

## Structural Transformation, Deep Downturns, and Government Policy

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### Abstract and Keywords

Most recessions are a result of some shock to the economic system, typically amplified by financial accelerators, and leading to large, persistent balance sheet effects on households and firms. Over time, however, the balance sheets get restored. Even banks recover. But episodically, the ‘shock’ is deeper. It is structural. Among advanced countries, such large economic transformations include the movement from agriculture to manufacturing (completed in the twentieth century), and the more recent movement from manufacturing to the service sector. The associated downturns are longer lasting. The usual tools for restoring growth, particularly monetary policy, are of only limited efficacy. Policies have to be designed to facilitate such transformations: markets on their own typically do not do well. This chapter explains why such transformations are associated with persistently high unemployment, and what kinds of government policies are needed. It looks at the lessons of the Great Depression both for the advanced countries and the developing countries today as they go through their structural transformations.

Keywords: structural transformation, economic downturn, unemployment, government policy, Great Depression, agrarian economy, manufacturing, markets, politics, recession

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ECONOMIES are always changing, and one of the virtues of the market economy is its ability to adapt to these changes. Primitive agricultural economies face weather variability. Manufacturing economies are marked by new products. Rivals have to constantly adapt to the changing competitive landscape.

But beyond these changes, there are a few major *structural changes*, large changes that occur very infrequently. The movement from feudalism to the post-feudal era was such a change. The industrial revolution was another—but even after the onset of the industrial revolution, the economy remained largely agrarian. It was not until years later that the structural change occurred—the move from a rural agrarian economy to an urban manufacturing society. That was a traumatic event.<sup>1</sup>

Markets do not handle such changes well, nor typically do the political processes governing markets. The purpose of this chapter is (a) to explain why it is that markets on their own manage these transitions so poorly; (b) to show that when the structural transformation is not managed well, there may be a prolonged economic downturn (recession and depression), arguing that this is at least part of the explanation for the Great Depression and the Great Recession; (c) to demonstrate what government can do to help manage these structural transformations, and in particular, the role of industrial policy in facilitating these transitions; and (d) to set these industrial policies as a critical part of Keynesian counter-cyclical policies. We set much of our discussion in the context of the last major structural transformation confronting the advanced countries, the transition from an agrarian economy to one based on manufacturing, (p. 36) because we can see the principles better from the perspective of 80 years. But in the last two sections of this chapter, we discuss their implications for the 2008 recession and the broader management of cyclical fluctuations.

### 1.1 The Failure of Markets and Politics to Manage Structural Transformations

The reason for the failure of markets and politics to manage structural transformations is simple. The economic and political structures are designed for stability, including the maintenance of existing power relationships. The system is good at handling small shocks, but does not adapt well when managing big changes.

In the economic sphere, big changes lead to large (and typically unanticipated) changes in asset values. In the transition to manufacturing, as farmers migrated out of the rural sector, the assets owned by farmers (in particular, their homes) decreased in value. Their human capital was even more affected: farmers were well attuned to the nuances of weather, disease, etc. in their locale as it related to the production of the particular crops in which they specialized, but those skills were largely unrelated to the skills required for manufacturing.

Manufacturing occurs largely in urban centres (and for good reasons). The move from agriculture to manufacturing thus also required a massive change in the structure of housing.

In a decentralized market economy, the individual is typically responsible for obtaining the human capital that he requires to be productive, beyond his basic education. Individuals are also responsible for relocation costs, including those associated with the purchase of a new home.<sup>2</sup> In short, moving from the old sectors to the new sectors is difficult and requires resources. Structural transformation requires up-front capital expenditure. Large numbers of individuals who should be making the transition do not have the resources to finance this transformation; and given the imperfections of capital markets—which can be explained in terms of imperfections and asymmetries of information—they cannot obtain financing. Indeed, the structural transformation itself makes it even more

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difficult to obtain the financing. Banks that have invested substantial amounts in the rural sector (in the 'old' sector)—that is, have lent (p. 37) substantial amounts to that sector—also experience significant losses. The fact that the value of housing in the rural sector has diminished implies that a fraction of the loans will go into default, perhaps a large fraction. So, too, for loans made to finance other investments in the rural (old) sector. Thus, the net worth of banks will experience a negative shock. And this will reduce their ability and willingness to lend.<sup>3</sup>

In addition, these local institutions have the detailed information that allows them to judge the creditworthiness of the borrower. But the structural transformation has attenuated even the value of that information, since knowing an individual's competence in the rural sector might provide only limited information about his performance in the urban sector.

Moreover, moving is risky: there are clear up-front costs, with large uncertainties about the returns. Will the individual find a good job, an adequate home, a community in which the family thrives? There are no markets to which individuals can turn to obtain insurance against these risks.

Using a model with costless mobility of resources to analyse such large changes in technology (and preferences) would suggest that a new equilibrium would emerge as the overall economy changed and adjusted.<sup>4</sup> But these changes do not, in reality, occur on their own. We will explain shortly how government intervention can facilitate the transition.

But even government attempts at facilitating transition encounter difficulties. Political institutions tend to reflect existing power structures. And these existing power structures derive their power, at least to some extent, from their existing economic power. The structural transformations under discussion undermine those power relations. Thus, rather than facilitating the transition, too often government lends its weight in the other direction, trying to preserve the status quo and the power structures associated with it. Nowhere is that more evident than in the example that is the focus of the discussion in this chapter—the movement from agrarian economies to manufacturing. The political institutions created in the nineteenth century gave undue weight to the rural agrarian communities, and the mindset of these communities was often at odds with that of the dominant urban communities, and remains so today. While this disparity between politics and the underlying economic realities is stark, the disparity is even greater when it comes to the movement now underway in postindustrial societies, to the service- and knowledge-based economies of the twenty-first century. A political system that gives disproportionate weight to a country's rural and dying manufacturing regions may try to preserve their bygone industries and sectors and, rather than facilitating that transition, put significant hurdles in the path of the efficient transition from the 'old' economy to a new post-industrial economy.<sup>5</sup>

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(p. 38) **1.2 Interpretation of the Great Depression**

The Great Depression provides a good illustration of the principles just discussed, and the consequences of impediments to an easy transition. The underlying ‘shock’ to the economy that led to the downturn was an increase in agricultural productivity.<sup>6</sup> In the absence of frictions, this would have moved the utilities possibilities curve outward; that is, assuming that lump-sum redistributions were possible, everyone could have been made better off. (Without government intervention, the effects are ambiguous, since the competitive equilibrium could entail some group being worse off. This is the case with Hicksian labour-saving technological changes.) In this hypothetical new equilibrium, workers would have migrated from the rural sector to the urban sector simply because fewer workers are needed to produce the food required, since the income elasticity and price elasticity of food is low. The technological change leads to lower prices of agricultural goods, and this results in slightly higher demand—an increase in demand that is smaller than the increase in productivity. Hence, incomes in the rural sector decline. Absent frictions, workers would migrate from the rural to the urban sector.

With the *real* frictions described in the previous section, however, this may not be the case. Assume for the moment that mobility is zero. Then those in agriculture will see their incomes go down, and as a result they will work harder (assuming income effects offset substitution effects) and this will lead to further decreases in agricultural prices and incomes. (Each farmer believes that by working harder, his income will increase, but, because of the inelasticity of demand, when output increases incomes actually fall.) Those in the urban sector are better off—at first. But with farmers (p. 39) demanding fewer tractors and cars and other manufactured goods, the demand for urban goods decreases. Assume, again for simplicity, that wages are fixed—say at the efficiency wage. Then employment in the urban sector falls, leading to a decrease in demand for food, further depressing the price of food. The equilibrium that emerges entails lower food prices and lower urban employment—in both sectors, workers are worse off.<sup>7</sup> What should have been an innovation that made everyone better off—if the structural transformation could have been efficiently carried out—actually leads to immiseration, with welfare in both the rural and urban sectors decreased.<sup>8</sup>

It is interesting that President Franklin D. Roosevelt’s first response to the Great Depression (embodied in the Agricultural Adjustment Act of 1933) was to restrict agricultural production. This would have increased incomes in both the rural and urban sectors. (Rural welfare would have been increased because of the higher prices they receive for the goods they sell.<sup>9</sup>) The 1933 law was struck down by the Supreme Court, and widely criticized by economists as an intervention in the workings of the market economy. But it was, in fact, a clever application of the principle of the second best. Given the market distortion (the inability of labour to move costlessly across sectors, and the inability to engage in lump-sum redistributions) such interventions may in fact have been desirable.

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In the end, it was World War II that brought the US economy out of the Great Depression. The demand for munitions and armaments and troops required moving people out of the rural sector, and training individuals for a manufacturing society helped in the transition. After the war, the GI bill, which provided a university education to all of those who had fought in the war (which was almost all men and many women, though it discriminated against African-Americans), provided the human capital needed for the transformation from an agrarian economy to a manufacturing economy. The forced savings during the war and deferred consumption helped to provide the basis of strong aggregate demand, substituting for government military expenditures which diminished rapidly after the war, thus averting the widely expected post-war recession.

In short, war expenditures were more than a Keynesian stimulus; they constituted (unknowingly) an industrial policy, critical in engineering a structural transformation.

### (p. 40) 1.3 Interpretation of the 2008 Crisis

The 2008 crisis is often thought of as a financial crisis—and clearly, as part of the crisis, many financial institutions were close to collapsing. But to understand the crisis itself and what could and should have been done to help the economy emerge from it, we must dig deeper.

By analogy to the Great Depression, one can think of globalization and the increases in productivity in manufacturing as the underlying drivers of the Great Recession. The growth in productivity in manufacturing exceeded the growth in demand for manufactured goods, and that meant that globally there had to be a decrease in manufacturing employment. Globalization meant that the advanced countries seized a diminishing share of this diminishing amount. But that in turn meant that these workers had to find employment elsewhere. One way of thinking of the real estate bubble in the United States was that it was one way that the country temporarily solved the problem. It provided jobs for the men who had lost jobs in manufacturing.

So, too, the Federal Reserve's low interest rates, which fed the housing bubble, were a reflection of the weak aggregate demand resulting from the underlying weakness in manufacturing. There were, of course, other ways by which the economy/society could have responded. There could have been an increase in fiscal expenditure, but the country's political economy precluded that—the party controlling the government at the time was committed to downsizing government. Monetary policy also led to a real estate bubble, in part because of the prevailing ideology against regulations that might have circumscribed the growth of the bubble.

Of course, the collapse of the financial sector amplified the downturn.

Given that the obvious symptom of the crisis was the collapse of Lehman Brothers, which posed a real threat of the collapse of the entire financial sector, it was natural to refer to the crisis as a financial crisis. That led to a focus on the financial sector, including its re-

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capitalization. But years later, when the banks were largely recapitalized, the downturn continued, suggesting at least that the downturn was not *just* a financial crisis.

Some have said it was a ‘balance-sheet recession’. Essentially all major downturns are balance-sheet downturns, because the downturn leads to a weakening of the balance sheets of firms as well as banks, and this leads to a contraction both of production (in effect, a shift of the aggregate supply curve to the left) and demand—a shift in the demand curve for investment. There is nothing distinctive in this matter for the 2008 crisis.<sup>10</sup> And again, by a few years after 2008, balance sheets were largely restored: large corporations were sitting on a couple of trillion dollars of cash. It was not balance sheets that were constraining investment, but aggregate demand. The question was, what was constraining aggregate demand?

(p. 41) Our analysis suggests it was the failure to advance on the necessary structural transformation of the United States from a manufacturing economy to a service sector economy. Just as farmers were ‘trapped’ in the agricultural sector, unable to move to the manufacturing sector, manufacturing workers are now also trapped, lacking the skills that would enable them to be productive in the expanding sectors of the economy and unwilling and unable to make the investments that would give them those skills and make it possible to move to the locations where the jobs were being created.<sup>11</sup>

Again, Keynesian policies could have filled the void in aggregate demand, but because of the prevailing ideology government not only didn’t expand government spending to fill it, in many places, contracting spending (austerity) actually exacerbated the problem. The growth of public-sector employment fell short of what would have been expected on the basis of the growth of the working-age population.

What was needed, though, was more. As in World War II, government was needed to push forward the structural transformation, with industrial policies supporting the new sectors, and retraining policies (active labour market policies) helping to move people from the old sectors to the new.

But there was a further need for government: many of the sectors into which the economy was shifting were service sectors in which government naturally played a pivotal role, such as education, health, and care for the aged. Without government support, these sectors were constrained, and so as the manufacturing sector declined, the new sectors where workers might naturally have found employment did not grow.

## 1.4 Remarks on Industrial Policies as Cyclical Policies

The two previous sections have emphasized the market failures that emerge in a structural transformation.<sup>12,13</sup> There is a natural role for government in correcting (p. 42) these market failures. In particular, Keynesian policies can stimulate the economy. In the case of the transformation from agriculture to industry, such policies increased incomes in

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both the agricultural and urban sectors. The increased incomes by themselves would have facilitated movement from the rural to the urban sector, thus partially addressing one of the key market failures. But the expenditures during and after World War II were even more effective in enabling this transformation; unintentionally, they were industrial policies, helping people move and giving them the training and education needed to equip them to be productive in the expanding sectors of the economy. There is a general principle here. When the underlying problem facing an economy is the necessity of a major economic transformation, a key component of Keynesian cyclical policies should be industrial policies to facilitate that transformation.

Managing such policies is, however, not always easy.

When a sector is facing competition from outside the country, those already in the sector will often claim either that there is unfair competition from abroad and/or that the problems are only temporary, and a little help will enable the industry to recover and thrive. It is better to provide short-term support to the industry, it is argued, than to relocate the workers and see a long-term loss in human and organizational capital, which would result from the closure of enterprises.

Both workers and firms have a self-interest in taking such a stance. Even a successful relocation of workers may be associated with a significant lowering of wages. Older workers trained for one sector may, even with retraining, be less productive in the new sector.

There are several issues that have to be addressed when evaluating the best responses to foreign competition.

For one, it must be considered whether or not the problem is actually temporary. Often, it is not. Comparative advantages do change. The United States almost surely does not have a comparative advantage in the production of cars. Germany, Japan, Korea, and China seem to have comparative advantages in different parts of the product spectrum, with Germany having a comparative advantage in high-tech cars, and Korea and Japan in more mass-produced cars. The US comparative advantage in large gas-guzzlers is not the basis of a successful twenty-first century automobile industry. The US car companies have returned to profitability, but only by lowering the wages of their workers to levels that are close to what *should* be the minimum wage in the United States.

As noted above, both the firms and the workers in the declining industry have an incentive to claim that the industry is just facing temporary difficulties, and a little help—if not outright subsidies, then a little protection—would do the trick to get things back on track. Still, while inevitably politically contentious, it's often possible to make an informed judgment with some degree of confidence whether an industry is facing temporary difficulties or has lost its long-term comparative advantage. America's coal (p. 43) industry, for instance, is and should be a dying industry; it should not be the recipient of either direct or indirect assistance.

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Second, domestic firms are always going to claim that competition from outside—when it is successful—is unfair. They have to believe that they are more productive than firms elsewhere, so that if competition were fair, they would prevail. But the reality is often otherwise. It is not ‘unfair’ for a country to be poor and have low wages; it is unfortunate. The principle of comparative advantage says that even low-wage countries have comparative advantages and disadvantages. Again, of course, every firm complains about hidden subsidies. Those abroad complain about US government bailouts of American auto companies. Indeed, any firm that borrows from an American bank is a beneficiary of the hundreds of billions of dollars that went to the financial sector in the bailout. Those outside the United States claim that that gives American firms an unfair advantage. US monetary policy, which keeps interest rates at near zero, is also seen as giving American firms an unfair source of cheap capital.

But there are cyclical fluctuations, and these fluctuations affect some industries more than others—the cyclically sensitive sectors. As a matter of policy, it would be best if monetary and fiscal policy stabilized the economy. It would also be good if the government sold state-contingent insurance, that is, insurance that paid off in the event of a cyclical downturn.

Industrial policies, however, can be an important complement to these monetary and fiscal policies; and take on even greater importance as second-best measures when the government fails to fully and effectively implement them. Industrial policies can simultaneously help the industry weather the storm and restructure itself (sometimes downsizing, sometimes increasing its scale). Because of capital market imperfections, an economic downturn, especially in a capital-intensive industry with economies of scale, can lead to large (cash flow) losses, which inhibit its ability to modernize and compete.

Roosevelt’s Agriculture Adjustment Act, as we noted, is an example of such a policy. So, too, are state-contingent tariffs, which increase tariffs or reduce quotas in a recession, so that producer prices are increased, reducing the losses confronting cyclically sensitive industries.

Persistent unemployment is, in a sense, a symptom of the market economy not working well. We have also described how government interventions can, in such circumstances, provide symptomatic relief. While there may be policies that go more directly to the root of the problem, if they are politically unattainable then it is better to intervene with second- or third-best measures than to let the economy suffer from prolonged unemployment.

## 1.5 Concluding Remarks

Markets typically do not work as well as the textbook models of perfect markets suggest. At times, market failures become very significant, and government intervention is required. This chapter has discussed one such instance—the structural (p. 44) transformation of an economy. We have explained why market failures are likely to be particularly

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significant when the economy is going through a major structural transformation, and described some of the market interventions that might be desirable. In particular, we have argued that *Keynesian industrial policies* can play an important role in simultaneously stimulating the economy, reducing unemployment, and facilitating the required transition.

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### Notes:

(<sup>1</sup>) Described so forcefully by Polanyi (1944).

(<sup>2</sup>) There are good reasons for owner-occupancy; nonetheless, some market economies rely on rental housing, so that the provision of housing depends on specialized private enterprises. Here, the problem is that the net worth of these enterprises may suffer significant adverse effects in the process of structural transformation, and thus may not be able to provide the new housing required in the urban area. In this case, however, it is more likely that new enterprises will be created to provide housing for new migrants to the urban sector.

(<sup>3</sup>) See Greenwald and Stiglitz (2003).

(<sup>4</sup>) There are, in addition, large social costs. Individuals have built up networks of relationships that are not only a direct source of 'utility' but also provide strong systems of social support.

(<sup>5</sup>) An interesting aspect of manufacturing in the United States today is that much of it has moved out of the urban areas to more rural locations. Low wages, low costs of land, and a good transportation system reversed the earlier advantages of urban locations.

(<sup>6</sup>) We do not present the evidence for this claim here. Note, however, that there was a drop in farmers' income of some 50 per cent to 75 per cent, and that the rural sector represented some 70 per cent of the economy at the time. With reasonable multipliers, it is easy to see how this could translate into a macroeconomic downturn of the magnitude observed.

There is a long-standing debate about the relative importance of different factors in contributing to the Great Depression, with some economists (e.g. Eichengreen 1992) emphasizing the role of the gold standard and others (e.g. Friedman and Schwartz 1963) that of monetary policy. Both of these clearly played a role, especially in the propagation and persistence of the downturn. We emphasize here, however, the role of the 'productivity shock' in agriculture as the source of the perturbation to the economy. The gold standard did introduce rigidities, making adjustment to the shock more difficult. It is often noted that countries that went off the gold standard performed better. But this says nothing about what would have happened if all had gone off the gold standard. Countries going off the gold standard early clearly had a competitive advantage over those that waited. A discussion of the role of monetary policy as a cause of the crisis would take us beyond this short chapter. Here, we simply note that the financial crisis occurred years after the

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onset of the Depression. Any deep and prolonged downturn will give rise to a financial crisis.

(<sup>7</sup>) The lower wages increase the income of the owners of capital. So long as the marginal propensity to consume of these capitalists is lower than that of workers, the results described here hold. The adverse welfare effects hold so long as the marginal social utility of a dollar to the (higher-income) capitalists is lower than that to workers. Of course, workers who do retain jobs at the efficiency wage are better off, because food prices are lower, provided that the wage (denominated in the price of manufactured goods) does not change.

(<sup>8</sup>) Formal models showing what has been discussed in the previous section are provided in Delli Gatti et al. (2012a and 2012b).

(<sup>9</sup>) We can express the welfare of farmers through an indirect utility function depending just on the price of agricultural goods relative to urban goods.

(<sup>10</sup>) For an analysis of balance-sheet recessions, see Greenwald and Stiglitz (1993a, 1993b, 2003) and Koo (2003).

(<sup>11</sup>) There are a host of other impediments to mobility, including the reluctance to leave one's extended family and support systems. The absence of a good rental market for housing impedes mobility, as does the lack of affordable daycare, in those instances where members of the extended family provide such services.

(<sup>12</sup>) Industrial policies include any policies that help direct resources to or from a sector or encourage the adoption of a particular technology within a sector. They are not limited to the promotion of 'industry', as that term is usually understood. As I have noted elsewhere, all countries have industrial policies, hidden in the tax code or various aspects of the legal code. Markets don't exist in a vacuum; they have to be structured and, inevitably, how they are structured affects resource allocations. Of course, government interventions in resource allocations become more compelling when there is a market failure—as here, a failure in the free mobility of labour. See Rodrik (2004); Greenwald and Stiglitz (2013); and Stiglitz (2017).

(<sup>13</sup>) In December, 2017, and January 2018, the US almost doubled its fiscal deficit as a percentage of GDP (from nearly 3% to nearly 6%), and this large fiscal stimulus enabled the unemployment rate to fall to 3.7% (though the employment rate remained significantly below pre-recession levels), showing that if such a fiscal stimulus had been provided earlier, it would have assisted the recovery. Still, the underlying transformational problems have been largely unaddressed. It is anticipated that the impact of the fiscal stimulus will wane, and it is unlikely that there will be another fiscal stimulus of this magnitude any time soon.

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