilled labor. In short, the economic gains of a new business sector outweigh the costs of skill investment. All three firms internalize that trade off. Each firm has two options. Option A is to

recruit competitors labor, enticing them with higher wages. Option B is to train a workforce. In the event Greenville Technical College did not exist or its reputation was such that a firm would not trust its skill outcomes, firms would choose option A, and poach workers. The creation and implementation of a commercial construction training program without institutional support would cost more than a small increase in salary to entice a competitors labor force. But, fortunately, the three firms worked with Greenville Tech to reskill and supplement their work forces. The institutional presence of Greenville Technical College incentivized the construction companies to invest in skill formation providing evidence to the basic varieties of capitalism argument, that strategy follows structure.

Subsection D: Localized Political Oversight

The political oversight mechanism in Greenville embeds the workforce development system in a hierarchy that exercises performance directed oversight. Political leaders impress upon the GADC and GTC that effective skill provision is of the utmost importance. They do so because political leaders who hold positions on the County Council or in the state legislature have incentives themselves for county wide development. In order to stay in office they must appeal to the citizenry, and the citizenry desires skill formation and employment options. Thus, the county council's priority is economic development (Interview 3).

The Council and Legislative delegation have the power to regulate funding, which gives them leverage over GTC and GADC (Interview 8). If they are not performing, the legislative delegation and the council will nominate new members to the Area Commission or reallocate funding.

All four institutions understand the oversight power held by elected officials. Their responsibility is to the citizens not the institutions. These relationships are key complementary linkages that functionally enmesh the workforce and economic development clusters in a network that evaluates performance, establishing a level of accountability.

However, there is a potential risk that partisan politics will interfere with technically informed policy. While the council is a political body, the notion that partisan politics plays a role in the oversight of technical and vocational education is consistently dismissed by Dr. Whirl and Mr. Smith. Dr. Whirl made it clear politics is not a part of Greenville Tech's decision making process. He explained, as described above, that all technical colleges are governed by local boards which are appointed by the county legislative delegation and approved by the county council. Thus, area commission members are not elected and have limited partisan agendas. Moreover, the presidents of the Technical Colleges report to their local boards, not to a state regents board as is the case in other states[18]. Thus, the focus is on performance, not politics (Interviews 3 and 8).

Subsection E: Greenville Works

The Greenville system does not have industry associations, unions, or governments creating authoritative certification. In some cases, as for teachers and welders there are national credentials, but for a majority of professions, there are not. We have mentioned the reputational effect of Greenville Tech that allows for portability locally but the county requires a more formal system of knowledge accreditation.

[18] Including Georgia

Thus, the county created Greenville Works. Greenville Works launched in 2009 under the SC Work Ready Communities Program[19] and received a grant through the National Fund for Workforce Solutions in 2011. Greenville Works raised over $1.9 million for the project. Its goal was to promote career readiness certificates (CRC) as a validation of worker's skills. The group was led by a steering committee consisting of the county council chair, a community employer champion (Michelin North America), business and industry partners, Greenville Technical College, the Workforce Development Board, an adult education organization, ReadySC, GADC, and the Chamber of Commerce (Interview 10). After a lengthy discovery period Greenville Works decided the WorkKeys assessment is a "strong, valid, and reliable measure of worker's skills" (Greenville Works).

Greenville encouraged employers to either recognize, request, or require CRC. Today there are hundreds of employers who recognize, request or require the certification. The CRC allows for employers in any industry to have a verified assessment of worker's skill in applied math, reading, and graphs (Greenville Works).

The absence of authoritative industry associations left workers without widely accepted credentials of their skill set which undermines the incentive to invest. Furthermore, while WorkKeys does not provide accreditation for specific industries its gives employers a baseline understanding of the worker's competency. From there, Greenville Tech, an apprenticeship program, or national certification will support portability.

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[19] South Carolina recently terminated its Work Ready Communities Program and will soon be implementing a new initiative that will not be based upon WorkKeys. However, the initiative will be very similar to WorkKeys via the assessments and authorized job profiles for businesses. WorkKeys may continue to be offered in addition to the new work ready program based on employer demand (Interview 10)

Subsection F: Foreign Firm Leadership

It is impossible to ignore the influence of Michelin on the Greenville technical education system. Michelin was the first major international manufacturing company to locate in the county, setting up shop in 1975. The firm decided to establish their US headquarters in Greenville and brought with them an enthusiasm for technical training (Interview 7). Previously operating exclusively in Europe, they had knowledge of coordinated market economy workforce systems. I have consistently struggled with why domestic firms in Greenville tied to the US financial system invest so heavily in skill formation. If we refer back to the literature, a quote by Coats provides insight, "forms of corporate organization now cut across national borders" (Coats, 2005:19).

With Coats in mind it is reasonable to assume that Michelin, a company based in a coordinated market economy with, again, we are assuming, long term bank-based capital, as is characteristic of European economies, encouraged and supported technical education. In turn, other European firms joined Michelin in their enthusiastic support and utilization of Greenville Technical College. At this point, non-investment from domestic firms constitutes a comparative disadvantage because when the majority of firms engage in education there is increased incentive to set up training schemes (Lynch, 1994).

Foreign influence in Greenville, spearheaded by Michelin, created an economic imperative to invest in skill formation (Interview 2). If a company refrains, the quality labor, wooed by apprenticeships and tuition assistance, will go to a competitor. Tony Smith of the Greenville Area Development Corporation confirmed that European firms are often the "first to jump into it", it referring to vocational education programs. He stated that while US firms are less familiar with the idea of school based workforce training they are beginning to engage with

more enthusiasm after losing skilled labor to European firms that "take full advantage" of Greenville Technical College (Interview 8).

The argument then is that foreign firms, with the theoretically consistent type of CME financial incentive, had the ability and internal incentives to invest in workforce development which then created a comparative advantage over traditional domestic firms. Once the domestic firms realized they were disadvantaged, they followed suit and began their own workforce development programs, solidifying widespread investment.

Section VII: Origins of the Greenville System

A full-fledged examination of the origins of the Greenville system is certainly a worthy and important pursuit. The parameters of this paper preclude such an investigation, but below I have outlined important institutional moments from the 1800s to today that have contributed to development of the current workforce development ecology. Hopefully the table belows can assist future research into how workforce development institutions are formed and under what conditions.

Table 3: Important dates in Greenville's Workforce Development

1861-1865	Greenville produces 60% of ammunition and wagons for the Confederate army during the Civil War.
1889	The Greenville Chamber of Commerce is founded.
1896-1900	Textile mills begin to be built in Greenville County by members of the Masonic Club. The mills are built close together. The owners and managers of the mills, all members of the Club, demonstrate high levels of collaboration, oftentimes serving on competitor's board of directors.
1939-1945	During World War II, 75% of the Greenville population is tied to the textile industry.
1950	The large textile companies in Greenville begin to acquire smaller mills.

1954	Roger Milliken relocates his textile business from New York to upstate South Carolina.
1959	Ernest Frederick "Fritz" Hollings is sworn in as Governor of South Carolina.
1961	Greenville is the first County to apply for a Technical Education Center.
1962	The South Carolina Legislature passes legislation creating Technical Education Centers, initially called the Special Schools Program, which would ultimately be renamed ReadySC.
	Greenville Technical College opens.
	Greenville-Spartanburg airport opens.
1963	With 450 students enrolled GTC asks the state committee to expand.
1964	Donaldson Airforce base is converted into the Donaldson Business Center.
1965	GTC establishes a two year textile management program.
1966	Greenville Tech begins a two year transfer program in partnership with Clemson University.
1967	State legislature passes a bill to establish the Commission on Higher Education.
1968	GTC receives accreditation from the Southern Association of Colleges and Schools.
1972	The state legislature approves the comprehensive community college concept.
	State legislature passes bill to establish "home rule". Home rule allows for counties to establish governing bodies, taking decision making power out of the hands of a county's state legislative delegation. In response, the Greenville County Council is founded.
1974	Greenville Tech offers first community college course.
	Leadership Greenville is founded.
1975-1985	Textile industry dissipates.
1975	Michelin opens its US headquarters in Greenville.
1980	"Design for eighties" resource centers are opened to train faculty and staff on new technologies.
1990	United States Congress passes the Carl D Perkins Vocational and Applied Technology Act.
	Max Heller leads Vision 2005, a group of local leaders that created a 15 year master plan for the county.

1993	BMW chooses to locate manufacturing plant in Greer, directly between Greenville and Spartanburg.
1994	The state legislature passes a bill allowing counties to grant tax incentives. The Greenville County Council initially grants that power to the Chamber of Commerce.
1996	SC Commission on Higher Education expands transferable course list.
1998	The United States Congress passes the Workforce Investment Act (WIA) establishing American Job Centers which in South Carolina are known as SC Works centers.
2000	The Upstate alliance is founded.
2001	The County Council establishes the Greenville Area Development Corporation and invests in it the power to grant tax incentives, removing that power from the Chamber of Commerce.
2002	South Carolina legislature approves a bill to allow lottery money to fund two-year degree programs.
2007	The special schools program is renamed ReadySC
	Apprenticeship Carolina is founded.
2014	The United States Congress passes the Workforce Innovation and Opportunity Act, reauthorizing WIA until 2020

Sources: (Interviews 1-11; Poland, 2013)

The table above is not comprehensive, nor do I say anything about the relative importance of these events. As previously stated I hope this timeline provides a foundation upon which further research can build.

Section VIII: Conclusions

The United States is in dire need of vocational and technical education. The impending labor shortage of middle-skill industry educated manufacturing workers threatens to undermine a resurgent US manufacturing industry. If we accept the varieties of capitalism theory, the United States, given its institutional makeup is ill prepared to efficiently produce industry-wide skills. However, this investigation of Greenville, South Carolina, may provide a foundation upon which

local leaders can build a new set of complementary institutions that are uniquely suited to overcoming collective action problems within the American context. In this concluding section I will review the theoretical and policy implications of the Greenville experience, address the limitations of both this study and the selection of Greenville as a case, and provide suggestions for future research.

The theoretical question underpinning this case is whether or not complementarity in the absence of traditional institutional cohesion can lead to the efficient provision of industry-wide skills. Evidence was provided throughout the investigation into Greenville that there does not need to be traditional institutional coherence for there to be efficient industry skill provision. In fact, Greenville, while void of traditional coordinated market economy institutions, is highly efficient in its provision of industry-wide skills. Thus, Greenville provides support to the literature on hybrids and adds to the growing evidence that contradicts the necessity of institutional cohesion.

In addition to theoretical contributions, this study provides several major insights into the formation of localized workforce development systems in the United States. Primarily, as was mentioned throughout the thesis, constituent cohesion is extremely important. In this case, constituent cohesion means the institutions that provide or support skill formation all have uniform constituencies, i.e. they serve the same group of people. In Greenville, GTC, SC Works Greenville, the Greenville County School Board, and the County Council all are responsible for the same jurisdiction –Greenville County. This prevents unnecessary institutional overlap, increases the substance of linkages, and retains a level of accountability. When workforce development systems become too complex the process of assigning responsibility is undermined. Without the ability to clearly assign responsibility, incentives to perform break down. Greenville,

given its high level of constituent cohesion provides an example of the benefits of single jurisdiction institutions.

A second important conclusion of this study is the impact of industry input into curricula. By providing institutional opportunities to provide input, Greenville Technical College, not only strengthens its curriculum but also increases firm commitment to GTC and vocational education more broadly. The same can be said for the Workforce Development Board. The requirement to have over 50% industry representation on the Board ensures the goals of the workforce development regime remain in line with the goals of industry.

Third, throughout the ecology, Greenville does an excellent job of utilizing incentives followed by institutional opportunities, to produce outcomes. One of the better examples of this is the interaction between the political cluster and the investment promotion cluster. The state as well as the county understand that long term investments from firms is best for workforce development. According to Tony Smith of the GADC, the tax structure is set up to reflect those goals and incentivizes GADC to pursue long term projects, rather than short term investments that may, in the short term, provide a flattering headline, but in the long term, have little positive impact on workforce development.

A similar incentive structure exists between the investment promotion cluster and the workforce development cluster. The investment promotion cluster tightens the labor market and incentivizes firms to invest in skill formation while also, unavoidably, increasing the probability of poaching. However, Greenville provides institutional outlets to address labor concerns. The combination of the investment promotion and the workforce development cluster incentivizes workforce development *and* provides institutions to produce the skill.

Finally, Greenville has been successful because it has retained flexibility with regard to the mix of general, industry-wide and firm-specific skills and competencies. What sets Greenville apart from a traditional coordinated market economy scheme is its ability to serve firm specific needs, a major selling point for the investment promotion cluster. The flexibility is a function of localized oversight. We witness the combination of local leadership and flexibility in the creation of Greenville Works. Greenville Works was a pop up institution formed by the leaders of every major workforce development player in the county. They were able to assess a problem (lack of authoritative certification), establish an institution, solve the problem, and promptly disband the institution so as to not complicate the streamlined ecology. Greenville Works represents a level of flexibility and localized leadership that should act as a model for workforce and economic development systems around the country.

Before discussing the limitations of this study, I want to clarify the division of labor between the two most important institutions in Greenville, the Workforce Development Board and Greenville Technical College. The two institutions are key intermediaries responsible for the coordination of both a broad-based workforce development strategy as well as the provision of skills.

The Workforce Development Board and GTC have different mandates. The Workforce Development Board operates on a macro level. The group, which is made up of an impressive coalition of local leaders, develops sector strategies for the county accounting for predicted growth over a twenty to fifty-year period. After a plan is formulated the Workforce Development Board oversees the coordination of all workforce institutions ensuring each directs its energy toward the shared sector strategy.

Furthermore, as the gate keeper for federal funds the Board serves an important oversight function. The Board controls federal funding workforce allotments that are only accessible if Greenville meets the Department of Labor workforce benchmarks. As such, the Board imposes performance based pressure on all Greenville workforce institutions, solidifying its authoritative oversight capabilities (Interview 10).

The Board is essential for providing a common goal, cohesive strategy, and performance based oversight. Its macro focus allows for Greenville Technical College to facilitate micro level educational functions. GTC serves an intermediary function between prospective and established firms, Apprenticeship Carolina, readySC, and the under-skilled workforce. It makes a concerted effort to remain student focused. GTC does not pretend or attempt to set the long-term course for the county. Rather it focuses on the efficient provision of skills and as we have seen, it is quite successful. In sum, the success of the Greenville institutional ecology relies upon the efficient operation of and relationship between the Workforce Development Board and Greenville Tech.

The differences in mandate stem, in part, from each organization's institutional level within the state-local relationship. The Workforce Development Board is a local oversight board but it is part of the SC Works organization which has a state-wide mandate, thus its focus is broader. Greenville Technical College derives its micro focus from its local mission. The ability for the state of South Carolina and Greenville to efficiently divide labor is one key to the county's ability to allocate resources to achieve maximum outcome.

While there are certainly relevant institutional lessons to be learned from Greenville there are limitations to both the study itself and the selection of Greenville as a case. Primarily, the lack of information on firm financial systems is a major limitation of the study. Without fully

understanding the firm based incentives for investment, it is hard to discern whether the institutional ecology can be credited with workforce investment.

The same can be said for the influence of foreign firms. Without an empirical study, we cannot know for certain how impactful Michelin was in the formation the Greenville system. Future research should compare the workforce development outcomes in similar sized cities with domestic automotive clusters with the outcomes in Greenville. I also believe there was a missed opportunity in the discussion of United Way, to investigate the nonprofit sector to a greater degree, within the literature on human capital formation. A study that compared nonprofit sector size in two cities with the success of their workforce development regimes would be helpful in teasing out causal mechanisms and discerning how much, if any, nonprofit involvement is required.

A full examination of origins is also in order. The Greenville ecology is certainly unique but its evolution would provide greater insight that may help address previously mentioned limitations. Furthermore, an understanding of origins would assist other states, counties, and cities to understand the steps that must be taken to establish an effective workforce development ecology.

Finally, the single case study is inherently limited. Is what is happening in Greenville unique? I believe our preliminary overview of the success in Greenville has answered that question in the affirmative, but comparison to another city would certainly generate greater insight. This study was not intended as a comparative analysis. However, a comparative case would not only differentiate Greenville's experience but also provide greater insight into the institutions within the Greenville ecology that have the greatest impact. The next few paragraphs

will outline a proposed research design for a comparative case study between Greenville County, South Carolina and Summit County, Ohio.

I have chosen Summit County, Ohio as a possible comparison because it is similar to Greenville County across several metrics. The two counties are both home to single large cities, Greenville in Greenville County and Akron in Summit County, and the populations and demographics of the two counties are comparable. The following table provides comparative data.

Table 4: Demographic Comparison

	Total Population	% White	% Black	% Hispanic
Greenville County	506,837	73.8%	18.1%	8.1%
Summit County	541,968	80.6%	14.4%	1.6%

Source: US Census Bureau

Furthermore, the two counties have similar county government structures and access to infrastructure. Summit is one of two counties in Ohio that is controlled by a County Council rather than three elected commissioners. Summit County is enmeshed in the I-80 corridor and Greenville operates along I-85. Akron is 40 miles from Cleveland and 111 miles from Pittsburgh. Similarly, Greenville is 100 miles from Charlotte and 140 miles from Atlanta. The population, demographics, government structure, infrastructure, and proximity to large cities constitute a structural basis for comparison.

In carrying out a comparative study I would like to examine several outcome variables, preferably from 1950 to the present. Outcome data should include median income, unemployment rate, inequality, FDI as a percentage of GDP, employment in foreign-owned companies, number of workers trained in industry skill, number of workers in formalized

apprenticeship programs, education levels, and under-employment rates. This is the minimum outcome data needed to formulate a comparative dependent variable.

What are the relevant institutions to look for or what are the key proximate casual variables? Given our contention that GTC is an important intermediary institution in Greenville County, we must look for the presence and effectiveness of a vocational and technical college in Summit County. If we find that there is an equivalent to GTC in Summit County we must examine its institutional linkages. Does it, for example, have a locally controlled oversight board? Is it effective at involving industry in curriculum development? If there is not a technical college, the fundamental question is why not and what takes its place in the workforce development apparatus?

Secondly, a comparative study of workforce development boards would yield evidence regarding the comparative efficiency of the Greenville Workforce Development Board. Comparison between the Greenville Board and the Summit Medina Workforce Development Board, based on the ability of the workforce region to reach department of labor benchmarks will strengthen our understanding of the Greenville system.

Finally, we must investigate the level of constituent cohesion. In Greenville, single county institutions simplify the process of developing a shared vision and increases the impact of linkages. An investigation of Summit institutions and their constituents and institutional preferences may shed light on the importance of cohesion.

The comparative case of Summit County and Greenville County becomes even more interesting when considering origins. Where did these institutions come from? What were the factors in their development? How did each county respond to economic hardship? Was one

more successful than the other in adjusting to globalization through workforce development? Why?

At the same time Greenville was dubbed "Textile Capitol of the World," Summit County, specifically Akron, was named the "Rubber Capitol of the World". The rubber industry dominated employment in Summit County. Unfortunately, as in Greenville, globalization led to the speedy decline of rubber based manufacturing jobs. How each county recovered or failed to recover is of interest to this comparative study. The ability of one county to reskill its workforce more effectively than the other we will gain insight into how counties should respond to industry flight.

Finally, the two cases provide a workable comparative structure to examine the influence of foreign firms on the origins of workforce development systems. Goodyear Tire Company is the second largest private employer in Summit County with 3,500 employees (Major Employers City of Akron, 2017). Michelin Tire Company employs 4,100 people in Greenville South Carolina (Interview 7). Michelin is a foreign owned company. Goodyear is a domestic company. Both produce tires and both have a long history in their respective geographic areas. By comparing Greenville and Summit we will gain insight into the differences between the influences of domestic and foreign firms.

In conclusion, the Greenville case, while not incontestable, provides important theoretical and public policy insights into effective skill formation regimes in the United States context. However, to take the investigation further a comparative case is needed. Summit County provides a possible foil to Greenville. By examining the outcome data previously mentioned we will have a better understanding of economic success, particularly after the loss of the textile and rubber industries. We will then compare the outcomes with the respective county's workforce

development institutional ecologies. The results will yield information to help us understand the importance of constituent cohesion, effective workforce development boards, foreign firm leadership, and economic history.

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Table 4: Interviews Referenced

No.	**Date**	**Interviewer (s)**	**Interviewee (S)**	**Title**	**Organization**
1	2/17/2017	Dr. Richard Doner	Lauren Simer	Vice President for Institutional Effectiveness	Greenville Technical College
			Dr. Jermaine Whirl	Vice President of Learning and Workforce	Greenville Technical College

				Development	
2	2/17/2017	Dr. Richard Doner	J. Mark Farris	President & CEO	Greenville Area Development Corporation
			Tony Smith	Project Manager	Greenville Area Development Corporation
3	8/9/2017	Dr. Richard Doner and Crawford Schneider	Dr. Jermaine Whirl	Vice President of Learning and Workforce Development	Greenville Technical College
4	2/21/2018	Crawford Schneider	Fred Payne	County Councilman	Greenville County Council
5	10/25/2017	Dr. Richard Doner and Crawford Schneider	Elizabeth Feather	Director of Research	Upstate Alliance
6	10/25/2017	Dr. Richard Doner and Crawford Schneider	Kelvin Byrd	Department Head – Mechatronics and Associate Dean of the CMI	Greenville Technical College
7	2/21/2018	Crawford Schneider	Robbie Dunaway	Technical Training Manager	Michelin North America
8	2/21/2018	Crawford Schneider	Tony Smith	Project Manager	Greenville Area Development Corporation
9	10/25/2017	Dr. Richard Doner and Crawford Schneider	Don Koonce	County Historian	Formerly Chamber of Commerce
10	2/21/2018	Crawford Schneider	Dean Jones	Director	SC Works Greenville
11	2/21/2018	Crawford Schneider	JoKeitha Seabrook	Director of Community and Partner Relations	United Way of Greenville