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The U.S. Auto Industry Under Duress: Fit, or Finished?

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In the latter half of the 20th century, the U.S. auto industry truly lost its way. It squandered its competitive advantage, allowed itself to become vulnerable to forces beyond its control, lost its markets one by one to foreign rivals, and stared into the abyss of its complete demise. Only U.S. government intervention on a previously unimaginable scale prevented that outcome. A great debate emerged over the causes of the auto industry's collapse, the rationale for government intervention, and the effects of competition between government-owned and private auto companies. That debate was leapfrogged by events that forced decisions about intervention and ownership. But events have not obviated the need for examining these questions, since the U.S. government is now even more deeply involved in the U.S. auto industry. In addition, this experience may serve as a model or argument for other troubled sectors. This paper[1] seeks to cast light on some of the issues raised by government intervention.

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I. Introduction

For more than a century the auto industry has been at the center of U.S. manufacturing. It has provided jobs to millions of people, wealth to tens of millions, and products by the hundreds of millions. The jobs it created were high quality jobs; jobs that taught skills, promoted mobility into the middle class, provided health care, and conferred retirement security on generations of Americans. Its products were useful and often exciting, capturing consumers' imagination, responding to their thirst for the open road, and permitting a lifestyle that came to be associated with the American Dream. The wealth it created enriched its owners and managers, its suppliers and communities, and its stockholders throughout the country. This is an extraordinary record unmatched by any other industry in this or any country.

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But in the latter half of the 20th century, the U.S. auto industry truly lost its way. It squandered its competitive advantage, allowed itself to become vulnerable to forces beyond its control, lost its markets one by one to foreign rivals, and stared into the abyss of its complete demise. Only U.S. government intervention on a previously unimaginable scale prevented that outcome. A great debate emerged over the causes of the auto industry's collapse, the rationale for government intervention, and the effects of competition between government-owned and private auto companies. That debate was leapfrogged by events that forced decisions about intervention and ownership. But events have not obviated the need for examining these questions since the U.S. government is now even more deeply involved in the U.S. auto industry. In addition, this experience may serve as a model or argument for other troubled sectors.

This paper seeks to cast light on some of the issues raised by government intervention. We begin with a review of the root causes of the crisis in the U.S. auto industry and then discuss whether there is a principled basis for government intervention in the industry. For the latter question, we set out several rationales that have been offered for government intervention and analyze their possible economic foundations. We then go on to examine the nature of competition in an industry that now consists of both private companies and publicly-owned enterprises. We conclude with some observations about the role and effects of public policy in these circumstances.

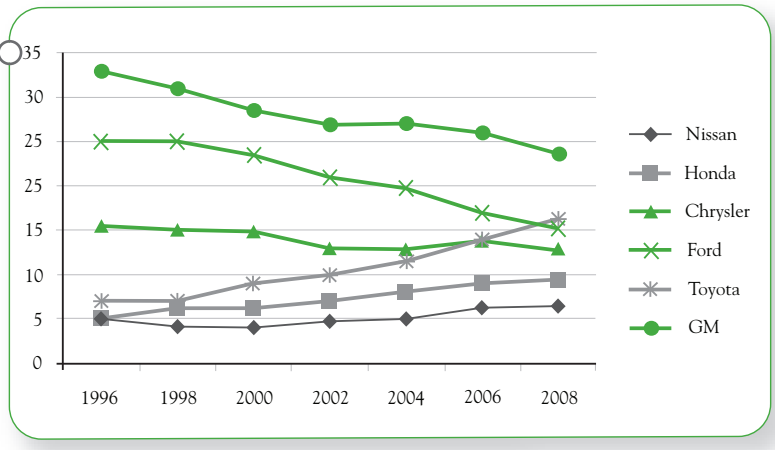
II. Autos: An Accident Waiting to Happen

Fifty years ago U.S. companies manufactured virtually all motor vehicles sold in this country. In 1965 General Motors ("GM") alone sold 50 percent, with Ford at 26 percent and Chrysler at 14 percent, leaving only 10 percent total for American Motors and a few small volume imports, primarily European. But as

Ford celebrated its centennial in 2003, and more especially as GM did so in 2008, both companies' market shares had been cut in half and were in steady decline. As shown in Figure 1, both of those companies were losing market share at a rate of about one percentage point per year, a trend that showed no signs of abating. As a consequence, GM's stock price had declined from its peak of $94 in 2000 to about $25, and continued its steady retreat. The company was on its way to reporting a loss of $30 billion in 2008—approximately $10,000 per vehicle sold. Ford's losses in 2008 totaled $15 billion while Chrysler lost $8 billion—an astonishing total of $53 billion.

Figure 1

Market share of U.S. vehicle sales



But if that seemed bad, it was about to get worse—much worse. U.S. demand for light vehicles (cars, SUVs, minivans, and pickups), which had been running at a rate of about 16-17 million units per year, started to weaken during the summer of 2008, but with the financial crisis and the macro recession in the fall, demand truly collapsed. By early 2009, the annual sales rate was less than ten million units—a rate last seen in 1982. In the first quarter of 2000, GM's sales plunged 45 percent, those of Ford and Chrysler by similar amounts. U.S. sales by Toyota, Honda, and other manufacturers initially held up as buyers shifted from larger U.S. vehicles to smaller products made by their Japanese and Korean rivals, but after that initial shift wore off, sales of foreign nameplate vehicles suffered the same precipitous decline.

The effects of such demand declines are readily understood from some simple economics. Automobile manufacture is a high fixed-cost business, so that sales declines result in revenue losses that substantially exceed cost reductions in the short- and medium runs. The upshot is large financial losses. Thus, GM lost more than nine billion dollars in the fourth quarter of 2008, and another $6 bil-

lion in the first quarter of 2009. Ford lost $1.4 billion and Chrysler $2 billion. GM's share price fell to $1.15 and its total market capitalization was less than $3 billion.

These financial effects prompted concern over the long-term viability of the three traditional Detroit-based companies. Not wanting the auto industry to collapse on its watch, the Bush administration stepped in with interim measures to ensure the survival of the U.S. companies. The harder questions were left to be more fully addressed by the incoming Obama administration.

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Before discussing those measures, it will be helpful to identify the various causes of the extreme sales and financial difficulties faced by the GM, Ford, and Chrysler—the "Detroit 3"—difficulties that for the most part exceeded those faced by foreign auto companies.[2] We divide these causes into short- and long-run problems, noting the interaction between the two along the way.

A. SHORT-RUN PROBLEMS

The obvious short-run problem that faced the U.S. auto sector starting in late 2008 was the collapse of demand. While past recessions had produced sales declines on the order of 15-25 percent, the magnitude of decline starting in the spring of 2008 was without precedent. This sales collapse had both macro- and micro-roots, as we shall now enumerate.

1. Macro Causes

- The Great Recession, which caused adverse changes in the major determinants of demand for autos—income, employment, and consumer confidence.
- The credit crunch, which affected auto suppliers' ability to finance operations, dealers' ability to finance inventory, and consumers' ability to purchases vehicles without full cash payment.

2. Micro or Industry-specific Causes

- Since auto purchases are postponable, demand has wider swings than for many other products. Most consumers can simply stay out of the market for a period of time, returning (often en masse) when consumer confidence and other conditions are more favorable. This has historically resulted in considerable volatility in auto sales.
- "Overselling" of cars in recent years, as the auto companies boosted short-term sales by substantial discounting, cheap credit, and off-mar-

ket sales to rental fleets. These strategies "pull" future sales to the present, but when that future arrives, some part of naturally arising demand has already been satisfied. That has left current demand even shorter than would normally be the case.

B. LONG RUN PROBLEMS

The other set of forces adversely affecting the Detroit 3 has been a number of longstanding, deep-seated, and largely unaddressed structural problems. These have left the U.S. auto companies vulnerable to various threats, including threats posed by the advent of Japanese cars, environmental and regulatory constraints, and periodic high gas prices. In each case the companies have been caught unprepared, denied responsibility, sought to avoid fundamental change, and permanently lost sales and employment. In the context of the present demand collapse, these problems have made matters far worse for the Detroit 3. These problems fall into four broad categories.

THE OTHER SET OF FORCES ADVERSELY AFFECTING THE DETROIT 3 HAS BEEN A NUMBER OF LONGSTANDING, DEEP-SEATED, AND LARGELY UNADDRESSED STRUCTURAL PROBLEMS.

1. The Product Itself

- Quality problems have long afflicted products coming out of Detroit. The initial inroads made by Japanese companies were due to offering cars with high quality at budget prices. Over the years, the Detroit 3 made enormous progress in closing the quality gap, but with the exception of a handful of vehicles, their defect rates remain significantly above the target established by ever-improving Japanese products and newly-emerging Korean competitors.[3]

- Even when Detroit has succeeded in manufacturing vehicles with defect levels comparable to its state-of-the-art competitors, domestic cars have often suffered from uninspired design, poor features, and the bad reputation of their car company. The current model of the Chevy Malibu illustrates this combination of high production quality but mediocre sales.[4]

- Above all, in recent years Detroit had become fixated on two high-volume and high-profit vehicles developed here; namely, minivans and sport utility vehicles. As shown in Figure 2, minivans first appeared in the early 1980s, their sales cresting at about 1.25 million units per year in the mid-1990s. As the minivan fad started to fade and foreign competitors moved into that segment, SUV sales took off, soon dwarfing the minivan boom. But SUVs went through a similar product cycle, causing Detroit to rather frantically search (unsuccessfully) for a new "hit" product.

Figure 2

U.S. vehicle sales (millions of units)

The importance of the "hit" vehicle strategy is threefold. First, it does not constitute a viable long-term business strategy, since it relies on the ability to come up with a never-ending series of new large-volume-and-profit products. Such persistent success is no more likely than with repeated betting—at some point all winning streaks end. Second, this strategy resulted in the Detroit 3 increasingly becoming truck companies rather than car or diversified vehicle companies, shifting resources and attention away from traditional passenger cars. In recent years GM has produced more light trucks than cars, Ford twice as many trucks, and Chrysler three times as many. Third, during this same time Toyota, Nissan, Honda, and others remained focused on cars, continued to improve those vehicles, and took an ever larger share of U.S. passenger car sales. While car sales had been declining as a fraction of total light vehicles, the Japanese (and now Korean) companies positioned themselves advantageously for the time when demand for passenger cars recovered.

2. Production Cost Problems

- Detroit has long suffered from an operating costs disadvantage relative to production in Japan (even after transportation costs) and then rela-

tive to production at Japanese transplant factories here in the United States. The evidence indicates that several Detroit assembly and manufacturing plants now have become cost competitive, although on average GM, Ford, and Chrysler plants remain somewhat less efficient than their competition.[5]

- Retirement costs and health benefits represent a substantial burden on the Detroit 3. The age and health status of their workforces is said to result in a per-vehicle cost differential relative to Japanese producers of perhaps $1100-1300.[6] Among the three Detroit companies, GM's predicament over time grew to be the most serious. It had about 4.6 retirees per active UAW member, compared to 2.1 and 1.6 for Ford and Chrysler, respectively (all this before the events of 2009). Notably, GM relieved itself of some of the long-term consequences by negotiating an arrangement with the UAW in 2006 that granted the union control of the health care fund in trade for smaller annual contributions by GM. While at the time this appeared to be a model for restructuring health care obligations, any long-term benefits have been overwhelmed by events.

3. Management Weaknesses and Failures

- The Detroit 3 have long suffered from management weaknesses—weaknesses of senior personnel and weaknesses in major decision-making. The Detroit culture has been stubbornly insular, focused on themselves, and in denial about outside threats. Until the present, no CEOs have been drawn from outside the industry. Examples of bold thinking—the GM-Toyota joint venture, Ford's green initiatives—have been few, far between, and without the kind of systemic impact necessary to transform the industry. By contrast, examples of short-sighted thinking abound: GM's 2006 decision to focus on trucks (including the Hummer brand); its progressive abandonment of Saturn over the past decade; Chrysler's near-complete devolution into a truck company; and all three companies' excessive number of divisions, products, and dealers are among many decisions that have sapped their competitive strength.

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- Compounding these management failures at the Detroit 3 have been governance failures. Rather than a committed board of directors prodding and, if necessary, replacing weak management, there has been a tolerance of mediocrity. CEO after CEO has presided over vast losses of sales, share, and capitalization, all without penalty. Once having the largest market capitalization of any manufacturing company, GM was worth less than $2 billion by the end of year 2008. It has been calculated that between 1980 and 1990, GM and Ford destroyed $110 billion in capital and between 1997 and 2008 another $190 billion.[7]

Remarkably, despite this record, the Boards of Directors of the Detroit 3 have long exhibited nearly unwavering support for their CEOs. GM's board repeatedly expressed support for its recent CEO, even after decision after decision damaged the company.[8] The degree to which the boards were part of the problem was demonstrated by the failed efforts by Ross Perot in the 1980s and later by Kirk Kerkorian through his associate Jerome York to shake up GM's board. Both investors—savvy, well-financed, and experienced—essentially threw up their hands in exasperation and departed the Detroit scene.[9]

4. Public Policy

- The policy that perhaps has been most damaging to the long-term interests and health of the U.S. auto industry has been the country's commitment to cheap gas. Cheap gas has spurred the boom in sales of low-mileage vehicles favoring the Detroit 3, but it has also laid the foundation for these companies' vulnerability to gas price shocks and similar events. And these events have occurred with some regularity, with devastating effects on sales of vehicles by the Detroit 3 with their commitment to large low-mileage vehicles.

- A second government policy that has served the companies poorly has been the "alternative technology" fiction. Beginning with the Partnership for a New Generation of Vehicles in the 1990s and more especially with the Freedom Car of the Bush administration, the federal government has very publicly heralded programs apparently designed to assist the Detroit 3 in developing new, high-mileage, low-emissions power plants.[10] These have not yielded any such benefits, leading many to conclude that the purpose of these programs was more public relations than substance.

  In this respect, the contrast between U.S. and Japanese car companies could not be clearer. While official U.S. policy has been promoting fuel cell technology—a very long term and very difficult technology to implement—Toyota introduced the Prius in this country in 2001. That simple but sophisticated hybrid gas-electric vehicle instantly became a sales hit and badge of distinction to Toyota, eventually forcing Detroit to respond with its own hybrid vehicles.

C. COMPETITION: THE ROAD NOT TAKEN

Many of the U.S. auto industry's problems stem from the fact that the Detroit 3 have behaved as if they had no viable competitors, or at least none that mattered. This raises the question of the role—actual or potential—for competition policy with respect to the industry: Could competition policy have played a more constructive role in altering the structure or behavior of this tight-knit oligopoly?

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There have been some notable efforts. In the 1960s the Justice Department Antitrust Division ("DOJ") conducted a preliminary investigation into competition in the U.S. auto industry. The Federal Trade Commission ("FTC") followed this up with an Omnibus Auto Industry Investigation in the late 1970s, examining various structural and behavioral issues that were contributing to the lack of competition. The FTC also weighed in on the competitive effects of increased regulatory stringency, the Chrysler bailout of 1980, import restraints, and various alliances and partial equity agreements among the U.S. and Japanese car companies that sprang up in the 1970s and 1980s. But growing competition from abroad rendered most of these concerns moot: Import restraints were relaxed and then eliminated, while Japanese companies set up factories in the United States.

The upshot was that weak competition among the Detroit 3 was overtaken by ever-stronger competition from new, foreign rivals. It might have been hoped that GM, Ford, and Chrysler would respond to that competition; but if they failed to do so, consumers now had alternatives available to them. Further failures of the Detroit 3 would be "their" problem—a private loss—rather than something that would adversely affect the public interest - automotive consumers.[11]

D. THE OUTCOME

Remarkably, even in the face of competitive threats of the first order, the Detroit 3 failed to take the necessary steps to preserve and strengthen their position. The result has been predictable but more extreme than might be expected. Sales of vehicles built by the Detroit 3 have fallen to their lowest level in decades, and will not be restored. Auto manufacturing has lost hundreds of thousands of jobs. UAW membership, once as high as 1.5 million, is now less than one-third that number, and falling. The auto companies' finances have jeopardized health benefits and retirement security for millions of workers and their dependents. The companies have been forced to close numerous plants and thousands of dealerships, creating financial distress for countless communities around the country.

Nowhere are these effects more acute than in Detroit—the Motor City—and surrounding communities. Fifty years ago Detroit had the highest per capita income of any city in the country, as well as the highest rate of home ownership. It now ranks at the bottom in terms of median income per household and has one of the highest poverty rates (34 percent) among large cities.[12] Nearby Flint Michigan, once home to 100,000 auto workers, now has 5,000 workers. Major parts of that city are abandoned and, in recognition of the permanence of this downsizing, the city is contemplating simply bulldozing some parts to the ground.[13]

Interestingly, however jarring and difficult this outcome, it had been tacitly accepted by all parties as a method of adjustment for the industry. The government, the unions, and the companies themselves no longer seemed resistant to the notion of a long, slow decline for the auto industry. The companies seem

resigned to progressively retreating to whatever vehicles remain profitable. The new industry equilibrium would involve fewer plants, workers, and products. In this context the role of policy would be limited to easing that decline in order to permit all parties more time for adjustment. Unemployment insurance, worker retraining, and community assistance would all slow and smooth out the decline, but not seek to fundamentally alter or prevent it.

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This tacit understanding held up until the financial crisis and great recession starting in the fall of 2008. A sales decline of 40 percent took the companies off this glide path, jeopardizing their very existence. The result was a perceived role—indeed, need—for government intervention on an unprecedented scale. And that intervention was not simply intended to restore the companies to that glide path. Rather, as we shall see, it rethought the new equilibrium to which the companies were headed, requiring fundamental changes in management and products as conditions for assistance.

III. The Rationale For and Role of Government

Federal and state governments have long played an important role in the U.S. auto industry. This role routinely has involved tax and other financial benefits, as well as unemployment insurance and similar indirect assistance. With one exception, however, the government has not provided company-specific assistance where private capital markets declined to do so. That exception, of course, was the federal government bailout of Chrysler in 1980. Here we briefly discuss that experience, with particular attention to its stated rationales, and then address the various rationales that have been advanced for the more comprehensive assistance provided to the U.S. auto companies during the great sales collapse.

A. THE CHRYSLER BAILOUT

Almost exactly thirty years ago, Chrysler sought federal government backing for $1.2 billion in loans. This was the culmination of a long slide in Chrysler's sales and financial condition, itself the result of poor products, costly production, and management mistakes over the preceding decade. The debate over granting Chrysler assistance raised now-familiar issues: Many argued for letting the market work its will, asserting that Chrysler's problems were of its own making and so it should bear the consequences. Advocates of assistance alluded to a Congressional Budget Office study that estimated Chrysler's demise would cost 360,000 jobs. The government responded.

The Chrysler Corporation Loan Guarantee Act was passed in December, 1979. It provided for $1.2 billion in federally guaranteed loans—then an unprecedent-

ed amount—at a modest fee of 1 percent per year. In turn, Chrysler had to issue $50 million in new stock, sell off $300 million of assets to strengthen its cash position, secure $2 billion in concessions from workers, banks, local governments, dealers, and suppliers, and agree to a federal oversight board. Other branches of government offered additional breaks, including reduced fuel economy standards and relaxed emission standards for the next model year. In addition, import restrictions on Japanese cars were being negotiated and became binding in 1981.

Chrysler sought to do its part. It secured new loans from its banks (guaranteed by the federal government), concessions from the UAW (deferral of payment to the union pension fund plus wage cuts), and some assistance from its suppliers. It did not, however, fundamentally change its management, UAW contract, or health and pension obligations. And over the course of the following three years a recovery of the overall auto market permitted it to pay back its loans together with $350 million in interest.

As a practical matter, it seems beyond dispute that Chrysler would not have survived its crisis of the 1970s without government intervention. On the other hand, the company failed to do what was necessary to truly become more competitive in the long run, and so could be said simply to have postponed its day of reckoning. Moreover, the success of federal government intervention—by whatever criteria or for whatever length of time—in no way ended the debate over the merits of such intervention. All of those issues have returned in the present context.

B. CURRENT RATIONALES FOR INTERVENTION

In the recent debate over policy intervention for the auto industry, several rationales have been advanced. In this section we analyze four of the primary reasons—supplier effects, warranty issues, stranded assets, and spillovers. In each case we seek to bring some economics to bear on the merits of the argument.

1. Supplier Effects

The argument over supplier effects has been stated as follows: A huge sales decline followed by financial difficulties or bankruptcy for one of the Detroit 3 would result in a substantial decrease in orders and production at its suppliers, thereby jeopardizing the suppliers' financial viability. Then other auto companies dependent on the same suppliers would find their supplies of necessary parts at risk, creating further disruption at the auto manufacturing stage.[14] This degree of supply interdependence implies systemic effects from the demise of a single auto manufacturer. Its demise can bring cripple the operations of its horizontal competitors through supply chain disruptions.[15]

At first glance the economic basis for this argument is not altogether apparent. Suppose that one particular supplier of, say, auto seats is a major supplier to one particular auto manufacturer. It the latter's product sales collapse, the supplier

itself may well face financial jeopardy.[16] The concern is that the supplier's financial difficulty in turn threatens the supply of seats to another auto manufacturer. Several factors, however, are likely to mitigate this concern:

- The second manufacturer could shift its purchases toward the supplier in question in order to ensure adequacy of its business. Of course, the supplier might still not have enough business to remain in operation. If not, the second manufacturer still has options.
- It could increase purchases from other suppliers with whom it already deals. Ordinarily, this strategy might be limited by the other suppliers' ability to expand, but in times of generally weak product sales, this is unlikely to be a binding constraint.
- The manufacturer could enter into contractual arrangements with suppliers from which it had not previously purchased seats. This strategy is likely to take some additional time to implement, however, due to contract, product, and operational issues that would need to be resolved.
- Even if it went bankrupt, the supplier's assets would not likely disappear. Rather, a new enterprise would probably emerge from bankruptcy proceedings and operate as the successor supplier—although this again might take some time.
- Finally, the auto manufacturer in question might provide bridge funding or simply take over the supplier in order to ensure its continued operation. One complication might be that other auto manufacturers would likely cease doing business with the supplier now controlled by their rival, with adverse effects on the supplier's overall business.

These arguments help to explain both the merits of reliance upon markets and the limitations of that approach. Prevention of significant harm to the rival manufacturer would seem to depend on such things as the ability of that manufacturer to shift its purchases among suppliers quickly; its ability to negotiate alternative arrangements without undue delay; the ability of other suppliers to take on the additional orders; and/or the willingness of the manufacturer to intervene directly to support the supplier—none of which is a certainty.

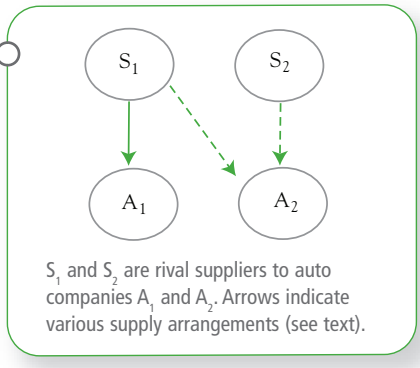
By imposing somewhat greater structure on the issue, we can illustrate a further competitive concern. Suppose there are only two auto companies, A_1 and A_2, each buying seats from two different suppliers, S_1 and S_2. Further, suppose seat manufacturing is subject to scale economies. And to make this example relevant, suppose finally that manufacturer A_1 goes bankrupt. Its sales fall precipitously and so do its purchases of seats.

Two possible cases follow: First, suppose that S_1 and S_2 are direct competitors at contract renewal time, with strong competition between them and price at the competitive level. In Figure 3, if A_1 buys primarily from S_1, collapse of A_1 may

then cause S_1 to collapse, leaving S_2 as the sole (i.e., monopoly) supplier to A2. The effect is to create a vertical monopoly with the usual double marginalization since now S_2 no longer faces competition in its supply to A_2. As a result, final product quantity falls and its price rises.

Figure 3

Supplier effects



S_1 and S_2 are rival suppliers to auto companies A_1 and A_2. Arrows indicate various supply arrangements (see text).

This scenario is analogous to the often-analyzed vertical foreclosure scenario, which presumes a two-by-two vertical arrangement, in which the merger of one supplier with one manufacturer leaves the other manufacturer subject to the now sole supplier of a necessary input.[17]

Secondly, we can relax some of the strong assumptions of the previous case. Suppose that both auto manufacturers engage in dual sourcing; that is, purchase of some supplies from both S_1 and S_2. In this case the supplier that is more dependent on the collapsed auto company A_1 suffers the greater demand decline and faces the greater financial jeopardy. Even if that supplier is more efficient, it could be forced into bankruptcy itself. Alternatively, it could seek a higher price from the manufacturer that is reliant upon it, but the manufacturer cannot grant that higher price without raising its own price in the final product market, disrupting its own operation and that of the final market.

These scenarios illustrate the manner in which competition may be harmed by the elimination of a supplier to the auto companies. Which of these scenarios apply, and to what degree the adverse effects emerge, depend on such things as the degree of product differentiation in the suppliers' products, the degree of substitutability against other products, and the periodicity of contracting for the supply product, as well as the considerations noted with respect to the more general arguments for concern over supplier demise.

2. Warranty Issues

A second argument for policy intervention into the auto industry has been the possible deterrent to consumer purchases from a company that faces some probability of bankruptcy. Clearly when most buyers purchase a vehicle, their deci-

sion involves some expectation about warranty coverage and service. But the warranty that they purchase may become worthless if the company in fact goes into bankruptcy. Recognizing this, some potential buyers may decide not to purchase from that company in the first place.

Moreover, if enough potential customers become concerned and postpone or divert their purchases, they may precipitate the very outcome they fear: Postponed sales may cause the firm to go bankrupt even if confidence in its warranties and collective continued purchase would have sustained it. This self-fulfilling prophecy is similar to the contagion effect in finance, whereby sufficiently widespread concern over an institution's viability can itself cause its non-viability.

From underlying economics, we might expect a potential customer to make his/her purchase decision with due consideration for expected product quality, warranty coverage, and the likely future "all-in" costs of the product. In this respect car warranties are similar to other aftermarket parts and services that are often bundled with the primary product being sold.[18] Examples of bundled future products and services include support for software, copiers and parts, and cameras and dedicated lenses.

RATIONAL BEHAVIOR WOULD IMPLY THAT CONSUMERS MAKE "LIFE-CYCLE" PURCHASE DECISIONS, PROPERLY ACCOUNTING FOR THE EXPECTED ON-GOING COSTS OF THE PRODUCT IN THEIR INITIAL PURCHASE DECISIONS.

Rational behavior would imply that consumers make "life-cycle" purchase decisions, properly accounting for the expected on-going costs of the product in their initial purchase decisions. A warranty that is bundled with the product is intended to provide insurance with respect to those possible future costs and hence strengthen current demand. If a company's viability is in question, that might significantly affect those expectations, devalue its warranty, and jeopardize its current product sales. This very argument had been made in the Chrysler bailout, and has recently been made again as a reason for policy intervention in the current U.S. auto market.

What is unclear in practice is whether consumers actually make decisions with such attention to future costs. Considerable evidence casts doubt on this proposition. Numerous studies indicate that, in deciding between more-efficient but higher purchase price appliances (e.g., refrigerators) vs. cheaper and less-efficient versions, consumers routinely opt for the latter at differentials that imply personal discount rates ranging from 25 percent to 130 percent, and sometimes as much as 300 percent.[19] This discounting of the future has been formalized into models of hyperbolic discounting, in contrast to the exponential discounting that is claimed to be rational and consistent.[20]

Somewhat oddly, if consumers in fact do not act "rationally" in accounting for future costs, warranties matter less in the purchase decision, and any adverse effects on an auto company in financial trouble may not be so great. There is little systematic evidence on this question.[21] Anecdotally, during the first six months of 2009 when both GM and Chrysler were in bankruptcy, Ford's sales were modestly better (or less bad) than those of its rivals, leading some observers to conclude that Ford was benefitting from customer concerns about its rivals' financial difficulties.

3. Stranded Assets

Economic models and policy prescriptions are commonly of a partial-equilibrium nature; that is, they address problems of individual markets rather than of a systemic nature. The implication of this approach is that other agents and markets are operating normally and stand ready to absorb and adjust to disruptions in the market in question. The failing firm defense to a merger, for example, has been created to prevent the disappearance of assets from production altogether.[22] Similarly, worker retraining programs, which are intended to facilitate worker adjustment to layoffs in a declining sector, presume other sectors have employment opportunities.

These presumptions may not hold, especially in an economic environment such as that in the U.S. in 2008-09 where overall market demand for autos has collapsed and employment opportunities have evaporated. Under these circumstances, physical capital that is no longer needed or layoffs of human resources may not have alternative uses or employment opportunities, at least not of a comparable nature or for a long time. In such cases the unused assets will be either lost or devalued. Indeed, this has long been a problem with worker retraining programs, which often result in jobs that do not fully use the skills of the unemployed workers or pay wages comparable to those from lost jobs.[23]

The high wages of U.S. auto workers reflect higher skills (i.e., greater human capital) relative to other manufacturing jobs, as well other considerations such as the monopoly wage effect, a union wage differential, and pure historical considerations. While these make it difficult to disentangle the skill differential, it is clear that alternative employment opportunities for laid off auto workers will involve considerable less skilled jobs and correspondingly lower wages. The skills embodied in those workers will simply be lost ("stranded").

A similar scenario applies to physical capital dedicated to auto production by the Detroit 3. Those machines and buildings, primarily located in the upper Midwest, often of considerable age and no longer state of the art, nonetheless, represent assets with some remaining productive capability. Yet these too will simply be lost resources to society, since there are almost surely no buyers interested in acquiring and operating such capital.

4. Spillover Effects

The final issue concerns spillover effects onto other sectors and institutions. We have already noted the serious effects that the collapse of auto sales have had on dealers, suppliers, and communities. To that might be added at least the following spillovers from the demise of an auto manufacturer:

- State and local finance. Michigan has the highest concentration of auto-related employment of any state, and the correspondingly lowest rate of job growth in the past decade. Bankruptcy would exacerbate the state's financial problems, at least in the short and medium runs.

- State unemployment insurance funds might be substantially depleted if any of the Detroit 3 were to suffer permanent closure. Even sustained by federal stimulus money, the potential loss of a hundred thousand jobs exceeds the ability of traditional unemployment plans. Health insurance for current and past employees would be jeopardized, with spillovers onto state and local health insurance plans or, worse yet, deterioration of the health of such individuals or major increases in uncompensated care at hospitals.

- The federal pension benefit guarantee fund would be overwhelmed by a huge numbers of individuals in the plans of the Detroit 3, if those plans collapsed and were taken over by the Pension Benefit Guaranty Corporation ("PBGC"). GM's plan covers 673,000 workers, Ford's 332,000, and Chrysler's 255,000.[24] Takeover of any of these plans by the PBGC would result in reduced benefits to these workers, reduced premium payments to the PBGC and, likely, a domino effect as the other companies also handed off their obligations.

- Banks and other creditors of the company, who would be left with little or nothing if any of the major Detroit companies ceased operations.

WHETHER AND TO WHAT EXTENT SUCH "EXTERNALITIES" DESERVE A RESPONSE FROM PUBLIC POLICY IS AN OPEN QUESTION.

Not all of these effects involve true economic externalities. At most, some—like pension guarantees—are really financial externalities; the kind of spillover costs that modern financial institutions by their very nature often create. Others, such as the effects on banks, may simply be effects that such agents should have foreseen, although their failure to do so will have wider repercussions, e.g., such banks will not be able to provide credit, thereby harming other businesses who are not parties to the problem at hand. Whether and to what extent such "externalities" deserve a response from public policy is an open question.

IV. Current Policy and Issues

Federal government assistance for the Detroit 3 began with some interim steps taken in December, 2008, and then far more substantial measures in the first half of 2009. Here we review these two phases of policy, and then discuss some of the on-going and future issues raised by such intervention.

A. THE AUTOMOTIVE INDUSTRY FINANCING AND RESTRUCTURING ACT (2008)

As GM, Ford, and Chrysler slid toward financial crisis during the last quarter of 2008, representatives of the companies testified before Congress that they needed a total of $34 billion in loans to survive the recession. The Bush administration sought to prevent the companies' immediate bankruptcy, but wished to avoid deep intervention that would put their mark on the industry. The result was the Auto Industry Financing and Restructuring Act, which was introduced in December 2008 and provided $14 billion in short-term bridge loans while the companies and the new administration worked out a more permanent plan. The interest rate of these loans would be 5 percent for the first five years and 9 percent thereafter. As a condition of participation, each firm would have to submit a plan for "viability" that required approval by March 31 in order to secure further aid.[25]

Both GM and Chrysler entered the program, obtaining the initial loans that ensured their short-term survival ($9.4 billion to GM, $4 billion for Chrysler). Although Ford was experiencing similar sales declines and losses on operations, it had made a series of financial moves in 2006 that fortuitously provided it with $25 billion in cash and lines of credit. This was far more than its rivals and sufficient to allow Ford to cover its own losses and remain fully independent. This choice would set up an important dichotomy in the U.S. auto sector, with two companies with deep government involvement competing against another that remained private throughout.

As events unfolded in early 2009, both GM's and Chrysler's sales declines and losses exceeded expectations. GM's January sales were 49 percent below the same month in 2008, while Chrysler sales fell 55 percent.[26] These results underscored the need for further interim financing, and indeed in February 2009 GM requested an additional $16.6 billion, Chrysler $5 billion. Both received substantial additional funds prior to the March 31 deadline as the more permanent policy took shape.

B. THE AUTO INDUSTRY FINANCING PROGRAM (2009)

Both GM and Chrysler submitted the necessary restructuring plans in February. The assessments of their adequacy by the new administration were made public on March 30. In each case it was determined that while the company had taken some necessary actions, it ultimately had "not satisfied the terms of the loan

agreement."[27] GM's plan was said to be "in its current form, ...not viable" and required "substantial restructuring." Chrysler's plan was "not likely to lead to viability on a standalone basis," so that the company "must seek a partner in order to achieve the scale and other important attributes it needs to be successful."[28] Each company was provided a modest amount of additional interim financing.

HAVING CROSSED THIS THRESHOLD OF INVOLVEMENT, THE GOVERNMENT PROCEEDED TO TAKE CHARGE OF THE FATES OF THESE TWO COMPANIES.

Having crossed this threshold of involvement, the government proceeded to take charge of the fates of these two companies. It established criteria for further assistance and warned that bankruptcy or acquisition might be required for viability. And it announced several new initiatives to provide assistance to the industry. These were targeted at suppliers, customer warranties, consumer credit, and communities. We discuss these in turn.

1. The Supplier Support Program

The Supplier Support Program ("Program") provides guaranteed payments to GM's and Chrysler's "Tier 1" suppliers, essentially their largest suppliers—companies such as TRW, Lear, Visteon, and American Axle. Under the Program suppliers can sell their eligible receivables to a special purpose facility funded by each automaker and operated by the Treasury Department. This facility ensures payment to suppliers, thereby protecting their financial health and ensuring continued delivery of crucial parts and supplies. The program is funded by fees charged to the car companies (up to 5 percent) and a supplier fee (2 or 3 percent, depending on when they want payment). Total government backing was set at $5 billion.

2. Warranty Commitment Program

Concern over the possible sales-deterrent effect of bankruptcy prompted the establishment of the Warranty Commitment Program. Under this program GM and Chrysler contributed cash and the Treasury Department provided a loan to a facility that would pay for warranty repairs on new vehicles sold during the company's restructuring period. If GM or Chrysler were to go into bankruptcy, a program administrator would identify a qualified provider of warranty services for covered vehicles, with the provider paid out of the fund. The auto companies would contribute 15 percent of the expected warranty cost on each vehicle, and the U.S. Treasury 110 percent. The Warranty Commitment Program was projected to cost the government $1.1 billion. It was terminated in June 2009 as the companies emerged from bankruptcy. It was never used by GM—whether Chrysler did so is unclear—and the entirety of government funds, together with interest, was repaid to the Treasury.

3. American Recovery and Reinvestment Act (2009)

The American Recovery and Reinvestment Act of 2009 ("ARRA") was a further policy response to the contraction of the U.S. auto industry, this focusing on the resulting job losses and community effects. A Director of Auto Recovery was designated as the point person under the Act, charged with coordinating government efforts, ensuring access to ARRA resources, deploying teams to communities facing plant closures, and attracting new industries to affected communities, among other things. These policy actions can be viewed as attempting to slow and ease the transition process as workers and communities, especially in the Midwest, were being forced to move away from their auto-oriented economic base.

C. MATCHING ISSUES TO POLICIES

There is a noteworthy correspondence between the four issues listed above as possibly justifying government intervention in the auto sector and the actual policies that have been implemented:

- Concern over supplier solvency has been translated into a government program to separate the fate of suppliers from the fate of the auto companies to whom they sell. This policy has gone far toward ensuring the viability of the supply sector and avoiding the kind of ripple effects some have been concerned about.

- The fear that consumers might avoid purchasing from a financially-troubled company due to uncertainty about its warranty was addressed by a program separating the security of the warranty from confidence in the manufacturer. While it was never clear how important this concern was in actual practice, nor how effective government backing for a warranty would be, the Warranty Commitment Program served to minimize, if not eliminate, this issue.

- The plight of auto workers and communities that might be stranded by economic dislocation was the focus of the ARRA. While the program may have offered some incremental assistance, the problems of workers and communities seem distinctly non-marginal and largely beyond the scope of this program.

- Enhanced unemployment insurance, extended COBRA provisions, stimulus money to the states, and direct assistance to banks and other lenders all represent policies that, while not specific to the auto sector, served to address various adverse spillovers associated with the sudden downturn in the industry.

With the exception of this last category, the costs of the various programs directed at the U.S. auto sector are summarized in Table 1.

Table 1

Cost of Assistance

Category of Assistance	Government Budgeted Costs
Loans to Auto Makers	$22.9 Billion
Assistance to Finance Companies	$7.4
Supplier Support Program	$5.0
Warranty Commitment Program	$1.1
Total	$36.4 Billion

V. Detroit—Plus Washington, Turin, Ottawa, and the UAW

At the outset of this essay, the question of the role of proper government in private industry was raised. We return to that question, now, but with a focus on the actual intervention by the federal government in Chrysler and, more especially, GM. In addition, we are interested in the important question of competition in an industry now consisting of a majority publicly-owned company in competition with privately-owned rivals. We address these in turn.

A. GOVERNMENT INTERVENTION IN CHRYSLER AND GM

In accepting federal bailout money, both Chrysler and GM subjected themselves to wide-ranging government oversight and influence. In the case of Chrysler the fundamental principle for reorganization was the view that it needed a merger partner to survive. In preparation, the government sought an agreement among Chrysler's various constituencies for a fundamentally changed company and for a division of the costs of such reorganization. When bondholders balked at the proposed terms, Chrysler was put into bankruptcy. Bankruptcy was a process many feared would take years and cause the destruction of the company anyway. In fact Chrysler was in bankruptcy court an astonishingly brief period—exactly 36 days.

What emerged was a transformed company—55 percent owned by the UAW (through its retirement fund, and nonvoting), 35 percent by Fiat, 8 percent by the U.S. government, and 2 percent by the Canadian government. Fiat ultimately could take a controlling stake in the new Chrysler. Substantial ownership by another auto company was crucial to this deal, as the U.S. government sought essentially to hand Chrysler over to a company that would manage its remaining valuable assets and preserve as many U.S. jobs as possible, while proceeding with closure of numerous dealerships and plants.

By making clear that it was prepared to force auto companies into bankruptcy, the government's hand was strengthened in dealing with GM. As was the case of Chrysler, GM entered Chapter 11 and also emerged remarkably quickly—in 40

days. But the plan for GM was quite different than that for Chrysler: the cutting of 34 percent of its already-reduced work force; closure of 37 percent of its dealerships and 13 out of 47 plants; dropping half of its brands; substantial wage concessions; revision of health and retirement benefits; replacement of senior management; and a substantially new board of directors. Perhaps most fundamentally and significantly, in trade for a considerable additional cash infusion, the U.S. government took a 60 percent ownership interest in the new GM. An additional 17.5 percent ownership stake is held by the UAW retirement fund (as in the case of Chrysler, nonvoting), with the remainder divided between the Canadian government and bondholders. The cast-off assets of GM were transferred to a new entity, Motors Liquidation, where they were indeed to be liquidated.

FOR GM, AS WELL AS FOR THE GOVERNMENT, THESE ARE ROLES THAT WOULD HAVE BEEN INCONCEIVABLE AT ANY TIME IN THE PAST.

This plan transforms GM—still the major player in the U.S. auto industry—into a majority publicly-owned company. For GM, as well as for the government, these are roles that would have been inconceivable at any time in the past. They raise, however, some issues with respect to public ownership that are familiar. We address these next.

B. PUBLIC OWNERSHIP AND COMPETITION

Economic theory stresses several possible rationales for public ownership. One line of reasoning notes the possible informational advantages of ownership over regulation as a method of social control.[29] A second argument points to the possible advantages of public ownership in providing services with important noncontractible attributes.[30] There is a significant body of empirical evidence that supports the proposition that public ownership may, under certain conditions, indeed result in superior performance.[31] On the other hand, conventional free-market economics stresses the potential for public ownership to be unresponsive to consumer preferences, inefficient in production, and technologically stagnant. There is considerable evidence in support of that view as well.[32]

Whatever the merits of this last argument, public ownership of GM is not explained by these considerations: It was very much the product of necessity rather than a government plan for deep involvement in the auto industry. Moreover, the government has stated its firm intention to relinquish its ownership stake as soon as practical, although the relevant time horizon would appear to be a few years. Interestingly, there appears to be no economic theory directly relevant to this case of an enterprise subject to public ownership under duress but which will be returned to the private sector. As a result, we must rely upon theory and insights from the case of more permanent and purposeful public ownership in order to frame our discussion here.

There would appear to be two distinct categories of issues that might be raised about public ownership of GM. The first concerns decisions made by and for the

company and, specifically, how they might differ because of its public owners. The second involves the unusual nature of competition between a publicly-owned auto company and other, privately-owned firms. We shall address each of these issues in turn.[33]

1. Decisions Under Public Ownership

As noted above, standard concerns about publicly-owned enterprises are that they are inefficient, out of touch with consumer preferences, and technologically stagnant. Whatever the evidence may be for these concerns in general, none obviously applies to the case of GM. That company's record with respect to costs, quality, consumer responsiveness, and technology are well-known, and that record is distinctly and indisputably inferior. Indeed, it was only government pressure in the context of GM's bankruptcy filing that accomplished in 40 days what that company had not been willing or able to do in the preceding thirty years; namely, to bring its costs substantially under control.

With respect to products and technology, GM's record in the private sector has already been similarly poor. Many of its core products have suffered from inferior design and have been slighted in favor of large low-mileage vehicles. Its reliance upon the latter left GM unprepared for periodic gas price spikes or economic downturns. Moreover, GM has pursued alternative technologies slowly and grudgingly—a strategy that has also left it well behind marketplace changes.

In all these respects the privately-owned GM deserves no praise or credit. Still, there are indications of what other pitfalls may await public ownership. One example concerns the oft-stated interest by the government in ensuring that GM (and indeed, the other companies) transition away from reliance on large vehicles to smaller, fuel-efficient ones. This may be desirable on many grounds, but this preference would seem inconsistent with another government policy—long-standing support for cheap gas. Moreover, it runs the risk of inducing GM and other companies into production of vehicles for which there is insufficient demand (at least after the recession passes).[34]

A second example also underscores concern about meddling with the business decisions of a publicly-owned enterprise. Legislation passed by the House of Representatives forbids termination of GM's and Chrysler's dealers in bankruptcy, requiring instead that any proposed terminations be handled via state dealer laws that, in practice, serve as nearly ironclad obstacles to termination.[35] To the extent that public ownership of GM results in the imposition of product preferences or the creation of impediments to change, such actions would represent a cautionary sign about such ownership. The administration seems cognizant of these hazards, and indeed has put a number of safeguards in place to minimize any interference.[36] Nonetheless, such dangers remain real.

2. Public-Private Competition

The economics literature addresses a further set of questions relevant to the GM case; namely, the nature of competition between a publicly-owned and a privately-owned company in the same market. A majority government-owned GM will be in direct competition with a fully private Ford, a largely private Chrysler, and various other auto companies, mostly privately owned.[37] A common concern in such a mixed setting is that since the publicly-owned firm does not have to maximize profit or even break even, it may set prices lower than those that would be decided by a privately-owned company. Such "unfair competition" seems unlikely here, however, since the institutions for GM's pricing decisions are at some distance from the apparatus of government ownership, and in any case the government has no obvious interest in having GM forgo profits by pricing low. Rather, its interests would seem to be to establish GM as a viable entity so that its stock sale yields revenue to the government.

THERE IS A LITTLE THEORETICAL WORK AND ONLY A MODEST AMOUNT OF EMPIRICAL EVIDENCE CONCERNING THE OUTCOME OF PUBLIC-PRIVATE COMPETITION.

There is a little theoretical work and only a modest amount of empirical evidence concerning the outcome of public-private competition.[38] A study of two Australian airlines, one public and the other private, concluded that the latter had superior operating efficiency,[39] while a study of Canadian railroads found no evidence of inferior performance by the publicly owned competitor.[40] This latter study concluded that competition forced comparable efficiency regardless of ownership—a conclusion shared by a number of subsequent studies.

VI. Conclusion

The difficulties faced by the U.S. auto industry in 2008 were in no small measure of its own making. Longstanding problems were exposed and exacerbated by the enormous decline in demand for autos of all sorts, but especially those produced by GM, Ford, and Chrysler. Thus, while the auto industries in other countries suffered as well, their sales declines were generally more modest and their recovery did not necessarily involve the massive restructuring required just for survival of the Detroit 3. That restructuring has now passed its first milestone as GM and Chrysler emerge from bankruptcy—each with a new majority owner, new managers, a new wage contract, new products, and a mission to succeed in a transformed auto market.

But what of the process by which this was achieved? Should the government have been so heavily involved, first in keeping two of the Detroit 3 afloat, and then by imposing its model on the companies? In fact, are these companies simply too big to fail, for all intents and purposes requiring government intervention when they are at risk of collapse? Or are there other principled reasons for

intervention? Some tentative conclusions about aspects of this question may be ventured.

First, it would seem evident that in modern industrialized economies there are companies whose decisions and operations are strongly affected with the public interest. Assisting such companies when under financial duress raises the widely cited concerns over moral hazard but those concerns do not refute the basic proposition.

Second, this concern arises for a firm (or industry) with some combination of size and interdependence with other sectors of the economy. Even a sizeable free-standing industry (if such can be imagined) might not bring calls for intervention , although a more modest one with an expansive network of suppliers and distributors and with dedicated production facilities and thus limited flexibility is a more likely candidate for intervention.

Third, there are valid economic arguments for government intervention in industries under duress. This review has covered some that are production-related, whereas others are more financial in nature. Particularly the latter deserve careful examination, since the financial institutions of a modern economy would seem to implicate a vast array of agents—more than perhaps intended.

THAT THE ROOT PROBLEMS WERE IN SO MANY CASES THE FAULT OF THE INDUSTRY ITSELF IS NOT IRRELEVANT BUT IT ALSO WOULD SEEM NOT APPROPRIATELY USED AS A TRUMP CARD AGAINST INTERVENTION.

As for the U.S. auto industry, its size and interdependence with other sectors would seem to establish a prima facie case for intervention under the extreme circumstances of the past year. That the root problems were in so many cases the fault of the industry itself is not irrelevant but it also would seem not appropriately used as a trump card against intervention. The challenge will be to ensure that the companies adopt different operating and management strategies so that such intervention is not again required for the foreseeable future. ◀

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1 This paper is an outgrowth of presentations at the 2009 International Industrial Organization Conference, Boston, and the International Labor Organization Roundtable on Auto Sector Issues, Geneva. Helpful comments from Bruce Lyons and session participants, as well as excellent research assistance by Kathy Downey, are gratefully acknowledged.

2 *See Pain in the Auto Industry Extends Beyond Detroit*, WALL STREET J. (November 21, 2008). For further discussion of the longstanding problems of the U.S. auto industry, *see* Kwoka, *Automobiles: Overtaking an Oligopoly*, INDUSTRY STUDIES, 3rd ed.

3 *U.S. Auto Makers Gain a Bit on Japan's Quality*, WALL STREET J. (November 10, 2006).

4 *In the Chevy Malibu, GM's Pride and Its Challenge*, WASHINGTON POST (July 8, 2009). The importance of reputation effects was demonstrated much earlier but quite dramatically with the GM-Toyota joint venture, which began production of identical cars for the two companies in 1982. Toyota's version—

the Corolla—sold well, while GM's identical vehicle—badged as the Chevy Nova—languished on dealers' lots.

5 *Harbour Report Says Detroit 3 More Productive But Still Losing Money Per Vehicle*, The Auto Channel (June 5, 2008).

6 GM's total health care expenditures reached $5.6 billion in 2008. These totals are sometimes converted into an hourly wage differential, but the reasoning behind that characterization is flawed. *See The Tragedy of General Motors*, Fortune (February 8, 2006); *also*, *$73 an Hour: Adding It Up*, New York Times (December 10, 2008).

7 Between 1997 and 2008, GM invested $310 billion and Ford $155 billion. GM's total depreciation on physical plant was $128 billion, implying a net $182 billion in capital loss. Ford's was smaller—on the order of $8 billion. In each case the companies ended the ten-year period with negligible market value. The invested capital was essentially lost. David Yermack, *Just Say No to Detroit*, Wall Street J. (November 5, 2008).

8 There were apparently some limits to the board's tolerance. When its CEO refused to acknowledge the possibility of bankruptcy, GM's board publicly broke with that absurd view.

9 *Tragedy*, *supra*, note 6.

10 *See Hoping Not to Repeat The Mistakes of the Past*, New York Times (November 22, 2008).

11 As we shall see, this view does not address the worker, community, and social effects of its failures.

12 *Detroit Urged to "Stand Up" Against Poverty*, Michigan Chronicle (August 14, 2009).

13 *An Effort to Save Flint, by Shrinking It*, New York Times (April 21, 2009).

14 Underscoring the degree of acceptance of this argument, even Ford and Toyota—not in financial jeopardy—argued for assistance to GM in order to protect its own suppliers. *See*, *for example*, *The Ripple Effect of a Potential GM Bankruptcy*, Time (November 28, 2008).

15 Ford's CEO has stated that "should one of the other domestic companies declare bankruptcy, the effect on Ford's production operations would be felt within days—if not hours....Ford plants would not be able to produce vehicles." Alan Mulally, testimony before the Senate Banking Committee, November 18, 2008. A senior Toyota executive seconded this concern: "We share many of the same suppliers, so if one of our suppliers has difficulties with Chrysler, GM, or Ford, there's a good chance they are going to have difficulty for us....We don't want anyone going bankrupt." *Toyota: "We Really Don't Want Anyone to Go Bankrupt,"* The Truth About Cars (August 13, 2008).

16 This much is clearly correct. As Chrysler went into bankruptcy, for example, it owed more than $25 million to each of four different suppliers and lesser amounts to many more. It stated that "without a clear timeline for when [its bankruptcy] situation will end and production will resume, [there will be] massive suppliers bankruptcies that will stop Chrysler from resuming production." *Chrysler's Bankruptcy Staggers Affiliates*, Wall Street J. (May 2, 2009). An even clearer example of dependency between supplier and manufacturer is the case of Delphi, itself spun off from GM in 1999. While huge in its own right, Delphi's fate has remained inextricably linked with that of its former parent.

17 The difference with the present case, of course, is that the precipitating event is the collapse of a firm at each stage, diminishing competition and raising prices in the remaining supply chain. Some of the adverse effects may be moderated if the remaining supplier and manufacturer also merge, since that will eliminate the double marginalization but not the monopoly effect that derives from the single remaining (and integrated) firm.

18 Third-party warranty coverage is sometimes available, but it tends to be both difficult and more expensive to purchase.

19 Richard Thaler, The Winner's Curse, Ch. 8 (1992).

20 George Loewenstein et al, Time and Decision, (2003).

21 A *Consumer Reports* survey found that 78 percent of respondents said they were "unlikely" (64 percent said they were "very unlikely") to buy a new car from a bankrupt auto company. ConsumerReports.org. (March 30, 2009).

22 Kwoka & Warren-Boulton, *Efficiencies, Failing Firms, and Alternatives to Merger: A Policy Synthesis*, Antitrust Bull. (Summer 1986).

23 A recent study found that earnings of workers laid off in the 1982 recession remained 15-20 percent below their prior levels essentially indefinitely. Von Wachter, Song, & Manchester, *Long-term Earnings Loss Due to Job Separation Mass-Layoffs During the 1982 Recession*, NBER Working Paper (April 2009). Evidence regarding worker retraining has long been discouraging. *See*, *for example*, *U.S. Study Says Job Retraining Is Not Effective*, New York Times (October 15, 1993).

24 *Plight of Carmakers Could Upset All Pension Plans*, New York Times (April 24, 2009).

25 Other provisions of the Act involve restrictions on executive bonuses and golden parachutes, a requirement for bondholders to exchange bonds for stock, union wage concessions, and elimination of the "jobs bank" that provided full compensation for some laid-off workers, and oversight by a "car czar." At the Bush administration's insistence, nearly half of the loan amount was initially to come from a fund set aside for production of plug-in hybrids. The remainder was diverted from the Troubled Asset Relief Program ("TARP").

26 Ford's sales were 40 percent lower, while Japanese manufacturers posted slightly smaller declines.

27 "GM February 17 Plan: Viability Determination," U.S. Treasury Department, March 30, 2009.

28 "Chrysler February 17 Plan: Viability Determination," U.S. Treasury Department, March 30, 2009.

29 Shapiro & Willig, *Economic Rationales for the Scope of Privatization*, in The Political Economy of Public Sector Reform and Privatization, Suleiman and Waterbury, eds. (1990).

30 Hart, Schleifer, & Vishney, *The Proper Scope of Government: Theory and an Application to Prisons*, Q. J. Econ. (1997).

31 *See*, *for example*, Kwoka, *"The Comparative Advantage of Public Ownership: Evidence from U.S. Electric Utilities,"* Canadian J. Econ. (2005).

32 Megginson & Netter, *From State to Market: A Survey of Empirical Studies on Privatization*, J. Econ. Lit. (2001).

33 We do not address questions arising from worker ownership, since the UAW stake in GM (and in Chrysler) is non-voting. To the extent that enterprise decisions are nonetheless informally influenced by union presence, that would introduce a further complexity (as would the fact of union ownership, rather than direct employee ownership).

34 *See Industry's Big Hope for Small Car Fades*, Wall Street Journal (March 23, 2009).

35 *House Wants Dealerships Reinstated*, Wall Street Journal (July 17, 2009).

36 *Obama May Find It Tough Not to Meddle in GM Affairs*, Reuters (June 1, 2009).

37 Ford itself has issued a public statement asking for a level playing field against a government-owned GM. Ford Statement on GM Bankruptcy Filing (June 1, 2009).

38 Theoretical work by Cremer & Cremer, for example, focuses on competition between a private profit-making enterprise and an employee-owned competitor. *See* Cremer & Cremer *Duopoly with Employee-Controlled and Profit-Maximizing Firms: Bertrand vs. Cournot Competition*, J. of Comp. Econ. (1992).

39 Davies, *Property Rights and Economic Efficiency–The Australian Airlines Revisited*, J. L. Econ. (1977).

40 Caves and Christensen, *The Relative Efficiency of Public and Private Firms in a Competitive Environment: The Case of Canadian Railroads*, J. Pol. Econ. (1980).