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Production of Trust: Institutional Sources
of Economic Structure, 1840 to 1920

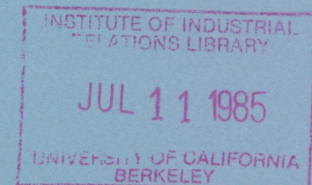
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I. INTRODUCTION

Why do whole economies, specific sectors, industries, and individual firms come to be organized the way they do? Recent work answers this question in a piece-meal fashion, so that different causes are posited for each level of economic organization. I suggest a unified approach, one which treats social variables as causes rather than consequences of economic change. In brief, this essay argues that disruption of trust, through high rates of immigration, population mobility, and instability of business enterprises from the mid-1800s through early 1900s, caused the formation of structures within and between firms designed to produce trust. These trust producing structures were the managerial hierarchy created by internal bureaucratic organization, much of the service economy, including financial intermediaries and government, and regulation or legislation.

My starting point is trust. From a sociological perspective, trust is defined as a set of expectations shared by all those involved in an exchange.[1] It includes both broad social rules, determining, for example, what a "fair" rate of interest would be, and legitimately activated processes, such as

who has the right to determine the rate of interest. This definition takes the background of any given transaction into account, rather than simply examining the proximate terms of exchange. It differs in the following ways from modern economic theory: (1) trust may be created by formal mechanisms, including entire sectors of the economy; (2) trust may lead to inefficiencies, creating for example more banks to produce trust among firms than necessary for purely financial transactions; and (3) transactions are not necessarily separable nor does efficiency maximization explain their organization.

Trust is so closely related to basic norms of behavior and social customs that most actors take it for granted until it is violated (Garfinkel, 1967:38-52). Because trust is implicit in most transactions, it is difficult to measure directly. One of the major purposes of this essay is to develop several indirect measures of trust. First, indicators are used by individuals and firms to signal the likely presence or absence of trust. Both informal indicators of trust, such as membership in a professional association, and formal indicators of trust, such as insurance, are used. Second, the strength of individual or firm reaction to disruption of trust is used as an indicator of the importance of trust in the relationship.

Trust - its disruption and production - strongly affected economic transactions during the critical formative period of U.S. industry, about 1840 to 1920. The empirical part of the argument falls into two parts. The first part documents the

disruption of trust during the period of massive transformation of the economy. Increasing heterogeneity in the labor force, through immigration and internal migration, and in the types of enterprise (and, more broadly, industries), left few of the prior background expectations untouched. Values, common practices, and even in some cases basic symbols and vocabulary, were not shared. At the same time, urbanization and a move toward a national economy increased contact among diverse individuals/firms. Further, the volatile growth and high rates of failure of the newly emerging businesses at the turn of the century led all involved to question whether they could trust the new institutions. The prior bases of trust were undermined.

The second part of the argument demonstrates that the economy at its origin was shaped by mechanisms, including new organizations, designed to rebuild, to *produce* trust. Through institutionalizing socially created mechanisms for producing trust, the economic order was gradually reconstructed. First, rational bureaucratic structures were adopted to provide written rules and formal hierarchy that produced trust between employers and employees. Second, a distinctive economic sector arose to bridge transactions between firms and between individuals and firms. Referred to as the social overhead capital sector (Averitt, 1968) or producer services (Singlemann and Browning, 1980), this sector includes banking, insurance, government, real estate, and legal services. Third, regulation and legislation were used to produce trust. They established a starting point

and a general framework that created a common base for exchange within which economic transactions could take place.

The four main sections below each deal with a separate element of the argument. In the first section, trust is defined and measures of trust are developed. After specifying the conditions likely to disrupt trust, mechanisms for producing trust are discussed. The second section considers implications of the sociological approach to trust for economic theory, including economic views of trust and of transaction cost. In the third section, sources of disruption of trust in the period roughly from 1840 to 1920 are documented. The fourth section outlines the development, spread, and eventual institutionalization of economic structures and processes designed to produce trust.

II. TRUST AND ITS INSTITUTIONAL PRODUCTION

Trust has been acknowledged in economics and organization theory as the most efficient mechanism for governing transactions (e.g., Arrow, 1974; 1970; Ouchi, 1980), and in sociology as "essential for stable social relationships" (Blau, 1964:64), vital for maintenance of cooperation in society (Parsons, 1951), or necessary as grounds for even the most routine, everyday interaction (Garfinkel, 1963:217).

Recognition of the importance of trust has led to concern with defining the concept, but the definitions proposed unfortunately have little in common. Economists typically define trust as "implicit contracting", where one individual or firm trusts a second individual or firm to do what it has promised to do; trust is a simple replacement for a written contract. But, from a sociological perspective, trust is necessary even to write a contract - much is *not* specified in such a contract, because others *trust* that normal modes of operation pertain. Most important business transactions rest on just such assumptions of "business as usual" with trust underling what is written (Macaulay, 1963:58-63).

There are two major definitions of trust in the sociological literature; both differ from the implicit contracting idea. One asserts that trust resides in actors' assumptions that others in an exchange will put self-interest aside in favor of "other-orientation" or "collectivity-orientation" (Parsons, 1939, and 1969, Pt. 4). The other asserts that trust resides in actors' expectation of "things as usual", on the actor being "able to take for granted, to take under trust, a vast array of features of the social order" (Garfinkel, 1967:173). In this view, trust rests on some degree of collective orientation at the beginning of interaction, but self-interest is often expected and legitimate at subsequent stages of the exchange. For example, to play a game requires mutual definition of the starting conditions of play (e.g., white moves first in chess)

and of a skeleton of specific rules governing acceptable moves, winning, and so on. But at the same time self-interest is expected: each player is expected to try to win, and to make moves consonant with that objective. Other-orientation is suspect and illegitimate except under special conditions (e.g., teaching a child to play chess).

Here, I will draw from the latter definition because it is both broad in scope and readily applicable to the economic order, where self-interest is explicitly legitimated. After defining trust more formally, the problem of production of trust is considered. The problems involved in measuring trust are considered last.

A. *Defining Trust*

Trust has two major components:

- (1) Background expectations, the common understandings that are "taken for granted" as part of a "world known in common" (Schutz, 1962:207-259; 1932), characterized by the following properties:
 - o The "attitude of daily life" created through use of a standardized set of signals and coding rules held in common "by any *bona fide* member of the collectivity".

- o Reciprocity of perspectives, with individuals (or organizations) mutually identified as members of the same community assuming that all would use the same interpretive frame, see events in the same typical way, by making use of pre-established social facts or "socially warranted knowledge".

(2) Constitutive expectations, the rules defining the context or situation, characterized by the following properties (Garfinkel, 1963:190):

- o Independence from self-interest, so that the set of alternative actions is specified regardless of the individual's (or organization's) "desires, circumstances, plans, interests, or consequences of choice either to himself or to others".
- o Intersubjective meaning, so that an individual (or organization) knows what the expectations are, knows that the other(s) know the expectations, and knows that the other(s) know that the individual (or organization) knows the expectations, even when the content of the expectations varies by social position, individual attribute, and so on.

Background expectations are not specific to any situation, but serve as a general framework for behavior. Both components - shared symbols and shared interpretive frames - are necessary or actions will be "specifically senseless", neither meaningful

nor interpretable (Weber, 1946). For example, the value of money as a medium of exchange is taken for granted when it is used to "pay" for time, tangible property, or work. But interpretation is more problematic if money is used in exchange for religious salvation or sex from one's spouse; the latter drew an incredulous response in a major movie. If the use does not involve exchange, such as using money as a lining for shelves or as notepaper, interpretation becomes even more difficult.

Constitutive expectations are more specific to particular sectors, exchanges, or interactions. Generally, there are more valid alternatives: basic rules and related sets of possible rules. Following the example above, according to the rules that govern exchanges using money, stock, bonds, bank "checks", and credit cards are generally substitutable for "cash". The relative roles of the "clerk" and "customer" in such exchanges are well specified: the customer asks to use a check or credit card, while the clerk determines whether such substitutions are acceptable. Extensive negotiations are not required, unless constitutive expectations do not exist for the specific substitution, such as providing a service in place of money.

Both background expectations and constitutive expectations are necessary for trust to exist, but trust will vary depending on the relative amount of each component. As one component increases in importance, the other tends to decrease. Abundant background expectations diminish the need for constitutive expectations because some otherwise attractive alternatives are

redefined as non-alternatives by the factual quality of the social order. When constitutive expectations are specified, some of the background expectations become explicit, invalidating them.

When "normal" expectations are not met and trust is breached, the common reactions are anomic and demonstrate confusion: reactions include "shock, anxiety, embarrassment, and anger" or personal attribution such as "sickness" or "selfishness" (Garfinkel, 1963:226). Distrust only emerges when the suspicion arises that the disruption of expectations in one exchange is likely to generalize to other transactions. To distrust, then, implies an attribution of intentionality that continues throughout all interactions or exchanges, at least of a particular type. Hence, trust can be disrupted without producing distrust.[2]

B. Production of Trust

Trust is not either present or absent, but can be produced. Mechanisms for production of trust are discussed in sociological and anthropological work, though often not explicitly. For example, Parsons discusses socialization, or more precisely internalization, as one such mechanism (1951). Also, in both the sociological and anthropological literature, the use of gift giving as an (implicit) trust producing mechanism is explored both theoretically and empirically (e.g. Mauss, 1954, Malinowsky, 1922:176-194, and 1932:22-40).

However, both socialization and gift giving mechanisms require extensive interaction over long periods of time and/or produce trust between a small number of individuals involved in a limited set of exchanges. Under most conditions, they are highly specific to the individuals (or firms) engaged in the transaction and are governed by idiosyncratic understandings and rules. As Garfinkel has shown, in family interaction truncations of names and places and shorthand expressions are typical because everyone in the family knows what is meant (1967:43-49); in tic-tac-toe or chess there are also predominantly game-specific expectations (1963:201-206). Applying the underlying principle to economic exchange, trust produced to govern sale of coal between a coal mine in Pennsylvania and a steel mill in Indiana is not a saleable product; it is likely to be relevant only to that exchange, or generalizable only to exchanges between the two firms.

Such local mechanisms for production of trust may work well in the case of small numbers, whether in primitive societies or in individual exchange relationships, but not so well in less personal, large scale exchange, so common in modern market economies. How can production of trust generalize beyond a given transaction and beyond specific sets of exchange partners? Although important mechanisms of trust production can arise within a local exchange, it is not until they are reconstructed as intersubjective and as part of the "external world known in common" that they can generalize beyond that transaction. This

process of reconstruction has been called institutionalization: the process of redefining acts as *exterior* when intersubjective understanding causes them to be seen as part of the external world and *objective* when they are repeatable by others without changing the common understanding of the acts (Zucker, 1977:728). When trust producing mechanisms are high on institutionalization, they rest on widely shared understandings about "how things are done". For example, many legal contracts use a standard form, regardless of the firms involved in the transaction.

In general, formal mechanisms of trust production, including legal contracts and legislation, rest more commonly on institutionalized understandings, while informal mechanisms, such as "norm of reciprocity", rest on local understandings. However, this generalization holds better for constitutive expectations than for background expectations. Constitutive expectations, because of their rule-like character, can be formally stated without major alteration in their exterior or objective quality; however, background expectations cannot be explicitly stated without reducing their taken for granted character as "something everybody knows". Hence, whether background expectations are highly institutionalized or not, trust resting on them will tend to be created by informal mechanisms, thereby kept implicit. The very act of making these background expectations explicit, such as by using formal mechanisms, may have the effect of de-institutionalizing them (Zucker,

1977:728). When background expectations cannot be reconciled, the only possible resolution may be to force firms (or individuals) into a common pattern, producing what has elsewhere been called "institutional isomorphism" (DiMaggio and Powell, 1983).

When trust producing mechanisms are both formal and institutionalized, trust becomes a saleable product. Some firms, bureaucracies, and individuals specialize in the production of trust, marketing trust to others. For example, stock markets act as trust producing mechanisms, because of listing requirements for firms, memberships for brokers, and so on. Individuals, firms, and even modern entities such as pension plans pay for a broker's service, rather than invest a large proportion of their assets directly in unlisted companies. In so doing, they are opting for a system that guarantees trust and avoiding inherently riskier choices that may, however, offer substantially better gains. Hence, the stock market successfully manufactures trust; this trust is purchasable, and the evidence that it is marketable lies in the long term support of the New York Stock Exchange, among others.

Manufacturing trust is, however, not quite like manufacturing steel or soap. There are two features of trust production that are significantly different. First, the production process is time dependent; mechanisms of production have to be socially legitimized before trust can be of more than local applicability, before a real "market" can emerge. Second,

because of the "taken for granted" character of trust in most interactions, production of trust cannot be measured directly: it is implicit and seldom articulated. This characteristic creates significant measurement problems.

C. *Measuring Trust*

For a concept that is acknowledged as central, trust has received very little empirical investigation. Sociologists have seldom measured trust, aside from a few items measuring "confidence" on public opinion surveys (Wright, 1976). Economists generally leave it unmeasured, and most consider it exogenous to models of economic exchange.

There are a number of reasons why measurement of trust is elusive. Trust is often defined in terms of difficult or impossible to measure properties, such as internalization of rules, moral codes, "norms of socialization," "social customs" or social norms, including a "norm of reciprocity" (Arrow, 1970; Williamson, Wachter and Harris, 1975; McKean, 1975; Wilkins and Ouchi, 1983; Gouldner, 1961). Trust can be explained only in terms of unmeasured antecedents: if rules are internalized - or moral codes or the norm of reciprocity apply - then trust exists.

The definition I am using, though more explicit, shares some of these same obstacles to direct measurement. What is important to realize, however, is that the difficulty of

measurement is not limited to the social scientist - the individual and the firm are likewise faced with the problem of how to determine whether or not they can rely on trust in any given transaction. Trying to determine the precise amount of trust would be very costly, if possible at all, much as trying to determine the actual skill level of potential employees exceeds reasonable costs. I expect therefore that trust will be measured much as skill is measured: with *indicators*.

Ethnicity or sex can signal trust in a transaction, just as they signal job skills to an employer (Spence, 1973; 1974). In general, the greater the number of social similarities (dissimilarities), the more interactants assume that common background expectations do (do not) exist, hence trust can (can't) be relied upon. Two kinds of indicators of similarity are frequently used to determine trust. One kind signals membership in a common cultural system: national origin, family background, sex, and so on. These signals are indicators of background expectations, a "world held in common", and are not readily purchased. Instead, the legitimacy of these ascribed indicators is either supported or attacked, such as demonstrating that sex rarely predicts predispositions or behavior (see Maccoby and Jacklin, 1974). A second type signals membership in a subculture within which carefully delineated specific expectations are expected to hold: professional association membership, listing on the New York Stock Exchange, professional certification of a particular type (e.g., licensed real estate broker or

MBA), and, under some circumstances, even more specific signals (e.g., MBA from Stanford).[3] On the firm level, adoption of innovations may serve as a signal of these specific similarities, such as adoption of the multidivisional form regardless of its effects on firm performance (Armour and Teece, 1978). These indicators are signals of specific "rules of the game", the constitutive expectations, and can be purchased through education, certification, or organizational reorganization.

Another type of indicator is more directly purchasable. These indicators rest on the legitimate concern that the transaction may not be completed, or may fail to produce expected return, through no fault of either party involved in the exchange. For example, insuring equipment that is sent air freight does not demonstrate a lack of trust, but rather creates trust. Use of insurance signals that a firm has done everything "reasonable" to protect the other party from loss and that it is behaving in a responsible manner. If you are a conservator of an estate, you may use the type of investments you make as a signal: investments in companies listed on the New York Stock Exchange will produce trust in your conservatorship, while investments in "Joe's Mortgage Service" will not, even though the rate of return may be substantially higher from the latter investment. Similarly, willingness to use an escrow company to hold and disburse funds for an addition to a home is not a signal of distrust, but rather produces trust among the parties

to the exchange. It may be seen as another form of insurance that protects the interests of all parties to the exchange.

Indicators signal how likely trust is and cumulatively indicate the rough amount of trust. However, use of indicators provides little evidence about the importance of trust in any given context or about the relative importance of background and constitutive expectations. Violation of the order trust leads us to expect provides the best measure, with strength of the reactions to violation indicating relative importance. This technique is based on the ethnomethodological tactic of breaching expectations and then observing reactions to violating the presumed social order (Garfinkel, 1963:216-235). In this earlier work, normative order was deliberately violated in a series of quasi-experiments: treating a fellow shopper as a clerk, being extraordinarily polite and formal in one's own home, and so on. Naturally, a study of historical transactions does not permit such active intervention. The historical records are used to document breaches of background and constitutive expectations and the reaction to such violations of trust.

Before turning to an examination of the historical evidence, implications of the sociological approach to trust outlined above for economic theory need to be considered. First, several economic assumptions about trust are questioned. Second, economic approaches to transactions and transaction cost are reevaluated in light of mechanisms used in exchanges based on trust.

III. IMPLICATIONS FOR ECONOMIC THEORY

A. Conceptions of Trust

As economists have noted, trust "is not a commodity that can be bought very easily. If you have to buy it, you already have some doubts about what you've bought" (Arrow, 1974:23). It is generally assumed that trust is not produced, but is either present or absent (Hirshleifer, 1983; Luce and Raiffa, 1957). Economic exchange can be governed either by barter systems based on trust (Geertz, 1978; Sahlins, 1965; Posner, 1980) or by legally enforceable property rights (Alchian and Demsetz, 1972; Demsetz, 1967; Jones, 1983).

Once trust is disrupted is there no way to restore it? If not, it is an internal anomaly in economic theory: it is asserted that trust is the most efficient transaction mechanism, but economies and firms do nothing to attempt to produce it. I argue that trust is a commodity, albeit a social one, that it is "manufactured" by individuals, firms and even entire industries, that it is a purchasable good, and that one type or source of trust can substitute for another under some conditions. As prices for some sources of trust increase, other sources will tend to be exploited.[4]

Each one of these assertions about trust needs much more discussion than is possible here; examples will have to suffice. How is trust manufactured? Social mechanisms are constructed

that either produce or increase the probability of trustworthy behavior. These mechanisms need not imply distrust, but rather manufacture the common ground needed for a transaction to take place. Law and regulation are two such mechanisms. Though they are not "purchased" in a strict sense, societal resources are allocated for creating them. Other mechanisms are more directly purchased: charges to open escrow accounts, brokers commissions in stock market and real estate transactions, and premiums for insurance. We may buy insurance because we do not fully trust others, but others use our purchase of insurance as an indicator that they can trust us.

In most cases, there are alternative sources of trust, selected competitively depending on cost. For example, as health insurance costs have risen, more firms and government bureaus have selected the alternative of self-insurance. New intermediary firms have emerged to guarantee that valid claims are paid, drawing on reserve pools of funds established by the firm or bureau. In both cases, mechanisms to generate employee trust have been created, with employers over time moving to less costly alternatives for generating trust.

Does this imply that trust, as economists would argue, is the most efficient mechanism governing transactions? The answer, I think, is no. The production of trust has costs associated with it. Because trust, and the problems posed by the disruption of trust, are implicit, much of the production of trust is unplanned and unacknowledged; this tends to produce

high levels of inefficiency. Later in this paper, I will consider banking and government as two cases in point. The individual transactions may be relatively efficient (see the discussion of bounded efficiency below), but the entire industry or sector grows far beyond what is necessary to bridge the explicit part of the transaction. Also, the trust producing firm or bureau comes to assume a high status in the society, again far beyond its explicit role, so that society will act to protect it against failure. Neither of these processes tend toward efficiency.

In all of the economic approaches to trust (and, indeed, in all the sociological and anthropological ones reviewed above), trust is thought to be produced only by informal mechanisms, through internalization or moral commitment; contracts are used when trust breaks down (Geertz, 1978; Macaulay, 1963; Evan, 1963). Here, contracts are seen as one mechanism, among many other formal mechanisms, for production of trust. At least with large numbers, formal mechanisms for manufacturing trust will be more effective than informal mechanisms. The mere presence of these formal mechanisms often suffices. For example, it is often enough to be willing to sign a formal contract, because the other person or firm in the transaction can use that willingness as an indicator of trust.

B. Transaction Cost: Bounded Efficiency

What is necessary for economic transactions to be efficiently accomplished? The modern merger of institutional economics and organization theory has revolved around this question. One recent typology delineates transactional characteristics under which alternative contracting modes economize on associated transaction costs (Williamson, 1979; 1981). Transactions occur "when a good or service is transferred across a technologically separable interface" (Williamson, 1981:552); patterns arise based on the property rights structure, or exchange contracts, found in and between organizations (Demsetz, 1967; Alchian and Demsetz, 1972).[5] Transaction costs are incurred when exchanges have to be negotiated, monitored or enforced (Jones, 1983:456). Transaction cost economizing is obtained by assigning transactions to efficient governance structures. These include efficient boundaries between firms and markets and efficient organization of internal relations (Ouchi, 1980; Williamson et al., 1975).

Adopting a sociological approach entails major revision of the starting assumptions implicit in transaction cost arguments. First, the transaction cost approach assumes that each technologically separable transaction is organized in order to maximize efficiency, independent of arrangements for other transactions. Here, if trust is violated on one transaction trust will be disrupted in related transactions; transactions, at least those based on trust, are generally not separable, but

are bundled and interact. Further, the most important transactions require some kind of "insurance" and insurance through trust carries with it definitions of specific contexts, the constitutive expectancies, that provide the basis for subsequent transactions.

Second, the transaction cost perspective assumes that if a new structure reduces transaction cost, it will tend to be adopted, regardless of the history of the structural innovation. Some evidence argues otherwise. Once a particular organizational structure, or mode of handling transactions, is legitimated, it spreads to other organizations on that basis, though it may not directly add to the efficiency of the organization. Early adopters are driven by efficiency considerations, but later adopters are driven by legitimation concerns (Tolbert and Zucker, 1983). Performance of firms adopting an innovation early in the spread is enhanced more than performance of those adopting late (Armour and Teece, 1978). Late adopters do, however, improve their chances of survival (Meyer and Rowan, 1977).

Further, when any change in transaction mode is proposed, the range of alternative forms considered by individuals, firms, or sectors is constrained: transactions are evaluated with reference to what is socially "appropriate". Organizations are concerned that they be identified as the kind of organization they intend to be - a "bank", even if part of Sears, a "school", even if a profit-making computer training firm, and so on. This

has two major consequences. One is that organizations make changes in transaction modes with reference to organizations from the same "type" or "population". The other is that choice of transaction modes depend expectations that differ by type of organization, including both trust and what would constitute breaches of trust. For example, behaving altruistically in transactions in a bank context may disrupt trust, while behaving self-interestedly will produce trust; the opposite effects might be expected in a school or church context.

This leads us to the final, and most important, departure from the transactions cost approach: transactions are not conducted at maximal efficiency, but rather are shaped by comparison with other firms. While rationality is bounded because of imperfect information, efficiency is bounded because payoff to innovativeness is uncertain and because transactions require willing exchange partners, based on perceptions of legitimacy, similarity and common interests. The end result is *bounded efficiency*, where a firm is pressured to perform within limits set by the high and low performers in the relevant comparison group.[6] If an organization goes above the upper efficiency bounds, it becomes a "rate buster" and risks lack of cooperation or open imitation by other firms, once again bringing differences among firms into line. If it goes below the lower efficiency bounds, it risks loss of exchange partners who tend to be risk adverse and eventual liquidation. Merger or hostile

take-overs may be viewed as another method of controlling such "efficiency deviants" (Zucker, 1984).

A sociological concept of trust, then, has major implications for economic theory; as will be demonstrated, it also has implications for economic history. In the next two sections, this concept of trust is applied to economic development from 1840 to 1920. Though the analysis should be regarded as preliminary, historical evidence is used to document disruption of trust and subsequent production of trust.

IV. SOURCES OF DISRUPTION OF TRUST

When economic historians touch on the cultural changes during 1800s and early 1900s, they explain changes in social organization as a function of industrial development (see especially Hays, 1957). Fewer sociologists have examined early industrial development, but those that have stress social disruption as a consequence of economic change, principally reflected in the gradual erosion of earlier social forms (Smelser, 1964; 1959). Similarly, sociological theories of "cultural lag" argued that social change invariably "lags" behind technological change (Ogburn, 1924; Ogburn and Nimkoff, 1955). The conclusion is unanimous: industrial change, and the accompanying technological change, leads social change. I intend to turn the problem on its head. How is the structure of the economy shaped by social forces?

Historians and economists have long recognized the critical character of the 1800s and early 1900s for the development of the American economy (Higgs, 1971; Wiebe, 1967; Chandler, 1977; Berle and Means, 1934). For a number of reasons this same period is critical for understanding the impact of social variables, specifically trust. First, modern industrial forms were just emerging: there was limited use of formal bureaucratic structure before 1840 (Zucker, 1983:14-17). After 1840, use accelerated dramatically, followed by a dramatic acceleration in the rate of formal incorporation by about 1860 (Evans, 1948:48). Procedures were not well-established; few aspects of industrial life could be taken for granted. The need for new social patterns was generally recognized as problem after problem was noted by contemporary authors (e.g., Lindsay, 1896; Page, 1894; Commons, 1901; Elkus, 1913) and by state reports during the 1800s and early 1900's (e.g., Bureau of Statistics of Labor and Industry of New Jersey, 1895; Massachusetts Bureau of Statistics of Labor, 1891).

Second, several empirical studies demonstrate that the internal structure of firms or bureaucracies is most open to environmental influence at the time of their origin (Stinchcombe, 1965; Meyer and Brown, 1977). Stinchcombe found small but fairly consistent effects of time of origin of industry groups on the type of employment contract and authority relation, while Meyer and Brown found that personnel procedures were strongly influenced by time of origin of local government

finance departments.[7] Increased organizational vulnerability provides a possible explanation for the effects of time of origin: the probability of survival is lower when organizations are first formed, the so-called "liability of newness" (Stinchcombe, 1965; Kaufman, 1976; Hannan and Freeman, 1983). While other events in the organizational "life cycle" may also open organizations to environmental influence, time of origin emerges as stronger in the few comparative studies.[8] In order to maximize the probability of finding significant effects of the social variables on organizations, evidence collected here is from the time of origin of the basic features of the modern economic system in the U.S., approximately 1840 to 1920.

The title of Wiebe's excellent book (1967) on this period, *The Search for Order*, accurately characterizes the social factors influencing industrial development during this period. The old order on which trust was based had been overthrown, but no new order had replaced it. Hence, the major force in the construction of the new social order was *protection* - from high rates of immigration, from inequitable trade advantage, from spoils and corruption, from undue risk, from business and bank failure. If you don't trust your neighbor to participate in a "barn-raising" after your house burns, you have to buy insurance; if you don't trust immigrants to behave according to common understandings and to reflect intersubjectivity, then you have to "reform" city governments to give them less power and,

eventually, you limit immigration; if you don't trust corporations to behave "fairly" and ethically, then you have to enact antitrust rules; if you don't trust your workers, then you have to employ more managers to monitor and evaluate them.

There are three basic ways in which trust was disrupted, each of which shaped the form and content of the American economy at the time the modern industrial system originated:

(1) Background expectations were violated so that there was no longer "a world known in common." The labor force for the developing industries was directly impacted by cultural heterogeneity:

- o Increasing volume of immigration, and increasing cultural heterogeneity of immigration, beginning between 1860 and 1870.

- o Internal migration of native born, both over long geographic (and, at that time, cultural) distances and from rural to urban locale, forcing interaction with dissimilar others.

(2) Constitutive expectations were violated, with "rules of the game" in an agrarian-dominant economy being overturned with no clear set of new alternative "rules" provided. Home-based work was supplanted by work in large, bureaucratically organized firms. Local rules of exchange were replaced by state and national level

"edicts", often of unclear purpose and/or legitimacy. Increase in diversification of firms produced multiple and often non-overlapping sets of expectations.

- (3) Both background and constitutive expectations were violated by the new economic organization. High turnover of organizations constantly shifted the relevant "players", so that context became only loosely and temporarily defined. Growth in size and internal diversification of firms brought culturally heterogeneous elements of the population into contact, adding to the urban "melting pot" effects.

The first of these sources of disruption of trust, immigration and internal migration/urbanization, is probably the most critical, because it results in disruption of basic background expectations. Without common expectations, it became more difficult to build a new set of constitutive expectations to structure the massive shifts in the economy and counter the instability of the new organizational forms -- the firm and the corporation. Hence, most of the discussion below will be devoted to sources of cultural heterogeneity and the conditions under which the heterogeneous elements came into contact.

A. Cultural Heterogeneity and Disruption of Trust

Immigration

There has been considerable speculation that cultural heterogeneity produces disruption of the social order, but few empirical studies outside of modern criminology. What is the role of pre-existing background expectations? One set of research findings is particularly illuminating. First, the proportion of native born whites was highly correlated with the degree of social integration, measured by an index of local welfare effort for twenty-eight urban U.S. cities (Angell, 1941:575-578). This finding was predicted because social similarity was expected to increase integration. But it is simultaneously counter-intuitive, since one would expect that a higher proportion of foreign born and non-white native born would generate a higher demand for welfare services, especially health and general assistance. Second, as the proportion of foreign born increased, rates of homicide, suicide, and illegitimacy increased, while municipal support for schools, libraries, museums, and public health decreased (Angell, 1941:579-585).

Figure 1 provides a graphic illustration of the dramatic rise in the volume and diversity of sources of immigration from 1870 until the doors were closed to most immigrants in 1924 (National Origins Quota Act). Based on Angell's findings, it might be expected that social integration would decline linearly

with the volume of immigration. But some groups of immigrants share the same set of symbols, coding rules, and scheme of interpretation with the native born population. In 1820, virtually all of the immigrants to the U.S. were coming from northern Europe, the area most culturally, and linguistically, similar to the U.S. But the proportion began declining sharply by 1880, when only 69 percent were from northern Europe; the new immigration came primarily from eastern, central, and southern Europe. Immigrants from these other areas of Europe had very different cultural backgrounds and the majority spoke no English. The shift in cultural composition can be seen clearly in the percent of literate English speaking persons by geographic area of origin (U.S. Immigration Commission, 1911): while 91.7 percent of immigrants from northern Europe could speak English (and 98.9 percent were literate), only 46.9 percent of the immigrants from other parts of Europe could speak English (and only 76.1 percent were literate).

-- FIGURE 1 ABOUT HERE --

These new immigrant groups came from cultures that had very different background expectations, different from each other, different from the northern and western European immigrants, and different from the native born population. Writers at the time noted their need to be Americanized (Cubberly, 1909:12-16), and saw them as a cause of the social unrest of the time and as a source of radical politics (for a review see Higham, 1974). State reports during the late 1800s and early 1900s conveyed this unease, often listing separate categories of "Foreign

Elements". The Pennsylvania Bureau of Labor Statistics reported "a certain conflict and prejudice between American and foreign labor" and resentment when asked to "care [for] this large and growing foreign element during industrial depression" (1911:128). The disruption of trust was palpable (Wiebe, 1967:54): "Mixing contempt with fear, natives pictured the newcomers as dispirited breeders of poverty, crime, and political corruption, and simultaneously as peculiarly powerful subversives whose foreign ideologies were undermining American society."

A closer look at the changes in heterogeneity in immigration during this period is presented in Table 1. The first line of the table presents the Average Deviation Analog (ADA) coefficients (Wilcox, 1973:328). The ADA coefficients are used to estimate the dispersion of immigrants across different broad national groupings. These coefficients measure the degree of relative inequality (independent of the number of categories), and can range from one (complete heterogeneity) to zero (complete homogeneity). A systematic increase in heterogeneity of immigrant origin begins in 1880 and continues through 1920, with a very slight decrease in heterogeneity in 1930, when the flow of immigrants has in any case decreased markedly. The second line of the table reports the results of a comparison between successive decades of the degree of heterogeneity in immigrant origin, using the Gini coefficient (Theil, 1972; Theil, 1967: 121-123). The Gini coefficient is a measure of absolute

inequality, reaching a minimum at zero (maximum homogeneity) and a maximum only when the number of categories is infinite (maximum heterogeneity). Heterogeneity begins a steady increase a bit earlier than the ADA coefficients indicate (between 1860 and 1870), but the peak period of heterogeneity is the same: 1880 through 1920.

-- TABLE 1 ABOUT HERE --

But what impact did this increasing heterogeneity have on industries, on occupations, or on individual firms? There is a large literature that reports segregation of workers with different characteristics such as sex and race (for a recent review, see Baron and Bielby, 1984). Though the majority of immigrants entered the labor market immediately, because they were disproportionately young male adults, segregation at the workplace might have prevented direct effects of cultural heterogeneity on the organization of the firm. However, the evidence available from state reports during the 1870 to 1920 period suggests that while some segregation by national origin did occur, substantial heterogeneity in the immigrant origins of workers characterized industries, occupations, and individual firms alike. Table 2 presents data on occupation and immigrant origin for firms in New Jersey from 1889 to 1894. Up to this period, the immigration to New Jersey had been heavily from northern and western Europe. While this is reflected in the table, it is also clear that only a few occupations were heavily segregated along American/foreign cleavages. However, at least one of these occupations, cotton workers, appears much more

segregated than it actually was, because the New Jersey survey was restricted to mills with low turnover.[9]

-- TABLE 2 ABOUT HERE --

By the early 1900s, cultural heterogeneity, as measured by diversity of immigrant origin, had increased substantially in the workplace (Pennsylvania Bureau of Industrial Statistics, 1906). For example, in the bituminous mining industries in Pennsylvania, based on 425 companies reporting, almost two-thirds of the employees were foreign born (64.3 percent). They immigrated primarily from eastern Europe (38.7 percent of the total number of employees or over half the foreign born), with about even representation from southern Europe (13.7 percent) and from northern and central Europe (13.1 percent). Just five years later, the percent foreign born had increased to 67.9 percent in the bituminous mining industry and stood at 41 percent of the industrial labor force in the state (Pennsylvania Bureau of Industrial Statistics, 1911:50-51).

Constructing time series for this period is a difficult task. Not only are the data sparse, but high entry and exit rates of firms make comparability uncertain. National data is especially problematic, given the changes in items and measures on successive Census surveys and the long time lags between surveys. As a measure of changes in the work place, then, surveys that cover a shorter time period, such as surveys in 1910 and 1912 in Pennsylvania, are more valid. The two Pennsylvania surveys covered the same industries at a very

detailed level, with 143 industry groups identified, including such specific groupings as axles and springs, barrels and kegs, cigar boxes, lace goods, and sky lights and cornices. In this time period, the size of the total labor force increased over 11 percent; the percent foreign born increased from 40.6 to 42.4. The most reasonable way to present the detailed industry data is to calculate changes in the proportion of foreign born in each industry between 1910 and 1912: 29 percent increased more than 5 percent, 12 percent decreased more than 5 percent. For example, the axles and springs industry group grew from 390 employees to 994 between 1910 and 1912; the percent foreign born increased from 32.1 to 53.7 percent. The paper mills industry group grew from 6410 to 7400 employees; the percent foreign born increased only slightly, from 25.9 percent to 28.7 percent.

There are concentrations of foreign born in certain industries by 1910, with close to 50 percent in tanned goods, pipes and tubing, and blankets; however only in anthracite, bituminous mining, and electrical supplies are they predominant. There is scant evidence of increasing segregation between native and foreign born in the work place between 1910 and 1912. Six industry groups with foreign born employed in 1910 reported no foreign born in 1912, but they were already heavily segregated: the lowest proportion in the six was cigar boxes, with .002 percent in 1910, while the highest, gas mantels, had barely one percent.

Lacking common background expectations, the heterogeneity in the labor force disrupted trust between workers and employers. Workers often articulated feelings of exploitation; employers often voiced concern over the "quality of labor" and the rate of productivity (Wiebe, 1967).

Internal Migration and Urbanization

Immigration was not the only source of cultural heterogeneity that challenged the background expectations necessary for trust. Internal migration of American born also contributed to the heterogeneity because different communities had distinctive cultural organization in the 1800s. Local custom and common practice varied strongly by state, from the organization of schools to commodity prices (Cubberly, 1909; U.S. Department of Agriculture, 1907 and 1908). The rate of industrialization itself added to the diversity, because it varied strongly by region before 1900. As a result, differences by state and region on measures such as per capita income increased dramatically between 1840 and 1880 (Easterlin, 1960:92-94).

Interstate migration increased from 1850 to 1880 at an average rate of about 3 percent a decade. Referring again to Table 2, many occupations had substantial proportions of native workers born in states other than New Jersey, e.g., 21.1 percent of all bricklayers and 33.9 percent of all railroad employees. The percentage regional distribution of population also changed

from 1840 to 1910, with the New England, Middle and South Atlantic, and East North Central losing proportionately to the West North and South Central, and Mountain and Pacific regions (Easterlin, 1960:136).

The U.S. as a whole had very high rates of population mobility, as shown by the dramatic shifts of population densities with each decade from 1870 to 1910 (Paullin, 1932: plates 77c, 78a, 78b, 79a, and 79b). Expansion at the frontier was an important part of the population redistribution. For example, from 1850 to 1860, 60 percent of male wage earners had left Wapello, Iowa (Throne, 1959). Another study documented the social disruption caused by the population movement. Kansas townships lost between a half and three quarters of the farm operators between 1860 and 1870, replacing them with new settlers (Malin, 1935). As a result, agricultural methods that suited the characteristics of Kansas winters did not spread, nor did social institutions remain long (Malin, 1935:356): "lyceums, debating societies, literary clubs, and dancing clubs were organized only to break up within a few months. Each new organization usually carried a large proportion of new names indicative of the rapidly changing population."

The extent of rural mobility is not generally recognized; migration to the cities is commonly given as the single cause of population movement during the 1800s (Kuznets et al, 1957). The startling growth of cities in the late 1800s and early 1900s is well documented: the percentage of total population living in

urban areas, according to the 1940 definition of urban, increased from 26 percent in 1870 to 35 percent in 1890, and jumped again to 40 percent in 1900 and 46 percent in 1910 (U.S. Bureau of the Census, 1978: Series A43-56; A57-72). In 1800, only one city over 50,000 was reported and only modest growth occurred in the early 1800s. But beginning in 1870, the average size of cities accelerated dramatically; after rising over 40 percent from 1860 to 1870, the number of cities in each size category increased at an average rate of 30 percent per decade between 1870 and 1900, declining only gradually after the turn of the century.

This analysis leaves us with the question of population stability within cities. Perhaps the main movement was to the frontier and into cities, with the migrants to urban areas remaining. Boston is a city with a relatively small percent increase in the 1880-1890 period, therefore suitable for a strong test of the urban stability thesis. Boston's population increased only about 24 percent from 1880 to 1890, despite high rates of population increase in the prior state census periods (1865 to 1875, 75.25 percent in Boston's county -- see Massachusetts Bureau of Statistics of Labor, 1891:158-159,165). Using the Boston City Directory, high rates of both in-migration and out-migration were documented (Thernstrom and Knights, 1970:180-187). The data presented in Table 3 summarize the findings. The first three lines of the table show that the total turnover of families in Boston was staggering, and that

the modest net migration was the end result of enormous flows into and out of Boston from 1880 to 1890. The data on the next three lines of the table further support the impression of fluidity: over half the population changed residence in each five year period. Year by year data consistently present the same pattern (Thernstrom and Knights, 1970:187).

-- TABLE 3 ABOUT HERE --

The massive influx of new residents, coupled with the relentless flows in and out of urban areas, broke established social ties. In the span of a few decades, expectations on which trust rested had been undermined (Wiebe, 1967:2,12-13):

"Small town life was America's norm in the mid-Seventies.... Usually homogeneous, usually Protestant, they enjoyed an inner stability that the coming and going of members seldom shook. Even when new towns were established in fresh farm country, the gathering families brought the same familiar habits and ways so that a continuity was scarcely disturbed.... The rush to the cities, swelling established centers like New York and Chicago and creating new ones like Denver and Kansas City ... brought a constant influx of inexperienced newcomers who required jobs, homes, and a sense of belonging. Older residents were inundated.... Pell-mell expansion destroyed the groups and neighborhoods that sustained social action. The thousands recently arrived, the thousands more moving about, concentrated narrowly on their own security."

Recent direct tests of distrust in urban environments lend further support to the main lines of the argument here: social similarity was expected to increase trust, dissimilarity to disrupt it. Claude Fischer (1981:313-315) defined trust as whether the respondent "can expect other people to behave appropriately over a range of situations," a component of background expectations. He found that urban residents were just as likely as small town residents to perceive their neighbors as similar to themselves (reflecting residential segregation patterns), and were almost as likely to trust them. But urban residents were much more likely than small-town residents to be unwilling to trust most people in the city. To the extent that urban neighbors are not trusted, it is fully explained by urban residents' fear of crime. But when most people, the non-neighbors in the city, were considered, disruption of trust was not significantly explained by fear of crime.

Now we can summarize and extend the argument. Increasing cultural heterogeneity via immigration coupled with the high rates of internal migration meant that background expectations were not shared by significant parts of the population in most local areas. Heterogeneity itself was not sufficient to disrupt trust; culturally different parts of the population had to be forced into contact on the job and in the dense urban environment. Though some segregation by occupation and residence did occur, it was highly unstable (Thernstrom and Knights, 1970).

B. Economic Transformation and "Rules of the Game"

The scope of economic transformation from 1870 to 1920 had been extensively documented by historians and economists, and need not be reiterated here (see especially Higgs, 1971 and Chandler, 1977). Table 4 summarizes the shifts in commodity output; shifts in labor force among these sectors, especially away from agriculture, was equally dramatic. But other kinds of changes were occurring that reshaped the character of everyday life for most people. First, "corporate actors" eclipsed the role of individuals and emerged as the most powerful force in modern life (Coleman, 1974). Between 1900 and 1920 the relative attention paid to corporations increased in most mass media: on the front page of the *New York Times* attention shifted systematically away from individual entities and toward corporate entities (Burt, 1975).

-- TABLE 4 ABOUT HERE --

Second, the diversity of these "corporate actors" increased steadily. New types of industries, new types of firms, and new types of services emerged. These affected the daily activities of workers and their families. For example, leisure activities, though still often neighborhood based or centered on local "informal organizations", such as churches and fraternal groups, increasingly became organized on occupational grounds. In the annual reports of the larger states, occupational associations are listed with the fraternal organizations (Pennsylvania, 1910: 255-56): "National Guard of Pennsylvania, the Lawrence County

Bar Association, Lawrence County Medical Association, Physicians' Club, Eintracht Singing Society...." Also, emergence of "department stores" and similar retail "inventions" increased the range of choice available to the average shopper. Even the cognitive structures used by persons at the turn of the century altered: new terms emerged to describe the new activities, products, and types of firms changing the content of the English language.

How did this transformation affect constitutive expectations, the "rules of the game"? That the rules were disrupted is evident in any economic history from that period. The effects of the emergence of new transportation industries on market structure provides one example. The railroad became the dominant force in agricultural distribution, as miles of railroad track nearly doubled between 1869 and 1879 and again between 1879 and 1889. Farmers, who had dealt in local markets or at least with local buyers, now dealt with more impersonal and distant markets. Undermining whole structures of local agreement, state variation in agricultural prices was rapidly reduced: coefficients of variation between states of average farm prices for wheat decreased from 20.8 to 18.4 from 1866 to 1900 (U.S. Dept. of Agriculture, 1907). Similarly, railroad freight rates did not take local conditions into account: problems with local weather or poor crops were not considered, as they often had been in the local community.

The traditional terms of exchange had shifted and the reciprocal understandings had broken down. Transportation costs from the western states now accounted for half the crops' value. Active and organized protest from the farmer resulted (Higgs, 1970). The farmers attempted to return to some aspects of the earlier social order, through movements such as the Grangers of the 1870s, the Farmer's Alliances of the 1880s (Fine, 1961), the Populists in the 1890s (Higgs, 1970). A group of more specialized movements emerged in the early 1900s (e.g., the Dairyman's League and Tobacco Night Riders; Gamson, 1975).

The basic expectations governing economic life altered even more dramatically for those employed in manufacturing or mining. As self-employment was steadily transformed into wage or salaried employment, individual workers, managers and employers were slow to form new constitutive expectations (Zucker, 1983). Informal structures no longer worked well; few formal structures had emerged (Hurst, 1956). When they did begin to form in the late 1800s, they were often not congruent with each other. Because the change had happened so rapidly, few "social facts" or "rule-like agreements" existed to structure social action (see Olson, 1963).

The employee reaction was to strike (and to organize unions); the employer reaction was to find means of exacting more from the employee, ranging from illicit or veiled means, such as payment in script, to increases in supervision, productivity measurement, or even mechanization. As one prominent

coal operator stated (Page, 1894:151), installation of the coal undercutter in the 1880s was "not so much for its savings in direct costs as for the indirect economy in having to control a fewer number of men for the same output [yielding] less belligerence and conflict; a sufficient inducement though the direct costs be the same." The immediate effects of the disruption of trust was to raise the costs on both sides: payment for more management on the employer side, loss of wages due to strikes on the employee side.

Lacking clear constitutive expectations, the question of how work should be organized was left open in the late 1800s. Various structures developed to fill the gap. For example, in coal mining, miners generally worked as individual contractors. They contracted for a particular place or "room" in a pit, hired their own helpers, and determined their own hours, pace of work, and the methods used to mine the coal. The degree of control by the miner was high; miners sometimes acted to increase their own income, reducing profits of the coal mine operator, by attempting to illegitimately inflate the weight of the coal mined -- which determined payment -- by including less salable coal or slate and clay. But the employers countered (Suffern, 1915): they paid miners in script that could only be spent at the company store (Lindsay, 1896), they shortweighted, they abused the dockage system (for penalizing slate and clay left in with the coal), and they increased the gauge of the coal screen so that "good" coal was filtered through with the slack. Miners

suspected these abuses, but were unable to prove them (Illinois Bureau of Labor Statistics, 1883:80): "...distrust prevailed as to the accuracy of the weights with which they were being credited....Opportunities for verifying them were denied; distrust became conviction of their inaccuracy." Miners were later able to counter by hiring checkweighmen to verify the measurement of tonage.

C. Instability of Firms and Corporations

The third important source of distrust during the period 1840 to 1930 was the continual flux of firms: new firms were constantly being formed, and all firms had a high probability of failure, not just the new or the small. Though the net gain remained strongly positive throughout the period, the fluctuations were remarkable (see Figure 2).

-- FIGURE 2 ABOUT HERE --

Large and powerful firms emerged early, but their dominance was often temporary. Looking only at the top 100 industrial firms, the 1903-1917 period was characterized by high volatility relative to later periods, as Table 5 shows. Liquidation accounted for over half of the exits when corrected for number of years in column 7: 50 to 64 percent of the exits from the list before 1920 depending on the study, but only 10 to 15 percent after 1920 (Edwards, 1975; Kaplan, 1965; Collins and Preston, 1961). Before 1920, failure to grow was the single most common reason for exits from the list of the top 100; after

1920, few firms dropped off the list for that reason. Taken as a whole, the failure rate during the pre-1920 period was substantially higher than the later periods -- on the average, two to five of the top 100 firms dropped off the list (liquidated or failed to grow) *each year* between 1903 and 1917, while from 1917 to the late 1960s only one firm on the average exited this list due to liquidation or failure to grow only once every five years (see Navin, 1970; Kaplan, 1964).

-- TABLE 5 ABOUT HERE --

The high rate of entry and exit among all firms, and the frequent failure to grow or liquidation among the top industrial firms, were echoed in other more subtle measures of instability. Corporate reorganization, a "form of financial readjustment adopted in the presence of real or threatened financial trouble," was frequent in the late 1800s and early 1900s (Dewing, 1914). The problems of railway reorganization during the depression following the panic of 1893 have been well documented: about 40 percent of the railway mileage in the U.S. passed into receivership. Much less has been said about corporate reorganization during that period, though it was common to have companies go through three or more failures and reorganizations before eventually either succeeding or going permanently out of business. For example, Westinghouse Electric and Manufacturing Company, founded in 1886, failed twice and had to be reorganized in 1891, 1907 and again in 1908 when the earlier resolution of difficulties also failed.

It is important to note that consolidation through merger or pooling during this period, even if such consolidation created a monopoly, did not protect the new company from failure. One of the most significant was the failure of the National Cordage Company. Incorporated in 1887 (though formed in 1861), it adopted a policy of expansion so that by 1890 it occupied national attention, overshadowing such companies as American Tobacco and General Electric. It suddenly and unexpectedly failed in 1893, was reorganized in 1894 as the United States Cordage Company, and failed again in 1895. In 1896 its business was assumed by Standard Rope and Twine Company, which failed in 1905, but emerged reorganized in the same year -- only to fail in 1912. At that point, the assets were liquidated.

What was the reaction of the wage earner, the banks, the bondholders and the stockholders to such volatility? One observer at the time testified that failures such as that of the cordage trust in 1893 "discredited almost every industrial then existing" (Charles R. Flint, quoted in Dewing, 1914:140). Stock prices were depressed, banking confidence shaken. Perhaps that explains why there is little evidence of concentration before 1920 except in a minority of industry groups (Chandler, 1969:Chart 1).

Risk provided the possibility of high gains, but also increased the probability of eventual collapse. The high volatility produced a situation in which few "rules of the game" existed, and those few were frequently violated. Disruption of

trust between employer and employee, between company and stockholder, between company and bank lenders accelerated during the late 1800s and early 1900s. Only in a few isolated cases (e.g., Westinghouse failure of 1907) did employees rally to the company cause. Requirements of "soundness" for listing on stock exchanges -- and even for the over-the-counter market -- became increasingly stringent. Bank investigation of the company, influence over day to day operations, and required collateral all escalated. This risk aversion led to declines in real rates of return (over ten years, assuming dividends reinvested) in the New York Stock Exchange by 1930 (Fisher and Lorie, 1977). Disruption of trust, then, produced the economic inefficiencies predicted by the economists; will production of trust restore efficiency?

V. INSTITUTIONAL PRODUCTION OF TRUST

Recalling the earlier discussion of trust, rebuilding "local" trust on a societal scale presents formidable obstacles. Highly specific to person and situation, there are few general mechanisms. One possible method is to aggressively resocialize those culturally dissimilar, perhaps through education. Though it appears that there were some attempts to do this (Meyer et. al., 1979), they were not very successful in the period 1870 to 1920. Immigration decreased the rate of public school expansion and increased the rate of private school expansion (Ralph and Robinson, 1980). Hence, immigrant children were separated from

American culture in their schooling experiences. Immigrants also founded their own institutions -- newspapers, ethnic churches, and ethnic welfare organizations -- and, when they were able to do so, kept a majority of their social relations within the group (Breton, 1961).

If cultural congruence could not be rebuilt at the community level, perhaps it could be rebuilt at the company level. However, there is little evidence of "corporate culture" appearing at the end of the 1800s or early 1900s; even now, some suggest that corporate cultures can be successfully generated only in a small range of organizations (Wilkins and Ouchi, 1983). For a number of reasons, employees at the turn of the century were not closely tied to firms. Failure of firms, general high rates of labor mobility, high levels of conflict between employers and workers, and the rise of unions all mitigated against strong ties in a corporate culture. Few rules or shared understandings arose between firms, or between employers and workers in the same firms. Shared expectations were limited to professional associations of managers, on the one hand, and unions, on the other. Unions themselves might have served to generate local trust, but they were characterized by extremely high rates of turnover (McNeill, 1887).

Relationships between firms were scarcely more conducive to local trust production. Firms of that period -- unless merged or in a trust -- were unlikely to generate much to be held in common, other than a search for profits and survival in the very

competitive and uncertain markets at the turn of the century. Intense competition and overproduction characterized the late 1800s (Massachusetts Bureau of Statistics of Labor, 1891). As a detailed report in Illinois stated (Illinois Bureau of Labor Statistics, 1883:79-80): "...operators were confronted with a demoralized market in St. Louis, brought about by excessive competition, and were unable to derive a profit...." Under these conditions, it is probably not surprising that the few patterns of cooperation that emerged between firms were judged to be so harmful to the general welfare that they were outlawed in the Sherman Antitrust Act, passed in 1890.

Despite these substantial obstacles, local production of trust did succeed occasionally. Even in industries where the overall level of conflict was high in the late 1800s and early 1900s, some firms and/or some regions in the U.S. were able to reestablish trust between workers and management, even if only for a brief period. When workers, owners, and managers shared common expectations, they were more often able to negotiate informally. For example, immigrant workers from culturally different countries predominated in the mining operations in Pennsylvania, while native born workers predominated in the mining operations in Illinois. Mining operations in Pennsylvania experienced numerous strikes, lockouts, and high rates of unionization in the late 1800s (see Pennsylvania Bureau

of Industrial Statistics, 1886 and 1905), while mining operations in Illinois experienced far fewer (Bureau of Labor Statistics, 1883):

[I]t happily was found possible to secure sufficient unanimity of action both among miners and operators to appoint committees from each, with authority to act for all in adjusting difficulties....In mass meetings of miners and assemblies of operators...propositions, emanating from both parties and recognizing the difficulties of each, were examined, discussed and finally accepted by both, as a just and practicable solution of existing difficulties, and as affording a legitimate promise of better things.[10]

Production of trust, then, could be accomplished by local mechanisms only under very special, atypical conditions during the 1840 to 1920 period in the U.S. Instead, trust was increasingly produced by creating rules and formal structures: formalization and hierarchy within the firm, economic sectors governing transactions between firms, and society-wide regulations and legislation governing transactions. In other words, production of trust was accomplished by standardization: audits were the by-word, regulation became the *sine qua non* of modern business, and legally enforceable contracts proliferated. In this way, trust producing mechanisms were not limited to small numbers of exchanges, but generalized more widely. These mechanisms came to be taken for granted as a part of modern life, as part of the "external world known in common". As

mechanisms to produce trust became institutionalized, they spread beyond the transactions for which they provided significant increments in efficiency. Then, they served to legitimate other transactions, regardless of "rational" considerations.

Individual firms or bureaus are more open to the environment at the time of origin; so was the industrial and service economy in the U.S. In the 1800s and early 1900s basic elements of the modern economy, including major industries, service sector functions, and the role of government in governance of the economy, took shape. Though important changes have certainly occurred since then, it is surprising how many of the structures now taken for granted were initiated during this period. Before 1920 the pre-industrial regional basis of the economy had been replaced by a national economy. For example, wide regional and state differences in per capita income converged in the 1880 to 1920 period (Easterlin, 1960:93-96). Similarly, interest rates began to converge by 1880; the process accelerated in the early 1900s, with a national interest rate emerging before 1915 (Davis, 1965).

A. Trust and Development of Bureaucratic Organization

Initially, the rational bureaucratic form was adopted to organize collective activity where clear gains in productivity could be demonstrated. In manufacturing, substantial increases in output per hour of work net of technological change were

attributed to "efficient arrangements of work...[through elimination of] waste and the reduction of time and effort" (Fabricant, 1942:75-76). In general, those activities that most directly benefited from formal organization ala Weber were those incorporated first, such as manufacturing and public utilities; gains in efficiency were modest or absent for later adopters, such as construction, agriculture, and service industries (Evans, 1948:Ch. 7, Table 23). Similarly, city governments were reorganized along bureaucratic lines: the conception of a city changed from "political body" to "business corporation", a "joint stock affair in which the taxpayers are the stockholders" (Crandon, 1887:524; Clinton, 1886). Only the cities that adopted civil service reform early enhanced their efficiency; late adopters had few rational reasons to adopt, and gained little (Tolbert and Zucker, 1983). Why, then, did these late adopters decide to change to the Weberian bureaucratic structure even when it did little to enhance their efficiency?

The answer rests on our understanding of social systems. First, the innovation replaces other social ties or mechanisms that have been disrupted: elements of Weberian bureaucratic structure, for example, replace informal mechanisms of trust production. As Udy (1962) has demonstrated, the bureaucratic characteristics that Weber specified appear where other social ties have broken down, including old systems of allocation and stratification. Second, adoption of the innovation within entire populations of formal organizations creates similarities

that can be used as an indicator of trust. Over time, these similarities can be transformed into background expectations, so that, for example, "everyone knows" that local governments have merit-based promotion systems, hospitals accept medical insurance as a replacement for cash, and firms borrow capital from banks.[11] Third, the innovation serves a legitimating function: hierarchy of authority, for example, is necessary to be seen as a modern firm and standardized personnel procedures via civil service reform are necessary to be seen as a modern city government.

Later adopters could not realize the productivity gains; the Weberian model was simply not as applicable to their production processes. In some cases, increase in overhead with no productivity change can be shown to be the major result of adopting formal bureaucratic structure (Zucker, 1983). But the rational bureaucratic form had several advantages: it created a common ground for interpretation of acts within organizations and for transactions across organizational boundaries and legitimated the enterprise. Inefficiency was attributed to other causes, such as motivation, work conditions, "red tape", and uncertainties in the organizational environment (Roethlisberger and Dickson, 1939; Gouldner, 1959; Lawrence and Lorsch, 1967).

Managers and Trust

As long as trust is high, then owners will assume that workers will behave efficiently, out of interest in maximizing

profit, and workers assume that owners will provide paybacks from the increased profits, in the long run increasing their own returns. Under conditions of trust, then, the principal reason for managers is to coordinate team efforts. Managers may also be used to transmit information from one level of the organization to the next.

-- TABLE 6 ABOUT HERE --

However, if trust is disrupted, then shirking by the worker will be anticipated. Rather than take the chance that the worker will not put out the maximum effort, surveillance methods and evaluation of output become standard operating procedure. Methods of monitoring worker effort and output become major concerns; what was previously seen as excessive supervision becomes seen as necessary. Turning to historical evidence, Table 6 summarizes information from diverse sources on the ratio of administrative personnel to production personnel (A/P ratio). The ratio of managers to workers in manufacturing increases dramatically from 1870 to 1919, then levels off through 1930. The steep increase in managers coincides with the increase in heterogeneity of the work force, as reported in Table 1 above. Evidence in one state supports this relationship directly: in industries with low ADA ratios (indicating high heterogeneity by immigrant origin), the A/P ratio was larger than in industries with high ADA ratios (Massachusetts Bureau of Statistics of Labor, 1891).

Vertical Integration, Diversification and Trust Production

Managers may be able to produce trust within the firm, but what decisions internal to the firm can produce trust between firms? As mentioned above, one is to adopt innovations that indicate similarity. Once a particular organizational structure, or mode of handling transactions, is legitimated, it spreads to other organizations on that basis, though it may not directly add to the efficiency of the organization. For example, Armour and Teece (1978) studied the diffusion of the multidivisional form in the petroleum industry. They found that early adopters increased their performance significantly, while later adopters did not. Though their analysis does not permit a decisive test of several competing explanations for their results, it is clear that the later adopters had less to gain from the adoption. It is likely that they adopt, at least in part, as a signal to other firms that they are "like any other firm" in the petroleum industry. Similarly, cities adopting civil service reform early, prior to 1905, enhanced their efficiency by buffering the effects of a high percent foreign born and complex municipal structures; cities adopting after 1905 did not (Tolbert and Zucker, 1983).

As economists have already noted, trust may also be created by incorporating elements in the environment with uncertain trust value into the firm itself. Though the term "trust" is not explicitly used in the Williamson approach to market failure, it is implicit in the argument (Williamson, 1975;

1981). By eliminating opportunism, and some degree of uncertainty, organizing transactions within organizations rather than within markets produces trust that the terms of the exchange will be honored. The captive firm, now a subunit, is not free to leave the exchange relationship; taking unfair advantage of another subunit would not be rational, at least under most conditions. When trust has been disrupted, vertical integration is one way of producing it.

Also important, but not considered in Williamson's model, the firm incorporating or creating a new subunit also gains considerable knowledge about the technology, "insider secrets", cost calculations, and so on involved in the production process. In this way information, generally depicted as a valuable resource in organizations, can be gathered in a reliable manner, even checked for accuracy. Organizations make these decisions strategically; the more uncertain the setting, the more likely organizations are to incorporate elements through merger, board of director interlocks, joint ventures, and executive recruitment from the relevant other firms rather than inside the firm (Pfeffer, 1972; Pfeffer, 1973; Pfeffer and Nowak, 1976; Pfeffer and Leblebici, 1973).

Production of trust, then, can rest on sharing a common base of knowledge. As others have noted (Williamson, 1981), this knowledge is often highly specialized or idiosyncratic to the exchange. Trust rests on just such constitutive expectations; to the extent the expectations are not known, trust will be

disrupted. How can a firm gain access to this knowledge? Incorporating a new subunit through merger or creating a new subunit by starting a new venture are two avenues to this information. In this framework, diversification can be seen as the firm's attempt to learn the multiple languages of modern industrial life. Though no one division may be able to speak all of the languages, the firm is able to assign a "translator" to any transaction it is likely to enter. In the early 1900s such translators became increasingly valuable, as industrial diversity increased significantly and interaction in the context of a fully national economy accelerated between such "culturally" dissimilar firms. Diversification began then, not just for efficiency reasons, but in order to develop a framework within which trust could be produced.

B. The Social Overhead Sector

In response to the disruption of trust between individuals and firms, a group of industries arose during the period 1840 to 1920. Most of the activities of these industries were designed to bridge transactions; they have frequently been labeled "intermediaries" because of this role. The intermediaries constitute a recognized sector of economic activity, often called the social overhead capital sector (Averitt, 1968): it is the social overhead necessary for other economic activity to take place. This sector includes banking, insurance, government, real estate, and legal services.

The growth of the social overhead sector was nothing less than phenomenal between 1870 and 1920 (Stigler, 1956; Fabricant, 1952; Creamer, 1949). Table 7 presents data on employment in the major service industries, excluding personal and domestic service because they do not bridge transactions and hence do not bear on the production of trust. In the table, employment in capital overhead industries is reported first as a percent of the total labor force and then as a percent of the total non-agricultural labor force to control for the substantial decrease in agricultural employment during this period (except government employment, see note). Of course, as Stigler notes, the service categories in Table 7 are very broad (1956:8): "finance includes pawnbrokers and governors of the Federal Reserve System; professional service and amusement include judges and flagpole sitters".

-- TABLE 7 ABOUT HERE --

By 1930, the growth of many parts of the capital overhead sector had slowed. But formal mechanisms had been created to produce trust; as they became institutionalized, trust became a saleable product. Some firms, bureaucracies, and individuals specialized in the production of trust, marketing trust to others. First, origin, or at least major spread, of these firms and bureaucracies occurred when trust was disrupted. Second, these firms generally served as social ties, but commonly "weak ties", between firms, bureaucracies and individuals (Granovetter, 1973). For example, title search for real estate arose out of a desire to guarantee that title to a property had

not been compromised, though fraud was isolated and infrequent. Use quickly expanded, creating escrow firms that both handled the search and handled transfer of funds between buyer and seller. Gradually, trust in the form of escrow "insurance" became highly marketable, and eventually required by law in many states.

Many of the capital overhead sector industries grew to play a significant role in mediating transactions in the 1800s. In the next two subsections, the timing of growth will be briefly reviewed.

Brokers: Insurance, Real Estate, Stock Market

The broker emerged as a major force in everyday life in the 1800s. Early in the 1800s few individuals had life insurance, and those that had it took out small policies. By the end of the century the number of life insurance companies had grown, and the total value of life insurance policies had increased dramatically. Real estate transactions were more commonly conducted directly between buyer and seller early in the 1800s. By the middle of the 1800s there was a gradually increasing spread between the index of real estate activity and broker commissions, indicating that the proportion of sales mediated by real estate brokers had increased. The stock broker role also increased, as more shares were traded. Gradually, as the legitimacy of the broker role increased, the price charged for the broker services increased. Though stable from the beginning

of the information (1896) through 1918, the commissions increased sharply after that time.

A more detailed look at one of these industries is possible with the data available. Insurance business was insignificant at the beginning of the 1800s. Before 1820, the number of life insurance companies varied between 2 and 4 across the U.S. As Figure 3 shows, the number increased gradually through the mid-1800s, accelerating at the turn of the century. Prior to 1850, the total value of life insurance in force for individuals increased slowly, for example from 2.8 million in 1840 to 4.7 million in 1850. By 1850, 97.1 million was in force, increasing to 173.3 in 1860, and 1534.6 by 1870. After increasing nearly three-fold in the next twenty years, the value of life insurance in force continued to at least double every ten years through 1920. The value of industrial life insurance increased at an even more rapid rate in the late 1800s.

-- FIGURE 3 ABOUT HERE --

Banking

The prototypical firm in the capital overhead sector is an intermediary such as a bank. In the 1700s, paper currency - some issued by states, some by individual firms (such as tobacco warehouses in Virginia - the so called "crop notes"), some by banks - was not a reliable form of exchange. Paper notes fell into disrepute, as counterfeit notes, inflation, and high rates of interest charged for loans caused losses to individuals (Starnes, 1931). Under any conditions, some banking institu-

tions would have developed. But because of the problematic nature of many transactions in early economic development, banks developed and spread at a much faster rate. At a minimum, banks establish a common currency, at least for the local area, and a common set of "rules" such as interest rates for loans and "adequate" collateral. Further, they bridge transactions involving different firms (e.g., loans to one firm to buy equipment from a second), they bridge industries, and they bridge national economies.

Banks have played a pivotal role in the early history of the economy. They emerged as dominant after recovering from almost universal disfavor before 1820 (see Miller, 1927, for a summary of the anti-banking sentiment). Banking history does not fit the patterns noted in general economic histories: while the economy as a whole - including prices and interest rates - became increasingly national, banking became increasingly local. Table 8 shows that national banks declined as a ratio of all banks steadily from 1879 to 1914. For the first two decades of the series, state banks were on the rise; then the private bank began to grow.

-- TABLE 8 ABOUT HERE --

The average capital of the banks varied, with the trust companies largest, followed by national banks, state banks, and private banks (Young, 1928). But the general trend was to *smaller* banks, again against the trend in most of the economy (Young, 1928:2-3): "With the extension of banking to smaller

communities the general trend of the average size of both national and state banks, as measured by their capital and surplus, was downward...." Why so many small, local banks? This question seems unanswerable from a strict efficiency view. Rates of suspension of the small banks, state and local, exceed those for national banks. As Table 9 shows, suspension rates of state banks were over double that of national banks before 1900, with only slight convergence after the turn of the century.

-- TABLE 9 ABOUT HERE --

Branch banking shows a similar pattern, though starting a bit later perhaps because of legal barriers in many of the states. In 1890, there were just slightly over a half dozen branches in the entire country. However, growth was rapid (Southworth, 1928:22): 60 in 1900, 166 in 1905, 329 in 1910, 565 in 1915, and 1,052 in 1920. Table 10 provides data on the growth of branch banking in California from 1910 to 1925. The number of banks showed little consistent trend over this period; though they declined somewhat in number in the state as a whole, the urban areas stayed fairly constant or grew. However, the growth of branches was explosive.

-- TABLE 10 ABOUT HERE --

Perhaps the rapid rise of banks simply reflects the rapid expansion of needs for capital; if so, the rate of growth should be similar to the growth of manufacturing during the late 1880s and early 1900s. However, as Figure 4 shows, the rate of growth of banks - especially if branch banking is taken into account - outstrips the rate of growth of firms.

C. Regulation, Law, and Legislation As Trust Producing Mechanisms

Regulation creates requirements and standards to replace trust. It creates an environment under which diverse cultural elements can be forced into a uniform pattern. The cause of regulation is lack of established operating procedures.

The growth of law that directly addressed the problems and position of the corporation in modern life rests on the process of creating new cultural patterns. The law governing agreements expanded during the half century after the Civil War (Hurst, 1956:14):

...development of the market steadily increased the interlocking character of operations in this society and thus tended to raise men's need to be able to rely on one another's performance. Various features of our growing law of agreements reflected this. In more and more instances, from mid-century on, the law itself provided a framework for the parties' dealing...notably true with respect to the instruments of commerce - bills of lading, warehouse receipts, stock transfer documents - and the forms of association, especially the partnership or corporation.

There is little doubt that most Americans at the turn of the century felt that corporations needed control. For example,

the National Civic Federation conducted a survey of 16,000 Americans on the trust problem (1912). The sentiment was overwhelmingly in favor of additional control. The writings on the corporation during this crucial period reflect the general anomie quality of corporate behavior (e.g., Montague, 1904; Spelling, 1893; Frost, 1889).

As I have outlined, economic organizations formed at the time the modern economy emerged reflect the need for institutional production of trust. If trust governing economic transactions breaks down, then mechanisms to produce trust must be constructed. But these mechanisms are initially imperfect, cumbersome, and inefficient substitutes for trust. Economic organizations founded on distrust require creation of institutions to *insure* them: managers in firms *insure* the owner against shirking, unions and other employee organizations *insure* wage earners against owner opportunism, stock markets *insure* investors against fraud and misrepresentation, regulations *insure* the parties to a transaction that is regulated against the use of a different set of rules. This kind of "insurance" forms the basis of transactions when trust needs to be recreated. At the end of the process, is a fully efficient system created? Are there not less costly mechanisms for production of trust? I leave these questions for the reader to answer.

NOTES

[1] Garfinkel in several places has used the term "expectancies" (1963; 1967). I have substituted "expectations", because from careful reading of the Garfinkel texts I am unable to distinguish between the two terms and "expectations" is by far the more common and consensually defined term in the social sciences. Note that the conception of trust I develop draws heavily from the ethnomethodological tradition in sociology. I have, however, drawn very selectively from it and have formalized what I have borrowed.

[2] I am indebted to Larry Cummings for pointing out that trust and distrust are not opposite ends of a continuum. They are different constructs.

[3] Not relevant to the argument here, but important for conceptions of trust, are the following observations. First, specialization increases trust among those in the specialty by increase the number of constitutive expectations they hold in common. Second, specialization decreases trust across the collectivity as a whole, since those from one specialty have less trust for those in another specialty.

[4] Hence, markets for trust exist, or more precisely for mechanisms that produce trust, though perhaps not markets as traditionally defined. It is more likely a market where supply drives demand (White, 1981:518-26;541).

[5] Transaction cost typologies are limited to exchanges where formal litigation is the ultimate property rights determination, at least implicitly (De Alessi, 1980). The importance of transaction cost and property right concepts for understanding the firm has been noted elsewhere and is not disputed here (see Jones, 1983).

[6] As long as a firm remains within the average level of efficiency among the relevant set of firms, it will not experience a substantial risk of failure. Pressures for maximal efficiency occur only theoretically; in the real world, there is a given level of inefficiency that is viable, indeed expected, in any population of organizations. This is similar to the concept of structural comparison central to recent exchange theory (Berger et al., 1972; Zelditch et al., 1970; Markovsky, 1984). Hence, the use of a bounded efficiency notion brings transaction cost notions and exchange theory closer together.

[7] However, in the Meyer and Brown work, time of origin had few effects on other structural characteristics, including size, levels of supervision, and number of operating divisions/sections. These results were expected, since the major changes occurring in the environment of finance agencies affected

personnel procedures and not other aspects of organization (Meyer and Brown, 1977). We lack conceptual models that would predict which features of an organization are likely to be affected.

[8] There are other conditions under which the environment can alter internal organizational structure, such as reorganization (Meyer and Brown, 1977), extensive external regulation (Freeman, 1979), and organizational decline (Whetten, 1978). The general process of diffusion of innovation provides another example (Tolbert and Zucker, 1983). However, the environment appears to affect organizational structure less dramatically, in terms of amount and permanence, under these conditions than when the organization is initially formed (Stinchcombe, 1965:154-160; Meyer and Brown, 1977; Meyer, Stevenson, and Webster, 1984; Zucker, 1983).

[9] The data for cotton workers needs to be interpreted cautiously (Bureau of Statistics of Labor and Industry of New Jersey, 1896:65): the New Jersey survey explicitly covered mills with little turnover for "at least a generation" because it was "embarrassing" to find "the very large proportion of newly arrived immigrants employed in many of the mills, either increasing the number of workers or displacing the old operatives."

[10] Between-county variations in Illinois also support the hypothesis that changes in "rules of the game" will be accomplished more easily if there are shared background expectations, measured in terms of cultural heterogeneity in the workforce. More rigorous analysis of the Illinois data is now underway.

[11] Of course, these assumptions of similarity are not always correct. As Spence notes (1974), indicators such as education or ethnicity will retain their value as signals even if they are not always accurate. There must be some evidence of reasonable correspondence, however, or the indicator will lose its value as a signal. For example, firms still borrow capital from banks, but the central role of banks has long been eclipsed by other mechanisms for obtaining capital. Individual firms vary widely in how they acquire additional capital. Overall, in 1982 only about 20 percent of the capital raised was obtained through loans from banks; the remainder was raised through the stock markets or through borrowing from sources within the firm.

REFERENCES

- Alchian, Armen A. and Harold Demsetz
1972 "Production, information costs, and economic organization." *American Economic Review* 62:777-795.
- Alessi, Louis
1980 "The economics of property rights: A review of the evidence." *Research in Law and Economics* 2:2-47.
- Amsden, Jon and Stephen Brier
1977 "Coal miners on strike: The transformation of strike demands and the formation of a national union." *Journal of Interdisciplinary History* 8:583-616.
- Angell, Robert C.
1941 "The social integration of selected American cities." *American Journal of Sociology* 28:575-592.
- Armour, Henry O., and David J. Teece
1978 "Organizational structure and economic performance: A test of the multidivisional hypothesis." *Bell Journal of Economics* 9:106-122.
- Arrow, Kenneth
1970 "Political and economic evaluation of social effects and externalities." Pp. 1-23 in J. Margolis (ed.), *The Analysis of Public Output*. National Bureau of Economic Research. New York: Columbia University Press.
- Arrow, Kenneth
1974 *The Limits of Organization*. New York: Norton.
- Averitt, Robert T.
1968 *The Dual Economy: The Dynamics of American Industry Structure*. New York: Norton.
- Berger, J., M. Zelditch, Jr., B. Anderson and B.P. Cohen
1972 "Structural aspects of distributive justice: A status value interpretation." Pp. 119-146 in Joseph Berger, Morris Zelditch, Jr., and Bo Anderson (eds.), *Sociological Theories in Progress*. Vol. 2. Boston: Houghton Mifflin.
- Blau, Peter M.
1964 *Exchange and Power in Social Life*. New York: Wiley.
- Berle, Adolf A., Jr. and Gardiner C. Means
1934 *The Modern Corporation and Private Property*. New York: Macmillan.

- Bureau of Statistics of Labor and Industry of New Jersey
1895 Eighteenth Annual Report. Trenton, New Jersey: John
L. Murphy Publishing Company.
- Burt, Ronald S.
1975 "Corporate society: a time series analysis of network
structure." *Social Science Research* 4:271-328.
- Chandler, Alfred D., Jr.
1969 "The structure of American industry in the twentieth
century: a historical overview." *Business History
Review* 43:255-298.
- Chandler, Alfred D., Jr.
1977 *The Visible Hand: The Managerial Revolution in
American Business.* Cambridge, Mass.: Belknap Press
of Harvard University.
- Coleman, James S.
1974 *Power and the Structure of Society.* New York: W.W.
Norton and Co.
- Collins, Norman and Lee Preston
1961 "The size structure of the largest industrial firms,
1908-1958." *American Economic Review* 51:986-1003.
- Commons, John R.
1901 "Tenement-house work and legislation regarding it."
Pp. 369-84 in *Industrial Commission Reports*, v.15.
Washington, D.C.: U.S. Government Printing Office.
- Clinton, Spencer
1886 "Reform in municipal government." Paper read before
The Cleveland Democracy of Buffalo (Buffalo, New
York):101-116.
- Crandon, Frank P.
1887 "Misgovernment of great cities." *Popular Science
Monthly* 30:521-4.
- Creamer, Daniel
1949 "Changes in the Industrial Composition of Manpower
since the Civil War," *Studies in Income and Wealth*,
v. 11. Washington, D.C.: National Bureau of Economic
Research.
- Cubberly, E.P.
1909 *Changing Concepts of Education.* Boston: Houghton-
Mifflin.

- Davis, Lance E.
1965 "The investment market, 1870-1914: The evolution of a national market."
Journal of Economic History 25:355-399.
- Demsetz, Harold
1967 "Towards a theory of property rights." American Economic Review 57:347-359.
- DiMaggio, Paul J. and Walter W. Powell
1983 "The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields."
American Sociological Review 48:147-60.
- Easterlin, Richard A.
1960 "Interregional differences in per capita income, population, and total income, 1840 to 1950." Pp. 73-140 in Trends in the American Economy in the Nineteenth Century, v. 24. National Bureau of Economic Research. Princeton, N.J.: Princeton University Press.
- Edwards, Richard C.
1975 "Stages in corporate stability and the risks of corporate failure." The Journal of Economic History 35:428-457.
- Elkus, Abram I.
1913 "Social investigation and social legislation." Annals of the American Academy 48:56-58.
- Evan, William M.
1963 "Comment." American Sociological Review 28:67-69.
- Evans, George Heberton
1948 Business Incorporation in the United States: 1800-1945. New York: National Bureau of Economic Research
- Fabricant, Solomon
1942 Employment in Manufacturing, 1899-1939: An Analysis of its Relation to the Volume of Production. New York: National Bureau of Economic Research.
- Fabricant, Solomon
1952 The Trend of Government Activity in the United States Since 1900. New York: National Bureau of Economic Research.
- Fine, Nathan
1961 Labor and Farmer Parties in the United States, 1828-1928. New York: Russell and Russell.

- Fischer, Claude S.
1981 "The public and private worlds of city life."
American Sociological Review 46:306-316.
- Freeman, John H.
1979 "Going to the Well: School district administrative
intensity and environmental constraints."
Administrative Science Quarterly 24:119-33.
- Forbes
1967 "Management." Sept. 15.
- Gallman, Robert E.
1960 "Commodity Output, 1839-1899." Pp. 13-71 in Trends in
the American Economy in the Nineteenth Century, v.24.
National Bureau of Economic Research. Princeton,
N.J.: Princeton University Press.
- Gamson, William A.
1975 The Strategy of Social Protest. Homewood, Ill.:
Dorsey Press.
- Garfinkel, Harold
1963 "A conception of and experiments with "Trust" as a
condition of stable concerted actions." Pp. 187-239
in O.J. Harvey (ed.), Motivation and Social
Interaction: Cognitive Determinants. New York:
Ronald Press.
- Garfinkel, Harold
1967 Studies in Ethnomethodology. Englewood Cliffs, New
Jersey: Prentice-Hall.
- Geertz, C.
1978 "The bazaar economy: Information and search in
peasant marketing." American Economic Review 68:28-
32.
- Gouldner, Alvin W.
1959 "Organizational Analysis." Pp. 400-28 in Robert K.
Merton, Leonard Broom, and Leonard S. Cottrell, Jr.
(eds.), Sociology Today. New York: Basic Books.
- Gouldner, Alvin W.
1961 "The norm of reciprocity: A preliminary statement."
American Sociological Review 25:161-179.
- Granovetter, Mark
1973 "The strength of weak ties." American Journal of
Sociology 78:1360-80.

- Luce, R. Duncan and Howard Raiffa
1957 Games and Decisions. New York: Wiley.
- Macaulay, Stewart
1963 "Non-contractual relations in business: A preliminary study." American Sociological Review 28:55-67.
- Maccoby, E.E. and E.N. Jacklin
1974 The Psychology of Sex Differences. Stanford, Calif.: Stanford University Press.
- Malin, James C.
1935 "The turnover of farm population in Kansas." Kansas Historical Quarterly 4:339-372.
- Malinowsky, Bronislaw
1922 Argonauts of the Western Pacific. London: Routledge and Kegan Paul.
- Malinowsky, Bronislaw
1932 Crime and Custom in Savage Society. London: Paul, Trench, Trubner.
- McKean, R.N.
1975 "Economics of trust, altruism, and corporate responsibility." In E.S. Phelps (ed.), Altruism, Morality and Economic Theory. New York: Russell Sage Foundation.
- Massachusetts Bureau of Statistics of Labor
1891 Twenty-First Annual Report. Boston: Wright and Potter, State Printers.
- Melman, Seymour
1951 "The rise of administrative overhead in the manufacturing industries of the United States 1899-1947." Oxford Economic Papers, no. 3: 63-92.
- Meyer, John W. and Brian Rowan
1977 "Institutionalized organizations: Formal structure as myth and ceremony." American Journal of Sociology 83:340-363.
- Meyer, Marshall and M. Craig Brown
1977 "The process of bureaucratization." American Journal of Sociology 83:364-385.
- Meyer, Marshall, William Stevenson, and Stephen Webster
1984 Limits to Bureaucratic Growth. New York: DeGruyter.

- Miller, Harry E.
1927 **Banking Theories in the United States Before 1860.**
 Cambridge, Mass.: Harvard University Press.
- Montague, Gilbert Holland
1904 **Trusts of To-day; Facts Relating to Their Promotion,**
 Financial Management and the Attempts at State
 Control. New York: McClure, Phillips & Co.
- National Civic Federation
1912 **The Trust Problem. New York: M.B. Brown.**
- Navin, Thomas R.
1970 **"The 500 largest industrials in 1917." Business**
 History Review 44:360-386.
- Ogburn, William Fielding
1924 **Social Change with Respect to Culture and Original**
 Nature. New York: Viking Press.
- Ogburn, William Fielding and Nimkoff, M.F.
1955 **Technology and the Changing Family. Boston: Houghton**
 Mifflin.
- Olson, Mancur Jr.
1963 **"Rapid growth as a destabilizing force." Journal of**
 Economic History 33.
- Ouchi, William G.
1980 **"Markets, bureaucracies, and clans." Administrative**
 Science Quarterly 25:129-141.
- Page, William N.
1894 **"The economics of coal mining." The Mineral Industry:**
 Statistical Supplement of the Engineering and Mining
 Journal, III:147-153.
- Parsons, Talcott
1939 **"The professions and the social structure." Social**
 Forces 17:457-67.
- Parsons, Talcott
1951 **The Social System. Glencoe, Ill./ Free Press.**
- Parsons, Talcott
1969 **Politics and Social Structure. New York: Free Press.**
- Paullin, C.O.
1932 **Atlas of the Historical Geography of the United**
 States. Washington, D.C.: Carnegie Institution.

- Pennsylvania Bureau of Industrial Statistics
1911 Thirty-Eighth Report: 1910. Harrisburg: C.E. Aughinbaugh, Printer to the State of Pennsylvania.
- Pfeffer, Jeffrey
1972a "Merger as a response to organizational interdependence." *Administrative Science Quarterly* 17:382-394.
- Pfeffer, Jeffrey
1972b "Size and composition of corporate boards of directors: The organization and its environment." *Administrative Science Quarterly* 17:382-394.
- Pfeffer, Jeffrey and Huseyin Leblebici
1973 "Executive recruitment and the development of interfirm organizations." *Administrative Science Quarterly* 18:449-461.
- Pfeffer, Jeffrey and Phillip Nowak
1976 "Joint ventures and interorganizational interdependence." *Administrative Science Quarterly* 21:398-418.
- Posner, R.A.
1980 "A theory of primitive society, with special reference to primitive law." *The Journal of Law and Economics* 23:1-54.
- Rose, E.
1968 "Uniformities in culture: Ideas with histories." Pp. 154-76 in N.F. Washburne (ed.), *Decisions, Values and Groups*. New York: Macmillan.
- Roethlisberger, F.J. and William J. Dickson
1939 *Management and the Worker*. Cambridge, Mass.: Harvard University Press.
- Sahlins, Marshall D.
1965 "On the sociology of primitive exchange." Pp. 139-236 in *The Relevance of Models for Social Anthropology*. ASA Monographs I. New York: Frederick A. Praeger.
- Schutz, Alfred
1962 "On multiple realities." Pp. 207-259 in *Collected Papers, I: The Problem of Social Reality*. M. Natanson (ed.). The Hague: Martinus Nijhoff.

- Schutz, Alfred
1967[1932] *The Phenomenology of the Social World*, translated by G. Walsh and F. Lehnert. Evanston: Northwestern University.
- Singlemann, J. and H.L. Browning
1980 "Industrial transformation and occupational change in the U.S., 1960-70." *Social Forces* 59: 246-264.
- Smelser, Neil J.
1959 *Social Change and the Industrial Revolution*. Chicago: University of Chicago Press.
- Smelser, Neil J.
1964 "Toward a theory of modernization." Pp. 258-74 in Amitai Etzioni and Eva Etzioni (eds.), *Social Change*. New York: Basic.
- Smith, Vernon L.
1975 "The primitive hunter culture, pleistocene extinction, and the rise of agriculture." *Journal of Political Economy* 83:727-756.
- Spence, A. Michael
1973 "Job market signaling." *Quarterly Journal of Economics*, 87:355-375.
- Spence, A. Michael
1974 *Market Signaling: Informational Transfer in Hiring and Related Screening Processes*. Cambridge, Mass.: Harvard University Press.
- Southworth, Shirley Donald
1928 *Branch Banking in the United States*. New York: McGraw-Hill.
- Stigler, George J.
1956 *Trends in Employment in the Service Industries*. National Bureau of Economic Research. Princeton, N.J.: Princeton University Press.
- Stinchcombe, Arthur L.
1965 "Social structure and organizations." Pp. 142-193 in James G. March (ed.), *Handbook of Organizations*. Chicago: Rand McNally.
- Suffern, Arthur E.
1915 *Conciliation and Arbitration in the Coal Industry of America*. Boston: Houghton-Mifflin.

- Taeuber, Conrad and Irene B. Taeuber
 "Immigration to the United States." Pp. 314-332 in
 Charles B. Nam (ed.), Population and Society.
 Boston: Houghton-Mifflin.
- Theil, H.
 1967 Economics and Information Theory. Chicago: Rand
 McNally.
- Theil, H.
 1972 Statistical Decomposition Analysis with Applications
 in the Social and Administrative Sciences. Amsterdam,
 Netherlands: North-Holland Publishing Company.
- Thernstrom, Stephan and Peter R. Knights
 1970 "Men in motion: Some data and speculations about
 urban population mobility in nineteenth-century
 America." Journal of Interdisciplinary History 1:7-
 35.
- Throne, Mildred
 1959 "A population study of an Iowa county in 1850." Iowa
 Journal of History, 62:305-330.
- Tolbert, Pamela S., and Lynne G. Zucker
 1983 Institutional sources of change in the formal
 structure of organizations: The diffusion of civil
 service reform, 1880-1935." Administrative Science
 Quarterly, 28:22-39.
- U.S. Bureau of the Census
 1975 Historical Statistics of the United States, Colonial
 Times to 1970. Washington, D.C.: Government Printing
 Office.
- U.S. Department of Agriculture, Bureau of Statistics
 1907 Wheat Crops of the United States, 1866-1906. Bulletin
 57, Table 1.
- U.S. Department of Agriculture, Bureau of Statistics
 1908 Potato Crop of the United States, 1866-1906. Bulletin
 62, Table 1.
- U.S. Immigration Commission
 1911 Report. Washington, D.C.: Government Printing Office.
- Whetten, David A.
 1978 "Coping with incompatible expectations: An integrated
 view of role conflict." Administrative Science
 Quarterly 23:254-71.

- White, Harrison C.
1981 "Where do markets come from?" *American Journal of Sociology* 87:517-547.
- Wiebe, Robert H.
1967 *The Search for Order, 1877-1920*. New York: Hill and Wang.
- Wilcox, A.R.
1973 "Indices of qualitative variation and political measurement." *Western Political Quarterly* 26:325-343.
- Wilkins, Alan L. and William G. Ouchi
1983 "Efficient cultures: Exploring the relationship between culture and organizational performance." *Administrative Science Quarterly* 28:468-481.
- Williamson, Oliver E.
1975 *Markets and Hierarchies*. New York: Free Press.
- Williamson, Oliver E.
1979 "Transaction cost economics: The governance of contractual relations." *Journal of Law and Economics* 22:233-261.
- Williamson, Oliver E.
1981 "The economics of organization: The transaction cost approach." *American Journal of Sociology* 87:548-577.
- Williamson, Oliver E., Michael L. Wachter, and J.E. Harris
1975 "Understanding the employment relation: The analysis of ideosyncratic exchange." *Bell Journal of Economics* 6: 270.
- Young, Allyn A.
1928 *An Analysis of Banks Statistics for the United States*. Cambridge, Mass.: Harvard University Press.
- Zelditch, M., Jr., J. Berger, B. Anderson and B.P. Cohen
1970 "Equitable comparisons." *Pacific Sociological Review*, Winter:19-26.
- Zucker, Lynne G.
1977 "The role of institutionalization in cultural persistence." *American Sociological Review*, 42:726-743.
- Zucker, Lynne G.
1983 "Organizations As Institutions." Pp. 1-47 in Samuel Bachrach (ed.), *Research in the Sociology of Organizations*, Vol. 2. American Sociological Association. Greenwich, Conn.: JAI Press.

Zucker, Lynne G.

1984

"Mergers and Bounded Efficiency: Institutional Sources of Economic Control." Unpublished manuscript, UCLA.

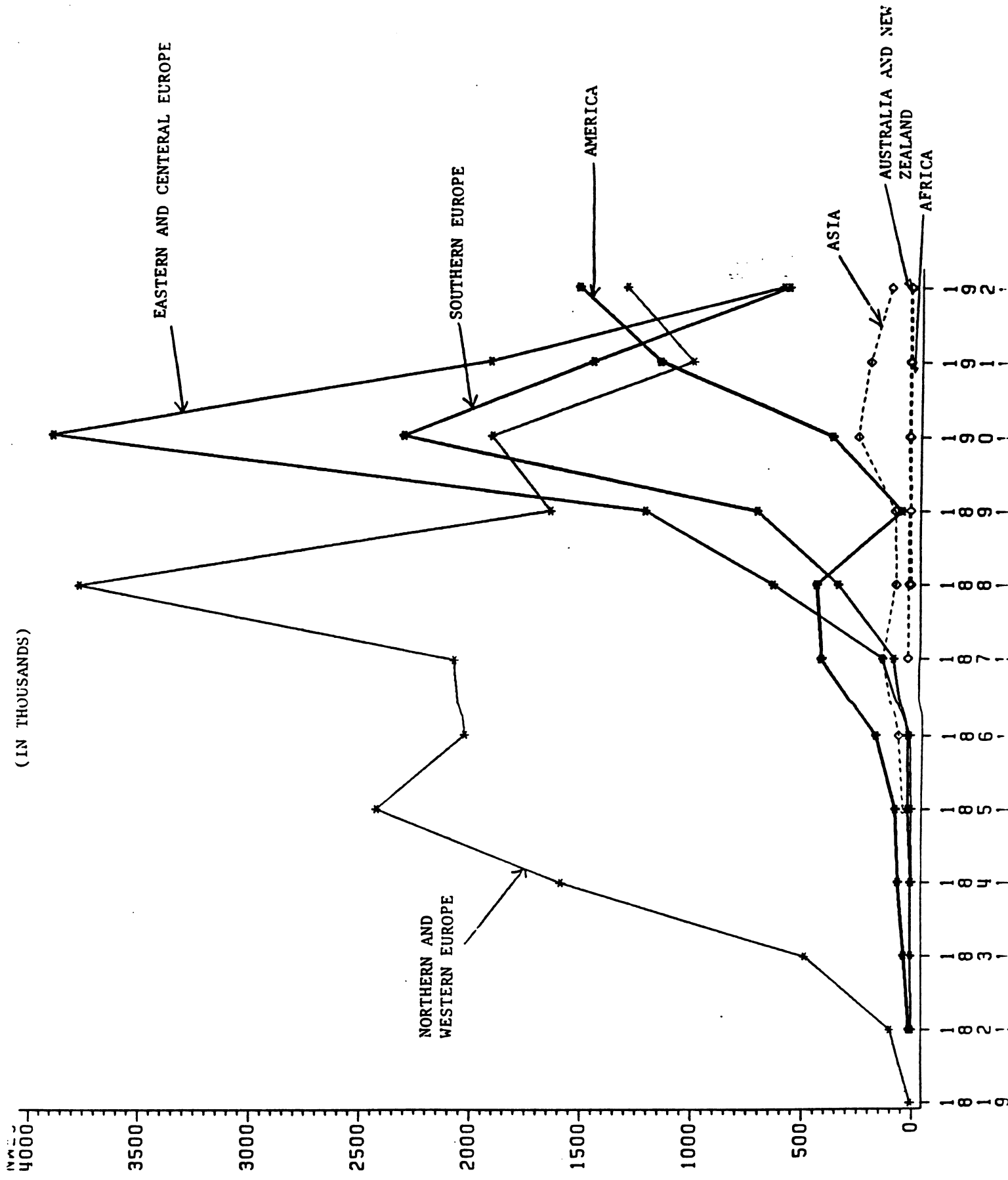


Figure 1

NET CHANGE IN BUSINESS CONCERNS

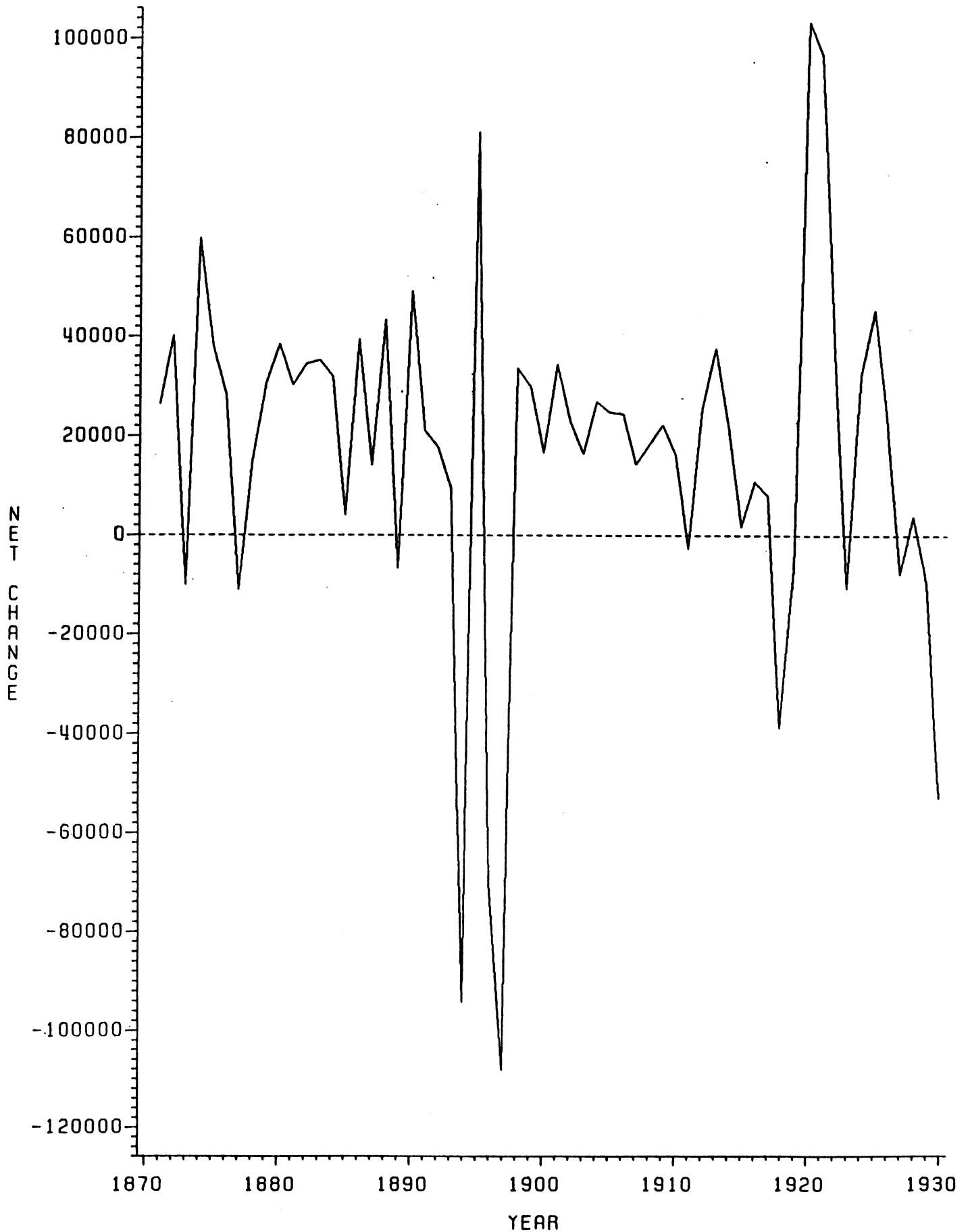


Figure 2

Table 1: Indices of Heterogeneity of Immigrants, 1820-1930(a)

Year	ADA(aa)	Gini for Decade(aaa)
1820	1.00	.13
1830	.85	.06
1840	.83	.08
1850	.92	.05
1860	.93	.10
1870	.82	.21
1880	.77	.31
1890	.77	.35
1900	.69	.29
1910	.63	.36
1920	.57	.27
1930	.59	-

(a) Source: Tauber and Tauber, 1968

(aa)

$$ADA = k \left(\sum_{i=1}^k \left| p_i - \frac{1}{k} \right| \right) / (2k-2)$$

Source: Wilcox, 1973

(aaa)

$$Gini = \frac{1}{2} \sum_{i=1}^k \sum_{j=1}^k x_i x_j \left| \frac{y_i}{x_i} - \frac{y_j}{x_j} \right|$$

Source: Theil, 1972

Table 2: Nativity of Journeymen Working in New Jersey firms, 1889-1894(a)

Occupation	Number Workers	Percent		Percent Born In:							
		U.S. Born	For'n Born	New Jersey	Eng- land	Ire- land	Scot- land	Ger- many	East Euro.	Italy	Other For'n
Woolen workers	996	36.8	63.2	29.6	4.9	2.4	1.0	5.2	.7	4.7	39.5
Cotton workers(aa)	171	77.2	22.8	67.2	13.4	3.5	-	1.7	.5	-	3.5
Bakers	933	26.8	73.2	18.5	7.5	2.6	1.7	55.2	-	1.0	5.3
Bricklayers/masons	1022	62.1	37.9	40.8	7.3	17.5	1.4	7.3	-	.4	3.8
Carpenters	2732	66.6	33.4	58.5	5.6	6.6	2.4	12.3	-	.3	6.0
Cigarmakers	1061	65.8	34.2	46.2	.5	.6	.1	18.0	7.7	.2	6.0
Glassworkers	1040	93.2	6.8	84.4	.9	1.8	-	4.0	-	-	.7
Hatters	2577	56.5	43.5	44.7	4.4	12.6	-	13.1	-	5.9	7.4
Leatherworkers	1124	41.2	58.8	36.5	5.4	18.4	.6	22.6	4.6	.8	6.7
Miners, iron ore	1269	39.3	60.4	36.9	18.8	18.9	-	1.8	15.7	.1	5.2
Potters	1122	44.5	55.5	30.7	8.8	36.2	-	3.4	-	.1	7.0
Painters	1235	71.8	28.2	65.8	4.8	5.8	.7	14.1	-	.4	3.0
Plumbers	661	82.4	17.6	60.6	4.2	5.8	1.5	6.0	-	-	2.8
Printers	461	79.8	21.8	62.6	4.1	3.8	.9	7.8	-	-	9.1
Railroad	477	85.9	14.1	52.8	1.9	9.5	.4	1.4	-	-	.9
Stonecutters	781	16.5	83.5	14.8	21.2	15.8	15.5	28.9	-	5.8	5.1

(a) Source: Bureau of Statistics of Labor and Industry of New Jersey, 1896

(aa) Foreign-born substantially under-represented. See text.

Table 3: Population Turnover and Residential Stability in Boston, 1880-1890(a)

	1881-1885	1886-1890
Families		
In-migrating	76,310	81,506
Out-migrating	65,654	72,918
Total Turnover	141,964	154,424
Percentage Directory Listings		
Dropped	20.4%	20.8%
New Boston Address	31.4%	20.6%
Residentially Stable	48.2%	49.4%

(a) Modified from Thernstrom and Knights, 1970: Tables 3 and 4.

(aa) Total number of families residing in Boston in 1880 was 72,600 and in 1890 was 89,600, using the Thernstrom-Knights estimation procedures. Hence, the family turnover rate was considerably higher than the total family population.

Table 4: Changes in Commodity Output, 1874 to 1899(a)

Year	Percent Commodity Output		
	Agriculture	Mining	Manufacturing
1874	46	2	39
1879	49	3	37
1884	41	3	44
1889	37	4	48
1894	32	4	53
1899	33	5	53

(a) Source: Gallman, 1960:26.

Table 5. *Stability of the Organizational Form: Reasons for Exits from List of Top 100 Industrial Firms, 1903-1969**

<i>Time Periods and Source</i>	<i>(1) Total Exits</i>	<i>(2) Exits by Merger**</i>	<i>(3) Exits by Dissolution</i>	<i>(4) Exits by Failure to Grow</i>	<i>(5) Exits by Liquidation</i>	<i>(6) Col. 4-5years</i>	<i>(7) Col. 5+years</i>
1903-1917 (Edwards 1975)	34	7	0	18	9	1.93	0.64
1909-1917 (Kaplan 1965; Collins & Preston 1961)	35	3	1	27	4	3.88	0.50
1917-1967 (Navin 1970)	32	25	0	2	5	0.14	0.10
1917-1967 (Forbes 1967)	31	23	0	1	7	0.16	0.14
1919-1960 (Kaplan 1964)	25	16	0	4	5	0.22	0.12
1919-1958 (Collins & Preston 1961)	25	16	0	5	4	0.23	0.10
1919-1969 (Edwards 1975)	40	30	0	2	8	0.20	0.16

Source: Modified from Edwards, 1975:Table 3.

*Studies using a base different from the top 100 were adjusted (Navin base, 101; Forbes, 98; Kaplan, 98; Collins and Preston, 97; Edwards, 110). See references for full sources.
 **French data on mergers, based on all firms listed on the Paris stock exchange, is strikingly similar: low prior to 1920 (varying from 1.6 to 9.6), jumping to 19 in 1920-24, and to 29.4 in 1925-29 (Housiaux, 1958:340). The largest French firms were nationalized and are not included.

Table 6. Estimates of Administrative/Productive Ratios
in Manufacturing, 1870 to 1930 (a)

Year	A/P Ratio
1870	.058
1875	.061
1880	.060
1885	.067
1890	.077
1899	.077
1904	.095
1909	.121
1914	.138
1919	.162
1921	.167
1923	.156
1925	.161
1927	.156
1929	.154

(a) Sources: Fabricant, 1942 for 1899-1930 estimates
Various state reports for 1870-1890 estimates

TABLE 7
**Labor Force in Service Industries as Per Cent of Total
and Nonagricultural Labor Force, 1870-1950**

	<i>Trade</i>	<i>Finance and Real Estate</i>	<i>Educa- tion</i>	<i>Other Professional Services and Amusements</i>	<i>Domestic Service</i>	<i>Personal Service</i>	<i>Govern- ment, n.e.c.</i>
1. Per Cent of Total Labor Force							
1870	6.14	.34	1.49	1.10	7.36	1.96	.78
1880	6.72	.37	1.92	1.10	6.28	2.09	.81
1890	7.74	.69	2.16	1.48	6.45	2.72	.81
1900	8.57	1.05	2.26	1.74	6.06	3.38	1.05
1910	9.33	1.44	2.49	2.13	5.95	4.21	1.49
1920	9.85	1.94	2.84	2.62	4.12	3.95	2.23
1930	13.10	3.11	3.45	3.64	5.40	5.29	2.39
1940	14.37	3.10	3.36	4.64	5.22	6.20	3.38
1950	16.43	3.33	3.57	5.42	2.96	6.38	5.62
2. Per Cent of Nonagricultural Labor Force							
1870	12.38	.68	2.99	2.20	14.80	3.94	1.57
1880	13.45	.73	3.84	2.21	12.58	4.19	1.63
1890	13.44	1.20	3.76	2.58	11.19	4.71	1.40
1900	13.66	1.68	3.61	2.78	9.67	5.39	1.67
1910	13.59	2.10	3.63	3.11	8.67	6.13	2.18
1920	13.48	2.66	3.89	3.59	5.65	5.41	3.06
1930	16.70	3.96	4.40	4.64	6.88	6.74	3.05
1940	17.53	3.78	4.10	5.66	6.37	7.57	4.12
1950	18.68	3.79	4.06	6.16	3.36	7.25	6.38

n.e.c. = not elsewhere classified.

Source: Daniel Creamer, "Changes in the Industrial Composition of Manpower since the Civil War," *Studies in Income and Wealth, Volume Eleven*, National Bureau of Economic Research, 1949, Table 1, p. 47. Figures exclude "industry not specified."

TABLE 8
NUMBER OF NATIONAL BANKS AND OTHER BANKS:
AT FIVE-YEAR PERIODS, 1879-1914

Year	National banks *	Other banks †	Percentage ratio of national banks to all banks
1879.....	2,048	3,395	38
1884.....	2,625	4,519	37
1889.....	3,239	6,375	34
1894.....	3,770	7,777	33
1899.....	3,583	8,697	29
1904.....	5,331	13,252	29
1909.....	6,926	16,778	29
1914.....	7,525	20,140	27

* At dates of call nearest June 30.

† Including state banks, trust companies, and private banks. The figures for 1909 and 1914 are from the reports of the Comptroller of the Currency. The other figures are from G. E. Barnett's *State Banks and Trust Companies* (National Monetary Commission Publications, 1911), Appendix A, with W. C. Mitchell's correction for the year 1904 (*Business Cycles*, p. 312).

TABLE 9
SUSPENSION RATE OF COMMERCIAL BANKS
FOR SELECTED PERIODS
(Percentage per Year)

<i>Period</i>	<i>National</i>	<i>State</i>
1877-91	0.24	0.73*
1892-7	0.89	1.90
1898-1910	0.22	0.38

* Includes private banks.

Source: Average annual rates for the periods shown. Annual suspensions from *Historical Statistics*, 1960, series X, 166-7. Midyear number of banks from Board of Governors of the Federal Reserve System, *Banking Studies*, 1941, p. 418 (data for state banks not available before 1877).

TABLE 10
NUMBER OF BANKS¹ AND BRANCHES, 1910-1925²

Year	San Francisco		Los Angeles		Oakland		All other	
	Banks	Branches	Banks	Branches	Banks	Branches	Banks	Branches
1910	42	32	19	491				
1911	28	15	22	14	13	3	410	45
1920	29	39	16	32	6	6	369	90
1921	29	40	10	45	6	6	369	96
1922	29	75	17	96	6	9	377	101
1923	30	145	23	162	5	23	371	110
1924	27	170	22	214	5	23	350	102
1925	28	200	24	239	3	10	339	107

¹ Banks includes all state banks, not merely parent banks.

² To avoid repetition later, this table has been carried on from 1920 to 1925 inclusive. The discussion of the later period will be found on pages 50-55, *infra*.