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Sustaining Economic Performance under Political Instability: Political Integration in Revolutionary Mexico

If crony capitalism is bad for growth, then why do crony capitalist systems come into existence and persist for long periods of time? This chapter advances a theory about the origins of crony capitalist systems in the special case of unstable polities. We argue that crony capitalist systems—what we term vertical political integration—are the only exit from political instability. Moreover, we argue that such vertically integrated systems do not choke all growth. In fact, growth of a type is possible under vertical political integration, and that growth is robust even to conditions of enduring political instability.

A general consensus has emerged in recent years in which limited governments are presumed to provide the political foundations for economic growth. Limited governments are understood as governments that respect due process and universal individual political and economic rights—and that are bound to respect these rights through sets of self-enforcing institutions. The self-enforcing nature of the institutions that underlie limited governments solves a crucial commitment problem: any government strong enough to protect and arbitrate property rights is also strong enough to abrogate them for its own benefit. By creating self-enforcing institutions that constrain the government, private investors will not be restricted by fear of government predation.[1]

In an unstable polity it is impossible, by definition, to create self-enforcing institutions. Political instability should therefore exacerbate the commitment problem. Indeed, factions in an unstable polity will have strong incentives to punish their opponents, reward their allies, levy high taxes on everyone else, and confiscate property in order to finance their political and military activities. There can therefore be no credible commitment by government to not engage in predatory behavior or to change the institutions that govern the economy, and if there are no such credible commitments, there can be no investment and economic growth.

This consensus faces two problems, one empirical and one theoretical. The empirical problem is that we observe large numbers of countries without limited governments that have been able to sustain high rates of economic growth for prolonged periods of time. In fact, economic growth under limited government is a rare com-

1. See Douglass C. North, *Structure and Change in Economic History* (New York: Norton, 1981), pp. 146–57. Also see Margaret Levi, *Of Rule and Revenue* (Berkeley: University of California Press, 1988); Barry R. Weingast, "The Political Foundations of Democracy and the Rule of Law," *American Political Science Review* 91, no. 2 (June 1997): 245–63; Douglass C. North and Barry R. Weingast. "Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England," *Journal of Economic History* 49, no. 4 (December 1989): 803–32; Douglass C. North, *Institutions, Institutional Change, and Economic Performance* (Cambridge: Cambridge University Press, 1990); and Barry R. Weingast, "The Political Foundations of Limited Government: Parliament and Sovereign Debt in 17th- and 18th-Century England," in John N. Drobak and John V.C. Nye, eds., *The Frontiers of the New Institutional Economics* (San Diego: Academic Press, 1997). On the problem of commitment, see Gary J. Miller, *Managerial Dilemmas: The Political Economy of Hierarchy* (Cambridge, New York, and Melbourne: Cambridge University Press, 1992); Robert Barro and David Gordon, "Rules, Discretion and Reputation in a Model of Monetary Policy," *Journal of Monetary Economics* 12 (1983): 101–21; Kenneth Shepsle, "Discretion, Institutions, and the Problem of Government Commitment," mimeo, 1991; and Hilton L. Root, "Tying the King's Hands: Credible Commitments and Royal Fiscal Policy during the Old Regime," *Rationality and Society*.

bination found in only a small set of nations. Economic growth, however, can be found within a broad range of political systems.

The theoretical problem is the absence of an adequate framework to analyze the phenomenon of political instability. Much of the existing literature defines political instability the same way Justice Potter Stewart defined obscenity: we know it when we see it. Unfortunately, without an adequate definition of instability we cannot then develop a theory of how private individuals can mitigate the effects of instability or how governments can make credible commitments under unstable conditions. That is, without a theoretical framework, we cannot understand how it would be possible to achieve economic growth without limited government.

In fact, the current literature gives few possible exits from political instability. In order to gain enough power to establish political dominance, a government or faction under instability needs economic resources. Unfortunately, if a government under these conditions limits its predation, it will soon fall to a faction with less scruples. Although this may be a good description of much of human history, recent centuries suggest that there must exist some sort of "exit strategy" from pernicious instability other than the establishment of limited parliamentary regimes.[2]

The solution we explore to the problem of credible commitment under conditions of political instability is similar to that used by firms in situations where bilateral, self-enforcing contracts are impossible and there is no recourse to third-party enforcement at a reasonable price: vertical integration.[3] In other words, government

2. In fact, limited governments seem remarkably poor at exporting their institutions. Witness the experience of the Philippines after four decades of American colonial rule. Other than cases of complete absorption (such as Hawaii or Puerto Rico), the only successful case of the foreign imposition of clear-cut limited government that we can think of is the creation of the Federal Republic of Germany after the Second World War.

3. See Benjamin Klein, Robert G. Crawford, and Almen Alchian, "Vertical

and economic groups (or competing factions) integrate, either backward by allowing economic actors to write and enforce the rules governing their own activities in return for support for the government or forward by encouraging politicians to directly engage in productive and lucrative economic activity.[4] By integrating, the government can promise to respect property rights (at least those of the integrators) and private actors can credibly pledge their support for the government. Economic activity, then, can be sustained under conditions of political instability if governments can integrate sufficiently to give favored actors confidence that their interests will be protected. In fact, certain economic groups may come to perceive that any faction that comes to power will have to backward-integrate into this group. Partial integration can be enough to sustain economic activity if it encourages unintegrated or partially integrated private actors to believe that they are in a repeated game with other, more-integrated actors and the government.

Vertical political integration, as we will explore below, is clearly a second-best solution compared to limited government. However, absent particular historical circumstances, it is often the only feasible way of sustaining economic activity, especially if instability is considered the starting point. When there is political instability, an immediate jump to limited government and its accoutrements—universal political rights, due process of law—is difficult to impossible. As we will show, under instability the governance structures necessary to solve the commitment problem do not lead to limited government, but they can and do support economic growth. In fact, in the case we explore here, vertical political integration served as

Integration, Appropriable Rents, and the Competitive Contracting Process," *Journal of Law and Economics* 21, no. 2 (October 1978): 297–326.

4. Mexico under the PRI and prerevolutionary France are good examples of the first sort of integration, while Eastern Europe under communism is perhaps the most extreme example of the second.

the political foundation of growth both before and after the Mexican Revolution. Not only did both pre- and postrevolutionary governments vertically integrate into elite economic groups: they often integrated into precisely the same economic groups as their predecessors.

We organize this chapter as follows: The first section presents our theory about the feasibility of credible commitments under political instability through vertical political integration. The second section presents a brief history of the Porfiriato and the revolution years. The third section discusses the vertical political integration that took place in postrevolutionary Mexico. We also present some quantitative evidence from the Mexican manufacturing sector to show how vertical political integration was capable of sustaining economic development in the midst of an extreme case of political instability. The fourth section concludes.

Theory

Our theory draws from both the New Economics of Organization and the New Institutionalism. We build on and go beyond both of these bodies of literature in order to create a theory of how it is possible to create credible commitments and encourage investment and growth, even in the midst of widespread political instability.

Political Stability

Before we define political instability, it is appropriate to define a stable political system. Further discussions of instability can then be compared against the benchmark of what we mean by political stability.

A political system is a set of institutions that serve to mediate and organize political interests. More specifically, a political system is the primary source of formal, legally sanctioned, regulations and institutional change in a society. One major purpose of political systems is to decrease uncertainty about two types of political change. The first involves changes in governments.[5] These changes are related to the group of institutions that define the mechanism through which governments are replaced. Institutions that define government selection mechanisms (such as election laws) have an important role in the formation of expectations about who will come to power and what type of institutional changes will be expected. The second type of political change involves fundamental changes in the underlying structure of the political system. This includes changes to the internal rules governing the evolution of the political system as well as changes to the more general mechanisms available for political interaction.[6]

The political system serves as a mechanism to mediate conflicting social demands and produces as output specific rules or policies to govern different types of social interactions, including and extending beyond the political arena. In the case of politics, it provides a division of labor between the public and private sector and delineates the basic rules of political organization that govern a society. In the case of the economy, the political system defines property rights and provides institutions that guide and restrict economic behavior. One notable feature of a political system is that, after the system is first put to work, all subsequent institutional changes are endogenous to the system.

5. Our distinction between a political system and government is similar to the conventional distinction between regimes and governments. However, we prefer the term *political system* because it reflects the ongoing interaction of its elements as opposed to the static definition of regime as a form of government.

6. Our framework is not exclusive of rules that regulate a government after its selection (e.g., constitutional restraints on the executive branch). We include these, if they exist, under the second group of rules where the constituents may agree to be governed by a government if the latter conforms to an agreed-upon set of rules (i.e., a constitutional provision that limits its authority). That is, the government—if we assume it has its own objectives—can be one of the agents whose actions are being mediated through the political system. In short, the political system provides rules for the interaction (and permissible behavior) of government and society.

At any point in time, a political system is stable, or self-preserving, if (1) there is common knowledge about the selection mechanism to replace governments and the rules that manage political action and (2) the institutional arrangements that specify this political system are self-enforcing. The first condition has to do with people's beliefs and expectations. It places at the core of our analysis the social relevance of a political system: the extent to which people, in the decisions that they take, internalize the rules that the political system prescribes.[7] The second condition deals with people's actual behavior. That is, a political system is stable when members of society do not deviate from the existing political equilibrium. The stability of the system derives from the common agreement to allow the current political system to mediate conflicting goals in both present and future periods. This common agreement at any point in time is a political equilibrium.

Political Instability

Political instability arises when political stability becomes unsustainable. One cause for instability is the absence of common knowledge about the political system, a situation that we denote as weak instability. Weak instability introduces uncertainty about the future of the current political system because different agents face different institutional environments. In other words, multiple political systems are competing for the governance of society. For example, when a faction succeeds in setting up a "state within a state," as did the Irish Republican Army, for example, or Colombian paramilitaries, it makes rules governing political and social (and often

7. It should be noted, however, that most of the work on instability has centered on voting processes occurring at a less aggregated level such as particular elections or decision processes, rather than on the complete set of rules providing the governance structure of a society. See, for example, Peter C. Ordeshook and Kenneth A. Shepsle, eds., *Political Equilibrium* (Boston: Kluwer Nijhoff Publishing, 1982).

economic) life in contradiction of the decisions of government produced by the existing political system.[8]

We have a case of strong instability, however, when the system loses its self-enforcement quality because some political shocks, which would otherwise be internalized or dissipated, become credible threats to the continuity of the political system, making the social contract no longer binding. These threats lead to a situation in which institutional change ceases to be endogenous and is instead subject to the outcome of political competition, often through military means, among factions aspiring to be in government. We further denote instances of strong instability as ex ante revolutions because they are potentially capable of removing the current system and thereby bringing about a discontinuity in the evolution of the political system.[9] Stability is restored upon determination of a new political equilibrium, which may, of course, be its original unpertur-

8. Occasional vigilantism, therefore, is a sign of very weak instability.

9. Notice that our definitions of revolution focus on procedures, which is consistent with our analysis of institutions as rules that constrain social behavior. Thus, exogenous institutional change is revolutionary only because it is not mediated through the existing system. This is a definition that can be used more systematically than one which focuses on the extent and direction of change, in which there is substantial disagreement about the threshold levels beyond which changes can be classified as revolutionary. Most important, our definition links revolutions and instability in a consistent and systematic way. In contrast, other definitions of revolutions as drastic institutional changes preclude the joint study of stability issues simply because any stable political system is capable in principle of producing such changes. This definition is also a bit different from that advanced in Douglass C. North, "Toward a Theory of Institutional Change," in William A. Barnett, Melvin J. Hinich, and Norman J. Schofield, eds., *Political Economy: Institutions, Competition, and Representation* (Cambridge: Cambridge University Press, 1993). There, North characterizes revolutionary change as a situation where "the formal rules may change overnight." As such, it is related to uncertainty in a similar way to ours. However, he adds a critical condition: that the underlying informal institutions concurrently remain unchanged. This produces an internal tension in the overall institutional structure that forces subsequent conflict to be finally resolved in a less revolutionary change. This second part relies more heavily on empirical determination of the extent of formal institutional changes.

bed state. We have a case of ex post revolution, however, when the restored unique system involves substantial institutional changes with respect to the old equilibrium.

Political Instability and the Economy

The four channels through which instability affects economic performance[10] stem directly from the inability of government to protect economic activity. First, instability will make local property rights insecure because it produces a vacuum in the exercise of public laws. This discourages long-term investment in physical capital and economic exchange. Second, without a single political system it is difficult to predict the identity of future governments and the dynamics of future institutional change. This will prompt investors to move their resources to safer and more predictable institutional environments. Third, political instability will increase the probability that individuals will engage in opportunistic rent seeking, thus diverting resources to unproductive purposes.[11] This is particularly true of governments. To the extent that time horizons are shortened, meaning that factions which come to power believe that they will remain in office only temporarily, governments will engage in

10. The first two channels can be thought of as direct effects since they stem directly from the existence of instability. The second two are indirect effects since they may occur under other circumstances as well.

11. Gordon Tullock, "The Welfare Costs of Tariffs, Monopolies, and Theft," *Western Economic Journal* 5 (June 1967): 224–32; Anne O. Krueger, "The Political Economy of the Rent-Seeking Society," *American Economic Review* 64 (June 1974): 291–303. Anne O. Krueger, "Virtuous and Vicious Circles in Economic Development," *American Economic Review* 83, no. 2 (May 1993): 351–355; Richard A. Posner, "The Social Costs of Monopoly and Regulation," *Journal of Political Economy* 83 (August 1975): 807–27; Andrei Shleifer and Robert W. Vishny, "Corruption," *Quarterly Journal of Economics* 108 (August 1993): 599–617; Kevin M. Murphy, Andrei Shleifer, and Robert W. Vishny, "Why Is Rent-Seeking So Costly to Growth?" *American Economic Review* 83, no. 2 (May 1993): 409–14; and Paolo Mauro, "Corruption and Growth," *Quarterly Journal of Economics* 10, no. 3 (August 1995): 681–712.

more predatory behavior and rent seeking than they would otherwise. Finally, when political struggles involve the use of force, property will be destroyed. This will discourage investment since prices will have to take this threat into account.[12] Additionally, when violence (organized or unorganized) is widespread, markets will be interdicted, further discouraging economic exchange and therefore production and investment.

Political Instability, Credible Commitments, and Vertical Political Integration

Under instability, factions that come to power cannot make credible commitments to respect property rights. The reason is simple. If a government creates institutions that tie its hands and prevent predation, it will be overthrown by a less scrupulous faction. Similarly, private actors cannot make credible commitments to support particular political factions: they will always have incentives to seek out better deals elsewhere. This means that political contenders under instability must engage in predation in order to remain in the game. Yet, if a faction allows rent seeking in order to reward its supporters, it faces the problem of credibly committing to distribute those rents. Why not, after gaining power, keep all the rents to itself (e.g., engage in predation)?

Instability then places governments (or factions aspiring to become governments) in the same position as a firm trying to contract with agents in a situation where there is no third-party enforcement and both sides have incentives to renege after the contract is signed. Klein, Crawford, and Alchian have argued that under certain conditions firms involved in specialized relationships will have an incentive to integrate rather than abide by a contract. When the costs of contracting are too high, due to potential opportunistic behavior

12. Gregory Clark, "The Political Foundations of Modern Economic Growth: England, 1540–1800," *Journal of Interdisciplinary History* 26 (spring 1996), 565.

to appropriate quasi rents, the inability to enforce contracts or monitor and verify the actions of contracting parties makes it more economical to integrate into one single firm.[13] Political instability creates the same incentives regarding the "specialized relationships" between political factions and economic groups. Just like a firm worried about holdup from suppliers, or suppliers worried about a potential monopsony, the parties' incentives are to integrate vertically.

Vertical political integration involves the creation of a set of governance structures that allow certain economic groups to determine the policies that directly affect them. That is, they allow some economic agents to dictate the institutions that govern their economic activities. We denote this as *backward integration*. There may also be *forward integration*, in which members of the government turn their interest to business enterprise. This creates a commitment mechanism that constrains the government from reneging on current institutional arrangements. By allowing the private sector to have an active (or decisive) role in shaping the institutional framework that governs its behavior, and by linking the fate of the government to the success of the private sector (through forward integration), the government can create a limited commitment to a reduced set of economic agents that it will not predate on their property rights. Thus, economic activity is not necessarily affected by political instability.

Although vertical political integration may create desirable credible commitments, it also has two negative effects. The first concerns the benefits from integration between an economic group and a political group. Economic groups that choose to integrate under instability face a first-mover problem: the first groups to in-

13. Benjamin Klein, Robert G. Crawford, and Almen Alchian, "Vertical Integration, Appropriable Rents, and the Competitive Contracting Process," *Journal of Law and Economics* 21, no. 2 (October 1978): 297–326.

tegrate assume the risk that the government will fall, or the faction they are integrating with will fail to take power, leaving them at the mercy of enemies who will need to punish them in order to maintain their own credibility. The rewards from integrating and restoring order, however, are not excludable, unless the integrating economic interests earn some form of economic rent. Therefore, a successful integration strategy not only enables rent seeking, it requires rents to be earned and distributed. This means that in the long run integration is a second-best strategy compared to limited government. The second negative aspect of vertical integration is the potential agency problem that arises when agents (policymakers) abuse the powers delegated to them. Political integration can lessen the principal-agent problem, but it does not eliminate it. As with integration within a firm, it replaces contracting with direct policing of "managerial" activities. In the context of a political system, this implies a relatively high level of authoritarianism.

There is, however, an asymmetry in the incentives for integration and disintegration. Previously disintegrated parties can easily integrate, but once they have integrated, disintegration is difficult. Say, for example, that a government decides to renege on an agreement with its creditors, who have been integrated into the governance structure. It is not clear that they will be able to do so within the institutional framework governing their internal decisions: the bankers are now part of the government, and the government would have to go outside its own decision-making structures in order to renege. In addition, political actors within the government (either the bankers or politicians who have acquired banking interests) will have a strong interest in maintaining the health and profitability of the banking system. Finally, the government will cut itself off from future sources of credit, since (as a fundamental part of any integration strategy) all lending and borrowing must be channeled through the integrated creditors.

It should be noted that there is nothing inevitable about the process of integration between political and economic interests. In a result paralleling the theory of the firm, governance structures are constantly being renegotiated (i.e., these are short-term incomplete contracts) due to unforeseen contingencies. Under political instability, the logic of the situation takes actors to the solution of vertical integration, but the exact workings of the new governance structure are not worked out in detail prior to its enactment. Integration is therefore an iterative process of contracting and recontracting.

Historical Background

What do systems like this actually look like as a practical matter? How do such systems come into being, and how do they reconstruct themselves even during periods of political instability? In this section we discuss Mexico's prerevolutionary political and economic history as background to examine revolutionary Mexico as a canonical case of political instability.

Politics before the Revolution: The Porfiriato Years

Until it erupted in revolution in 1910, Mexican politics had been stable for a thirty-five-year period under the dictatorship of Porfirio Díaz. Díaz had initially faced severe financial and political constraints due to the conditions of political disorder and economic stagnation when he came to power in 1876.[14] Díaz, like his predecessors, had a limited set of instruments to cope with both problems simultaneously. The government could try either to preserve its stay in power and restore stability or to provide a favorable environment for economic activity. If it concentrated on the problem of disorder, it would need to borrow heavily from the private sector, given the

14. See Noel Maurer, "Finance and Oligarchy: Banks, Politics, and Economic Growth in Mexico, 1876–1928," Ph.D. diss., Stanford University ,1997, for a detailed account of the political economy of the Porfiriato.

lack of an administrative structure that could effectively tax the country's slim economic base. With a long history of predatory governments, the private sector was not willing to lend sufficient funds to the government, leaving governments with the two options: predation (forced loans, arbitrary exactions, and confiscations of property) or collapse. If, instead, the government wanted to promote economic activity by making commitments to respect property rights, then it would have no resources to fight its political opponents and restore political stability.

Díaz's solution to this dilemma was to allow private economic interests to make public policy. This allowed a strong government—a dictatorship, to be exact—to credibly commit to protecting property rights. In essence, the government delegated its policymaking functions to a small group of economic elites. In theory, this should have created an agency problem between the government (the principal) and its delegated policymakers (the agents). This problem was avoided, however, by making the agents the residual claimants on the success of the state. Now the state depended on the economic well-being of the agents, and the agents depended upon the stability of the state.

The integration strategy required huge direct and indirect economic resources. By *direct resources*, we mean the needs of the federal government to pay the army and other federal officials, finance the judiciary, carry out basic government functions, and subsidize the construction of a national railroad network. By indirect resources, we mean the need to create an economy that would generate sufficient rents for the interests with which the government integrated to justify the risks of integration. The first groups to throw their support behind Díaz undertook substantial risks: should his strategy fail, they would be out in the cold, without the direct resources they had lent or given the government and with a substantial stock of political ill-will from his opponents. Only the promise of substantial rents could justify these risks.[15]

The first and most pressing need was for direct resources. Foreign borrowing was out of the question: Mexico had a long and dolorous record of reneging on its international obligations. Therefore, like many governments faced with similar dilemmas, the Díaz government created a bank. In effect, Díaz struck an agreement with a group of domestic and foreign financiers: you lend my government the funds we need to establish a viable government, and I will grant you political protection and a number of extremely lucrative privileges. The agreement "domesticated" the foreign component of these financiers and integrated them into the political structure. In the process, however, Díaz could not simply run roughshod over the interests of the existing banks but had to make major concessions that, while strengthening his short-term political power, effectively limited the federal government's ability to control the financial system in the future.

Essentially, the deal struck between Díaz and the bankers was as follows: The federal government would tightly regulate entry into the banking industry. In return, the nation's largest bank, which received special concessions from the government, would provide the government with a credit line and would act as its financial agent. The result was that two banks carved up virtually all of the Mexico City business and were the only two institutions allowed to branch beyond their state borders. Monopolies were also established at the state level. The federal government committed not to alter this arrangement through forward integration: the secretary of

15. In this sense, the decision of economic elites to support a political faction attempting a strategy of backward integration in the context of political instability is similar to the decision of an innovator to invent a new technique. The first mover undertakes all the risks, but political stability is a public good, which would also be enjoyed by competitors.

the treasury who wrote the laws was also an important shareholder of one of the big Mexico City banks. Much the same situation prevailed at the state level; state governors decided which group of entrepreneurs would receive a federal bank charter (states were not legally able to grant charters) and almost invariably sat on the board of directors of the bank. In return, the largest Mexico City bank (the Banco Nacional de México) agreed to provide the federal government with a credit line and would serve as the government's financial agent.

Similar arrangements took place in manufacturing. Lack of international competitiveness made it necessary for industry to seek trade protection. Díaz provided many of Mexico's new and rapidly growing industries with tariff rates that were extraordinarily high: 76 percent for bottled beer, 72 percent for common cloth, 88 percent for fine cloth, 198 percent for printing paper, 225 percent for candles, and 234 percent for soap, to cite a few examples. In addition, the government created a "cascading" tariff structure: duties on final manufactured goods were high, whereas duties on the inputs to produce those final goods were low or zero.[16] Mexican manufacturing received such high levels of protection because the owners of the major firms were important constituents of the state. They subscribed to the government's bonds; they sat on the boards of the nation's most important financial institutions; and they represented the government in international financial markets when it borrowed money abroad.[17]

16. Calculating the exact level of effective protection requires that researchers have detailed information about the ratio of imported to domestically produced inputs, as well as on the input-output ratio, for each industry. Researchers to date have only been able to demonstrate that over time the ratio of input tariffs fell relative to the tariff on finished manufactures. See Edward Beatty, "The Political Basis of Industrialization in Mexico before 1911," Ph.D diss., Stanford University, 1996, chap. 3.

17. See Stephen H. Haber, *Industry and Underdevelopment: The Industrialization of Mexico, 1890–1940* (Stanford: Stanford University Press, 1989), p. 69. Mexico's

These links between government and special interests operated at both the state and federal levels. In Puebla, the Porfirista governor, Mucio P. Martínez, set up a business that ran several large agricultural estates in partnership with Puebla's powerful group of textile magnates. In return, Martínez often appointed members of this group to his cabinet or the mayoralty of Puebla City.[18] In Nuevo León, the carpetbagging Bernardo Reyes relied on the state's local elite—whom he had displaced with federal support—to serve as mayors, county presidents, state deputies, and federal representatives.[19] In Chihuahua, the Terrazas-Creel clan ran the state as practically a family business enterprise. Luis Terrazas served as governor from 1860 to 1873, 1879 to 1884, and 1903 to 1904, and his son-in-law Enrique Creel followed in the governorship from 1904 to 1910. Their holdings ran across banking, ranching, agriculture, manufacturing, food processing, mining and smelting, dry goods retailing,

most important domestic bankers operated on an international scale and had important connections to major foreign banks. See Hilda Sanchez Martínez , "El sistema financiero y monetario mexicano bajo una perspectiva histórica: El Porfiriato," in José Manuel Quijano, ed., *La Banca, Pasado y Presente* (Mexico City: CIDE, 1983), pp. 60–77. Also see *La Semana Mercantil*, June 17, 1901, p. 329; June 30, 1906, p. 367; June 6, 1910, p. 301. For example, Hugo Scherer Jr. (a major industrialist and banker) was a member of the board of the Banco Internacional Hipotecario, which served as a conduit for the movement of capital from New York to Mexico. His international financial connections made him among the most influential bankers in private and government circles. In 1908, for instance, he was asked to handle the sale of 50 million pesos (25 million dollars) worth of bonds in New York to finance the semigovernment-owned Caja de Prestamos para Obras de Irrigación y Fomento de la Agricultura. In addition, Scherer, along with his father, Antonio Basagoiti, and Adolfo Prieto (important textile and steel magnates) sat on the Comisión de Cambios y Monedas.

18. Leticia Gamboa Ojeda, *Empresas y empresarios textiles de Puebla : analisis de dos casos* (Puebla, Pue., Mexico: Seminario de Historia Contemporanea, Centro de Investigaciones Historicas del Movimiento Obrero, Instituto de Ciencias de la UAP, 1986), pp. 192–94.

19. Mario Cerutti, *Burguesia, capitales e industria en el norte de Mexico: Monterrey y su ambito regional (1850–1910)* (Mexico: Alianza Editorial and Facultad de Filosofia y Letras de la Universidad Autonoma de Nuevo Leon, 1992), pp. 360–62.

railroads, and public utilities. By 1910 they were the single largest employer in the state. They also controlled 70 percent of the flour market and 50 percent of meatpacking operations.[20]

Integration may have been a second-best solution in the long run, both politically and economically, but for Porfirian Mexico the long run ran over half a human lifetime. Díaz's institutional reforms produced a long period of rapid economic growth. Foreign investors poured nearly 2 billion dollars into Mexico during the Porfiriato, investing in railroads, ports, urban tramways, export agriculture, ranching, mining, smelting, and petroleum. On the heels of investment by foreigners came a wave of investment by local entrepreneurs in enterprises such as banking, manufacturing, agriculture of all types, some railroad construction, and urban real estate. In 1876 Mexico had only five banks, a minuscule manufacturing sector, and a railroad system that consisted of 400 miles of track, of which 71 used mules rather than steam engines to pull the trains. By 1910, Mexico had a sizable, if concentrated, banking system, a relatively modern manufacturing industry producing a broad range of consumer and intermediate goods, and a railroad system of 17,000 miles that united all the major cities. Mexico had also become one of the world's leading exporters of petroleum, as well as a major producer of various precious and industrial metals. Between 1893 and 1907, Mexico's long-moribund economy achieved real per capita GDP growth of 3.7 percent a year, almost twice as high as in the contemporary United States. Per capita growth over the entire period exceeded 2.7 percent per year.[21]

20. Mark Wasserman, *Capitalists, Caciques, and Revolution: Elite and Foreign Enterprise in Chihuahua, Mexico, 1854–1911* (Chapel Hill: University of North Carolina Press, 1984), chap. 3.

21. Clark W. Reynolds, *The Mexican Economy: Twentieth-Century Structure and Growth* (New Haven: Yale University Press, 1970), p. 21.

Revolution and Political Instability

Space constraints prevent us from providing a detailed exposition of the Mexican revolution and the ensuing period of political instability. Suffice to say that a limited political revolution led by reformist elites was quickly transformed into an ex post revolution. Díaz was overthrown in 1911 and fled to exile in Paris. His reformist successor, Francisco Madero, was overthrown by Díaz's generals within fifteen months of taking office. They, in turn, were driven from Mexico City by a coalition of reformist elites, peasants who clamored for the return of lands that had been confiscated during the Porfiriato, and an increasingly militant working class. That coalition broke apart as soon as it achieved victory in 1914, ushering in three years of civil war. The political victor of that civil war, Venustiano Carranza, was assassinated by his own generals in 1920. His successor, Alvaro Obregón, faced a military uprising led by his own secretary of the treasury in 1923. Obregón was himself assassinated in 1928, the day after he won a second term in office in a rigged election. The army erupted in rebellion on two other occasions in the 1920s, both times over the issue of the presidential succession. When the army was not plotting against the government, it was busy putting down armed insurgencies, the most serious of which was the Cristero Rebellion, a three-year long civil war in which lay members of the church tried to overthrow the government over the issue of the anticlerical measures in the constitution of 1917.

At the same time that all this was happening, the peasants and workers who had been mobilized during the revolution had become politically organized and had in fact pushed through a series of far-reaching reforms at the 1917 constitutional convention. In two areas in particular, Carranza's conservative proposals became transformed into far-reaching, and extremely radical, articles of law: labor relations and property rights. The result was Articles 123 and

27. Article 123 set a maximum workday of eight hours (seven for night work), set limits on the work of women and children, established a six-day workweek, and placed restrictions on the right of employers to fire workers. It also endorsed the principles of a minimum wage, equal pay for equal work, profit sharing, and the indemnification of accidents. Perhaps most fundamentally, it gave workers the right to organize and strike. Finally, it outlined a system of municipal and state-level labor boards (the Juntas de Conciliación y Arbitraje) that would resolve disputes, as well as determine the minimum wage and the appropriate level of profit sharing for each state. In short, the government assumed broad new powers that reduced the rights of employers.[22]

Much to the unhappiness of Mexican employers, Article 123 left the process of creating enabling legislation up to the states. This allowed governors to carry out reforms that went far beyond what Carranza or his successors had in mind. Indeed, for state governors the incentives for doing so were obvious: a politically mobilized working class could provide a governor with the support he might need to challenge attempts by the federal government to curtail his considerable political autonomy.

The constitution of 1917 also redefined property rights. In the decades before the revolution, Porfirio Díaz had carried out a series of policies designed to create secure and clearly defined private property rights in land, intellectual property, and the subsoil. Article 27 of the constitution of 1917 reversed these laws. The residual

22. Jeffrey Bortz, "'Without Any More Law Than Their Own Caprice': Cotton Textile Workers and the Challenge to Factory Authority during the Mexican Revolution," *International Review of Social History* 42 (1997): 256–57; Michael M. Hall and Herbert A. Spalding, "The Urban Class and Early Latin American Labour Movements, 1880–1930," in Leslie Bethell, ed., *The Cambridge History of Latin America*. Volume 4, *1870–1930* (Cambridge, England: Cambridge University Press, 1986), p. 352; and Joseph E. Sterrett and Joseph S. Davis, *The Fiscal and Economic Condition of Mexico; Report Submitted to the International Committee of Bankers on Mexico* (New York: N.p., 1928), pp. 91–92.

claimant on all property rights became the government. The private ownership of property was no longer considered a right but a privilege, which could be terminated by the government in the public interest. Moreover, subsoil rights, which under Díaz were allocated to the owner of the soil, were specified by the constitution as part of the national patrimony, to be administered by the government. The obvious targets of these reforms were Mexico's agrarian elite and the foreign companies that dominated petroleum and mineral extraction, but their implications were not lost on the holders of other assets, who feared that the government would move to expropriate their property as well. Indeed, they had much to fear: the banking system had undergone a de facto nationalization during the revolution (the Carranza government engaged in direct predation in order to finance its military campaigns against its more radical opponents). In addition, the Carranza government had first reduced the property rights of manufacturers by lowering tariffs in 1917 and then threatened to confiscate factories if the owners closed them to protest the tariff reductions.

Complicating matters even further were powerful state governors who had gained a great deal of political autonomy from Mexico City during the years of revolution. Four governors in particular (Adalberto Tejeda in Veracruz, José María Sánchez in Puebla, Francisco Múgica in Michoacán, and Felipe Carrilo Puerto in Yucatán, known in the conservative press as the "Four Horsemen of the Apocalypse") had cultivated local working-class and peasant constituencies by promulgating their own labor laws and by carrying out de facto agrarian reforms, completely ignoring presidential requests for restraint. This allowed them a high degree of independence from the president. Given their popular support, no president could remove these governors. The best he could do was to deploy conservative generals as local army zone commanders, who often worked with conservative elements in the state to frustrate the populist reforms of the governors and to lean on the federal judiciary (which was not independent) to legally suspend many of the governors' state-level reforms. To cite one example, Governor Adalberto Tejeda of Veracruz created a profit-sharing law in 1921 that required owners to share up to 50 percent of their profits with their workers. Factory owners in Veracruz filed writs of *amparo* (suits seeking a court injunction) against the law. These were openly supported by President Obregón, who used his influence to obtain a favorable ruling from a federal judge.[23]

Thus, it was not only the case that formal institutions had changed. It was also difficult to make predictions about the future course of institutional change. The politics of the second and third decades of the twentieth century were such that it was necessary for politicians to form coalitions with all kinds of groups—or risk being driven from power by competing factions. Thus, even if a federal or state executive had a probusiness track record, he could not be counted on to enact probusiness policies in the future.

Postrevolutionary Political and Economic Development

Under these conditions of extreme political instability, how was it possible for the government to create commitments to asset holders? Essentially, Mexico's postrevolutionary presidents quickly realized that they would have to follow the same strategy that Díaz had: backward integration into the economic elite, allowing them to shape the policies that affected their interests. They would also have to forward-integrate, allowing political agents to become businessmen. This would mean that members of the government and the private sector would share the same fate, creating a credible

23. Maria del Carmen Collado Herrera, *Empresarios y políticos, entre la Restauración y la Revolución 1920–1924* (Mexico City: Instituto Nacional de Estudios Históricos de la Revolución Mexicana, 1996), pp. 138, 250–52, 254, 289.

commitment to not change policies. They also realized, however, that they would have to backward-integrate into at least one other group: organized labor. Díaz had been able to deal with Mexico's workers with the rural police and the army. In the postrevolutionary period, this was simply no longer going to be possible.

Renewed Vertical Political Integration

Mexico's postrevolutionary constitution did little to constrain vertical political integration. As we noted earlier, one feature of vertical political integration is a high degree of authoritarianism. Mexico's 1917 constitution provided, in fact, few constraints on presidents and state governors. Supremacy, at both the state and federal levels, lay with the executive, who could initiate as well as approve legislation. In fact, the federal constitution empowered the president to issue executive orders to enforce sanitary laws, control public expenditures, revoke franchises, forfeit land grants, and expel pernicious foreigners. The president, working through the Permanent Commission of Congress (fourteen senators and fifteen federal deputies who the president played a role in appointing), could depose state governors. The president also had the constitutional prerogative of suspending at any time of public danger or emergency any provision of the Bill of Rights or other guarantees. Finally, and perhaps most fundamentally, the president had the right to issue decrees pending congressional action. Thus, a congress that failed to act on a particular issue could simply be sidestepped by a presidential decree.[24] As one contemporary observed: "Even in the case of necessity for enacting enabling laws putting into effect the constitutional provisions, the power of the President to issue decrees pending congressional action gives him, especially in case of the inability or unwillingness of Congress to pass constructive legisla-

24. Robert Glass Clelland, *The Standard Authority on Mexico* (Los Angeles: Mexican Yearbook Publishing Company, 1922), pp. 101–4.

tion, an autocratic power which militates against stability of government while seeming to increase it temporarily."[25] These provisions were no accident. Backward integration, as a political strategy, is impossible when policymaking is constrained by democratic institutions. This is because decisionmaking under backward integration means that the groups that provide the government with needed support write the rules that govern their activities. If these decisions need to be ratified by an open and elected parliament, then the groups with which the government integrates will be constrained, reducing the rewards from integration. Under conditions of political instability, this would make it difficult for the government to gain the support of economic elites. These groups might decide to commit to another faction that can better guarantee them rents in return for their support. In short, freeing the president from congressional or judicial checks meant that decisions could be made in smoke-filled rooms without worrying about how they would play in the legislature.

Laying out the process of backward and forward integration across the economy in the 1920s is beyond the scope of this chapter. To give readers a sense of what took place, however, we provide below examples from banking, manufacturing, and organized labor.

BANKING. Throughout the civil war period of the Mexican revolution all sides had engaged in predation against the banking system, resulting by 1917 in the de facto nationalization of most of the banking system and the confiscation of the assets of many of the banks that were not nationalized. After the fighting was over, however, the government's need for revenue remained. At the same time, reconciliation with the private sector was absolutely necessary if the constitucionalists were to reestablish the credibility needed to reopen Mexico's access to credit.

25. Clelland, *Standard Authority*, 1922, pp. 102–3.

Unfortunately, the government was unable to make a credible commitment that it would not engage in predation in the future for four major reasons. First, President Obregón's efforts to reconcile with the bankers were slowed by a banking panic in Mexico City in 1920 that affected the ability of banks to be reopened.[26] Meanwhile, uncertainty over whether Article 27 of the constitution of 1917 allowed banks to own farmland prevented them from making any kind of mortgage loan or loan secured by real property to agricultural interests.[27] Second, the government's financial situation prevented it from making payments on loans obtained through parastatal banks. Also, the government borrowed money from other lenders but lacked the administrative capacity to collect taxes to repay its debts.[28] Third, monetary uncertainty contributed to the banks' unwillingness to lend. Gold coins had been Mexico's primary circulating medium since the end of the hyperinflation, but in late 1921 an unexpected drop in the price of silver caused gold to leave circulation. As a result, the financial pages began quoting silver's discount against gold pesos, and Mexico found itself, in effect, with two currencies whose day-to-day value fluctuated randomly.[29] The fourth and final structural problem was political instability. Rumors continued to proliferate about the stability of President Obregón's regime.

Starting in 1923, Obregón and his successor, Plutarco Elias

26. *Boletín Financiero y Minero*, 2/26/21. The financial press attributed the reopening of the Banco Mercantil de Monterrey and Banco de Nuevo León to the fact that both banks had been able to spirit away some resources to the United States in the early stages of the revolution and thus were not as badly affected by the specie seizures. *Boletín Financiero y Minero*, 3/10/21.

27. *Boletín Financiero y Minero*, 3/10/21.

28. Oficio no. 001147 from the chief of the credit department, 2/15/23, *Correspondencia con la SHCP*, vol. 9, AHBNM. The state collected only 90 percent of the assessed value of the taxes. Whether the wedge was retained by the companies or stolen by lower-level officials is not known (most likely both).

29. *Boletín Financiero y Minero*, 12/17/21.

Calles (ruled 1924–28) decided to focus on reestablishing internal credibility by allowing the bankers to write the banking law and irreversibly linking the government to the new structure. In addition to bringing the bankers back into the game, and easing the government's desperate fiscal situation, such measures would also in the long run be a better way to regain access to foreign credit. Rather than repay the foreign debt, they allowed the bankers to write a new banking law, saved oil tax revenues, and created a federally owned bank that irreversibly hitched both the government (as an impersonal entity) and the economic interests of prominent politicians to the preservation of the new rules.

The first move was to follow the example of the Porfiriato and allow the bankers to write a new and favorable banking law. Finance Minister Pani called a national bankers' convention in late 1923, bringing in representatives of both the old Porfirian banks and their newer competitors.[30] Pani conscripted two old Porfirian bankers and politicians, Pablo Macedo and Enrique Creel, to advise the convention. Macedo was a highly placed Banamex board member who had been the president of Congress in the Díaz government. Enrique Creel was a prominent Chihuahua banker, former governor of the state of Chihuahua, founder of the now-defunct Banco Central, and secretary of foreign affairs under Díaz. He was also one of the richest men in the country, the result of three decades in which he and his father-in-law (former governor Luis Terrazas) ran Chihuahua as a personal family business.[31]

Unsurprisingly, the resulting legislation was tailor-made to protect the interests of the existing banks. The new law, enacted in 1925, established high barriers to entry. Banks operating outside the

30. Ernesto Lobato Lopez, *El Crédito en México: esbozo histórico hasta 1925* (Mexico City: Fondo de Cultura Economica, 1945), p. 280.
31. Secretaría de Comercio y Fomento Industrial (SCHP), *Comisión Permanente de la Convención Bancaria* (Mexico City, 1924), p. 264–72.

Federal District required a minimum capital investment of a half-million pesos, while those that wished to operate a branch or office in the capital had to invest at least one million pesos before they could open their doors. In addition, no banks could operate without the specific approval of the finance secretary and the president.[32]

The government also pressed ahead with the establishment of a state-owned Single Bank of Issue that would have a monopoly over paper money. President Calles began by ordering, on December 24, 1924, that the receipts from the 10 percent railroad tax and the petroleum tax would henceforth go directly into federal coffers, not Banamex, and he reorganized the newly empowered agency, the Comisión Monetaria, from a federal bureau into a state-owned corporation. This gave the government both a source of finance (the tax receipts) and an organization that could serve as the basis for a bank. Banamex's president, Agustin Legorreta, argued that this violated Mexico's agreements with the International Bankers Committee and that the money freed up by the suppression of the Delahuertista rebellion should go to paying the international debt to no avail.[33]

On January 1, 1925, the government incorporated the Comisión as a bank of discount and deposit.[34] On January 25, 1925, the General Credit Institutions and Banking Establishments Act came into effect.[35] The committee managed the Comisión Monetaria until it accumulated sufficient resources to open its doors as the Banco de México (Banxico) on September 1, 1925. The government immediately ordered Banamex to transfer over all funds and securities held

32. Lobato López, *Crédito en México*, pp. 281–83.

33. Letter from the finance subsecretary, 1/15/25, *Correspondencia con la SHCP*, vol. 11, AHBNM, and ordinary session, 1/21/25, *Actas de Consejo*, vol. 10, AHBNM.

34. Sterrett and Davis, *Fiscal and Economic Condition*, p. 134.

35. Circular no. 3 from the Comisión Nacional Bancaria (CNB), 3/13/25,*Correspondencia con la SHCP*, vol. 11, AHBNM.

as security deposits for contracts with the federal government.[36] Four months later, the government officially transferred the revenues from the oil and railroad taxes to Banxico from Banamex, ending the last of its Porfirian-era special privileges.[37] Other banks also purchased Banxico stock to avail themselves of its rediscount facilities in 1925.[38]

Like its private competitors, Banxico lent heavily and directly to commercial enterprises on the basis of inside connections. President Calles's sugar refinery, the Compañía Azucarera El Mante, for example, received massive infusions of credit.[39] Other politicians and relatives connected with Calles received credit from the new bank. One of President Calles's son-in-laws, Fernando Torreblanca, received large loans, as did Torreblanca's two brothers, Edmundo and Rodolfo. A sugar producer owned by another one of the president's son-in-laws, Jorge Almada, the Compañía Azucarera Almada, took out several long-term loans. Additional credits went to the politicians Moisés and Aaron Sáenz, Secretary of Industry, Commerce, and Labor Luis M. Morones, Finance Secretary Alberto J. Pani, former finance secretary Luis Cabrera, and, of course, former president Alvaro Obregón himself.[40] In this way, Mexican policymakers engaged in both backward and forward integration.

The effect of this, however, was to reestablish a degree of stability. A single institution, in which both major private bankers and prominent federal politicians possessed a substantial stake, dominated lending to the federal government. Further, by making its

36. Ordinary session, 9/17/25, *Actas de Consejo*, vol. 10, AHBNM.

37. Circular 12-10, 1/21/26, *Correspondencia con la SHCP*, vol. 12, AHBNM.

38. Sterrett and Davis, *Fiscal and Economic Condition*, p. 27.

39. See Enrique Krauze, *La Reconstruccion Economica* (Mexico: Colegio de México, 1977), p. 30. Gómez Morín had to resign the presidency of the bank in 1929, partially due to these loans to Calles.

40. Eduardo Turrent Díaz, *Historia del Banco de México* (Mexico City: Banco de Mexico, 1982), p. 162.

rediscount facilities available to the private banks, which therefore became its primary clients, the government increased the credibility of its promise that bankers' property rights would in the future be stable. By running budget surpluses for two years and founding Banxico, the government created more financial stability than would have been possible by continuing to pay the foreign debt. Foreign bondholders, of course, recognized that this meant they would likely never be repaid, but the government correctly judged that they would not be likely to lend more to Mexico regardless.

MANUFACTURING. Following the revolution of 1910–1917, Mexico's manufacturers not only faced an organized and politically powerful workforce but also faced a government that had the legal ability to reduce their property rights. They faced two practical problems. First, the industrialists had supported the counterrevolutionary government of General Victoriano Huerta against Venustiano Carranza and his allies (at the time, Villa and Zapata). Second, and perhaps even more fundamentally, no government, regardless of its stated ideology, could make a credible commitment to protect business interests. The manufacturers understood that any government that came to power, even if its leaders were businessmen who professed to be probusiness, faced the threat of being overthrown. Any president or state governor who wanted to maintain himself in power would have to invite groups who were antibusiness into a coalition.

Following the constitution of 1917, two major reforms directly affected the property rights of Mexico's manufacturers. The first was a general redefinition of property rights. Article 27 of the constitution of 1917 made the federal government the residual claimant on all property rights. Since private property was created by the government (as a privilege, not an inherent right), the government had the authority to terminate private property in the public interest. The implications were not lost on the country's industrialists, who feared that the government would expropriate their factories. This was a very real threat indeed. The government had already carried out a de facto nationalization of the banking system from 1915 to 1917. Many of the industrialists were, in fact, bankers. The industrialists had also already seen the confiscation of part of the railroads in 1914, the seizure the Compañía de Tranvias (a streetcar company) in order to resolve a labor dispute that same year, and the seizure of the telephone company in 1915.[41]

The second threat to the property rights of the industrialists was the reduction of the tariffs that protected them from foreign competition. Indeed, the two threats to property rights were clearly linked both in the minds of the industrialists and in actual policy. In July 1917, in order to combat inflation, Carranza declared that common cloth with less than 40 threads per square centimeter (which characterized the vast majority of the production of Mexico's cotton textile factories) would be made exempt from all import tariffs. One month later, Carranza amplified this exemption, completely removing the tariff on common cloth with less than 70 threads per square centimeter and lowering the tariff on fine-weave printed cloth to only 25 percent of its former value.[42] These were nontrivial reductions. Prior to the revolution, Mexico had among the highest rates of protection on cotton goods in the world.[43] Without protective tariffs, Mexico's textile industry had no hope of competing against foreign manufacturers.[44] The industrialists of Mexico City re-

41. Mario Ramirez Rancaño, *Burguesia textil y politica en la Revolucion Mexicana* (Mexico City: Instituto de Investigaciones Sociales, Universidad Nacional Autonoma de Mexico, 1987), p. 177.

42. Ramírez Rancaño, *Burguesia textil*, pp. 208–10

43. William A. Graham-Clark, "Cuba, Mexico, and Central America," in William A. Graham-Clark, *Cotton Goods in Latin America*, *Part 1* (Washington, D.C.: USGPO, 1909), p. 38.

44. On the protection afforded by the tariff, see Beatty, *Industrialization*, pp. 64, 74. On relative costs of production in different countries, see Gregory Clark, "Why

sponded by declaring a lockout, throwing four thousand mill hands out of work. Carranza upped the ante, sending a telegram to every state governor asking for a list of the paralyzed factories and drafting a law, based on Articles 27 and 123 of the constitution, allowing the government to seize control of factories and place them under the administrative direction of the secretary of the treasury, much in the same manner as it had earlier done with the banks. The Chamber of Deputies (Mexico's lower house) approved the law that same day, as did, with some revision, the Senate two months later.[45]

Ultimately, the seizure of the factories was headed off. A delegation of 112 industrialists met with the secretary of industry and commerce throughout November 1917. The industrialists hoped, in fact, to open the Congress of Industrialists with the issue of the tariff but to then move on to attack Articles 27 and 123 of the constitution of 1917. This strategy was only partially successful. The government made it clear that Articles 27 and 123 were nonnegotiable.[46] Mexico's industrialists were simply going to have to live with the labor and property laws that came out of the revolution. The Carranza government also stated that as a general principle it was going to hew to a free trade policy. Yet here the government found some room to maneuver. Although it might in principle be in favor of free trade, it could on an ad hoc basis depart from this policy. Thus did the Carranza government back down on the tariff, restoring the old levels of trade protection.[47] The point had been

Isn't the Whole World Developed? Lessons from the Cotton Mills," *Journal of Economic History* 47 (1987): 141–73.

45. Ramírez Rancaño, *Burguesia textil*, pp. 213–17.

46. The government took the position that amendments to the constitution could only be enacted by a vote of two-thirds of the lower house of Congress and a majority of the state legislatures. Neither the government's representative at the Congress, Alberto J. Pani, the minister of industry, commerce and labor, nor the industrialists had the authority to amend the constitution.

47. Ramírez Rancaño, *Burguesia textil*, pp. 227–58; Secretaría de Industria Comercio y Trabajo, pp. 177, 181.

made, however: Mexico's industrialists faced the twin threats of expropriation and downward revisions of the tariff.

Since it was difficult to predict the course of political change in Mexico, there was a high probability that these threats could reemerge at any time. This unpredictability of government policy was not a distant theoretical abstraction: it was an all too real problem for the industrialists. Although Carranza had backed down in 1917 on the issue of protective tariffs, the fact that the tariff structure was specific (not ad valorum) meant that unless the tariff schedule was regularly revised upward, changes in the exchange rate would gradually work to effectively reduce protection. In fact, the coefficient of protection (total tariff revenues divided by the value of all dutiable goods) dropped by nearly 50 percent from 1919 to 1920. As soon as Alvaro Obregón took office after the coup that ousted Carranza, Mexico's major textile manufacturers appealed to him to raise the tariff so that they would not have to close their factories. They were assured that the government would revise import tariffs industry by industry with the goal of assuring the protection of national industry. The industrialists had asked for tariff increases in certain classes of goods by as much as 100 percent and thought that they had been promised revisions in the area of 50 percent. When the government published the new tariff schedules, however, the increase was only 10 percent.[48] Thus, the 1921 coefficient of protection was only slightly higher than it had been in 1920—roughly half its 1910 value.[49]

The question of the tariff would continually reemerge throughout the Obregón government. Mexico's industrialists, however, were now organized into the Confederación de Cámaras Indus-

48. Collado Herrera, *Empresarios y políticos*, p. 208. They also asked for a decrease in freight rates, a reduction in taxes, and right-to-work laws.

49. Daniel Cosio Villegas, *La Cuestión Arancelaria en México* (Mexico City: Universidad Nacional Autónoma de México, 1989), p. 58.

triales (Concamin), which waged a constant battle for protective tariffs. Each time that an affiliated industry was hurt by foreign competition, representatives of Concamin lobbied the government.[50] Finally, in 1923, the government came to the conclusion that it had to allow the nation's industrialists to make the tariff policies. In that year, Secretary of the Treasury Adolfo de la Huerta extended an invitation to the various industrialist and merchant associations to form technical commissions on the tariff. From the point of view of the factory owners, this was a major victory. The data indicate that beginning in 1923 there was a substantial jump in the level of protection. The coefficient of protection was 24 percent, more than 70 percent above its 1920 value.[51]

ORGANIZED LABOR. The process of backward-integrating with the labor movement—integrating the leaders of the emerging labor organizations into labor policy—was long and slow. As far back as 1915 Carranza had realized the importance of the urban working class and had brought the anarchist-oriented Casa del Obrero Mundial (COM) into his coalition. In return for organizing six Red Battalions to fight Villa and Zapata, the COM was allowed to organize workers in those states under constitutionalist control. This alliance, however, was not long lasting. In 1916 Carranza turned on his former allies, disbanding the Red Battalions and declaring martial law to end a general strike in Mexico City.[52]

Obregón and Calles recognized that they would need to come

50. Collado Herrera, *Empresarios y políticos,* pp. 126, 212.

51. Cosio Villegas, *Cuestión arancelaria*, p. 58. The coefficient of protection then gradually climbed through the end of the decade. At its low point in 1920, it was 14 percent (compared to 30 percent in 1910). By 1923 it was 24 percent, rising to 27 percent in 1927 and to 31 percent in 1928.

52. Kevin J. Middlebrook, *The Paradox of Revolution: Labor, the State, and Authoritarianism in Mexico* (Baltimore: Johns Hopkins University Press, 1995), pp. 18–19.

to a more full accommodation with the labor movement. Labor had continued to organize: by 1918 there were numerous unions, of various ideological orientations, that were organizing into multiple, competing labor federations. The leadership of one of these, the reformist Confederación Regional Obrera Mexicana (CROM), understood that the postrevolutionary governments would need to backward-integrate into the labor movement. The outcome of this integration was that the CROM emerged as a powerful political player throughout the 1920s and was allowed to shape labor law in fundamental ways.

The leader of the CROM, Luis Morones, understood that the path to power in Mexico lay not only in creating a broad-based labor federation but also in federalizing labor law and building a political movement that could then effectively influence decisions at the federal level. Thus, within a year of its founding in 1918, the CROM organized a political party, the Partido Laborista Mexicano. In that same year, the CROM struck a secret deal with General Obregón that it would mobilize support for him in the 1920 presidential elections in exchange for privileged political access, the creation of a separate labor ministry (which the CROM would control), and presidential support for federalized labor law codifying Article 123 of the constitution.[53]

With the outbreak of the de la Huerta rebellion in 1923, the CROM's influence grew rapidly. The CROM had played an important role in helping Obregón win the presidency in 1920. Its support of Calles and Obregón against de la Huerta, and its crucial support of Calles's presidential election in 1924, earned it tremendous influence in the federal government. Luis Morones was, in fact, made secretary of industry, commerce, and labor from 1924 to 1928. The CROM-PLM also built a powerful delegation in Congress. In 1926, at the height of its electoral power, it held 11 of 58 positions in the

53. Middlebrook, *Paradox of Revolution*, p. 77.

Senate and 40 of 272 seats in the federal Chamber of Deputies. Indeed, Morones held presidential aspirations, hoping to receive Calles's support for a presidential bid in 1928. Only the strong resistance of conservative elements in the army headed this off.

These political connections, in turn, strengthened the CROM's organizational strength. It used the positions it controlled in the government to enforce dues deductions from the salaries of federal employees, which was a major source of financial support. In addition, the ability of the CROM to control appointments to state-level arbitration boards, coupled with the influence of its elected officials, meant that the CROM could force employers to recognize CROM-affiliated unions at the same time that it undermined rival non-CROM unions. Indeed, the fact that the secretary of industry, commerce, and labor could rule a strike illegal (which, in turn allowed employers to fire the workforce and hire replacements) gave Morones a very powerful tool against rival labor unions or federations.[54]

From the point of view of both Obregón and Calles, and from the point of view of Mexico's employers, the CROM was the best alternative in the new world of Mexican labor relations. The revolution had brought to the fore a number of labor organizations, many of them far more militantly anticapitalist than Morones and the CROM. Indeed, the CROM had a fundamentally reformist ideology. It did not so much want to overthrow capitalism as it wanted to win labor its share of the economic growth that Morones believed was in Mexico's immediate future.[55] Morones, it should be pointed out, also wanted to win for himself a share of payments from unions

54. Middlebrook, *Paradox of Revolution*, pp. 79–80.

55. For discussions of the CROM's ideology, see Jean Meyer, Enrique Krauze, and Cayetano Reyes, *Historia de la Revolución Mexicana, 1924–1928: 11 Estado y sociedad con Calles* (Mexico: El Colegio de México, 1977), pp. 83–84; Enrique Krauze, Jean Meyer, and Cayetano Reyes, *Historia de la Revolución Mexicana, 1924–1928: 10 La reconstrucción económica* (Mexico: El Colegio de México, 1977), pp. 183–91.

and employers that the CROM extracted through various corrupt schemes.

This is not to say, however, that labor peace was achieved in Mexico under the CROM. The coalition of Morones, Calles, and Obregón fell apart over the presidential succession of 1928 when Calles engineered Obregón's reelection over the objection of Morones and other CROM leaders. Morones and other CROM leaders were therefore charged with having played a role in the assassination of Obregón in 1928, and were forced to resign their positions in the Calles administration. Over the next several years, Morones would make other strategic blunders, including refusing to cooperate with Calles over his efforts to build the Partido Revolucionario Nacional, preferring to preserve the PLM as an independent party. The result was that the first of the three puppet presidents controlled by Calles (Portes Gil) worked to undermine the CROM by removing CROM members from federal jobs, removing CROM members from Juntas de Conciliación y Arbitraje, and using the army against CROM unions in worker-employer conflicts.[56]

Thus, by the early 1930s the attempt to backward-integrate into the labor movement through the CROM had failed. There were, once again, multiple competing organizations that all vied for political influence. In the end, President Lazaro Cárdenas (ruled 1934–40) successfully backward-integrated into organized labor by formally integrating the Confederación de Trabajadores Mexicanos, a broad-based labor federation that even included some labor leaders who had cut their teeth in the CROM, into the newly created corporatist party, the Partido de la Revolución Mexicana. That successful process of backward integration, however, was long and slow. It was not until 1938 that Cárdenas created the PRM.

Political development eventually converged to a structure similar to the Porfiriato's. At the end of the revolutionary period, politi-

56. Middlebrook, *Paradox of Revolution*, p. 81.

cal institutions once again centralized power around the presidency. A new stable political equilibrium finally emerged in the mid-1930s under President Lázaro Cárdenas, who transformed the PNR (a party founded by Calles in 1929) from a talking shop designed to distribute spoils among a few leaders into a genuine corporatist party and, in many ways, a branch of the federal government, completing the integration process begun by President Obregón. This required Cárdenas to arm leagues of workers and peasants, carry out a sweeping agrarian reform, encourage the growth of unions, and deport Calles to Los Angeles. The structure that finally emerged remained stable until the 1980s, and the distinction between party and government has remained vague in Mexico until this very day. There were three differences, however, between the post-Cárdenas equilibrium and the Porfiriato: more social groups (such as workers and peasants or at least their representatives) were integrated into the system; forward integration (the movement of politicians into lucrative private activities) had become more prevalent, especially through the direct participation of state-owned institutions in the economy; and there was now a credible selection mechanism by which a president appointed his successor and then permanently and completely retired from the political arena. Although we do not discount the importance of these changes, the basic Porfirian game remained intact, and Mexico regained stability in 1934–88 under conditions similar to those that had prevailed in 1876–1911.

Economic Performance

Our current research involves the analysis of extensive data sets from various sectors of the Mexican economy during its revolutionary years. Providing a detailed discussion of how the process of vertical integration affected economic performance across the Mexican economy is beyond the scope of this chapter. In order to provide readers with a sense of the economic outcomes of vertical integration, we discuss the evolution of investment and production in the manufacturing sector.[57] We note, however, that we also gathered data on banking, mining, petroleum extraction, and agriculture.

INVESTMENT. We have been able to retrieve data on new capacity or investment in the cement, steel, and cotton textile industries. We have also retrieved detailed data on exports of industrial machinery from the United States and the United Kingdom to Mexico, which is an excellent measure of aggregate new investment because virtually all of Mexico's capital goods had to be imported.

Productive capacity in the cement industry continued to expand both during and after the revolution, growing from 66,000 metric tons a year in 1906 to 151,000 in 1910, 177,000 in 1912, 222,000 in 1920, and 246,000 in 1928. This rate of growth in capacity is especially impressive in light of the fact that capacity utilization was almost always less than 60 percent, implying that the owners of firms were confident enough about the future to invest well ahead of demand (see table 2.1).[58]

Data on the nation's integrated steel producing monopolist, Fundidora Monterrey, tell a similar story. During the years of military conflict, Fundidora Monterrey closed its doors and spent no

57. We have provided a more detailed analysis of the manufacturing sector in Stephen Haber and Armando Razo, "Political Instability and Economic Performance: Evidence from Revolutionary Mexico," *World Politics* 51 (1998): 99–143. This chapter incorporates, however, new data on machinery investment and production inputs, which corroborate our previous research.

58. The fact that firms invested ahead of demand is explained by the fact that cement production tends, most everywhere in the world, to be characterized by local monopolies. The high bulk-to-price ratio of cement means that it is economical to ship it only over short distances. In order to expand, therefore, firms must erect new production facilities in new areas of the country. Firms also tend to erect more productive capacity than they need in these new markets in order to keep out potential rivals. See Ronald N. Johnson and Allen Parkman, "Spatial Monopoly, Non-Zero Profits, and Entry Deterrence: The Case of Cement," *Review of Economics and Statistics* 65 (1983): 431–39.

TABLE 2.1

Capacity and Output in Mexico's Cement Industry, 1906–1938
(In thousands of metric tons)

Year	*Capacity*	*Output*	*Capacity Utilization (in percent)*
1906	66	20	30%
1907	66	30	45
1908	66	40	61
1909	86	50	58
1910	151	60	40
1911	152	50	33
1912	177	40	23
1913	177	30	17
1914	177	25	14
1915	177	10	6
1916	177	20	11
1917	177	30	17
1918	177	40	23
1919	177	40	23
1920	222	45	20
1921	222	50	23
1922	222	70	32
1923	222	90	41
1924	222	107	48
1925	222	110	50
1926	222	151	68
1927	222	158	71
1928	246	204	83
1929	291	158	54
1930	291	227	78
1931	375	157	42
1932	405	138	34
1933	405	173	43
1934	405	241	60
1935	405	252	62
1936	405	286	71
1937	405	345	85
1938	513	374	73

SOURCE: Stephen H. Haber, *Industry and Underdevelopment: The Industrialization of Mexico, 1890–1940* (Stanford: Stanford University Press, 1989), pp. 41, 127, 165, 177.

funds on plant and equipment. As soon as normalcy returned, however, the firm invested in a dramatic fashion: the value of its physical plant grew 41 percent from 1919 to 1921, even in the face of a rate of capacity utilization of less than 40 percent (see table 2.2).

Other industries show similar patterns. As table 2.3 indicates, the cotton textiles industry, measured in spindlage, declined by 25 percent from 1913 to 1917.[59] Much of this loss was clearly produced by firms temporarily closing their doors during the worst phases of the fighting. Indeed, the only way to explain a 28 percent jump in capacity from 1917 to 1919 is that firms that had closed their doors during the years of civil war reopened them as soon as military conflict ended. The recovery went well beyond the reopening of old capacity, however. New plants and equipment were being purchased as well. In fact, in 1921 the cotton textile industry was 10 percent larger than it had been in 1910 (and roughly equal to its 1913 level), and in the four years from 1921 to 1925 the industry grew an additional 9 percent, making it 20 percent larger than it had been in 1910. This increase in industry capacity cannot be explained as the result of population growth. The Mexican population was 5 percent smaller in 1921 than it had been in 1910.[60] In short, the data do not support the hypothesis that the revolution discouraged new investment over the medium term. The textile industry was larger in per capita terms after the revolution than before the revolution.

The patterns displayed by the cotton textile, steel, and cement industries are corroborated by data on U.S. and British exports of

59. Spindles constitute the most important capital input for the production of cotton textile goods, and thus the literature tends to use spindlage as the measure of capital or capacity. See, for example, Nancy F. Kane, *Textiles in Transition: Technology, Wages, and Industry Relocation in the U.S. Textile Industry* (Westport, Conn.: Greenwood, 1988).

60. Mexican population data are from Instituto Nacional de Estadística Geografia e Informática, *Estadísticas Históricas de México* (Mexico: INEGI, 1994), p. 44.

TABLE 2.2
Capacity, Output, and Value of Physical Plant in Fundidora Monterrey (Mexico's steel monopolist)

Year	*Capacity* [a]	*Output* [b]	*Capacity Utilization (in percent)*	*Value of Physical Plant* [c]
1903	110	22	20%	8,388
1904	110	36	33	9,236
1905	110	4	4	9,833
1906	110	25	23	10,032
1907	110	16	15	9,526
1908	110	17	15	9,082
1909	110	59	54	9,317
1910	110	45	41	9,365
1911	110	71	65	9,087
1912	110	33	30	9,337
1913	110	12	11	9,226
1914	110	0	0	8,989
1915	110	0	0	8,509
1916	110	0	0	8,161
1917	110	12	11	7,819
1918	110	21	19	7,830
1919	110	21	19	7,374
1920	110	15	14	9,133
1921	110	42	38	10,421
1922	110	24	22	10,217
1923	110	44	40	10,238
1924	110	19	17	10,340
1925	110	49	45	9,872
1926	110	62	56	9,700
1927	110	41	37	9,436
1928	110	51	46	9,173
1929	110	60	55	8,679
1930	110	58	53	8,649
1931	110	53	48	8,124
1932	110	20	18	7,625
1933	110	54	49	7,528
1934	110	66	60	6,530
1935	110	64	58	6,882
1936	110	88	80	7,450
1937	110	59	54	8,868

[a] Capacity of the blast furnace, in thousands of metric tons.

[b] Output of the blast furnace, in thousands of metric tons.

[c] Book value of the physical plant (land, equipment, buildings), net of depreciation in thousands of pesos. Physical plant depreciated at flat rate of 5 percent per annum.

SOURCE: Calculated from Fundidora Monterrey, *Informe Annual*, 1900–1938.

TABLE 2.3
Mexican Cotton Textile Industry, 1883–1933

Year	*Estimated Nominal Value Output* [a,c]	*Estimated Real Value Output* [a,c]	*Estimated Meters of Output* [a]	*Estimated Spindles*	*Estimated Worker Equivalents* [b]
1883	11,484	8,538	76,331		
1888 [d]	264	216	60,842	249,561	15,083
1889	10,909	8,942	83,827		
1891	12,066	9,891	93,527	277,784	14,051
1893	19,064	15,628	122,550	370,570	21,963
1895	23,554	21,222	170,929	411,090	18,208
1896	23,658	23,658	206,412	430,868	19,771
1899	29,753	29,753	231,686	491,443	23,731
1900	35,459	35,459	261,397	588,474	27,767
1901	33,877	33,877	262,044	591,506	26,709
1902	28,780	28,780	235,956	595,728	24,964
1903	36,907	36,907	262,170	632,601	26,149
1904	42,511	42,511	280,710	635,940	27,456
1905	51,214	51,214	310,692	678,058	30,162
1906	51,171	51,171	349,712	688,217	31,673
1907	51,686	51,686	428,284	613,548	33,132
1908	54,934	54,934	368,370	732,876	35,816
1909	43,370	43,370	314,228	726,278	32,229
1910	50,651	50,651	315,322	702,874	31,963
1911	51,348	51,348	341,441	725,297	32,147
1912	63,802	72,834	319,668	762,149	32,209
1913	54,002	33,978	298,897	752,804	32,641
1917 [e]	25,125	12,266		573,092	22,187
1918	48,567	15,111	180,453	689,173	23,067
1919	80,781	23,333	305,509	735,308	21,877
1920	120,492	27,840	298,829	753,837	24,691
1921	93,342	66,826	338,346	770,945	25,485
1922	85,023	53,040	330,601	803,230	26,451
1923	97,563	44,214	303,090	802,363	26,419
1924	96,435	44,155	285,594	812,165	25,155
1925	102,527	56,839	380,041	840,890	33,262
1926	88,766	60,562	327,487	832,193	27,476
1927	73,179	51,156	308,940	821,211	27,492
1928	89,630	52,529	300,425	823,862	25,348
1929	105,055	67,861	389,147	839,100	27,598

TABLE 2.3
(continued)

Year	*Estimated Nominal Value Output* [a,c]	*Estimated Real Value Output* [a,c]	*Estimated Meters of Output* [a]	*Estimated Spindles*	*Estimated Worker Equivalents* [b]
1930	84,876	58,426	305,512	803,873	27,729
1931	78,580	70,154	269,085	838,223	25,788
1932	88,694	52,333	301,537	851,163	25,223
1933	110,612	47,569	381,783	862,303	27,308

[a] Output reported in thousands.

[b] Number of workers adjusted for changes in the length of the workday: 12 hours from 1850 to 1913, 10 hours from 1914 to 1917, 8 hours from 1918 to 1933.

[c] Value of output calculated from prices and quantities. This is a lower-bounded estimate since not all quantities were matched with a respective price.

[d] For this year, the majority of firms reported output in meters.

[e] Spindles and workers data for 1917 were taken from *Estadísticas Históricas* (fn. 27), 616.

SOURCE: Stephen H. Haber and Armando Razo, "Political Instability and Economic Performance: Evidence from Revolutionary Mexico," *World Politics* 51 (1998): 99–143.

industrial machinery to Mexico. In table 2.4 we present estimates of the real value of exports of industrial machinery from these two countries to Mexico. We break down industrial machines into three broad categories: steam engines, boilers, and their parts; textile machinery; and manufacturing machinery other than textiles. All of the series indicate the same pattern: new investment, as measured by the export of industrial machinery to Mexico, did not decline during the early years of political instability. Moreover, by 1920, every category of industrial machinery exported from the United States and Great Britain to Mexico had surpassed its Porfirian levels. In fact, during the 1920s industrial machinery exports to Mexico were anywhere from two (in the case of textile machines) to six times (manufacturing machines other than textiles) what they had been during the decade before the revolution.

The data on exports of industrial machinery to Mexico indicate that firms were doing much more than undertaking incremental

TABLE 2.4

Combined U.S./U.K. Machinery Exports to Mexico, 1900–1935 (in 1929 U.S. dollars)

		MANUFACTURING						
Year	*Agricultural*	*Steam Engines, Boilers, and Pipes and Fittings*	*Industrial Machinery*	*Textile Machinery*	*Total Manufacturing*	*Petroleum and Mining*	*Unspecified Machinery*	*Grand Total of Machinery Exports*
1900	393,363	651,490	266,655	468,115	1,386,260	104,509	396,328	2,280,852
1901	331,248	569,966	218,603	183,564	972,134	101,772	264,131	1,669,374
1902	293,125	705,417	138,589	248,021	1,092,026	134,496	271,688	1,792,216
1903	247,077	747,508	373,789	147,243	1,268,541	184,307	189,653	1,889,579
1904	227,542	642,555	393,401	395,789	1,431,745	245,282	182,888	2,087,867
1905	226,056	675,932	625,306	265,632	1,566,870	408,306	178,529	2,380,750
1906	357,254	1,554,324	803,813	354,592	2,712,729	665,152	277,606	4,013,837
1907	365,827	1,546,928	1,002,979	471,916	3,021,822	2,886,603	455,571	6,735,690
1908	305,907	1,552,717	968,387	472,963	2,994,067	2,073,626	249,996	5,652,814
1909	269,825	1,745,211	629,118	525,028	2,899,356	1,720,168	192,055	5,089,955
1910	321,341	2,473,655	667,517	349,919	3,491,091	1,798,508	282,808	5,914,464
1911	525,127	1,415,846	1,041,324	331,188	2,788,357	1,852,085	275,940	5,455,835
1912	559,485	1,378,297	719,897	391,488	2,489,682	1,578,034	240,120	4,885,712
1913	654,565	1,667,428	1,416,650	25,922	3,110,000	1,705,669	292,705	5,780,186
1914	182,425	1,324,538	294,144	6,274	1,624,956	1,549,483	64,924	3,427,204
1915	99,609	399,702	112,255	3,405	515,363	440,971	15,535	1,074,022

1916	173,238	849,200	419,905	8,521	1,277,626	677,485	22,448	2,151,537
1917	428,930	2,488,976	859,726	35,552	3,384,254	1,318,772	44,258	5,187,173
1918	1,434,238	115,871	1,457,912	85,800	1,659,582	8,982,030	11,006	12,087,080
1919	2,527,737	11,025,273	2,727,192	164,364	13,916,829	11,001,582	64,200	27,565,106
1920	3,814,471	28,350,017	4,503,392	457,035	33,310,444	18,425,214	1,191,062	56,847,017
1921	2,187,013	1,118,589	3,917,214	138,966	5,174,770	10,379,876	1,284,034	19,083,075
1922	1,632,982	3,544,176	1,666,927	1,112,938	6,324,042	4,863,807	823,143	13,666,864
1923	1,188,473	3,598,330	1,454,173	595,872	5,648,376	5,304,495	196,306	12,381,643
1924	1,563,969	3,539,853	1,377,192	634,439	5,551,485	5,938,456	185,976	13,316,491
1925	2,120,850	3,614,478	1,782,672	916,903	6,314,053	6,348,032	—	14,810,519
1926	2,061,895	2,375,880	6,187,387	1,111,451	9,674,717	5,158,955	—	17,049,447
1927	1,481,988	2,080,808	5,538,085	1,066,284	8,685,178	3,799,112	—	14,076,166
1928	1,766,467	1,782,763	5,139,867	1,123,659	8,046,289	4,389,368	—	14,220,113
1929	2,309,384	2,992,974	7,934,877	680,932	11,608,782	4,289,753	209,148	18,558,819
1930	3,757,625	1,827,263	7,535,382	643,881	10,006,526	2,592,524	156,161	16,622,034
1931	945,699	1,076,060	662,389	426,688	2,165,137	1,280,676	104,233	4,619,725
1932	209,864	495,831	383,290	163,623	1,042,744	846,501	59,869	2,212,686
1933	378,016	531,747	541,879	415,211	1,488,836	1,220,977	65,315	3,255,518
1934	956,451	1,258,459	889,020	532,113	2,679,591	2,424,091	108,017	6,254,033
1935	1,550,738	1,351,441	1,084,168	694,107	3,129,716	2,060,144	114,837	7,050,051

SOURCES: United States: U.S. Department of Commerce, *The Foreign Commerce and Navigation of the United States, 1902–1930*. (Price deflator is the wholesale price index.) United Kingdom: Annual Statements of the Trade of the United Kingdom with Foreign Countries, 1900–1935.

increases in productive capacity: the flow of new machinery to Mexico after the revolution exceeded the levels attained before the revolution. Also, new firms entered the market for manufactures both during the revolution and afterward, even in the face of the failure of older, more established firms. Even during the worst years of violent conflict new firms opened their factory gates.[61] There was also new entry in a number of industries by new, large, capital-intensive firms in the early 1920s. In the tobacco industry, for example, the British-American Tobacco Company established two subsidiary manufacturing plants in Mexico that dwarfed their Mexican competitors and quickly drove them out of business.[62]

PRODUCTION. In our previous work, we have shown that few firms were destroyed or forced into bankruptcy by the revolution.[63] One implication is that production should have quickly regained its Porfirian levels once normalcy returned to the transportation and monetary systems. Two bodies of evidence support this hypothesis. First, we have retrieved evidence on output in the steel, cement, cotton textile, and beer industries. The data for all four industries indicate that there were dramatic declines in production during the violent phase of the revolution, followed by a rapid recovery once the fighting stopped (see tables 2.1, 2.2, 2.3, and 2.5). By the early 1920s production in most industries had surpassed Porfirian levels.

Second, data on electric power generation in Mexico City for commercial light and power uses (the data exclude power generated for the water and tramway systems and for public lighting) point to the same conclusion. (Since the vast majority of Mexican manufacturing at this point operated with electric machinery, commercial

61. Haber and Razo, *Political Instability*, p. 131.
62. Haber, *Industry and Underdevelopment*, pp. 143–44; Sterrett and Davis, *Fiscal and Economic Condition*, p. 208.
63. Haber and Razo, *Political Instability*, pp. 112–19.

TABLE 2.5

Mexican Beer Production, National and Cervecería Cuauhtemoc (in thousands of liters)

Year	*Cervecería Cuauhtemoc*	*National Output*	*Cuauhtemoc Market Share (in percent)*
1900	4,866	—	—
1901	4,685	—	—
1902	5,581	—	—
1903	5,925	—	—
1904	6,865	—	—
1905	8,884	—	—
1906	13,344	—	—
1907	14,005	—	—
1908	11,183	—	—
1909	11,582	—	—
1910	13,275	—	—
1911	14,172	—	—
1912	16,519	—	—
1913	11,732	—	—
1914–15 [a]	3,359	—	—
1916	2,758	—	—
1917	4,640	—	—
1918	4,977	—	—
1919	7,735	—	—
1920	14,929	—	—
1921	16,689	—	—
1922	13,156	—	—
1923	12,335	—	—
1924	11,564	52,003	22%
1925	15,736	53,673	29
1926	21,521	67,925	32
1927	23,201	71,613	32
1928	22,229	67,911	33
1929	23,174	71,973	32
1930	21,760	72,065	30
1931	18,894	54,711	35
1932	14,367	42,470	34
1933	19,082	52,991	36
1934	24,305	67,368	36
1935	29,291	82,513	35
1936	36,355	98,893	37
1937	44,225	120,805	37
1938	43,483	129,802	33
1939	49,052	160,452	31
1940	54,709	179,198	31

[a] Combined year.

SOURCE: Unpublished data from Cerveceria Cuauhtemoc Sales Department; Direccion General de Estadistica, *Anuario Estadistico de la Republica Mexicana* (Mexico City, 1942), p. 958.

power consumption is a good proxy for industrial activity.) Table 2.6 shows data from the Mexican Light and Power Company indicating a steady rise in commercial power usage from 1907 through the early years of the revolution (peaking in 1912). Power usage declined dramatically from 1912 to 1915 (falling by roughly 40 percent over three years) and then recovered rapidly. By 1917 commercial power consumption in Mexico City was 17 percent higher than in 1910 and continued climbing throughout the 1920s. By 1927, commercial power consumption in Mexico City was three times what it had been on the eve of the revolution.

Concluding Remarks

This chapter has made a substantive argument, based on new theory and evidence, that political instability does not necessarily have a negative impact on economic performance. Our analysis began with a widely accepted premise about the political foundations of growth: governments need to make credible commitments to the protection of private property rights. An emerging consensus claims that credible commitments are impossible to make on the basis of codified institutions. This claim is partly true if we restrict consideration of credible commitment mechanisms to those provided by institutional changes that formally limit the scope (and predatory behavior) of governments. It is an incomplete claim, however, because it ignores the possibility that credible commitments could be made through other mechanisms. We thus propose an alternate theory of governance structures based on vertical political integration, which allows for the possibility of creating credible commitments even under political instability. Our analysis is more general than the existing focus on limited governments. In particular, it suggests that the current focus on the existence of either limited governments (which can sustain growth) versus predatory governments (which hamper growth) is limited because it ignores the fact

TABLE 2.6
Power Generated by the Mexican Light and Power Company for Commercial Purposes, 1907–1927

Year	*Thousands of Kilowatt Hours*	*Index (1910 = 100)*
1907	45,779	80
1908	44,061	77
1909	47,074	82
1910	57,112	100
1911	59,244	104
1912	67,565	118
1913	62,117	109
1914	56,274	99
1915	39,096	68
1916	42,888	75
1917	67,062	117
1918	72,901	128
1919	82,212	144
1920	91,145	160
1921	88,379	155
1922	103,111	181
1923	113,704	199
1924	125,424	220
1925	144,230	253
1926	166,483	292
1927	178,089	312

SOURCE: Joseph E. Sterrett and Joseph S. Davis, *The Fiscal and Economic Condition of Mexico: Report Submitted to the International Committee of Bankers on Mexico* (New York: N.p., 1928), p. 213.

that commitment is a matter of degree. Rather than a binary choice, establishing credible commitments is a problem of selecting a particular governance structure from a continuum of different degrees of commitment that a political system can sustain. In fact, limited and predatory governments are but two extreme cases of political structures that integrate private and public interests.

To be sure, these credible commitment mechanisms are clearly a second-best solution and have associated inefficiencies and negative results. On the other hand, there are some advantages of vertical integration relative to a limited government solution. First, vertical integration is feasible under a larger set of conditions. Both empirical evidence and theoretical considerations show us that limited governments are hard to come by even under stable conditions. The conditions for limited government are even more stringent under political instability because governments need to establish credible commitments under severe uncertainty about the resolution of instability. Whereas it is impossible for limited governments to emerge from political instability, we have shown that it is feasible (and indeed expected) for governance structures to establish credible commitments through vertical integration. It should be noted that credible commitments need not be, and often are not, offered to all members of society. In terms of growth, a governance structure that provides protection to elite economic groups is sufficient to sustain economic growth.

This chapter has also provided empirical evidence to test two contending hypotheses about the impact of political instability on economic growth. The first hypothesis, which reflects an emerging consensus among students of the political economy of growth, is that instability should have a negative impact on growth. The second hypothesis, derived from our theory, is that growth can be sustained even under conditions of political instability. We consider a canonical case of political instability, revolutionary Mexico, which provides strong evidence in favor of our hypothesis. On the one hand, the data we have gathered makes a strong case for the continuity (and even improved performance) of the Mexican economy during its revolutionary years. Moreover, our analysis has also shown that the necessary credible commitments by governments came through governance structures that integrated elite economic groups (providing these with special protection and rents).