Three Essays on Socio-Institutional Ecosystems & Labor Structures

Jonathan Donald Jenner

University of Massachusetts Amherst

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THREE ESSAYS ON SOCIO-INSTITUTIONAL ECOSYSTEMS & LABOR STRUCTURES

A Dissertation Presented

by

JONATHAN DONALD JENNER

Submitted to the Graduate School of
the University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

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Economics Department
THREE ESSAYS ON
SOCIO-INSTITUTIONAL ECOSYSTEMS AND LABOR STRUCTURES

A Dissertation Presented

By

JONATHAN JENNER

Approved as to style and content by:

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Without the help and support of so many people, this dissertation would not exist. The writing process helped me to appreciate just how many networks variously introduced, pushed, sharpened, helped me to abandon, challenged, and refined the ideas in this work, while also caring for me as a person in the wide variety of forms that care takes. The shape of networks and collectivities – ‘socio-institutional ecosystems’ – runs through this dissertation, as does the concept of work. I was tickled, then, that my own work process helped reveal some of the wider collectivities I participate in. To all of you: thank you very much. The next several pages are just more specific namings of my gratitude.

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ABSTRACT

THREE ESSAYS ON SOCIO-INSTITUTIONAL ECOSYSTEMS & LABOR STRUCTURE

February 2021

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In three essays, this dissertation explores the relationship between the social and the economic, with an eye to how social and institutional formations affect economic outcomes. In the first essay, I construct a theoretical base by developing the metaphor of ‘ecosystem’ as a frame for thinking of the various interrelations between social processes and economic phenomena – the socio-institutional ecosystem analysis. In invoking ecosystem as a central metaphor, this dissertation calls into focus the interaction between the economic and the non-economic, recognizing the multiplicity of causal inter- and intra-relationships between the two.

I deploy this analysis in two substantive case studies. The second essay explores labor regimes in colonial East Africa, examining how the British authorities who sought to occasion a paid labor agricultural force faced different possibilities and constraints in Kenya (a Crown Colony) and Tanganyika (a League of Nations Mandate Territory). It explores how the more repressive Kenyan regime led to increased proletarianization through the Great Depression, while Tanganyika saw an increase in peasantization, and how these developments affected the long-term historical trajectories of both countries.

The third essay examines the appearance and distribution of worker cooperatives in the United States as a function of their proximate socio-institutional environments, and finds that political ideology of the surrounding area correlates heavily with the presence of worker cooperatives, and explores what this means for policy and for economic theory of worker cooperatives.
# Table of Contents

ACKNOWLEDGMENTS ........................................................................................................ iv

ABSTRACT ........................................................................................................................... ix

INTRODUCTION .................................................................................................................. 1

ESSAY I: THE SOCIO-INSTITUTIONAL ECOSYSTEM ANALYSIS: METAPHOR, EPISTEMOLOGY, AND METHODOLOGY ................................................................. 5

ESSAY II: THE GREAT DEPRESSION AND LABOR FORCE DIVERGENCE IN COLONIAL KENYA & TANGANYIKA: A SOCIO-INSTITUTIONAL ECOSYSTEM APPROACH TO ECONOMIC TRAJECTORIES ....................................................... 55

ESSAY III: THE SOCIO-INSTITUTIONAL ECOSYSTEM HYPOTHESIS FOR THE PROLIFERATION OF WORKER COOPERATIVES IN THE UNITED STATES….. 125

CONCLUSION ....................................................................................................................... 181

WORKS CITED ...................................................................................................................... 185
INTRODUCTION

In three essays, this dissertation explores the relationship between the social and the economic, with an eye to how social and institutional formations affect economic outcomes. In the first essay, I construct a theoretical base by developing the metaphor of ‘ecosystem’ as a frame for thinking of the various interrelations between social processes and economic phenomena – the socio-institutional ecosystem analysis. In biology, ecosystemic thought analyzes the interaction between organisms and their non-living environments, examining the layered ways in which both exert influence on each other. In invoking ecosystem as a central metaphor, this dissertation calls into focus the interaction between the economic and the non-economic, recognizing the multiplicity of causal inter- and intra-relationships between the two. I deploy this analysis in two substantive case studies, looking at labor force structures in Depression-Era East Africa and the presence of worker cooperatives in the contemporary United States. Both case studies explore how social and institutional structures form and condition possibilities for workers through ecosystemic interaction with economic structures.

In each case I compare how different socio-institutional ecosystems through which economic activity occurs play a central role in determining the nature and substance of economic activity. Comparison forms a fundamental part of my method for exploring the two case studies, by looking at factors which vary across socio-institutional ecosystems and seeing how those differences inflect and condition economic phenomena. So, in my exploration of labor force structures in colonial Kenya and Tanganyika, the two colonies represent different socio-institutional ecosystems stemming to their different colonial charters: Kenya was Crown Colony and Tanganyika a League of Nations.
Mandate Territory. Though both states colonized comparable pre-colonial formations of the continental and Swahili coast admixture and focused on agricultural export through settler agriculture, their different colonial charters led to very different policies and social formations which had deep effects on the possibilities for Africans in Kenya and Tanganyika.

My next case study treats 57 different megaregions of the United States as discrete socio-institutional ecosystems and explores features of those ecosystems which make them amicable to worker cooperatives. Most economic theory treats question of the prevalence of worker cooperatives as a function of the internal qualities of democratic firms vis-à-vis capitalist firms. This approach treats the prevalence of particular type of firm as a function of the external social and institutional contexts and finds evidence that socio-institutional ecosystems are important for the prevalence of worker cooperatives, with a particular focus on the ideological composition of that ecosystem.

But why adopt the socio-institutional ecosystem as a mode of analysis for understanding economic phenomena? First, economics has paid too little attention to social and institutional structures as formative aspects of economic phenomena. When the discipline has considered different types of sociality, those considerations have largely been understood as superficial, or secondary to ‘economic fundamentals.’ Second, ecosystemic thought takes primary importance in this dissertation because of its departure from economics’ main metaphorical frame, the machine. Though often not explicit, ‘machine’ metaphor is central to economics; a model is a machine whose various parts affect an outcome in a prescribed, channeled way. While this helps focus on particular causal relationships, its requirements dull other investigative possibilities. Ecosystems are
full of feedback loops – dialectic causalities – which are not possible in the independent/dependent variable schema of causality enabled by machinist thought. This dissertation does not claim that machinist thought is wrong, rather that economists’ fidelity to machinist thought has obscured other truths which frame and structure economic phenomena, and that those truths can be better understood in a socio-institutional ecosystemic frame.

Thus, by grafting from various traditions in the social sciences and economics to put together a socio-institutional analysis, this focus on the ecosystemic interrelation between the social and the economic marks a point of departure from various schools of more conventional economic theory, and allows for new observations about economic life to come to the fore. For example, economic historiography of colonialism has focused on topical categorizations which operate along particular axes, focusing on mutually exclusive domains of extractive vs. inclusive economies, or markets vs. states, which cause effect \( x \) or \( y \) to vary across space and time. A socio-institutional ecosystem analysis allows us to examine and appreciate how mezzo-level social and institutional differentiation can echo back across various effects, and how small differences in qualitative aspects of a system – i.e. the social conditions which engender a market in a particular way – can have large economic reverberations across space and time. In the case of worker cooperatives in the United States, a focus on socio-institutional ecosystems allows for consider of the rich nexus of relationships in a firm’s environment as factors in their survival, beyond the algorithmic interaction of agents in abstract, de-socialized space. The third essay finds compelling evidence that the ideological composition of a socio-institutional ecosystem matters greatly in the prevalence of
worker cooperatives. Yet, conventional economic theorizing on worker cooperatives \textit{a priori} precludes such an observation.

This dissertation contributes a mode of socio-ecosystemic analysis to economic though as well as substantive observations about labor force structures in colonial East Africa and worker cooperative prevalence in the United States. The socio-institutional ecosystemic analysis, itself articulated from extant traditions and schools throughout the social sciences, can be marshaled to the study of all economic phenomena, because all economic phenomena happen within a particular social context. Truths about those phenomena, obscured by machinist models in economics, become visible through the socio-institutional ecosystem analysis, which includes both a theoretical posture and a mixed methods approach. Second, this dissertation contributes substantive knowledge about the topics for each case study. Landless rural workers, and sharp inequalities in land distribution and income have marked Kenya from the colonial era to now, while Tanzania has been marked by peasant dominance, lower national income, yet greater social equality. The second essay of this dissertation finds the roots of this in the social and legal setups of the two colonies, which are compounded and refracted by the Great Depression, continuing in a path dependent form from there. The third essay takes up ideas which have heretofore only been gestured at by economists and finds convincing evidence that external social and institutional environments do matter for the prevalence of worker cooperatives. This new knowledge and framing can improve policy and strategy for dignity and liberation.
THE SOCIO-INSTITUTIONAL ECOSYSTEM ANALYSIS: 
METAPHOR, EPISTEMOLOGY, AND METHODOLOGY

By Jonathan Donald Jenner

This essay lays out a framework for socio-institutional ecosystem analysis in economics. The approach seeks to appreciate the dynamism of the relationship between the social and economic in economic inquiry. This essay: animates a case that ecosystemic metaphor has positive contributions to make within economics; articulates the socio-institutional ecosystem as a central unit of analysis; explores the epistemological foundations of the frame, and considers attendant methodology appropriate for such inquiry. The basis for this intervention comes from two notions: economic theory has long tarried in thoroughly de-socialized space, where ‘economy-as-machine’ functions as a foundational metaphor, while actual economic activity occurs in the thoroughly socialized society we inhabit. In lieu of machine, this essay argues that ‘ecosystem’ can more readily capture the complexity of the interrelation between the social and economic, and in so doing add insights to economic processes. Precedent exists within the discipline (and economics-adjacent social sciences), which is demonstrated along with substantive examples showing the breadth and depth of the interrelation. Emergent characteristics of the social-economic interpenetrative relationship – dialectics, path dependency, resistance to formalization – are used to evaluate existing economic thought. The descriptive areas of dynamism in the social-economic interchange that economics has missed are explored in light of Cullenberg’s epistemological classification. This essay then marshals that classification towards a positive articulation of the socio-institutional ecosystem, pulling together strands from economic geography and economic sociology. This essay then explores how methodological pluralism can serve, not obfuscate, clarity as a methodology for the socio-institutional ecosystem analysis, while also reflecting on what the relationship between knowledge and power means for methodology. In doing so, this essay seeks to establish a way for economics to understand the ways that social forces shape economic realities, as economic forces shape social realities.
I. INTRODUCTION

THE MONIAC, KENYA ONE, AND MACHINE DEPARTURES

In 1949, William Phillips disassembled an airplane to build a machine which could model an economy. Two decades later, Morris Tito Gachamba assembled an airplane from various machine parts, which would later focus debate over the possibilities of an economy. Phillips’ hydraulic machine in London, England – the MONIAC (Monetary National Income Analogue Computer) – pumped tinted water into various tanks to model the flow of the British economy. For example, the savings flow eventually became the investment flow after collecting in the financial institution tank, tax rates could be changed by calibrating the tax flow, and so on (Holmes, 2013; Reserve Bank of New Zealand, 2007). Gachamba, a bicycle mechanic who never returned to school after receiving a beating from his standard two teacher, used scrap metal, canvas, and a scooter engine in the 1960s to build his airplane Kenya One, in Nyeri, Kenya (Weru, 2015). He flew his airplane for nine miles, before crash landing as a branch caught his wing on the landing approach to the airstrip. Today, Phillips’ original machine is at Leeds University and about a dozen other machines were built and distributed to various universities and

Figure 2: Philipps & the MONIAC

Figure 1: Gachamba & Kenya One
central banks. Economists found Phillips’ machine instructive and used it to both model economic change and to teach economics. Building from this, Phillips would go on to describe the relationship between unemployment and inflation, referred to by economists today as the Phillips Curve.

And while Gachamba’s airplane has been lost to history, eminent scholars have drawn out important economic lessons as well. After Gachamba’s flight, the Attorney General of the young Kenyan Republic, Charles Njonjo, quickly banned him from flying, because Gachamba had no aviation license. Ngũgĩ wa Thion’o, reflecting on this interaction years later, first notes the different linguistic communities of Gachamba and Njonjo as markers of their social position, values, and vision. Njonjo’s British accented English signaled his education and power, but also his deference to global power hierarchies. Gachamba’s *juakali*'-inflected Gĩkũyũ signaled the talent and industrial potential of a newly independent nation. Ngũgĩ characterizes their conflict as one that cuts right to the heart of the developmental trajectory of post-independence Kenya:

Gacamba’s vision says, *Africa can make things*. Njonjo’s says, *Leave that to Europe*. Instead of the capable, traveled Kenyan coming to the aid of a man with raw talent who’d never left Kenya, Njonjo crashed Gacamba’s dream. The result, whether intended or not, was that Gacamba’s invention would no longer function as a model and vision of what could be done within Kenya by ordinary Kenyans (Ngũgĩ wa Thion’o 2016).

This is a big claim. Ngũgĩ argues that Njonjo’s education embedded him in a social system of values which upheld the industrial and agricultural trade balance between Kenya and the Global North. Moreover, the power illustrated by Njonjo’s actions have affected the development trajectory of Kenya, and thus the lives of millions

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1 A handyman in *Kiswahili*, though literally ‘fierce sun,’ the craft taking its name from the direct sunlight under which the *juakali* works.
of Kenyans. The questions that Ngũgĩ raises – of industrial development, terms of trade, and path dependency – are central to the concerns of economics. But is the discipline of economics capable of assessing Ngũgĩ’s claim in a meaningful manner?

Put differently, can the powered social interaction between Gachamba and Njonjo over Gachamba’s brilliant machine be modeled in Phillips’ brilliant machine? Machine has long been a metaphor for the economy in the discipline of economics, and even throughout the social sciences (Scott, 1997). Mirowski’s *More Heat than Light* demonstrates how the history of economic thought has been melded to physics, casting economics as ‘social physics’ on a quest to uncover of the ‘universal laws’ which govern economic life through agents and markets (Mirowski, 1991). Neoclassical theory, in particular, has sought to understand the atomistic motions of agents and has built its understanding of the whole economy up from the foundations of rhythmic movements of agents, who operate in a larger machine. This metaphor persists throughout the discipline, and has for some time. Krugman has said, for example, that he was attracted to social science by “the beauty of pushing a button to solve problems,” (Thomas, 2009). Phillips’ *MONIAC* was a concrete manifestation of the persistent metaphor of machine. While machine-as-metaphor and the associated epistemologies and methodologies that come with it has been fruitful to sections of economic of economic inquiry, it has also left the discipline wanting.

The problem: fundamentally de-socialized machines seek to describe a very socialized world. They can perhaps model some forms of social power and sociality, but they do so in the context of the rules of the machine. “All markets, whether liquid or not, are combinations of human beings and physical objects,” writes MacKenzie, “it may
seem too obvious to need saying (until one realizes that few analysis of the markets develop the point), but human beings have bodies, *are* bodies,” (MacKenzie, 2008, p. 15). Those bodies are housed in society and bounded by culture, institutions, power hierarchies, and a vast array of social constellations. And while machine-as-metaphor can do well to trace the exchange and flow of objects and cash, they are fundamentally incapable of modeling social power and sociality in its myriad of forms that undergird the thoroughly peopled economy in which we exist. “Lacking an appropriate theoretical framework,” argues Greif, “economists and economic historians have paid little attention to the relations between culture and institutional structure,” (Greif, 1994, p. 912). This essay, then, is motivated by the idea economics is capable, as a discipline, of considering the social in its relation to the economic – like the power between Gachamba and Njonjo and the economic possibilities of the young Kenyan Republic. We need a framework capable of this fundamental relationship. To do that, we will need different metaphors, epistemologies, and methodologies.

**ECOSYSTEMS**

Instead of machine, this essay proposes ‘ecosystem’ as a metaphor for the economy and sets about to articulate an epistemology and methodology appropriate to that frame. This essay insists that through the metaphor of ecosystem and the articulation of an appropriate epistemology – built from peripheral but extant sections of thought in economics and the social sciences – we can consider the centrality of the interplay between economic goings-on and the social and institutional features of society which shape and condition those phenomena.

An ecosystem is comprised of a community of organisms and their non-living surroundings in a locale which interact together as a system. Ecologist and botanist
George Tansley proposed the term in the 1930s to better understand plants by highlighting the ways in which environmental context, the flow of energy and materials between organisms and their environment, formed a central methodology to know and understand plants. “Though the organisms may claim our primary interest,” he wrote, “when we are trying to think fundamentally we cannot separate them from their special environment, with which they form one physical system,” (Tansley 1935, 299). Scientists regard ecosystems as one level of organization of matter, ranging from subatomic particles to the universe as units of analysis. As such, ecologists call upon ecosystems as a unit of analysis not because the frame holds universal truths, but because the frame scales analysis to a level most appropriate for some of their key questions.

For economics, to deploy ecosystemic metaphor means to adopt a framework which considers the inter-penetration of the economic with the non-economic. Like Tansley’s thoughts on the study of organisms, this essay explores a mode of analysis where economic phenomena are understood in the context of systemic intra- and inter-relationships of the economic and non-economic in a particular location. An ecosystemic framework in economics makes use of a particular scale as a unit of analysis which zooms out from solely economic phenomena to understand those very economic phenomena in dynamic relationship to other features of their context. Such positioning doesn’t claim a universal truth to understanding economic phenomena, but does hold that viewing economic phenomena in light of that analysis does allow for insights to be made about those economic phenomena that are not available at other scalar units of analysis. In this essay, I explore what I term the socio-institutional ecosystem, calling attention to the social and institutional features of societies which interact with, condition, and are
conditioned by economic phenomena. In so doing, I outline a methodology taken up in the subsequent essays of this dissertation.

Three features of biological ecosystems stand out which will be of central importance in this essay’s use of ecosystemic metaphor: feedback loops; the notion of disturbance and succession; and a resistance to formal modeling of the ecosystem as a complex system. In a biological ecosystem, feedback loops mean that organisms affect each other, and affect the non-living environment, just as features of the non-living environment affect each other and the organisms within them. These feedback loops mean that causes are effects, and those effects simultaneously affect causes. In that way, dialectic causality becomes an important feature of socio-institutional ecosystem analysis.

The dynamics of biological ecosystems change over time, through processes of disturbance (an external prime mover) and succession (an internal prime mover). In the way that the re-introduction of just twenty wolves changed stream patterns and fish life in the entire Yellowstone basin, the social and economic activity which happens inside a socio-institutional ecosystem can radically shape the very structure of the ecosystem (Farquhar, 2019). Like their biological counterparts, socio-institutional ecosystems are subject to tectonic, epochal shifts which radically alter social and economic realities. Just as I glance at the biological ecosystem out the window from where I write, were I to move through past eons, I would first see the oak forest give way to beech grove accelerating then to glacial ice, mountain tops, and sea floor. Equilibria – to the extent that they exist – are ephemeral and subject to large machinations of history and path dependence, in both biological and economic ecosystems. Finally, biological ecosystems are complex systems. While individual relationships – oxygen metabolism of a carp,
onyx rates of reproduction – the entire system holds a web of relationships which encumber formal modelling. So cumbersome, in fact, that “the special characteristics of complex systems lead to additional challenges in both effectively modeling them and in validating the models,” (Petty, 2018, p. 1). While modeling will constitute an important part of the socio-institutional ecosystem analysis, the analysis renders modeling itself as an incomplete way to describe all that occurs in a socio-institutional ecosystem.

These features depart in important ways from the machine metaphor of economics. Machines generally do not contain feedback loops. In machines, causality flows one direction, as one process causes other effect, or several processes converge to cause an effect, but effects do not affect their causes. (Or, when they do, it is understood as a wastefulness or failure of the machine, as when an overheating engine prevents further piston locomotion). As such, causality in machine metaphor cannot be dialectical. As opposed to the succession and disturbance of biological ecosystems, the structures of the machine do not change over time. The machine functions today as it did yesteryear. Thus, machine-as-metaphor dampens an appreciation of history’s ability to rewrite the very rules of the machine in economics and leads to a particularly ahistorical posture. Finally, because the machine is eminently modelable in its granular and universal aspects, machine metaphor becomes particularly conducive to formal, mathematical modelling. While this has been particularly useful for some insights in economics, it can lead to an over-reliance on formal modeling, even to where the machine-as-metaphor is less appropriate. In so doing, this frame may miss out on important phenomena which are less amenable to formal modeling, along the lines of Kaplan’s streetlight or drunkard’s search principle, where a drunk man searches for his housekey not where he thinks it fell,
but where the streetlight shines (Kaplan, 1973, p. 11).

This departure from machine-as-metaphor and intentional use of ecosystem-as-metaphor seeks to contribute an analytical method to economic inquiry which aids our understanding of economic phenomena as resultant from the dynamic and systemic interaction of the economic and the non-economic, with a particular focus on the social and institutional. Yet, this essay marshals ecosystemic metaphor in order to augment understanding, not to universalize economic truth. More, this essay does not seek absolute conformity of economic systems to biological ecosystems, but to develop a theoretical posture which centers the actually existing and various interactions between the social and the economic, and to extend out a methodology from that posture. The task of this essay is to articulate a theory which can fully consider the interaction between economic phenomena and the socialized contexts those phenomena inhabit. Indeed, it should allow us to consider fundamentally economic claims nested in relationships of social and institutional power, like those made by Ngũgĩ about the relationship between colonial power and development possibilities in the young Kenyan Republic.

**STRUCTURE OF THIS ESSAY**

The next section, Section II, takes up the question, “Why is the socio-institutional ecosystem useful for economic inquiry?” It begins with the notion of ‘embeddedness’ read through the writing of Marx, Polanyi, and Granovetter, as an entry point to the consideration of the social fabric in which economic activity occurs. Next, this essay examines many examples of interaction between the social and economic spheres to demonstrate the breadth, depth, and quality of interaction from these two. These examples serve to establish and name actual relationship before proceeding to a more abstract discussion. Three characteristics emerge from these examples, which are posited
as characteristics of the relationships socio-institutional ecosystem, which are: (1) dialectic causality; (2) path dependency and historical inertia with no tendency towards an a priori endpoint; and (3) mechanisms which are difficult to formally model. Those characteristics then frame an inquiry into various economic schools of thought, as a way to think about how economic theory can – and cannot – capture the various elements of the social-economic interaction. While various theoretical groups in economics can reveal important economic facts, a widespread inability to grapple with the important characteristics of the socio-institutional ecosystem persists in many modes of thought in economics. To make sense of why, this essay turns to Cullenberg’s epistemological categorizations to frame these approaches in terms of Cartesian and Hegelian totalities, and the section concludes by exploring the notion of a decentered totality as an epistemological base for the socio-institutional ecosystem.

Having animated the case that the socio-institutional ecosystem analysis can reveal important insights into economic reality and possibility, Section III sets about articulate a positive theory of the socio-institutional ecosystem. This section explores a variety of contributions from economic geographers and economic sociologists. Of particular importance are the notions of ‘space’ from economic geographers, and ‘networks’ from economic sociologists. These contributions give structure to the previously considered characteristics of the social-economic interchange, which have been largely ignored by economists. This section concludes with a fuller articulation of the socio-institutional ecosystem.

Given this theoretical grounding, what kinds of methodologies are appropriate for socio-institutional ecosystem analysis? Section IV considers which methods can most
adequately capture the machinations of a socio-institutional ecosystem. Because of the various relationships at stake, this section explores methodological pluralism, and how, while holding onto a commitment to pluralism, various postures can serve clarity instead of clouding it. Because of the epistemological foundations explored in the previous section, methodology for socio-institutional ecosystem analysis must confront the interface between power and knowledge. While this problematic may be seen by some as a complication to inquiry, this essay takes the posture that in addition to ethical necessity, careful consideration of the interface between knowledge and power ultimately reveals clearer truths in the socio-institutional ecosystem analysis, and thus serves clarity in economics.

Finally, the conclusion pulls together these strands into a cogent restatement of socio-institutional ecosystem analysis and its possibilities in economics.

II. Why the Socio-Institutional Ecosystem?

The socio-institutional ecosystem analysis makes an intervention into economic inquiry which highlights the interaction between economic phenomena and social structures. This interaction forms a crucial part of understanding those very economic phenomena, which conventional economic theory has not been able to fully capture. To animate the case for such an analysis, this section deploys several invocations of the idea of ‘embeddedness’ as an entry point for the consideration of the socio-institutional ecosystem. A series of empirical examples of the myriad of relationships contained in the socio-institutional ecosystemic frame the case for the centrality of the social-economic relationship implied by the entry point of ‘embeddedness,’ and serve to ground future discussion in the concrete. From this, three characteristics of the relationships in the socio-institutional ecosystem are drawn out: (1) dialectic causality; (2) contingency, or no
tendency towards an a priori endpoint; and (3) mechanisms which are difficult to formally model. Considering these characteristics, this essay examines how other schools of thought in economics have been able to capture these characteristics. The analysis of Cullenberg brings clarity to this exercise, by categorizing the epistemologies of Cartesian and Hegelian totalities in economics, before offering a third decentered totality which can resolve some of the limits present in capturing the dynamics of a socio-institutional ecosystem (Cullenberg, 1999). This section demonstrates the necessity of socio-institutional ecosystem analysis by showing that the relationships at stake are central, not peripheral, to economic life. Given the characteristics of these relationships, conventional economic approaches cannot capture the elements of the socio-institutional ecosystem. However, a decentered epistemological frame can capture the set of relationships.

**ENTRY POINT: EMBEDDEDNESS FROM MARX TO POLANYI TO GRANOVETTER**

Three varied notions of ‘embeddedness’ offer an entry point for the consideration of the socio-institutional ecosystem: Marx’s *Gesellschaftsform*, the ‘embeddedness/disembeddedness’ of Polanyi, and Granovetter’s ‘embeddedness,’ (Marx 1857; Polanyi 2001; Granovetter 1985). In the introduction to *The Grundrisse*, Marx is concerned about the tendency of economists to generalize their descriptions of contemporaneous economic phenomena to the whole of society and to history. Economists aim to “present production […] as encased in eternal natural laws independent of history, at which opportunity bourgeois relations are then quietly smuggled in as the inviolable natural laws on which society in the abstract is founded,” (Marx, 1857, chap. 1). His answer to this tendency is as straightforward as it is simple: “all production is appropriation of nature on the part of an individual *within and through*[...]
a specific form of society,” (Marx, 1857, chap. 1, emphasis mine). Marx lays out the characteristic common to all production – the appropriation of nature – but insists that this happens everywhere within the specific set of social relationships in which that production occurs. This Marxian concept of Gesellschaftsform – or ‘specific form of society’ – forms a fundamental foundation to his economic analysis, and not a peripheral consideration. As such, this idea appears again in the first chapter of Capital Volume I, where commodities are explained as a particular set of social relationships from which the value form of capitalism descends (Marx, 2010). Indeed, it is only the specific social relationships of the capitalist mode, dependent on the market to produce and exchange commodities, which engender the analysis of value that is to follow (Cangiani, 2011). As such, the universality of economic activity for Marx can only register at its highest abstraction – a metabolism between humans and nature – while the understanding of any more granular economic activity requires an understanding of the social context which embeds that activity.

Polanyi first relates social sphere and economic sphere to each other through the notion of embeddedness, which he deploys to describe the epoch-defining transformation of modern capitalism. Prior to modern capitalism, the economic sphere was embedded within the social sphere. People understood economic activity as a subset of a larger web of social relationships and hierarchies. The great transformation that brought about modern capitalism was the process of the economic sphere disembedding from the social sphere. In so doing, the economic sphere existed independently and for itself, and even created social institutions embedded within it to prop up this structure. As argued by Machado, Polanyi’s economic sphere is not the formalist approach which renders
economic activity to market interactions between *homines economici*, but the substantivist “supply of material means to satisfy human needs,” which universalizes economic activity of humans (like Marx, at a high level of abstraction) and allows for comparison between systems (Machado, 2011, p. 121). Polanyi’s thought distinguishes modern capitalism from previous systems by the ordering of the relationship between the two spheres. In previous systems, the economic sphere was embedded within the social sphere, but the transformation of capitalism was to reverse that relationship: “instead of economy being embedded in social relations, social relations are embedded in the economic system,” (Polanyi, 2001, p. 77). Scale of analysis matters here: Polanyi deploys the notion to distinguish the paradigm shift between systems and does not argue that the ‘disembeddedness’ of the great transformation means that the economic sphere, as a descriptive fact, actually stands in isolation. As argued by Cangiani, “The fact that being ‘disembedded’ constitutes a general and permanent feature of the market economy does not clash with the fact that a perfectly self-regulating and perfectly competitive market never existed and could not exist,” (Cangiani, 2011, p. 191).

Granovetter invokes ‘embeddedness’ to show that all human activity, including economic activity, takes place in the embedded context of social structures, though not, as Polanyi argues, to draw distinctions between systems of economic and social organization. Granovetter’s ‘embeddedness’ asserts that mainstream economists have assumed social structures to be frictional, but that in fact “[sociological] analysis reveals central, not peripheral, features of these [economic] processes,” (Granovetter, 1985, p. 505). Confusion may result from the differential deployment of ‘embeddedness’ between economic sociologists and scholars in Polanyi’s tradition. Cangiani writes that “the
problem is to distinguish different meanings, in order to avoid an improper reference to Polanyi, resulting in the entanglement of his embedded/disembedded distinction in the ‘sociological’ concept of ‘embeddedness,’” (Cangiani, 2011, p. 191).

This essay does not seek to resolve the tensions in various uses of the notion of embeddedness in Marx, Polanyi, and Granovetter. However, through the divergent uses of embeddedness a key similarity emerges: the social and the economic deeply intertwine and exert influence on the other. The notion of a deeply interwoven relationship between the social and the economic has deep precedent in economics, and economic-adjacent social science. In these renderings, each sphere requires the other in order to comprehend it. With that entry point, this essay turns attention to examples of these interactions, to explore their breadth and depth as well as to ground further discussion in real-world examples before examining some of the abstractions which frame these.

**EXAMPLES OF INTERACTION BETWEEN THE SOCIAL AND ECONOMIC**

What kinds of relationships, and at what scales, do we mean for the socio-institutional ecosystem to consider? Below, this section explores a range of co-formative relationships which move between the social and the economic in both directions. Consideration of a range of examples at various scales will help to illustrate the point. The various examples below are not intended to thoroughly tell complex social and economic stories, but to ground discussion in the concrete range of possibility. This section, similarly, does not attempt to locate original causes, but simply to name causal relationships examined across economics, history, and other social sciences. These examples to demonstrate the breadth and depth of the social-economic interchange.

*From the Social to the Economic*

Social structures – including racial stratification, networks, group behavior, and
cultural views of agriculture – effect economic phenomena. For example, Bertrand and Mulainathan show that in the contemporary United States, otherwise identical job resumes submitted to job openings with white sounding names are 50 percent more likely to receive callbacks for job interviews than those resumes submitted with black sounding names. They convincingly argue that “differential treatment by race still appears to still be prominent in the U.S. labor market,” (Bertrand and Mullainathan, 2004, p. 991). Kang, DeCelles, Tilcsik, and Jun extend this, and document a range of strategies that racial minorities adopt in the US labor market to “avoid discrimination by concealing of downplaying racial cues in job applications, a practice known as ‘resume whitening,’” (Kang et al., 2016, p. 469). Because of the way that gender roles and stereotypes are so written into society, hurricanes with feminine names result in higher death tolls and more damage than hurricanes with masculine names, because “they lead to lower perceived risk and consequently less preparedness,” (Jung et al., 2014). Lohr describes how social relationships amongst Japanese businessmen are of fundamental importance to Japanese economic and social life, and make it harder for other business people to initiate business relationships (Lohr, 1982). Granovetter argues that for someone coming in from the outside, without such a relationships, the relationships amongst Japanese businessmen may constitute a trade barrier (Granovetter 1985, 495). Gĩthĩnji and Perrings argue that policy interventions in Kenya and Botswana were not as successful as designed because of a failure to comprehend the social institutions they encountered: “[the policies] took little account of the role of the institutions they were intended to replace in guaranteeing the social security of individual resource users […] the new policies were compromised precisely because they were not socially sustainable,” (Gĩthĩnji and Perrings 1993, 110).
Importantly, this work focuses on codetermination between social, ecological, and economic structures, and how policy failed to grasp these codeterminative features and thus failed. Salamon conducted long term ethnographic studies of farming communities in rural Illinois, and she observed important differences between ‘Yankee’ farmers and German-Catholic farmers, over generations (Salamon, 1995). German-Catholic farmers saw agriculture as a way of life, and had bigger families, smaller farms, and a more labor intensive choice of crops, whereas Yankee farmers say agriculture primarily as a business, with bigger farms, smaller families, and capital-intensive crop selection (Boyd and Richerson, 2005).

Of course, formal institutions – laws, political forms, historical power arrangements, and firm structure – also affect economic outcome. Seminal studies feed intense debate, like Card and Krueger’s study on state minimum wage laws and unemployment, or Acemoglu, Johnson, and Robinson’s ‘reversal of fortune’ hypothesis (Card and Krueger 1994; Acemoglu et al. 2002). You need not look far, though, for studies which continually examine the effect of formal social institutions on economic phenomena. Gubernick writes about how ‘ban the box’ legislation positively impacts employment prospects for former felons (Gubernick, 2017). Card, Lemieux, and Riddell et al. on union membership rates affect inter- and intra- gender wage equality (Card et al. 2004). Pencavel and Craig on how type of firm affects efficiency in the plywood industry (Craig et al., 1995).

On another space and time scale, era defining social relationships, such as the colonial encounter, have seeded profound economic change. When the Portuguese arrived in the western Indian Ocean in the 16th century and attempted to monopolize the
trade that the Swahili city-states maintained with Arab and South Asian merchants, the volume of trade dropped precipitously. Whether this was a result of solely of Portuguese naval might, or aided by other factors of the economic landscape (e.g., a famine in India, a drop in European demand for imports), the decline in trade severely depopulated Swahili city states and upset an embedded order of production and distribution with the hinterland, coast, and Indian Ocean (Sinclair and Hakansson, 2000, p. 476). Gaspar de São Bernardino, a Portuguese Franciscan traveler, wrote of Mombasa in 1606 that the “inhabitants are Moors who, although formerly rich, now live in utter poverty,” (Freeman-Grenville, 1962, p. 167). Issa Shivji writes that “capitalist relations in Tanzania were not part of the process of organic development of the Tanzanian society…they were introduced as a result of imperialist invasion and subsequent colonization of the country,” (Shivji, 1986a, p. 239). Azhar demonstrates how pre-colonial land tenure systems affect contemporary development in South Asia (Azhar, 2016). Khan, Morrissey, and Mosley find that extractive colonial economies negatively affect post-independence political inclusion and wealth equality in Sub Saharan Africa (Khan et al., 2019a). Bowden and Chiripanhura show how the early presence of settlers in African colonies has adversely affected poverty reduction today (Bowden et al., 2008a).

*From the Economic to the Social*

In other instances, the economic sphere exerts tremendous influence over social agents and social structures. The shape and structure of economies and individual economic outcomes conditions social attitudes and beliefs. Using data from the World Values Survey, Doepke and Zilibotti show that a country’s national inequality affects parenting style – parents are more likely to emphasize ‘hard work,’ even to young children, if national income inequality is higher (Doepke and Zilibotti, 2019). Piff,
Stancato, Côté, Mendoza-Denton, and Keltner show across various studies that wealth increases unethical behavior, from listening less to poorer people, to stopping less at crosswalks for pedestrians (Piff et al., 2012). Peterson, summarizing this and other similar research, writes “these aren’t just inherited traits, but developed ones[,] money, in other words, changes who you are,” (Peterson, 2012). Allen, Bartiloro, Gu, and Kowaleski find that different economic bases – manufacturing and services – result in different financial structures and attendant laws for the financial system, in panel data of 108 countries (Allen et al., 2018).

Other macro trends in economies condition sociality in particular ways. Emigration and movement often springs from economic necessity, and calls a series of social norms, idioms, and reactionary attitudes. Media Lengua, a language with Spanish words spoken in Quechua grammar by semi-urbanized indigenous workers formed as a distinct feature of urbanization and job opportunities in Ecuador 20th century Ecuador (Velupillai, 2015). This is not dissimilar from other forms of pidginization and creolization created initially for economic purpose – such as Tok Pisin or Papiamentu - and now imbied with universes and worldviews present in all languages (McWhorter, 2018). Xenophobia, and its attendant laws, attitudes, and violent repression, finds roots in many phenomenon, including actual or perceived job insecurity as demonstrated by Cea D’Ancona in Spain (Cea D’Ancona, 2016). The development of racist social attitudes and laws has had a material element to it. Pulling from the work of Geschwender’s Racial Stratification in America, Bohmer writes that “the ideology of black inferiority developed as a rationalization or justification for slavery; it was not the cause of slavery,” (Bohmer, from Whitehead & Harris, 82). This kind of materialist historiography has been used to
explain differences in structures of racism, such as the legal one-drop rule in the American South (Louisiana & coastal South Carolina notwithstanding), compared to the juridical colorism of the Caribbean, which conferred ‘mulatto’ not just a social, but legal category (Hickman, 1997; Law and Tate, 2015; Reece, 2018). Wolfe, referencing Australia, Brazil, and the United States, discusses miscegenation as “the struggle over differentiation…defining any social system – who exploits whom in the production and reproduction of power, wealth, and privilege?” (Wolfe, 2001, p. 905). Yet locating original cause remains debated. West critiques the notions that racial inferiority only descends from the material exigencies of slavery and capitalism. He argues that these theories “subsume racism under the general rubric of working-class exploitation,” and demonstrates the development of racist ideologies well before the rise of modern capitalism: “it can easily be shown that although racist practices were shaped and appropriated by modern capitalism, racism itself predates capitalism,” (West, 1986, p. 1,3).

Clearly, a multitude of various interactions – at a range of scale and time – comprise the web of relationships between the social and the economic. Yet, these examples demonstrate that the relationship between the social and the economic is by no means peripheral or frictional, but central and fundamental to a range of economic phenomena, where both act on each other as cause and effect.

**Characteristics of the Relationship between the Social & Economic**

Given the basic insight from Marx, Polanyi, and Granovetter and the examples laid out above, several key characteristics to emerge, which this essay provisionally posits as key features of the socio-institutional ecosystem. This essay then deploys these characteristics as a standard of measure in consideration of various forms of economic
theory, in order to appraise the capability of economic theory in understanding the relationship between the social and the economic.

This essay posits the socio-institutional ecosystem as an analytical unit for the study of economic phenomena. The use of this unit focuses on constitutive and causal relationships between social structures and economic phenomena. We use ‘ecosystem’ as metaphor to call upon the multiplicity of relationships which act as a vessel for economic activity, much as all biological activity occurs not in a vacuum but in the ether of an ecosystem. We focus on three features – closely interrelated – which emerge from consideration of the range relationships in a socio-institutional ecosystem:

- **Dialectic Causality**: the social and the economic both affect each other;

- **Path Dependency and Historical Inertia**: the various relationships of the system unfold according to its own trajectory, not a pre-given telos;

- **Troubles Formality**: in many cases, the location, quality, and volume of various trends and causes resists easy mapping and measurement in mathematical formality;

These three features do not comprise – or even attempt to comprise - the totality of characteristics of the socio-institutional ecosystem. Rather, they are seen as three key characteristics, and features which present trouble for traditional economic epistemologies and methods, explored below.

**LIMITS OF ECONOMIC THOUGHT**

This section works through each of the three features as a point of departure from conventional economic theories and seeks to understand how various schools of economics have approached the relationship between the social and the economic.
Dialectic Causality: Neoclassicals & New Institutionalists

This essay has argued that the socio-institutional relationship contains relationships which operate on each other as both cause and effect. More, causal features are simultaneous and multiple. Yet even when neoclassicals and new institutionalists have given explicit consideration to the interaction between the social and the economic, both have failed to appreciate the dialectic causal relationships between the social and the economic. Take, for example, Becker’s work on discrimination, *The Economics of Discrimination*, which is a good example of neoclassical thought on the relation between institutions and economics. For Becker, discrimination exists as an *a priori* and individual preference: “if an individual has a ‘taste for discrimination,’ he must act *as if* he were willing to pay something, either directly or in the form of reduced income, to be associated with some persons instead of others,” (Becker, 2010, p. 14). The social process of discrimination happens during economic action as employee discrimination, employer discrimination, consumer discrimination, but the preferences are rendered as pre-given (exogenous) and relatively fixed, according to the neoclassical playbook. There is no reckoning with what may occasion a taste for discrimination may come or if it has a relationship to economic phenomena, or even if an agent’s utility-space constitutes an appropriate theoretical vessel to model discrimination. There is no reckoning with how ‘the market’ and ‘competition’ themselves may be sites molded and shaped by discrimination. Yet, the rhetorical (and political) brilliance of Becker’s argument lies precisely in this confinement of discrimination to an individual’s utility space; capitalist processes are not only divorced from their relationship to discrimination, but they are the *solution* to it. As people who have a taste for discrimination have to pay for it, they will be outcompeted, in the conditions of perfect competition, by other consumers, workers,
and employers (Becker, 2010). An individual’s preferences cannot be changed, but they can be marginalized by the market. It remains unclear what this does to the next iteration of discriminating agents, and how a ‘taste for discrimination’ is seeded and transmitted socially. Within this model, one can only say that the economy itself cannot affect an individual’s preferences, as they are prior to the model. As such, this representative approach of the neoclassical school’s modeling of social effects remains incapable of thinking how the economic exerts influence on the social.

The New Institutional Economics, which takes social institutions seriously, flips the causal map of Becker, and most often explains various institutions as the result of some arrangement of preferences and first principles. That is, the new institutionalists marshal some set of economically feasible priors to explain why a particular institution exists. North argues that transactions costs – in particular measuring value, costliness of exchange, and enforcement – shape various institutions which exist to minimize transactions costs (North, 1987). Similarly, Williamson argued that vertical integration of business resulted from the objective of decreasing transactions costs (Williamson, 1971). Later, North et al. (2009) argue that institutions of governance descend from their primary objective – to minimize violence (North et al., 2009). In these renderings, social institutions exist as the outcome, or dependent variable, of some fundamental economic process, given a set of primary conditions. Jackson writes that the “new institutional economics seeks to explain institutions through methods compatible with the mainstream” (Jackson, 2013, p. 819). One of the persistent criticisms of the New Institutional Economics is that it simply explains the existence of institutions using neoclassical theory – it doesn’t incorporate sociality into its framework in a way that
meaningfully appreciates the richness of social and economic spheres.

*Path Dependency and Historical Inertia: Macroeconomics, SSA Theory, RCTs in Development Economics*

Other theories grant a primacy towards the resolution of their model – often equilibrium though also other forms of *telos*, such as a historically necessary similarity between similar structures. This essay argues there is no *a priori* reason that the relationships in the socio-institutional ecosystem ought to tend towards anything. That is, the effects of interaction in a socio-institutional ecosystem display no tendency towards convergence, equilibrium, or *telos*. Yet this epistemological imprint is a feature to several schools of economic thought, where the outcome being explained obtains as the inevitable result of a particular process. “If the market is genuinely perceived as an open-ended, nondetermined evolutionary process in which the essential driving force is human choice,” argue Buchanan and Vanberg, “any insinuation, however subtle, of a ‘telos’ towards which the process can be predicted must be inherently misleading,” (Buchanan and Vanberg, 1994, p. 325).

The tendency to guide economic thinking towards a *telos* is based in an understanding of economics as the discernment of fundamental laws of economic activity, which can be discovered and described, like a machine. The metaphor of economy-as-machine – widespread through the discipline – stands out as a stark example of this, though others exist. In mainstream macroeconomic models of growth, machine-like models lead to some form of equilibrium. We see this from the Solow growth model (growth as a function of population and capital accumulation) to the Romer growth model (growth as a function of technological change), where the methodologies seeks to obtain a long run equilibrium growth rate from a series of bounded causes (Romer, 1989;
The same holds in the world of neoclassical microeconomists also focus on equilibrium, from Walras’ law of equilibrium to the general equilibrium model fully articulated by Arrow and Debreu (Arrow and Debreu, 1954; Walras, 2003).

Yet, we can still find teleological thinking farther afield. Social Structures of Accumulation Theory (SSA), a Marxian theory that seeks to explain periods of growth in capitalist economies was first applied to the US, and then extended further afield. It has focused on the “institutional arrangements that help to sustain long wave upswings,” (Lippit, 2006, p. 1). Yet, these conceptualizations tend towards a pre-given object – “[SSAs] can best be understood as institutional structures that (temporarily) stabilize class contradictions,” (Wolfson and Kotz, 2009, p. 2). Why do social structures, in a nation, across time, need to be imbied with the task of stabilizing class contradictions?

We could compare this to the ‘spatial-fix’ theory of Harvey, who simply argues that contradictions may find (contemporaneous) life elsewhere. While the thrust of SSA theory towards a fuller grasp of Marxian socio-institutional thought – particularly how mezzo-level institutions mediate macro-structural accumulation – have been valuable, the theory still holds that there is a particular directionality, or purpose, to the unfolding of economic and social phenomena. This argue that like the machine equilibria of neoclassical models, there is no tendency for the interaction of the social and the economic to produce a pre-given outcome. As argued by Buchanan and Vanberg:

All conceptualizations of the market process which suppose, whether explicitly or implicitly, a “something” toward which the process is moving are, by this very fact, teleological, whether that “something” is specified as an equilibrium or otherwise. This applies to the notion of a mechanical equilibrium as implied in the standard textbook models of intersecting demand and supply curves, as well as to the thermodynamic equilibrium concept that is implied where the market process is interpreted in terms of exhaustion of potential games from trade.” (Buchanan and Vanberg, 1994, p. 325).
Indeed, history itself functions as a cause on current scenarios. Such a proposition finds quarter in much of the social sciences, but can be hard for economics to process, because of the dominance of the economy-as-machine metaphor in the social sciences, which, as argued above, dampens appreciation of history’s ability to act as a present cause. The socio-institutional ecosystem hypothesis allows for a shifting terrain upon which economic and social phenomena occur, the shifts subject to the movement of those very phenomena. However, much of economics insist that that space remains fundamentally the same, leading to approaches which do not take history seriously. Chang writes about how development economics, because of influence from the neoclassical school, has seen a shift away from context-specific historical data to a “contemporary discussion on economic development policy-making which has been particularly ahistorical,” (Chang, 2002, p. 7). Since the rise of and domination of Randomized Control Trials (RCTs) in development economics, this trend has come to even more prominence. Consider this quote in a TED Talk from Nobel prize winning economist Duflo:

“It’s not the Middle Ages anymore, it’s the 21st century. And in the 20th century, randomized controlled trials have revolutionized medicine by allowing us to distinguish between drugs that work and drugs that don’t work. And you can do the same, randomized controlled trial for social policy. You can put social innovation through the same rigorous, scientific tests that we use for drugs. And in this way, you can take the guesswork out of policy-making by knowing what works, what doesn't work and why” (Duflo, 2010).

The necessary equivalence for this epistemological approach to function is that the economy must be to economics what the human body is to the medical sciences – a machine with universal qualities experienced anywhere. Policy functions just like medicine, and then economic maladies function like disease. So, can we study poverty in the way we study polio? For that to be the case, the production of poverty must have a
universal ‘sameness’ to it. Perhaps there are features of poverty which hold common, though certainly there are those which do not. “The experimental approach, initially developed to investigate natural phenomena, problematizes poverty as an ahistorical and non-systemic issue that does not need to be related to previous events or states of the world, nor be understood as embedded in a global order,” argues Abdelghafour, which thus “circumvents north-south relationships and macroeconomic policy as potential explanations for poverty, and considerably reduces the subversive potential of anti-poverty action,” (Abdelghafour, 2017). Van der Linden’s work cautions that such epistemological priors are dangerous and cloud the ability to comprehend the reality of situation while focusing on the least important parts. Arguing that such ahistorical approaches “superimpose ‘forced abstractions’ on history” Van der Linden that that these methodologies “are not grounded in a thorough analysis of its concrete specificities, and which, therefore, are to a large degree arbitrary and superficial, or even purely subjective preferences,” (van der Linden, 2010, p. xi).

_Problematic Formality: Post-Walrasian Game Theory & Applied Microeconomics_

This essay argues that while many relationships amongst elements of the socio-institutional ecosystem are describable, they can be hard to formalize. In part, this has to do with the dialectic nature of phenomena as both cause and effect. More, certain elements of the cultural and social ecosystem prove impossible to measure, and that much more difficult to model.

Take racism. As a potent social force, racism is clearly an important part of modern society which affects economic life, and economists have grappled with how to apprehend it for some time. We saw above that Becker modeled discrimination as
individual preference. Indeed, for economists, individual utility space – where preferences are formally modellable before agents interact – has dominated as the site for economic consideration of racism, even outside the bounds of strict neoclassical though. For example, this continues to in the post-Walrasian evolutionary game theory of Bowles, who describes residential segregation as a result of preferences between blues and greens (a further abstraction in its own right) (Bowles, 2009, p. 66). Of course, this formal modeling of agent interaction can be a helpful tool – Darity, Mason, and Stewart deploy evolutionary game theoretic modeling based on individual preference and strategy selection, and are clear that this modeling represents one way of understanding racism and economic phenomena (Darity et al. 2006). Their work shows that almost any result can obtain, and makes up just one piece of a much larger oeuvre dealing with the interaction between racism and economic outcome. Yet when we step back, can we really say that agent-based modelling presents the best way to model the complexities of a social force like racism? Practitioners and scholars of race and racism do not describe racism as confined to the domain of an agent’s utility space. Woods, deploying ecosystemic metaphor, writes:

Racism is an insidious cultural disease. It is so insidious that it doesn’t care if you are a white person who likes black people; it’s still going to find a way to infect how you deal with people who don’t look like you. Yes, racism looks like hate, but hate is just one manifestation. Privilege is another. Access is another. Ignorance is another. Apathy is another. And so on. So while I agree with people who say no one is born racist, it remains a powerful system that we’re immediately born into. It’s like being born into air: you take it in as soon as you breathe… It’s a set of socioeconomic traps and cultural values that are fired up every time we interact with the world. (Woods, 2014).

It is hard to formally model racism as the air in which we move – especially when economists model agents in a substance-less ether – and so economists are more wont to model it as a set of individual preferences. This commitment to mathematical formalism
not only affects economic theory, but our empiricism. A good example of how this formalism narrows the scope to a limited set of interactions comes from applied microeconomics. Guiso, Sapienza, and Zingales use an applied microeconomic approach to ask a fundamentally important question: “Does culture affect economic outcomes?” (Guiso et al. 2006). After (correctly) establishing that economics has ignored questions of culture, they write that “without testable hypotheses […] there is no role for culture in economics,” (Guiso et al. 2006, 23). New data and techniques, they argue, allow the possibility of identifying systemic preferences related to culture which “suggests an approach to introducing culturally-based explanations into economics that can be tested and may substantially enrich our understanding of economic phenomena,” (Guiso et al. 2006, 23). They begin to model the ways in which culture may inflect economic outcomes by narrowing the definition of culture and outlining a mechanism for the ways that culture affects outcomes. Culture is defined as “those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation,” (Guiso et al. 2006, 23). That is, they only focus on the static elements of culture, and on the elements which accord tightly to ethnic and religious groups. They model a tripartite causal mechanism: culture influences preferences, preferences influence economic outcomes, and, importantly, *economic outcomes do not influence culture*. This has clear relation to dialectic causality – the foundations of applied microeconomics are neoclassical – but this posture requires the elimination of the last causality in order for the causal interpretations of the formal econometric model. Therefore, their investigation can only consider a static rendering of culture. They claim to be able to isolate the cultural components of a belief system by using only religion and
ethnicity as instrumental variables for culture. So, using data from the World Values Survey, they show that ‘thriftiness’ is more likely to be taught by religious parents than nonreligious parents (from 2.7 percent more likely for Protestant parents to 7.2 percent for Buddhist and Hindu parents, with no statistical difference between Muslims and nonreligious people). They then go on to show that attitudes about teaching thriftiness affect the savings rate of a country – a “10 percentage point increase in the share of people who think that thriftiness is a value that should be taught to children is linked to a 1.3 percentage point increase in the national savings rate,” and that that “cultural explanation for national saving is quite comparable in size to the power of the celebrated life-cycle model,” (Guiso et al. 2006, 39). We are left with a description of one very particular channel of the ways in which some cultural practices inflect cultural outcomes, and this may be a useful economic fact. But when we consider the grandness of the question – does culture affect economic outcomes? – we depart with an answer so necessarily stripped down by the required formalizability of the applied microeconomic approach that the broad view implied by the initial question leaves the analysis dearly wanting.

In consideration of the three emergent features of the socio-institutional ecosystem – dialectic causality, path dependency and historical inertia, and the troubling of formality – the shortcomings of conventional economic theories become apparent. This is not to argue that conventional economic theory has been wrong, rather it highlights that conventional economic theory has missed out on some fundamental relationships which condition economic phenomena by constricting its view to limit interaction of the economic and the social. In the next section, this essay explores some
of the deeper epistemological roots of this, and considers an appropriate epistemological base for the socio-institutional frame.

**CULLENBERG’S EPISTEMOLOGIES OF TOTALITY**

This essay makes use Cullenberg’s (1999) categorization of epistemological trends in economics according to their conceptions of totality to make sense of various trends in economic thought explored above, and to build the epistemological base for a positive theory of socio-institutional ecosystems. Cullenberg names Cartesian totality, Hegelian totality, and decentered totality as three organizing frames form economic epistemology, categorizing most theories in the first two totalities, and positing the third decentered totality as a frame which escapes some of the flaws of the previous two.

**Cartesian & Hegelian Totalies**

In a Cartesian totality, “parts are given independent to and prior to the social whole,” (Cullenberg, 1999, p. 801). Reductionist thought underlies Cartesian totalities, where society is distilled to its atomistic level. This is perhaps best shown through the methodological individualism, which finds quarter throughout economics, but particularly in neoclassical economics. An individual agent is endowed with a series of properties – a utility function, initial endowments, etc. – and a set of rules for interacting with other agents, from which the social whole – from micro-markets modeled by the Edgeworth box to macroeconomic growth projections – can be formally and fundamentally shown and known. In addition to the neoclassical school, Cullenberg also places Neo-Ricardian thought, and Analytical Marxism in the category of Cartesian totality.

In some capacities a reversal of the Cartesian totality, a Hegelian totality demarcates a frame where “the social whole is understood as ontologically prior to the
individual agents,” (Cullenberg, 1999, p. 802). The contradictions of Hegelian thought lace through the social whole which resolve through the dialectical mode – the ‘law of motion of the totality’ – through a thesis, antithesis, and synthesis. Yet despite these ruminations, the social whole still fundamentally determines the nature of the individual in this whole. Cullenberg argues that Classical Marxism and Keynesian economics, and older historical economics subscribe to the Hegelian totality.

Both approaches – the Hegelian and Cartesian totalities – contain endpoints which descend from their first principles. They tend towards a telos. “While each of these approaches to totality differs in many and varied ways, each shares a reductionist methodology wherein social explanations are ultimately constructed on the basis of a rock-bottom essence, whether that be the logical structure of a pregiven whole or the rationality of a fully self-constituted agent,” Cullenberg writes, “in these approaches, attention to contingent and varied institutional contexts, social embeddedness, and the mutual determination of structure and agent is avoided,” (Cullenberg, 1999, p. 804). If we desire an epistemological basis for which to consider the various and layered interactions between the social and the economic, we ought to avoid epistemologies which preclude that consideration.

Decentered Totality

Cullenberg offers a third totality a way to escape from some of the traps above, and can serve as an epistemological base which can capture the three emergent characteristics of the socio-institutional ecosystem in economic analysis. Using the work of Althusser as a point of departure, read through Resnick and Wolff, the decentered totality hinges on the idea of overdetermination, which Cullenberg defines as “a theory of existence that states that nothing exists in and of itself, prior to and independent from
everything else, and therefore all aspects of a society exist only as the result of the constitution (mutual determination) of all of society's other aspects,” (Cullenberg, 1999, p. 812). The concept of overdetermination gives quarter to the notions of “blind drift, emergent economies (totalities), process, cultural embeddedness, non-progressive evolutionary theories of change, and so on,” (Cullenberg, 1999, p. 812) This posture allows for the characteristics of the socio-institutional ecosystem explored above – dialectic causality, path dependency and historical inertia, with elements difficult to formalize,– to find an epistemological base which can avoid the pitfalls of other prominent epistemological totalities in economics. From this base, a further articulation of the socio-institutional ecosystem becomes possible.

What are we left from these initial indications, problematics, preliminary categorizations of the relationship between the social and the economic? This section has shown that there exists a strong basis for in economic (and economic-adjacent) theory to deal with the relationship between the social and the institutional through the work of Marx, Polanyi, and Granovetter. The indications of this entry point are matched by an empirical record which displays a large range of causal and co-formative relationships which appear to be central, not peripheral to causation in economics. From here, this section pulled out three characteristics which require further consideration – dialectic causality, path dependency and historical inertia, and with elements difficult to formalize. These characteristics qualify extant economic theory, and demonstrates that many of the methodologies in economics are incapable of dealing with these characteristics of the socio-institutional ecosystem. Cullenberg’s epistemological categorization helps us understand why, and at the same time provides the ‘decentered totality’ as a base from
which to mount a positive theory – or, as positive a theory as possible – for the socio-institutional ecosystem.

III. Foundations of the Socio-Institutional Ecosystem

If we can document the ways in which economics has de-socialized itself, and show that there are a plethora of reasons to situate socio-institutional ecosystems as a central component of economic theory, we must ask: what does a positive theory of socio-institutional ecosystems look like? While economics went through a long period of desocialization in its theory, other disciplines in the social sciences kept sociality at the forefront. Thus, this section looks at the disciplines of economic geography and economic sociology, to stitch together the antecedents and elements of socio-institutional ecosystem analysis. This task remains complicated, as theory in these disciplines has avoided convergence. However, the multiplicity of thought and approach to the relationships that flow between the social and the economic turns out fruitful, and this section concludes with a synthesis of these disparate modes into a multipronged understanding of the socio-institutional ecosystem.

Economic Geographers

Beginning with Soja, the ‘socio-spatial turn’ in economic geography has been concerned with theorizing how economic structures interface with spatial structures. Soja’s intervention waded into Marxist debates between Harvey and LeFebvre, which turned on causality between space and the social relations of capitalism. LeFebvre, in his work on the revolution of urbanism, gave a pre-eminent role to spatial relations in understanding modern urbanism, while Harvey’s criticism hinged on situating spatial relations as an effect of underlying social relations of capitalism. Soja’s intervention was to insist on the dialectic nature of the relationship between economic processes and the
spatial relations. That is to say, “the structure of organized space is not a separate structure with its own autonomous laws of construction and transformation, nor is it simply an expression of the class structure emerging from the social (i.e. aspatial) relations of production[…] it represents, instead, a dialectically defined component of the general relations of production, relations which are simultaneously social and spatial,” (Soja, 1980, p. 208). This turn set off an incredibly fruitful debate that has continued to resonate through to today.

Martin follows this trajectory of economic geography and tracks the animus for geographers to understand socio-institutional space that comes from a desire to understand the geographical unevenness of capitalist development. The central question of the institutional turn in geographical economics has been to answer the question: “to what extent and in what ways are the processes of geographically uneven capitalist development shaped and mediated by the institutional structures in and through which those processes take place?” (Martin, 2002, p. 79). Geographers and others in the conversation began to concern themselves with questions of path dependence, institutional environments, and delimiting the independence of social context (Rutherford, 1995; Setterfield, 1997; Sunley, 1996; Thrift and Olds, 1996). Martin traces this turn in institutional economic geography to three perspectives, each which defines an institution in a particular way. The first perspective, rational choice institutionalism, defines an institution as those entities which “structure individual actions through constraint, information, or enforcement,” (Martin, 2002, p. 83). A second perspective, sociological institutionalism, views institutions as “culturally specific social networks of trust, reflexive co-operation and obligation which underpin economic behavior and
relationships,” (Martin, 2002, p. 83). A third perspective that Martin explores, historical evolutionary institutionalism, understands institutions as “systems of social, economic, and political power relations which frame the regulation and coordination of economic activity,” (Martin, 2002, p. 83). A consensus began to emerge from this work that the “institutional environment” was front and center to economic analysis. Martin defined the “institutional environment” as:

“the systems of informal conventions customs, norms, and social routines (such as habitual forms of corporate behavior, consumption cultures, socialized work practices, transaction norms, and so on), and the formal (usually legally enforced) structures of rules and regulations (for example, laws relating to competition, employment, contract, trade, money flows, corporate governance, welfare provision) which constrain and control socioeconomic behavior,” (Martin, 2002, p. 80).

The combination of this this two-way causality between economic organization and socio-institutional space means that the directionality of spatial development of forms of production proceeds in locally specific ways, as the socio-spatial dialectics of particular places continually interact to form unique trajectories. This work tracked onto the project of “rethinking economy” from J.K. Gibson-Graham, which “advocates a move away from ‘strong theory,’ with its ‘embracing reach’ and ‘reduced, clarified field of meaning’ toward ‘weak theory,’ which, though ‘little more than description,’ powerfully attends to nuance, diversity, and overdetermined interaction,” (Gibson-Graham, 2014, pp. S148-9). The relative speeds of the various machinations are choppy, with what Setterfield has called “institutional hysteresis,” (Setterfield, 1997). For Martin, institutional hysteresis “focuses on the complex interaction between institutions and economic activity in a way that recognizes the importance of current behavior in shaping future institutions, but which at the same time takes account of the extent to which this behavior is constrained by pre-existing institutional structures,” (Martin, 2002, p. 86).
Mirroring this trajectory in economic geography was a transition in economic sociology. Beginning in the 1980s, economic sociology began to examine economic theory in light of its own trajectory, and grapple for a theory which could help to explain, without essentializing, the relationship between sociality and economic life. Swedberg locates Granovetter’s 1985 paper “Economic Action and Social Structure: the problem of embeddedness” as a manifesto for the “new economic sociology,” (Swedberg, 1997). Granovetter starts with the simple and important claim that “people’s economic activities are embedded in their networks of social relations,” (Granovetter, 2011). Yet, Granovetter was motivated by navigating between various different reactions in the social sciences. At one extreme lay the Hobbesian rational, atomic, and self-interested *homo economicus* and at the other, borrowing from Wrong, the ‘oversocialized’ conception of man that was taking hold as reaction in sociology (Granovetter, 1985; Wrong, 1961). Granovetter began by looking at trust and malfeasance in organizational life through the lens of Williamson, an economist in the New Institutional Economics School who deployed a transactions cost approach a la Coase (Williamson, 1981).

Granovetter found that rather than taking institutions seriously in their own right, Williamson simply explained institutions as the result of efficient solutions to economic problems. In his own investigations, Granovetter found sociality – particularly networks – to be central to trust and malfeasance in organizational life, and moreover, that this was a prominent feature that analysis required, writing that “all market processes are amenable to sociological analysis and that such analysis reveals central, not peripheral, features of these processes,” (Granovetter, 1985, p. 505). While Granovetter was particularly interested in networks, later sociologists, pushed this analysis further. Zukin
and Dimaggio analyzed the role of culture, political power, and institutions and how they
effected the organization and structures of the economy in their seminal *Structures of
Capital* (Zukin and Dimaggio, 1990). They focused on articulating mechanisms of
formal institutions – e.g. financial and political institutions – as subject to machinations
of social processes, which were themselves shape by the necessities of capital
accumulation.

Swedberg and others continued this push through the 1990s, identifying three
crucial points of intervention which the new economic sociologists brought to economic
analysis: networks theory, organization theory, and cultural sociology (Swedberg, 1997).
These approaches built the foundations for the idea of a ‘social construction of the
economy,’ a phrase deployed from earlier sociologists Berger and Luckman’s *Social
Construction of Reality* (Berger and Luckmann, 1967; Swedberg, 1997). Like
embeddedness, this idea held that the mechanisms of economic life could be obtained by
tracing their social origins, and which then became actors in their own right. This had
methodological implications – for example it expanded formalist and mathematical
networks theory to examine the ways in which networks could be ‘congealed’ as an
institution, and go on to exert causal force in their own right, greater than the sum of the
network’s causal force.

**Synthesis**

These developments in both economic geography and economic sociology –
which began to take shape in the 1980s – have by no means led to a unified theory. Yet,
this essay attempts to take some of the insights on ‘space’ from economic geographers
and ‘networks’ from economic sociologists towards a positive theory of a socio-
institutional ecosystem. At various times different authors have stressed important
elements of social life, economic life, and spatial relations, as well as questions of scale (space, time, networks), to draw attention to various aspects of socio-spatial relations. Thinkers like Hudson and Cresswell brought attention to the notion of space as a socially constituted sphere with nested layers of influence and with feedback loops to economic production and distribution (Cresswell, 2004; Hudson, 2001). The particular ways in which state and territory bounded and influenced space became the focus of a new discussion then (e.g. Taylor 1994; Agnew and Corbridge 1995). Scale became another entry-point, with theorists concerned to delineate at which levels of scale analysis was appropriate, and in which ways economic and structural change led to scale-making and scale-jumping processes (Collinge, 1999; Swyngedouw and Baeten, 2001). Finally, networks which are related to, but traverse, space have become an important frame for analysis, with focus pointed toward connections and encounter with rhizomatic metaphor (Amin, 2002; Grabher, 2006). These various efforts have been illuminating, and theories which attempt to account for the various dynamics have been proffered. Particularly noteworthy amongst these is the framework laid out by Jessop, Brenner, and Jones. In their TPSN framework, they seek “a more systematic recognition of polymorphy – the organization of sociospatial relations in multiple forms – within sociospatial theory[…] specifically, we suggest that territories (T), places (P), scales (S), and networks (N) must be viewed as mutually constitutive and relationally intertwined dimensions of sociospatial relations,” (Jessop et al. 2008, 389). This is distinct from the network analysis of economics, which often focuses on utility flows between consumers and firms who consume a particular commodity or input (e.g. Shy, 2011). The range of multiple analytical foci and lack of a unified theory can feel disorienting, though the development
of theory in this way conforms to the very supposition that there is no tendency towards 
\textit{telos} in socio-institutional ecosystems (or thought!). All these contributions, set about by
the epistemological and methodological interventions of economic geography and
economic sociology, have called attention to the scale, complexity, and depth of the
socio-institutional ecosystem. From there, these various contributions give a footing and
epistemological base from which to give a fuller and more articulated overview the socio-
institutional ecosystem.

As such, this essay defines the socio-institutional ecosystem as the interaction of
social and institutional constellations with economic phenomena, specific to a space and
time which operate together as a system. Economic activity occurs within and is
conditioned by the social and institutional fabric of a socio-institutional ecosystem, and
that activity acts upon those very social and institutional constellations. These social and
institutional arrangements include: cultural norms, beliefs, attitudes; inter-personal and
inter-group expressions of social power; laws and legal regimes; formal institutions of the
state and people; and the socio-institutional forms taken by economic factors such as
firms and provision of labor. The socio-institutional arrangements of the ecosystem
fundamentally shape the economic activity that occurs through it by ascribing the
boundaries of possible economic activity and refracting ongoing economic phenomena
and its interpretation according to the qualitative substance of the socio-institutional
ecosystem. Yet causality flows both ways – the very structure of socio-institutional
ecosystem, and its constituent constellations, molds to the machinations of economic
phenomena which occur in a particular socio-institutional ecosystem.

The interaction of the social and the economic in the socio-institutional ecosystem
analysis invites consideration to a complex set of relationships. This essay highlights three prominent characteristics which emerge, shaped by the economic geographers and economic sociologists, which can help guide analysis from the socio-institutional perspective. Their insights give a basis to the three provisional characteristics explored in Section I. Going back to the three characteristics explored in the preceding section, the contributions of the economic geographers and economic sociologists allow us to frame those characteristics. First, Soja’s initial dialectical interpretation is in line with the dialectical interplay between the social and economic, where both act as causes upon each other. The hysteresis and unique trajectories explored by Martin and Setterfield push against the tendency for teleological social science and economics and the historical evolutionary institutionalism methodology of the economic geographers helps to address the two characteristics of history and no tendency towards a telos. Finally, the focus on informal conventions and customs, especially by Granovetter and Swedberg, validates the characteristic that even though some social elements may resist easy formalization in models, they are fundamentally important as causes in both the social and economic spheres. Together, these contributions provide a positive description of the socio-institutional ecosystem.

**IV. METHODOLOGY – SOCIO-INSTITUTIONAL ECOSYSTEM ANALYSIS**

What methodologies, then, does the socio-institutional hypothesis require? It may seem, initially, that one advantage of those epistemologies for which ‘machine’ forms the central metaphor is that a straightforward methodology emerges from the very epistemological foundations. Straightforward doesn’t mean easy - the machine (or parts of it) must be described and modeled accurately, and then empirical work consists of collecting data on the parts of the model and testing its conformity to the model and/or
effect on various outcomes. That is, the methodologies deployed have a proximate relationship to the base worldview. Yet, this section argues that the methodologies necessary for socio-institutional ecosystem analysis also descend from the complexity and variety of relationships that the frame implies. Because there are complex and multiple modes at stake with a ‘decentered’ totality as an epistemology for the socio-institutional ecosystem, multiple and variate methodologies are required to describe the very relationships of the socio-institutional ecosystem. Thus, this section first explores methodological pluralism, and how the blending and varied use of qualitative and quantitative methods is not just helpful, but fundamental, as a methodology for socio-institutional ecosystem analysis.

However, another feature of ‘decentered’ totality as an epistemology regards the way in which power itself shapes observations and descriptions of reality. Rather than the empiricist claim of some kind of universal objectivity, or the rationalist claim of observable reality subject to a particular theory, the decentered epistemology understands the description of reality as shaped by a multitude of forces, including social power. Thus, methodologies of socio-institutional ecosystem analysis must prioritize understanding the ways in which power shapes reality, and descriptions of reality, in that analysis. The second section takes up that charge.

**Methodological Pluralism**

Methodological pluralism emerged in economics within the heterodox, as a response to the domination of neoclassical models and empiricism within the discipline. At its core, the idea is that different methodologies reveal different economic facts, and as such a variety of methodological approaches are necessary. Maintaining clarity presents a challenge, especially “as diversity based on inconsistent paradigms might descend
towards incoherence: the paradigms might talk past each other, pursuing separate
research agendas and building their own theoretical systems,” (Jackson, 2013, p. 16). As
such, active steps must be taken to explicitly demarcate the advantages and disadvantages
of a pluralist methodology. As noted by Dow, often the underlying schools of thought
which undergird a methodology are not examined – “Alongside this development [of
methodological pluralism], there has been a growing reluctance to refer to schools of
thought in economics,” (Dow, 2004, p. 275). Lawson argues that this avoidance of
philosophical foundations leaves the biases of those foundations unexamined, and ends
up cluttering understanding: “any methodological pluralism that does not encompass such
a critical orientation can only serve as a device to make, and so to preserve, the state of
incoherence and disarray that constitutes the status quo,” (Lawson, 1997, p. 30). His
argument is to make explicit the biases and blind spots of various methodologies to
preserve clarity about which elements of economic and social reality are being
highlighted, and which go unnamed.

This can happen in the Q² (quantitative x qualitative) approach that has been
popularized as a combinatorial methodological intervention by economists and others. As
shown by Kanbur and Shaffer, in the Q² approach, “there are important differences
between approaches to poverty which operate at the levels of epistemology and
normative theory. These differences have implications for the numerical transformation
of data, the selection of validity criteria, the conception/dimension of poverty adopted
and interpersonal comparisons of well-being,” (Kanbur and Shaffer, 2006, p. 183). Useful
reflections on how the formalism of economics and the consideration of contested
metaphors and power relations in economics come from Kanbur and Riles’ (2009)
conversation in “The Contested Commons: Conversations between Economists &
Anthropologists.” Yet it remains eminently possible to preserve clarity and speak to real-
world complexity, given explicit consideration of the biases involved.

Vakulabharanam and Motiram thoroughly take up this charge in their piece
“Understanding Poverty and Inequality in Urban India since Reforms: Bringing
Quantitative and Qualitative Approaches Together” (Vakulabharanam and Motiram,
2012). They explicitly note the blind spots – that qualitative studies (using ethnography,
participant observation, and social mapping) suffer from the divergent tendencies to
either hyper-specify exact context and miss macro-trends, or to universalize a micro-
context and substitute particular understandings for universal conceptualizations. At the
same time, quantitative studies whose statistical inference operates from macro-data rely
on data presented as ‘objective’ alongside serious allegations of inaccuracy (e.g. defining
poverty, undercounting poverty), and are also unable to capture the structural and
historical context of Indian urbanism. But by naming these shortcomings (instead of, say,
implicit reference to a universal platonic notion of ‘poverty’), Vakulabharanam and
Motiram bring these approaches into meaningful, clarity-serving conversation with each
other. They argue that “these two (that is, quantitative and qualitative) approaches have
captured different dimensions of the complex Indian urban process, even if they have
rarely made an effort to speak to each other,” (Vakulabharanam and Motiram, 2012, p.
45). This requires conceptual movement from both methodologies – quantitative
methodologies will need to “to move out of their comfort zone of observing/analysing the
world through large databases, to analysing the field through an expanded conceptual
apparatus,” while “qualitative scholars should better attempt to integrate analyses of
microcontexts with the larger structures in which they are located,” (Vakulabharanam and Motiram, 2012, p. 51). In methodological pluralism, the various approaches allow different parts of the truth to reveal themselves. With conscious effort to bring the multiple approaches in conversation with each other about shared definitions and points of divergence, clarity is served, and important relationships of the socio-institutional ecosystem can be described.

**POWER AND KNOWLEDGE IN THE DESCRIPTION AND INSCRIBING OF REALITY**

As a methodological pluralist approach produces knowledge, knowledge itself requires recognition as a constituent part of the socio-institutional ecosystem. As such, social power in the socio-institutional ecosystem conditions the very knowledge that is produced, which, among other things, can counter, provoke, or serve prevailing structures of social power. Since knowledge functions as an interpretation of reality, that very interpretation wields tremendous power. DeMartino explores the relationship between knowledge and power through an ethical lens, and the way which the discipline of economics has ignored these questions, arguing that economists need to be explicit about the ethical implications of their work (DeMartino, 2011). The obvious violent production of knowledge in the academy, from phrenology to eugenics to orientalism, is well documented by critical theory. Riles writes that “students of colonialism have pointed to the articulation between the models of economics and the models of anthropology as a crucial nexus of colonial knowledge and power,” (Kanbur and Riles, 2005, p. 12). But because the interface between knowledge and power constitutes a fundamental piece of the production of knowledge, this tendency must be consciously addressed.

What does ethical consideration of the relationship between power and knowledge augur for socio-institutional ecosystem analysis? In the socio-institutional ecosystem
analysis, for example, historical work becomes particularly important. In archival work, despite the myth of objectivity, Schwartz and Cook write that “archives are established by the powerful to protect or enhance their position in society […] through archives, the past is controlled[, and certain stories are privileged and others marginalized,” (Schwartz and Cook, 2002, p. 1). Gikandi probes the problematics of the archive even further, with reference to slavery in the Atlantic world in his “Rethinking the Archive of Enslavement.” Trying to find a narrator of historical events, Gikandi notes archives house three temporalities at which power can alter the original shape of the event – witnessing an event, initial recording of the event, and the recreation of event be a reader. “The literature of witnessing was always framed by three temporalities with different demands: there was the time of enslavement, then there was the recall of this time in writing, and then this time was reimagined in the scene of reading,” writes Gikandi, “Confronted with this tripartite structure, those trying to discern the point of black beginnings in the Americas come face to face with the problem of the slave as a witness: where is the voice of the witnesses to be found?” (Gikandi, 2015, pp. 90–91).

For example: In my own work on Great Depression-era labor structures in East Africa using socio-institutional ecosystem analysis (the proceeding essay of this dissertation), I engage methodological pluralism by using archival reports from the colonial era to document unemployment and try to appreciate the quantity and quality of capitalist unemployment in East Africa during the Great Depression, as the colonial blue books and statistical abstracts were never particularly interested in quantifying African unemployment. More, much of the archival records are still written from the perspective of colonial power and congeal those power relationships, even as they record knowledge.
Below are two examples from District Officers of the British colonial apparatus, first from Central Province, Kenya and then from Tanga Province, Tanganyika:

“For still another year the lack of employment in European areas has been severely felt by Reserve natives and many settled areas have a floating population of natives looking for work that are proving a decided nuisance and difficult to cope with.” (Central Province PC, 1933, emphasis mine).

“Large numbers of natives have left the district. The numbers will not be known with accuracy until next March but I think 5000 is a conservative estimate. Many of these were accustomed to obtain a livelihood partly from labour and partly from family agriculture on smallholdings. They are now untraceable,” (Tanga Province, 1933, emphasis mine).

To apply Gikandi’s schematic here is to be aware of the inflections of power involved in a Province Commissioner witnessing an event, writing that event in a formal report to the governor (to be passed on to the foreign office in London), and finally my reading of the report in a lonely archive room in Dar es Salaam (or a busy archive room in Nairobi). Awareness of these inflection points allows to unseat particular archival texts as the arbiters of objective reality, and probe other routes to find witnesses to economic events of the Great Depression in East Africa. If the archives were to speak from the perspective of unemployed workers in Kenya’s Central Province and formerly employed peasants in Tanganyika, new data, and new ways of understanding that data would emerge. Unemployed people do not see themselves as a nuisance to cope with, and former wage workers might appear as untraceable from the perspective of sites of capital, but of course not to themselves. In this instance, and in many others, such archives are available – they exist in African (and South Asian) language newspapers of East Africa, the firsthand accounts of (increasingly older) people who lived colonialism, and various other documents not housed in the colonial archive. The question of power troubles the most easily accessible data and invites methodology to consider that powered data
changes the very way a reality can be described. They are traceable with work, but consideration of power in the production of knowledge occasions interventions which trouble powered knowledge as the vessel of objective truth, and actively seeks out other witnesses. As with other features of the socio-institutional ecosystem analysis, the consideration of power and the production of knowledge complicates methodology as compared to traditional economic methodologies. Yet with that comes the opportunity for a much richer consideration of economic facts and tendencies and their relationship to the socialized world.

Two connected issues remain for methodology to consider with respect to knowledge and power – an ethical and a scientific claim. The first is that the power produced and refracted by academic knowledge, including economic knowledge, has been used to reify and intensify extant relations of unequal power. This assaults human dignity, and as such is ethically objectionable. Scientifically, accepted knowledge holds the power to inscribe and name the categories and units of analysis, to determine which data is useful and which is not, and to privilege which stories are told as fact and which as whisper. This clouds truth. Centering the dialectic between economic knowledge and power allows us to seek other forms of knowledge which reveal a fuller truth from other perspectives. For the same reason, methodological pluralism is fundamental to understanding the relationships of the socio-institutional ecosystem. Indeed, the methodology of the of the socio-institutional ecosystem analysis should “attempt to examine causal structures that blend various levels of being - the spatio-temporal nature of global capitalist dynamics, national political and economic regimes, and the local aspects of political economy and culture.” (Vakulabharanam and Motiram, 2012, p. 51).
As such, the methodology of the socio-institutional ecosystem can better probe the various relationships between the social and economic.

V. CONCLUSION

We can now state: the socio-institutional ecosystem analysis centers the interaction between economic phenomena and the non-economic social and institutional environment in which economic activity occurs and makes visible dynamics which have been obscured by other forms of economic analysis. In thinking through the dynamics of this interaction, the socio-institutional ecosystem pays particular attention to: dialectic causality, path dependency and historical inertia, and dynamics which complicate formality. This approach can be epistemologically founded in the decentered totality explored by Cullenberg. A mixed methodology is most appropriate to the socio-institutional ecosystem analysis, as various dynamics will be suited to different modes of inquiry. In particular, the socio-institutional ecosystem analysis should think of power, and the power present in the creation of new knowledge, as central to the socio-institutional ecosystem itself, and seek more clarity on the ethical ramifications of such knowledge production.

This essay began with a problematization of the machine as a central metaphor in economic analysis and proposed ecosystem as a metaphor which could better capture the dynamism of the relationship between the social and the economic. The task has been, then, to develop an epistemological base and methodology consistent with ecosystemic metaphor. And yet while machine-as-metaphor has dominated the discipline, there exists a strong base for ecosystemic thought, advanced variously by Marx, Polanyi, and Granovetter and used as an entry point for this analysis. After then exploring a range of empirical examples of the interaction between the social and the economic, across a range
of space and time scales, this essay focused on three emergent themes of the socio-institutional ecosystem: dialectic causality, path dependency and historical contingency, and the problematization of mathematical formalism. Using these themes as benchmark, this essay evaluated a range of economic schools of thought and theories, finding widespread inability to deal with the dynamism of sociality in economics. Cullenberg’s epistemological taxonomy helped to frame the philosophical foundations of the inability of economics to apprehend this dynamism, but also offered a way to think this through by invoking the Marxian concept of overdetermination within the frame of a decentered totality. Using this base, the substantive, positive contributions of economic geographers and economic sociologists helped to develop a fuller articulation of the socio-institutional ecosystem. This essay defined that as the malleable constellation of social and institutional arrangements, specific to a particular space and time, upon which economic activity takes place, which continuously shapes, and is shaped by, that very economic activity. This led to a discussion about the methodology required for the socio-institutional ecosystem analysis and focused on how to proceed with methodological pluralism while serving clarity, as well as the interface between knowledge and power in the epistemological frame. From this frame, we can bring economics, the discipline, to a fuller range of economic thought which takes place well beyond the bounds of the discipline. The approach can bring us closer to considering Ngũgĩ’s economic thought to consider how power, wrapped in sociality, inflects the economic and social world in which we live.
Though Tanzania and Kenya have quite different economic contours today, Tanganyika and Kenya were comparable British colonies in the 1920s, with economies based on agricultural export from European estates with African workers. Using socio-institutional ecosystem analysis, this essay traces how differences between the two colonies in the 1920s shaped their later historical inheritances by looking at different labor market structures conditioned by the socio-institutional environments of each colony. Kenya, a Crown Colony, engaged a more repressive set of policies to transform a peasantry into an agricultural proletariat. Tanganyika, a Mandate Territory under the eye of the League of Nations, extracted agricultural surplus through a variety of mechanisms that left a robust peasantry. This difference remained below the surface through the 1920s. However, the Great Depression of the 1930s and the collapse of global demand for East Africa’s agricultural exports laid bare these structural differences, particularly in terms of employment, unemployment, and peasantization. Agricultural paid labor fell in both places, but only Kenya saw sustained unemployment of rural landless workers as Tanganyikans were absorbed into an ascendant peasant cash cropping sector. A bird’s eye view of the Great Depression reveals a moment which intensified peasantization in Tanganyika and proletarianization in Kenya. Consistent with socio-institutional ecosystem analysis, these effects became causes, as different parties – Africans, settlers, and the state – responded to these differential changes, compounding and congealing the divergent trajectories of Kenya and Tanganyika. This essay demonstrates this, with a preponderance of qualitative and quantitative evidence from primary sources from the Kenyan, Tanzanian, and British archives. From the late 1930s through the rest of the colonial era, Kenya was marked by settler dominance, landless rural proletarians, and sharp inequalities in land and income while peasant economic dominance and urban proletarianization were the prominent markers of Tanganyika. These profiles still outline cleavages in East Africa today. Much literature ties issues of contemporary economic structure to colonial institutions. This essay, using socio-institutional ecosystem analysis, adds to that literature by laying out the early divergence of the of the socio-institutional ecosystems and economic structures in Depression-Era Kenya & Tanganyika.
I. INTRODUCTION

**KANG’ETHE & MERINYO**

In 1930, Joseph Merinyo, head of the Kilimanjaro Native Planters Association (KNPA) in Tanganyika, and Joseph Kang’ethe, president of the Kikuyu Central Association (KCA) in Kenya, met in Nairobi to discuss mutual concerns, such as the detention of activist Harry Thuku (Rogers, 1974). The KCA, defined primarily by ethnicity and politics, represented the interests of Agĩkũyũ coffee workers and the KNPA, defined primarily by region and production, was concerned with the plight of Chagga coffee farmers. Prior to European colonization, the Agĩkũyũ and the Chagga, both different groups of Bantu-speaking farmers, had settled and farmed on rich volcanic soils on the slopes of Mt. Kenya and Mt. Kilimanjaro, respectively (Kenyatta, 2015; Moore and Puritt, 1977). The rich soils and moderate climes of their respective lands meant that they found themselves in the center of the European colonial project at the turn of the 20th century. After land seizures where Africans were violently pushed aside, many were then coerced back to that very land as paid labor on European agricultural estates, or as small producers for supply chains managed by European capital. The Chagga and the Agĩkũyũ found themselves at the center of this. Merinyo came to Nairobi interested to learn from Kang’ethe more about the KCA’s deployment of the concept of ‘Gĩkũyũ Unity,’ and how something similar might be adopted against colonial power in Tanganyika (Rogers 1974). However, despite raising the alarm of the European Association of Tanganyika, Merinyo’s efforts with Kang’ethe went no further. Ultimately, though he admired Kang’ethe and the work of the KCA, Merinyo felt like the differences between the situations of the Gĩkũyũ and the Chagga were simply too different for them to successfully work together (Rogers, 1974). With that, perhaps, an early moment of
international pan-African cooperation was lost.

Yet the chasm in circumstance between two close groups of coffee cultivators that Merinyo observed was quite real, and widening, in 1931. Though both groups lived under British rule in East Africa, with economies directed at cash-cropping for export and significant settler communities engaged in latifundia-style plantation agriculture, the socio-institutional ecosystems and attendant labor regimes of Kenya and Tanganyika were markedly different. Kenya’s status as a Crown Colony and Tanganyika’s designation as a League of Nations Mandate under British rule lay at the root of this divergence, which had profound effects over the ways Africans were induced into the labor force in colonial East Africa. These structures then influenced both the daily lives and political organizations of Africans struggling for dignity in their colonial contexts. In Kenya, a colonial regime closely (though not completely) allied to the desires of the European settler class and only responsible to London was able to create an institutional environment that heavily pushed and coerced Africans into the paid labor sector. Meanwhile, the Tanganyikan colonial state reported to a nascent League of Nations which was keen to not let Britain pry undue advantage from the former German territory. Even as it induced a labor force that would meet the requirements of the European settler class, Tanganyikan authorities were not able to pursue this goal with the intensity of the Kenyan institutional regime, and had to pursue other strategies for agricultural surplus extraction. The distance between the contexts of Merinyo’s KNPA and Kang’ethe’s KCA was an early indication of some of the structural and institutional divergence in the trajectories of Kenya and Tanganyika. Other African, state, and settler responses to the ground realities and differential economic structures of the colonial projects took a range
of forms, which in turn altered the range of economic possibility and the trajectories for both Kenya and Tanganyika. Today, Kenya has a high degree of land, income, and wealth inequality, yet maintains the highest GDP/capita in the region. Tanzania² has been lauded for its degree of equality which translates to higher social equality but has stayed relatively poor compared to its northern neighbor. This essay tracks some of the important historical roots of these stylized facts.

**SITUATING THIS WORK**

There are several topical areas that this essay engages with in the economics, political economy, development, and economic history literature, and those engagements have helped frame and shape many of the ideas in this essay. The socio-institutional ecosystem analysis of this essay alternatively marks a point of departure or a point of convergence from some of these topical engagements. Economic anthropologist Jean Ensminger has challenged: “it is one thing to say that institutions matter; it is another to say how they matter,” (Ensminger, 1992, p. 11). This essay uses a socio-institutional ecosystem approach by centering the ecosystemic relationship between the economic and the social and focusing on three qualities: their dialectical interpenetration, path dependency and historical inertia, and an openness to elements which resist easy formulations, as explored in the first essay of this dissertation. This means that this essay identifies the ways in which the consecration and consequences of labor forces in Depression-era Kenya and Tanganyika fed back, inflected, and drove the continued divergence through the colonial and postcolonial eras. In so doing, it interacts with several kinds of literature in a variety of ways.

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² Tanganyika and Zanzibar merged in 1961 to form Tanzania.
Scholarship has taken heed of the pull of historical institutions – particularly those initiated by colonialism – as causal factors for structural and policy possibilities today (Acemoglu et al., 2002; Bowden et al., 2008b; Brett, 1973; Khan et al., 2019b). Some of this literature appreciates the dialectical dynamism and interplay in the pull of historical institutions on present outcomes. Others, particularly Acemoglu, Johnson, and Robinson’s work treats institutions as a one-time treatment with monodirectional causality over centuries. This work, consistent with the socio-institutional ecosystem analysis, situates itself with the side of this literature which appreciates frequent feedback loops between institutional arrangements and economic outcome, as processes which continue to inform each other and play out in path dependent ways.

This essay also interacts with the literature on African proletarianization. Two guideposts frame this literature: the post-independence Marxian literature which argued that the colonial state caused African proletarianization following a generalized script of primitive accumulation and another more recent development which argues that market ‘pull’ factors were more causative in African labor force development than dispossession and immiseration. The post-independence Marxian literature focused on how the state actively created a proletariat by dispossessing Africans, immiserating them, and priming the cash economy in such ways that the sale of their labor-power became the sole option for Africans, (Ochieng and Maxon, 1992; Rodney, 1981; Shivji, 1986b). The other recent trend in economic history of colonial Africa has been to focus on how markets dominated as opposed to colonial states. This position takes shape from two claims by its proponents: that colonial states do not appear to be as all powerful as was formerly thought, and that colonization of Africa was never particularly profitable, in a direct
sense, for European powers (Frankema et al. 2016, Fibaek and Green 2019). For example, looking at Nyasaland, Green and Bolt argue that “market forces rather than colonial policies shaped the development trajectory,” and suggest that this position is generalizable to British Africa (Bolt and Green, 2015, p. 217). This recent trend has responded to the earlier generation of postcolonial scholars trying to understand the colonial contexts, who wrote about how colonial states built up an institutional edifice to compel labor and extract value throughout colonial Africa. This essay argues that while different conditions defined different colonies, colonial authorities institutionally structured labor markets in such a way that gave Africans either less or even less choice in their participation. Markets operated and functioned, but they were constructed and undergirded by colonial institutional structures. Put differently, markets and states have often been treated in such a way as the presence of one signals the absence of the other; this essay rejects that notion and focuses in on the different ways that the colonial states of Kenya and Tanganyika constructed institutional arrangements that qualitatively conditioned markets along different trajectories. So, though markets may have recently been shown to be prominent, this essay takes the position that this does not negate previous Marxian scholarship, and explores the idea of institutional primitive accumulation. This essay compares the ways in which the mezzo-level state institutional formations built to occasion paid labor differed between Kenya and Tanganyika, paying attention to how labor markets were called into being, and how these formations affect the nature of the markets and the long term trajectories of paid labor in East Africa.

Finally, another tendency in economic scholarship of colonialism, particularly in Africa, has been to focus on general categories amenable to grouping and stratification.
This tendency cuts across various approaches and methodologies, and some of the broad groupings include those colonies which were extractive or non-extractive, also settler or non-settler (Acemoglu et al., 2002; Anyang’ Nyong’o, 2017); French, British, Belgian, Portuguese, German, Italian, or Spanish rule (Firmin-Sellers, 2000; Grier, 1999); Africa of the colonial economy, Africa of the concession companies, and Africa of the labor reserves (Amin, 1972). This scholarship has been helpful in calling attention to the large divisions and fissures in the colonial experience, and in understanding some of the macro trends of the post-colonial experience. Yet as in any movement towards the general, subtlety and particularity are lost. A hyper-particularity lives at the other end of the spectrum of scholarship on African colonialism, focusing on very specific interactions between Africans and colonial powers, usually at a district level (Mackenzie, 1989; Mandala, 1984). This scholarship, too, has helped us understand how the large machinations of colonialism played out in concrete form as they encountered the diverse social and political constellations of Africans. The challenge from this level of specificity, then, is to pull generalizable patterns from the granular. In line with the fundamentals of socio-institutional ecosystem analysis, this essay seeks a middle ground which focuses on mezzo-level institutional formations of neighboring state policy conditioned the socio-institutional ecosystem for arrangements of labor forces in both Kenya and Tanganyika in the colonial era. The essay attempts to pay attention to specific institutional contexts of Kenya and Tanzania, between micro-level particularity and macro-generality, appreciating how small but significant differences in the institutional architecture of the two colonies led to substantial differentiation. Both Kenya and Tanganyika were British East African colonies, with significant settler populations,
oriented around agricultural export. And yet, their governance structures, and ability to compel a labor force, varied, and led to significant differentiation, explored in this essay.

**STRUCTURE OF THIS ESSAY**

After this introduction, Section II situates the pre-colonial and early colonial contexts in what became Kenya and Tanganyika. Section III outlines the differences between the charters of the Tanganyika Mandate and the Kenya Colony before exploring how this affected the colonial project of creating an agricultural proletariat from an African peasantry. This section shows that the Kenyan colonial apparatus had a more repressive role in compelling an African peasantry into the paid labor sector than in Tanganyika. Section IV postulates theoretical ‘labor flow circulation schema’ to theorize how socio-institutional ecosystem dynamics influenced labor force induction. The Kenyan labor force was held more tightly in place in the paid labor sector by this institutional labor regime, as opposed to their Tanganyikan counterparts who more easily circulated between pre-existing production, peasant cash-cropping, and wage work. Section V describes the paid labor sectors in Kenya and Tanganyika in the 1920s. While both Kenya and Tanganyika turned out an agricultural labor force in the 1920s more or less sufficient to the demand of settler estates, structural differences lay just below this surface similarity. These differences were laid bare by the external shock of the Great Depression, explored in Section VI. The Great Depression struck down agricultural commodities prices, hurting first East African export sectors and affecting other parts of the two economies. The Tanganyikan peasant sector could more successfully absorb lots of members of Tanganyikan agricultural labor force who had lost employment owing to drops in agricultural output during the Great Depression. This helped usher in an era where the Tanganyikan peasantry rose to prominence. Kenya’s levels of agricultural
employment through the Great Depression bore little relation to agricultural output because the labor force was held more strictly in place through institutional channels which didn’t fluctuate with demand. Workers were either paid less or laid off, but they weren’t easily able to leave the labor force. Thus, unemployment was a persistent feature of the Great Depression in Kenya. These phenomena are evidenced with a range of statistical data gathered from the Blue Books of Kenya and Tanganyika, as well as qualitative archival sources. For example, though ‘unemployment’ was not a category statistically recorded by colonial authorities, this essay demonstrates its presence (and absence) with narratives from official reports, letters, and articles. Section VI gestures at how the divergences exposed by the Great Depression continue to reverberate through history as the socio-institutional ecosystems responded to the new realities, and have continued to resonate through the historical trajectories of Kenya and Tanganyika (Tanzania) through colonial era, the independence era, and up until today. In so doing, this essay contributes both to an understanding of the effects of historical differences in colonial structure in East Africa and buttresses the socio-institutional ecosystem analysis as a mode of inquiry.

II. BACKGROUND

**Pre-colonial Economies of East Africa**

In the era prior to European colonization, a wide array of economic activity and extensive networks of trade existed throughout East Africa. While the Swahili coast had been involved in cosmopolitan trade for the previous millennia, earlier economic historians and anthropologists, such as Wrigley, often cast pre-colonial East African economic structure as primitive, with subsistence production dominating, capital minimal, and division of labor ‘rudimentary,’ (Wrigley, 1957). Corrective histories have
shown a wide array of trade and specialization both on the coast and throughout the interior, amongst and between African societies and ethnic groups throughout East Africa (Austen, 1971; Gray, 1970; Newbury, 1980). Iliffe, looking at various accounts of early travelers and writers, notes the immense variety of currencies which were common from cowry, cobs, and calico to Austrian dollars and Indian pice (Iliffe, 1979). Different production modes often engaged in local trade (such as pastoral/agricultural trade between sections of the Maasai and Agĩkũyũ or Luo and Gusii), at the same time that longer trades route, particular in salt, hides, food, and iron manufactures were organized around East Africa, and particularly in stratified societies like in Buganda (Van Zwanenberg and King, 1975). The nineteenth century was an era of intense dynamism for the East African economic structures, particularly as trade networks which funneled interior trade through Swahili city states (chiefly Zanzibar) to the rest of the world came to predominate, with fractal local networks built along these routes. A variety of imports changed East African production patterns, killing some industries while bringing new life to others. For example, 150,000 iron hoes came through Tabora in 1891 for ‘domestic’ re-export and transformed agricultural practice, and cloth imports began to diminish the indigenous textile industry (Iliffe, 1979). To balance this importation, East Africa increasingly began to specialize in the export of ivory and slaves. Iliffe argues that East Africa was perhaps the only place in the world that saw an increase in the slave trade through the nineteenth century. More, this was marked by a qualitative shift in the nature of this slavery as well, from a “system of personal dependency” to one where a slave was a “stranger acquired by economic means and utilised for economic purposes,” (Iliffe, 1979, pp. 72–73). While East Africa had already been somewhat land-rich and people
poor, the export of slaves, and the large amounts of labor-power involved in a system of long-distance networked trade exacerbated the problem of a shortage of labor-power amongst an abundance of land.

These machinations set the stage for the East African economic structures that European powers would come to interact with and try to profit from. Iliffe argues that nineteenth century pre-colonial economic history in East Africa had two overarching implications. First, there was a specific form of underdevelopment as the specialization in ivory and slaves crowded out other industry only to collapse in the colonial era. Second, a specific institutional ecosystem grew out of the turbulence and trade of the nineteenth century. Just prior to colonization, many Africans were engaged the caravan trading system by trading agricultural surpluses (e.g. foodstuffs, rubber, sisal). As these trading networks opened up the cash-crop option-set of African farmers, wage labor began to make some footholds in both an agricultural and urban setting (Iliffe, 1979, p. 77).

Though the rhythms and types of production and life in pre-colonial East Africa were not homogenous, several important phenomena emerged in the territories which would become Kenya and Tanganyika: agriculture which was, or easily could be, oriented towards export; the rise of Kiswahili as a lingua franca over an area of large ethnic and linguistic diversity; and a familiarity of people with the various complex elements and movements of goods and people through long distance networks of trade.

**German & British East Africa: Infrastructure, Land, Settlers, & Labor**

At the Berlin Conference of 1884-85, European powers agreed to which territories in Africa would be colonized by which colonial powers. German East Africa was established by the German East Africa Company in 1885, under an imperial charter from Chancellor Otto von Bismarck, and compromised the land area that would become
Tanganyika and Ruanda-Urundi, after Germany lost its colonial possessions after World War I. The land that would become Kenya was brought into Britain’s colonial orbit as the British East African Protectorate in 1895. Amongst several competing visions, both regimes soon came to imagine their colonies as agricultural exporting dominions based on settler plantation agriculture. The idea was that this would generate profit both for Germany and Britain, as well as the individual settlers who would appropriate African surplus in the colonies. Four crucial pieces would prop up this vision: infrastructure, land, settlers, and labor. Early governance and institutional architecture sought to harness these elements into the orbit of empire.

Both regimes quickly went about the work of building the infrastructure for agricultural export. In the British East African Protectorate, the Uganda railroad was begun in 1895 and completed in 1901 connecting Kisumu on the shores of Lake Victoria to Mombasa, an Indian Ocean port city. Nairobi sprang up 1899 as a city midway between Kisumu and Mombasa. In German East Africa, a railroad to connect the port town of Tanga to Lake Victoria was begun in 1893, but faced many complications, only ever reaching Arusha under British administration in 1929. The more important central line, began by the Germans in 1905, finally reached Kigoma on the shores of Lake Tanganyika in 1914, just prior to World War I. “The railroads that colonial powers built were not like the networks that tied together various parts of Europe, or even India,” writes Cooper, “they were drainage networks, mostly single-track, narrow-gauge lines linking interior points with a coastal port,” (Cooper, 2015, p. 564).

The colonial project needed to harness the land being used by Africans, and did so with a mix of direct violence, intervention in local conflict, and legislative coding which
dispossessed Africans on *usufruct* grounds and then transferred absolute land rights to settlers.

In Kenya, after a 1904 massacre of Africans in Kisii in British East Africa, Otenyo Nyamaterere led an uprising against British troops (“The Legend of Otenyo,” 2015). Mekatilili (*née* Mnyazi) wa Menza led an uprising against the British in Giriama in 1912 (Carrier and Nyamweru, 2016). British intrusion in Maasai conflicts, such as the 1890s Morijo War, led to the confinement of the Maasai to areas desired by the British (Waller, 1976). In 1897, two years after the establishment of the protectorate, Europeans were permitted to purchase 21-year land certificates in the British East Africa Protectorate. Settlers were particularly powerful in early Kenya and pushed hard for more land rights. The Crown Lands Ordinance of 1902 allowed for 99-year leases, which by 1915 was extended to 999 years. ‘Crown Lands’ were officially designated as ‘unused’ land. Africans had rights to land they used for agriculture and grazing, though in practice it was easily ignored. Though the most fertile territory – what would become known as the White Highlands – were not officially designated as ‘unused land’ initially, it was made known to European settlers that they were for their exclusive use (Kimaiyo, 2004; Van Zwanenberg and King, 1975).

In German East Africa, a similar pattern of violence and legislation disposed Africans of their land. In the 1880s, after several attempts to take advantage of internecine conflict and war among the Chagga with little understanding of the power dynamics of different Chagga factions, “the solution was to wage war against the Chagga,” (Silayo, 2016). A decade after those conflicts ceased, the Germans killed between 250,000 and 300,000 Africans in German East Africa in the Maji Maji Rebellion.
from 1905 to 1907. In German East Africa, land was bought from local (German) commissioners in a rather piecemeal way by settlers, but by 1911 a regularized system operated district by district which moved Africans to a small portion of land (4 hectares per African family) after meeting with a village headman and paying a few shillings to the displaced family. The vacated land was then declared Crown Land from which German settlers could purchase 25 year leases from the government (Iliffe, 1979).

Next, there was the issue of attracting settlers to farm in East Africa. By the first decade of the 20th century, both German East Africa and British East Africa were well on the way to becoming settler economies, even if that was not the initial plan of each colony. In 1905, London revoked the governorship of Charles Eliot, then governor of Kenya, for his over-enthusiastic efforts at bringing settlers to Kenya while the Crown was interested in settlers going to Canada and Australia (Van Zwanenberg and King, 1975). Early German East African Governors, Graf von Gotzen and Reichenberg, encouraged ‘experimental’ settlement of Boer refugees and poor Germans from the periphery, but regarded the concept as a failure. Finally, Governor Schnee became more sympathetic to settlement as official policy. Though there were small numbers of Europeans initially, by 1913 there were 4,998 Europeans in German East Africa, of whom 882 were engaged in agriculture. Crucially, Iliffe notes that “the numbers were small, but they were comparable to Kenya’s at the same date,” (Iliffe, 1979, p. 141)

Upon securing land, overland transport, and settlers, what remained for the European project in East Africa was labor. The main obstacle: Africans neither needed nor wanted to work in European enterprise. The East Africa in which European powers found themselves was land-rich and people-poor, a significant departure from the Europe
which was land-poor and people-rich which had gone through a process of proletarianization beginning a century and a half prior (Kitching, 1980). Thus, while not the most preferable option, even when European powers pushed Africans off of their preferred land, some other land was available, and Africans could participate in the networks of production, trade, and exchange independent of the European plantations cropping up around them. In general, wages were low, and not a sufficient pull factor alone to attract Kenyan workers to fields (Zwanenberg, 1975). Thus, tremendous effort was put into establishing a system to reliably turn out a labor force for the British East Africa Protectorate and the German East Africa, which would soon become Kenya and Tanganyika, respectively. However, Tanganyika and Kenya would come to inherit different legal and institutional situations on the international stage and were bound by different limits in the pursuit of turning out labor. While they shared some similarities, this resulted in divergent strategy sets. These different institutional arrangements that the British colonial authorities used in Tanganyika and Kenya to occasion a labor force would not only drive contemporaneous difference between the colonies, but it would come to affect the long term trajectories of those colonies, and later countries, through the colonial and post-independence eras.

III. DIFFERENT INSTITUTIONAL CONSTELLATIONS & MODES OF LABOR COMPULSION IN KENYA & TANGANYIKA

In the aftermath of WWI, the political future of Britain’s East Africa possessions was solidified until the era of independence in the 1960s. Kenya was formed as a Crown Colony in 1920, taking the place of the East Africa Protectorate. Tanganyika was formed as a League of Nations Mandate in 1922, carved from the largest portion of German East Africa, and constituting what is now mainland Tanzania (the British first occupied the
territory in 1916). On paper, the interests of Africans were supposed to be the primary concern of both colonies. This was not the case in either colony, though it was even less the case in Kenya, owing to different institutions of international accountability. This meant that the Kenyan colonial regime had a wider range of tools from its colonial toolbox which it would be able to use to induce a labor force.

The 1923 Devonshire White Paper served as official policy for the Kenya Colony, and stated that “primarily, Kenya is an African territory, and His Majesty’s Government think it necessary definitely to record their considered opinion that the interests of the African natives must be paramount and that if, and when, those interests and the interests of the immigrant races should conflict, the former should prevail,” (Maxon, 1993, p. 276). However, the Devonshire White Paper, didn’t actually seek to ratify the paramountcy of African interests; it rather represented a “clever compromise by which the British government was able to extricate itself from a longstanding controversy surrounding Indian claims for equality with European settlers in Kenya,” (Maxon, 1991, p. 259). Tanganyika, on the other hand, was founded as a League of Nations Mandate under Article 22 of the League of Nations. This founding declaration stated that the colony was to be governed as a mandate for the benefit of natives. While Article 22 of the League of Nations contained stronger language on the role of European settlers than the Devonshire White Paper did in the Kenyan context, both documents had substantial similarity: they established the interests of Africans as paramount and placed those concerns ahead of concerns for European settlers and agricultural interests.

The main difference between these lay in their enforcement. The Kenyan government was held accountable to the British Crown only, while the Tanganyikan
colonial government was held accountable to the nascent League of Nations. Article 22 of the League of Nations came with the enforcement capability of the League of Nation, which was a new postwar organization that Britain did not want to trouble. In the 1924 Report by Britain to the League of Nations, the British Government needed to demonstrate that labor was free in the territories, and settler land did not come at the cost of African land desires, and that the colony was actively trying to provide for the welfare of Africans, including with a required appendix answering questions common to a mandates (Annual Report for Tanganyika Mandate, 1924, 1925). Britain’s report was subject to scrutiny from other member states – as evidenced by questioning from Yugoslavia and the Czech Republic, who didn’t want Britain to obtain unfair advantage from its newfound protectorate, and from the newly formed International Labour Organization (“Supply of official documents by the Mandatory Power,” 1933).

Meanwhile, Britain had only advanced the Devonshire paper in Kenya as a convenient ploy and had no intention of ever enforcing it. Thus, Britain was forced to merge word and deed in Tanganyika with respect to African rights, in a way that it could conveniently ignore in Kenya. The difference hinged on different colonial institutional arrangements and international accountability in the context of interwar international relations.

One of the big differences between Kenya and Tanganyika was the role of settlers, and their ability to petition the state to coerce a labor force to their needs. These differences were inscribed formally by law as well as informally by networks between settlers and colonial officials and were externally influenced by different kinds of international accountability mechanisms. In Kenya, British settlers petitioned a British government, while German, Greek, British, Indian, Arab, estates had to petition the
British colonial regime in Dar es Salaam. In 1921, there were 4,298 Europeans in Kenya (Annual Report on Kenya Colony and Protectorate, 1921, 1922). Of course, not all Europeans in Kenya (or Tanganyika) were settlers. But by 1930, there were 16,842 white settlers in Kenya, there were approximately 5 million Kenyans, who owned 1/3 of the arable land in Kenya (Annual Report on Kenya Colony and Protectorate, 1930, 1931). In 1921, Tanganyika had 2,447 Europeans, though this number had grown to 8,000 by 1931, and approximately 4 million Tanganyikans (Annual Report for Tanganyika Mandate, 1924, 1925; Annual Report for Tanganyika Mandate, 1931, 1932). While settlers were more numerous in Kenya than in Tanganyika, they were by no means marginal in Tanganyika, and Tanganyika had significant plantation estates owned by Arabs & Indians, who were neither African nor European. Both settler and planter populations had similar goals and mechanisms: to make profit through export-led plantation cash cropping (coffee, tea, sisal, pyrethrum, etc.), on land provided cheaply from the crown, with a labor force of comprised of Africans who would be turned out to work with help from the state.

So, where was this labor to come from in the post WWI era? European commercial production in colonial Africa – from the extractive economies of the southern mining belt to the agriculture holdings across the continent – required workers. They were faced with the initial problem that African labor neither needed nor wanted to work in European commercial production. African labor did not need to work in European commercial production because there were no factors directly pushing them there – Africans were largely engaged in stable economies and systems of trade which met their needs, and land grabs by colonial powers weren’t a sufficient push factor (yet) on the
land-rich and people-poor continent. At the same time, there were few pull factors – wages were not particularly high and though cash was used, there was little desire to increase participation in the cash economy of the agricultural estates. The colonial states of Kenya and Tanganyika intervened at this juncture to induce a labor force for the needs of European plantations, and the socio-institutional ecosystems of labor compulsion began to take shape.

In these states, both settler and African farmer interests petitioned the various colonial regimes in Africa for access to land and labor (Frankema et al., 2016). In this schema, environmental conditions (e.g. volcanic soils with plentiful rain) form the base upon which European and African farmer interests lie. However, the colonial state decides the conditions upon which land will be apportioned and a labor force encouraged through state policy. It was here that the legal charters of the Tanganyika Mandate and the Kenya Colony came to the fore. The Kenya Colony, responsible only to London, had much more laterality to compel labor, and allied itself closely (though not entirely) with the desires of the European settlers. The Tanganyika Mandate, responsible to the League of Nations, had much less room to compel labor for colonial estates, although that power was still substantial.

The rest of this section explores modes of labor compulsion in Tanganyika and Kenya. Some modes were common to both Kenya and Tanzania: the Hut & Poll Tax, various forms of coerced labor, and vagrancy laws. But the Kenyan state went further with an institutional ecosystem aimed at inducing a labor force: it effectively banned Africans from growing the major cash crops which pushed peasant cash croppers into the labor force; it instituted the Crown Lands and Native Reserve system which put land
pressure on African peasants; it passed legislation that required squatters (Africans living on Crown Lands) to work for estates; and it instituted a registration system, the *kipande*, which regulated African movement, pushing it towards areas of labor demand, and thus controlling wages.

**Labor Compulsion Common to Kenya & Tanganyika**

Across the continent from the late 19th century until independence, European powers sought to induce African labor with a whole variety of mechanisms, from use of the penal system and legal architecture to exploitation of phytosanitary conditions. Here, we focus on a basic architecture consisting of two elements: a system of taxation which would obligate participation in the cash economy – a proportion of which would be in the paid labor sector, and a system of coerced labor and vagrancy laws for the state to build infrastructure and to inculcate the rhythms of capitalist labor to a potential labor force. In Kenya and Tanganyika, both systems existed.

**Hut & Poll Taxes**

Taxes were levied on African men of working age in many parts of the continent to turn out a labor force which would be available for European commerce. Of course, these taxes were also an important source of revenue for colonial authorities, and the revenue motivation provided cover for colonial authorities, who did generally not want to admit that taxes were a part of their desire to requisition a labor force. In 1898, German authorities instituted the first general system of taxation in German East Africa, With their Hut & Poll Tax Ordinance of 1912, and the British Government carried this over in Tanganyika to their Hut & Poll Tax of 1922 (Shivji, 1986b, p. 12). The British East African Protectorate imposed a Hut Tax in 1901, which was updated to a Hut & Poll Tax
in 1910 (Zwanenberg, 1975, p. 76). Error! Reference source not found., below, shows a Hut & Poll Tax receipt from Tanganyika in 1933-34.

Despite official accounts that held that taxes were strictly for state revenue, and thus in line with the norms of constitutional liberalism, evidence demonstrates that its purpose was to occasion a labor force. For one, colonial authorities admitted it at times, such as Percy Girouard Governor of the East African Protectorate in 1913:

> We consider that taxation is the only possible method of compelling the native to leave his reserve for the purpose of seeking work. Only in this way can the cost of living be increased for the native…and it on this that the supply of labour and the price of labour depends,” (Ochieng and Maxon, 1992, p. 262).

Other actors and documentarians to the colonial project, such as J.H. Oldham, a radical Scottish missionary, and Norman Leys, a socialist colonial official, frequently write of tax as a mode of labor compulsion in British Africa (Leys 1918). In addition, unlike other tax regimes, hut and poll taxes were levied independent of wealth holdings (i.e. a percentage of value of property) or level of income (i.e. as a percentage of total income). Exclusions were given to the infirm (those unable to work) as well as to those already employed in the colonial police or military (Shivji, 1986b, p. 12). In Nyasaland (present day Malawi), where settlers were particularly powerful and given that Africans
could earn money in other capacities (i.e. the sale of cash crops), the tax rate was doubled for peasants vis-à-vis workers on European estates, demonstrating the preference of the state that taxes result in an increase in agricultural labor (Leys, 1921). Shivji writes that

“Unlike the system of advanced capitalism where taxation is predominantly a system to earn revenue, the ‘hut and poll tax’ was primarily a system aimed at extracting labour. The colonialists knew this and consciously used it for the purpose. New migrations of labour were stimulated by imposing or increasing taxation…in many cases the district administration actually planned their tax drives so as to flush out labour during periods when employers needed it the most,” (Shivji, 1986b).

Though the creation of a labor force was a driving force behind the system of taxation, it had other results as well. For example, because Africans were not completely obligated to earn the income to pay tax through paid work, many opted to grow and sell cash-crops (though in Kenya this was effectively banned by state practice). This became harder in regions with poor infrastructure, obligating some to engage in migratory labor. In areas with good infrastructure, this also led to peasant differentiation and inequality, which led to intra-region and inter-region inequality throughout East Africa (Zwanenberg, 1975, p. 102).

Coerced Labor & Vagrancy Laws

In both Kenya and Tanganyika, colonial states allowed for the government to force Africans to labor for the state. Forced labor, by any other name, is slavery, and much of Britain’s claims for the legitimacy of colonization – it is civilizing mission – came from the fact that it had helped to abolish slavery both globally and in East Africa. Hansen argues that “the economic needs of the […] established colonial empire meant that slavery was in many areas succeeded by the system of forced labour or corvée labour orchestrated by colonial governments, not least the case in the Protectorates of East Africa and Uganda,” (Hansen, 1993). Thus, the colonial projects coded this labor in
several ways to legitimize its use, as ‘communal,’ ‘tribal turnouts,’ ‘requisitioned,’ or ‘compulsory’ labor.

In Tanganyika in 1921, the Native Authority Ordinance recognized ‘communal labour’ or ‘tribal turnouts’ where Africans would be required to work for the Native Authority for 10-20 days per year clearing roads and bush. On the one hand, this was legitimized as prevention for Tsetse flies, but Tanganyikan colonial authorities also argued that it was simply the legislation of tribal custom and thus was a formal version of voluntary labor (Shivji, 1986b). In Kenya, similarly reasoning was used to justify ‘compulsory’ labor as a formalization of ‘communal’ labor. In particular, the Ugandan practice of kasnavu was used as the African basis for European state authorities to use African labor for the building of roads. Okia successfully demonstrates that there was a robust presence of forced and communal labor, and further demonstrates that this labor was often marshalled towards the private sector through the 1920s in Kenya (Okia, 2012). Morton agrees that this was present but argues that the macro-effects of such labor are not sufficiently demonstrated (Morton, 2013). There were a variety of other modes of coerced labor. For example, in Tanganyika there was ‘tax defaulter’s labor,’ where Africans could avoid penalties from non-payment of tax by working for the state for an average of 36 days, which averaged 25,000 workers per year from 1933-42 (Shivji 1986, 9). In Kenya and Tanganyika, provisions existed for the conscription of porters to carry state goods and supplies, and were used with some frequency, particularly as roads were being built. In Tanganyika, 15,000 porters worked in 1927, for a maximum of 60 days per year (Shivji 1986, 10).

Vagrancy laws and other similar legislation also helped enforce labor discipline
and oriented Africans to the paid labor sector in East Africa. Under statutes such as the Vagrancy Act (1924) in Kenya and similar statutes throughout British East Africa and colonial Africa, Africans could be found guilty of not working – broadly defined – and then used as penal labor or even leased out to private employers. Speaking of the translation of British vagrancy laws to their empire, Burton and Ocobock (2008) argue that “vagrancy laws were part of a package of labor regulations designed either to compel or to curb entrance into the wage labor market as well as restrict human movement,” (p. 292). These laws were “used to exploit, frustrate and intimidate Kenyans by restricting their right to movement, association and the use of private property,” (Muendo, 2017).

Bernault, in the context of Francophone Africa, has argued, according to Hynd, that “colonizers perceived penal labour not just as a marginal supplement to the ranks of African ‘free’ wage earners, but rather as a crucial tool for the creation of colonial labour,” (Bernault, 1999; Hynd, 2015, p. 250). Granular evidence for this comes from a series of convictions from the Nyashimo Primary Court in Tanganyika in 1952, for which convicts were sentenced to penal labor, including: “Roaming about on a working Day,” (about 80% of convictions), “Building a House Instead of Cultivating,” “Going Swimming Instead of Cultivating,” “Threatening to beat Village Headman,” and “Fishing Instead of Cultivating,” (Nyashimo Primary Court Documents, 1952, 1953).

At times, private capital in East Africa was not happy with coerced labor, as they saw it as competition for scant labor power which they needed on their farms (Shivji, 1986b). Still, several authors point out that the project of forced labor accomplished a few different things for the development of an African labor force in East Africa. First, it helped to develop the infrastructure upon which private capital would be able to exploit
African commercial activity. Second, as argued by Shivji, the “effect of forced labour was to instill the habits and conditions wage-labour in the producers who had never known it before,” (Shivji 1986, 11). Finally, and particularly in Kenya, there were direct – if not official – links between coerced labor and private labor, wherein laborers who engaged in ‘compulsory’ labor were forced to sign 6 month employment contracts with private employers proximate to state projects at the end of the their compulsory labor tenure.

**MODES OF LABOR COMPNUSION UNIQUE TO THE KENYA COLONY**

As settlers were stronger in Kenya, and there was no necessity to report back to the watchful eye of the nascent League of Nations or the International Labor Organization like in Tanganyika, the Kenyan colonial state erected a wider set of tools in order to push the African population towards paid labor, in addition to coerced labor and the hut and poll tax. There were: (1) effective bans on most cash cropping, to limit the option set for raising cash to pay Hut and Poll Tax of Africans in Kenya; (2) the Crown Lands & Native Reserves system, which exacerbated land pressure on Africans in Kenya and created a huge class of squatters – a legal distinction brought about almost overnight to people who were living as they had been – on Crown Lands and in the ‘White Highlands;’ (3) ensuant Squatter Legislation (the Resident Native Labour Ordinance) which required work from squatters on Crown Lands on European farms; and (4) a passbook system (the Registration of Native Labour Ordinance) which regulated movement of Africans to control wages and keep laborers in areas of labor demand.

*Effective bans on most cash cropping*

In Kenya, the colonial government frequently passed ordinances restricting the ability of Africans to grow crash crops, such as the *Crop Production and Livestock Act*
(1926). While this reduced competition with European cultivators, the more important function was to force would-be peasants into paid labor to pay their Hut and Poll Tax. As the set of options for paying a tax through cash cropping thinned, paid labor become a more plausible alternative. This became a key component to the institutional constellation of labor compulsion in Kenya. The Kenyan colonial regime could not outright ban native production of coffee, tea, and pyrethrum\(^3\) as this would violate the spirit of the Devonshire White Paper. But with administrative fees, licensing requirements built up by playing on fears of disease spread from potential African production, and other phytosanitary bureaucratic measures, they effectively banned Africans from producing major cash crops. For a variety of reasons there were cash crops that Africans in Kenya did grow, and which the state left alone. They were: cotton, as its harvest schedule didn’t interfere with coffee and it was not a successful plantation crop; maize, as an important crop for the reproduction of labor and which Europeans by law could buy from African farmers cheaply and resell abroad for a higher prices\(^4\); and wattle bark, a crop important in the processing of leather and which Europeans did not plant, as they saw it too unprofitable. But with the major cash crops in Kenya, \textit{de facto} bans were held in place as long as possible (Anderson and Throup, 1985; Waters, 1972). The regime was able to enforce a \textit{de facto} European monopoly on coffee production until 1933, when a limited

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\(^3\) Or, chrysanthemums, which were used to manufacture insecticides.

\(^4\) The dual price system marks an especially important feature of Kenyan colonization: establishing a guaranteed income for settlers in Kenya. By buying maize and other cereals from Kenyan peasants and squatters at low prices set by the state, and selling abroad at international prices, European colonists in Kenyan could realize this difference by their simple existence on cheap land supplied by the Kenyan colonial regime. This meant that colonists in Kenya – often ex-soldiers and displaced Anglo-Irish landowners after Ireland’s Easter uprising – did not need previous capital to embark upon colonization and did not need to be particularly adept managers to realize accumulation. The dual-price system functioned as a direct transfer of value from African peasants to European agri-capitalists engaged in the colonial enterprise and made Kenya that much more enticing to settlers and potential settlers.
project was tried in North Kavirondo Province, though intentionally stunted by lack of infrastructure (Barnes, 1979). African coffee production did not begin in earnest in Kenya until the mid-1950s.

While European settlers in Tanganyika wanted a similar de facto monopoly as the one in Kenya, they were simply unable to as they reckoned with the inertia of African coffee cultivation under the Germans and what a ban would mean to the League of Nations. In the Kilimanjaro Region of Tanganyika in the 1920s, European settlers with close networking ties to their Kenyan peers agitated for a ban on African cultivation of coffee, just as in Kenya. ‘Native Production’ accounted for more than 50 percent of the 5,621 tons of coffee output of Tanzania in 1924, compared to the 6,426 tons of Kenya, cultivated exclusively by European settlers (Annual Report for Tanganyika Mandate, 1924, 1925; Annual Report on Kenya Colony and Protectorate, 1931, 1932). After petitioning the Dar es Salaam government to restrict African coffee production in the mid-1920s, the settlers received a stern rebuke from Moshi District Office Charles Dundas, as described by colonial official A.L. Pennington:

“Suppression of coffee planting was out of the question. The British Government could not suppress development initiated under [the] Germans, and no rules for the suppression of native enterprise would have been permitted by the Government or countenanced by the League of Nations. Moreover, no Government could set out to root up trees which had stood for fifteen years and were bringing in a secure and ample income. The alternatives were to let matters take their own course, or to take a hand in this development. . . The main point to be borne in mind is that the encouragement or countenancing of coffee cultivation by Wachagga was no ill-considered policy, but was due to circumstances which made it almost a necessity,” (Pennington, 1933).

By comparison, the conversation on coffee cultivation by Africans in Kenya between the settler community and colonial officials looked very different. Under the ‘Crops Production and Livestock Ordinance,’ Africans were effectively barred from
growing coffee by the Agricultural Commissioner, through licensing fees and other measures. In 1932, a new Coffee Industry Bill proposed to remove the licensing fee of 30/- for Africans, which would effectively allow for the African production of coffee (“Debate on Coffee Growing by Natives,” 1932). 30/- approximates 6 months wages for farm laborers in 1932, or 3 months wages for skilled laborers. Equivalent to £1.50, it was not particularly onerous to settlers. The Coffee Planter’s Union – an organization of white settler farmers – voiced its concerns to the state, arguing that this would be dangerous for disease, theft, and competition (the arguments which had been used up until that point).

The Attorney General, acknowledging the subtleties between *de facto* and *de jure* law in Kenya, responded at length:

> “Under existing legislation there is nothing to hinder any native growing coffee. That fact that it has not been grown in the reserves heretofore is because we have been well backed up by various governors since growing was started, in seeing that it was discouraged among natives…The time has come, and some of us realise it, when that discouragement is no longer possible. Natives have come to administrative officers with the money in their hands to pay license fees for coffee plantations…if a native went to the supreme court he would receive a mandamus whereby no District Commissioner would be able to refuse to give him a license, in the opinion of the Attorney General,” (“Debate on Coffee Growing by Natives,” 1932).

Of importance here, note socio-institutional alliance of soft power with legal precedence. The Attorney General openly admits that the prevention of African coffee cultivation was only possible with the extra-legal support of the governor. The Coffee Planters Union agreed that legally, there was little that could be done, but that bureaucratically there was. The Attorney General again offered the settlers a way out: while the courts could not stop African cultivation, the Director of Agriculture could still effectively do that (“Debate on Coffee Growing by Natives,” 1932). In 1933, Kenya did allow for African cultivation of coffee, though far from infrastructure in North Kavirondo
Province (Barnes, 1979). Before the meeting concluded, the planters registered their disdain, and clear the conditions on which they had brought their capital to Kenya. Mr. Archer, a coffee plantation owner, said “I doubt very much if I should have embarked on coffee growing in Kenya if had not thought the native was completely out of the picture,” (“Debate on Coffee Growing by Natives,” 1932, p. 8).

The effective banning of large sections of African cash cropping in Kenya was a large block to the viability of that sector, and effectively was a massive push by the state to get more Africans in Kenya into the labor force, at the behest of settlers. That is, since coffee was an export crop there was not competition in the product market between Africans and Europeans; there was competition in the input market. Cash crop legislation turned would be peasants from input market competitors to the very labor power inputs that the settlers needed. In so doing, the paid labor economy, vis-à-vis the peasant economy, was propped up by the Kenyan colonial regime.

*Crown Lands & Native Reserves*

Native Reserves were a popular African colonial policy, such as the Bantustans of South Africa. In Kenya, the Native Reserve system eventually led to the designated of all lands (except for the Northern Frontier and Turkana district) as either Crown Lands or Native Reserves. Crown Lands were then sold to settlers in what became known as the White Highlands, off limits for Indian and African ownership, and would eventually comprise one third of arable land in the colony. While the creation of Reserves had been discussed since early on in the colonial era, not much was done except in the Maasai areas (Van Zwanenberg and King, 1975). By 1920, reserves had become official policy. Overnight, Africans outside of the Native Reserves and on Crown Lands were now cast into a new legal category – squatters – which came with a whole series of obligations.
discussed below. On the reserves, Africans who thirty years previously had had plentiful land, were now being squeezed into smaller and smaller parcels. Combined with the restrictions on cash-cropping, land pressure and immiseration on the Native Reserves were an important feeder for the colonial labor force (Ndalilah, 2012). Africans not only had to feed themselves but come up with enough money to pay their hut and poll tax. This was often by leaving the reserve in search of work (Overton, 1990).

The Reserve System served to turn out a labor force by making Africans respond to the poverty of the Reserves by working on European estates. Norman Leys documented the immiseration on the Native Reserves in a 1918 letter to J.H. Oldham: “there is a much larger number of natives who have merely just enough ground on which to grow their necessary food, to whom it is quite impossible to grow crops for sale, wherewith to pay the tax money and to buy trade goods,” (Leys, 1918). While immiseration was not wholly sufficient to turn out labor, as shown by Fibaek and Green (2019), we know that the colonial authorities noted it in their assessments. In the 1929 Annual Report, the Governor of Kenya wrote that “The flow of labour was sufficient to meet the demand, but this might not have been so had both native and non-native crops been good. Many natives turned out to work for wages owing to the loss of their crops from locusts and drought,” (Annual Report on Kenya Colony and Protectorate, 1929, 1930).

In Tanganyika, Africans did not have the same land pressure which would push them into labor on the colonial estates, and such a legal maneuver would have been quite impossible given the international oversight and posture of the League of Nations. In Kenya, however, the Reserve system served as a mechanism to occasion a labor force by
artificially stoking land pressure in a context where there would otherwise not be one.

**Squatter Legislation (Resident Native Labour Ordinance)**

With the establishment of the Crown Lands and Native Reserves systems by the end of WWI, all Africans who were residing outside of Native Reserves, and on Crown Lands, were declared to be ‘squatters.’ They would come to form the majority of labor on European farms (Kanogo, 1987). This was not accomplished through *laissez-faire* labor market principles which pulled African squatters into the employ of European estates, but by laws which required labor of all squatters. The Resident Native Labor Ordinance of 1918 declared that all African men of working age residing on European owned land would be obligated to work for 180 days per year for private enterprise as a condition of their residence on Crown Lands. In name they were paid (though in practice not always), by wages set by settlers themselves. By the end of the 1920s, there were 120,000 squatters, of whom 35,000 were adult males engaged in paid work on colonial estates. In times of harvest, women and children would also be involved – 11,000 in 1925 and some 30,000 in 1929 (NB: data are incredibly spotty) (Clayton and Savage, 1974; *Kenya Colony Blue Book* 1929, 1930). European estates were obligated to provide land for cultivation to squatters, which also acted as a form of control over the well-being of the squatter and their families. The land “provided” to squatters was also used to by squatters to grow maize, which was often bought by settlers and sold on for a higher price owing to a state-initiated dual price system. Wolff argues that “Since not only his wages, but his food producing land and his hut could be taken from him, he was for more docile and tractable in meeting the demands of his employer,” (Wolff, 1974, p. 127). In that way, legislation aimed at obliging labor from squatters functioned directly and indirectly to obtain a wage labor force.
Passbook System (Registration of Natives Ordinance)

Finally, Kenyan authorities instituted a passbook, or *kipande*

5, system which was intended to control labor. The passbook recorded each African’s name, age, occupation, employer, and wage, as well as all ten fingerprints. It was worn in a metal container around the neck of all African men in Kenya. It had to be produced on demand to the police, and failure to produce it could result in one month in prison. Clayton and Savage write that “the effect of this system, ostensibly one of identification, was in fact to restrict a man’s freedom to leave his work and his freedom to bargain with an employer for a wage not necessarily related to that of his previous employment,” (Clayton and Savage, 1974, p. 132). Importantly, the *kipande* also kept laborers out of urban centers, and Nairobi in particular. In Tanganyika, the cities of Dar es Salaam, Tanga, Arusha, and Mwanzaa all grew as urban centers and counterbalanced downward wage pressure in rural areas by allowing laborers to seek work in urban centers. By preventing most Africans in Kenya from living in Nairobi through the *kipande* system, Kenya increased the number of people seeking work in rural areas, and the reserve army helped fill vacancies and keep wages low.

By effectively banning cash crops, squeezing African pre-existing sector production and land tenure in the reserves, obligating squatters on Crown Lands to work, and by controlling the movement and bargaining power of labor with the passbook system, the Kenyan colonial authorities had stitched together a wide ranging socio-institutional ecosystem in order to occasion a labor force. This was in addition to the compulsory labor and hut and poll tax architecture that Kenya shared with Tanganyika.

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5 “piece” in Kiswahili.
Tanganyikan authorities were unable to take on the extra features of the Kenyan institutional ecosystem for occasioning a workforce. The result was that Kenyan workers were held more tightly in place as workers, limited from other modes of earning a living, such as peasant cash cropping and pre-existing sector production. In the next section, I explore a theoretical schema to think through the political economy dynamics of both regimes, before examining the empirical record before and after the Great Depression in Sections IV & V.

IV. THEORETICAL VIEW: THE LABOR CIRCULATION SCHEMA

How can we theorize these, modes of labour compulsion, and think about the differences between the labor force of Kenya and Tanganyika in a meaningful way? Given such heavy institutional involvement of the state in occasioning a labor force for colonial production, we can hardly say that a neoclassical labor supply model built from individual decisions allocating time between labor and leisure is an appropriate model. The Marxian notion of primitive accumulation here offers us a way to give theoretical framing to the question of labor in colonial East Africa. I explore the notion of primitive accumulation with respect to labor along its social and institutional axes, and then develop a labor flow circulation schema to frame the socio-institutional levers of proletarianization in East Africa.

INSTITUTIONAL PRIMITIVE ACCUMULATION?

Originally, primitive accumulation sought to theorize the question of the transition from feudalism to capitalism, by investigating the origins of the elements of capitalist accumulation: large amounts of capital in the hands of a would-be capitalists, available raw materials, and the presence of labor-power ready to be purchased as labor. In East Africa, the colonial equation took care of capital by providing it from previous
accumulation (either by peripheral dispossession or core capitalist accumulation), and commandeered raw materials by the land seizures of colonialism. Thus, I focus here on the aspects of labor and the processes of proletarianization theorized by Marx and other Marxists, and which we can see in the East African context.

A proletarian – someone dependent on the sale of their labor – is created when they have been divorced of their means of production, and when something compels them to seek work. Often, this is cast as immiseration – the threat of starvation. A simple telling of the transition from feudalism to capitalism sees serfs pushed off their lands, divorced from their means of growing their own food crops, and then forced to sell their labor power as the only means of their survival. And while immiseration forms an important part of the story, the historical record is full of other causes and forms of coercion which push erstwhile peasants and serfs into ascendant capitalist productions as laborers. Even in the English context of moving from peasant based agricultural systems to capitalist agriculture, seizing land in the English enclosure movement was not a fully sufficient condition to obligate laborers to sell their labor power. Marx summarizes the process of proletarianization a process of “the forcible creation of a class of free and rightless proletarians, the bloody discipline that turned them into laborers, [and] the disgraceful proceedings of the state which employed police methods to accelerate the accumulation of capital,” (Marx p. 905, 2013). Though peasants dispossessed of their land were often obligated to sell their labor power in order to eat, other forms of state coercion – i.e. vagrancy laws – were still necessary to raise a labor force that could meet capital’s demands (Marx, 2013; Sweezy, 1964). Earlier, Marx elaborates that the history of primitive accumulation and expropriation “assumes different aspects in different
countries and runs through its various phases in different orders of succession, and at
different historical epochs,” (Marx p. 876, 2013). What emerges from this rendering is a
theory which highlights the social and institutional elements of primitive accumulation
and pulls into frame a wider view than just the mechanical elements of dispossession and
immisration.

The relative abundance of land in East Africa in the early colonial era set the
machinations of primitive accumulation apart from earlier European archetypes. In land-
rich and people-poor East Africa, peasants dispossessed of their land still underwent
tremendous violence, but were not necessarily as obligated to sell their labour power as a
result of their imminent immiseration (Kitching, 1980). With plentiful land, they could
participate in the various forms of indigenous economic activity on slightly worse, but
still sufficient, land. ‘Double freedom’ in the Marxian sense – freedom to sell labor
power and freedom from the means of production – was only partially achieved by the
seizure of land, and Africans were able to access their own means of production (land)
without any obligation to sell their labor power to settler enterprise. Thus, while the East
African story follows an arc of Marxian primitive accumulation, this story is heavily
tilted towards the socio-institutional features – like the vagrancy laws of England – of
Marxian primitive accumulation.

In addition to the Hut & Poll Tax common to both Kenya and Tanganyika,
Kenyan authorities would be able to use a variety of institutional mechanisms to compel
labor from its African populace. Indeed, whether the colonial authorities had read Marx,

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6 Fibaek & Green (2019) have a particularly great discussion of the debate on immiseration as a pre-
condition for occasioning a wage labor force, in conversation with the previous generation of colonial
scholars, such as Arrighi (1970), Rodney (1981), and Kitching (1980).
they understood the insights on proletarianization well. The institutional edifice they erected set about to complete what strictly economic conditions in East Africa could not, creating mechanisms to push Africans toward paid labor (other than immiseration), and squeezing the potential of African means of production beyond the simple act of dispossession. The schema below theorizes how institutional constellations of Colonial East Africa funneled Africans into the labor force, and how this was more complete, and held more tightly in place, in Kenya.

**Differential Labor Circulation in Colonial East Africa**

This essay expounds a graphical schema to visualize the various institutional mechanisms that colonial authorities used to induce the African populations of Kenya and Tanganyika into the paid labor sector. Consistent with socio-institutional ecosystem analysis, the schema explores the pressures and constraints by which the colonies channeled African labor towards different sectors in the option-set available to Africans.

In the generalized schema, East Africans in British East Africa (and in colonial Africa more generally) had three general sectors with which to obtain a living from their labor: pre-existent production, peasant cash-cropping, and paid labor on large agricultural holdings (in other parts of colonial Africa, paid work took place in extractive industries, like mining). The pre-existing sector includes not just agriculture, but production of commodities (e.g. metallurgy, textiles) oriented towards exchange amongst pre-colonial (or extra-colonial) trading networks. This sector produced surplus, but this surplus was not generally incorporated into expanded capitalist accumulation. In the peasant cash-

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7 I use the term ‘pre-existing sector’ with some trepidation. It’s meant to include the non-colonial circuits of value in existence before the particular capitalist penetration concomitant with colonialism, while avoiding loaded and misleading terms such as “traditional” or “subsistence” sector.
cropping sector, peasants would grow crops on their land (or upon which they had usufruct rights) and sell a surplus in exchange for cash. These circuits of exchange generally were involved in mercantile or agricultural circuits of capital and capitalist expansion. In the paid labor sector, persons would sell their labor power to a capitalist, most usually in agricultural production.

![Diagram](image)

_Figure 4_ As a thought experiment for the purpose of comparison, we first explore an (abstract and ahistorical) minimalist colonial state, to compare to the range of institutional features which conditioned labor circulation in the Kenyan and Tanganyikan States. In this abstract minimalist state, citizens can move freely between the various sectors, alternatively cash-cropping, engaged in pre-existing sector production, or in paid labor in agricultural estates. This schema is shown above in Figure 4, and the porous boundary between sectors denotes the ease of movement between the various according to the
relative benefits and costs in a given time and place.

The colonial governments of Tanganyika and Kenya were interested in pushing Africans to paid labor in the agricultural sector – a precondition for the development of robust and viable settler agriculture. More, the paid labor on the agricultural estates needed at least to appear as free labor – Britain’s marshaled its role in limiting the slave trade as a justification for its colonial enterprise. So, the regimes sought ways to push an African peasantry who did not need or want to sell their labor power to do just that, short of outright forced labor. As shown in Section II, the two regimes shared some commonalities in how they went about this, particularly with their system of taxation. These also included forms of coerced labor as well as vagrancy laws. Kenya, however, free from watch of the international community and accountability through of the League of Nations, had a wider set of tools with which to compel African labor.

The Tanganyikan mode includes the Hut and Poll Tax as a mode to stimulate an African labor force. The Hut and Poll Tax, by demanding that Africans pay in cash, served to pressure Africans away from pre-existing sector production, either into agricultural work or into peasant cash cropping. Importantly, this pressure pushed Africans into the British colonial cash economy. Several currencies had long histories throughout East Africa, and until 1921 the Indian rupee was the official currency of the colonies. The introduction of the East African Shilling in 1921, and the concomitant demand that the Hut and Poll Tax be paid in those shillings, meant that Africans seeking to pay their tax needed to participate in circuits of cash which proffered the East Africa Shilling. This meant work on agricultural estates or the sale of cash crops to merchants operating with the shilling. So, the Hut and Poll Tax added pressure to labor circulation
pushing Africans in from the pre-existing sector to the paid labor and the cash-cropping sectors. The arrows demonstrate this pressure in Figure 5 below, representing Tanganyika, demonstrate this pressure.

While the regime in Kenya included the Hut & Poll Tax as an institutional means of to pressure Africans into the sectors it wanted, but also had a deeper set of tools to compel Africans into the paid labor sector, as shown in Section II. The overall effect of this meant that Africans in Kenya had much heavier institutional pressures compelling a labor force than did Africans in Tanganyika. For example, all paid labor in Tanganyika was wage labor, where workers were not legally obligated to work on any landowners particular estate, while the Kenyan paid labor sector was comprised of both free wage laborers and semi-feudal squatter labor, who received wages but were not free to choose their employer or their duration of contract.

The Kenyan labor circulation schema is shown below in Figure 6.
First, effective bans on cash-cropping for the biggest agricultural exports (coffee, tea, pyrethrum) seriously delimited peasant cash-cropping as an option to pay tax. While the Hut and Poll Tax pushed Africans into the cash sectors – paid labor and cash-cropping – the bans on cash-cropping pulled many out of cash-cropping and into the paid labor sector. Some cash crops were still grown by Africans in Kenya, especially wattle, cotton, and maize for sale. Next, the dispossession of African land through the Crown Lands Ordinance and the Native Reserve System put land pressure on Kenyans, further delimiting cash-cropping (in the crops able to be grown by Kenyans) as well as pre-existing sector production. As such, land legislation pushed Africans in Kenya from the pre-existing sector sector and the cash-cropping sector into the paid labor sector. Then, the Resident Native Labor Ordinance (1918, 1925, & 1937) obligated Kenyans who resided in Crown Lands (“Squatters”) to work for the settler farmers on who is land they
were squatting. This is shown in the labor circulation schema as a subset of paid labor called ‘squatter labor,’ which stands in contrast to wage labor. Squatter labor was akin to a semi-feudal form of labor; while squatter labor was paid a wage (by the letter of the law) and squatters were not legally tied to the land (although familiar, historical, and customary ties were present), squatters were required to work for the landowner, in exchange for a parcel of land to cultivate for their own consumption or to sell on. This is shown as a border around the squatter labor section of the paid labor sector, which forced many Kenyans into paid labor on agricultural estates. Finally, the passbook kipande system through the Registration of Natives Ordinance (1920) served to control the flow of labor and keep wages in the agricultural sector low. This kept Kenyans out of the wage opportunities of burgeoning urban centers like Mombasa, Kisumu, and Nairobi, while also ensuring information shared amongst settlers via the kipande held wages in check.

The result of this was that the labor force in Kenya was held in place through a series of socio-institutional ecosystemic pressures which practically guaranteed robust proletarianization for a crucial part of Kenya’s population. At the same time, Tanganyika’s labor circulation pressures exerted a softer pressure pushing Africans toward paid labor and remained relatively more porous, allowing Africans to circulate more based on the relative costs and benefits of each sector at particular junctures. Two different systems emerged with respect to the labor nexus for Africans in British East Africa – a porous labor circulation in Tanganyika, and a more impermeable system of labor circulation in Kenya.
Initially, these systems might vary only slightly, as a quick glance across Kenya and Tanganyika in the 1920s would reveal some Africans engaged in pre-existing sector production, others engaged in paid work, and still others engaged in some form of cash crop production. Yet these surface similarities belied vast subterranean difference. The Great Depression served as an external shock which exposed some of the deep differences in the institutional ecosystems that underlaid the various modes of labor in Kenya and Tanganyika. ‘Social economy’ offenses through the 1920s and 1930s offer a peak into how important the socio-institutional pressures were to the priorities of each country and are shown above in Figure 5. Social economy offenses included failure to pay the Hut and Poll Tax as well as various violations specific to Kenya – the Resident Native Labor Ordinance and the Registration of Natives Ordinance. In the beginning of the 1920s, Kenya had an offense rate about twice as high as Tanganyika. While Tanganyika’s rate stayed steady, the Kenyan offense rate began to climb in the late 20s to an apex in the Depression. So, not only was the Kenyan ecosystem more coercive of a
paid labor force than Tanganyika, but its disciplinary apparatus matched that intensity, especially in the context of the Great Depression. The next section examines the empirical record, and its accordance to the labor circulation schema, leading up to and through the Great Depression.

V. LABOR FORMATIONS OF THE 1920s

By the mid to late 1920s, Kenya finally began to have a supply of paid labor equal to its demand, and the steadiness of the labor supply was assured by the push factors of the socio-institutional ecosystem of Kenya. The same could not be said for Tanganyika, where the porous labor circulation flow, and dual (but weak) policies to encourage peasantization and proletarianization led to much turbulence in the labor supply through the 1920s. These trends become apparent through annual colony and district reports.

While data exist about the numbers of workers engaged in wage work in agriculture, there exist no figures for labor demand. However, anecdotal evidence exists, from the National Archives of Tanzania (Dar es Salaam), Kenya (Nairobi), and the UK (London). In the Kenya Colony Annual Report for 1925, the author writes that “The [coffee] industry is in a sound position and, but for the uncertainty in regard to labour supplies, particularly during the picking season, more rapid progress would be made in extending the acreage under coffee,” (Annual Report on Kenya Colony and Protectorate, 1925, 1926). This anxiety had persisted for some time. Yet the next annual report showed that those anxieties were disappearing: “The apprehension indicated last year on account of insufficiency of labour has been removed to an appreciable degree. African labourers have been offering their services in increasing numbers and it cannot be said, except in rare cases, that production and development suffered through an insufficiency of unskilled labour,” (Annual Report on Kenya Colony and Protectorate, 1926, 1927). The
state had largely solved the labor shortage crisis through coercive measures, and this position continued to hold; the 1929 Annual Report simply says “The flow of labour was sufficient to meet the demand,” (Annual Report on Kenya Colony and Protectorate, 1929, 1930).

In Tanganyika, meanwhile, labor supply was a constant problem for settlers and colonial authorities. Elkins and Pedersen write that Tanganyika’s “policy of ‘peasantization’\(^8\) […] enabled Tanganyika to develop a moderately diversified economy, usually self-sustaining in food production and with cotton and coffee grown by both African peasants and European settlers for export,” (Elkins and Pedersen, 2012, p. 122). That Tanganyikan peasants were able to grow their own crops was a worry in the early 1920s for the Tanganyikan state to be able to secure a labor force, because of labor force crowding out. The 1924 annual report states that “During the year under review difficulty has been experienced both by private employers and by Government Departments in securing a sufficient supply of labour…the increased production of economic crops by natives and the development of European-owned estates will, it is feared, presently render the labour situation acute,” (Annual Report for Tanganyika Mandate, 1924, 1925).

In 1925, the Bagamoyo District Annual Report shows that “the Roman Catholic Mission, the Greek plantation owners at Sadana, [as well as] Indian, Baluchi and various Arab plantation owners always require labour and there is generally a larger demand than supply…because the local natives have a strong objection to working for anybody else provided they can grow sufficient crops for their own consumption and tax.” (Annual

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\(^8\) State support for peasant agriculture – started tepidly in the 1920s and increased in the 1930s.
Report, Bagamoyo District, 1925, 1926). The next year, however, the Annual Report records that “Labour for non-native copra estates appears to be plentiful in Bagamoyo District,” (Annual Report, Bagamoyo District, 1926, 1927, p. 8). In 1927, the District Officer writes that there is a “continual demand for labour…it appears that the local natives are disinclined to leave the district in search of work provided they can grow sufficient food and earn money for their tax,” (Annual Report, Bagamoyo District, 1927, 1928, p. 36). In 1929: “The local native population is reported to turn out irregularly on the plantations,” (Annual Report, Bagamoyo District, 1929, 1930, p. 15).

Africans’ willingness to sell their labor-power dependent on conditions on their farms, which in turn depended on the East African climate and seasonality. The Central Province (Tanganyika) Commissioner writes in 1928 that:

“Labour was so plentiful during the dry season that the Engineer i/c [in charge] of construction on the Dodoma – Kondoa road turned hundreds of labourers away every month. It was very much the same story at Dodoma and Mpwapwa as regards railway and PWD requirements. The same cause, however, - shortage of food -, which made labour so plentiful when nothing could be done in the shambas, made it almost unobtainable when the rains were near,” (Annual Report, Central Province (Tanganyika), 1928, 1929, p. 27).

This made capital cautious in some areas to develop estates, and some reports indicate the haphazard approach of British colonial authorities to the formation of labor and ways to pay the hut and poll tax. An example of this haphazardness in 1929 in Central Province:

“In Mkalama, I found Mr. Lyons preaching the gospel of gum […] I heard that Ahmed Nasor was prepared to buy gum anywhere […] Word was at once sent to everyone to pass the information to each of his headmen with instructions to turn out their people to pick the tax from the trees. Gum was soon pouring into the markets and, before the crash came, the province had benefitted to the extent of #10,000 [10,000 pounds] by the sale of this hitherto unexploited commodity,” (Annual Report, Central Province, 1929, 1930, p. 3)
However, Tanganyika still managed to turn out a large labor force through the late 1920s on its large estates, because of a long established institution of migratory labor in Tanganyika from the South – Singida, Mbeya, Iringa, and the Southern Highlands, to the agricultural holding in central, Northern, and coastal Tanganyika. For example, the 1929 Manyoni District Annual Report records that “The local Wagogo do not readily offer themselves for work even in their own district…the labour demands of the townships were met by Wanyaturu from Singida who travel annually to Manyoni District in good numbers in search of work,” (District Officer Manyoni, 1930, p. 15). P.H. Gulliver, a government sociologist working for the Tanganyikan state, writes that “by 1914 the Ngoni had apparently firmly established the habit and custom of labour migration to the Tanga region, the Central Line employment areas, and the Coastal region,” (Gulliver, 1967, p. 1). He estimates that by 1924 6-7,000 men had left Songea – just one Southern district – to find work in the paid labor sector (Gulliver, 1967). Gulliver’s work demonstrates that immiseration plus the Hut and Poll Tax was sufficient to push Africans into the migratory paid labor sector from the Southern Highlands to Northern Tanganyikan plantations – the Southern Highlands lacked infrastructure for robust peasant cash-cropping, and Africans needed to work in the paid labor sector in order to pay their taxes (Gulliver 1967). The migratory wage workers from the South often went to work in a mix of European (particularly English, German, and Greek), Indian, and Arab plantations, which reflected older networks from German colonization and the coastal trade and influence of the Zanzibar Sultanate.

Thus, though Tanganyika’s labor induction system had less push than its Kenyan counterpart, Tanganyika was able to secure a plantation labor force which met its needs
in the late 1920s. In fact, more Tanganyikans were employed in agricultural wage labor than Kenyans. In 1928, 170,000 Tanganyikans were employed per day, on average, in the agricultural sector, while 92,371 went to work in agriculture in Kenya. Though unclear, this number for Kenya does not appear to include squatter labor. From other sources, we know that squatters comprised roughly half of the paid labor force in Kenya (Fibaek and Green, 2019). Thus, it appears that Kenya was largely on par with the total paid labor work force of Tanganyika if both wage workers and squatter labor are counted.

However, despite some surface indications of a robust and growing agricultural labor force, the institutional architecture of the conditions which brought workers to work in each country were quite different. With the stock market about to crash in New York and global commodity markets soon to be sent into a tailspin, the distance between the socio-institutional ecosystems and structures of the labor market Kenya and in Tanganyika were about to come sharply into relief.

VI. GREAT DEPRESSION AS REVELATION

Viewed from the outside, the macro trade effects of the Great Depression were similar for Kenya and Tanganyika, and the Great Depression hit East Africa as an external shock. Yet, this external shock affected the internal formations of Tanganyika and Kenya differently, and acted as a form of revelation of the emerging divergence between the two colonial economies. The machinations of the Great Depression, and the divergent responses from Kenya and Tanganyika, played out in ways that confirm what one might expect of the labor circulation schema outlined in the previous section. Below, we introduce some of the macro effects of the Great Depression, and then go on to highlight how that might effect employment, unemployment, wages, and peasantization in Kenya and Tanganyika, before exploring those four phenomena in depth with primary
Global commodities prices and exports dropped precipitously during the Great Depression. Figure 6, above, shows global commodities prices for coffee, peanuts, and tea, where their 1900 price is indexed to 100, and the effect of the Great Depression (Jacks, 2017). Figure 7, below, shows the raw production, and export value, of Kenyan and Tanganyikan coffee. While the raw level of production of coffee did not continue to grow as fast, it largely plateaued. However, as the price of coffee fell, the total income to Kenyan and Tanganyikan coffee producers was intense. As an external demand shock, the Great Depression most immediately hurt would be the producers of export cash crops – peasants, estate owners, and workers – before those effects were felt by other parts of the economy and the socio-institutional ecosystems of East Africa.

![Coffee, Tea, & Peanuts Price Index, 1900-1944](source)

*Figure 8*  
Source: Jacks 2017

However, the Great Depression fell very differently on Kenya and Tanganyika, because of the different forces of the socio-institutional constellations which called the Kenyan and Tanganyikan labor forces into existence. The labor flow circulation schema
would predict differences, given that sectors linked to global commodities markets were held together in different capacities. In Tanganyika, both the wage labor and the peasant cash-cropping sectors would be hit, while in Kenya the paid labor sector would be hit, as the little cash-cropping that did exist for Africans was not largely linked to the export sector. More, given the relative porousness of the Tanganyikan labor schema, we would expect that labor could more easily move or shift form in response to the Great Depression, while African workers in Kenya would be more tied to the paid labor sector to suffer the turbulence of the Great Depression. This section explores the initial economic responses to the Great Depression in three ways – employment, wages, unemployment, and peasant production:

1. Employment – The labor flow circulation schema would expect the levels of employment to fall in both colonies, but with more drastic drops in Tanganyika, as the Great Depression would hit wage ‘pull’ factors common to both colonies but wouldn’t affect the ‘push’ factors much more present in Kenya. I show this below by tracking agricultural employment, and regress employment levels
against total agricultural output. The data show that there was a robust relationship between changes in agricultural output and employment in Tanganyika, but no relationship at all in Kenya. This accords with the schema, as Kenyans were pushed much more than they were pulled by extra-economic mechanisms.

2. Unemployment – The labor flow circulation schema expects that those who lose employment in Tanganyika would be able to be better reabsorbed into other sectors of the Tanganyikan economy, in particular pre-existing sector production, as the peasant cash cropping sector would also be hit hard initially by the Great Depression. In Kenya, because of the lack of porousness of the labor circulation schema, this essay expects some proportion of those who lose employment to remain unemployed – to want work, have no other options, and to not find it. In addition, ‘push’ factors from the socio-institutional ecosystem would not be affected, and Kenyans would be pushed into the labor force, but not necessarily employment, exacerbating structural unemployment in Kenya. Colonial archival documents do not record any statistics on African unemployment, and so this is evidenced from qualitative sources, and the hypothesis is confirmed.

3. Wages – The labor circulation schema predicts that there will be an initial drop in wages in both colonies, though this will continue to play differently through the secondary dynamics of the Great Depression. Because of the unemployment expected in Kenya, a reserve army of labor will keep wages low in Kenya. If agriculture is to recover in Tanganyika, it will have to attract workers through the pull factors of higher wages. Data is both scarce and unreliable on wages, though
some preliminary data do buttress this hypothesis.

4. Peasant Production – Though the Great Depression would initially hit peasant cash cropping in Tanganyika, we would expect that on the rebound, peasant cash-cropping would be stronger, as workers displaced from the paid labor sector would be reabsorbed in the cash-cropping sector. It is hard to disentangle peasant production from estate production for all crops, as coffee, copra, and cotton were grown both on estates and by peasants, but it is possible for other crops. Sisal was grown exclusively on estates, and groundnuts (peanuts in the American lexicon) were grown exclusively by African peasants. It is observed in Tanganyika that through the Great Depression, groundnut production grows at a higher rate than sisal production, demonstrating peasantization was a feature of the Great Depression in Tanganyika. I explore the relative growth of groundnuts and sisal, and it confirms higher growth rates in the peasant sector than the paid labor sector. This is one strong evidence of the Great Depression as a peasantizing event for Tanganyika.

**Employment**

In the paid labor sector, the Great Depression first hit estate owners, who would then be constrained in their wage bill offering. They cut wages and employment. In the 1930 Tanga District Report (Tanganyika), the District Officer writes that “In August this year the Sisal Growers Association decided that owing to the great drop in the price of sisal that it would be necessary for them to reduce all of their wages and natives who were being paid between 24/- to 30/- p.m. were reduced to 20/- to 24/- p.m. Several large estates have closed down and have reduced their numbers considerably,” (District Officer Tanga, 1931, p. 12) In Kenya, a letter from the Labour Officer in 1935, addressing the
Grey Report, recorded that “There is no doubt that the depression in Kenya, during the last few years, has resulted in employers becoming more economical in the use of labour[…] in 1933 there was a drop of 37,800 acres i.e. 6.37 percent in the area under cultivation,” (Labour Officer, 1935).

![Average Daily Ag Employment](image)

Figure 8, above, shows the levels of daily agricultural employment in Kenya and Tanganyika through the Great Depression. As employers cut back on wages and employment (the two constituent parts of their wage bill), we would expect that the levels of employment in Tanganyika to be cut more drastically. That is, while both Kenyan and Tanganyikan workers would see the ‘pull’ factors of paid labor (wages) fall, Kenyans would have relatively more ‘push’ factors and would need to stay engaged in paid labor because of these push factors, while Tanganyikans would be more free to circulate to other parts of the economy. Indeed, we see only a small decline in the daily agricultural employment in Kenya, as Kenyans continue to be pushed into paid labor through the Great Depression.
We investigate the relative strength of ‘push’ and ‘pull’ factors by examining a simple causal relationship between daily agricultural unemployment and value of export cash crops. In Tanganyika, where more market and less non-market factors are present than in Kenya, we expect a robust relationship between export level and agricultural employment, as the Tanganyikan labor schema depends more on economic relationships of trade and employment. In Kenya, where non-market factors are stronger in the occasioning of a labor force, we expect there to be a weak at best relationship between changes in agricultural output and changes in agricultural employment.

![Graph showing changes in employment and output in Tanganyika and Kenya](image)

*Figure 11*

We run a very simple OLS model, where \( \ln \text{employment change}_{ji} = \beta_0 + \beta_1 \ln \text{output change}_{ji} + \epsilon_1 \). This essay predicts that in Tanganyika there will be an economically and statistically significant relationship between levels of agricultural employment and value of agricultural output, while that will be a weak relationship, if existent at all, in Kenya. Figure 9, above, shows the natural log of change in agricultural output and the natural log of change in employment in both Kenya and Tanganyika for
We regress this relationship in three other ways with slightly different measures for a robustness check. The four equations regress change in agricultural employment as a function of change in agricultural output. Equation 1 regresses that relationship, in natural log form, for the same year or $\ln \text{employment}_{t,t} = \beta_0 + \beta_1 \ln \text{output}_{t,t} + \varepsilon_1$. To check for the effect of last year’s change in ln employment, Equation 2 regresses, in natural log form, change in employment with last year’s change in output, $\ln \text{employment}_{it} = \beta_0 + \beta_1 \ln \text{output}_{it-1} + \varepsilon_1$.

Further, dropping the natural log, Equation 3 regresses the change employment (average daily employees in agriculture, with the change output (in pounds), $\text{employment}_{it} = \beta_0 + \beta_1 \text{output}_{it} + \varepsilon_1$. Finally, Equation 4 regresses the change in agricultural employment with last year’s change in agricultural output, $\text{employment}_{it} = \beta_0 + \beta_1 \text{output}_{it-1} + \varepsilon_1$. Figure 12, below, shows the results.

<table>
<thead>
<tr>
<th>changes in (\downarrow)</th>
<th>ln</th>
<th>actual</th>
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<tbody>
<tr>
<td></td>
<td>same year's output Equation 1</td>
<td>last year's output Equation 2</td>
</tr>
<tr>
<td>Kenyan agricultural employment</td>
<td>$\beta_1$</td>
<td>0.130</td>
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<td></td>
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<td></td>
<td>$R^2$</td>
<td>0.060</td>
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<tr>
<td>Tanganyikan agricultural employment</td>
<td>$\beta_1$</td>
<td>0.360</td>
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<td>$R^2$</td>
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These regressions demonstrate that a positive relationship between output and employment existed through the Great Depression in Tanganyika, while the relationship was weak and certainly never at any level of statistical or economic significance in Kenya. This confirms the hypothesis that the Tanganyikan labor force, though held in...
place with some non-market ‘push’ factors, still maintained robust relationship to market factors. Kenya, on the other hand, had a labor force which was held in place to a much larger extent by non-market ‘push’ factors, and its levels of agricultural unemployment were not significantly affected by the changes in agricultural output during the external shock of the Great Depression.

**UNEMPLOYMENT**

As the Great Depression hit East Africa, many people engaged in paid labor lost their jobs. Did this mean unemployment? If a laid-off worker could transfer to cash-cropping or pre-existing sector production, they would not be considered unemployed in the sense of looking for a job and not finding one\(^9\). We expect this to be more the case in Tanganyika, where there was more porous circulation between modes of labor. However, laid-off workers unable to transition to peasant cash cropping or pre-existing sector production would be unemployed. These workers required work to sustain themselves and their families, and to pay their Hut & Poll Tax. In Kenya, the institutions of the labor circulation control system held African proletarians more firmly in place, making it more difficult to circulate between different kinds of labor. At the same time, these institutions were also pushing more and more Africans out of the pre-existing sector economy and the small cash-cropping sector, so the labor force was increasing. Thus, we would expect to see unemployment in Kenya. The colonial Blue Books do not record African unemployment, so this essay looks to qualitative sources for evidence of African unemployment. The record shows unemployment was a persistent feature of the first several years of the Great Depression in Kenya. In Tanganyika, there was momentary

\(^9\) This of course does not include ‘disguised unemployment,’ or those in the peasant sector whose capacity is underutilized.
Numerous reports attest to widespread unemployment in Kenya. Through the late 1920s, Kenyan policy was just finally able to secure a labor supply sufficient for the labor demand of the European estates. In the 1929 Annual Report, the Governor writes that “the flow of labour was sufficient to meet the demand, but this might not have been so had both native and non-native crops been good,” (Annual Report on Kenya Colony and Protectorate, 1930, 1931, p. 77). In 1930, the Governor writes that “towards the end of the year many natives willing to work found employment unobtainable owing to agricultural and trade depression… for the first time in many years the supply of native labour slightly exceeded the demand,” (Annual Report on Kenya Colony and Protectorate, 1931, 1932, p. 52). In the 1931 Annual Report for the Rift Valley Province, the District Officer of Eldama Ravine notes that “labour is plentiful for the following reasons: (i) Economy on the part of the farmers, (ii) smaller crops due to locust infestation, and (iii) scarcity of food in native reserves,” (Annual Report of the Rift Valley Province, 1931, 1932). Stichter (1984) generalizes this observation, noting that that unemployment was a feature of the Great Depression in Kenya “because of the increasing congestion in the African reserves, not all migrant workers could shift out of wage labor during the Depression” and that “population increase and social differentiation in the reserves had already created a landless and land-poor stratum,” (p. 120). The Native Affairs Division reports of 1931 and 1933 document bands of young men wandering through the countryside and inquiring about work at different farms, and many episodes of unemployed workers approaching District Officers in search of work (Stichter, 1984, p. 120). For example, the Rift Valley Provincial Officer writes in 1932 that:
“By the end of the year the effect of a lack of employment was becoming apparent. A considerable number of Natives, especially Lumbwa, were wandering about, nominally in search of employment, and thefts were on the increase. This state of affairs was of course foreseen, but it makes the work of the police, with a reduced force, considerably more difficult.” (Annual Report of the Rift Valley Province, 1931, 1932, p. 12)

The next year, the Provincial Officer again records that “during the year [labour] supply has exceeded demand. This has hit particularly hard the Kamasia, who were sadly in need of the economic assistance represented by wage earning). (Annual Report of the Rift Valley Province, 1933, 1934, p. 17).

Similar reports abound in neighboring Central Province. In 1931, the Provincial Commissioner writes that:

“Reports received from the settled areas indicate that the supply of labour has everywhere exceeded the demand. As a result of the trade depression, employers in general have reduced the number of their employees and also cut the wages of those who remain… The Meru appear to be in the worst plight in this respect and the District Commissioner reports that the difficulty which they experience in finding work is increased by the enforcement by the police of regulations with regard to crossing private land and sleeping on farms.” (Annual Report of Central Province, 1931, 1932, p. 20)

In 1934, the same Provincial Commissioner of Central Province writes that “For still another year the lack of employment in European areas has been severely felt by Reserve natives and many settled areas have a floating population of natives looking for work what are proving a decided nuisance and difficult to cope with,” (Annual Report of Central Province, 1934, 1935, p. 47). Indeed, this became a general pattern. However, while agricultural employment in Kenya decreased from 1928 to 1932 (from 92,371 to 79,604), it was on the rise by 1933 and back up to 89,000 in 1934. The persistent unemployment across various regions of Kenya must have meant an increase in labor force while demand was shrinking. Clayton and Savage write that “the slow rise [in employment] failed to match the increased population…which, in the Kenya context,
meant small parties of lean-looking men presenting themselves hopefully at the settlers’ farms looking for work…for almost all, the problem of finding the few shillings necessary to pay the annual tax became of the greatest difficulty and unhappiness,” (Clayton and Savage, 1974, p. 174).

The drop in agricultural employment in Tanganyika unfolded very differently. While average daily employment in Tanganyika had a much steeper drop than in Kenya (from 185,000 in 1929 to 110,000 in 1931), there is little evidence that this resulted in widespread unemployment. Much of the agricultural labor in Tanganyika was centered in the sisal plantations of Tanga District. The Tanga District Commissioner’s reports through the Great Depression show that the loss of employment did not result in unemployment. In 1929, the District Commissioner records that 26,585 laborers are on the ‘estate books’ of various sisal estates – 4,288 contract laborers, 12,572 squatter laborers, and 9,725 casual laborers (District Officer Tanga, 1930). In the 1930 report, the District Commissioner (awkwardly) writes that:

“The depression in trade has practically stopped all development in the District, the natives who have been thrown out of work have been either returned to the central line and my opinion is that not only has the native town not been flooded out by natives out of work, who have come in from sisal Estates, but that the Native Population of Tanga Town is absolutely normal and this is the opinion of the responsible natives of Tanga the Labour commissioner informs me that this is borne out by the large number of natives who have been registered at the Kilosa and other Labour Camps on their return journey to the Central line,” (District Officer Tanga, 1931, p. 37).

Of note here is the worry, perhaps bolstered by reports of unemployment in Kenya, that unemployed sisal workers would become a nuisance in Tanga town. However, this does not occur as most workers thrown out of work appear to have returned. In 1931, at the deepest point of employment loss in Tanganyika, the District Officer’s fears are realized:
“The general trade depression has been responsible for the flooding of Tanga with natives of an undesirable class. Many of these people are from remote up-country areas and the difficulty of work has led, in any cases, to the commission of thefts and acts of violence” (District Officer Tanga, 1932, p. 4).

This appears to be a very temporary phenomenon. The next year, 1932, the District Commissioner’s Report contains no mention of unemployed people in Tanga town, and instead reports that workers have left the district and are ‘untraceable.’

Large numbers of natives have left the district. The numbers will not be known with accuracy until next March but I think 5000 is a conservative estimate. Many of these were accustomed to obtain a livelihood partly from labour and partly from family agriculture on smallholdings. They are now untraceable. (District Officer Tanga, 1933, para. IV).

In the 1934 report, the District Commissioner notes a high degree of absenteeism among workers, attributing this absenteeism to four factors: “(1) Labour must vary with the season for agricultural reasons; (2) a lack of incentive to work owing to the pernicious system of advantages, (3) under-nourishment through lack of proper and regular food; (4) very low rate of wages offering,” (District Officer Tanga, 1935, p. 4).

The focus on of the Tanga District Commissioner here is on former workers who are ‘untraceable’ or absent. Absence – at least to European looking towards at sites of capital accumulation – is not consistent with unemployment, or workers who are looking for work but cannot otherwise find it. Meanwhile in Kenya era in the immediate aftermath of the Great Depression, there were widespread and consistent reports of unemployment. This is consistent with the hypothesis of the labor flow circulation schema.

**WAGES**

Unfortunately, data on wages in East Africa during the Great Depression are very frustratingly sparse and unreliable, and the subject of ongoing inquiry and research. Still,
some indications do show that the predictions of the labor circulation do hold. In Kenya, the push factors compelling paid labor – both squatter and wage labor – meant that people pushed out of employment would become unemployed, rather than returning to the cash-cropping or pre-existing sector. In the classical Marxian sense (or even in the logic of the Phillips Curve), this reserve army of the unemployed would weaken the bargaining power of labor and lower wages. In Tanganyika, if the paid labor sector was to make a bounce back, it would have to pull back those previously employed who had found their way to cash cropping. As such, the ‘pull’ factors would be more operative, and would need to be sufficiently high to pull workers back to paid labor, relative to the benefits of cash-cropping in Tanganyika. As such, the labor circulation schema predicts opposite movement in wages – decreasing wages in Kenya, and rising wages in Tanganyika, after an initial drop-off.

One strong archival piece of evidence comes from the papers of a settler in Kenya named Major Ridley, who polled all 39 of the workers on his coffee estate in Uasin-Gishu in 1936, asking them the wage of their most recent job, their best wage since 1930, and their wage in 1930, in addition to the wages that Major Ridley currently paid them. The staggering results are shown below in Figure 13. Major Ridley paid his coffee workers 6/- per month. In their last job, the workers averaged 6.32/- per month. In their highest wage since 1930, workers averaged 6.97/-. Workers made 9.04/- per month in 1930. These data, from the heart of settler agriculture, show significant downward pressure on wages in Kenya during the Great Depression, and show that this downward

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10 Two notes: first, these are nominal wages, so the real wage drop would be even greater, even with low inflation. Second, economists often assume sticky wages which don’t adjust downward like the prices of other commodities. That Kenyan wages had such a sharp and sustained drop – against the common
Data are similarly scarce in Tanganyika, though we can find evidence that wages initially fell and then recovered. In 1930, the Provincial Commissioner of Tanga observed that all wages were falling for sisal workers (District Officer Tanga, 1931). However, by 1936, unskilled wages in Tanga were between 10/- and 12/- per month, and rose to between 10/- and 15/- per month in 1937, the same range as in nearby Bagamoyo in 1928 (Annual Report of Bagamoyo, 1928, 1929; Annual Report of Tanga, 1936, 1937; Annual Report of Tanga, 1937, 1938). This shows rising wages, a significantly higher floor than wages in Kenya, and a return to the wage range before the depression. Though done with limited data, this confirms the hypothesis that wages moved in opposite directions in colonial Kenya and Tanganyika, owing to the different socio-institutional ecosystemic interactions of each colony.

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assumption of sticky wages – further evidences that the institutional constellations in Kenya made it very different from standard labor market understandings.
**Peasant Production**

The Great Depression, by hitting global commodities circuits, affected all sectors of the economy linked into those circuits. This included the large Tanganyikan peasant cash-cropping sector. Cash cropping in Kenya was confined to crops for domestic consumption (e.g. maize) as well as domestic production (e.g. wattle bark). Fibaek and Green (2019) do estimate an increase in wattle bark production in Kenya through the Great Depression, though this was impossible for coffee, tea, and pyrethrum in Kenya (Fibaek and Green, 2019). In Tanganyika, because crops grown were exposed directly to global markets, we would expect that while the shock of the Great Depression would initially hurt peasant production, there would also be an influx of peasant cash croppers laid off from the paid employment sector, and that this would be significantly larger in Tanganyika. Also, Tanganyikans still had the pressure of the Hut & Poll tax, which could be gathered either in the cash cropping sector or in the paid labor sector. With heavy layoffs in the paid labor sector, we would expect an increase in the peasant cash cropping sector.

Summaries in the Blue Books note these trends. First, the Blue Book for 1931 notes an initial retreat to the pre-existing sector:

In 1931 the effects of the slump in prices were accentuated and partly on account of the low prices paid in 1930 for their produce native cultivators gave less attention to cash crops and more to food crops. Thus the production of cotton and groundnuts shows a heavy decrease. (Tanganyika Territory Blue Book 1931, 1932, p. 226)

However, this trend began to reverse, as noted in the 1933 Blue Book:

This depression, however, was more than offset by the increase in the Territory's production. Record tonnages in exports were achieved in sisal, cotton lint, groundnuts, coffee, beeswax and rice. This increase, in spite of the very low prices offering, is mainly due to the efforts which have been made to encourage the native cultivator to further efforts and in particular to the
introduction of cash marketing in place of barter, resulting in a steady flow to the main producing areas. (Tanganyika Territory Blue Book 1933, 1934, p. 247).

District Officer reports give granular clarity to this broader picture, showing that Tanganyikans sought to meet their tax obligations by intensifying efforts in agriculture, as well as by switching from paid employment to peasant cash cropping:

Tax has been difficult to collect from both Natives and Non-Natives. The tribesmen have responded to the urge to grow more crops, while improvement in the quality of ghee produced enabled many to pay their taxes (District Officer Dodoma, 1933, p. 1).

Although the slump continues, in other respects conditions have been reasonably satisfactory. Good rains and the absence of locusts gave good crops and although *fundis*\(^{11}\) and labourers are short of work many of these have turned to Agriculture. (District Officer Kigoma, 1934, p. 1).

This phenomenon of peasantization in Tanganyika can also be shown quantitatively. While it is difficult to finely trace the peasant and estate production for all crops (as coffee, copra, and cotton were grown in both), it is possible to appreciate the different Depression era trajectories for groundnuts and sisal. Groundnuts were grown exclusively by African peasants in Tanganyika, and sisal was grown exclusively on non-native estates. Figure 14, below, shows the domestic output for groundnuts and sisal from

<table>
<thead>
<tr>
<th>year</th>
<th>groundnuts</th>
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<th>sisal</th>
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<tr>
<td></td>
<td>cwts</td>
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<tr>
<td>1929</td>
<td>155,100</td>
<td>120,448</td>
<td></td>
<td>914,560</td>
<td>1,485,593</td>
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<tr>
<td>1930</td>
<td>346,660</td>
<td>186,567</td>
<td></td>
<td>999,240</td>
<td>1,172,315</td>
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<tr>
<td>1931</td>
<td>61,400</td>
<td>28,706</td>
<td></td>
<td>1,118,780</td>
<td>707,177</td>
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<tr>
<td>1932</td>
<td>317,460</td>
<td>182,010</td>
<td></td>
<td>1,211,080</td>
<td>698,202</td>
<td></td>
</tr>
<tr>
<td>1933</td>
<td>383,540</td>
<td>166,223</td>
<td></td>
<td>1,392,000</td>
<td>881,772</td>
<td></td>
</tr>
<tr>
<td>1934</td>
<td>160,720</td>
<td>60,145</td>
<td></td>
<td>1,450,200</td>
<td>847,562</td>
<td></td>
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<tr>
<td>1935</td>
<td>328,580</td>
<td>210,018</td>
<td></td>
<td>1,653,520</td>
<td>1,134,732</td>
<td></td>
</tr>
<tr>
<td>1936</td>
<td>455,720</td>
<td>277,226</td>
<td></td>
<td>1,611,180</td>
<td>1,873,312</td>
<td></td>
</tr>
</tbody>
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*Figure 14*  
*Source: Blue Books 1929-1936*

\(^{11}\) *Specialist worker* in Kiswahili
1929-1936, both in hundredweights and total value (in pounds sterling). Figure 13 then indexes both crops to their 1929 levels, and then tracks their movement through the Great Depression, both in terms of raw production, and value. The relative growth of groundnuts vis-à-vis sisal indexed to their 1930 levels is greater, both in terms of raw production and in terms of total export value. Because we know that groundnuts were exclusively grown by African peasants, and sisal exclusively by estates managed by non-Africans, this reveals a growing peasant sector through the years of the Great Depression.

Though not fully way conclusive on its own, this demonstrates in concert with other qualitative evidence showing wage workers leaving that sector and going to the peasant sector, combined with state efforts to stimulate the peasant sector, that increased peasantization was an effect of the Great Depression in Tanganyika, even as the peasant cash-cropping sector was initially hurt by the external shock of the Great Depression.

VII. THE HISTORICAL INHERITANCE OF THE GREAT DEPRESSION

The Great Depression first clearly verified and then intensified the distance in structure between the Tanganyikan and Kenyan economies. This structure was present,
but less apparent before the Great Depression. This analysis has shown that the external price shock revealed that Kenyan agricultural employment had little relationship to Kenyan agricultural output, because of the robust presence of extra-economic conditions in the socio-institutional ecosystem of Kenya which induced an agricultural labor force.

The Tanganyikan paid labor sector, as has been shown, had a much stronger relationship to agricultural output. Thus, drops in agricultural output pushed Tanganyikans out of the paid labor sector, but with little unemployment as they were able to be re-absorbed into the peasant sector. This also demonstrated by the relative growth of peasant crops (groundnuts) compared to estate crops (sisal). Again, the socio-institutional ecosystem of Tanganyika made possible this circulation of labor. The Kenyan paid labor sector, though faced with a small drop in the beginning of the Great Depression, continued to grow through the Depression as socio-ecosystemic pressures pushed Kenyans out of the peasant sector and into the paid labor sector. This happened even as it appears that the labor force grew faster than employment in the sector, which resulted in structural unemployment that was not apparent in Tanganyika. A bird’s eye view of the Great Depression reveals a moment which intensified peasantization in Tanganyika and proletarianization (even feudalization, via the squatter sector) in Kenya.

The constituent institutions of the socio-institutional ecosystems of Kenya and Tanganyika responded in turn. Crudely, peasants and landless proletarians form different kinds of organizations to respond to their needs, and state and settler interests react to these developments accordingly. The Kikuyu Central Association (KCU) in Kenya and the Kilimanjaro Native Planters Association (KNPA), discussed in the introduction, made sense as they responded to the realities of the economic and political structures around
them. In Kenya, the KCU was a prominent organization, amongst others such as the Kavirondo Taxpayers Welfare Association (KTWA), classified by Bogonko as “welfare-cum-political organizations” which spoke to the grievances of rural land-squeezed proletarians (Bogonko, 1984, p. 29). These organizations were fundamental to the growing strike movement of landless rural and urban workers from the 1930s through the 1950s (Zeleza, 1993). Kanogo identifies the exacerbations of the Great Depression, particularly on Agĩkũyũ squatters as foundational to the foundation of the Kenya Land and Freedom Army, also known as the MauMau (Kanogo, 1987). In Tanganyika, the KNPA would reconstitute itself as the Kilimanjaro Native Co-operative Union, an agricultural cooperative serving peasant members. Agricultural cooperatives came to the fore in the mid-colonial era as an institution of peasant ascendancy from Kilwa on the coast to Bukoba at Lake Victoria (Maghimbi et al., 2010).

The state and settlers also responded to these changes. In Kenya, a colonial state aligned with settler interests tried to squeeze the already pressed African population to save the viability of peasant agriculture. A 1937 letter from the Sergoit-Moiben Valley Farmers’ Association (a settler association) coyly asks the governor to raise taxes on Africans to induce a longer harvest season, writing that the “government be requested to consider whether the present rate of Hut Tax be adequate,” (Hawley, 1937). This shows close collaboration between the state and settlers. The state also stepped up its disciplinary presence to push the African population toward agricultural paid work through Great Depression. One way this is evident is through convictions in Kenya and Tanganyika for ‘social economy’ offenses, which included hut and poll tax offenses as well as offenses against various labor ordinances (such as the Resident Native Labour
Ordinance 1925). Kenyan conviction rates had been about double the rate of Tanganyika in the 1920s, but the ballooned to four times as much through the Depression, while Tanganyikan conviction rates stayed largely the same throughout. While this demonstrates an increased disciplinary presence, it also shows an increase in Kenyans unable to pay their taxes, likely because of unemployment.

In Tanganyika, state response seemed to accept the ascendancy of the Tanganyikan peasant over settler agriculture and went about a development policy to encourage that. The Agricultural Department in Tanganyika launched a campaign to encourage peasant production in 1932. At the same time, the Depression pushed down possibilities for settler agriculture in Tanganyika. “Kenyan policy,” writes Brett, “was very largely determined by the need to maintain the viability of settler agriculture, while Tanganyikan decisions stuck an uncertain balance between [settler and peasant agriculture],” (Brett, 1973, p. 167). Coming into the WWII era, Kenya was firmly established as a settler colony while peasants dominated the Tanganyikan landscape.

These emergent structures of the East African economies have held some sway over historical economic arcs of Kenya and Tanganyika up to today. As these arcs have been marked by various eras – the MauMau insurgency and hali ya hatari (emergency period) in Kenya, post-independence Ujamaa (socialism) in Tanzania and the struggle between capitalism and socialism in Kenya, the persistent land question, the era of neoliberal structural adjustment – the traces of some of the features of present structural and policy questions were beginning to become apparent in the mid-colonial era.

For example, the socio-institutional ecosystems of Kenya and Tanganyika, and their inflection and compounding in the Great Depression, set them up to address the
question of land very differently in the post-independence era. Nyerere, giving a speech in Cairo on the challenges of creating socialism in Tanzania and the United Arab Republic, remarked:

Take, for example, the question of land. In Tanzania we abolished the freehold ownership of land shortly after independence…but this was not an affront to our people…thus only about 1 percent of our land was really affected by this law, and no Tanzanian who really wants to farm has been unable to find the necessary land – even if not just where he wants it. (Nyerere 1968, 84-85).

In post-independence Kenya, massive land alienation and the precarity of squatters and peasants saw the regime try and focus on market-based reforms and property titling. Shivji writes that “the post-independence land resettlement program in Kenya, which was, in effect, a kind of market-based land reform, resulted in the Kenyanisation of settler farms […] it did not change the fundamental relationship,” (Shivji, 2009, 76). Kenyan MP J.M. Kariuki, born to Agĩkũyũ squatters in 1929, had warned precisely against this just before he was assassinated in 1975, arguing that “we do not want a Kenya of 10 millionaires and 10 million beggars. I believe firmly that substituting Kamau for Smith, Odongo for Jones and Kiplangat for Keith does not solve what the gallant fighters of our uhuru considered an imposed and undesirable social injustice,” (wa Gĩthĩnji, 2000). Unfortunately, Kariuki’s premonitions have been borne out. Peter Torongei was born just 5 years after Kariuki, in the Gwassi hills after his father was dispossessed of 100+ acres in the tea rich hills of Kericho – in the White Highlands – by the colonial regime. Today, he lives adjacent to the property his father owned on a small 50 by 100-foot enclosure. In 2019, he said:

“When we came back from Gwassi, we found that other people had settled in our lands and we were basically homeless, so we were put into this holding area. There were roll calls to make sure that we did not escape from this place. We were kept in poverty. [When I see the tea plantations] I feel very sad that
my land is still held by foreigners. All these years after independence – and I lived through that – other people benefit from my land. I still don’t know what my fate is because I have been told, for all these years, that I will be given land. Life here is particularly difficult because I cannot keep animals, we cannot keep any livestock, we cannot grow any crops, we are just living on subsistence with no income. My children could not go to school because we could not afford the fees, so we have lived in poverty all along. I am tired,” (Parveen, 2019).

Thus, Kenya was marked by high degree of land, income, and wealth inequality, yet attracted capital which allowed for continued growth and industrialization – imaginably in no small part because it was clear a labor force would be there to produce value from the initial capital investment. Today, Kenya maintains the highest GDP/capita in the region. Tanganyika’s peasantry ad cooperatives led to an outlook which prioritized the peasant farmer and rural land and infrastructure access, from Nyerere’s *vijiji vya ujamaa* (socialist villages) to the present policy of *maendeleo ya kilimo kwanzaa* (agriculture first development). Tanzania has been lauded for its degree of equality which translates to higher social equality but has stayed relatively poor (in GDP/capita) compared to its northern neighbor. The phenomena of linking structural trajectories to colonial institutions accords with an established school across development literatures (Acemoglu et al., 2002; Bowden et al., 2008b; Khan et al., 2019b). This essay finds the roots of these early institutional divergences in Depression era East Africa.

This underscores the importance of centering the socio-institutional ecosystem as a unit of analysis for understanding economic phenomena, as well as for appreciating the dialectical dynamism of the interaction between the two. The structures of the labor forces of Kenya and Tanganyika in the mid-colonial era were the result of institutional arrangements of the colonial states conditioned by international and domestic power balances, and shaped the possibility sets for millions of Africans in very particular ways.
As the Great Depression exposed and deepened the structural differences of East African economies, the changes in economic structure provoked changes in the institutional ecosystems of both colonies, and the continued interaction between socio-institutional ecosystem and economic phenomena inflects contemporary questions of economic and structural possibilities and human dignity in East Africa today.
THE SOCIO-INSTITUTIONAL ECOSYSTEM HYPOTHESIS
FOR THE PROLIFERATION OF WORKER COOPERATIVES
IN THE UNITED STATES

by Jonathan Donald Jenner

This essay argues that the socio-institutional ecosystem approach provides fundamental and otherwise unavailable insights into the distribution and proliferation of worker cooperatives. The economics literature has developed some key insights into the general problems that worker cooperatives face in abstracted capitalist space. However, these theories cannot fully explain the appearance, persistence, and agglomeration of worker cooperatives. The socio-institutional ecosystem can more thoroughly explain the appearance, proliferation, and persistence of worker cooperatives across various capitalist contexts. We first excavate the economic literature on the appearance of worker cooperatives, looking for limits to conventional theory and finding strands which lend support to a more complete socio-institutional ecosystem analysis. Next, this essay advances a fuller articulation of the socio-institutional hypothesis. Our positive contribution is to empirically build a case for this hypothesis by examining the spatial clustering of worker cooperatives in the United States and identifying correlates of this clustering in elements of the socio-institutional ecosystem. While not seeking to parse causality about which socio-institutional features may ‘cause’ worker cooperatives to more easily proliferate, we demonstrate that by centering the ‘socio-institutional ecosystem,’ economic theory can better shed light on the appearance and distribution of worker cooperatives in the United States. It thus demonstrates a way forward for theory on the appearance, prevalence, and agglomeration of democratic workplaces.

Between 2013 and 2017, there were 464 worker cooperatives in the United States out of 5.6 million employer firms in the United States. Worker cooperatives are both rare and geographically clustered. Most of the literature on the prevalence of worker cooperatives has focused on the first stylized fact and sought to explain their relative rarity as a function of firm inefficiencies or resultant from structural dynamics of capitalist political economy. This essay seeks to account for the general rarity of worker cooperatives in the United States, but also to explain their punctuated clusters across the United States. The socio-institutional ecosystem hypothesis can do this, incorporating general hurdles from structures across capitalism in concert with a demonstration of how variation in features of the socio-institutional ecosystems account for differentiation in the number of democratic firms across different regions of the US.

The empirical work geocodes worker cooperatives in the mainland US into megaregions developed by Nelson and Rae (2016), and then tests for a range of demographic, economic, and ideological correlates of worker cooperative firm density (Nelson and Rae, USFWC Census 2013-17). This finds that worker cooperatives are not only bunched, but that their density is most closely aligned with ideological correlates in the US, while somewhat correlated to other economic and demographic indicators. This gives credence and empirical weight to the notion that social relations, institutions, and a firm’s environment condition the survival of worker cooperatives. The takeaway: using the ‘socio-institutional ecosystem’ as a unit of analysis provides key insights to understand the limiting agents of democratic workplaces in the US, which heretofore has been absent from the literature, and can inform activist and policy strategy.
I. Introduction

Asked why there weren’t more worker cooperatives in the United States in an interview with New Renaissance Magazine, Vanek, an economist who studied democratic firms, replied that “Co-ops in the West are a bit like sea water fish in a freshwater pond,” (Perkins, 1995). Worker cooperatives have been shown to deliver many benefits – among them poverty reduction, job stability, higher income equality, lower unemployment – and thus many have called for their expansion and proliferation (Alperovitz, 2004; e.g. Nembhard, 2014; Schweickart, 1992; Wolff, 2012). However, they remain rare relative to capitalist firms, and much work has gone into formulating and understanding their paucity. Addressing this point, Vanek argued that for worker cooperatives, the external socio-institutional environment of the firm matters more for its appearance and proliferation than the internal fitness of the firm. This essay takes up that insight by building and empirically testing the hypothesis that the appearance and proliferation of worker cooperatives is best understood by analyzing the socio-institutional ecosystem which surrounds firms. The hypothesis: worker cooperatives remain generally rare in capitalist economies because generalized structures of capitalism inhibit their proliferation, yet different socio-institutional constellations across capitalist space are more and less amicable to worker cooperative proliferation, explaining the clusters of worker cooperatives in particular environments and their absence in others.

Most economic theory has focused on the firm’s internal deficiency instead of its external proximate context, and so Section II focuses on excavating existent economic theory on the peripherality of worker cooperatives, while understanding its limitations. Neoclassical theory has attributed the paucity of worker cooperatives to problems with the form of worker ownership and management that defines a worker cooperative.
Political economists, mostly from the Marxian tradition, have held that the power
dynamics of capitalism will continue to render worker cooperatives peripheral. While
both schools compile instructive insights, they do not fully explain the empirical record
on cooperatives. While worker cooperatives remain rare in capitalism, Marxian theory
does not explain the punctuated existence of worker cooperatives in some capitalist
contexts. Neoclassical theory predicts that worker cooperatives should be less efficient
than capitalist firms, but that does not accord to the empirical record on firm efficiency.
Finally, mainstream argumentation suffers a lack of clarity on the mechanisms of
selection and proliferation by which different firm types flourish or fade in market
economies, which leads to tautological reasoning on the appearance of worker
cooperatives.

Section III explores the positive case in the literature for the socio-institutional
hypothesis of worker cooperative appearance and proliferation. First, many scholars have
called for further research into how the proximate institutional, cultural, and social
environments which vary across capitalist space have affected the presence and
proliferation of capitalist contexts. Second, specific external relationships have been
named and modeled by scholars, and have anecdotal support in primus aspectu, including:
short-side market power, financial relationships, familiarity, and trust. Then, case studies
and narratives of practitioners frequently note the instrumental importance of institutional
relationships for the success of worker cooperatives. This section concludes by drawing
these various strands together with a synthesis of the socio-institutional hypothesis of
worker cooperative proliferation. The hypothesis must explain the general rareness of
worker cooperatives in capitalist socio-institutional ecosystems, but also their punctuated
clustering in capitalist space.

Section IV lays out a methodology and preliminary indicators to test the appropriateness of the socio-institutional hypothesis of worker cooperative proliferation, by exploring a methodology which compares the presences of socio-institutional indicators to the worker cooperative saturation. The method first combines spatial data from the US Federation of Worker Cooperatives Census from 2013-2017 with Nelson and Rae’s (2016) algorithmic megaregions, which function as stand-ins for an economic ‘ecosystem’ (Nelson and Rae, 2016). The 57 megaregions in the lower 48 United States are given several measures of worker cooperative saturation, to ensure robustness across later tests: worker cooperatives per 100,000 people, as well as three other measures of worker cooperative saturation. Then, a series of other data – demographic, economic, and ideological indicators – are added to the dataset to test which elements of the socio-institutional ecosystems correlate most strongly to worker cooperative saturation in the 57 megaregions of the lower 48. After a brief discussion of why each indicator was chosen, a simple one-variable OLS model is presented, and the results from all these regressors begin to give some indications of which kinds of features correlate heavily to worker cooperative saturation.

Section V explores these preliminary indications further, by developing several multivariate regressions based on some emergent trends from the single variable correlations. Ideological features of socio-institutional ecosystems display their importance in this section. An issue persists between qualitative accounts and quantitative data persists: while ethnographic accounts highlight the role of immigrants – particularly immigrant women – in creating worker cooperatives, initial correlations do not see any
relationship between immigration and worker cooperative saturation. Of course, this may be because ‘immigration’ is a category to blunt to capture very particular types of immigration captured by the ethnographic literature. Yet, by using Qualitative Control Analysis to look for combinatory sets of factors which may influence a megaregion’s friendliness towards worker cooperatives, this section explores how immigration may matter, given other factors.

Section VI discusses the implications of this work. There are few single variable correlations with demographic and economic indicators, but ideology is particularly important. In multivariable correlations, ideology becomes uniquely important. More, this can be extended to give quarter to the hypothesis that immigration drives worker cooperative development, provided other features are present. The discussion focuses on what these findings suggest (and do not suggest) about how socio-institutional ecosystems affect worker cooperative saturation. Though cautious about attributing causality to particular features, this section explores what the findings might suggest about mechanisms which may foster worker cooperative development. In particular, the findings seem to show support for the notion that trust functions as an element of the socio-institutional environment which supports worker cooperatives, as well as the notion that ideologically based consumer support may be crucial.

Section VII concludes with reflection on the broad case that socio-institutional ecosystem analysis brings previously unseen insights into the discussion on worker cooperative proliferation. Empirically testing the socio-institutional ecosystem presents many challenges, due to the simultaneous, multiple, immeasurable, and dialectic causality attendant with the socio-institutional ecosystem analysis, as explored in Essay 1 of this
dissertation. However, this essay demonstrates that the socio-institutional ecosystemic hypothesis remains consistent with the emerging picture from economic, ethnographic, and practitioner literature, but can be supported by macro level data. As such, the socio-institutional hypothesis for the proliferation of worker cooperatives merits serious consideration by economists, thinkers, and policy makers interested in expanding economic democracy.

II. ECONOMIC THEORY & THE APPEARANCE OF WORKER COOPERATIVES

In certain normative worldviews, worker cooperatives are desirable. In certain formulations of neoclassical economic thought, they should abound. That they are desirable and should abound yet remain uncommon has been a problem which economists have sought to answer. This section reviews just how economists have down that. The most common answers come from theorists in the neoclassical tradition and political economists in the classical and Marxian tradition. Their answers spring from similar, though divergent puzzles. In the neoclassical world of perfect competition, worker cooperatives ought to abound, but they do not. Samuelson demonstrated that “in a perfectly competitive market, it really doesn't matter who hires whom: so have labor hire 'capital,'” (Samuelson, 1957, p. 894). Neoclassicals normative thought is indifferent to the structure of the firm but seeks to answer why, in the real world, worker cooperatives do not abound. They find, accordingly, that worker cooperatives must suffer some form of structural deficiency relative to capitalist firms which prevents their widespread proliferation. In the tradition of political economy, there is no particular reason why worker cooperatives should proliferate, but they are understood as desirable. Mill saw them as so advantageous – normatively and technically – that they would come to predominate. He predicted in 1848 that, after an intermediary period of capital-managed
firms being the dominant form of firm ownership and management in market economies, 'co-operative associations' would come to dominate market economies (Mill, 1998, p. 377). Bukharin (1920) makes a similar argument about agricultural cooperatives in the Soviet Union. Elster (1989) continued this vein, with the query “if cooperative ownership is so desirable, why are there so few cooperatives?” (Elster, 1989, p. 93). Since they are not widespread, political economists have ventured that something in the structure of capitalism renders their existence impossible. So, the neoclassical set of answers finds fault in the form of the firm, while answers from political economy have found fault in the absolute form of the system as opposed to its various institutional contexts. Both traditions frame some issues of considerable importance, though they both cannot give a full accounting of the empirical record, and they both run into some other inconsistencies.

**NEOClassical Theories**

After Samuelson demonstrated that perfect competition ought to be indifferent to labor hiring capital or capital hiring labor, theorists in the neoclassical mold were tasked with explaining why we do not observe worker cooperatives as robustly as we do capitalist firms. They could: a) refute the logic of Samuelson’s claim; b) abandon perfect competition as a fundamental part of their schema; or c) locate and model an internal structural deficiency of worker cooperatives, which would make them unable to compete with capitalist firms by adding information to Samuelson’s challenge. Since Samuelson’s logic was unimpeachable, internal to the machinations of neoclassical theory, and abandoning perfect competition as a fundament was a bridge too far, neoclassical theory began to locate, highlight, and model structural deficiencies of worker cooperatives. If this could be modelled, the empirical proof of worker cooperative deficiency was already demonstrated by their absence.
A variety of theories took shape which found some deficiency in the structure of worker cooperatives. Because of substantial difference in the structures of the different kinds of firm, from ownership and governance structures to individual income and utility functions of workers and managers in the two types of firms, micro-modelling some sort of difference represents a straightforward undertaking. Less straightforward, and very much up for debate, is whether these differences lead to systemic weakness or strength of worker cooperatives. For example, the function of monitoring, done by a firm internally to prevent shirking and keep effort high. Should we adopt the archetypal neoclassical theoretical frame of *homo economicus* and contracts, a capital-appointed manager in a capitalist firm can more efficiently prevent shirking and keep effort high because the manager in a worker cooperative – elected by labor – faces an internal principal-agent problem of needing to enforce monitoring while remaining electable by the workers. Yet even if we slightly expand the utility space of *homo economicus*, to include a trust function, other-regarding preferences, and reciprocity, it can be shown that the shared inheritance of workers in a worker cooperative as labor enhances trust and reciprocity, and in turn productivity, relative to the more difficult trust relationships between labor and capital in a capitalist firm. And so while many predict efficiency losses to the worker-managed firm, a smaller theoretical literature predicts efficiency gains (Bowles and Gintis 1993; Thompson 2015). Still, most theorists out to answer the central puzzle of why we do not see more worker cooperatives given Samuelson’s conundrum, have modelled the differences of worker cooperatives and structurally deficient relative to capitalist firms.

Ward (1958) was one of the first to address the paucity of worker managed firms,
attributing their relative absence to a backward bending supply curve (Ward). Though Ward’s assumptions have been criticized, Ward did posit a form of deficiency central to worker cooperatives that set quite a mold for many to work from, trying to locate the source of the relative weakness of the worker cooperative form vis-à-vis capitalist firms. Alchian and Demsetz (1972) claimed that worker-managed firms were rare because their monitoring function was not done by the residual claimant (Alchian and Demsetz). Olson’s (1965) work, exploring the free-rider problem, has been used to posit another form of worker cooperative inefficiency, as individual workers share income not borne solely of their individual effort (Olson). Arnold (1994) synthesized these claims about the problem presented by monitoring of effort and free-riding by worker-owners (Arnold). Hansmann (1996) claims that the inefficiency of worker cooperatives comes from their inability to handle the diverse array of contracts that characterize a firm (Hansmann). Those last two are explored in a bit more depth below.

Hansmann's analysis, in his work *Ownership of Enterprise*, starts from the characterization of the firm as a 'nexus of contracts' between the various parties who supply the firms inputs and the various parties that purchase the firms output. Prior to a firm’s existence, any of these parties has the formal ability to initiate, own, and manage the firm. All contracts are necessary incomplete, and different parties to the firm's inputs and outputs have different ways of dealing with this incompleteness, which also varies across industries (Hansmann, 1996). Whichever party to the firm's nexus of contracts has the cost minimizing method of dealing with the incomplete contracts will represent the ownership form that is the most efficient. Hansmann writes that firm ownership is “assigned to the class of patrons for whom the problems of market efficiency are the least
severe,” and calls this principle the “lowest cost assignment of ownership,” (Hansmann, 1996, p. 21). Hansmann does not consider that these costs of ownership may depend on social relations, but rather focuses on contracts. As such, Hansmann argues that forms of ownership best suited to the management of contracts are those which the problems of incomplete contracts represent the least organizational cost, because they are the organizational forms, that, given the particularities of a particular industry will survive. This important principle – which Hansmann terms 'survivorship,' - is one to which this essay will return in the next section. For example, because customers of rural electricity are faced with a natural monopoly, it makes sense for them to own rural electric firms because they have the least cost mechanisms for dealing with contracting inefficiency. Hence, the rural electric consumer-owned cooperative is prominent.

Within certain parameters, labor-owned firms represent the least cost management of contracts. This parameter is 'homogeneity' of the role of labor in the firm. Hansmann notes, for example, that in the case of the plywood cooperatives of the Northwest, given the homogeneity of labor's role within the industry, labor-owned firms make the most sense because they can most efficiently deal with the incompleteness of the firms various contracts. In another example, Hansmann notes that labor- ownership is more concurrent with service professions, where homogeneity of firm contracts is higher. However, as the heterogeneity of the labor performed by a firm increases, governance costs associated with the coordination of these various roles rises. That governance, Hansmann argues, is the root of the efficiency problem for worker cooperatives. As most firms of the industrial economy contain heterogeneous labor roles and various vertical and horizontal relationships, and the most efficient management of these diverse contracts lies in the
capital-managed firm. If a worker cooperative exists in this type of industry, it will face higher costs of business, lower profit rates, and will lose in the long run.

Another way of modelling firm inefficiency comes from Arnold’s (1994) *The Philosophy and Economics of Market Socialism: A Critical Study*. Schwartz characterizes Arnold’s argument ‘the monitor problem,’ an instance of the more generalized free rider problem specific to the structure of worker cooperatives. This argument describes production of a firm where multiple workers contribute to output, but their individual contributions are difficult to distinguish while incomes are standardized. Individual workers maximizing their utility, the argument goes, will shirk. Schwartz summarizes Arnold's reasoning: “If shirkers...get the same rewards as workers, it will be rational for all not to work (as hard) and productivity will suffer. To minimize this, recourse to a monitor with managerial powers is necessary,” (Schwartz 2011, 243). *Ceteris paribus*, a worker owned/managed firm will have less output per worker, which lowers profit by lowering total revenue. Similar to the other variants of the efficiency line of argument, worker owned/managed firms would not be able to survive in competitive environments with capital owned/managed firms, who (imaginably) have easier ways to control shirking, according to conventional theory.

These theories all argue for the inefficiency of the cooperative form in the production process. However, other theorists point to inefficient investment functions as the key weakness of worker cooperatives. Knight (1921) theorized that worker cooperatives suffer from under-investment because workers tend to be more risk-averse than capitalists (Knight). That is, suppliers of labor have limited places to deploy their labor, while suppliers of capital might diversify their capital in different places, the cost
of risk is minimized by the fungibility of capital. Capitalists can apply their capital to several ventures at the same time. Because a worker can only diversify their ‘labor portfolio’ – where they supply their labor to the production process – to a very limited extent, the costs of risk in entrepreneurial activity affect worker cooperatives more than capitalist firms, who can mitigate risk with ‘capital portfolio’ diversification. As such, over time, due to the variability of income experienced by a firm, the form of the firm that is better suited to minimize the costs of income variability will be the forms that 'win out.' Workers both desire a fixed (wage) income that minimizes risk, and capital-managed firms more effectively deal with risk. Bowles summarizes the risk aversion line of argument presented by Knight:

“The approach...explains the structure of the firm by two facts: first, the income flowing from a joint production process varies stochastically, and second, the cost of bearing this risk is greater for the suppliers of labor than for the suppliers of capital,” (Bowles, 2009, p. 339)

Hawawini & Michel (1979) propose that this underinvestment conundrum applies not just for startup investment, but for continued investment decisions of the firm (Hawawini and Michel, 1979). For others, worker cooperatives fail to make prudent investment decisions that allow it to grow relative to capital managed firms. Scholars examining Yugoslavian worker-managed firms examine this line of argument: Vanek, Furubotn, Pejovich, and Uvalic (Furubotn, 1976; Furubotn and Pejovich, 1970; Pejovich, 1992; Uvalić, 1992; Vanek, 1971).

Thompson (2015) points out that there exist two broad groups of theories of the purpose, function, and nature of the firm – contract based theories and competence-based theories – and that these modes of thought on the firm are largely irreconcilable (Thompson, 2015). Hansmann’s work on contracts and the worker cooperative fit the
former (contract-based theories), while the other theories here – Arnold’s, Knight’s, and others – fit the latter (competence based theories). Still Thompson identifies that “a common implication of both schools is that [worker] cooperative firms are generally inefficient” and goes on to argue that these theories miss the mark, and do not accurately describe worker cooperatives in the real world (Thompson, 2015, p. 3). After examining theories of political economy, this essay returns to this theme below.

**Political Economy Theories**

Political economists have also been interested in theorizing the peripherality of worker cooperatives. As noted above, classical political economist Mill described not only the benefits of worker cooperatives but predicted their eventual rise. In general, Marxism has been accused by Jossa, amongst others, of paying scant attention to worker cooperatives, or even dismissing worker cooperatives as a misdirected attempt to cure a symptom of capitalism, but not its root (Jossa, 2005, p. 29). The debate that has existed amongst Marxists on worker cooperatives has not only been about why the form remains peripheral, but about whether or not worker cooperatives present a compelling alternative to capitalist production that can be seen as a step toward its replacement. However, many Marxists have expressed admiration for the immediate form of worker cooperatives.

Though Marx did not frequently address the topic, he did speak enthusiastically about the benefits of worker cooperatives, while also warning about their limitations. For example, in his address to the International Working Men's Association in 1866, Marx said:

> We acknowledge the co-operative movement as one of the transforming forces of the present society based upon class antagonism. Its great merit is to practically show, that the present pauperising, and despotic system of the subordination of labour to capital can be superseded by the republican and
benificent system of the association of free and equal producers  (Marx, 1866, sec. 5)

Prychitko points out that Marx was reluctant to name the specifics of such a system, and expressed a simultaneous fear that producers cooperatives would devolve into joint-stock companies in several other places (Prychitko, 1991). Marx (1875) also expressed reluctance about cooperatives in *Critique of the Gotha Program*.

Lenin admired worker cooperatives, though thought they would never take root without fundamental class structure. After the 1917 revolution he wrote that the “dreams of the old cooperators [are] now becoming unvarnished reality,” such that “the only task, indeed, that remains for us is to organize the population into cooperative societies,” (Lenin, 1923). Before though, he cast the old cooperative dreams of Robert Owen and others as “fantastic...because they dreamed of peacefully remodeling contemporary society into socialism without taking account of such fundamental questions as the class struggle, the capture of political power by the working class, and the overthrow of the exploiting class,” (Lenin, 1923).

A range of early political economists looked favorably upon worker cooperatives. As they noted the peripherality of cooperatives through the end of the 19th and into the 20th century, they too had to set about to explain this. Echoing some of the concerns of Marx and later Lenin, Luxemburg gives perhaps the clearest articulation by focusing on how the dynamics of competition with capitalist firms demanded expanded reproduction and self-exploitation of workers in worker cooperatives. The structure of capitalist competition forced worker cooperatives into a lose-lose dilemma:

“In a capitalist economy exchanges dominate production. As a result of competition, the complete domination of the process of production by the interests of capital – that is, pitiless exploitation – becomes a condition for the survival of each enterprise. The workers forming a co-operative in the field of
production are thus faced with the contradictory necessity of governing themselves with the utmost absolutism. They are obliged to take toward themselves the role of capitalist entrepreneur – a contradiction that accounts for the usual failure of production co-operatives which either become pure capitalist enterprises or, if the workers’ interests continue to predominate, end by dissolving,” (Luxemburg, 1900, chap. 7).

Kautsky and Bohn echo this and argue that while workers will seek to form self-managed firms, and should be encouraged, the structure of capitalism will prevent this self-management from ever dominating capitalist forms (Kautsky and Bohn, 1910). Though much of this debate occurred around the turn of the 20th century, when workers self-management was much more at the fore of socialist activism, the position has been carefully and well-articulated today (Gindin, 2016; Gindin and Panitch, 2012). Gindin argues that because of the large structural hurdles faced by worker cooperatives in capitalist contexts, a successful worker cooperative complex requires mass coordination of labor against capital, and that the cooperative movement has been largely incapable of that.

Luxemburg paints a picture wherein capitalism forces the worker cooperatives that exist in capitalist economies toward an unsavory proposition: dissolve or become capitalist. While Marxists have been sympathetic to the aspirations of worker cooperatives, they have also remained dubious of the ability of the form to exist in any meaningful way that stands apart from, and opposed to, capitalist production. The hypothesis that the structure of capitalism is the limiting agent to worker cooperatives presents problems for empirical tests, as the dominance of capitalism renders comparative studies almost impossible. However, it does illuminate some of the fundamental challenges that worker cooperatives whose immediate causality lies external to their own structures. Still, this generalized casting of capitalism as caustic to worker cooperatives
runs into problems – especially that significant experimentations in worker cooperative complexes have existed for some time, and their clustering suggests they respond differently to different kinds of capitalist contexts. This consideration points to the possibility of power differentiation in the capital-labor relationship conditioned by social institutions, which make it possible for the main hypothesis of this essay to hold: while the general dynamics of capitalism hold a general antipathy to worker cooperatives, its degree can be tempered by socio-institutional context.

**SUBSTANTIVE ISSUES WITH DOMINANT THEORIES**

While neoclassical and political economy theories appear to account for the initial puzzle they set out to solve – why are worker cooperatives relatively rare – they run into other problems. First, they do not match the empirical record. Worker cooperatives, while marginal, still exist and persist. Where they exist, they exhibit geographical clustering which seems to increase the prospects for the success of other worker cooperatives. Second, the argumentation lacks clarity on the mechanisms of selection, and engage in tautological reasoning. These are explored below.

*Empirical Record*

In response to the arguments of political economists, worker cooperatives do exist, and in many instances, they are quite significant. For example, the Mondragon Cooperative Corporation accounts for 5 percent of Basque GDP (Osmond, 2012, p. 14). Internationally, there are also many spots where we observe the bunching of worker cooperatives, including Argentina (particularly around Buenos Aires), the Basque Country, Emilia Romagna, Québec, Catalonia, and Kerala, among others. Globally, worker cooperatives do not appear to be distributed randomly. If worker cooperatives were distributed randomly across the globe, we could suspect that they exist in all
contexts with more or less the same ease (or dis-ease) relative their capitalist counterparts. More crudely, we might infer that capitalism consists of homogenized dynamics against which worker-managed firms struggle to survive. However, since we observe the flourishing of worker cooperatives in certain areas and not others, it supports the notion that (1) there are differences in the socio-institutional makeup of capitalist contexts across different regions, a claim substantiated by much literature, and (2) there are some elements of the institutional environments of certain areas which are beneficial to the creation and proliferation of worker cooperatives.

In response to the neoclassical argument, there is little evidence that worker cooperatives suffer from structural flaws which affect their performance. In fact, stronger evidence shows that they outperform capitalist firms. As issue is that the empirical record for worker-managed firms is relatively scant, owing to the relative absence of worker-managed firms. Even where worker managed firms do exist, it is often hard to find a sample size of worker-managed firms with comparable capital-managed counterparts. More, measurement of key metrics becomes difficult in comparisons. As pointed out by Schwartz, ‘efficiency’ is hard to measure in comparative contexts, because common proxy measures often used by economists, such as profitability, have a very different interpretation for worker cooperatives, as well as the fact that labor inputs have very different accounting norms (Schwartz, 2011a). The strongest support for neoclassical theories is inconclusive. Dow (2003) writes that “our knowledge is too primitive to attach a confident positive or negative sign to the efficiency properties of workers' control, which undoubtedly vary with industry characteristics and the specific organizational design one has in mind,” (Dow, 2003, p. 262).
Many have found, though, that worker cooperatives are associated with higher efficiency than capitalist firms. These difficulties in measurement pointed out by Schwartz notwithstanding, a fair amount of work shows that different levels of worker involvement – from participation in decision-making to outright ownership of the firm – demonstrate no negative productivity effects, and often demonstrate positive effects. Freeman and Rogers’ (1999) landmark *What Workers Want* found that employee-involvement “programs do not harm productivity on average, and, more likely than not, raise it,” (Freeman and Rogers, 144). Doucouliagos (1995), in a meta-analysis, surveyed 43 articles about the productivity of employee participation, and found that “profit sharing, worker ownership, and worker participation in decision making are all positively associated with productivity,” and further that “all the observed correlations are stronger among labor-managed firms… than among participatory capitalist firms,” (Doucouliagos, 1995, p. 58). Many individual surveys obtain similar results (Kruse, 1993; Levine, 1990; Melman, 2001; Schweickart, 1993). Conte & Tannenbaum (1978) write that “Employee owned companies appear to be profitable – perhaps even more profitable than comparable, conventionally owned companies; and the ownership variable most closely associated with profitability is the percent of equity owned by the workers themselves,” (Conte and Tannenbaum, 1978, p. 27).

Perhaps the best comparative on the performance of worker-managed firms relative to capital-managed firms comes from Craig and Pencavel, who gathered cross sectional data on worker cooperatives and capitalist (union and non-union) firms among the plywood industry of the Pacific Northwest, allowing for robust comparison over several decades between conventional, unionized, and worker cooperative plywood firms.
This study’s comparative aspects were aided by features of the plywood industry – relatively homogenous inputs, outputs, and technology. They found that worker-managed firms were 13.5 percent more efficient than their unionized counterparts: “it is as if the workers in the co-ops could go on vacation for an extra seven weeks a year and still produce in total output what the unionized firms would have produced for that year,” (Pencavel 2001, 52, see also Pencavel and Craig 1994; Craig and Pencavel 1992; Craig et al. 1995).

More recently, Erik Olsen has argued that “the conjecture that worker cooperatives…suffer a competitive disadvantage relative to conventional firms is not supported by existing empirical research,” (Olsen, 2013, p. 88). Evidence to the contrary is largely absent from the literature. So, the neoclassical idea that worker cooperative firms are inefficient simply doesn’t hold up.

*Structure of Argumentation and the Rhetorical Flaws*

Neoclassical theories lack clarity on how firm inefficiency leads to marginality of that firm, which leads to tautological reasoning, that uses the stylized fact of marginality as proof of inefficiency. While firm inefficiency might result in some form of peripherality (or even extinction), it is a sufficient, but not necessary, condition for extinction. An entity might be extinct for many reasons, and inefficiency is only one reason. For example, a dinosaur which once existed and does not today may have been outcompeted by more efficient creatures, or may have gone extinct because of outside factors - e.g. the Chixculub asteroid striking the proto-Yucatan and causing a mass extinction. It would be incorrect to assume, *a priori*, that adaptive deficiencies led to its extinction. Similarly, it is incorrect to assume that existence means superior efficiency. Terrestrial animals have eyes which are efficient for underwater sight – where they
evolved – but less efficient in air. These eyes continue with terrestrial animals because of inertia, not because of efficiency. Betamax was a more efficient format than VHS, but lost the videotape format wars for factors other than efficiency. In this way, it would be incorrect to assume that the peripherality of worker cooperatives must be due to their inherent inefficiency, particularly when the empirical record suggests no losses to inefficiency. Yet, such circular logic predominates neoclassical thought on the topic.

Gordon, editor of The Mises Review, exemplifies this:

> To show the superior efficiency of free enterprise a simple argument appears to suffice. In a capitalist economy, as we have said, people are free to form workers cooperatives as they wish. If, then, such cooperatives promoted efficiency, why would they not supplant capitalist firms through the force of competition? If market socialists correctly judge the benefits of their system, efforts to establish it appear unnecessary: the market will accomplish the task by itself. If, on the contrary, capitalist institutions flourish in a free economy while cooperatives occupy only a minor role, is this not prima facie evidence that market socialism fails to work? Legislation to establish market socialism is either unnecessary or harmful…Were it not efficient, why would it exist? (Gordon, 1996).

Note that in Gordon’s example, all firms exist in the ‘free economy,’ a thoroughly de-socialized and de-institutionalized ether. If firms only and always exist in such homogenized space, it seems reasonable to conclude that differences in their proliferation accord to differences in their internal qualities. But if the context in which they exist may vary and affect the firm in any way, external causes enter the frame, and this key assumption cannot hold.

Both Schwartz and Bowles attack this line of reasoning and trace its intellectual inheritance. Schwartz calls this framework the ‘evolutionary hypothesis;’ Bowles calls it the ‘assumption of efficient design,’ (Bowles 2009; Schwartz 2011.) Both trace this framework to Alchian's (1950) article 'Uncertainty, Evolution, and Economic Theory' in the Journal of Political Economy (Alchian). Bowles includes Williamson's The Economic
Institutions of Capitalism and Holmstrom and Migrom's 'The Firm as Incentive System,' as other grounding works to the extension of the evolutionary metaphor into economics (Holmstrom and Milgrom, 1994; Williamson, 1985). Both Bowles and Scwhartz separately observe two logical flaws to such an analysis, with respect to the proliferation on worker cooperatives. For any Darwinian metaphor to exist, there would need to be sufficient worker cooperatives in existence for their form to not be chosen by the efficiency rubric. That is, in order to go extinct, firms must exist with a high enough population in the first place – the evolutionary framework using efficiency might explain why firms die out but tells only one possibility for this phenomena. More, the assumption fails to answer why worker cooperatives are rarely initiated in the first place, especially when the empirical evidence of the small amount of firms that does exist suggests efficiency advantages that would aid Darwinian evolution. Thus, the empirical evidence and the logic of neoclassical argumentation cannot be viewed as a leading candidate to explain the proliferation of worker cooperatives.

Sen (1966; 1989), Putterm (1988), and Marglin (1974), read together, offer up rich critiques of the notion that capitalist firms dominate because they are the most efficient. They first show that the question of one firm types efficiency is not immediately obvious from optimization and look to how external social and institutional factors influence efficiency. Sen (1966), using conventional neoclassical assumptions, shows that labor optimization is eminently obtainable in cooperative enterprise, with any mixed combination of 'needs' and 'work' based distribution principles. That is, maximally efficient cooperatives can obtain in conventional neoclassical frames. While this article strays from consideration of external factors, Sen (1989) begins to focus on
how institutions mediate efficiency, particularly in cooperative contexts – “benefits to all parties can accrue from the emergence and use of particular institutions,” (p. 72).

Puttermann (1988), along these lines, examines the case of agricultural cooperatives and efficiency in China, and finds that external factors greatly mediate the possibility set: “if the general environment had been one providing good price incentives, marketing alternatives, and state support for the development of rural infrastructure […] then there would have been an opportunity for group farming to take off where it had and could demonstrate real advantages,” (p. 447). Marglin (1974) flips this logic on its head, and argues against the common assumption that capitalist ascendancy owes to capitalist efficiency, convincingly arguing that capitalist ascendancy owed to social control rather than efficiency gains:

Rather than providing more output for the same inputs, these innovations in work organization were introduced so that the capitalist got himself a larger share of the pie at the expense of the worker, and it is only the subsequent growth in the size of the pie that has obscured the class interest which was at the root of these innovations. The social function of hierarchical work organization is not technical efficiency, but accumulation. By mediating between producer and consumer, the capitalist organization sets aside much more for expanding and improving plant and equipment than individuals would if they could control the pace of capital accumulation (Marglin, 1974, p. 62).

Given substantive issues – empirical and rhetorical – with the dominant theories in economics on the appearance and distribution of worker cooperatives, this essay now turns to an examination of the socio-institutional ecosystem hypothesis, which seeks to account for the stylized fact of a general peripherality of worker cooperatives punctuated by clusters of worker cooperative saturation, and remains consistent with empirical evidence on the individual performance of worker cooperatives.
III. THE CASE FOR THE SOCIO-INSTITUTIONAL HYPOTHESIS

The dominant theories on the peripherality of worker cooperatives leave us with a significant gap between theory and the empirical record, and they lack argumentative clarity on their mechanisms of operation. This section now turns attention to the idea that the main limiting agent to worker cooperative proliferation lies in factors outside of the firm, determined at least in part by relationships between actors in the proximate socio-institutional environment of the firm. The complete socio-institutional ecosystem hypothesis lacks a full articulation in the literature, so this section first pulls together various strands that comprise a part of the whole, including: a) instances in the literature which call for more research on the social and institutional limits of worker cooperatives; b) theories which name specific relationships and mechanisms which constitute some of the relationships of the socio-institutional ecosystem; and c) evidence from case studies of successful worker cooperative complexes and from practitioners in the worker cooperative sector. The combination of these strands builds a strong case for the socio-institutional ecosystem hypothesis, articulated at the end of this section.

CALLS FOR MORE RESEARCH

The frequency by which authors call for more research into elements of the socio-institutional hypothesis makes one of the strongest cases for its central consideration. Many thinkers, often after testing conventional hypotheses and finding them wanting, have then called for further research into social and institutional explanations for the appearance and distribution of worker cooperatives. These dynamics return to questions of relative power between capitalist firms and worker cooperatives in a social ecosystem, exploring both bilateral relationships and relationships whose dynamics run diffusely through a complex of social relations. These queries into the nature of institutions and the
presence of worker cooperatives respond more directly to Galbraith’s challenge that economists have not, in general, asked “why power is associated with some factors of production and not with others,” (Galbraith, 2007, p. 47)

Elster, answering his own query on the rarity of worker cooperatives, writes that “the main argument of this paper is apparently inconclusive: we just don’t know whether the observed lack of cooperatives is due to their inherent inferiority or to interactions with the non-cooperative environment,” (Elster, 1989, p. 111, emphasis mine). Thompson (2015) writes that “A plausible answer [as to why worker cooperatives are rare] is that prevailing institutional environments are generally geared to the prevailing capitalist mode of organisation, thus militating against cooperatives and suppressing their ability to overcome the cooperation/coordination trade-off,” (Thompson, 9, emphasis mine). Gunn (2000) argues that institutions and property relations are essential to the survival of worker cooperatives (Gunn). Olsen (2013) explores the idea that barriers to the creation of worker cooperatives in the firms environment impede them, but runs into some vexing puzzles as to why this doesn’t mean the conversion of more conventional firms to worker cooperatives, and calls for more research (Olsen). This matches calls from others have been repeated calls for more research into how particular institutional ecosystems have influenced the creation and distribution of worker-managed firms in capitalist economies (Bowles and Gintis, 1993b; Dickstein, 2016; Stryjan, 1989). Roy et alia (2015) argue that institutional ecosystems are the best way of understanding the prevalence of the ‘third sector’ in Scotland (Roy et al.). Estrin and Jones (1992) find in their study that French cooperatives do not conform to the pessimistic predictions of economic theory and write that “probably what is needed is a broad, multifaceted model that includes both economic
and social variables and is not wedded to a single traditional disciplinary perspective,”

(Estrin and Jones, 337, emphasis mine). Doucouliagos (1993) writes that

“an examination of the revealed preference, transactions costs, team production, moral hazard, and investment inefficiencies theories reveals that economists often misunderstand labor-managed firms, and fail to realistically model the labor-managed firm. Much more research is needed to explain why capital hires labor. This research should take several directions...Finally, more research is needed in developing joint economic, psychological, and sociological explanations, like that offered by the cultural inertia thesis,”

(Doucouliagos, 1995, p. 250 emphasis mine).

These invocations for further research, held together, build a compelling case for why the socio-institutional hypothesis should be centered in analysis on the proliferation of worker cooperatives.

**Specific Relationships and Mechanisms**

Another large body of research in the literature examines specific relationships that alternatively challenge or encourage the existence of worker cooperatives. These relationships constitute key parts of the socio-institutional ecosystem, and their articulation in the literature lends credence to the socio-institutional ecosystem hypothesis. This section examines several of these socio-institutional phenomena from in the literature as possible mechanisms through which the socio-institutional ecosystems of capitalism make worker cooperatives generally rare, but with punctuated clusters: short-sided market power, finance, familiarity, and trust. From concrete relationships (e.g. between firms and financial institutions) to more ethereal dynamics (e.g. trust between persons) the connective thread between these various theories is that they are external to the firm and can imaginably vary across capitalist space, marking an array of constellations possible for any particular socio-institutional ecosystem.
Short Sided Market Power

Bowles and Gintis characterize the absence of worker cooperatives and predominance of capitalist firms by showing how those who can most often exercise power as those on the ‘short’ side of the labor market (Bowles and Gintis, 2007). This postulate descends from the notion that in repeated interactions in the labor market, characterized by incomplete contracts, the chosen method of enforcement is for the capitalist to offer a rent to some workers – and to exclude others – with a promise to renew if work is accomplished satisfactorily for a given period. The incompleteness of the contract in labor markets comes from the fact that labor power is contracted for in time units, but output is affected by effort units, which are either non-verifiable or non-enforceable. This situates the employment relationship in the broad class of principal-agent relationships. If the labor market were a complete contract, 'hiring' would simply be called 'buying.' The power of the capitalist, which Bowles and Gintis define as an “interpersonal relationship with the ability to impose sanctions,” comes from the ability of the capitalist to exclude the worker from the employment rent in future periods – a mechanism called contingent renewal (Bowles and Gintis, 2007, p. 2). The power to offer and take away an employment rent is concentrated with the capitalist in this relationship because they exist on the short side of the market – the “side of the market on which the number of desired transactions is less, that is, employers in a labour market with unemployment,” (Bowles and Gintis, 2007, p. 5). This power underwrites exchange in the labor market and cannot be abstracted away from or confined to the arena of its origin. As such, it is levied by capitalists in variety of forms that systematically privilege capitalist firms to the exclusion of other forms. Crucially, this power can be affected by a range of social institutions (norms about working relationships) and economic dynamics.
(level of unemployment) which can vary across socio-institutional ecosystems.

**Finance**

Financial limits are a frequently cited reason for why there are not more cooperatives, and the limits to finance are seen on several levels. Financial relationships are particularly important at two key junctures - leveraging start-up capital and maintaining investment.

The lower wealth of workers relative to capitalists affects the ability of workers to generate funds. That is, channels of capital sufficient to engage in production are more available to capitalists than to workers. Crucial here, though, is the notion that primitive accumulation itself is a social relationship outside the purview of capitalist dynamics, and as such may also vary according to variation of social forms. Dickstein cites this as a reason that worker owned/operated firms tend to be in more labor-intensive industries (Dickstein, 2016, p. 11). This position is echoed by Birchall and Ketilson. (Birchall et al., 2009). Bowles writes that “the cost of capital supplied to a firm controlled by its employees will be higher than the capital costs faced by an otherwise identical firm controlled by its capital suppliers...[because] the competitively determined interest cost of a loan varies inversely with the wealth of the borrower,” (Bowles, 2009, p. 342). When looking for initial credit from financial institutions, the stylized fact that workers lack wealth results in loan conditions that are more costly that those received by capitalists with more wealth.

For worker cooperatives already in operation, another obstacle is continued financing. McCain, centering the shareholder-firm relationship central to capitalist firms, notes that worker cooperatives are not able to leverage equity shares with the same ability that capitalist firms can, because equity shares that include ownership and control rights
are antithetical to the structure of the worker owned/operated firm (McCain, 1977). This means that firms are often forced to finance themselves off of retained earnings, which put them at a competitive disadvantage to capital owned/managed firms, which can choose an optimal mixture of retained earnings/equity share/and bank financing. Finally, various thinkers have postulated that financial institutions are wary to lend to worker owned/operated firms because the level of risk is less knowable owing to the fact that very few exist and that financial institutions are wary of the idea of claiming collateral from many worker-owners as opposed to a few capitalists (Dickstein, 2016; Jackall and Levin, 1986). These theoretical observations are largely borne out by the empirical record. Gintis found that banks acted very differently with the plywood cooperatives of Washington, Oregon, and Northern California than with capital-managed plywood firms in the Pacific Northwest, ultimately providing less credit to the worker cooperatives (Gintis, 1989). Several other books, articles, and reports also note that financial access has been the limiting agent to worker ownership and management (European Commission, 1984; e.g. Thornley, 1981). Gagliardi’s findings show that where good relationships exist between worker cooperatives and financial institutions, better outcomes prevail. Her work supports the “existence of an institutional complementarity relationship between the development of local banking institutions and cooperative firms,” (Gagliardi, 2009). More, financial institutions more proximately positioned are faced with legal hurdles in the United States: Credit unions, which are much more likely to share an ideological outlook favorable to worker-managed firms than commercial banks, are legally only able to lend 12.5% of their holdings our as commercial loans. Anecdotal evidence that this has limited the development and growth of worker-managed
firms in the United States (Artz and Kim, 2011). This feature is not a necessity of capitalism but a political concession to large financial firms as credit union legislation was being drafted. Thus, while financial dynamics share several key similarities across capitalism which can present difficulties for worker cooperatives, they are also subject to social, institutional, political, and cultural structures which vary beyond the tight strictures of economic theory, making the hurdles worker cooperatives more or less actual.

Familiarity

Perhaps people don’t form worker cooperatives as often because the form is unfamiliar to many. As worker cooperatives become more known and pervasive, the challenges to establishing them diminish, but this presents a significant challenge. Schwartz formalizes the notion that because worker cooperatives are unfamiliar, there exists a general hesitancy by people to engage them (Schwartz, 2011a). This results in the exclusion of worker cooperatives from a prominent existence in capitalist economies. This compounds the (real or perceived) constraints on worker cooperatives: worker cooperatives are peripheral because they are peripheral. This falls in line with the idea of path dependency as a feature of socio-institutional ecosystems. Schwartz posits the worker cooperative as a public good in and of itself, for whom there exists the classic undersupply because the benefits added by contributors are not wholly claimed by them. He also offers a “more modest version” of the rational utility maximizer, where social and benevolent tendencies of the individual are understood next to selfishness). Schwartz argues that “the bare fact that labor management is rare makes it less attractive to workers and potential sources of finance because of the real, if arguably, irrational, cognitive bias in favor of the familiar, including familiar organizational forms,” (Schwartz, 2011a, p.
Molk writes that:

Since the [cooperative] form is unfamiliar to most, prospective patron owners must first be educated about what a cooperative does, how it succeeds, and that it can outcompete better-known, familiar, and existing investor ownership competitors. Assembling such a class will take time and effort, reducing the broker's expected returns. (Molk, 2013, pp. 937–38).

**Trust**

Thompson argues that the cultural and cognitive aspects of institutional environments are key towards success of worker cooperatives (Thompson, 2015). Trust is an important part of worker cooperative success, Thompson argues, but “isolated cooperatives must vie with the host of ‘pervasive behavior-shaping institutions that propagate an instrumental/transactional approach to work,’” (Thompson, 2015, p. 9).

Casadesus-Masanell and Khanna argue that worker cooperatives both promote trust and are fostered by its presence (Casadesus-Masanell and Khanna, 2003). Trust conditions the relationships between workers in a worker cooperative, and may be instrumental to overcome issues of shirking and free-riding, and also plays a fundamental role with external relationships.

Trust and more ethereal aspects can be folded into and written across other concrete relationships, such as relationships between the firm and financial institutions. Consistent with the multiple and simultaneous nature of causality in a socio-institutional ecosystem, anecdotal evidence suggests that the phenomena of trust, familiarity, and financial relationships can be compounded, making difficulties for worker cooperatives. Vanek stated that “If you go to a bank and ask for a loan to start a co-op, they will throw you out,” (Perkins, 1995). Andrew Field, in his testimony before the US Congress in 1979 on the experience of Vermont miners trying to form a worker cooperative, said “when we first went to the big lenders, their first reaction was, ‘Jesus Christ,’ the
monkeys are going to run the zoo?’ If any lender suspected that, you wouldn’t get a dime,” (Business, 1979, p. 264).

These mechanisms and relationships articulated in the literature support the notion that worker cooperatives should be generally rare, because they face institutional environmental hurdles across capitalist contexts. However, these mechanisms are more plastic than iron and can vary across different capitalist contexts, opening the possibility for the hurdles to be alternatively lowered or heightened in some socio-institutional ecosystems. This accounts for the second feature of the socio-institutional ecosystem hypothesis of worker cooperatives: that variance in socio-institutional ecosystems accounts for the punctuated clusters of worker cooperatives in certain regions.

**Evidence from Practitioners and Case Studies**

One of the biggest pieces of evidence for the need to focus on the external relationships around cooperatives come from observers and participants in robust complexes of worker management. Case studies of successful worker managed complexes generally highlight the coming together of various social and institutional forces in the creation of successful complexes. For example, the story of the Mondragón cooperatives highlights the various pieces of a social/institutional fabric – a technical school (which would become Mondragón University (*Unibertsitatea*)), a savings and investment bank (*La Caja Laboral Popular*), a cooperative incubator, and a social sense of shared purpose amongst the Basque citizenry (Whyte and Whyte, 1988). The Working World, a financial institution that supplies loans to worker cooperatives with whom it maintains close relationships in Argentina, Nicaragua, and the United States, has not only found that it is often the only financial institution able to loan to worker cooperatives, but that its loans are paid back at 95 per cent, suggesting an unmet demand for financial
services for worker cooperatives across several different national contexts (Martin and Wong, 2014). In Emilia Romagna, the successful complex of worker cooperativism is understood as the product of strong working alliance between communist organizers and practitioners of Catholic social teaching who were sympathetic to leftist movements; in everyday parlance the alliance is talked about as the uniting of the ‘red’ (communist) cooperatives and ‘white’ (Catholic) cooperatives. Thus, powerful cooperative confederations were established and were able to successfully lobby and pass legislation that aided cooperative development and the establishment of capital funds for establishing new cooperatives, as well as teaching and disseminating cooperative values (Zamagni and Zamagni, 2011). This work has been fantastic in naming particular features which have aided the rise of worker cooperatives.

Hoover and Abell discuss ‘cooperative growth ecosystems’ to study five clusters of worker cooperatives in the United States, San Francisco, New York City, Madison, Cincinnati, western North Carolina. (Hoover and Abell, 2016). Though our analyses share the notion of ecosystem, our work departs in the sense that the ecosystems that Hoover and Abell write about are intentionally created to stoke cooperative development, as opposed to naming the prevailing social and institutional context of a situation, which my analysis highlights. By way of metaphor, their analysis is akin to ‘managed forest’ or ‘garden’ still a complex of layered relationships, though distinct from an ‘old growth forest’ or ‘coral reef’ which exists outside of human direction. Still, their analysis calls attention to the key relationships which structure the possibilities of success for worker cooperatives. They identify 11 ecosystemic features which encourage worker cooperative growth, dividing those features into building blocks, accelerators, and legitimizers.
Internationally, there are also many spots where we observe the bunching of worker cooperatives, including Argentina (particularly around Buenos Aires), the Basque Country, Emilia Romagna, Québec, and Kerala, among others. If worker-managed firms were distributed randomly across the globe, we could suspect that they exist in all environments with more or less the same ease (or dis-ease) relative their capitalist counterparts, or similarly that capitalism is one homogenous substance against which worker-managed firms struggle to survive. However, since we observe the flourishing of worker-managed firms in certain areas and not others, we can reasonably suspect (1) that there are differences in the substance of capitalism across different regions, a claim which seems rather obvious, and (2) there are some elements of the institutional environments of certain areas which are beneficial to the creation and proliferation of worker-managed firms.

**SYNTHESIS**

Calls for more research, articulations of specific mechanisms of the socio-institutional environment, evidence from case studies and practitioners, and the bunching of worker cooperative complexes across the globe strengthens the case for the hypothesis that worker cooperative proliferation is most affected by the proximate socio-institutional environment of the firm. This essay looks back at Vanek’s formulation:

“Co-ops in the West are a bit like sea water fish in a freshwater pond. The capitalist world in the last 200 years has evolved its own institutions, instruments, political frameworks etc. […] hence, we need some instruments and institutions which make this possible,” (Perkins, 1995).

Extending this thought, we can fully articulate the socio-institutional hypothesis for worker cooperatives. Worker cooperatives are rare because the institutions and social forms which have co-formed with the development of capitalism have created socio-
institutional ecosystems which prevent serious hurdles to the creation, viability, and long-term health of a worker cooperatives. However, the plasticity of institutions and social forms means that certain socio-institutional environments are more favorable to the proliferation of worker cooperatives, which explains the bunching effect seen for worker cooperatives in the United States and across the globe. This essay next turns to an examination of how the distribution of worker cooperatives in the United States supports this hypothesis.

IV. EMPIRICAL SET-UP & PRELIMINARY INDICATIONS

The empirical work of this essay seeks to reinforce the socio-institutional ecosystem hypothesis by demonstrating that the variance in the dispersion of worker cooperatives co-relates to identifiable socio-institutional variation in different regions of the Lower 48 United States. Several constituent pieces are required for this analysis. First, there needs to be a mechanism to establish what constitutes a ‘socio-institutional ecosystem.’ Then, there needs to be a robust identification of worker cooperatives in the United States. This data, when combined, can give an estimation of the worker cooperative saturation for each ecosystem - a score for the clustering of worker cooperatives of each region. The analysis will then check to see worker cooperative saturation varies randomly across the country according to a normal distribution. The hypothesis of this essay is that worker cooperative saturation will not vary randomly, as it will correspond to socio-institutional variance. Next, there needs to be a way to incorporate data on possible correlates of worker cooperatives, which must be fitted so that it corresponds to the same unit used for the socio-institutional ecosystem. The final step is to run correlations between the estimate for worker cooperative saturation and the potential socio-institutional indicators.
This work uses the ‘economic megaregions’ determined by Nelson & Rae’s (2016) work “An Economic Geography of the United States: From Commutes to Megaregions,” (Nelson and Rae). Nelson and Rae’s work responds to the need of economic geographers to divide space into “discrete, bounded, internally homogenous regions” which can best be used to understand labor markets and capital flows. While state boundaries are good for legal distinctions, they do not capture the separateness of economic geography well. For example, Card and Krueger’s (1994) intervention into the minimum wage made use of the legal distinctions between Pennsylvania and New Jersey, but simultaneously required the homogeneity of economic fundamentals of the Pennsylvania and New Jersey borderlands for the study to approximate ‘laboratory conditions,’ (Card and Krueger). Other times, states are too varied: Maryland does not constitute a useful unit to study economic phenomena in its relationship to social structures, given the variation from Baltimore, the DC suburbs, the Chesapeake Bay economies, Cumberland farms, and Appalachian patterns. Nelson and Rae’s approach is to “offer an empirical approach to detecting and defining megaregions which takes the insights of a relational, flowing concept of geography and puts them to use in service of delineating coherent, bounded regions, with a data set of more than 4,000,000 commutes as a proxy for patterns of economic interconnection, given the importance of commutes in structuring the geography of labor markets,” (Nelson and Rae, 2016, p. 11). Figure 16, below, shows the commuting algorithms they used, and the delineations determined the megaregions of the United States. The GIS shapefile that Nelson and Rae sent to me differs slightly and in ways that don’t affect the final result, as the Yellowstone region and Nevada desert didn’t produce enough commuting data to coalesce into any coherent...
region but need to be part of some discrete region (for a shapefile).

Next, the data for worker cooperatives come from the United States Federation of Worker Cooperatives, and the Democracy at Work Institute, comprising their annual Worker Cooperative Census from 2013 to 2017. 464 worker cooperatives comprise the

Figure 16
total population of worker cooperatives in the United States for 2013 to 2017. Compare this to the 223 worker cooperatives found by the University of Wisconsin Center for Cooperatives in their 2009 census (Deller et al., 2009). It remains unclear whether this results from undercounting or new worker cooperative creation between 2009 and 2013-17, but likely some combination of both. For the 2013-2017 Democracy at Work census data that this essay uses, some worker cooperatives would participate in the survey each year, while others were added by the Democracy at Work Team. Most worker cooperatives appeared in every year, while some only appeared once. Additionally, most worker cooperatives, at some point in the 4 years of survey, gave information on their number of workers, their income, and the number of hours worked in total that year at the cooperative. Though this does not include the whole sample, this allows the use of that data as other measures of the cooperative saturation of an area.

Thus, the data represents worker cooperatives present in the United States between 2013 and 2017. There exists the possibility of an undercount, but the Democracy at Work Team thinks this is unlikely, given the relatively small number of worker cooperatives and the multiple years of running the population census. Most worker cooperatives had a physical address, and those that did not were assigned to the ZIP code of their incorporation. The location of the worker cooperatives was then geocoded into GIS format. Figure 17, below, shows the distribution of worker cooperatives in the lower 48 United States, shown with state boundaries.
The locational data on worker cooperatives is then joined to the megaregion data borrowed from Nelson and Rae. Along with population data for each megaregion – broken down to census tract and then spatially joined to the megaregion polygons – each megaregion can be given a number approximating its saturation of worker cooperatives: worker cooperatives per 100,000 people. Additional measures for each megaregion are included in the OLS regressions below, including, workers per 100,000 people, hours worked per 100,000 people, and Worker Cooperative GDP per 100,000 people. These last three measures are from a smaller dataset of worker cooperatives which fully completed a survey in one of the four years. They are used here to check the robustness of the first measure – worker cooperatives per 100,000 people. Figure 18, below, shows each worker cooperative in the United States from 2013-2017, in the megaregions of Nelson and Rae, with each megaregion shaded by the number of worker cooperatives per 100,000 people (the darker, the higher saturation of worker cooperatives).
The next initial step is to test whether worker cooperatives are distributed randomly across the various megaregions of the United States, across a variety of measures of worker cooperative saturation. The hypothesis of this paper is that there will not be a random distribution of worker cooperative saturation across the United States controlled for by population, because the presence of worker cooperatives is not determined by probabilistic quantitative agglomerations of economic agents, but by the qualitative aspects of social institutions of those agglomerations of people – i.e. the socio-institutional ecosystems which vary across the country. These measures of worker cooperative saturation are: worker cooperatives per 100,000 residents, the raw number of worker cooperatives, the number of workers in worker cooperatives per 100,000 residents, worker cooperative GDP per 100,000 residents, the annuals hours worked in worker cooperatives per 100,000 residents, and worker cooperative GDP per megaregion GDP. In each of these measures of worker cooperative saturation, a national mean is obtained, from which a normal distribution is imputed. This normal distribution can be

Figure 18
compared to the actual distribution of these measures of worker cooperative saturation. Below, in Figure 4, we see the results of this process for the six measures of worker cooperative saturation. In each, we see the same three trends repeated. First, below the mean, on the left side of the distribution, the actual distribution has a distribution much higher than the normal distribution. Second, this incongruence is made up for in part by the actual distribution falling significantly below the imputed normal distribution just to...
the right of the mean. Finally, the actual distribution moves back above the mean in the right-side tail, as several megaregions stand way out in their measures of worker cooperative saturation. This pattern repeats strongly across all measures, and we can thus infer that worker cooperative saturation is not randomly distributed across the United States, consistent with the hypothesis of this essay.

Finally, other data was collected which represents certain features of the socio-institutional ecosystem. These include demographic, economic, and ideological indicators. These data are chosen as they relate to various aspects that have been hypothesized as causative or anecdotally linked to the presence of worker cooperatives. First, demographic data which captures some features of the socio-institutional ecosystem are collected. Immigrants have been identified as one of the main demographic groups leading the development of worker cooperatives in the United States (Maschger, 2017; Schoening, 2005). Others have hypothesized that ethnicity may be a key vector of trust, and that ethnic diversity and tension may complicate trust (Alesina and Ferrara, 2002).

Jose Maria Ormaetxea, one of the founders of the first Mondragon cooperative, told me in an interview that the Mondragón model would be hard to reproduce in the U.S. because of accelerating diversification (mestizaje) in the U.S. makes it hard to form the cultural base necessary for a strong cooperative movement12 (Ormaetxea, 2010). As such, data on the percentage white, percentage immigrant, and percentage domestic immigrant are collected, with changes in the percentage white and the percentage immigrant in the preceding decade also noted. Data is also collected on average years of schoolings.

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12 His main point was comparative: that the Basque country, as opposed to the contemporary United States, had a social cohesion after the Spanish Civil War that was fertile ground for the cooperative to take root.
Next, data are collected on economic indicators which condition the socio-institutional ecosystem. It is a popular idea, backed by several scholars, that worker cooperatives do best as a strategy against economic antagonisms – poverty, inequality, and unemployment (e.g. Curl, 2010; Tonnesen, 2012). Staber (1993) has noted the ubiquity of the idea that worker cooperatives grow in response to unemployment, though his work casts doubt on that (Staber, 1993). Thus, various data are gathered and imputed for each megaregion – income, Gini coefficient, change in the Gini from last decade, unemployment, change in unemployment from last decade, and the percentage of households in poverty.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>% white</td>
<td>2010 US Census</td>
</tr>
<tr>
<td>Δ% white</td>
<td>2000, 2010 US Census</td>
</tr>
<tr>
<td>% immigrant</td>
<td>2014 American Community Survey</td>
</tr>
<tr>
<td>Δ% immigrant</td>
<td>2000, 2014 American Community Survey,</td>
</tr>
<tr>
<td>% domestic migrant</td>
<td>2014 American Community Survey</td>
</tr>
<tr>
<td>avg years of school</td>
<td>2014 American Community Survey</td>
</tr>
<tr>
<td>per capita income</td>
<td>2014 IRS</td>
</tr>
<tr>
<td>gini coefficient</td>
<td>Imputed from 2014 IRS</td>
</tr>
<tr>
<td>Δ gini coefficient</td>
<td>Imputed from 2004, 2014 IRS</td>
</tr>
<tr>
<td>% unemployment</td>
<td>2015 BLS</td>
</tr>
<tr>
<td>Δ% unemployment</td>
<td>2005, 2015 BLS</td>
</tr>
<tr>
<td>% poverty</td>
<td>2014 Census SAIPE</td>
</tr>
<tr>
<td>political self-identification</td>
<td>Cooperative Congressional Election Survey</td>
</tr>
<tr>
<td>% liberal or very liberal</td>
<td>Cooperative Congressional Election Survey</td>
</tr>
<tr>
<td>% vote for Obama (2012)</td>
<td>The Guardian</td>
</tr>
<tr>
<td>% vote for Clinton (2016)</td>
<td>Github</td>
</tr>
<tr>
<td>structural racism exists</td>
<td>Cooperative Congressional Election Survey</td>
</tr>
<tr>
<td>religion is important to me</td>
<td>Cooperative Congressional Election Survey</td>
</tr>
</tbody>
</table>

Table 1

Finally, data on individual’s ideology is collected. Respondents to the Cooperative Congressional Election Survey are tagged to a ZIP code, making it possible to code their answers into megaregions. Data is gathered on political self-identification (1=very liberal, 7=very conservative), the % of the population who identifies as ‘liberal’
or ‘very liberal’, the percentage vote for Obama in 2012, the percentage vote for Clinton in 2016, racial awareness (racial problems are isolated; 1=strongly agree, 5=strongly disagree), and religious importance (religion is important to me; 1=strongly agree, 5=strongly disagree).

All of these variables and their sources are listed above in Table 1. The combined dataset is available in Appendix 1. Finally, a simple OLS regression is run on each of these variables, using the equation:

\[ C_j^n = \alpha + \beta S_j + \epsilon_j, \]

Where:

- \( C^1 \) = worker cooperatives per 100,000 people
- \( C^2 \) = workers in worker cooperatives per 100,000 people
- \( C^3 \) = hours worked in cooperatives per 100,000 people
- \( C^4 \) = worker cooperative GDP per 100,000 people
- \( S \) = demographic, economic, and ideological indicators from Table 1
- \( j \) = each megaregion.

A note on causality: this essay does not claim that any individual feature of a socio-institutional system causes worker cooperatives to proliferate. As noted in Essay 1 of this dissertation, the socio-institutional frame implies causality which is simultaneous, multiple, immeasurable, and dialectic. However, due to the small proliferation of worker cooperatives relative to the magnitudes of the megaregions, it is assumed that worker cooperatives in this study have a negligible impact on the demographic, economic, and ideological indicators. As such, the point of regressing these variables is to examine the range of \( \beta \) coefficients (socio-institutional ecosystem indicators) across regressions and pull meaning from the looking at all the regressions together.

The results of the 18 regressions, against 4 measures of cooperative saturation, are shown below in Table 2. Those results with confidence interval above 95% (in all cases
but one, they are above 99%) are highlighted in yellow.

<table>
<thead>
<tr>
<th>Variable</th>
<th>WC per 100K People</th>
<th>Workers per 100K People</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>P &gt;</td>
</tr>
<tr>
<td>% white</td>
<td>0.126</td>
<td>0.585</td>
</tr>
<tr>
<td>Δ% white</td>
<td>-0.064</td>
<td>0.912</td>
</tr>
<tr>
<td>% immigrant</td>
<td>0.254</td>
<td>0.395</td>
</tr>
<tr>
<td>Δ% immigrant</td>
<td>1.836</td>
<td>0.434</td>
</tr>
<tr>
<td>% domestic migrant</td>
<td>-0.159</td>
<td>0.482</td>
</tr>
<tr>
<td>avg years of school</td>
<td>0.1941</td>
<td>0.000</td>
</tr>
<tr>
<td>per capita income</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>gini coefficient</td>
<td>-0.048</td>
<td>0.928</td>
</tr>
<tr>
<td>Δ gini coefficient</td>
<td>-0.848</td>
<td>0.387</td>
</tr>
<tr>
<td>Δ% unemployment</td>
<td>-1.400</td>
<td>0.482</td>
</tr>
<tr>
<td>% poverty</td>
<td>-2.417</td>
<td>0.001</td>
</tr>
<tr>
<td>political self-identification</td>
<td>-5.316</td>
<td>0.000</td>
</tr>
<tr>
<td>% liberal or very liberal</td>
<td>2.808</td>
<td>0.000</td>
</tr>
<tr>
<td>% vote for Obama (2012)</td>
<td>0.801</td>
<td>0.000</td>
</tr>
<tr>
<td>% vote for Clinton (2016)</td>
<td>0.674</td>
<td>0.000</td>
</tr>
<tr>
<td>structural racism exists</td>
<td>0.952</td>
<td>0.000</td>
</tr>
<tr>
<td>religion is important to me</td>
<td>0.504</td>
<td>0.000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>WC per 100K People</th>
<th>Workers per 100K People</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>P &gt;</td>
</tr>
<tr>
<td>% white</td>
<td>-846.6</td>
<td>0.842</td>
</tr>
<tr>
<td>Δ% white</td>
<td>-5139</td>
<td>0.650</td>
</tr>
<tr>
<td>% immigrant</td>
<td>8122</td>
<td>0.137</td>
</tr>
<tr>
<td>Δ% immigrant</td>
<td>54734</td>
<td>0.202</td>
</tr>
<tr>
<td>% domestic migrant</td>
<td>-3802</td>
<td>0.361</td>
</tr>
<tr>
<td>avg years of school</td>
<td>2853</td>
<td>0.001</td>
</tr>
<tr>
<td>per capita income</td>
<td>0.452</td>
<td>0.000</td>
</tr>
<tr>
<td>gini coefficient</td>
<td>9077</td>
<td>0.350</td>
</tr>
<tr>
<td>Δ gini coefficient</td>
<td>-6192</td>
<td>0.732</td>
</tr>
<tr>
<td>% unemployment</td>
<td>-34965</td>
<td>0.338</td>
</tr>
<tr>
<td>Δ% unemployment</td>
<td>14973</td>
<td>0.733</td>
</tr>
<tr>
<td>% poverty</td>
<td>-43350</td>
<td>0.001</td>
</tr>
<tr>
<td>political self-identification</td>
<td>-7562</td>
<td>0.000</td>
</tr>
<tr>
<td>% liberal or very liberal</td>
<td>38853</td>
<td>0.000</td>
</tr>
<tr>
<td>% vote for Obama (2012)</td>
<td>11217</td>
<td>0.007</td>
</tr>
<tr>
<td>% vote for Clinton (2016)</td>
<td>8972</td>
<td>0.014</td>
</tr>
<tr>
<td>structural racism exists</td>
<td>11444</td>
<td>0.006</td>
</tr>
<tr>
<td>religion is important to me</td>
<td>6678</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table 2

V. Extensions – Multi-Variate Correlations & Qualitative Control Analysis

Several interesting observations emerge from these correlations, and this section explores those relationships further. First, several indicators highly correlate to the presence of worker cooperatives. Those are: average years of school (the only
‘demographic’ indicator), per capita income and percentage in poverty (the economic indicators), and all of the ideological indicators. Those significance of each of these correlates is substantially similar across all four measures of worker cooperative saturation: worker cooperatives per 100,000 people, workers in worker cooperatives per 100,000 people, hours worked in worker cooperatives per 100,000 people, and worker cooperative GDP per 100,000 people. From this data, this essay seeks to build out a further extension – a multivariate regression incorporating all of the indicator groups which highly correlate to the presence of worker cooperatives. Next, this section seeks to explore combinations of sequences using Qualitative Control Analysis to examine the puzzle of immigration and worker cooperatives – attested to in ethnographic literature but absent from the above correlations.

**Multivariate Correlation**

From the correlations in the previous section, we see that average years of school, per capita income, percentage of population in poverty, and all of the ideological indicators are significant. Because of heavy correlation between the various ideological regressors, as well as between the two economic indicators (per capita income and percentage of population in poverty), this section chooses one of each of those, in order to avoid issues of multicollinearity. However, the multivariate regression is run several times, by changing the measure of worker cooperative saturation, as well as the stand-in economic and ideological variables. The variables chosen for ‘ideological indicators’ are the average self-rating of residents of a district, and the percentage of people who identify as liberal or very liberal. These two measures had the strongest R-squared values in the single variable correlations run above. As such, we run the following regressions:
1. $C^1_j = \alpha + \beta_1 D_j + \beta_2 E_j^1 + \beta_3 I_j^1 + \epsilon_j$;
2. $C^2_j = \alpha + \beta_1 D_j + \beta_2 E_j^1 + \beta_3 I_j^2 + \epsilon_j$;
3. $C^3_j = \alpha + \beta_1 D_j + \beta_2 E_j^2 + \beta_3 I_j^2 + \epsilon_j$;
4. $C^4_j = \alpha + \beta_1 D_j + \beta_2 E_j^1 + \beta_3 I_j^2 + \epsilon_j$;

Where,

- $C^1 = \text{worker cooperatives per 100,000 people}$
- $C^2 = \text{workers in worker cooperatives per 100,000 people}$
- $C^3 = \text{worker cooperative GDP per 100,000 people}$
- $D = \text{average years of school}$
- $E^1 = \text{per capita income}$
- $E^2 = \text{percentage of population below poverty}$
- $I^1 = \text{percentage of population that is “liberal” or “very liberal”}$
- $I^2 = \text{average self-rating on political scale}$
- $j = \text{each megaregion}$

Table 3, below, shows the results of these four multivariate regressions, with the indicators which have confidence intervals above 95% highlighted in yellow.

<table>
<thead>
<tr>
<th>Equation</th>
<th>Years Schooling</th>
<th>Economic Indicator</th>
<th>Ideological Indicator</th>
<th>R-Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$P &gt;</td>
<td>t</td>
<td>$</td>
<td>Coeff.</td>
</tr>
<tr>
<td>1</td>
<td>0.274</td>
<td>0.579</td>
<td>0.684</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>0.916</td>
<td>0.091</td>
<td>0.106</td>
<td>0.000</td>
</tr>
<tr>
<td>3</td>
<td>0.520</td>
<td>64134</td>
<td>0.874</td>
<td>-234292</td>
</tr>
<tr>
<td>4</td>
<td>0.15</td>
<td>0.076</td>
<td>0.891</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table 3

Notably here, in four different regressions testing similar hypotheses with slightly different measures, ideological indicators remain the only indicators which retain levels of significance above the 95% confidence interval, and they do so in all four regressions. In each regression, the economic indicators and the lone demographic indicator (years of schooling) lose all of the significance they had when they were regressed as the lone correlate. This underscores the importance of ideological indicators as a very strong correlate of the socio-institutional ecosystem, to the presence of worker cooperatives.
CRISP-SET QUALITATIVE CONTROL ANALYSIS

The single variate correlations in the preceding section are also interesting for what does not appear. Primarily, immigration does not show up as significantly correlated to any of these measures of worker cooperative saturation. This is strange, because of the strong practitioner, ethnographic, and news literature attesting to the growth of cooperatives led in large part by immigrants. “Immigrant worker-owners are the largest and fastest-growing segment of worker-owners in the United States,” says a report from the Democracy at Work Institute, “growth in worker cooperatives is currently driven by immigrant communities using the form to create jobs and business ownership opportunities for themselves,” (“Support for Immigrant Cooperatives" 2016). “In the past few years, immigrant-owned worker cooperatives have emerged as a vehicle for asset building and community resilience,” writes the Sustainable Economies Law Center (Runyeon, 2017). New York Public Media writes that “female immigrant entrepreneurs – many of whom are undocumented – are driving the current surge in New York City worker cooperatives, according to organizations that work closely with the groups […] the vast majority of workers are women of color, largely Hispanic,” (“Immigrants fuel the rise of worker cooperatives,” 2016). Raymond (2019) connects the marginalization of immigrant communities to the marginalization of African Americans, and, pulling from Nembhard (2014), argues that marginalized people use worker cooperatives to escape the mechanisms of marginalization. More recently the Movement for Black Lives has worked closely with New Roots Farm, a farm run by Somali immigrants in Lewiston, Maine, to maintain operations through the COVID-19 pandemic (Gural, 2020). Others have hypothesized that trust developed by shared experience in a new country is instrumental to immigrant entrepreneurship (Turkina and Thai, 2013). Yet despite the
discussion on the link between immigration and worker cooperatives, the increased presence of immigrants does not correlate to an increase in worker cooperatives in our megaregion correlation analysis. This could be for several reasons, including the fact that ‘immigration’ is a huge category composed of different kinds of trajectories and dynamics, only some of which might translate to increased worker cooperatives. This may be true. However, we hypothesize that this may have more to do with the context in which immigration occurs. So, this section examines that further by exploring combinations of sequences that may allow for the growth of worker cooperatives in socio-institutional ecosystems. Because of the importance of ideology, revealed in both the single variate and multivariate regressions, this section hypothesizes that immigration is important to the creation of worker cooperatives, as attested to by qualitative literature, but that that can only occur in socio-institutional ecosystems which are sufficiently friendly to worker cooperatives in the first place. That is, immigration alone may not be able to account for the presence of worker cooperative creation, but immigration which occurs in environments friendly to worker cooperatives may account for a significant portion of worker cooperative growth.

Thus, this section uses crisp set Qualitative Control Analysis (QCA) to examine the combinatory sequences of ideological alignment and a higher proportion of immigration, to test whether that may account for worker cooperative growth. The hypothesis is that higher immigration in areas with more liberal political ideologies will correlate highly to worker cooperative growth since the crisis of 2008. Put differently, immigrants may seek to form worker cooperatives as an economic strategy but may be differently constrained by their environments. Immigrant communities in Houston may
not live in an environment sufficiently supportive of worker cooperatives to realize worker cooperatives desires, but immigrants in Seattle may. In the crisp-set Qualitative Control analysis explored by Nagin (2008), discrete areas are categorized into whether or not a particular outcome is present, and whether or not a particular causal combination is present. They are ‘crisp-set’ distinctions because the decision about whether or not a causal combination or outcome is present depends on meeting a particular threshold. The categorizations are grouped in a 2x2 square, and the hypothesis is judged by the proportion of causal combination areas which display the outcome against causal combination areas which do not display the outcome, as shown below in Table 4 (Ragin, 2008, p. 39).

<table>
<thead>
<tr>
<th>Causal Combination Absent</th>
<th>Causal Combination Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome present</td>
<td>Not directly relevant to the assessment</td>
</tr>
<tr>
<td>Outcome absent</td>
<td>Not directly relevant to the assessment</td>
</tr>
</tbody>
</table>

Table 4

For the outcome, this section examines the creation of worker cooperatives since 2009 and sets a threshold of 3 worker cooperative firms created since 2009 for “outcome present” to count. Because of the focus on new cooperatives in the ethnographic literature, this section looks to cooperative creation. Otherwise, the outcome is absent.

For the causal combination, this section examines those places which are ‘liberal’ as well
as with a higher proportion of immigrants. “Liberal” is defined as an average political self-identification less than 3.9 for a particular megaregion from the Cooperative Congressional Election Survey, where 1= “Very Liberal” and 7= “Very Conservative”. The average identification is 4.12; so a score of 3.9 was chosen to represent areas with even more liberal ideology than average. The average proportion of foreign-born residents of all the megaregions is 11%, so “more than average proportion of immigrants” is any megaregion which has more than 11% of its population born in another country. Given the ethnographic literature underscoring the importance of immigrants in driving the creation of worker cooperatives, as well as the indications here that ideology of a megaregion is highly important, the hypothesis of this section is that areas which are liberal and with a higher proportion of immigrants will likely have worker cooperative creation since 2009. Table 5, below, shows the results of crisp-set assessment for this hypothesis.

<table>
<thead>
<tr>
<th>Liberal &amp; Immigrant not present</th>
<th>Liberal &amp; Immigrant</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 or more WCs since 2009</td>
<td>7</td>
</tr>
<tr>
<td>2 or less WCs since 2009</td>
<td>42</td>
</tr>
</tbody>
</table>

Eight megaregions are more liberal and have a higher proportion of immigrants. Of these eight regions, seven have initiated three or more worker cooperatives since 2009. This represents half of the 14 megaregions which have created three or more worker cooperatives since 2009. So, while being a heavily immigrant megaregion does not imply the creation of worker cooperatives, this shows that a heavily immigrant
megaregion with friendly ideological socio-institutional ecosystemic features makes the
development of worker cooperatives highly likely. Still, this analysis does not interrogate
the questions of qualitatively different types of immigration, which may also exert heavy
influence on the kinds of cooperatives developed, and more research should develop that
point further. Yet, this combinatory sequence analysis brings some of the insights from
ethnographic and qualitative work on worker cooperative development in the United
States together with mezzo-level socio-institutional indicators developed in this analysis,
and shows that immigration, in combination with a friendly ideological admixture, does
correlate to a more robust presence of worker cooperatives.

This section has underscored the importance of ideology by showing that in
multivariate regressions, the importance of ideological factors remains while other kinds
of indicators lose their significance. Then, it has shown that while the immigration
hypothesis which appears in ethnographic literature but does not originally appear in the
initial OLS regressions, a socio-institutional ecosystem approach can improve this
hypothesis by showing that immigration is indeed a good predictor of worker cooperative
development, provided that that occurs in an environment with features friendly to a
socio-institutional ecosystem. Not only does this confirm elements of the ethnographic
literature, it underscores the mutual and simultaneous nature of the various levels of
interaction in a socio-institutional ecosystem.

VI. DISCUSSION

The first point of departure in the empirical work above is that worker
cooperatives do exist, and they are geographically clustered in the United States, as
opposed to a random geographic distribution. Conventional economic thought in
economics cannot account for this, because worker cooperatives are theorized in abstract
space, where at best, their appearance can only vary randomly as opposed to socialized, peopled space of the real world. The preceding analysis has shown that worker cooperatives are not randomly distributed and has identified some features of socio-institutional variation which can explain this using the socio-institutional ecosystem hypothesis. This work then shows those clusters are heavily correlated to a host of some socio-institutional indicators and in particular to ideological correlates. When we account for those ideological correlates, other hypotheses from the qualitative, ethnographic literature find quarter, such as the idea that immigration is a driver of worker cooperative development. This essay does not claim that any particular socio-institutional correlate causes worker cooperatives to exist. However, the correlation demonstrates that worker cooperatives thrive in megaregions which also exhibit certain socio-institutional features. This supports the idea that the socio-institutional environment of worker cooperatives matters greatly for their creation and survival.

These data respond to several guideposts in the literature on worker cooperatives which builds the case for the socio-institutional ecosystem hypothesis. While it is beyond the scope of this essay to ‘prove’ any of the following mechanisms, this section still gestures at how the data in the preceding section may buttress the case. To begin, the clustering of worker cooperatives supports Schwartz’s notion that unfamiliarity is a block to worker cooperative success, and remains consistent with the notion of path dependency (Schwartz, 2011b). As more cooperatives become known, this lowers the cost of participation in the public goods game that Schwartz describes, exposing people to the idea of worker cooperatives, and in so doing, making them more possible.

Another implication of this data is that worker cooperatives are not particularly
correlated to some of economistic and demographic postulations about the creation and
dispersion of worker cooperatives. They are not correlated in any meaningful way with
income inequality, unemployment, changes in income inequality, or changes in
unemployment, as has been postulated by some in the literature. While worker
cooperative saturation is significantly correlated to per capita income and the percentage
of people in poverty, the coefficients are quite small and as such may be statistically, but
not economically, significant. More, these initial considerations fall from significance in
a multivariate regression, while ideological indicators remain highly significant.

The importance of ideological data obtaining high significance across several
robustness checks lends support to some of the particular socio-institutional hypotheses
in the literature, on a macro level. This may be direct causality – perhaps liberal areas,
because they are liberal, are more likely to establish worker cooperatives, or maybe they
have a customer base more willing to go out of their way to support them. Or, the
correlation with ideology may indicate a shared underlying trait, which is expressed as
both a higher saturation of worker cooperatives, and as more liberal political ideology. To
revisit Thompson’s hypothesis, trust is fundamental to the performance of worker
cooperatives, and one reason for their rarity might be that institutional contexts don’t
prioritize trust, because trust is much less fundamental to the performance of capitalist
firms, which most institutions cater to (Thompson, 2015). The correlates to megaregions
with more worker cooperatives suggest this may be the case, by making inferences about
trust through other literature. Putnam has found that increased education also increases
trust (Putnam, 2001). Other literature traces trust and political ideology, and finds that
trust to be higher amongst self-liberals or Democrats (Anderson et al., 2005; Carlin and
Love, 2013). Alesina and Ferrara find that increased expression against racial integration undermines trust (Alesina and Ferrara, 2002). All of these factors were strongly correlated with the distribution and persistence of worker cooperatives in the United States, in ways that align with increased trust from the literature above – places with higher education, more liberal political affiliation and self-description, and with more tolerant attitudes about race – were more correlated with the presence of worker cooperatives. These signs point to the idea that increased trust fosters a socio-institutional ecosystem more supportive of worker cooperatives – either directly through trust or by institutions, norms, and mores that are built up from increased social trust. While this research still may be premature to definitively name causal relationships, it is possible to stitch together a rough outline of what a supportive socio-institutional ecosystem looks like. More assuredly, we can certainly say that certain qualitative features of the socio-institutional context really seem to matter for the appearance and proliferation of worker cooperatives.

The contribution of this essay has been to examine which factors stoke or frustrate the presence of worker cooperatives by looking not just at areas of worker cooperative presence, but comparing those areas to areas of worker cooperative absence. This comparative approach highlights the centrality of ideology which not only correlates to worker cooperative presence but importantly, to worker cooperative absence. In turn, that has allowed for qualification of other trends in the literature, especially the notion that immigration leads cooperative development. The institutional constellations of an ecosystem which encourage worker cooperative presence are explored here, building on the work of Hoover and Abell (2016), but this work is strengthened by a horizontal and
comparative look across institutional ecosystems in the US.

VII. CONCLUSION

The foundational idea of this essay was that economic theory has struggles to explain the appearance and proliferation of worker cooperatives because it has disregarded social and institutional constellations around that firm. While theory has helped point to a general hurdles that worker cooperatives face in capitalist contexts, it has been unable to explain the persistence and clustering of worker cooperative complexes. This essay has offered the socio-institutional ecosystem hypothesis for worker cooperatives as a theoretical approach which can explain that. As such, this essay has: (1) demonstrated shortcomings with the conventional theories on the prevalence of worker cooperatives; (2) pulled together various strands of the extant literature which support the socio-institutional ecosystem hypothesis for the proliferation of worker cooperatives; (3) shown that macro-level data on the features of socio-institutional environments broadly supports this hypothesis, calling particular attention to the ideological coordinates of socio-institutional ecosystems as particularly correlated to worker cooperative saturation in the US; and (4) shown that socio-institutional ecosystem qualifiers can support other observations made from qualitative, ethnographic work, such as the hypothesis that immigration drives worker cooperative development, if it occurs in a friendly socio-institutional environment. Statistical work on the existence of the socio-institutional hypothesis presents major difficulties because of the multiple, simultaneous, immeasurable, and dialectic flows of causality. However, this essay has demonstrated that certain kinds of features – particularly ideological basis of socio-institutional contexts – significantly correlates to the proliferation of worker cooperatives. Moreover, when viewed in concert with other features, such as immigration, a clearer picture of
which mechanisms may contribute to a beneficial ecosystem for worker cooperatives begins to emerge. From this, connections can be made to other literatures which suggest that in the context of the observation on the correlation between ideology and worker cooperative proliferation, one fundamental mechanism for proliferation of worker cooperatives may be trust, where worker cooperatives succeed in socio-institutional contexts which promote trust between people and institutions of trust.

This essay buttresses the idea that socio-institutional contexts greatly influence worker cooperatives. More specific hypotheses, such as those about trust explored above, should be explored further by future research. Academics, policymakers, and workers should look to the socio-institutional ecosystem as a relevant unit to analyze the appearance and distribution of worker cooperatives should be an important one for. Rather than conventional research which suggests that worker cooperatives are impossible institutions, this frame suggests that worker cooperatives are eminently possible given the right socio-institutional ecosystems. That makes it possible for the expansion of worker cooperatives and the growth of economic democracy from capitalist contexts, and the capture of benefits by workers and citizens. To borrow from Vanek’s ecosystemic metaphor, the focus should be on identifying and obtaining the appropriate water for the particular fish.
CONCLUSION

“Men make their own history, but they do not make it as they please;” writes Marx (1852) in the *Eighteenth Brumaire of Louis Bonaparte*, “they do not make it under self-selected circumstances, but under circumstances existing already, given and transmitted from the past,” (para. 2). Marx calls attention to the context in which activity occurs and highlights that context’s fundamental importance in conditioning that activity which occurs in it. Pushing the point with linguistic metaphor, Marx compares historical movement to learning a language: “in like manner, the beginner who has learned a new language always translates it back into his mother tongue, but he assimilates the spirit of the new language and expresses himself freely in it only when he moves in it without recalling the old and when he forgets his native tongue,” (para 2). The contexts of economic life, like idioms, vary in their terrain, grammar, and meaning, shaping the set of possibilities for economic activity in a context or speech in an idiom. This requires a frame which can appreciate the variance of context and circumstance, and so this essay looked to ‘ecosystem’ as a grounding metaphor.

Biologists situate ‘ecosystem’ as a scaled unit of analysis of the natural world, ranging from ‘subatomic’ to ‘universe.’ Each of those scaled units of analysis give insights into natural processes, yet the kinds of insights – the kinds of truths – vary based on choice of scaled analytical unit. Deploying ‘ecosystem’ as a unit of analysis allows for an appreciation of the relationship of organisms to their non-living environment and can, say, help an ecologist understand why a particular species flourishes in one ecosystem vis-à-vis another. Similarly, the socio-institutional ecosystem analysis frames economic activity as it occurs in relationship to the non-economic social and institutional environment in which economic activity occurs, and can help economists understand why
certain economic phenomena exist in a particular social and institutional arrangement but not in another. Calling back to Marx, these truths call attention to the circumstances – the socio-institutional terrain, grammar, and meaning – upon which people make their own history.

Yet the models of mainstream economics most often preclude variability of socio-institutional terrain, grammar, and meaning. Methodological individualism, like molecular chemistry, prescribes a set of constant rules from which a whole is determined. This leads to particular kinds of insights which advance particular knowledge but misses other phenomena at other scalar units. And formal modelling – from microeconomics’ utility space to macroeconomics factor productivity – requires the structural fundaments of the model to stay the same. That different entities have different experiences depends on cardinal changes of inputs – preference, factor endowments, savings rates, etc. While the power of these models comes from their ability to compare by holding structure constant, their weakness comes from their inability to understand how the very rules and categories of the game shift in different context. If context matters – and we have good evidence that it does – what do these models miss? And what does that augur for the ways in which take economic action?

The socio-institutional ecosystem analysis enables us to name and describe the circumstances and context upon which economic activity occurs and through which people make history. By focusing on and naming the social and institutional constellations which structure economic activity, the socio-institutional ecosystem analysis enables policy makers and strategists to develop plans specific to a particular
ecosystem. I conclude here with some thoughts on how the analysis undertaken in the preceding essays of this dissertation contribute to that.

A renewed discussion about the East African Union – which raises the possibility of a federal union of Tanzania, Burundi, Rwanda, Kenya, Uganda and South Sudan – has grown in recent years. The socio-institutional ecosystem analysis can meaningfully contribute to this conversation. Such a state would comprise a huge domestic market and productive potential, and the scale of the venture allows consideration of a set of macroeconomic policies difficult for each country to explore on its own. Yet policy is only successful to the extent that it meaningful responds to actual circumstances. So, for any set of policies to be useful, it must apprehend the basic institutional and social ecosystems which vary within and across each country. The politics and policies of land and those who work it, for example, play very differently in Kenya and Tanzania, and the preceding essay on East African labor in the colonial era lends contextualization to this in the long historical arc from the colonial era to the present. If we pause to consider the scope of economic categories which have currency in policy debates, we quickly encounter discussions which speak of formalization of titles, savings rates, randomized control trials, Sub-Saharan Africa, developing countries, capital controls, inflation targeting, and so on. These may or may not be fundamentally important categories – and some much more so than others – but they do not speak to many of the fundamental relationships and their variance which condition the politics and possibilities of land and the people who work on it. As such, understanding these different relationships as relationships which carry significant historical inertia into the present underscores the
gravity of those relationships and shifts policy to consider the structural issues which are created, compounded, and inflected by socio-institutional ecosystems.

Also, a renewed conversation by activists and policymakers looks to develop worker cooperatives as answer to various malcontents of contemporary economic dynamics. However, the factors which influence the survival of worker cooperatives are not well articulated by economists and have largely hinged on discussions of firm efficiency with little discussion of the firm’s context. For an ecologist, it would make no sense to discuss the efficiency of an organism as the crux of its survival without a discussion of its ecosystem. A vicuña and a dik-dik might be perfectly efficient organisms, but any prediction about their relative prevalence would depend on its ecosystem, from alpine sierra to tropical scrubland. Previous research has shown that worker cooperatives are just as efficient as capitalist firms, if not more so. The research in this dissertation has called attention to some of the socio-institutional features which seem to stoke or frustrate their presence. Certainly, more research is required to fully understand this, but this work has shown strong evidence to support the notions that socio-institutional features condition the likelihood of a robust cooperative sector. With a fuller understanding of this, activists and policymakers can better support and grow the sector, capturing their benefits for working people.

At its best the socio-institutional ecosystem analysis functions to make the peopled environment in which economic activity occurs visible. New economic knowledge can be built from this analysis and marshalled to emancipatory strategies.


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