

THREE ESSAYS ON THE MICROFOUNDATIONS OF SOCIAL CHANGE

by

Ryan Langrill  
A Dissertation  
Submitted to the  
Graduate Faculty  
of  
George Mason University  
in Partial Fulfillment of  
The Requirements for the Degree  
of  
Doctor of Philosophy  
Economics

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Summer Semester 2013  
George Mason University  
Fairfax, VA

Three Essays on the Microfoundations of Social Change

A Dissertation submitted in partial fulfillment of the requirements for the degree of  
Doctor of Philosophy at George Mason University

by

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## **DEDICATION**

This is dedicated to my wife Anna.

## **ACKNOWLEDGEMENTS**

I would like to thank my parents and my wife, Anna, for their support through my long education. I would also like to thank members of my committee, as well as Professors Deirdre McCloskey, Richard Wagner, and Tyler Cowen for comments, inspiration, and guidance along the way. My classmates Jesse Gastelle, Charity-Joy Acchiardo, Deema Yazigi, and many others provided particularly fruitful conversation. Finally, I would like to thank the Mercatus Center at George Mason University for generous funding, Lane Conaway and Mary Jackson for guidance navigating the program, Peter Lipsey and Eric Celler for administrative help, and Sally Evans for (patient!) formatting help.

## TABLE OF CONTENTS

	Page
List of Tables .....	vii
List of Figures .....	viii
Abstract .....	ix
Chapter One: Social and Cultural Change as a Cause of Economic Change .....	1
Social Change and Cultural Change.....	2
Social Change.....	6
Public Truths, Private Lies, and Threshold Models of Revolution .....	6
Dynamics of Contention .....	10
Cultural Change.....	13
The Role of Culture in Economic Analysis.....	15
The Industrial “Revolution” .....	21
The Mechanisms for Bourgeois Dignity .....	24
Acemoglu, Johnson, and Robinson .....	26
Capital Cities and Collective Conservatism.....	27
Social Distance and the Case of Osaka .....	33
Conclusion.....	41
Chapter Two: Network Closure, Group Identity, and Attitudes towards Merchants (with V. H. Storr) .....	44
Introduction .....	44
Theoretical Considerations.....	46
A Brief History of Tokugawa Japan .....	51
The Divergence of Merchant Narratives and Identities .....	54
Edo.....	55
Osaka .....	60
Discussion .....	71

Chapter Three: Social Networks in Early Modern Britain and the Network Structure of the British Industrial Revolution.....	73
Literature Review .....	74
Schools of Thought.....	76
Gradual-Materialists .....	79
Gradual-Idealists.....	83
Sudden-Materialists .....	86
Sudden-Idealists.....	88
Network Model .....	90
Agent-Based Demonstration.....	93
Early Modern Britain .....	94
Discussion .....	109
Appendix A.....	111
References.....	120

## LIST OF TABLES

Table	Page
TABLE 1: SUMMARY STATISTICS, OCCUPATIONAL SURNAMES IN THE CHURCH OF ENGLAND.....	107
TABLE 2: SIMULATION SUMMARY STATISTICS.....	115
TABLE 3: REGRESSION COEFFICIENTS ON 75% DIFFUSION SUCCESS .....	118
TABLE 4: REGRESSION COEFFICIENTS ON TIME TO 75% DIFFUSION.....	119



## LIST OF FIGURES

Figure	Page
FIGURE 1: DIFFERING SOCIAL STRUCTURES .....	50
FIGURE 2: GDP PER CAPITA FOR EUROPEAN COLONIAL POWERS, 1500-1913 .....	76
FIGURE 3: THREE TYPES OF NETWORKS .....	91
FIGURE 4: 'UNPRODUCTIVE' LINK VALUE AND DIFFUSION STATISTICS.....	94
FIGURE 5: LANGUAGE USE IN ENGLAND .....	97
FIGURE 6: IN-MARRIAGES BY PEERS OR THEIR CHILDREN, COHORTS BORN 1550-1949 .....	101
FIGURE 7: IN-MARRIAGES BY HEIR STATUS, COHORT BORN 1700-1880. ....	102
FIGURE 8: MARRIAGES BY SOCIAL BACKGROUND, COHORT BORN 1700-1880. ....	102
FIGURE 9: OCCUPATIONAL SURNAME FREQUENCY BY CLERGY LEVEL. ....	106
FIGURE 10: EGALITARIAN AND 'UNPRODUCTIVE' CENTRAL NETWORKS .....	114
FIGURE 11: LINK VALUE AND NUMBER OF LINKS.....	117
FIGURE 12: 'UNPRODUCTIVE' LINK VALUE AND DIFFUSION STATISTICS .....	118

## **ABSTRACT**

### **THREE ESSAYS ON THE MICROFOUNDATIONS OF SOCIAL CHANGE**

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George Mason University, 2013

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This dissertation explores the influence of social and cultural factors in nations' transition to modern economic growth. In the first essay, I consider methodological issues involved in using social or cultural explanations as forces that drive 'economic' phenomena. In the second essay, V. H. Storr and I do a comparative study of two Japanese cities during the early modern period: Edo and Osaka. Edo's highly bureaucratized society hindered the emergence of commercial culture, while Osaka's absence of bureaucrats allowed a commercial culture to flourish. In the third essay, I consider the aspects of British social networks that gave it advantages over the rest of Europe in achieving modern economic growth.

## **CHAPTER ONE: SOCIAL AND CULTURAL CHANGE AS A CAUSE OF ECONOMIC CHANGE**

The divide between idealists and materialists is among the deepest in the humanities and social sciences. Historians of the Great Fact—the emergence of modern economic growth—follow the same pattern. Deirdre McCloskey likens the Great Fact to a hockey stick, with history until 1750 represented by a flat line, the handle of the stick, and subsequent history the steeply rising blade of the stick. While the history of the Great Fact is relatively settled, the interpretation of that history is still contested, especially with the relevance of historical modern economic growth to the understanding of economic development. Many see modern economic growth as an outcome of material forces, such as genes, geography, or natural resources, while others point to enlightenment, work ethic, or the adoption of bourgeois virtues. The materialists see society and culture as epiphenomena of material conditions, while idealists believe the material world to be a reflection of people's ideas.

These three essays survey the literature on modern economic growth and contribute to the idealist side of the debate using two historical case studies. In Chapter 2, Virgil Storr and I do a comparative study of two cities in Tokugawa Japan: Edo and Osaka. The two cities diverge from each other in the spirit of their economic activity. In Chapter 3, I argue that Early Modern Britain's social structure contained features that

distinguished it from other European powers and predisposed it to modern economic growth, including the relatively peripheral location of the aristocracy.

In this essay, I explore what it means for modern economic growth to be the result of social or cultural processes, how the Industrial Revolution shares some characteristics with political ‘revolutions.’ I explore what ‘social change’ and ‘cultural change’ are, and how they interact. I then review the important work relating social and cultural change to economic change, and relate the literatures to the case studies discussed in the later essays of the dissertation.

### **Social Change and Cultural Change**

‘Social’ refers to a people’s relationships with other people, while ‘cultural’ relates to people’s interpretation of reality. There is a reciprocal relationship between the social and the cultural. Culture influences whom people consider worth getting to know, and transform the pattern of relationships accordingly. If the appreciation for a certain type of music increases (a cultural change), practitioners of that music will gain a more central position in social networks (a social change). Conversely, the social structure will give some people a greater position to influence others’ interpretations of reality. The musician who has gained popularity because of a change in musical tastes will have the opportunity to share his interpretation of events with others and change aspects of culture that are unrelated to his music.

Cultural change involves a change in the structure of individuals’ human capital. The structure of human capital is, at any moment, a given. It determines how an individual will interpret external stimuli and whether that interpretation satisfies that

individual's ends, inflicts upon them unease, or leaves them completely indifferent. The satisfied individual will redeploy his means to the satisfaction of other ends, and be subjectively better off; the uneasy individual will redeploy his means to address the new dissatisfaction, and is subjectively worse off. People's interpretations change over time, both through purposive investment and as a consequence of experience. Someone may study music history with the hope of gaining greater satisfaction by listening a piece of music, or she may gain a greater appreciation of the piece as an unintended consequence of learning to play an instrument featured in the piece and discovering subtleties to the music that she had not heard before. The same things may lead to a decreased ability to gain satisfaction from some experience—a piece she enjoyed before learning the instrument may now seem simplistic and juvenile. What is true for her interpretation of music will be true, as well, for her interpretations of justice or injustice, pleasure or pain, merit or demerit.

The social structure can influence cultural change in several ways, and determines how a 'group culture' emerges from the several interpretive lenses of individuals. Selection into a group is the first social influence on culture. Birth and death change the composition of people, and if an older generation systemically differs in their interpretation of some phenomena from the younger generation, a cultural change will occur without any individuals adopting a new understanding. Social filters, including migration patterns, communication and transportation technology, and geographic distance shape whose ideas reach the individual. An individual's social network and her location within it is a second influence of the social on the cultural. The quantity and

centrality of her relations will influence the opinions she perceives, whether they are diverse or uniform, novel or repetitive. An individual's culture emerges from the teachings from their relations, their observations of the social world, and any innate faculties; the culture of a group is the reflection of individual cultures amplified and transformed by their social structure.

Culture can influence social change, as well. If people regard a certain type of organization as illegitimate, its formation will be discouraged. A widespread distrust of or dissatisfaction with hierarchy or authority will limit the scope of organization, and with it the positive or negative effects of large organization. For instance, Lavoie and Chamlee-Wright (2000: 64-80) argue that attitudes towards organization can give different groups a 'comparative cultural advantage.' Entrepreneurs in Taiwan and Hong Kong, for instance, share the Chinese value of individual autonomy for entrepreneurs, which means that people will gain little satisfaction working within a large hierarchy. The tendency will be for people to start their own companies, and for the types of work where economies of scale are less important will tend to flourish with that culture. By contrast Tam (1990: 162) writes, Japanese individuals "seek identity and... maintain existence and development by submergence in a collectivity." Firms that rely on production technologies that benefit greatly from economies of scale will subsequently flourish in Japan. Goldstone (1996) goes so far as to argue that the Chinese resistance to large scale organization, especially that involving women, was a major impediment to industrialization: the British did not believe that women working outside the home was unusual, while the Chinese did.

The man whose judgments, as Smith ([1790]1976: I.i.4.4) writes, seem to be “acute and delicate,” and reveal “scarce perceptible differences of beauty and deformity” whether in the evaluation of art, justice, or anything else, will be a man whose acquaintance will be sought after. Their position within their social networks will rise in both centrality and in number of relationships. More generally, people whose attributes people interpret as pleasing will gain greater prominence in society. Benjamin and Shapiro (2009) demonstrate this, at a superficial level, in gubernatorial elections: in an experiment, people judged gubernatorial candidates’ personal attributes from a ten-second silent clip, those who the subjects judged to have more favorable personal attributes were significantly more likely to win an election. They do not specify a mechanism, but more likeable candidates would have superior positions in the social structure, being able to motivate more resources for their election; or the benefit could simply be the result of voter heuristics.

Institutions refer to the “humanly devised constraints that shape human interaction (North 1990: 3).” Formal constraints are “created to serve the interests of those with the bargaining power to devise new rules (North 1990: 16)” and include such things as legislation and written laws and contracts.<sup>1</sup> Informal constraints “come from... culture... Culture provides a language-based conceptual framework for encoding and interpreting the information that the senses are presenting to the brain (North 1990: 37).” Functionally, the difference between formal and informal constraints is imperfect; often, the formal authorities require the informal cooperation of people to be effective. For

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<sup>1</sup> The ‘written’ part is important because it allows for a third party arbitrator without tacit knowledge of the situation to assess whether there has been a violation.

example, Ostrom (1996) argues that many projects ostensibly run by the formal government were in fact a combination of efforts by the formal authority of government officials and informal efforts by citizens: effective policing requires not only police, but citizens who are willing to call on them; education requires not only teachers, but a community support for children. She refers to this as ‘coproduction,’ where the value of a service is a combination of efforts of producers and consumers.<sup>2</sup> Ultimately, institutional change is a form of social change, though the connections between society and culture remain important.

## **Social Change<sup>3</sup>**

### **Public Truths, Private Lies, and Threshold Models of Revolution**

Threshold models of collective behavior are a dramatic example of how individual preferences do not translate cleanly into collective outcomes. Small differences in the cost of certain behaviors or small differences in the timing of actions can have major consequences. The standard example is of a riot (e.g., Granovetter 1978: 1422): individuals have safety thresholds that vary among the population. The instigators of a riot are at the low end of the risk-aversion scale, while conservatives are at the high end. As people decide to riot, the probability that a rioter will be singled out drops and the cost of joining the riot declines. As the marginal rioter joins, the cost declines further, activating the next marginal rioter, and so on. The equilibria in these models are far apart: In one, only the instigators riot, and in the other, many people riot. Either the threshold is

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<sup>2</sup> Michael and Becker (1973) argue that, in fact, all consumption is a joint effort on the part of the producer and consumer.

<sup>3</sup> Chapter 2 contains an overview on the ‘social capital’ literature, which is a major source of advocacy for the importance of the structure of social relations on economic outcomes.



crossed or it is not. Unlike most models of collective behavior, where large differences in behavior depend on large differences in preferences or constraints, these models show major variation with only small changes in preferences or constraints; if the cost of arrest drops exogenously, it can instigate an avalanche of action. Granovetter (1978: 1423-4) lists the diffusion of innovations, rumors (where ‘credulity’ replaces riot threshold), disease (vulnerability), strikes, voting, educational attainment, and migration as phenomena that can follow the threshold pattern.

Granovetter and Soong (1986) illustrate threshold effects in the marketplace, which will illustrate the dynamic interpersonal effects. As Smith ([1790]1976: III.2.16) observed, “The agreement or disagreement both of the sentiments and judgments of other people with our own, is, in all cases, it must be observed, of more or less importance to us, exactly in proportion as we ourselves are more or less uncertain about the propriety of our own sentiments, about the accuracy of our own judgments.” Thus, ambiguity concerning the quality of goods can lead to what Bikhchandani, Hirshleifer, and Welch (1992) refer to as ‘information cascades.’ Bikhchandani, Hirshleifer, and Welch argue that fads and fashion most closely resemble the information cascade, but that these can occur wherever there is quality ambiguity. Smith refers especially to the judgment writing, where even the greatest can suffer from the criticism of the least, though the threshold effects can occur wherever ambiguity does. For example, what determines the success of a new restaurant? Some people are adventurous, willing to try the new restaurant with little information, while others are skeptics, only willing to try a new restaurant once several of their friends have. A population of 100 with one consumer

each having a threshold of 0 to 99 will have the adventurous (threshold 0) individual try the restaurant in  $t=0$ , with the second person attending at  $t=1$ , and the entire population eating at the restaurant at  $t=99$ . If the restaurant were to open in a town that is identical, except that the individual with a threshold of two friends giving a good report instead has a threshold of three, it will open to the two most adventurous eaters and proceed to serve no one else. People with threshold three or higher are never ‘activated,’ and the restaurant fails. A minute change in the composition of the population causes a dramatic difference in the performance of the restaurant. This example is no doubt extreme, since only interpersonal effects are in play, and each person observes the entire population.<sup>4</sup>

Kuran (1989) uses a threshold model to develop a theory of collective conservatism and unanticipated revolution. While not every revolution is unanticipated, many come as a complete surprise to global observers, and even to those with the most intimate knowledge of the situation, like rebel leaders. He suggests that people have two sets of preferences: those disclosed in public, and those felt in private. People weigh the benefits from professing a popular belief against the costs of self-deception, making the observed variation in political beliefs much narrower than the true variation in political beliefs. People can only observe the public beliefs of others, and can only evaluate the prospects of a successful revolution using public preferences. If the major political organizations oppose revolution, people may never disclose their support of revolution in order to benefit from those organizations’ resources. People may never discover that a majority of the country shares their support for a revolution. If some event were to

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<sup>4</sup> It also forbids the restaurant from bribing the marginal eater. Threshold models usually assume that there is no market for the marginal actor.

change the cost of revealing that private information, there can be an avalanche of a revelation of private preferences leading to a revolution that no one expected. Not only is the classic threshold mechanism at work, activating additional rebels as the risk of being singled-out declines, but a second mechanism is at work: a sharp change in people's evaluation of others' private beliefs in favor of revolution further decreases the cost of participating in a revolution. This second mechanism is responsible for the unanticipated aspect of Kuran's story - if the preferences revealed by a revolution at time  $t=1$  were known at  $t=0$ , the revolution would have happened at  $t=0$  instead. Kuran (1989: 41) points to the Iranian Revolution of 1978-9: Ayatollah Ruhollah Khomeini, who was one of the major opponents of the Shah, was just as surprised as the Shah, the KGB, or the CIA when the Shah's regime collapsed. He also points to the French Revolution of 1789, the Russian Revolution in 1917, and the East European revolutions of the late 80s and early 90s (Kuran 1991).

Kuran's framework has strong implications for understanding why the status quo has such weight over long periods of time, which has direct implications for understanding the lock-in to a Malthusian equilibrium before modern economic growth. In his terminology, collective conservatism is when the choice of policy  $p$  in  $t=2$  is caused by the choice of policy  $p$  in  $t=1$ —if policy  $q$  has been chosen instead at  $t=1$ , it would be chosen at  $t=2$ . Collective conservatism can create sub-optimal equilibria when circumstances or preferences would call for different policies at different times, such as

when policy  $p$  is optimal at  $t=1$  and policy  $q$  is optimal at  $t=2$ .<sup>5</sup> The divergence between public and private preferences, with public preferences being directed towards some organization, such as a political party, is what enables collective conservatism. The immediate effect collective conservatism is that policy is less adaptive to individual preferences than is optimal - the more important effect for our purposes is that support for a policy caused by collective conservatism builds private support for the public position over time. New entrants to the political system consider others' public preferences when forming their own private preferences, and mass public support for a secretly unpopular policy will, over time, make that policy popular. When this happens, the possibility of social change declines dramatically and social stability sets in.<sup>6</sup> Stability characterizes most of Europe before the Industrial Revolution, and Kuran (2010) argues, this stability persisted in Islamic countries at the expense of their economic growth.

### **Dynamics of Contention**

Doug McAdam, Sidney Tarrow, and Charles Tilly's *Dynamics of Contention* (2001; hereafter MTT) weaves together the theoretical literature on what they call "contentious politics," or contested political action. Each of the authors is a giant in their field, and they attempt to bring together into one literature many different fields. The authors seek to show (2001: 4) "how different forms of contention - social movements, revolutions, strike waves, nationalism, democratization, and more," each of which had its

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<sup>5</sup> Kuran notes that when it is important to maintain expectations, some level of conservatism will be efficient—but that not every instance of conservatism can be explained this way. Of course, overcoming conservatism is, itself, a cost, and a lot of 'suboptimal' equilibria are constrained optimal.

<sup>6</sup> Because people's preferences change to support the old policy, what may have been a policy adopted due to collective conservatism (i.e., adopted at variance from people's preferences), the changed preferences mean that the policy becomes optimal (i.e., in accordance with people's preferences).

own field of study, “result from similar mechanisms and processes.” The goal of this project is not to construct some grand general theory of social and political change, but to put together a toolbox to understand a great variety of social phenomena.

The toolbox contains three families of mechanisms: environmental mechanisms, cognitive mechanisms, and relational mechanisms. These mechanisms combine, in non-deterministic ways, to play out in *episodes* of contention through different *processes*. These processes can determine whether a case of contention is one *contained* within existing political networks that tend to reproduce the status quo or if it is a *transgressive* episode that redefines the political landscape. To define the terms they use in their words (MTT 2001: 24): episodes are “continuous streams of contention,” mechanisms are “a delimited class of events that alter relations among specified sets of elements in identical or closely similar ways over a variety of situations,” and processes are “regular sequences of such mechanisms that produce similar (generally more complex and contingent) transformations of those elements.”

Environmental mechanisms are usually the catalyst for any social change episode. These mechanisms are exogenous to the social group under consideration, or are at least elements that the group does not directly control. Changes in resource availability, through resource depletion or technological change, changes the demand for a resource, demographic changes such as population increase or decrease, urbanization or deurbanization, or an increase in average lifespan, are all environmental mechanisms. These mechanisms are often of human action, but not of human design. Whenever McAdams, Tarrow, and Tilly analyze some social phenomena, they first look for some

environmental mechanism that was at the root of the social change. Materialists tend to emphasize environmental mechanisms when trying to understand the transition to modern economic growth, especially changes in effective resource availability and urbanization.

Cognitive mechanisms involve a change in the way that people interpret objects of collective action, such as the realization of a threat or opportunity provided by some environmental mechanism. Political parties may change their alignment, like the Democratic Party did in jettisoning its ‘Southern’ alignment in the 1960s, or colonial powers can change from benefactors to occupiers, as Kenyans rebels did to the British colonial authority in the 1950s. Generally, these mechanisms include the “construction of frames, situations, identities, and innovative collective action (MTT 2001: 70).” While environmental mechanisms may be deterministic in some sense, cognitive mechanisms rely on historical contingencies, and can very much be directly influenced by human design and entrepreneurial action. The American Civil Rights movement looked much different with Martin Luther King, Jr. than it would have without him, in large part because of his entrepreneurial framing of the movement. Cognitive mechanisms include, as well, certification—approval of a movement or individual by another individual or group with legitimacy—and decertification. They include the creation of group identities, both to promote cohesiveness (to create a resistance), or to foster contention (create a negative identity for an opponent). In the transition to modern economic growth, idealists emphasize cognitive mechanisms, while materialists underplay the role of contingency and human choice in response to environmental mechanisms.

Relational mechanisms, which are those that McAdam, Tarrow, and Tilly believe have been most neglected in the study of contention, include social appropriation and brokerage. Social appropriation refers to the use of existing structures that are created through non-political processes—neighborhood associations, churches, businesses, schools, etc.—and appropriating them for political purposes, such as the mobilization of opposition. Political action that uses this mechanism is embedded in preexisting social and commercial connections, rather than from existing political networks, which generally indicates a transgressive episode of contention. Brokerage, as described in Burt (1992), involves a political entrepreneur connecting two groups of political actors, which allows them to combine their resources in mutually beneficial ways. Social appropriation of non-political spaces or networks is more useful than trying to create a political movement *ex nihilo* because people's interpersonally dependent choices, or the interpersonal aspects of a choice, are made from within social and commercial networks that already exist. People observe not some random sample of others, but people who are geographically and socially close to them. When someone is 'activated,' others who are close to him become even more likely to be activated; groups can, in some limited sense, act as one: the more each individual in the group internalizes the beliefs of others in the group, the more the group will act as a unified whole.

### **Cultural Change**

Despite an increased interest in the effect of culture on economic change since the 1990s, there remains no consensus on the extent to which cultural differences explain differences in economic outcomes. Some economists deny that culture matters at all:

representative is Acemoglu and Robinson (2012: 56-63). These economists argue that culture is malleable and multi-faceted: if there exists some opportunity for gain, people will find some way to fit the opportunity into their cultural framework. On the other end of the spectrum are those who believe that having the right culture is central to development. Kahn (1979), Hofstede, Hofstede, and Minkov (2010), and Bellah (1985), for instance, follow the tradition of Max Weber's *Protestant Ethic* and argue that certain patterns of personal attributes predispose a society to engage in economic progress. For instance, they argue that the 'Confucian ethic' was suitably similar enough to the 'Protestant ethic' to achieve similar economic outcomes.

Many of the economists who have tried to take culture seriously have engaged in what Lavoie and Chamlee-Wright (2000: 62-67) call "checklist ethnography." These studies use research techniques that isolate a few specific variables, and then gather data that can be compared across societies. Their main target is Harrison (1992), who explicitly distinguishes between cultures that are favorable to wealth creation and those who are not. Harrison argues that certain cultural attributes are 'progress prone' while others are 'progress resistant.' The problem with this analysis is that it flattens cultures, making them single-faceted, unchanging, and simplistic. Harrison's conception of culture plays the opposite role that it does for most economists: instead of being endlessly adaptable, rendering culture a 'nullity' for economic analysis (to borrow Jones's (2005) term), it becomes the fate of that society.



## **The Role of Culture in Economic Analysis**

The proper role of culture in economic analysis is, I believe, a Weberian reading of the ‘New Theory of Consumer Behavior’ advocated by Becker and his coauthors, in Michael and Becker (1973), and Stigler and Becker (1977). I share most of the arguments for the role of culture in the economy that are found in Storr (2013), which I will come back to after explicating my viewpoint below.

In pure economic theory, all changes and differences in outcomes are the result of changes in relative prices or changes in income, both as subjectively understood by the human actor. Each individual pursues his or her ultimate ends using combinations of means acquired in different ways: means acquired by experience or active skill acquisition (human capital), machinery or other aspects of the physical environment (physical capital), and aspects of the social structure that provide means for individual’s to pursue their ends (social capital).<sup>7</sup> Culture, as suggested above, is an aspect of human capital. Like human capital’s role in traditional production, culture can be acquired either deliberately (like education) or through experience (like learning-by-doing). An individual’s past investment and experience will determine how he perceives an object:

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<sup>7</sup> Arrow (2001: 4) argues that the term ‘social capital’ ought to be abandoned, largely because social capital lacks the characteristic of being a result of *intentional* sacrifice by an actor of present gain for future gain. While intentional investment is an important source of capital (be it social, human, or physical), the productivity of action depends not on its past sacrifice, but in the tools available to it. Stigler and Becker’s consumption capital (as an aspect of human capital) is not always the result of intentional investment; the drug user whose consumption capital profile adjusts to require a greater quantity of the drug to receive the same ‘high,’ has not done so intentionally. ‘Learning-by-doing,’ though not considered an aspect of human capital upon the concept’s introduction to economics by Arrow (1962), has been considered an aspect of society’s portfolio of human capital since Romer (1991). The pure intentionality aspect of capital is not necessary for changes in the incentive to invest to affect the time structure of production: changes affect action on the margin as long as any investment is intentional, and greater rewards to investment will affect the types of enterprises that unintentionally invested more through the market’s evolutionary selection process, a la Alchian (1950).

as a good, a bad, or as irrelevant to his plans, and the magnitude of satisfaction (or dissatisfaction) that the individual can get by combining his time with those objects.

Economic theory treats changes in culture as changes in the relative price of satisfying ultimate ends: for instance, a young American will be able to combine his time with certain types of music to produce enjoyment, while someone who is older may find that hearing that same music brings him discomfort. The ‘price’ of enjoying music is higher for the older person, given the available music, than it is for the younger person. If the economist had perfect knowledge of both of these people’s lives, then ‘culture’ would play no part in his explanation of this difference in human capital profiles—the accumulation of the capital could be traced to concrete events and facts with known cognitive processes.

Economists rarely enter worlds where they have anywhere near full knowledge of each individual’s past experiences. This imperfection of knowledge makes it important for the economist to pay attention to culture. Every time an economist runs a regression on some phenomenon’s effect on different parts of the world, they smuggle in an implicit assumption: that in every part of the world the people interpret the phenomenon in the same way. For instance, when economists contrast Common Law and Civil Law countries and their relative success in development, they implicitly argue that the law has the same meaning in each place. To effectively study the effect of the law on development, the economist must discover if their implicit assumption is true. If Common Law, which gives greater power to judges than Civil Law, is the law in a place where government officials are of low social status, then the court will not be able to

enforce its judgments with any credible commitment and its efficacy will be very different from the Common Law as practiced in a society where government officials have some respect.<sup>8</sup>

The economist who comes to study this problem must grapple with culture. The economist's inexperience with every country will mislead him into attributing meanings to behavior that may differ wildly from the meanings that the people in the situation attribute to the phenomena. If the goal of the economist is to explain the differences in behavior of two different groups, culture may indeed be the best explanation.

But it is only an explanation because the economist's knowledge is limited. The economist can see neither sharply into the past nor sharply into others' hearts. Every difference in the action of people, and every difference in the actions of the same person over time, has some explanation rooted in concrete facts that affected (perhaps only subconsciously) the individuals. The person who ordered orange juice at breakfast yesterday but milk at breakfast today may today be suffering from a minor calcium deficiency, may enjoy variety, or may simply have glanced at milk on the menu first this time. Each of these things is a change in relative price of orange juice and milk in their ability to satisfy his ultimate ends. Neither the economist nor perhaps the man himself may know the source of the difference, but the framework of economics imposes that

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<sup>8</sup> These sorts of discussions, re: the common law and civil law, highlight the essentially Weberian nature of much of modern economics. Economic models are ideal types, as are econometric specifications. Unfortunately, they are not self-consciously so, which means that they are often done poorly and without acknowledging they are ideal types.

changes in action be from subjectively felt changes in prices or income. To proclaim a change in culture a *final* cause of a change or difference is unsatisfactory.<sup>9</sup>

Yet, in reality we are often left with unsatisfactory answers, at least if we limit ourselves to those answers that are true to the best of our knowledge. Large changes in economic outcomes may have very subtle causes that suggest themselves only through the most inconspicuous traces. An overprinting of a children's book that aggrandizes the engineer may explain the abundance of engineers to emerge a generation later from a low-income neighborhood where the publisher unloaded the extra copies. What the book did was change relative prices for those children, to make becoming an engineer a cheaper way for them to achieve their dreams than otherwise. Unless the economist uncovers this fact, his best explanation for the abundance of engineers in that neighborhood is its peculiar culture.

To clarify my earlier assertion, economists need to pay attention to culture at the beginning of their inquiry into a question because they are ignorant of the history of the objects of the inquiry. If the economist had been raised in that neighborhood (perhaps learning at some point that economics was engineering for the world), he would be able to call upon his specific knowledge of his childhood to answer the question of why so many engineers came from his neighborhood: the popularity of a children's book lowered the price of becoming an engineer. Of course, his inquiry is not truly complete, because further questions always arise, such as: Why was the book popular? Why did the publisher choose this neighborhood? Can this effect be repeated in other neighborhoods,

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<sup>9</sup> 'Culture' as a sense of people's art, literature, music, and other aesthetic objects, however, can have a direct causal effect on social outcomes.

today? These answers will lead to further questions. What this economist has done, at this point, is eliminate culture as the best answer to explain the phenomenon (probably resting the conclusion on other questions that can only be answered well by referencing culture).

Many object to Beckerian approach to economic theory by arguing that differences or changes in tastes are, in the real world, motivators for differences or changes in outcomes. These criticisms mistake the role of tastes in economic theory for the role of tastes in conventional discussion. To insist that tastes are constant is to insist that every change has some cause; to insist that ‘tastes,’ as in people’s inclinations, are constant is an absurdity. For instance, Caplan (2003) insists that preference-based explanations are meaningful and empirically important. He shows that personality psychology provides insight into people’s behavioral patterns. If the economist rejects these findings based on an insistence that ‘tastes’ are constant would rightfully leave economists unfit to study social phenomena. Instead, what the economist insists is that economic theory interprets these changes in terms of relative price changes, rather than changes in tastes.

Yet there remain real problems with the application of the Beckerian approach. The first problem is stylistic. Economists and people who read their work are embedded in a society that uses the same terminology as economic theory in different ways; the misunderstanding of ‘tastes’ is an example. The terminology of economic theory as a linguistic lens makes certain explanations more convincing than others. Things about material wealth are easier to communicate than ‘non-economic’ (in the classical or colloquial meaning of the term) phenomena. The statement that “child abuse changes the

profile of the child's human capital such that the price of entering into informal arrangements (i.e., trust) increases, reducing the child's future income," while it may be true, strikes readers as somewhat off. The impersonal terminology used in the (colloquially) economic sphere does not match the deeply personal nature of the phenomena. The mismatch of styles of thought create misunderstandings in interpretation of economic analysis, a misunderstanding that seems to lie at the heart of many critics of Becker's work on 'non-economic' subjects.

The more substantive criticism is that the Stigler-Becker approach fails grapple with the implications of agent heterogeneity as seriously as their approach implies. Agent heterogeneity makes the use of large-scale quantitative studies questionable. While they can be justified as Weberian 'ideal types,' they hold much less power than they do when economic models are assumed to represent the actual motivations of agents. Agent heterogeneity also requires that the economist take into account any 'emergent' aspects of social phenomena. As the previous section discussed at length, underlying economic variables do not translate into unambiguous outcomes; small differences in the order of events or the placement of people can create large differences in outcomes. This criticism implies that economics must embrace qualitative methods (Storr 2013: 90-95 makes a more in-depth case) and be more comfortable with ambiguity.

The substantive conclusions advanced in Storr (2013) are echoed here. Economists should pay attention to aspects of human life that economists have often ignored, embrace qualitative studies, and not abandon economics in the process—and most attempts by economists to integrate culture into economics have been

unsatisfactory. However, the approach advocated above departs from Storr in one (largely semantic) way: Storr (2013: 49-54) rejects talking about culture as capital, while I maintain that to discuss culture, it must be discussed as an aspect of individuals' human capital.

### **The Industrial “Revolution”**

Sociologists, economists, and historians have many different answers to the question of Why Europe? Not all of them are amenable to interpretation through the lens of dynamic social change, instead relying on geographic or genetic factors, or some other long-term lock-in. I will review, in brief, a small subset of those arguments that are not amenable to combination with the literature surveyed above, but I will focus most of my energy on those arguments where there is some gain in framing the argument as an episode of transgressive social change. Even among the subset of these arguments I am only touching the surface of the work done on this question; for a more in-depth review of the literature, Mokyr (1999 and 2009) Landes, Mokyr, and Baumol (2010) provide a useful entry point, while McCloskey (2010) offers a more critical review of the contemporary literature, and Chapter 3 of this dissertation reviews the literature on the British Industrial Revolution in greater depth.

In broad strokes, the dynamic social change literature provides a useful frame for understanding modern economic growth as a social change. First the threshold literature tells us that divergent social outcomes need not be matched by equally divergent preferences. A small number of instigators can precipitate a large change in social behavior. An influx of commerce friendly people—such as the Huguenots from France to

Protestant-friendly nations through the 16<sup>th</sup> and 17<sup>th</sup> centuries—can decrease the cost of following their lead. The threshold literature also tells us that social change can come quickly, and Kuran's work tells us that these rapid social changes may be unpredictable ex-ante, though not inexplicable ex-post.

Because social outcomes do not follow cleanly from individual preferences, merely knowing the culture of a group of people is not sufficient in understanding how culture affects social outcomes. To fully understand the connection between culture and the economy, the institutions that channel and shape the beliefs and encourage or discourage collective conservatism must be taken into account. Two nations that have both privately adopted positive attitudes towards commerce may have different public outcomes if they started from different belief structures. Two places that started with the same beliefs and follow a similar path of belief change also need not look the same, because one may break from collective conservatism while another does not, perhaps from a highly influential individual that opposes or embraces commerce.

Direct comparisons (and regression analysis) can both over- and under- estimate the effect of beliefs of economic reality given these discontinuities. If economic change occurs at some critical mass of belief change, or at higher probabilities with a greater proportion of support for commerce, evaluating societies near this critical mass will give the impression that beliefs are much more important than they are. If a critical mass of 60% support for commerce causes modern economic growth, comparing a society with 58% and one with 62% support of commerce will give the impression that a 4% shift in opinion causes a huge difference, when in reality the changes are non-linear. Where



collective conservatism and therefore path dependence matter in the translation of beliefs to economic outcomes, direct comparison will vastly underestimate the effect of beliefs on outcomes. It may be the case that residents of Moscow support market institutions more than residents of New York City: a simple analysis would conclude that, since New Yorkers are richer than Muscovites the support of commerce does not make people richer. In reality collective conservatism and institutional stickiness prevent beliefs from translating cleanly to results.

The McAdam, Tarrow, and Tilly project suggests that: environmental changes often instigate social change and that opportunities and threats derived from environmental changes must be actively interpreted and do not have deterministic effects, instead operating through specified cognitive and relational mechanisms. A society that transitions to modern economic growth would have been spurred to change by some exogenous event that instigates the change and allows people to discover opportunities or perceive threats. Two groups exposed to the same exogenous event may respond in two different ways—ultimately, the responses are historically contingent and can be influenced by a single persuasive individual. Possibilities for the originating events for the Industrial Revolution that different authors have suggested are: the Black Death (North and Thomas 1975: 72-76), which reduced the price of agricultural goods relative to manufactured goods, by increasing wages relative to rent and encouraging investment in labor saving technology; the discovery of the New World (e.g., Ringmar 2007) and the subsequent trade (e.g., Acemoglu, Johnson and Robinson 2005, Findlay and O'Rourke 2007) or imperialism (Mielants 2007), the invention of the steam engine (Marx

[1847]1955: 49: “The hand-mill gives you society with the feudal lord; the steam-mill, society with the industrial capitalist;” Marx also cited enclosure) that allowed for Britain to exploit its coal endowments ((Wrigley 1988, Pomeranz 2000, Allen 2006, Harris 1988, Ridley 2010: 214), though their mechanisms of change differ) or allowed cheaper transportation (Szostak 1991). Depending on the particulars of each author’s argument, certain mechanisms described in McAdam, Tarrow, and Tilly can fill in some of the details suggested in each argument; I will discuss particular cases below.

### **The Mechanisms for Bourgeois Dignity**

Deirdre McCloskey (2010) believes that the major cause of the hockey stick of economic history is due to “[a] big change in the common opinion about markets and innovation (McCloskey 2010: xi).” This change “caused the Industrial Revolution, and then the modern world. The change occurred during the seventeenth and eighteenth centuries in northwestern Europe. More or less suddenly the Dutch and British and then the Americans and the French because talking about the middle class—the ‘bourgeoisie’—as though it were dignified and free. The result was modern economic growth.” McCloskey is convinced that this change in opinion caused modern economic growth, but does not provide a mechanism by which this change of opinion occurs.

McCloskey’s argument dovetails well with the literature on social change: the change was sudden—revolutionary—and it was the product of cognitive and relational mechanisms rather than major environmental ones. McCloskey (2010), as a second part of her ‘bourgeois era’ project, primarily deconstructs the major arguments in the literature, leaving an explanatory hole that only rhetoric and ideas can fill. She argues that

the empirical weight of the material arguments for the Industrial Revolution is too light, even when the arguments are weighed together. Her method is Holmesian: once you eliminate the measurable possibilities for the Industrial Revolution, what remains must be the truth. She points to changing fiction and language: the word ‘honest,’ she notes, originally meant aristocratic, but during the Industrial Revolution came to mean keeping one’s word, something important in commercial society.

But, why would people start acting differently towards merchants and innovators in Northwestern Europe at the end of the seventeenth century? It is here that McCloskey’s argument benefits most from the revolution literature. The first lesson is: look for some environmental mechanism when trying to explain any revolution. The Dutch Republic lost its nobility during the Eighty Years’ War, which McCloskey suggests may have dampened any admiration for them. The second lesson is to look for cognitive mechanisms: how does the framing of commerce and innovation change over time? The Dutch celebrated trade ships coming and going, and new financial instruments allowed everyone to participate in these overseas adventures. The *celebration* of trade and profit in public is a cognitive mechanism of identity creation, and the identity was one involved in trade. The *certification* of commercial activity (but not consumption) by the Protestant churches makes commerce seem virtuous. This argument harkens back to Weber’s famous argument about the Protestant Ethic and the spirit of capitalism, though McCloskey distances herself from Weber. What relational mechanisms would have been at work in the Dutch Republic’s transition to economic growth? The social appropriation of the financial system into the military, which would already have been seen in a

positive light by the Dutch, would transfer additional credibility to commercial actors. If the Eighty Years' War is the environmental mechanism behind the Dutch transition to modern economic growth, what is the rest of Europe's?

**Acemoglu, Johnson, and Robinson**

Acemoglu, Johnson, and Robinson (AJR) present another environmental mechanism that relies on different historical contingencies. In their story, inclusive political institutions are the ultimate cause of modern economic growth, though the expansion of trans-Atlantic trade is the proximate cause for countries that had succeeded in restraining the executive branch. European countries developed two separate ways for the state to make money from trade: it could either directly control it, and pay merchants to trade, or it could let merchants trade freely and demand some portion of the benefits. In long-run equilibrium, the state and merchants would have the same distribution of power in either arrangement. An exogenous shock—the introduction of trans-Atlantic trade and increasing trade between Europe and Asia—wound up affecting different power sharing agreements differently. In Britain and the Netherlands, commercial interests, who had the incentive to push inclusive 'capitalist' institutions, were politically separate from the monarch, while in Spain, France, and Portugal commercial interests were under the umbrella of monarchical power. Atlantic trade—while not economically significant enough to cause economic growth on its own—tipped the scales of political power between the traditional aristocratic interests and the 'bourgeoisie.' In Britain and the Netherlands, where commercial political interests were separate from the state's political interest, the power of the bourgeoisie increased and they were able to impose capitalist

institutions, which in turn spurred long term growth. Where the monarchy had control of trade, Atlantic trade simply increased the wealth of the monarch. In those countries that had separate commercial and aristocratic interests, but did not have access to Atlantic trade, such as Switzerland and the Italian City-States, Atlantic trade could not tip the balance of power in favor of commercial interests.

The story told by Acemoglu, Johnson, and Robinson is, like the stories of McCloskey, a story of sudden social change that leads to economic growth. Their story is also the simplest: two types of social spaces for commerce had emerged, one where commerce was separate from the monarch, and one where commerce took place in the same social space as monarchical rule. When commerce expanded and pushed the balance of power out of equilibrium, capitalist interest in Britain and the Netherlands were able to appropriate the commercial space for political ends; social appropriation of the commercial sphere was impossible in Spain, Portugal, or France. The interaction between an unforeseen expansion of trade and the historically contingent distribution of political power is what caused the Industrial Revolution, not anything special about Britain or the Netherlands.

### **Capital Cities and Collective Conservatism**

Distance, both social and geographic, from positions of authority will affect the probability that an episode of social change occurs. I will argue that distance from positions of authority matters for any episode of social change, and that this has implications for both the study of social change that adversely affects existing authority and for the transition to modern economic growth; this mechanism generalizes the insight

of Acemoglu, Johnson, and Robinson as it is recast in the ‘revolutions’ literature. When looking at any discontinuous social change, I will argue, one should not only look for environmental mechanisms changes, but also for a social space that is distant—geographically and socially—from the current center of power. The distant social space can be appropriated by those wishing to break free from collective conservatism. I will combine the insights of the two strands of the ‘revolution’ literature to build this mechanism and argue, briefly, that this mechanism was active in Japan’s transition to modern economic growth.

Society is, in a sense, a topographic web of relationships extending through many dimensions. These dimensions are subjective to each actor, but where they are sufficiently similar between actors they can be (imperfectly) mapped. A social space exists where these ‘webs’ of relationships are particularly concentrated. People concentrated together in geographic space are more likely to share a social space; in many places and times class, ethnicity, type of employment, religion, and so on were dimensions along which people were socially close or distant (Bourdieu 1985: 724). Social spaces are not static entities; social entrepreneurs can broker connections between different social spaces, and can even create new dimensions that frame ‘us’ as close and ‘them’ as far, excluding political opponents from a social space or including political allies in a new one.

In Spain, France, and Portugal during the sixteenth and seventeenth centuries, the people who gained most from Atlantic commerce were part of the same social space as those in charge of the state. As Acemoglu, Johnson, and Robinson point out, Atlantic

trade simply strengthened the state. Britain and the Netherlands, instead, had somewhat separate social spaces for commerce and the state—in the Netherlands the state may have become subordinate to commerce, as discussed earlier. When resources flowed into commerce from the new trade routes, the existence of separate social spaces allowed for political entrepreneurs to appropriate the social space of commerce to create institutional change. The story of social distance allowing for lower-cost challenges to the status quo is likely to be repeated whenever a discontinuous social change takes place; whenever a political or social authority has jurisdiction only over people who are close to them, the status quo is most likely to persist. The capital city of any political authority will tend to be a place where change is dampened.

The model of this argument, in its simplest form, contains two ‘types’ of agents: high status and low status. High status agents control more resources than low status agents. When high and low status agents are in the same social space, low status agents have the incentive to imitate high status agents in their language, manner, and opinion. The desire for imitation comes from the social benefit that agents receive from looking more like high status agents: ‘homophily’—looking like each other—breeds trust, and undertaking costs to look high status signals higher quality. Low status agents who imitate high status agents are more likely to be able to do business with high status agents. In Kuran’s framework, this is equivalent to conferring a benefit to professing a policy position that they do not ‘privately’ believe. Like the Kuran framework, this public endorsement will, in the long term, increase the probability that people come to privately endorse the ‘conservative’ policy position as people look to their social space to discover

what they believe what is right and what is wrong. The set of beliefs that give legitimacy to the high status agents (that in fact make them high status agents) will eventually become codified, believed to be legitimate not just by those with high status, but also those with low status.

In the case where high status agents are socially distant from low status agents—at the extreme in the case where high status agents reside in a separate city from low status agents, the incentive for low status agents to imitate high status agents goes away, opening up the possibility that low status agents come to celebrate what makes them ‘low’ status. If some exogenous force, or environmental mechanism, shifts the balance of power or the distribution of resources in favor of the low status agents, it is more likely that the set of beliefs developed by the low status agents will provide legitimacy to a new set of institutions that favors them, in a way that is not the case where low status agents have come to believe the high status belief set. As I briefly chronicle below, Japan’s Tokugawa period contained two cities that represented this extreme distribution: Osaka as the home to the ‘low status’ merchants, a social space largely free from ‘high status’ samurai, and Edo as the home to the samurai, with a merchant class that took pains to embrace samurai culture. Osaka’s values and ideology would come to reflect its merchant character, which would influence some of the institutional changes in Japan’s transition to modern economic growth.

The basic threshold model can be extended to allow for different agents to carry different weight in ‘activating’ other people’s action. To use the riot example again: assume that a group of low status agents are in a riot situation, and when an individual is



deciding to riot or not he weights people by their ‘influence,’ and only weights other low status people. If ‘influence’ is a function of an individual’s access to resources, and his access to resources depends on the margin on professing high status beliefs, the people who have the most influence will be those who are least likely to instigate a riot. The probability of a break from collective conservatism—if that is what the riot signifies—will be lower in the social space shared by low and high status individuals than in the social space where low status individuals cannot gain resources by imitating high status individuals. A larger social distance from high status individuals makes collective action on the part of low status individuals, such that it breaks the hold of collective conservatism, more likely. In the case of Osaka, and in AJR’s story about Britain and the Netherlands transitioning to modern economic growth, the beliefs held by the ‘low status’ individuals resulted in capitalist institutions—but this is only because of the historical contingency that made merchants low status individuals. Where low status individuals have a different role in society, their beliefs may transform society in other ways.

The development of the nation-state, then, may have been an important factor in the transition to modern economic growth, because it creates a city-social space with some distance from the capital city. Improvements in transportation, in addition to lowering transaction costs and expanding the extent of the market, created agglomeration effects in political governance. The administrative capacity of nation-states increased with the improvements in communication and transportation, making possible more social spaces that were distant from administrative centers. Government by ox-cart, as Cowen (2009) described low-technology administrations, is rather difficult over long

distances. Isolating government administration may have perverse effects on the quality of governance, as Campante and Do (2012) demonstrate for state governments in the United States, but isolated administration makes breaks from collective conservatism more likely, something that the rapid increase in social change worldwide makes evident.

When ‘productive’ and ‘unproductive’ members of society share the same social space, and the latter have control of resources, the social effect of the ‘low status’ adoption of ‘high status’ norms may be devastating. As Murphy, Shleifer, and Vishny (1991) and Baumol (1991) argue, the growth or stagnation of a society depends on the relative allocation of effort between productive, unproductive, and destructive activities. Where ‘high status’ means being ‘unproductive,’ the effect of high and low status sharing social space will be an overall transition of that space away from productive activity, and economic stagnation; the exemplar is China’s Confucian bureaucracy—anyone who tested into it could gain control of social resources, meaning that anyone who could afford to train their children for the test were part of the same social ‘space.’ China’s bureaucracy stands counter to Japan’s, which was determined by heredity. Any transfer of ‘unproductive’ resources to low status groups had to be done informally, and wealthy merchants could not hope to train their children to be bureaucrats, thus making them more socially distant from the bureaucracy and less willing to engage in ‘unproductive’ behavior. The opposite case could exist; one where unproductive members of society were low status, and had to imitate productive members of society in order to gain access to resources, in turn increasing economic prosperity.

### **Social Distance and the Case of Osaka**

In 1583, Toyotomi Hideyoshi built Japan's greatest castle in Osaka, and chose that city as his capital. Hideyoshi was one of Japan's unifiers; one of his generals, Tokugawa Ieyasu, would found a dynasty that would rule Japan for two and a half centuries of relative stability. When Hideyoshi died in 1595, he named his young son Hideyori as his heir, and entrusted Hideyori's development to five regents including Ieyasu. Hideyori grew up in Osaka, in his father's castle, until he reached the age he was supposed to take his father's position. In the meantime, Tokugawa Ieyasu took power from the other four regents and completed the unification of Japan. Once Hideyori came of age, he was a threat to Tokugawa rule; after two major battles, Ieyasu leveled Osaka castle, and ended the Toyotomi line. To prevent any further rebellious activity from rising in Osaka and threatening his capital in Edo (now Tokyo), he built a poorly defensible castle and left only a small number of samurai in the city. He was successful in preventing the rise of any military presence in Osaka for several years, but in doing so he created a social space that was nearly devoid of the high status samurai. Osaka would be revolutionary not in action, but ideas, which would have lasting results on Japan's governance upon the fall of the Tokugawa government. Osaka's social space could be appropriated by the intellectual opponents of the Tokugawa, and eventually its political enemies.

To briefly overview the period under consideration: Tokugawa Ieyasu's unification of Japan would be final, and his family would reign as shoguns (military heads of the central government) from 1602 to 1868. Ieyasu continued Hideyoshi's plan to implement a hereditary status system, and divided the people of Japan into four

statuses: descending from samurai, peasants, artisans, and merchants. The status system was loosely based on the Neo-Confucian system in China, but without the possibility of ‘testing’ into a higher status, like in China: a common samurai saying was “the offspring of a toad is a toad; the offspring of a merchant is a merchant (Sheldon 1973: 140).” The Tokugawa shoguns shared power with over two hundred domain lords (daimyo) and the samurai made up the state bureaucracy. During this time, the capital city Edo boasted a population that sometimes surpassed a million, making it the largest city in the world at this time. The population was half samurai, compared to samurai’s total share of 7% of the total population. Osaka was less than half the size of Edo and had a tiny samurai population. During most of the Tokugawa era, Japan largely isolated itself from foreign entanglement: the only legal interaction with foreigners occurred on an artificial island off Nagasaki, and it was restricted to a small number of Chinese and Dutch (the latter because it was the only European power willing to trade without evangelizing).

In 1853, Commodore Matthew Perry arrived near Edo with four warships. This ‘environmental’ mechanism signaled the end of Japanese isolationism and was a catalyst for the next fifteen years of political contention. His trip was but one of several attempts by Western powers, especially the United States and Russia, to open Japan to foreign trade. In the background of this was China’s defeat at the hands of Britain in the Opium wars, which demonstrated the superiority of Western military technology and the tactics that they were willing to use to gain control of trade. The sudden shock of foreign intervention coincided with a weak point in Tokugawa rule—the shogun Ieyoshi died in 1853 and his successors were weak (Iesada ruled for five years and was a weak ruler,

while Iemochi was a teenager when ascending to the position)—the combination of which created a gap in political power. The gap was filled by forces from the southwest of Japan and the Imperial court, who would, after defeating the final shogun Tokugawa Yoshinobu, declare the restoration of the emperor to political power in the Meiji Restoration.

Osaka was a city of merchants and artisans, and was a city whose fate rested on commercial activity. It was a major port, and was the home to the world's first futures market, the rice market Dojima (West 2000). Most of the consumption goods on the way to Edo first passed through Osaka, as did most of Japan's rice. While many of the ultimate consumers of goods passing through Osaka were samurai, the samurai did not occupy the same social space. The dearth of samurai allowed Osaka's beliefs to deviate from those held in Edo; the merchants would appropriate the social sphere to satisfy their own identities. Merchants in Edo, on the other hand, would compete to be able to best imitate their samurai customers, and the social sphere would remain dominated by samurai status. While Osaka and Edo began the Tokugawa era with similar cultural identities—Osaka was close to the imperial capital of Kyoto and had been Hideyoshi's military capital just before the Tokugawa era—these identities would diverge greatly in the Tokugawa period.

The first evidence of the cultural divergence was in Osaka's fiction: two of Japan's greatest writers, Ihara Saikaku, a poet and novelist, and Chikamatsu Monzaemon, a playwright, would emerge in Osaka at the end of the seventeenth and beginning of the early eighteenth century. While Ihara was born into a merchant family and Chikamatsu to

a minor samurai family, both had a similar innovation: rather than only writing stories about great military leaders, they wrote stories about common people with common problems. Chikamatsu (see e.g., 1969: 39-56) features merchants in love with prostitutes, merchants dealing with broken promises and contracts, merchants struggling to maintain good commercial relations, and so on. Ihara's most interesting work, from the point of view of discovering the values of people in Osaka, is *The Japanese Family Storehouse or the Millionaires' Gospel Modernized*. In it Ihara's (1969: 58-60) mouthpiece describe a "millionaires' pill," whereby anyone can get rich as long as he takes the pill's ingredients of early rising, economy, hard work, and the family trade and avoids "certain noxious things" like expensive clothing and women, the tea ceremony, and excessive spending on music and art lessons or on religion. Many of Ihara's vices are some of the most important aspects of samurai and Edo culture: loyalty and ceremony. It is no coincidence—in Ihara's stories about the samurai, according to de Bary (1989: 28), "these stories leave a final impression of the warrior class as useless, misguided, and worthy of sympathy rather than admiration." The move towards egalitarianism in Osaka's literature and theater was significant not just because it appealed to people who were going through problems similar to the characters, but in the virtues that the move implied. The ideology of the Tokugawa regime was strictly antiegalitarian: samurai dominance was justified by their role preventing society from descending into chaos—one of Hideyoshi's justifications for implementing a hereditary status system was that social mobility caused much of Japan's instability prior to the Tokugawa period (Howland 2001: 355).

The philosophy written in Osaka similarly diverged from that in Edo. In 1724, a group of Confucian scholars founded the Kaitokudō Merchant Academy, a school meant both to study the nature of virtue and to teach merchants practical skills. The school would be the center of thought on the place of merchants in society, some of the thought based on Neo-Confucian principles, but some of it rejecting the validity of Neo-Confucianism altogether. The founders believed that Neo-Confucian principles could justify the position that merchants had the same access to virtue that samurai did, rather than virtue being something only a select few could access. Early Kaitokudō scholars, who were disciples of the great Neo-Confucian scholar Ito Jinsai, justified their positions based on the book of Mencius, one of the four Confucian books (Najita 1987: 26). Virtue was universal and found in human nature, not the nature of people at the top of the hierarchy (Masao 1974: 56-7). Later scholars, particularly Nakai Riken, argued instead from another of the four books, the Doctrine of the Mean. In order to act virtuously, one must act on the mean between extremes—but, as Riken pointed out, situations did not have some ‘objective,’ pre-determined mean, they had to be subjectively interpreted by active agents, and this fact proscribed a special samurai access to virtue. Other scholars, in particular Tominaga Nakamoto and Yamagata Bantō, rejected Neo-Confucianism, or any spiritual foundation, as the basis of virtue. Tominaga (1969: 195) argued a strong historicism, writing, “In any event, Buddhism is the Way of India, Confucianism is the Way of China, and since they are of other countries, they are not the Way of Japan. Shintoism is the Way of Japan, but since it is of other times, it cannot be the Way of the present-day world.” Spiritual works were unreliable, not only because their truth is

historically contingent, but also because scholars along the way had distorted their message for their own self gain. If Tominaga's argument is true, then the samurai cannot claim to have access to any moral superiority over commoners—at least, not in the present day world. Yamagata, a wildly successful financier, wrote his treatise *In Place of Dreams*, rejecting the spiritual epistemological foundations of the Tokugawa regime. He suggested that instead of relying on tradition and holy works, Japan would be better founded adopting an approach to knowledge similar to the Dutch: the scientific method, exemplified in the rare Dutch works that made it to Japan through Nagasaki, would eventually weed out falsehoods that might persist if only texts are relied upon for knowledge (Najita 1987: 256). In addition to the philosophical attacks on the Tokugawa orthodoxy, the Kaitokudō produced a number of direct attacks against the Tokugawa regime: Nakai Riken wrote a history of the Tokugawa regime describing them, not as the saviors of a chaotic civil war, but the family who succeeded by being willing to betray the most people. Kusama Naokata piled on the criticism of the Tokugawa in his history of money in Japan, which featured a number of improprieties and debasements by the Tokugawa regime especially in their attempt to maintain the purchasing power of their tax base given the declining relative price of rice throughout the Tokugawa period.

Osaka's transition to a pro-trade and (relatively) egalitarian set of values put it in a strong position come the opening of Japan to foreign trade. Just as the separation of commercial interests and aristocratic interests in Britain and the Netherlands allowed for capitalist interests to succeed when trans-Atlantic trade disrupted the balance of power in those countries, the separation (in this case social and geographic) of commercial and



aristocratic interests in Japan allowed for the establishment of institutions that were relatively favorable to growth. The engineers of the Meiji Restoration could appropriate the space and ideas of Osaka in order to garner the political power that would topple the Tokugawa regime. The emperor of Japan, by the Tokugawa period, had devolved into a spiritual figurehead who was essentially a prisoner in his palace at Kyoto, and whose only responsibility involved the preservation of certain rituals. The collapse of Japan's policy of isolation and the weakness of the Tokugawa regime created a vacuum of power, and the Imperial court would be used to try to fill it. Two western provinces, Satsuma and Chōshū, used the imperial court to revoke the legitimacy the emperor symbolically granted the shogun and to rebel against Edo. It was at this moment that Osaka's ideological innovation became relevant: the new regime rejected the fundamental superiority of the samurai and embraced a more egalitarian stance. The southwest of Japan, including Kyoto and Osaka, supported a new regime, while the northeast of Japan, including Edo, supported the shogun. During the civil war, the emperor released a statement called the Oath of the Five Articles. The Oath, while largely a move to garner popular support, is relevant for what it considers ideals: "(i) Deliberate assemblies shall be widely established and all matters decided by public discussion. (ii) All classes, high and low, shall unite in vigorously carrying out the administration of affairs of state. (iii) The common people, no less than the civil and military officials, shall each be allowed to pursue his own calling so there may be no discontent (Keene 2005: 139)." The Oath, written by the Emperor Meiji's advisors, is relevant in its rejection of the hierarchy and control of the Tokugawa regime, and reads like something produced at the Kaitokudō

Merchant Academy. The Osaka-style ideas gained currency in part because of the nature of the crisis: Osaka was one of the centers of rangaku, or “Dutch-learning,” along with Nagasaki, and Osaka’s ideology was much more compatible with a reality that involved friendly dealings with foreigners. A number of Imperial advisors even suggested moving the Imperial capital to Osaka, from Kyoto in order to signal that the new regime would be a departure from the previous way of doing things. The Imperial capital was eventually moved, but not until the end of the civil war, where Edo was renamed Tokyo (Eastern Capital).

Any number of historical contingencies can influence the transition of power between autocracies. If Meiji’s father, Kōmei, had not died at 35 years old, the Imperial regime may have looked quite different: Meiji was a teenager who wielded very little authority himself, while Kōmei was a vociferous xenophobe who had repeatedly broken precedent by attempting to influence Tokugawa policy. Kōmei detested the treaties with foreign powers, and had he lived the ideas underlying the rebellion against the shogunate may have been much different. The Meiji government was much more egalitarian and accepting of foreigners than the Tokugawa regime, while a Kōmei government may have driven out foreigners and set Japan up for a repeat of the Opium wars; or, perhaps the Imperial court would have sided with the Tokugawa regime, changing the course of Japan’s history entirely. The existence of an alternative ideology from Osaka did not imply that it would ever have an effect on policy, but historical contingencies aligned to bring them into play. As it happened, those in power pushed the ruling ideology in that direction, which may well have been responsible for Japan’s subsequent economic

success. Had Osaka not been a Second city – if, as I had suggested, Tokugawa Ieyasu had adopted it as his capital, or disbanded it after the battles against Toyotomi Hideyori, the ideology would not have been there to adopt. Kyoto may have provided an alternative vision to Edo's, but the Imperial court and Kyoto's large clerical population would have shaped that vision; another city may instead have emerged in Osaka's stead. The ideas that emerged in the Second city Osaka, though, provided more motivation for change than did emerge from a larger, similar demographic in Edo. In Edo, merchants competed with each other for access to bridging ties to the elite: merchants tried to get themselves or their daughters a place in a daimyo's household in order to learn the customs and the special dialect that emerged in Edo's wealthy district. This form of competition was just one of the ways that ambitious commoners tried to curry favor with the dominant class, and with all the attention focused on becoming like the samurai, there was little room for ideological change to come out of Edo, and a collective conservatism in support of the aristocracy was nearly inevitable in that social space.

## **Conclusion**

The above discussion about the revolutionary literature and the industrial revolution gives us some idea about where discontinuous social changes like modern economic growth can come about, although it also warns us that in many cases it is impossible to tell whether the conditions for rapid social change are being met. First, it becomes harder to create change the longer a society remains stable. Olson (1984) argues that a stable society accumulates growth-slowing distributional coalitions, but it may be the common acceptance of the state of affairs that people do not wish to speak out against

that really solidifies collective beliefs and institutions. Second, the variance of the cost of political entry will trigger revolutions. A democratic society, always having relatively low barriers to entry, will be less likely to undergo a revolution than an autocratic society that vacillates from low-to-high barriers to entry depending on ‘environmental’ effects, which leads to the third condition: discontinuous social changes will likely revolve around an exogenous change in the conditions of social life. Short-term economic growth is included among these potentially destabilizing conditions, as Olson (1963) argues. This destabilization can lead to the establishment of growth-enhancing institutions, or it can lead to the suppression of such activity.

The location of the revolution will likely be 1) dense, since it is easier for agents to observe one another (and thus be ‘activated’), and also because it is easier to transmit subversive ideas in person than over distances; and 2) socially and/or geographically distant from the center of authority. Capital cities will be less likely to be the source of discontinuous social change, unless the city is highly stratified by some factor other than physical geography. Though the capital city is less likely to be the source of social change, cities will still be the source of social change. The cost of organizing people and diffusing ideas through a sparsely populated countryside or villages suspicious of ‘outside’ brokers that are responsible for mobilizing social change will make it unlikely for social change to originate from these places.

In understanding the transition from a Malthusian economy to one experiencing modern economic growth, the factors that make for a revolution will also be important for the making of an Industrial ‘Revolution.’ The current literature on modern economic

growth either deemphasizes relational mechanisms in the transitions to economic growth, or when they are considered relevant they are often treated in the literature. Harrison's (2006) division of culture into the "progress-prone" and the "progress-resistant" glosses over the social processes that translate culture into social results. In addition, analysis like Shiller, Boycko, and Korobov (1991) that analyze the effect of popular opinion on economic growth need to take into account not just the snap-shot of opinions, but also the historical path that the opinions have taken to get to their present state; these analysis must also allow for the discontinuities that occur in social change. Much of the literature on the Industrial Revolution takes into account the discontinuity that it represents, and it would benefit greatly with an integration with the literature on revolutions more generally, to provide a greater understanding of how those places that are still stuck in a Malthusian equilibrium can achieve modern economic growth, to join the rest of the world on the "hockey stick."

## **CHAPTER TWO: NETWORK CLOSURE, GROUP IDENTITY, AND ATTITUDES TOWARDS MERCHANTS (WITH V. H. STORR)**

### **Introduction**

There has been considerable research highlighting the economic benefits of bridging social capital, social ties between individuals who are not closely connected. Granovetter (1973, 1983), for instance, has described how individuals can exploit economic opportunities with the aid of weak ties. Similarly, according to Burt (1982, 1992, 2004), people whose networks span “structural holes” are more likely to have good ideas and so are more likely to be successful in their careers.

There has also been considerable research highlighting the positive aspects of bonding social capital, social ties between individuals who are closely connected). Networks that exhibit closure tend to provide their members access to critical resources and emotional support (Putnam, 2000) and lower transaction costs between group members thus facilitating intra-group cooperation (Coleman, 1988). There is, however, something of a consensus emerging in the literature that strong ties are socially beneficial but not as beneficial as initially supposed. Indeed, several studies have focused on the negative aspects of strong ties. Portes and Sensenbrenner (1993), for example, have pointed to the costs associated with community solidarity. Specifically, where community solidarity is high, community members may feel pressured to put community desires above their own and will face demands for support from other members of the

community. Additionally, Rubio (1997) has focused on how social networks and norms can encourage rapaciousness and criminal activity rather than productive activities where there are deficiencies in the legal and educational systems and the absence of alternative socially productive economic activities. Similarly, Chamlee-Wright and Storr (2009, 2011) have described how a community's stock of social capital can become oriented away from facilitating socially productive activities and toward facilitating socially wasteful activities like rent seeking. Finally, Storr (2013: 57-8) argues that economists should follow in Max Weber's footsteps, looking at the 'spirits' that motivate actors in markets—these spirits emerge out of the motivations of individuals and the social networks that channel them.

The literature underappreciates how networks that exhibit closure promote positive social identities. Moreover, they have underemphasized how network closure can encourage members to invest in intra-group status. This paper attempts to fill this gap in the literature by examining the path of social identity and group status investments amongst merchants in Edo and Osaka, Japan, during the Tokugawa Period. The differences between Edo and Osaka during this period are quite stark. Edo merchants frequently interacted with the samurai aristocracy whereas Osaka merchants rarely interacted with them. As a result Osaka merchants, isolated from their social betters, only had to prove themselves to other merchants, while Edo merchants had to show similarity to the samurai or lose access to social and business opportunities. We argue that these differences in the closure exhibited by merchant networks in Edo and Osaka can help

explain differences in social identities and differences in intra-group status investments amongst merchants in the two cities.

The article proceeds as follows. *Section II* summarizes the literature on social networks and then extends that literature to discuss how differences in network closure can lead to differences in group identities and intra-group status investments. *Section III*, then, offers a brief history of the Tokugawa period in Japan and describes the socio-economic differences between Edo and Osaka. Next, *section IV* explains how differences in the closure exhibited by merchant networks in Edo and Osaka led to a merchant class in Edo that sought status by aping the social mores of the aristocracy and a merchant class in Osaka with positive social identities and collective narratives that celebrated merchants. We offer concluding remarks in *Section V*.

### **Theoretical Considerations**

Social capital is that aspect of social relationships that facilitates individual action.<sup>10</sup> Bourdieu (1985) has described social capital as a productive asset that individuals can access because of their possession of durable social networks. Although Coleman (1988) focused on social capital in the form of mutual trust, information channels, and effective social norms, he likewise viewed social capital as a productive

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<sup>10</sup> Kenneth Arrow (2001: 4) urges the abandonment of the term “social capital” while embracing the importance of social organization since “the term ‘capital’ implies three aspects: (a) extension in time; (b) deliberate sacrifice in the present for future benefit; and (c) alienability. The last is not true in human capital and not even entirely true for physical investment. The aspect defined as (a) may hold in part... but it is especially (b) that fails.” Social interaction is often done for its intrinsic benefit, which means that “social capital” comes about as an unintended consequence of social interaction, which Coleman (1988: S118) noted by emphasizing social capital’s public goods aspect. This paper will continue to use the term “social capital” to be consistent with the literature even though Arrow’s criticisms are accepted.



resource that exists within networks. As Woolcock (1998: 155) argues, there has emerged something of a consensus in the literature as to the nature and meaning of social capital. Social capital is comprised of networks and norms that individuals and groups deploy as they pursue individual and group ends.<sup>11</sup>

Coleman (1990: 319-320) argues that closure is a necessary condition for enabling social capital.<sup>12</sup> A network exhibits closure if there is a high degree of overlap in relationships between people in that network. Closure facilitates communication and promotes cooperation by making it easier for people to impose sanctions on group members who renege on obligations or violate norms.<sup>13</sup> Coleman (1988) illustrates the importance of closure by comparing the dropout rates of children in Catholic schools, where parent social groups exhibit closure, to drop out rates in public schools, where they do not. He finds that Catholic schools, while not having significantly different curricula or student quality, had significantly different dropout rates (3.4% compared to 14.4%, a result that is robust to accounting for income and religious observance).

Moreover, collective or shared narratives tend to evolve in networks that exhibit closure. Collective narratives express the interpretive frames that network members use to make sense of their circumstances and to decide how to act. As Gerteis (2002: 609)

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<sup>11</sup> See Reimer et al. (2008) for an interesting discussion of how norms structure social networks.

<sup>12</sup> Portes (1998: 8, 2010: 33) considers negative consequences that arise for individuals because of closure. While conceding the positive aspects, he argues that closure can also impede individuals by restricting access to opportunities by people outside the network, restricting individual freedom, imposing excessive claims on successful group members, and enabling norms that punish members who attempt to distinguish themselves.

<sup>13</sup> Positive sanctions, such as encouragement, can also reward group-oriented behavior.

concluded, “collective narratives are ... the sites where [interpretive] schemas take concrete empirical form.” Collective narratives can and do celebrate certain activities and demean others. Storr (2004), for instance, describes how the collective narratives that existed in the Bahamas encouraged certain approaches to enterprise and discouraged others. Similarly, Chamlee-Wright and Storr (2011) describes how a community’s collective narratives can shape its response to a disaster and, so, affect its likelihood of successfully recovering from that disaster.<sup>14</sup> As they explained, if community members did not believe that recovery was possible, then community recovery would be impeded whether or not community members received assistance. On the other hand, if community members thought of themselves as resilient then community recovery is likely to proceed whether or not community members received significant aid.

The simple model below describes how network closure affects the nature of the collective narratives that emerge within a social network. Specifically, where low-status networks exhibit closure and upward mobility is impossible, collective narratives tend to evolve that celebrate in-group successes and their shared identifying characteristics. Where low-status networks do not exhibit closure and it is possible for low-status individuals to earn their way into higher status groups, collective narratives tend to

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<sup>14</sup> Chamlee-Wright and Storr look in particular at the structure of social capital in the St. Bernard Parish, where the shared narrative was that of a “close-knit, family oriented community comprised of hard workers” that celebrated the blue-collar worker (Chamlee-Wright and Storr 2011). The parish, which was comprised of multi-generational families of blue-collar workers, had little interaction with neighboring parishes. When official disaster relief proved insufficient, they could expect the support of others in their community - something their shared narrative made possible. Their “go it alone” attitude helped them rebuild more successfully than parishes that were less socially isolated.

conform to those of higher status groups, which facilitates individual mobility at the expense of the celebration of the group. This relies on two basic assumptions. First, we assume that people will seek status. Second, we assume that collective narratives will both reflect and facilitate the strategies that network members can adopt as they seek status and wealth.

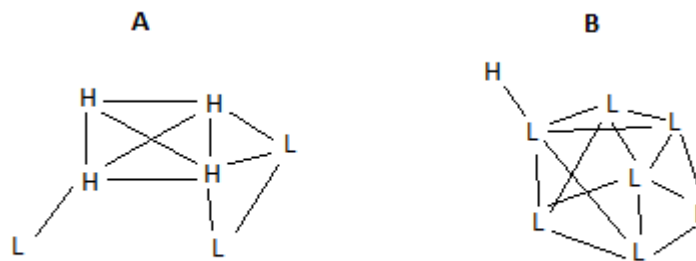
People choose to seek status one of two ways: by trying to imitate and impress members of higher status groups by trying to impress their peers.<sup>15</sup> When high status people can provide social mobility or economic opportunity to low status people, then low-status people will choose to impress high status people, internalizing the high status group identity when these opportunities are absent, low status people will choose to impress one another and bolster their own group identity. It is not merely flattery or the pleasure of spending time with someone with a shared identity that causes those of high status to engage in social or business relationships with low status people who imitate them. If someone invests in resources that are costly and unproductive, but specific to the high status group, the signal can credibly commit the low status person not to betray the high status person, since betrayal renders the investment in imitation useless. The unintended consequence of the ‘successful’ low status people imitating the high status people is a loss of a distinct group identity among those of low status.

Imagine, for instance, that individuals belong to one of two groups: members belonging to low-status group *L* and members of high-status group *H*. In situation A, low-

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<sup>15</sup> If in-group status is the highest level of status in society, then the two options are the same and there is no choice. It is also possible for an individual to promote his or her identity narrative *by* associating with higher status people and attempting to persuade people at the higher level of the virtue of the lower-status identity.

status *L*s interact with high-status *H*s (Figure 1a). In situation B, *L*s are largely isolated from *H*s (Figure 1b). An *L* can choose either to seek status from other *L*s or from the high status *H*s. Different arrangements of the social structure result in different costs structures. In situation A, trying to identify with high-status individuals is lower cost. In situation B, the *L* finds it cheaper to promote himself with other *L*s.<sup>16</sup> The collective narratives expressed by *L*s in the two situations will diverge over time. In situation A, collective narratives will evolve that celebrate upward mobility. In situation B, the collective narratives expressed by *L*s will tend celebrate their shared identity. As we will argue, this thought experiment mirrors the diverging collective narratives expressed by merchant classes in Osaka and Edo in Early Modern Japan.



**Figure 1: Differing Social Structures.** H represents individuals with a high-status identity; L represents those with low-status identity. Lines represent relationships between individuals.

<sup>16</sup> The individual's subjective judgment determines 'success.' What may be considered success by one person or group may be considered undignified in another context.

When commerce and innovation are aspects of low-status individuals, this model provides predictions for the circumstances that some segment of society will celebrate them. Countries with a fluid aristocracy (i.e. social mobility is possible) will be less likely to produce a subculture that admires commerce, since the people engaged in commerce have a potential payoff from adopting aristocratic values. Where there is a rigid aristocracy that commoners hold no hope of joining or where no aristocracy exists at all, collective narratives amongst merchants will tend to celebrate their shared identity and it is possible to see the emergence of pro-commercial attitudes. For instance, in the Netherlands, which was the first modern economy, the aristocracy was eliminated in the revolt against Spain and a lack of a Dutch King ensured that the aristocracy remained dead (McCloskey, forthcoming: 68).

We use this model to explain the differences in the degree to which the collective narratives amongst merchants in Osaka and Edo in Early Modern Japan celebrated merchant identities.

### **A Brief History of Tokugawa Japan**

The Tokugawa era (1603-1868) immediately followed the unification of Japan under Oda Nobunaga and Toyotomi Hideyoshi, which ended over a hundred years of civil war. Tokugawa Ieyasu established a hereditary line of shoguns, who headed the central government centered in Edo (present day Tokyo), and ruled jointly with over 200 domain lords (*daimyo*). In 1636, the Tokugawa closed Japan to foreigners, with the exception of Dutch and Chinese traders on an artificial island in Nagasaki, and barred Japanese from traveling abroad. The ban on foreign contact lasted until the end of the Tokugawa era when Western powers insisted Japan open their borders for trade.

American Commodore Matthew Perry's expeditions to Japan in 1853 and 1854 signaled the end of a closed nation and signaled the end of Tokugawa rule. The Meiji government, which took over after 1868, embarked on a massive modernization campaign. It was, arguably, the commercial culture and informal institutions of Japanese merchants, especially in Osaka, that enabled the success of industrialization and modernization and spurred modern economic growth.<sup>17</sup>

Hideyoshi introduced and Ieyasu formalized a four-tier hereditary status system based on Chinese Neo-Confucianism. Hideyoshi believed that the ability of children of the most lowly to rise to lead armies (as he had done), was a cause of the chaos of the Warring-States period (Sheldon, 1983: 477; Howland, 2001: 355).<sup>18</sup> The system assigned to each person a status that indicated that person's role in the polity. The samurai, at the top, had a duty to govern those below them. They made up approximately 7% of the population of Japan and, though their role was largely bureaucratic rather than military, were the only status allowed to wear swords. Below the samurai were peasants, who made up about 80% of the population and paid a vast majority of the taxes. Artisans were lower still, while merchants were the lowest social group. Both artisans and merchants,

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<sup>17</sup> As the head of the Morita house wrote in 1987, "We must realize, however, that the force that has driven Japan rapidly forward since the Meiji era to the position it holds today among the advanced industrial nations, despite centuries of pre-Meiji isolation, was powered by the skills and abilities that created the society, economy, and culture during those centuries of isolation in the Tokugawa era... it is exceedingly important to recognize that the dynamic energy generated by the rapid interactions with the advanced industrial nations was rooted in the qualitative intelligence of the people who created the socioeconomic culture of that Tokugawa era." (quoted in Najita, 2009: 21-22).

<sup>18</sup> The Warring States, or *Sengoku* Period lasted approximately from 1467 to 1573, if the rise of Oda Nobunaga is taken to be the end of the period. See, for instance, Hane (1991, 91-130) for an overview.

together known as chōnin (townsmen), were restricted to town or city life. Unlike the samurai, however, both had the legal right to engage in commerce.

The Tokugawa legal system operated on the principle of “rule by status,” in contrast to the modern ‘rule of law’ or the several and arbitrary application of law before the Tokugawa period. As Hall (1974: 45) notes, this system “assured an equality of treatment under law appropriate to the status of each individual.” While the four-status system was supposed to be fully inclusive, the shogun in fact recognized eight levels in their legal dealings. In descending order: daimyo, court nobles in Kyoto, samurai, Buddhist and Shinto priests, peasants, chōnin, 'outcastes' and finally 'non-persons' (Howland 2001: 358). Movement between (non-commoner) groups was rare, especially after the first few decades of the institution of the system.<sup>19</sup> Hall (1974: 48) suggests that the status system worked fairly well because it reflected the division of labor that would have existed anyways. The status system both entrenched the samurai and established impersonal governance.

Each status carried with it obligations to the other statuses. Samurai, for instance, had an obligation to keep order. The peasants, likewise, had an obligation to support the samurai. Since Neo-Confucian orthodoxy believed that the townsmen (i.e. artisans and merchants) were unimportant, their obligations to the other classes, and of the other classes to them, were small. As Tokugawa-era philosopher Ogyu Sorai explained, “the samurai and peasants have no means of subsistence besides their land. They are constant

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<sup>19</sup> Sheldon (1983: 482) notes that there were rare cases of merchants buying samurai status “by allying with impecunious samurai families, because (Tokugawa) Yoshimune issued a law specifically illegalizing it.”

factors in government and it is the duty and basic principle of government to see always to their well-being. Merchants, on the other hand, carry on an insignificant occupation... It should be no concern of government if they ruin themselves" (Sheldon, 1983: 478). Townspeople, in return, owed little to samurai but had little formal recourse against samurai who broke contracts or defaulted on their debts to moneylenders. If, for instance, a merchant wanted to bring a case against a samurai, he had to crawl on hands and knees to a magistrate.

### **The Divergence of Merchant Narratives and Identities**

This paper focuses on two of the three major cities during that era: Osaka and Edo. Neither Edo nor Osaka were the cities in 1600 that they would become later in the Tokugawa era. Edo, which would at one point exceed a population of one million, was not far removed from its past as a small fishing village and stood at about 60,000 people when Tokugawa Ieyasu chose it to be his capital (Chandler, 1987). Edo became the city of the samurai, in large part, because Ieyasu instituted the *sankin kōtai*, or alternate-attendance: Ieyasu compelled the daimyo's families to reside permanently in Edo, and the daimyo to reside every other year in Edo, instead of their home province. In contrast to the 7% of Japan's population that was of the samurai status, around half of Edo's population was (Cullen, 2006: 152). Osaka began the Tokugawa era as a military center and rival to Edo's power: Toyotomi Hideyoshi, Ieyasu's predecessor, had a young son, Hideyori, who Ieyasu pledged to protect until Hideyori was old enough to rule, replacing Ieyasu. Hideyori was the catalyst for two rebellions against the Tokugawa in Edo; the second, in 1615, left Hideyori dead and the impressive Osaka castle dismantled. Osaka's status composition after this incident was as extreme as Edo's, but from the conspicuous



absence of samurai. The Tokugawa feared a resistance forming in Osaka, and so removed the resources that could be used in a rebellion: the Tokugawa replaced Hideyori's formidable castle with one that was indefensible, moved the martially trained population out of the city, banned daimyo from the city, and demolished the bridges between Edo and Osaka.

While Edo and Osaka began with similar identities, rivals for political power, this similarity disappeared through the Tokugawa era. The entertainers in Osaka, according to Deal (2007: 78) produced "new literary and theatrical forms that especially appealed to the interests and tastes of the new urban class." Nishiyama (1997: 11) finds "Two clearly differentiated types of culture were now recognized. One was the culture of Kamigata [including Osaka and Kyoto]... the other was the culture of the city of Edo," though Kyoto retained an elite aristocratic community that surrounded the household of the emperor and the court nobility. The scholarship Osaka diverged from the Neo-Confucian orthodoxy, and Arnason (1997: 317) argues, "a distinctive and sophisticated merchant ideology did emerge in the course of the eighteenth-century transformation of Tokugawa thought... in Osaka." Below, we will discuss the social networks of each city in turn, and the narrative identities that emerge to represent the merchants in each of the cities.

## **Edo**

The network structure of merchants in Edo did not exhibit closure. Townsmen and samurai lived in separate quarters of the city but interacted daily. The daimyo and samurai dominated the social and economic life of the city; the primary source of income to the city was the taxes collected by the daimyo, so merchants, to succeed at business, had to cater to this clientele. In addition, the road to political and social power was

through administrative appointments gained through nepotism, which the shogun and daimyo controlled (Nakamura and Miyamoto, 1982: 238). In the service of the shogunate or daimyo, even merchants could rise up and earn the right to wear two swords and use surnames (Crawcour, 1963: 394; Howland, 2001: 356). Townspeople and lower samurai, who both achieved professional success as part of a powerful household, intermingled constantly in Edo's theater district, and Edo's famous 'pleasure quarter,' Yoshiwara. In Edo, Nishiyama (1997: 38) writes, "close relations existed among members of the warrior class, between warriors and chōnin," and notes not only the daily interaction of the two groups, but the importance of patron-client relationships among merchant houses and the powerful samurai houses.

The model presented above predicts that, as the networks of the low-status group intermingled with that of the high-status group, that the individuals of low status will seek to impress the high status group and conform to the identity adopted by the high status group.<sup>20</sup> The daimyo and his cohort in Edo quickly generated a distinct dialect of Japanese because Ieyasu forced a geographically and linguistically diverse population together with the alternate-attendance policy. Merchants, by learning to speak this dialect, would have access to relationships with the most powerful people in Edo. Townspeople of all strata competed to place themselves and their daughters in the service of these aristocratic households in order to learn the dialect (Nishiyama, 1997: 35). Men who spoke the dialect had better access to business dealings and women improved their

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<sup>20</sup> As mentioned above, the samurai had good reason to select business partners who incurred high costs to conform to the samurai identity: Edo was a low-trust environment, and by investing in resources that would be valuable *only* in relationships with samurai merchants could credibly signal that they would not betray their samurai partner.

marriage prospects (Nishiyama, 1997: 35-6). This dialect, because of the intense competition to learn it, would spread and eventually become modern Japanese.

The samurai aristocracy borrowed heavily from the customs and lifestyles of the imperial court nobles, which provided legitimacy for the new aristocracy by associating them with Japan's historic, and spiritual, rulers. In addition to the values of the imperial court, the samurai sought to glorify the samurai status: thus, it was in this period that the samurai, assisted by the Tokugawa regime, invented the "Way of the samurai" or *bushido* (Callahan and Saikaku 1979, Ikegami 2005). Playwrights and historians retroactively imputed the values of bushido, which were a combination of traditional and Confucian values, to the samurai of the past. "Eventually," Nishiyama (1997: 35) writes, "the customs and lifestyles of the top warrior stratum came to represent Edo as a whole."

Edo commoners, who came to be known as *Edokko*, embraced the identity constructed by the samurai. The *Edokko* adopted the 'manly spirit' of bushido' and abandoned prudence to match the profligacy of the daimyo, who led extravagant parades and large entourages back and forth from their domains as part of alternate-attendance (Takenaka, 1969: 142-3; see, also, Vaporis, 2005). Commoners, even those whose wealth was incomparable to the daimyo, imitated this extravagance (Nishiyama, 1997: 42). Wealthy merchants would even throw money into the streets and watch a mob gather around them collecting it (Sheldon 1983: 483). Commoners in Edo sought to signal a carefree attitude towards money, matching the low value of making money in Confucian society. The Edo commoners even embraced the violence that the samurai valorized,

settling conflicts - from love rivalries in the pleasure quarters to business disputes - with force, and Edo's streets were the most violent in Japan (Nishiyama, 1997: 38).

In a witty novelette, late eighteenth century Edo writer, Santō Kyōden, wrote up a list of five qualities that typify the *Edokko*:

1. He receives his first bath in the water of the city's aqueduct; he grows up in sight of the gargoyles on the roof of Edo castle.
2. He is not attached to money; he is not stingy. His funds do not cover the night's lodging.
3. He is raised in a high-class, protected manner. He is quite unlike either warriors or country bumpkins.
4. He is a man of Nihonbashi (the downtown area) to the bone.
5. He has *iki* (refinement) and *hari* (strength of character). (Nishiyama, 1997: 42).

Nishiyama (1997: 42) notes that, while incorrect in specific details, Kyōden's “points of pride” are representative of the *Edokko* in Edo-period literature. Jōkanbō Kōa, a near contemporary of Santō, contrasts the pride of Edo with Osaka: he rebukes the great Osaka playwright Chikamatsu Monzaemon for writing flawed commoners as heroes. Instead, Jōkanbō (1752: 460) writes, “please show me the ways of a loyal retainer, a filial son, a benevolent aunt, and a chaste wife.”

The plays, scholarship, and literature of Edo demonstrate the convergence to a near-universal admiration for the high-status samurai, and portray merchants who conduct business in adherence to the values of the samurai. Scholars who supported the Tokugawa regime saw the arts as explicitly a vehicle for “encouraging good and

chastising evil (Ando, 1703: 360).” The regime explicitly interfered in the arts when they violated Tokugawa values in extreme circumstances or mirrored too closely real events that the regime did not wish publicly lampooned, but the arts in Edo naturally came to reflect samurai values. In Edo, the *aragoto*, or ‘rough’ style of Kabuki dominated, which Shirane (2002): 236) writes, “featured courageous heroes, bold, masculine characters who displayed superhuman powers in overcoming evildoers.” For example of this ‘rough’ Kabuki, see Ichikawa (1697 a: 29-40), Ichikawa (1697 b: 45-65), Oan (Shirane, 2002: 41). The plots of these plays followed a similar pattern: some wrong is done, and the protagonist—sometimes a loyal retainer, sometimes a brother; sometimes the revenge is explicit, sometimes the avenger conceals his intentions until later in the play—punishes the evil-doer. The pinnacle of this type of art was Chūshingura, an entire genre devoted to the tale of the “forty-seven rōnin.” An incident at Edo castle in 1701 inspired the story: The daimyo of the Akō domain drew his sword and attacked a high-ranking official, purportedly after the official insulted him. As punishment, the shogun forced the daimyo to kill himself and confiscated his lands—leaving his retainers masterless (hence, rōnin). The official, however, escaped unpunished. Two years later, forty-seven of the Akō daimyo’s former retainers broke into the official’s house and beheaded him. The rōnin, then, turned themselves in, where the shogun ordered all but one to commit suicide. Almost immediately, puppet plays, literature and kabuki adaptations began to appear in Edo, and the story has become “Japan’s national legend” (Smith, 2003: 37). Moreover, the rōnins’ graves continue to attract people who come to worship.

The Edo merchant shared the samurai devotion to glory. Santō Kyōden (1785, 1790), for instance, reflects Edokko values in his merchant characters: in one story the son of a wealthy merchant, Enjirō, relies on a series of publicity stunts to achieve glory he cannot get with physical prowess (Santō, 1785). In another story the protagonist merchant, Rihei, is “the owner of the Quick and Easy Shop and dedicated himself to turning a fast profit (Santo, 1790: 713).” Edo writer Hiraga Gennai lampooned merchants in his description of hell: speculative merchants bought up the scarce land, while “One entrepreneur asked to be granted a monopoly on handling clothes taken from the newly dead before they crossed the River Between Worlds. In return, he guaranteed, whenever hell guards lost at dice, he would give them very low interest rates on the tiger-skin loincloths they pawned with him. ‘If implemented,’ said petition after petition, ‘your benevolence will spread downward for the betterment of all hell’—as if the profits were for others. Even in hell, they say, money talks. It’s a very canny place. (Hiraga, 1763:464-466).”

### **Osaka**

The network structure of Osaka was nearly devoid of ‘high-status’ samurai, and unlike Kyoto had no imperial court to inform the city’s culture. The merchant social networks, then, exhibited a greater degree of closure than could exist in Edo.

Consequently, according to the above model, the merchants would act to impress each other in their status-seeking behavior, validating those virtues that enabled smooth commerce. Early in the Tokugawa era, most successful merchant families made money through favorable contacts with the authorities (Sakudō, 1991: 147) or through dealings with incompetent daimyo (Takekoshi, 1930: 247). These privileged merchant families

were displaced by the end of the seventeenth century. In fact, the greatest of the first wave of merchant families, the Yodoya, who had essentially founded the great rice market of Dojima, were exiled and had their wealth confiscated by the shogun in 1705 (Sheldon, 1983: 483; Smith, 1979: 123). While many early merchant families were former samurai who decided to become merchants, the merchant families that replaced them were born merchants. The timid relationship between the Tokugawa and many in Osaka is shown by the difference in status given to merchant officers of the state. While these positions were highly sought in Edo, they were “not particularly welcomed” by those given the position in Osaka (Sheldon, 1973: 35).

Buyer-seller relationships within Osaka required trust given the lack of formal contract enforcement. Formal contracts were secondary to oral agreements concluded with a simple clap of the hands (Smith 1979: 85). Contract violations resulted in a loss of credit that all merchants in Osaka recognized; of course, this system of informal enforcement could do nothing to keep the daimyo from repudiating debts. Contracts represented personal, rather than legal, relationships. As a temple magistrate explained, “a contract of money loan is made with mutual trust and friendship on the part of creditor and debtor, so that it seems hardly proper to treat strictly according to the rules of law an action brought to enforce such a claim” (Wigmore, 1892 iii: 129; see also 452). While there are always exceptions, for the most part merchants were able to develop long-term relationships with each other, with Osaka being the nexus of these relationships.

Osaka merchants married ethics to commerce, which drove their success as an economic center in the absence of formal contract enforcement, and their success in

forming long-term multi-generational families and business relationships. The art, literature, and scholarship of Osaka display their commitment to frugality, honesty, and calculation. During the 18th century, Osaka had more book publishers operating than either Kyoto or Edo (Moriya, 1991: 115). Among the books were guides for common merchants authored by common merchants. These instructional handbooks taught practical information as well as offered moral considerations. The handbooks contained business advice and personal savings charts – one of which advocated saving starting at age eleven (Najita, 2009: 40). An itinerant teacher-preacher Wakizaka Gidō emphasized this in a didactic “story of a wise old man in Holland who told about a drug of well-being that was bitter and a drug of poverty that was sweet, and about vagrant people in the streets buying the sweet pill for immediate gratification” (Najita, 2009: 34).

The “floating world” (*ukiyo-e*) is the best-known genre of art and literature from the Tokugawa era. This art first emerged in Osaka and then spread to Edo and Kyoto, where it flourished (Akai, 1991: 183). It is distinguished by “maximum expression with minimum resources,” which mirrors the frugal ethic of Osaka rather than the profligate ethic of Edo (Nakane, 1991: 229).

Ihara Saikaku, son of an Osaka merchant, is probably this period’s greatest novelist in Japan and many of his writings feature an explicit merchant ethic. Merchants who are frugal and prudent end up doing well for themselves and those who are extravagant end up ruined and poor (Ihara, 1989). According to Ihara, successful merchants demonstrated “frugality, persistence, a ready mind for figures, mastery of the abacus, a pleasant manner, honesty, and imagination...while in contrast the warrior class



[was] useless, misguided, and worthy of sympathy rather than admiration” (de Bary, 1989: 31).

Ihara used the medicine metaphor in his *The Japanese Family Storehouse or The Millionaire's Gospel* (written in 1688) to discuss the value of frugality and hard work.

According to Ihara (1969: 59),

For each of the four hundred and four bodily ailments celebrated physicians have produced infallible remedies, but the malady which brings us the greatest distress to mankind-to even the wisest and cleverest of us-is the plague of poverty.

'Is there a treatment to cure this?' a poor man asked a gentleman of great wealth.

'My dear fellow,' the rich man replied, 'if you have lived till now without knowing such things, you have wasted precious years. In matters of health the best time to take preventative measures is before you reach the wrong side of forty, and you have left this consultation until rather late... I have, it so happens, an excellent nostrum called "The Millionaire Pill..."

This 'Millionaire Pill,' Ihara's character goes on to tell, should be taken twice daily and is a mixture of early rising, the family trade, work after hours, economy and sound health.

The rich man goes on to warn that "it is [also] imperative to abstain from certain noxious things," which include expensive clothing and other luxuries, involvement in the tea ceremony, sword drawing as well as other aristocratic activities and excessive participation in religion. These enjoyments, he explained, were for older men who already had established their fortunes and, then, only in moderation. Ihara emphasized, according to Shirane (2002: 47), that "money... cannot, in the end, buy love," and instead that personal success "like other commoners" comes from "individual talent... intense training, and emotional integrity rather than, as in medieval aristocratic society, through family connections and inheritance." Osaka merchants rejection of the Confucian

hierarchy is reflected in Ihara's *Tales to Various Provinces*, where, Shirane (2002: 57) writes "he concludes, 'In my opinion, humans are spooks. There's nothing you won't find somewhere in the world.' The half-humorous term "spooks" suggests a transformation, as if humans were capable of being or turning into an infinite number of shapes," an explicit rebuke of the Confucian notion that people are born into their 'shape.' Ihara is not alone in throwing off convention: Shirane (2002: 175) writes, that the style of haiku in Osaka, Danrin haikai such as that written by Nishiyama Sōin, stressed "spontaneity and freedom of form" in explicit contrast to Kyoto's Teitoku style that "tried to impose order on linked verse."

Chikamatsu Monzaemon plays similarly celebrated the values of Osaka merchants. Along with Ihara Saikaku, Chikamatsu Monzaemon was amongst the Tokugawa period's greatest dramatists in Osaka. Chikamatsu was prominent in the early eighteenth century and his medium was primarily *bunraku*, or puppet theater. Chikamatsu wrote many plays involving samurai and other great men. His greatest contribution, however, was pioneering a genre of plays about common people facing their daily problems that were presented with the same level of seriousness as the problems faced by great men (Keene, 1998: 6).

Consider, for instance, Chikamatsu's *The Uprooted Pine* (written in 1718). In *The Uprooted Pine*, Yojibei, a merchant, was falsely arrested in Osaka's *pleasure quarters* for assault. His father, though a wealthy merchant, refused to pay to get Yojibei released. "If a man's life is in danger because he has broken the law," his father explains, "he can be saved by money. This trouble would never have arisen if only Yojibei had realized that

money is so precious a treasure that it can save human lives... the more affectionately I think of him, the harder I find it to give him the money” (Chikamatsu, 1961: 151-2).

Yojibei’s father condemns him for “wicked extravagance,” or spending too much time with expensive prostitutes. Yojibei’s wife, similarly, condemns the prostitute he visits for causing him to neglect “the family business” (Chikamatsu 1961: 154). These attitudes could have been taken right out of Ihara’s *Millionaire’s Gospel*, as the commitment to hard work and frugality is seen not only as a means to an end but as a key value.

Chikamatsu reiterates this throughout his plays. In his most famous play, *The Love Suicides at Amijima* (written in 1721), the protagonist Jihei is doomed to commit suicide “for neglect of his trade” (Chikamatsu, 1961: 201).

Chikamatsu, when he wrote kabuki instead of puppet plays, pioneered the ‘soft’ style, in contrast to Edo’s ‘rough’ style. The protagonists in his kabuki plays were domestic: *Summer Festival*, Leiter and Brandon (2002: 12) note, “is based on a domestic 'world' in which commoners... are the major figures.” The protagonist in *Matahei the Stutterer*, though a samurai, is notable for having a weakness that the audience values him overcoming: he does not succeed at avenging a mentor, but simply at making the most out of his lot in life (Chikamatsu, 1708: 68-92).

The Kaitokudō merchant academy, which was the center of scholarship and learning in Osaka, similarly, celebrated hard work and frugality. Above the entrance to the school are ideographs that indicate the school is a place “to reflect deeply into the meaning of virtue” and the Kaitokudō scholars did just that (Najita, 1987: 2). Chōnin academics, everyday merchants and their children came to the academy to learn about

practical matters concerning commerce, such as how to use the abacus, as well as about how commerce was entwined with virtue. The Osaka merchants' honesty and trustworthiness became points of pride and the Kaitokudō studied and propagated these values. It will be useful to discuss the school's philosophy in greater depth, as the topics covered show the width of the gap between the narratives constructed in Osaka and those constructed in Edo.

Miyake Sekian, who founded the school in 1726, defended universal virtue in his opening lecture, in opposition to the status-dependent virtue put forth by orthodox Neo-Confucians. According to Miyake (2005: 274), "with ceaseless effort, ordinary humans can rise to become sages." Miyake was a disciple of a major Neo-Confucian scholar Ito Jinsai. Ito emphasized the teachings of Mencius (one of the four Confucian books), which allowed him to claim that virtue is inherent in all people, not just those endowed with special wisdom or social status, as many of Ito's contemporaries in Edo claimed. Ito's philosophy made his Neo-Confucian foundation appealing to the townsmen of Osaka and "infused... humanistic 'compassion' for the inevitable 'passion' that informs the daily lives of human beings, as in the activities of the new commerce so readily evident in the world he taught" (Najita, 1987: 43).

Miyake also spoke to the importance of acting ethically while engaging in commerce. He, for instance, defended profit only if it was in accordance with righteousness and contractual trust (Najita, 1987: 197). According to Najita (1987: 91), "merchants should not even think of their occupation as being profit-seeking but as the ethical acting out of the moral principle of 'righteousness.'"

The chōnin scholars also engaged a subject that was largely ignored by samurai scholars i.e. the subject of change. Samurai and peasants had their livelihood, even if it was a poor livelihood, guaranteed to them by the Tokugawa institutional structure. Samurai received stipends and could not supplement their income with commerce. Peasants, as long as they were first sons, were likewise guaranteed their family land and a position in the town governance depending on their family's tenure there. Merchants and artisans, however, did not have anything guaranteed to them. Consequently, their fortunes were in flux, some rising to wealth from poverty and others descending into poverty from wealth.

The golden age of the Kaitokudō produced the Nakai brothers, Chikuzan (1730-1804) and Riken (1732-1817). Chikuzan was an active participant in the administration of the school and wrote on the place of merchants in political economy. Chikuzan was a critic of the Tokugawa regime, criticizing the absence of merchants in the governance of the realm. Samurai, he explained, could not make their living in the market and never had to manage the finances of anything other than their own household. Putting them in charge of the finances of the realm was, thus, a recipe for disaster. He advocated for greater political power for merchants based on their success marrying ethics to commerce and their practical experience.

Unlike his brother Chikuzan, Riken spent much of his life in isolation and defending the Kaitokudō's central concept that virtue is accessible to all people. Riken did not believe the Tokugawa regime was redeemable and was critical of his brother's collaboration with the regime. He, thus, retreated into a 'dream world' where he wrote of

a society that would be coherent with his worldview. In Riken's dream world, "the people are happy and adorn themselves with colorful pins and ribbons designating the kind of work they do," which is significant to merchants since samurai were the only occupation readily identifiable given their privilege of wearing a sword (Najita, 1987: 213). Unlike Tominaga before him and those who would follow him, Riken was interested in preserving the Confucian foundation of morality. While those prior to him used Mencius to show the universality of capacity for moral knowledge, Riken turned to the Doctrine of the Mean, another of the four books. The orthodoxy "denied the subjective dimension of moral virtue, claiming the self to be passionate and that, this being the case, human beings had as their only recourse... the reliance on totally external norms that must be identified with the social intent of the ancient kings when they first created history." Riken dissented, arguing that if the 'mean' was the golden point for moral action, finding the mean required the subjective interpretation of individuals. As Najita (1987: 200) summarizes, "for the concept of the 'mean' to be philosophically viable, the individual self must be an active, cognizing agent and not merely a passive recipient of 'external norm.'"

The Kaitokudō closed in 1868, a victim of the turmoil surrounding the fall of the Tokugawa regime, but the school's final generation produced two notable political economists, who were also immensely successful financiers: Yamagata Bantō and Kusama Naokata. Kusama's authored an illustrated history of money in Japan, the *Sankazu'i*. The work chronicled the evolution of Japan's economy from a barter economy to a precious metallic money economy and much of this story involves a great deal of

mismanagement by the Tokugawa. As he wrote, “if money as... [a] fixed item of value could be relied on as a norm of constancy, then goods, however voluminous could be traded in ways that were righteous and fair” (Najita, 1987: 236). The unreliability of money, which Kusama claimed was endemic during this period, combined with trade barriers between provinces, caused localized famines even though the price of rice had steadily declined over the previous century.<sup>21</sup> Even through the unstable monetary environment, however, merchants had been able to flourish. As Najita (1987: 244) explains, “merchants, and especially those in Osaka especially had developed a system of large-scale trade based on contractual trust... The marketplace, in other words, was a moral arena at the ground level of human existence, and ‘profit’ was calculated in terms of [the] contractual relationship of ‘trust.’”

While Kusama attacked the Tokugawa regime on practical matters, Yamagata attacked the epistemological foundation of the regime. Yamagata’s masterpiece, *Yume no*

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<sup>21</sup> Taxes were paid in rice. Most daimyo and samurai had fixed income in rice. When taxes were collected, there was political pressure for inflation, in order to increase the money incomes of the samurai who were holding rice. The Dojima rice exchange at Osaka is a response to the difficulties that resulted from this transacting in rice. The exchange, which has been labeled the “world’s first organized futures market,” thrived outside of, and sometimes against, formal law (West, 2000: 2576). Yamagata Bantō writes of the market that “the system of rice speculation in Osaka is the essence of wisdom which controls the blood circulation [of the economic system]... For rice is sent from almost all districts to Osaka.” He then goes on to explain the importance of the price nexus in Osaka. “Damage done by locusts to rice plants in western provinces,” he explains, “will lead to a rise in price, while a rich harvest in the north means a fall... These have as reliable an effect as the edicts of a god or the commands of a general. However, they are not decrees of heaven nor the result of secret consultations.” Merchants in Osaka, he claims, could trade rice certificates and deal in futures, whereas in Edo rice transactions involved hauling rice to and from different warehouses.

*shiro* or *In Place of Dreams*, rejects the validity of a society based on dreams or superstition, in which he includes Confucian texts and the supernatural aspects of Buddhism and Shinto. Like Tominaga Nakamoto a century before him, Yamagata believed that basing morality on these things was foolish. According to Yamagata (Najita, 1987: 256), “the universe precedes human morality ... knowledge of that universe ... cannot be derived through the analysis of moral historical texts.” Texts had didactic value but they were not a substitute for evidence. Yamagata admired Western scientists in their scientific method, which “built their studies on a theory of knowledge that tested and validated new findings and discarded the errors and false assumptions of the past” (ibid.). Among these assumptions were many that were at the foundation of the Tokugawa regime’s power, including the belief that ancient kings preceded the people. Instead, “in Japan the system of noncentralized rule came to be erected over some one thousand years as its way of organizing society, which, as he put it, ‘ought to be thought of as beautiful’ (Najita, 1987: 256).” With *Yume*, Yamagata built a secular humanism with the people as the central virtuous actors and with commerce being a legitimate route to the virtue and resourcefulness necessary for the governance of the realm. Yamagata, in a (perhaps) apocryphal story,

...requested that the lord of Sendai pay him for his services not with cash but with the spillage of the handful of rice caused by a bamboo shaft at each checkpoint enroute to the marketplace in Edo. Known as *sashigome*, this spillage was put to speculative use by Yamagata in the rice market and an impressive profit was said to have been reaped for [house] Masuya. This anecdote coincided with Yamagata's view of the aristocracy as being inattentive to the mathematical calculation of the "margin" that determined the well-being of the whole. (Najita, 1987: 250)



Yamagata's story shows that, by the end of the Tokugawa period, merchants created their own narrative for themselves and for Japan.

## **Discussion**

The different attitudes towards commerce that emerge in Osaka and Edo match the predictions offered by the simple model developed above. Successful Edo merchants pursued opportunities provided by the aristocracy and in doing so found it useful to imitate the samurai aristocracy. In contrast, in Osaka, a dearth of social betters for the merchants to look up to and impress, caused the culture of Osaka to embrace a positive attitude towards commerce and to celebrate merchants. If McCloskey (2010) is correct that positive social attitudes towards commerce and innovation are necessary - if not sufficient - conditions for modern economic growth, then this model has implications for economic development.

Admittedly, Tokugawa Japan did not embrace commerce, though a subculture did, and few subcultures embraced innovation as a virtue. However, collective narratives in Osaka celebrated commerce and the town was commercially successful. Only when the rulers embraced the necessity of commerce did Japan experience modern economic growth. The rapid industrialization following the removal of the Tokugawa regime may indicate that latent potential existed. The perennial confiscations, forced loans, price controls, clamp downs on speculating, and policies such as regulating such minutiae as the times of the year vegetables could be sold to prevent "evil speculation" by merchants who grew them in greenhouses do not build a successful economy (Takizawa, 1968: 68). As harmful as they were, the Tokugawa regime's barriers to commerce were not all that prevented Japan achieving modern economic growth. While, at least in Osaka, people

were willing to bestow honor onto successful merchants, people were not willing to do the same for those who sought to innovate. The Tokugawa era merchants who happened upon innovations, such as the use of rapeseed oil in lighting or the ‘accidental’ discovery of clear sake, exploited the innovations deftly. For instance, rapeseed oil quickly expanded the number of people who could afford lighting, and clear sake, which can be enjoyed warm, came to usurp cloudy sake’s popularity. Despite their willingness to exploit any discoveries, there was a stigma against innovators. The house laws of some of the great merchant houses, like Mitsui and Kōnoike, expressly forbade innovation and encouraged its members to stick to traditional sources of wealth.

Consequently, collective narratives matter. They shape how network members perceive of commerce and so whether they will succeed economically. Where successful merchants can graduate into the aristocracy, collective narratives will tend to support merchants mimicking and adopting the practices of the aristocracy. When successful merchants cannot graduate into the aristocracy, collective narratives will tend to celebrate commerce.

### **CHAPTER THREE: SOCIAL NETWORKS IN EARLY MODERN BRITAIN AND THE NETWORK STRUCTURE OF THE BRITISH INDUSTRIAL REVOLUTION**

Modern Economic Growth began in Great Britain. It was not the first episode of growth in history, but it was the first sustained economic growth. Only the Great Depression rivals Britain's transition from Malthusian economy to modern economy in the interest it draws from economists. Yet, there is no clear consensus on several aspects of Britain's transition: what was the relationship between the Industrial Revolution and modern economic growth? What were necessary and sufficient conditions for modern economic growth in early modern Europe? Why not France or Spain (or China or India)?

This chapter will argue that Early Modern Britain had social networks where the middle class had a high degree of centrality. Individuals or groups with a high degree of centrality have a larger effect on the diffusion of opinions and ideas than those with a lower degree of centrality, with centrality being the structural importance of an individual in a social network. If a highly central person leaves the network, the distance between people increases, while someone who is not central has very little effect on the distance between people if he leaves. The chapter continues as follows: First, a literature review of the British Industrial Revolution, which breaks writers into different schools of thought. Section II introduces three types of network structures, and argues that only one of them will tend to distribute the "Bourgeois Virtues." The theoretical argument is demonstrated

using an agent-based simulation of information diffusion. Section III presents evidence that Early Modern Britain's middle class had a high degree of centrality, drawing off linguistic evidence, prior research, and a new dataset that compares the background of individuals in Learned Societies and the Church of England. Section IV argues that only the Dutch Republic had comparable social networks, while the rest of Europe had an Aristocracy or Clergy with a high degree of centrality. Section V discusses implications and concludes.

### **Literature Review**

British Modern Economic growth begins around 1750, although per capita income had been rising, slowly, since its nadir in 1000. Until 1800, most of the gains were from increased trade, the expansion of the market and the division of labor, what Mokyr refers to as Smithian growth, although the technological foundations were being laid before they had any measurable impact on the economy. Watt took out his patent for the separate condenser for his steam engine, in 1769, the same year that Arkwright took out a patent for a water frame for spinning cotton (McCloskey 1994: 244). In addition, most of the growth before 1800 took place in London, which grew from a town of 40,000 in 1500 to 200,000 in 1600, 575,000 in 1700, and 865,000 in 1800 (de Vries 1984: 270-277). London's importance to Britain before 1800 was huge (see Wrigley 1967): in terms of total population in 1700 Paris rivaled London (with 510,000), and as a percentage of population Amsterdam rivaled London (8-9%), but no other city could match London on

both margins.<sup>22</sup> By 1731, Morris (2010b: 81) estimates, London's real wages were more than twice that of any other large city in the world, except Amsterdam.

British industrialization took off just as Europe was being ravaged by Napoleon: Mokyr (1999: 115) argues that, had there been no Industrial Revolution, per capita income in 1830 would have been 10-20% lower than it was in 1760, owing to disruptions in trade from the continent, population pressures, and dismal harvests. Thus, the effect of the Industrial Revolution on per-capita income depends on the counterfactual: the GDP Per Capita growth rate between 1700-1820 is only slightly higher than from 1500-1700 (.34% to .31%, according to Maddison 2006: 92), while after 1820 Britain sustains an annual per capita growth rate around 1%. If the counterfactual for 1830 is a 20% decline in income, then the contribution of economic growth is 0.8% per year, closer to the post-1820 growth rate.<sup>23</sup>

	<b>1500</b>	<b>1700</b>	<b>1820</b>	<b>1913</b>
Britain	762	1405	2121	5150
France	727	986	1230	3485
Italy	1100	1100	1117	2564
Netherlands	754	2110	1821	4049

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<sup>22</sup> In Asia, Edo dwarfed London with over one million people, but this amounted to less than 5% of Japan's total population (Hayami and Kitô \*\*\*\*: 222). Beijing was comparable to Edo in size, but was a miniscule percentage of China's population (Morris 2010b: 118)

<sup>23</sup> Using Maddison's (admittedly shaky) numbers and Mokyr's counterfactual, the per capita income in 1760 (in 1990 dollars) is \$1,760, making a 20% decline \$1372, below 1700's estimate. A growth rate of 0.8% between 1760 and 1830 makes up for an exogenous contraction of 20%.

Portugal	632	854	963	1244
Spain	698	900	1063	2255

**Figure 2: GDP Per Capita for European Colonial Powers, 1500-1913.** (1990 Dollars. Adapted from Maddison 2006: 92).

### **Schools of Thought**

Mokyr (1999: 7-9) divides historians of Britain's Industrial Revolution into four different schools: the Social Change School, the Industrial Organization School, the Macroeconomic School, and the Technological School. Each of these schools has a different opinion about the primary driving force behind Britain's economic change—none disagrees about the changes that happen, but they disagree on whether the changes were causes or effects and the empirical weights of different causes, and focus their research energy accordingly.

The Social Change School argues that the fundamental source of the Industrial Revolution had to do with how people oriented themselves towards one another. Toynbee ([1884] 1969), for instance, believed that the key change was in producers seeing one another more often as competitors, rather than potential conspirators. Polanyi (1944), on the other hand, emphasizes the imposition (often violently) of impersonal interaction, such as wage labor, into spheres where interactions were personal. Thompson (1963), Berg and Hudson (1992), and Randall (1991) follow Polanyi, focusing especially on the changing relationship between employer and employee. McCloskey (2010) and Ringmar (2008) would likely fall within this school, although both of them emphasize that the

transition was for the most part a voluntary one. It may include Clark (2007), who argues that the greater survival rate of the children of the rich transformed the social world.

The Industrial Organization School emphasizes “the structure and scale of the firm (Mokyr 1999: 7).” Larger firms allowed increasing returns from the division of labor, as some argue, or enable employers to extract more surplus labor from workers, as many intellectual decedents of Marx would argue. In the first group is Goldstone (1996) and Szostak (1991), though the emphasis on the expansion of the division labor is point fundamentally drawn from Adam Smith, and the mechanisms discussed by these writers are part of “Smithian growth.” The second group includes Marx himself, as well as Mantoux (1928) and Pollard (1965). Not all Marxists are in this camp, as I discuss below. More subtle takes on this discuss the *social* effects of the factory system, namely, that ‘modern’ labor took place in direct contact with many other people. Social networks were, in a way, compressed, which allowed for information to flow and social change to quicken.

The Macroeconomic School emphasizes “the growth of national income, the rate of capital formation or the aggregate investment ratio, or the growth and composition of the labor force (Mokyr 1999:8).” Weber’s famous Protestant Ethic argument foreshadows this school, as the link between ethic and economy runs through increased aggregate savings and capital formation (cf Weber 2002: 116-117). The classic statements in economics of this school include Rostow (1960), Deane and Cole (1969), and Wrigley (1987).

Finally, the Technological School argues that the defining, causal characteristics of the Industrial Revolution was the use of technological advancements in production processes. Mokyr only references Landes's (1969) classic book, but Mokyr's own work (e.g., Mokyr 1990) may be part of this school, though later treatments (Mokyr 2002 and especially Mokyr 2009 and Mokyr 2011) blur the line between the Technological and Social Change schools. The spheres of social interaction and the Enlightenment more generally, plays a larger role in later work focusing on the *intellectual* origins of economic growth. Writers who emphasize the interaction of technology with Coal fall into this group, as well. Ridley (2009: 229-233), for instance, argues that coal was special as first energy source to generate increasing returns to effort. All previous energy sources—human and animal effort, wood, water, and wind—demonstrated decreasing returns to scale at relatively small quantities, whereas coal only demonstrated decreasing returns after multiplying the amount of power harnessed by humans several fold. Wrigley (1988), Pomeranz (2000), Allen (2006), and Harris (1998) all point to coal as well. Clark and Jacks (2007) and McCloskey (2010: 186-196) find that coal's impact on the economy was relatively small.

Though Mokyr's taxonomy is the canonical division, Mokyr himself seems to have moved away from dividing the schools of thought into these four. In Mokyr (2009: 80-82), he restates much of Mokyr (1999) but instead insists that "three or four 'schools' stand out (Mokyr 2009: 80)," but the Social Change school seems to have been merged with the Industrial Organization school. Mokyr's own work and much discourse in the



new millennium on the Industrial Revolution no longer seemed to fit neatly into these schools, he deemphasized them, but has not replaced his old taxonomy with a new one.

This literature review will continue with an attempt to rebuild a taxonomy of thinkers on the Industrial Revolution. Thinkers fall along two axes: an idealist/materialist axis and a gradual/sudden axis.<sup>24</sup> This distinction better allows for a correspondence between studies of the Industrial Revolution and questions of contemporary economic development. Writers who focus on institutions vary in their theory of institutions: if they credit geography, plague, or demographic shifts they are materialists; if they credit the diffusion of ideas or culture, they are idealists. The gradual/sudden axis measures how far the writer thinks he has to look to explain the divergence between Britain (and Western Europe) from the rest of the world.<sup>25</sup>

### **Gradual-Materialists**

The extreme gradual-materialists include people in the tradition of Diamond (1997) and Morris (2010a and 2010b): differences in geography or initial conditions cause different outcomes in material prosperity. They acknowledge the importance of ideas, but ideas are simply epiphenomena of material factors. Diamond's argument is as familiar as it is influential: Eurasia had many built-in advantages in the race to advanced society, compared to the other geographic regions of Sub-Saharan Africa, the Americas,

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<sup>24</sup> Clark (2012) makes a similar distinction between idealist and materialist theories.

<sup>25</sup> The distinction between these schools of thought capture the *work* of the social scientist, not necessarily his beliefs. A gradual-materialist in belief may just find certain sudden-idealist factors most interesting to study. Many of these writers, though, make their beliefs clear. Douglass North, though, has works that can be classified just about everywhere.

and Australia.<sup>26</sup> The first advantage was an east-west continental alignment: the similarity of climate along the same latitude allowed the diffusion of agricultural advancements, and with them ideas, technologies, and germs, the latter important in building shared immunities. Africa and the Americas, oriented on the north-south axis, produced societies that became culturally, technologically, and agriculturally isolated. Corn, the only major grain cultivated in the Americas, could only move northward very slowly, adapting to a new climate each time it moved northward. Eurasians had more large seed grasses and more large domesticable animals (South Americans had only the llama, while North America, Africans, and Australians had none). Living with domesticated animals allowed Eurasians to benefit from animal power and generated the diseases that would ultimately be the Eurasians' most powerful weapons against others. To Diamond, geography can also explain how Western Europe diverged from China. Diamond (2007: 414) writes, "One China was finally unified, in 221 BC, no other independent state ever had a chance of rising and persisting for long in China," because of its "only modest internal barriers." Europe, on the other hand, resisted every attempt at unification. Political diversity was important in establishing the Industrial and Scientific revolutions, but politics is simply an epiphenomenon of geography.

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<sup>26</sup> Sub-Saharan Africa, though geographically contiguous with Northern Africa, is socially distinct because the Sahara desert prevents the diffusion of ideas, goods, plants, and animals. This distinction is common for work focusing on pre-20<sup>th</sup> century history; see also Findlay and O'Rourke (2007: 45) and Morris (2010a: 118). Diamond emphasizes the difficulty in transferring crops from temperate zones in the Northern Hemisphere to similarly temperate zones in the Southern Hemisphere, while Findlay and O'Rourke emphasize that Sub-Saharan Africa, before the 16<sup>th</sup> century, had contact with only two other world regions: the Islamic World and South Asia. In contrast, Northern Africa, as part of the Islamic world, was connected with every other world region (except the Americas)

Morris, an archaeologist, tries to fill the gaps in Diamond's narrative. This means focusing less on natural differences between Eurasia and the rest of the world and more on the differences between Europe and China. Morris (2010a: 346) argues, "The fundamental contrast between East and West... was one of maps, not chaps." To Morris, people in large groups are everywhere the same: motivated primarily by laziness and greed. Accidents of geography determine the best strategy to satisfy these wants. Morris (2010a: 254-63) points to the Axial age, when Buddhism, Christianity, and Islam all flowered. When polytheistic authority driven religions were the most efficient, those religions thrived. When monotheistic ethic driven religions could drive social development, those religions thrived. The main point of divergence between Western Europe and the rest of the world happened because of its proximity to the New World: because Western Europe, not the Islamic world or China, could exploit Americas' natural resources if it developed a Scientific Revolution, it did so. Had the Americas been located a thousand miles or so further east, China could have gained from a Scientific Revolution and history would look much different.

Clark and Hamilton (2006) makes a gradual materialist argument, though their timeline is shorter than the one held by geographic determinists. They summarize their argument in their title: the survival of the richest. In their study of wills (among the most consistent of written records), they find that the poor men have below replacement-level numbers of surviving children, while rich men have more. Britain's population being relatively stable, Clark and Hamilton (2006: 733) argue, "Nearly half of the sons of higher class testators would end up in a lower asset class at death." Britain of 1585-1638

was relatively static, which means that as time goes on, a greater proportion of the population are likely to be descended from the rich. If rich people are more likely to be, in Clark's (2007) term, 'genetically capitalist' then a proliferation of capitalist genes may explain the divergence between Britain and the rest of the world. Clark does not identify particular genes that make people capitalist, but he suggests that hard work and long-term time preferences may be the genetically transmitted characteristics.

A third strand in the gradual-materialist strand follow the early New Institutionalists. The proximate cause of growth is good institutions: private property rights, restriction of executive power, and open access to opportunity, resulting in innovation and other forms of economic growth. The superiority of Western European institutions, North and Thomas (1973) explain, comes from material reasons. Key in shocking the institutional status-quo of Feudalism was the drastic decline in population in Western Europe by the Black Death. North and Thomas (1973: 79-80) find that the decline resulted in higher wages relative to rents, and a subsequent decline in the incentive to hoard land and tax returns from feudal lords, instigating a fiscal crisis. Since the state could no longer rely on taxes from Feudal lords, it had to raise revenue in other ways. In France and Spain, the fiscal crisis resulted in an unrestricted centralized monarchy, while Britain and the Netherlands were able to restrict executive power (North and Thomas 1973: 86). Acemoglu, Johnson, and Robinson (2005) extend this framework, by arguing that, while both the highly centralized system and the checked monarchy resulted in the same amount of wealth capture, just through different means, the equality broke down after the 'shock' of Atlantic trade occurred. Where a strong monarchy had

prevailed, Atlantic trade increased the power of the state, while where executive constraint had prevailed the wealth shock accrued to 'reformists.' Thus, they argue that both a connection to the Atlantic market and a constraint on executive spending were sufficient to create good institutions and, thus, economic growth. Poland and Switzerland, though liberal economies, experienced no 'shock,' while France and Spain's 'shock' was counterproductive to the spread of good institutions.

Gradual materialism does not lend itself for optimism in economic development. The legacy of geography binds less-developed economies. Diamond is a clear pessimist about China, believing that the two millennia political unification is unlikely to give to a more decentralized authority. The arguments of the genetic determinists are even more pessimistic: in Diamond's framework, at least, people can move from countries with bad institutions, but in Clark's, the ability to thrive in a capitalist system is determined at birth. Changing institutions bequeathed by geography may seem like a Sisyphean task, but changing genes is a truly hopeless task. The New Institutionalists offer a bit of hope, as they are able to identify what institutions lead to economic growth. Unfortunately, the gradual-materialist Institutionalists paint the cause of good institutions as, essentially, good luck.

### **Gradual-Idealists**

Some of the earliest explanations for Europe's economic success lay in their historical inheritance of Christianity and Classical Philosophy. Whig history, as Butterfield (1931) derisively called historiography, views history as the march from barbarism to civilization. In this case, the Industrial Revolution is a culmination of

Ancient Greek culture advancing through Christendom. The ideas and religion of the West were interested in progress, while those in the East bred stagnation. Very few scholars today see Western Civilization as a linear forward march from the Greeks to Galileo. History, in both the West and the East, contains periods of progress and periods of regression. The Islamic world, which was similarly influenced by the writings of the Ancient Greeks, had no Industrial Revolution and no modern economic growth, even when it was experiencing a great deal of progress.

The simplicity of Whig histories notwithstanding, there remains a number of arguments in the gradual-idealist realm. Clark (2007) admits that his diffusion-of-capitalist-genes argument is, with his evidence, analytically inseparable from an argument that rich parents instilled capitalist values in their children. Unlike the sudden-idealists discussed below, Clark's mechanism operates slowly because parents instill those values in their children. Capitalist values advance slowly through the same selection mechanism as they would if they were genetic. North (2005) sees the process of economic change as resulting from the slow accumulation of knowledge and beliefs that result in institutions that eventually come to embody more and more knowledge, which allows for people's conscious decision-making to grapple with more specialized problems. For instance, North (2005: 158-159) uses the example of uniform weights and measures: before they are established, people must develop skills at measuring product quality and quantity, and these skills may only be good in one village. With uniform weights and measures, people can channel their mental energies elsewhere. Institutions

that accomplish this include a uniform judicial system and contract enforcement system, and a price system that lowers the cost of diffusing knowledge.

Following North's lead, Allen and Barzel (2007) and Allen (2011) argue that the modern world came about from changes in information costs: Allen and Barzel (2007) find that modern police was enabled by standardization of production. When goods and services were produced locally, they were heterogeneous enough that only people with specific local knowledge were able to enforce property rights. Upon standardization, general knowledge displaced local knowledge as the most important determinant of enforcing property rights. Allen (2011) extends this argument further, arguing that Early Modern Britain made advances in reducing information costs, which allowed for a transition to impersonal interaction. When quality is of high variance, Allen argues, it makes sense to have practices such as extremely decentralized court systems, the sale of offices, private roads, and an aristocratic culture more generally. While not conducive to modern economic growth, it is efficient given constraints. With the advent of standardization and easier ways of preserving reputation, individuals (and the state) could centralize many practices and rely more on the market, thus freeing up mental energy for people to focus on productive activities.

These gradual-idealists have generalized ideas about how to advance economic development, which is not a surprise given that much of this literature is inspired by Hayek's (2012[1960]) historical work. The goal of reformers, in order to facilitate economic growth, is to put into place institutions that allow for exchange and innovation to occur using the minimum mental effort. This is similar to the goal of economists in the

tradition of Coase to minimize transaction costs, but more focused on epistemic costs. There is room for optimism: the institutions may have taken a long time to emerge, because the feedback mechanisms for institutions are slow and not obvious, but once they emerge in one place, underdeveloped countries can, in some circumstances, follow the example of history (North 2005: 162-3).

### **Sudden-Materialists**

The stories told by those who believe that the Industrial Revolution was a sharp, sudden break from earlier economic reality tend to be of the ‘tipping point’ variety. The materialists of the group, believing ideas and technology as epiphenomena of material circumstances, tend to focus on moments where previously irrelevant factors become, suddenly, relevant. For the British Industrial Revolution, the most important factor was coal. Pomeranz (2000: 61-65) points to increasing returns that steam engines allowed in coal mining itself: before the steam engine, coal had reached decreasing returns at a relatively small output, but once coal-powered steam engines could be used in coal-production, increasing returns from this process reduced the price of energy dramatically. Wrigley (1988: 79, 2010), too, believes that the decrease in the price of energy is the major causal force behind the industrial revolution. Early Modern Britain is distinct, Wrigley argues, because the combination of the steam engine and coal produced a situation where the relative price of labor to energy was high, incentivizing innovators to create labor-saving technologies instead of capital-saving technologies. Labor-saving technology meant that labor productivity increased, and because there was a competitive



market for labor this resulted in higher wages, which further encouraged labor-saving innovations, tipping Britain's economy into modern economic growth.

Discussed above, Acemoglu, Johnson, and Robinson are sudden-materialists, at least with respect to Europe.<sup>27</sup> Building off of North and Thomas's earlier work, they argue that European countries resolved their fiscal crises in two ways: with a strong central government that paid merchants to undertake projects, and a weak central government that took taxes from merchants, but the merchants owned their own projects. In both cases the share taken by merchants and the state was the same. The rise of Atlantic trade came as an exogenous shock to the return to trade: those that had put trade in the hands of the state, such as Portugal, Spain, and pre-Revolutionary France, continued along their pre-shock path, while Britain and the Netherlands diverged. The increased wealth in the hands of merchants led to a shift in political power, leading to more liberal institutions and modern economic growth. Eastern Europe and landlocked countries did not experience this shock, so the way in which they extracted wealth from trade was largely irrelevant.

For the most part, there remain few sudden-materialist arguments. Elements such as geography and genetics are slow to change, and when the meaning of these things does change, it is in an unpredictable way. The lessons for development economics are similarly grim for any materialist explanations. If underdeveloped countries are to be

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<sup>27</sup> Acemoglu and Robinson (2012) summarize their earlier work, and argue that modern economic growth requires 'inclusive' political institutions, while those that fail have 'extractive' political institutions. Colonies only get inclusive political institutions if the cost of setting up extractive institutions is prohibitive, as it was in North America. There, natives had decentralized governance systems that colonists could easily join to avoid 'extractive' work. In South America, preexisting hierarchies and dense population made extractive institutions cheaper.

lifted out of poverty, it will likely come from ‘exogenous shocks’ which are, by their nature, unpredictable.

### **Sudden-Idealists**

Like the sudden-materialists, sudden-idealists generally use ‘tipping point’ mechanisms, especially since the diffusion of ideas tends to follow an s-shaped curve, as a minority of early adopters cause an information cascade through the majority of the population. Many of the people who fall under Mokyr’s Industrial Organization School come into this category: the defining idea of the Industrial Revolution was the factory, which allowed people to take advantage of economies of scale and a deepening of the division of labor. Mokyr (1999) suggests that the primary difference between ‘traditional’ industry and ‘modern’ industry is that it put people together: instead of people working in isolation, they worked in the same place as dozens, or hundreds, of other people. One implication of this was a much denser social network that facilitated the diffusion of ideas and benefits from ‘agglomeration’ effects emphasized by urban economists and endogenous growth theorists (see Lucas 1988, Romer 1991).

Other than the Industrial Organization scholars, most of the major arguments in the sudden-idealist camp have come recently. McCloskey (2010) and Mokyr (2009) are the most notable. McCloskey believes that Early Modern Britain underwent a ‘revaluation,’ with a change in attitudes towards commerce and innovation. Instead of being degrading, these activities became sources of admiration and status. The non-pecuniary returns to activities that had huge positive spillovers in well-being became positive—a tipping point. Mokyr (2009) assigns credit to the Enlightenment, specifically

the belief in progress that grew especially from the Scottish branch of the Enlightenment. The social structure that these beliefs encouraged were especially predisposed to an Industrial Revolution. The British were pragmatic in their approach to science, and were especially willing to tinker and experiment. The map of 'big ideas' in Europe does not feature Britain prominently, but the British contribution of 'microinventions' and perfections of things designed elsewhere is large. In a similar argument, Goldstone (2008) argues that British Baconian science was much more conducive to economic progress than Cartesian approaches to science.

Ringmar's argument is slightly different, though equally idealist. He argues for three specific 'shocks' that happened to people in Western Europe that made it prone to progress. First, the West rediscovered Greek classics, which disrupted the previous theological equilibrium: young intellectuals, equipped with Aristotelian logic, transformed theological conversation and undermined respect for tradition. Next, people discovered flaws in the classics, particularly with regard to natural science, further undermining tradition as a source of knowledge. Finally, Columbus discovered the Americas. Each of these shocks reinforced a belief in the limits of knowledge: If an old philosophy can make our smartest men appear like fools, what else do we not know? If there was a hitherto unknown continent, what else is there? People began to reflect on and challenge their knowledge and invented the idea of progress. Entrepreneurship was the economic manifestation of the cultural shift towards 'progress.' The combination of reflection and entrepreneurship with Europe's political fragmentation ensured that this new paradigm stayed in place somewhere long enough to create perpetual growth.

Boettke (2001: 4) writes of development and transition that “‘Getting the prices right is not enough.’ What is required is the adoption of an intricate mix of institutions which enable individuals to realize the gains from exchange. But that intricate mix of institutions must be legitimated in the belief structures of the people. We cannot just impose whatever institutional structure we want wherever we want: the institutional structure has to be ‘grounded’ in the everyday actions, beliefs, and ideas of the people.” Boettke’s view of development corresponds with the idealist view of the Industrial Revolution.

### **Network Model**

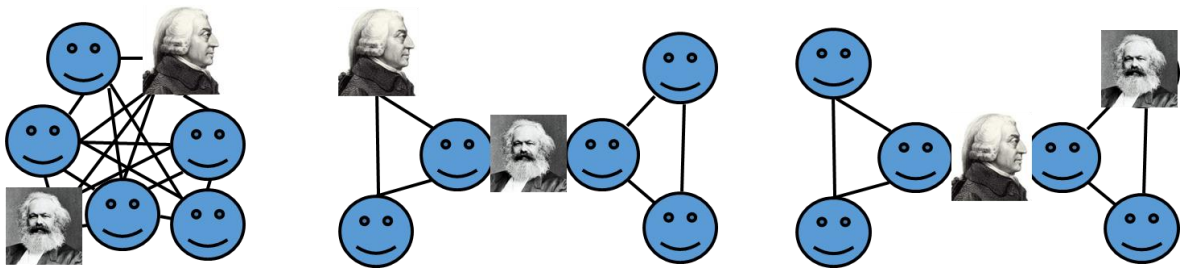
This model will attempt to provide a social network foundation to the sudden-idealist theories of McCloskey and Mokyr, providing a ‘relational’ mechanism to dovetail with their ‘cognitive’ mechanism. To understand the dynamics of social change, it is not enough to look at the beliefs of each individual; it is not enough to ‘count’ the beliefs of people. Different patterns of interaction between people lead to the emergence of different outcomes, even if the number of people are the same. Individuals who have a high degree of centrality within a network will have the largest effect on the diffusion of attitudes and ideas within that network.<sup>28</sup> Someone who has a high degree of centrality within the network will have their voice amplified; they provide other people with a lot of novel information, and have the opportunity to color or to share selectively that information. People who have a low degree of network centrality will have a

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<sup>28</sup> Centrality is determined for each node by comparing the average distance between nodes with the node intact to the distance with the node removed. There are several ways of computing this, but the differences are irrelevant without true network data.

correspondingly muted effect on the course of changes in attitudes in beliefs. Centrality does not correspond perfectly with popularity. An individual may have a large number of contacts, but if all of his contacts know one another, his popularity does not correspond to opinion-shaping power.<sup>29</sup>

For the purposes of this model, I describe Early Modern European social networks as: 1) Closed networks, 2) Open Networks where ‘reformers’ have low centrality, or 3) Open Networks where ‘reformers’ have high centrality (Figure 1).



**Figure 3: Three Types of Networks:** The left network is a closed network, the center is the open network with opponents of reform in a highly central position, and the right is the open network with proponents of reform in a highly central position.

Closed Networks, as described by Coleman (1988), are very effective enforcing conformity and social norms. These networks tend not to have much room for people to change attitudes, because it is rare for an individual to have access to a novel piece of information. When closed networks extend through time and across generations,

<sup>29</sup> Economics has embraced network analysis for a variety of tasks. Battiston et al (2012), for instance, map the network of financial institutions and find that those most ‘central’ to the network play a larger role in the stability of the financial system than the size of their balance sheets would suggest. Leijonhufvud (2009: 755) writes that, “Network analysis is a novel field for economists... The crisis shows, I believe, that it should be given a priority in the training of economists ahead of some of the mathematical skills required by graduate programmes today.”

attitudes, beliefs, and norms will be retained for longer times than in less closed networks. The extreme version of this is Lithuania, which had a closed network for millennia: the common speaker of Lithuanian can understand some spoken phrases in Sanskrit, given the lack of linguistic drift from the common linguistic ancestor, due to strong norm enforcement. Lenker (2000) provides an account of the closed nature of English linguistic networks in the tenth century: the networks, which were closed and ‘multiplex’ (i.e., having relationships of several dimensions), show that the monks quickly conformed to a common standard of style and usage, varying little once established. Closed networks, resistant to change, are unlikely to be the networks where cultural innovations explain variance in economic outcomes.

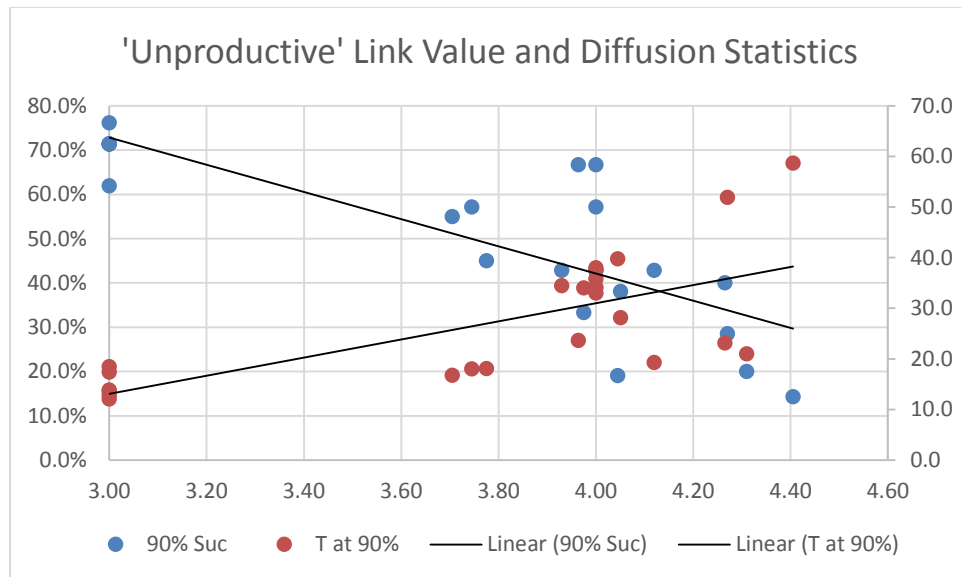
Open networks, by contrast, are likely to show some volatility in opinions and beliefs, some of which might be responsible for economic outcomes. In order for ideas to be a driving force in economic change, it should be necessary to show that people who are in the positions of centrality advocate for change in the direction suggested by the economic change. If an entire network undergoes an economic change, while the central actors of the network undergo little change in their ideas, it is unlikely that the idealist forces are behind the change. Thus, open networks can be defined in two ways: those with reformers with a high degree of centrality, and those with people who do not support reform with a high degree of centrality. Any movements without the support of people who bridge the gaps between others will likely be stillborn.

### **Agent-Based Demonstration**

To demonstrate the effect of network structure on the diffusion of information, I developed an agent-based computational model where agents who are likely to spread an idea interact with agents who are unlikely to spread an idea. The incentives of the agents are varied, so that they create more or fewer relationship with the different types of agents. The full explanation of the model is available in Appendix A, but I will go over the process and results briefly.

The simulation consisted of 400 or 2000 agents. Half of them were ‘productive’ agents, with a high rate of diffusing an idea, while half of them were ‘unproductive’ and transmitted an idea rarely. First, the agents created the network. Each agent would randomly interact with another, successfully generating a link only if the value of linking exceeded the agent’s ‘standard’ for linking. In the beginning, agents only create links with people with high Link Value, but after unsuccessful searches, the agents lower their standard. When an agent creates a link to another agent, that agent loses some of its Link Value (representing diminishing marginal returns). The simulation ends when each agent has created three links. Once the network is complete, 20 ‘idea diffusions’ are simulated, where one ‘productive’ agent is infected, and attempts to spread the idea to each of its link neighbors: a high rate of success to ‘productive’ agents, and a low rate of success to ‘unproductive’ agents. At  $t=1$ , the originator spreads the idea, and at  $t=2$  the originator’s neighbors spread the idea, and so on. 23 different networks were simulated, with a total of 479 diffusion attempts, with the primary difference being different ways of computing Link Values for ‘unproductive’ agents, though the simulation varied other parameters in order to check robustness.

The results match intuition. As the value of linking with ‘unproductive’ agents rises, they attain a higher degree of centrality in the network. Consequently, the higher degree of ‘unproductive’ centrality resulted in slower and less successful idea diffusion among ‘productive’ agents. **Figure 4** contains a summary, with further data available in Appendix A. Where ‘productive’ agents were most central, diffusion occurred more quickly and with a greater rate of success.



**Figure 4: ‘Unproductive’ Link Value and Diffusion Statistics.** The left axis (blue) measures the number of simulations that diffusion reached 90% of ‘Productive’ agents. The right axis (red), measures the time it took for an idea to diffuse to 90% of the ‘Productive’ population, conditional on success.

## Early Modern Britain

The rest of this paper will marshal evidence that ‘reformers’ had a high degree of centrality in Early Modern Britain, higher than the otherwise comparable economies in Europe. Ideas about the virtue of commerce, the existence of progress, the evil of rent-



seeking, or the importance of practical science will have a greater chance at spreading. I gather the evidence from several sources: First, I use evidence from the existing literature that, though not concerned with the structure of social networks, nevertheless hint at the connectedness of the commercial class. Second, I review linguistic evidence that shows that, unlike France, changes in English were in large part the result of non-elites. Third, I present additional evidence on network structure based on the surname analysis of various organizations and the marriage patterns of the aristocracy. The picture that emerges is one where the aristocracy, though socially important, was peripheral in the diffusion of ideas in Early Modern Britain. This evidence does not rule out idealist explanations of the Industrial Revolution, such as those made by Mokyr (2009) and McCloskey (2010); contrary evidence would have ruled idealist explanations unlikely.

The period under consideration is Early Modern Britain (1500s-1700) and the early part of the Industrial Revolution (up to 1850). The sixteenth century was formative for Britain: English was finishing replacing Latin and French as the language of the state, a Standardized English was forming. England severed many of its important ties with the Continent when the Church of England supplanted the Catholic Church; the brief return of Catholic monarchs (Mary I, James II) would not re-establish the importance of Rome in English social circles. Scotland, though speaking a dialect of English,<sup>30</sup> was in many ways closer to the Continent than to England. Scotland was allied with France, having a mutual defense pact against England from 1295 until the Scottish James VI took the

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<sup>30</sup> There is a heated controversy over Scots being a separate language from or a dialect of English. Baugh and Cable (2002: 317-318) argue that by 1500 it may have diverged enough from English to be considered a separate language, but then it started converging back towards the Northern English dialect.

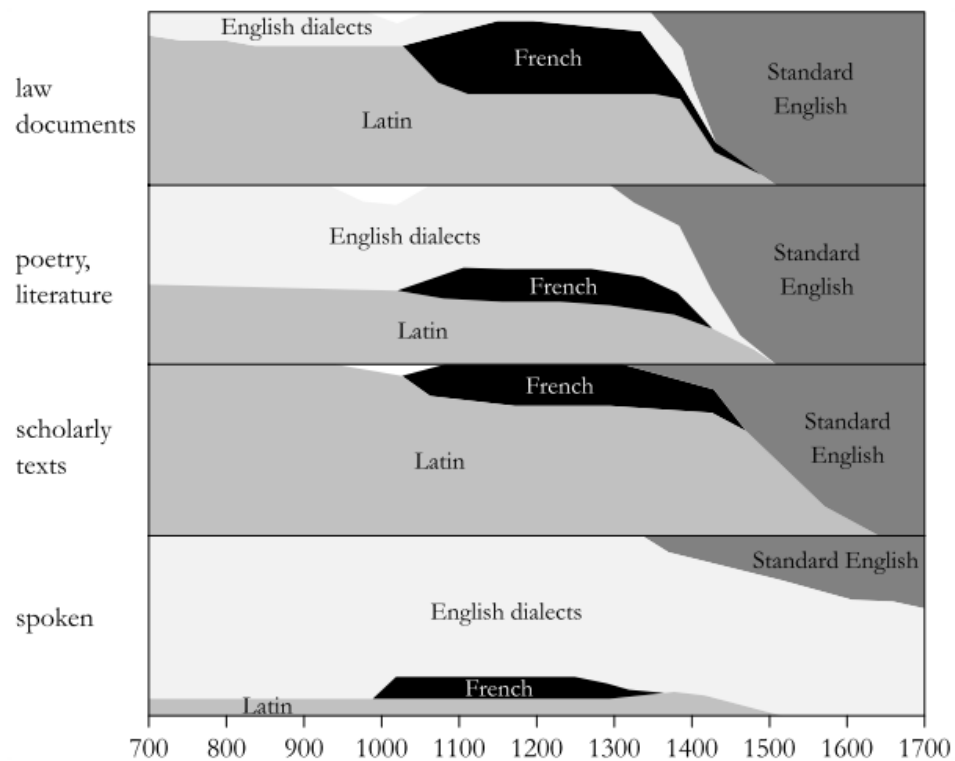
throne in England in 1603. Scots law, Cooper (1950: 468) writes, is “Roman in origin, doctrine, and method, but now largely infiltrated and overlaid by the later developments of Anglo-American law,” and it is after the unification that England’s influence over Scotland reach full force.

The evolution of the social structure of Britain primes it for the future revolution.<sup>31</sup> The English language serves as an example: after the conquest of England by the Normans in 1066, English was relegated to an informal spoken language outside of the ruling classes. State documents, scholarly texts, and much written literature and poetry were in Latin or French; all but inaccessible to the majority of the population, as **Figure 5** demonstrates.<sup>32</sup> The dominance of written Latin and French would have implications for the evolution of English institutions: Once written English came to dominance, the decline in the alternative language skills limited the influence of the written tradition, dominated by the state and elites, on the evolution of the common law. Oral tradition—that preserved by common English people—could be a source of influence.

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<sup>31</sup> Desmet and Parente (2012) make a similar evolution to revolution argument, though with respect to the extent of the market.

<sup>32</sup> Of course, literacy rates were not particularly high in the first place—by 1600 the estimated adult male literacy rate was 25%, up to 50% by 1700 (though Scotland had rapidly surpassed England, moving from 15% in 1600 to 90% in 1800), and plateauing at 65% until about 1850 (Stone 1969: 121).



**Figure 5: Language Use in England.** Source: (Görlach 1999: 462).

Before 1500, not being able to speak Latin and French meant an inability to participate in elite life. Even three-quarters of the way through the sixteenth century, according to Jones (1953: 4), writers in English felt the need to apologize for writing in a vulgar tongue. Jones (1953: 7) writes, “that the English language per se was considered uneloquent may be easily deduced from the adjectives most frequently used to describe it: rude, gross, barbarous, base, vile,”<sup>33</sup> especially compared to Latin, but even in comparison to French, Italian, and Spanish.<sup>34</sup> The status of English improved, somewhat,

<sup>33</sup> He also notes that these words had a connotation closer to, simply, ‘low’ than to their current connotations.

<sup>34</sup> Jones (1953: 13-14) cites an English book written in 1548, “full of the nationalistic spirit,” whose purpose was to ridicule foreign customs and show the superiority of English counterparts, nevertheless

after the Reformation, as translations of the Bible and English religious tracts came into being. Though Latin and French were displaced in an official capacity, they remained the indicators of high status and breeding. Up until 1660, Latin remained a second language for much of the elite (Görlach 1999: 477), after which it “became a badge of humanist education in the arts, a qualification that had lost its pragmatic functions and was cultivated for its own sake.” It is important that Latin and French remained the languages that were cultivated for the sake of status for two reasons: First, it diminished the potential centrality of the elites in diffusing ideas among the non-elite. By barricading themselves through language, the elite diminished their influence. Second, it released any pressure on the English language to developing distinct ‘class’ markers. Whenever someone who was educated decided to write in English, they were already speaking a vulgar language, and showed the same concern towards formality that the less educated showed—very little (e.g., Salmon 1999: 42). Spelling and style were chaotic, and most of the innovators were common people. The evolution of English stands a stark contrast to the evolution of French or Japanese: in France, the state sought explicitly to standardize and control the language, founding in 1635 a state academy with the right to regulate French spelling and grammar. In Japan, the formation of the largest city in the world, Edo, *ex nihilo* allowed for the elites of that city to determine what survived out of the many dialects thrown together (See chapter 2). An ‘elite’ English would eventually emerge, but only after the Industrial Revolution had created a class of ‘nouveau riche’ to create one.

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writing that “The speche of Englande is a base speche to other nobles speches, as Italion, Castylion, and Frenche...”

Because the elites were not exerting control over the development of English, it fell to people of more vulgar social classes to do so. Richard Hodges, responsible for the first major English style guide, *English Primrose*, in 1644, had no noble background. Görlach (1999: 482) writes that “There is probably no period... when the influence of ‘the best writers’ on what is considered correct and appropriate has been so great as it was between 1660 and 1760... the influence exerted by the writings of Dryden, Swift, Addison, and Steele... provided models to be imitated.” Milton was the son of a scrivener, Dryden and Addison sons of clergy, and Swift and Steele were sons of attorneys. That none of England’s greatest writers of this time were of noble birth is telling, especially compared, again, with France: from the 16<sup>th</sup> to the 18<sup>th</sup> century, most French authors were nobles or clergy. Cardinal Richelieu exerted an exceptional amount of influence on the development of French literature. Perkins (1904: 315) writes, “Not only had he a taste for literature and a desire for literary reputation, but he recognized the growing importance of the men who wrote; he cultivated their society from policy as well as inclination.” In England, “If Tennyson had called upon Mr. Gladstone, he would not have been overpowered if politely asked to sit down; but two hundred and fifty years ago there was a great gulf between a poet and a prime minister (Perkins 1904: 317). Not only were writers in France from a higher status than those in England, they were socially close to people of the state.

The English aristocracy was relatively peripheral in the English social structure. Stone (1966) suggests several possible ‘models’ of the social status structure in British society: A stepped pyramid, with the lowest classes in the largest number, with numbers

declining as status increases. The ‘United Nations’ view—a large flat base and a tall tower—with two separate scales of success where different people have different opportunities. The third model involves a flat base and several rising towers—a lower class and several different status groups that are internally upwardly mobile but not horizontally mobile. The stepped pyramid model results in a strong connection between network centrality and success, while the other models indicate distinct social networks and exclusive paths of diffusion.

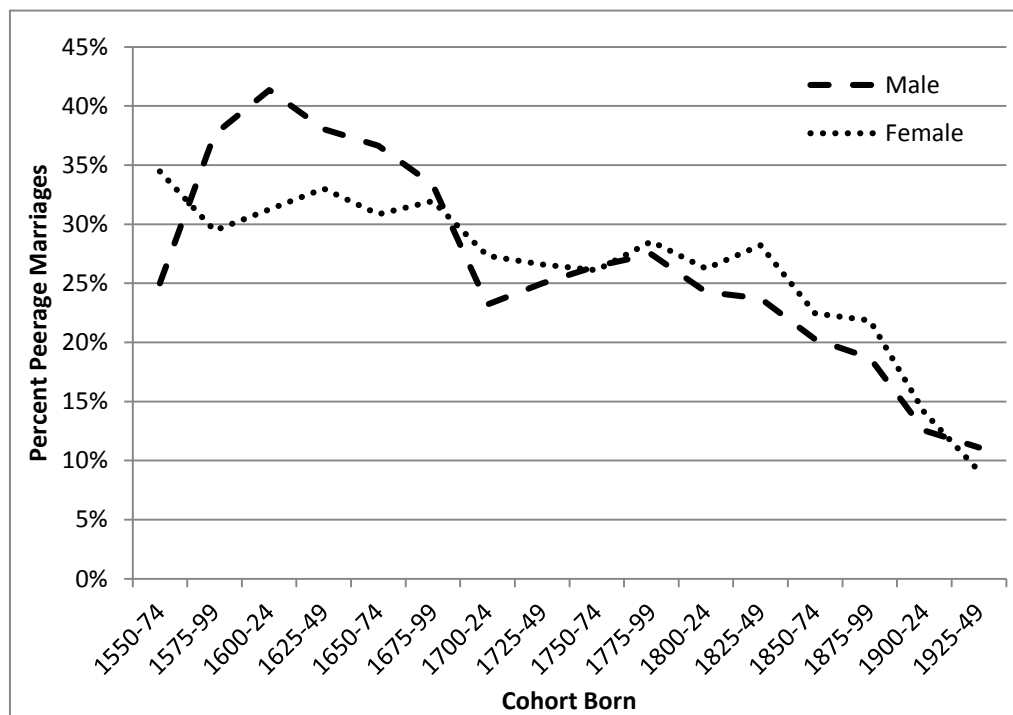
If the stepped pyramid describes British society, then we will see a high degree of fluidity between social status groups. If the ‘United Nations’ model is correct, then there will be horizontal social mobility – those who are in powerful positions within the Church will be able to enter the aristocracy or the legal profession. If the multiple tower model is correct, then we will see occupational specific human capital that permits upward mobility, but little mobility between different high-status positions. The highest status people consisted mainly of members of the peerage, or nobility. There were three routes into the peerage: birth, marriage and, royal elevation. Titles and estates usually passed to the oldest member of, in order, legitimate sons, son-in-laws, and daughters. Membership in the peerage brought political power in the form of a seat on the House of Lords. Lindert and Williamson (1982) estimate the average annual income of peer households to be £6060 for 200 households in 1688,<sup>35</sup> 154 times the average household

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<sup>35</sup> For England and Wales. The household size of wealthy families is much larger than for poor families, because multiple branches of a family lived together, along with servants, etc. For the peers in 1688, King estimates the average household size to be 6400 with 40 'heads per family' (Holmes 1977: 66)

income; £7980 for the top 310 households in 1759<sup>36</sup>, 173 times the average household income; and £8000 for 287 households in 1801-03, 88 times the average household income.

For people not born to the peerage, marriage was the easiest way in. **Figures 6, 7, and 8** break down the pattern of marriages over time.

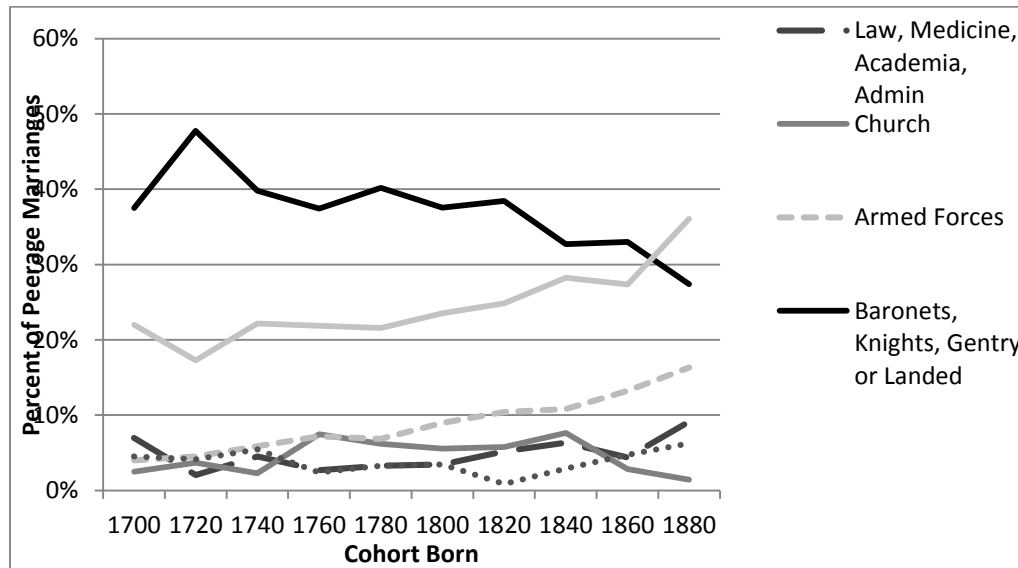


**Figure 6: In-marriages by peers or their children, cohorts born 1550-1949.** from Hollingsworth (1965: 9). See also, *Population* (1964: 8-28)

<sup>36</sup> Data is only provided for the nobility as a whole, and broken into families of various income levels.



**Figure 7: In-Marriages by Heir Status, Cohort Born 1700-1880:** From data in Thomas (1972: 105).



**Figure 8: Marriages by Social Background, Cohort Born 1700-1880. 1880** (Thomas 1972: 105). These are marriages by sons, and the data indicate the background of the fathers of women that men in the peerage marry. The solid light gray line is the sum of all non-noble marriage partners. The numbers do not add to 100% due to gaps in the data.



There is less data the further back marriages are tracked, but **Figure 6** indicates that peer marriages are especially endogamous for the cohort born before 1700 and afterwards, with a brief spike in exogamy and a slow decline from the previous level. **Figure 8** breaks this data down further, and shows that the largest gains in outsider marriages come from daughters of members of the armed forces. Thomas (1972: 108) suggests that the increase in out-marriages is a result of declining political importance of the peerage, and the rise in marriages to officers while the British Empire is expanding supports this. The main takeaway from this, for the purposes of describing Britain's social networks, is that marriage into the peerage never became a major source of social mobility for the 'bourgeoisie.'<sup>37</sup> Rogers (1979: 446) notes that according to "the early editions of Chamberlayne's *Angliae Notitia*, first published in 1669, a tradesman was 'not capable of any Honourable Estate' and a gentleman so apprenticed irrevocably blotted his pedigree," though it is difficult to tell whether these prohibitions existed in fact. At the very least, the picture of British social life as a 'pyramid' seems far-fetched. Adam Smith notes that people of different ranks tend to have different roles in administrations, and have different expectations of behavior. Smith (1976: 103) writes, "In all governments accordingly, even in monarchies, the highest offices are generally possessed, and the whole detail of the administration conducted, by men who were educated in the middle and inferior ranks of life..." The virtues needed for administration are rare among those of high station, and those of low station have no other means of advancing in government outside of administration.

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<sup>37</sup> Although many first generation rich were able to have children who were considered 'landed.'

The peerage was not the only way to advance vertically in society. In 1534 King Henry VIII seceded from the Catholic Church in Rome and founded the Church of England. This new Church consisted of people from all stations; local priests often made little more than their parishioners did, while bishops were among society's elite. According to Lindert and Williamson (1982), incomes of 10,000 lesser clergymen were 27% above average 1688; 9,000 made 7.8% more than average in 1759; and 12,500 made 30% more than average in 1801-03. 2,000 greater clergymen made 84% more than average in 1688, 2,000 made 116% in 1759, and 1,000 made five and a half times the average household income in 1801-3. Bishops made significantly more, on average half of that made by peers. Twenty-six seats on the House of Lords were reserved for bishops, whose income was so high as to be roughly half that of the households of the peerage.

To what extent was the Church of England a possible road to social advancement? To test this, I look at the surname composition of people at each station. Many English surnames contain an indirect measure of social status, since one of the common choices of a surname was one's occupation. Adam Smith probably had, at some point in his ancestry, someone who actually worked as a blacksmith. By measuring the proportion of people with names derived from their occupation, we can get an indication of social mobility. Given perfect social mobility, occupational surnames would be just as common in the nobility as among laborers, and given perfect social immobility there would never be occupational surnames among the upper class. The House of Stewart (or Stuart), for

example, which held the Scottish and, later, British monarchy are descended from a steward.<sup>38</sup>

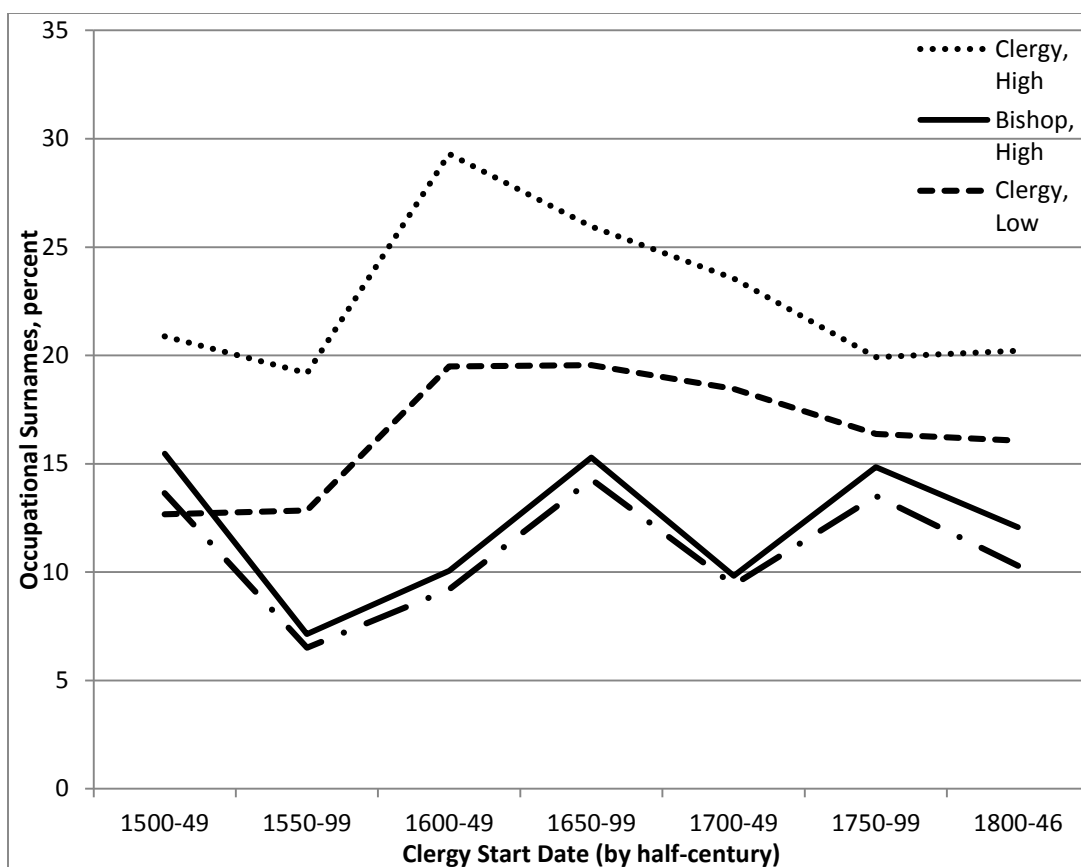
Using data collected from the Clergy of the Church of England Database,<sup>39</sup> which includes over 126,000 entries for clergy from 1500-1846 and almost 1,000 entries for bishops, I was able to ascertain an estimate for social mobility over time by categorizing surnames depending on their etymological origins.<sup>40</sup>

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<sup>38</sup> Robert the Steward was the "(Lord High) Steward of Scotland" and "first officer of the Scottish king," so the origin of the house is not as humble as it sounds (Reaney 1991: 2973-4).

<sup>39</sup> <http://www.theclergydatabase.org.uk/index.html> accessed July 20th, 2011.

<sup>40</sup> The database includes some clergy who were retained after the break from the Catholic Church, which is why the database predates the Church of England. Etymologies primarily collected from Reaney, 1991.



**Figure 9: Occupational Surname Frequency by Clergy Level.** The high estimate assumes that unidentified surnames are occupational surnames at the same rate as identified surnames; the low estimate assumes that no unidentified surnames are occupational surnames.

The portion of low clergy with ‘occupational’ surnames exceeded the portion of bishops with occupational surnames for every period observed, even if it is assumed that none of the unidentified surnames for low clergy came from an occupation.<sup>41</sup> Given

Chamberlayne’s insistence that gentlemen not engage in an occupation, this data suggests that high clergy and low clergy were being drawn from different groups of people.<sup>42</sup>

<sup>41</sup> Surname etymologies used here and for Learned Societies is available in Appendix B.

<sup>42</sup> Clark (2010) has an SSRN working paper using surname data from 1200-2009. There, he claims, contrary to this work, that by 1600 England was “a world of complete social mobility, with no permanent over-class and under-class, a world of complete equal opportunity (Clark 2010: 1).” He also claims that

**Table 1: Summary Statistics, Occupational Surnames in the Church of England.**

					Clergy	Bishops
	Clergy	Bishop	Clergy	Bishops	w/Occu	w/Occu
Time Period	Records	Records	Identified	Identified	Name	Name
1500-1549	6038	110	3663	97	765	15
1550-1599	26056	169	17441	154	3346	11
1600-1649	15806	163	10513	149	3080	15
1650-1699	15403	182	11607	170	3012	26
1700-1749	14407	117	11291	112	2660	11
1750-1799	16752	111	13773	101	2744	15
1800-1846	14271	68	11345	58	2293	7

Both peer marriage data and Church of England surname data point to a lack of elite social network centrality. What evidence is there of middle class centrality? The first is the proliferation of Learned Societies: groups that met to discuss natural and social sciences; many of them were responsible for the earliest British journals. In England, there was the Society of Arts, founded in 1754 (becoming the Royal Society of Arts in 1847 with a Royal Charter), British Association for the Advancement of science in 1831, The Royal Institution in 1799, The Geological Society in 1807, the Society for the Diffusion of Useful Knowledge in 1826, the Society for Promoting Christian Knowledge in 1698, the Lunar Society in 1765, the Manchester Literary and Philosophical Society in

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having an unusually spelled surname predicts success even after 1851 and that “Economic success by a man in 1600 substantially increased his share of their genes in the English gene pool by 1851 (Clark 2010: 26).”

1781; Scotland has the Society of Improvers in 1723, The Rankenian Club in 1717, and the Glasgow Political Economy Club in 1743.

Many of these clubs claimed sizable memberships. More than 1,500 people subscribed to the Royal Institution from all over the British Isles in 1801, its second full year; the British Association for the Advancement of Science had over 3,000 members its first year. These societies included members of the elite, including peers and clergy, but a majority of the governing members was not from the elite.

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In Britain, scientists and engineers participated in societies for their own private interest. By contrast, Mokyr (2009: 149) writes “An ‘engineer’ in France was a military man.” The centrality of the state’s purposes in France was pronounced: in addition to the importance of the state in language and literature discussed above, French science and engineering focused on the goals of the state. Geography is, in part, to blame for this. While both Britain and France were perpetually at war, in Britain war empowered the navy while in France war empowered the army. In peacetime, the skills learned by sailors

in the navy have productive uses—a corollary of the Navigation acts, where Britain protected British shippers (ostensibly) to create a reserve of skilled sailors in the case of wartime, Britain’s wars made skilled sailors less scarce in peacetime. In peacetime, the skills learned in the army have primarily unproductive uses. France’s land-wars created an abundance of people who were suited to serve in large hierarchies devoted to predation. Geography, while certainly not destiny, interacted with other contingencies to give Britain an advantage in reaching modern economic growth.<sup>43</sup>

Britain’s lack of a guiding entity allowed people to address their own questions, drawing on their tacit and specialized knowledge as to how to direct their efforts. The lack of a single guiding purpose made Britain relatively weak in generating ‘big ideas,’ but exceptionally strong in advancing ‘little ideas.’ Getting an edge in business does not require a revolution in productivity—just a way to undercut the competition. Britain’s comparative advantage became ‘microinventions,’ in Mokyr’s (2009: 114) terminology. In 1766, a Swiss manufacturer observed, “for a thing to be perfect it has to be invented in France and worked out in England (cited in Mokyr 2009: 142).”

## **Discussion**

Britain’s aristocracy sat apart from the rest of British society for much of the Industrial Revolution. The echoes of the Norman invasion with its implementation of a separate overclass gave the untitled an opportunity to shape their own webs of meaning. The aristocracy’s benign neglect encouraged local officials to invest in their own

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<sup>43</sup> The island of Britain was hardly exempt from land-war. Battles between Anglo-Saxon kingdoms, the English and the Danes, Normans, and finally the Scots, were all done on land. Only upon the unification of the island did the British gain the social advantage of a focus on the navy over the Continent.

communities, and weakened centralized administrative power. England's aristocracy simply did not have the social weight to force drastic social change the way that France's did. When England abandoned Latin and French for all practical purposes, the tradition that remained was an informal common law, a monument to English empiricism in opposition to the rationalism of civil law. As an island nation, Britain's army paled in importance to its navy, and the navy produced a much more benign class of people in peacetime, people who could sail instead of simply predate. Eventually the industrialists harnessed their newfound wealth and power into aristocratic positions, closing the social network—but not until the aristocracy itself, and Britain, was transformed.

Looking at the social structure of Britain allows us to better understand the way that institutions change, and who is to be the beneficiary of those changes. A social structure like Britain's, when wealth accrues to people outside an aristocracy, can create a liberal order. A social structure with a highly central aristocracy will respond to an increase in wealth by cementing the power of the aristocracy. In the contemporary world, fewer phenomena fit this framework better than so-called 'resource curses.' The somewhat counterintuitive result that an exogenous increase in wealth can cause positive damage to a nation's economy makes sense upon examining the structure of social relations that exist in that country. If the social structure of a country contains highly central aristocrats or authoritarians, the discovery of a resource portends economic and political disaster. If the elite are isolated from the benefits of a windfall, the discovery of a resource may portend the arrival of a liberal society that can sustain modern economic growth.



## APPENDIX A

This agent-based network simulation intends to demonstrate the effect that the differential value of relationships between types of agents has on the diffusion of information in the networks that emerge, and to demonstrate the importance of network centrality on the diffusion of information through the networks. These simulations have implications for the network theory, as discussed above, but also for the literature on the allocation of talent between productive and unproductive activities. Murphy et al (1991), Baumol (1990), Acemoglu (1995), and Mauro (1995) for instance, find incentives provided by an entrepreneur's environment determine where she directs her talent. This simulation demonstrates that small changes in incentives to create relationships with different types of people create networks that reinforce the social outcomes of either productive or unproductive entrepreneurship. When it pays to build relationships with productive entrepreneurs, the information that spreads will be of a type that complements productive activities; when it pays to build relationships with unproductive entrepreneurs, information will spread to complement that activity.

The program runs in two steps: first, it generates 200 or 1000 agents, split evenly into two types. The 'productive' type has a high probability of diffusing an idea, while the 'unproductive' type has a low probability. Agents get four characteristics:

- 1: Link Budget: to spend on creating links to other agents (set at 3; once the agent exhausted its budget it stopped searching.)

2: Link Value: determines the agent's attractiveness to other agents (varied, for 'productive' agents set at 3, for 'unproductive' agents varied, either 4, 3, or randomized by  $(1-3)*(1-3)$ ). When an agent is linked to, this value is reduced by one, to represent diminishing marginal returns.

3: Minimum Value: determines if an agent will link with another it 'sees' (set at 9 for all agents, the maximum value. After every 100 ticks, this value reduced by one, in order to simulate a preference for higher valued links).

4: Diffusion Probability: the chance an agent 'accepts' an idea adopted by one of its link neighbors. If a neighbor is infected at  $t=1$ , the agent becomes at  $t=2$  with N% probability. N=5 or 10% for 'unproductive' agents, and 85% for 'productive' agents.

The agents then 'search' for the best relationships. When agents bump into each other, they check to see if they are valuable enough to create a relationship with.<sup>44</sup> Agents start accepting only the best relationships, and slowly lower their standards over time until they have exhausted their Link Budget. The system records the number of links that each 'productive' agent has with each type of agent. **Figure 3** clearly shows that the number of links with 'unproductive' agents increases dramatically with their Link Value.

Once the network is simulated, one 'productive' agent at random is infected with an idea. The agent then, at  $t = 1$ , communicates the idea to its neighbors, spreading to 'productive' agents with a high probability and to 'unproductive' agents with a low probability. Each infected neighbor subsequently tries to diffuse the idea to its own neighbors, at  $t = 2$  for the originator's neighbors,  $t = 3$  for the neighbors of the originator's neighbors, and so on. Each agent only attempts this once: if its neighbors adopt the idea, they diffuse it next turn, if they do not, the agent cannot infect them (though they can later be infected by other neighbors). The system records both the extent

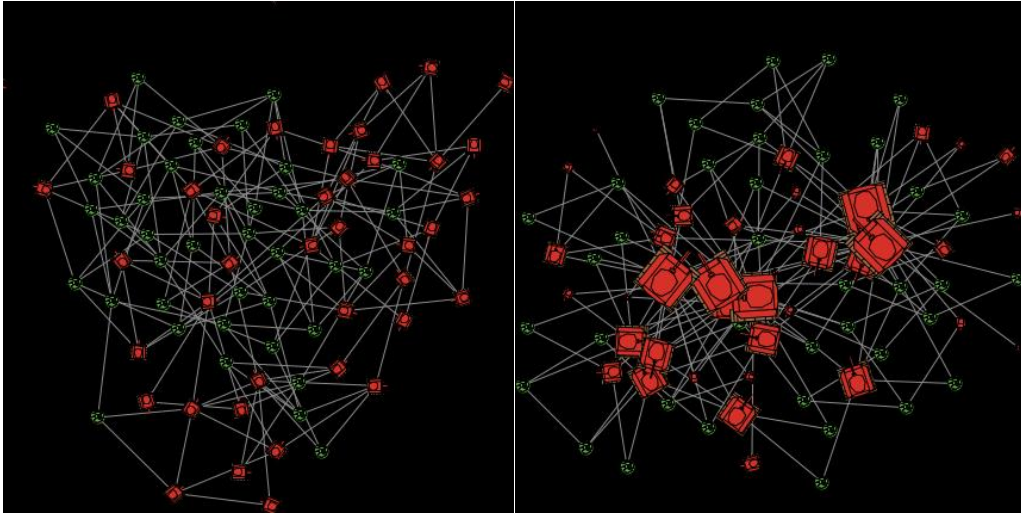
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<sup>44</sup> This is done sequentially, to prevent agents from linking with agents who are already neighbors.

of the diffusion among ‘productive’ types, and the speed at which diffusion reached 75 and 90% of ‘productive’ agents.

The important variable between simulations is the payoff from linking with ‘unproductive’ agents. There are 479 diffusion simulations across 23 simulated networks. **Table 1** includes summary statistics. The simulated networks take two forms: those where ‘unproductive’ agents have a high degree of centrality and those where both types of agents have equal centrality, demonstrated by **Figures 1 and 2**. Each network ran 20 or 21 simulations. Diffusion of the idea took one of two routes: The idea spread to very few or most of the ‘productive’ population. The spread followed the s-shaped diffusion rate common to an endogenous spread of ideas.

The results are striking. When the ‘unproductive’ Link Value is highest, ideas successfully diffuse to three-quarters of the ‘productive’ population as low as 19% of the time, taking as long as to  $t=40$  to do so. When the ‘unproductive’ Link Value is lowest (i.e., equivalent to ‘productive’ agents). Controlling for network size and bureaucrat diffusion rate, an increase in Link Value to ‘unproductive’ agents leads to a 30% fewer ideas idea diffusing, and successful diffusions take  $t=20$  extra time. **Table 2** and **Table 3** contain regression coefficients of diffusion success and time on the included variables, while **Figure 4** shows the relationship between ‘unproductive’ Link Value and idea diffusion success and time.



**Figure 10: Egalitarian and 'Unproductive' Central Networks.** The left contains a 40-agent network simulated with both types of agents having the same Link Payoff. Productive agents are green, unproductive, red. The right is the same number of agents, but randomizes the 'unproductive' Link Value, from 1-9. (1-3\*1-3). More central agents are, visually, closer to the center. The network generated for Figure 2 features a very high degree of 'unproductive' agent centrality.

**Table 2: Simulation Summary Statistics**, 75% Suc and 90% Suc indicate the percentage of diffusion simulations that reached the respective thresholds by  $t = 60$ .  $T$  at 75% and 90% represent the average time it took to reach the given threshold, conditional upon the diffusion being successful. *E-E Links* represent the average number of links a ‘productive’ agent has with other ‘productive’ agents, while *E-B Links* represent the links between ‘productive’ and ‘unproductive’ agents. *Pay* is the average starting Link Payoff. *Diff* is the probability each agent adopts an idea. *B Payoff* determines ‘unproductive’ Link Value.

Network	75% Suc	90% Suc	T at 75%	T at 90%	E-E Links	E-B Links	B Pay	E Pay	#/Each	B Diff.	E Diff.	B Payoff
1	20.0%	20.0%	16.8	21.0	1.01	2.00	4.31	3.00	200	0.1	0.75	(1-3)*(1-3)
2	55.0%	55.0%	14.5	16.7	1.57	1.69	3.71	3.00	200	0.1	0.75	(1-3)*(1-3)
3	45.0%	45.0%	15.1	18.1	1.58	1.69	3.78	3.00	200	0.1	0.75	(1-3)*(1-3)
4	40.0%	40.0%	20.3	23.1	1.06	1.99	4.27	3.00	200	0.1	0.75	(1-3)*(1-3)
5	57.1%	57.1%	15.0	18.0	1.51	1.75	3.75	3.00	200	0.1	0.75	(1-3)*(1-3)
6	42.9%	42.9%	15.8	19.3	1.13	1.88	4.12	3.00	200	0.1	0.75	(1-3)*(1-3)
7	42.9%	42.9%	28.0	34.4	1.33	1.82	3.93	3.00	200	0.05	0.75	(1-3)*(1-3)
8	19.0%	14.3%	43.5	58.7	0.81	2.06	4.41	3.00	200	0.05	0.75	(1-3)*(1-3)
9	19.0%	19.0%	31.3	39.8	1.20	1.87	4.05	3.00	200	0.05	0.75	(1-3)*(1-3)
10	47.6%	28.6%	39.7	51.9	0.87	2.03	4.27	3.00	200	0.05	0.75	(1-3)*(1-3)
11	61.9%	61.9%	11.9	13.8	2.54	1.23	3.00	3.00	200	0.05	0.75	Flat 3
12	76.2%	76.2%	11.1	12.8	2.58	1.28	3.00	3.00	200	0.05	0.75	Flat 3
13	71.4%	71.4%	12.0	13.7	2.55	1.23	3.00	3.00	200	0.1	0.75	Flat 3
14	71.4%	71.4%	10.5	12.1	2.70	1.20	3.00	3.00	200	0.1	0.75	Flat 3
15	42.9%	42.9%	20.6	34.1	1.58	1.70	4.00	3.00	200	0.1	0.75	Flat 4
16	42.9%	42.9%	29.1	38.0	1.48	1.74	4.00	3.00	200	0.1	0.75	Flat 4
17	66.7%	66.7%	24.0	33.0	1.59	1.69	4.00	3.00	1000	0.1	0.75	Flat 4
18	57.1%	57.1%	27.8	35.8	1.61	1.71	4.00	3.00	1000	0.1	0.75	Flat 4
19	66.7%	66.7%	21.3	23.6	1.38	1.83	3.96	3.00	1000	0.1	0.75	(1-3)*(1-3)
20	38.1%	38.1%	25.4	28.1	1.32	1.83	4.05	3.00	1000	0.1	0.75	(1-3)*(1-3)
21	33.3%	33.3%	27.9	34.0	1.37	1.81	3.98	3.00	1000	0.05	0.75	(1-3)*(1-3)
22	71.4%	71.4%	14.9	17.4	2.46	1.28	3.00	3.00	1000	0.05	0.75	Flat 3
23	71.4%	71.4%	15.6	18.5	2.48	1.24	3.00	3.00	1000	0.05	0.75	Flat 3

## Limitations and Implications

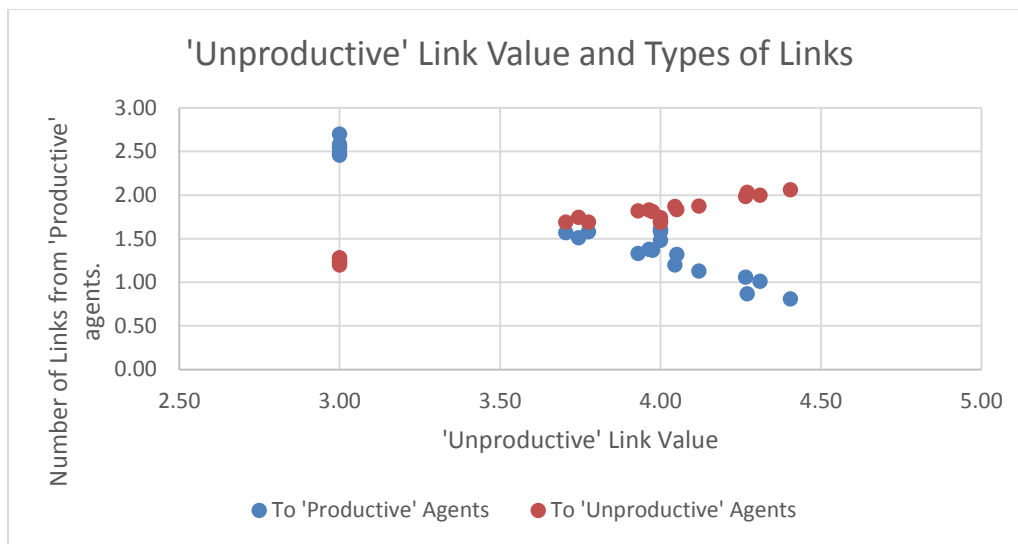
Because the simulated agents and networks are much simpler than real human networks, the simulation contains a number of restrictions to keep in mind before applying the results to real-world situations.

First, the model precludes agents changing their ‘type.’ While some environments force people into specific ‘types,’ many agent types are voluntary and variable. Second, the Link Payoff is identical to every agent. There is no heterogeneity in interpretation,

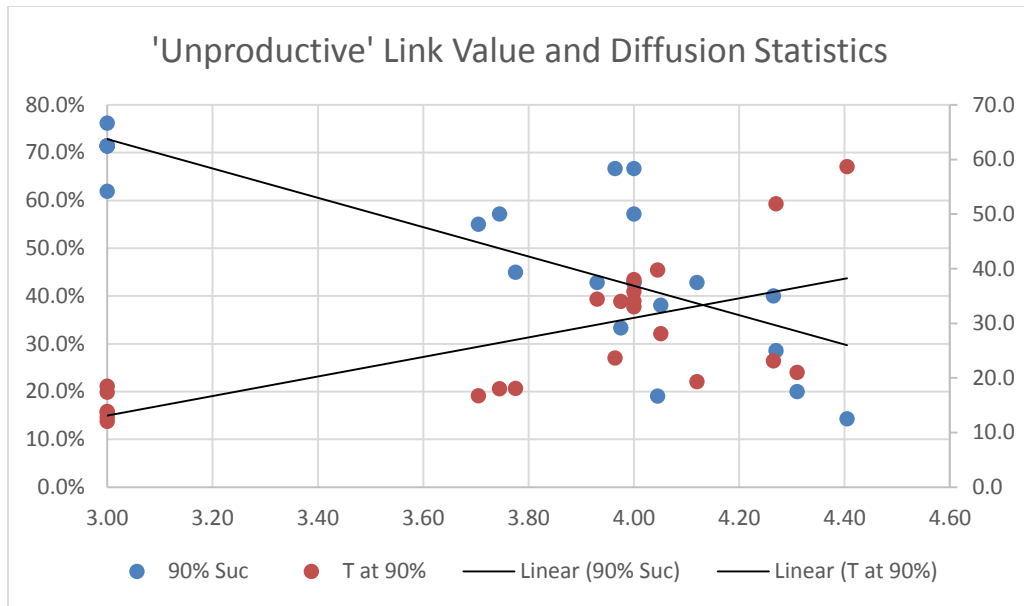
only heterogeneity in initial factors. In reality, people value others using subjective scales of value. Real-world networks are more segmented than the simulated networks, though the average number of relationship and the variance in that number is similar to other networks. The simulated network has only a single dimension, and all relationships have the same ability to diffuse an idea, things that are useful simplifications but warrant caution when thinking about real social networks. Third, agents here do not strategically react to the network. If someone can make a living by brokering ideas, an entrepreneur can selectively bridge gaps in the network. This mechanism requires, though, that there is some way for the broker to be a residual claimant to the information diffusion.

Even accounting for its limitations, the model presents a number of implications for the study of social networks. Whenever information is useful only to a specific portion of the network, the payoffs from generating relationships with the different types of agents will influence the way that information diffuses. The pattern addressed in this simulation applies most strongly when the information does not have benefits a broker can internalize. Many ideas, such as political attitudes or musical tastes, carry little instrumental value in informal networks, and will have diffusion patterns that are a residue left by stronger binding forces. Culture, the socially learned patterns of meaning, changes as ideas flow through the social structure (and other information-delivery systems). Any bias in people's social networks will shift the patterns of meaning they observe and adopt. Patterns transmitted by people's social groups also include things like musical taste (e.g., Lonsdale and North 2012), and linguistic change (Milroy and Milroy 1985: 343). The extreme result of this would be epistemic segregation for 'types' of

agents who are rarely in ‘bridging’ positions. For instance, in societies where women are expected to undertake a specific type of work, while at the same time having few ‘weak ties,’ any innovations that a woman comes up with to help other women will be unlikely to find their way to other women.



**Figure 11: Link Value and Number of Links**



**Figure 12: 'Unproductive' Link Value and Diffusion Statistics.** The left axis (blue) measures the number of simulations that diffusion reached 90% of 'Productive' agents. The right axis (red), measures the time it took for an idea to diffuse to 90% of the 'Productive' population, conditional on success.

**Table 3: Regression Coefficients on 75% Diffusion Success**

	<i>Coeff</i>	<i>Std. e</i>	<i>t Stat</i>
Intercept	1.472604	0.144072	10.2213
B Pay	-0.32941	0.037424	-8.80215
#/Each	0.00013	4.78E-05	2.719521
B Diff.	2.530513	0.73849	3.426603

'B Pay' is Link Value, #/each controls for network size, B Diff controls for simulations where 'Unproductive' agents have higher or lower diffusion rates. An increase in the payoff by 1 decreases the probability of the idea diffusing by 32.9%. In addition, when bureaucrats have a higher chance of adopting an idea the chance of it successfully diffuses increases: the change from 5% to 10% increases the probability of diffusion by 12.6%. 2000 agent networks diffused ideas at a 10.3% higher rate than networks with 400 agents.



**Table 4: Regression Coefficients on Time to 75% Diffusion**

	<i>Coeff</i>	<i>Std. e</i>	<i>t Stat</i>
Intercept	-33.0046	12.59768	-2.6199
B Pay	20.80209	3.272387	6.356857
#/Each	0.001854	0.004176	0.443935
B Diff.	-240.228	64.57368	-3.72021

An increase in 'Unproductive' Link Value by 1 slows diffusion to 75% by t=20.8 (a maximum of 60).

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