

A Political Economics of Security, Stability, and Peace

How to Use Competition Policy to Enhance Economic Resiliency and Strengthen U.S. Economic Leadership

**Testimony before the Senate Committee on the Judiciary
Subcommittee on Competition Policy, Antitrust, and Consumer Rights**

***Hearing on:*
Strengthening U.S. Economic Leadership:
The Role of Competition in Enhancing Economic Resiliency**

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INTRODUCTION:

Extreme concentration of industrial and computing capacity poses a wide variety of grave threats to the United States and the American people. These include:

- Cascading catastrophic collapse of essential production and distribution systems.
- Sudden catastrophic failure of vital communications and information systems.
- Political coercion of the United States by strategic rivals able to threaten the cutoff of vital goods and services.
- Persistent systemic inflation that harms the economic wellbeing of the American people.
- Long-term systemic shortages of vital goods, including drugs.
- Inability to produce weapons, munitions, and launch vehicles at a reasonable cost and in a timely manner.
- Unsafe products and services, as we have seen with airliners, baby formula, and packaged food.
- The slowing or even paralysis of technological innovation.

I know this issue well. I first began to study the structure of supply chains, as a business journalist, in 1994. I first focused on the dangers posed by extreme chokepointing of capacity in 1999 and published a mainstream article on the problem in 2002. A decade later in 2009, I began to study the structure, behavior, and systemic effects of dominant online platforms.

The concentration we see today – in terms both of degree and character - is unprecedented in history. From 1776 to 1981, U.S. policy aimed to protect the liberty of the individual, democratic institutions, the security and independence of the nation, and technological advance. Americans did so by setting bright-line rules that limited concentrations of capacity and control and strictly ensured the neutrality of powerful sellers of services and industrial goods. One result of this policy was a wide distribution of capacity that ensured the physical resiliency of key systems.

But in the 1980s and 1990s, both Democratic and Republican officials embraced an overtly pro-monopoly ideology. They said concentration of control and capacity was more “efficient.” They imposed this vision on antitrust, trade, banking, defense, and communications.

Overall, the results have proven disastrous for liberty, democracy, innovation, and the prosperity of the American people. Specific to today’s hearing, these policies also destroyed the resiliency and stability of many vital systems, in ways that today expose the American people to existential economic and political threats.

The good news is that the Administration and Congress have taken dramatic steps to address the crisis. This includes President Biden’s restoration of America’s traditional competition policies, as well as his executive order in July 2021 that every department and agency target industrial and digital chokepoints. It includes Congress’s brave and visionary votes to use public funds to promote private capitalistic competition in the semiconductor, automobile, and next-generation energy industries. And it includes the administration’s far-reaching effort to use trade policy to protect the skills and wellbeing of America’s working people while also bringing the world’s democracies into closer cooperation to fight the industrial and security threats posed by Russia and China.

But the administration and Congress must do much more, and swiftly. The United States still lacks any real plan to break dangerous chokepoints in the chemical and pharmaceutical industries, in data storage and computing capacities, in electronics components and materials, in the building of ships and aircraft, and many other key sectors.

To this end, the Open Market Institute recommends the following immediate actions:

- Establish a hierarchy of threats, to strategically guide action and investment.
- Continue to use public investment to address the most immediate threats.
- Work with G7 allies and other close industrial partners to fully map both threats and strengths.
- Ensure the US and all our NATO allies agree on how to address China’s chokepoint power. This means dealing with Germany’s reckless policies.
- Target concentrations of capacity and control in Cloud storage, computing services, and AI, including by abandoning falsifying policy frameworks such as “trade in data.”

One of the most important actions Congress can take today is to require the antitrust agencies to acknowledge the role that competition law and enforcement play in *engineering* how complex systems are physically structured. And consequently, to finish the job of establishing true bright-line rules designed to all but automatically prevent dangerous concentrations of industrial and computing capacity, thereby ensuring the resiliency and stability of all essential production and communications systems.

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I) BUILT FOR RESILIENCE - How America's Traditional Antimonopoly Policies Ensured the Safety and Stability of Domestic and International Industrial Structures.

The first step in understanding the nature and source of today's supply chain crises is to recognize that the structures of the production systems on which America relies today differ radically from those that served our nation in the past.

From the Founding of the nation right until the last years of the 20th century, most production of products and components was widely distributed in multiple locations around the world.

First, production was compartmentalized within the borders of the nation-state. In the case of products such as automobiles, electronics, metals, and chemicals, for instance, every industrial nation largely produced what it consumed, and then competed with other industrial nations to sell finished goods to smaller nations, and to less industrialized nations.

Second, within most industrialized nations, manufacture of products such as automobiles, electronics, metals, and chemicals was separated into multiple vertically integrated corporations. In the United States, for instance, antimonopoly practice aimed to ensure that at least four corporations competed to make any particular product. Much the same was true of Japan and of Europe as a whole.

Within corporations, production was then often further compartmentalized by the distribution of the capacity to manufacture of key components and end products among two or more different factories.

As a result, for most of the 20th century, when something went wrong in one factory or one industrial region somewhere in the world, the overall effects of the disruption were limited – at most – to only one company within one country. As important, the wide distribution of capacity limited the ability of any one nation to coerce another nation through threats to cut off the supply of any vital good. Further, the widespread distribution of manufacturing capacity and skills that existed then meant that when one company experienced a major supply disruption, it could turn to its competitors for help in keeping its own assembly lines moving and in repairing whatever damage it had suffered.

This structure was no accident. On the contrary it was the direct result of highly intentional and public political decisions that date back to the founding of the United States.

Three decisions were key to establishing the foundations of the industrial system that served Americans so well over the first 200 years of our nation's history.

First was never to depend on any single foreign nation for all or even most of any good essential to the security of the United States or of individual Americans. We see this in the justifications for rebellion against the British East India Corporation's trading monopoly, a main goal of the Declaration of Independence. We see these same ideas made even more clear in the War of 1812, when the American people fought a second war to ensure their complete independence from the British imperial trading system of the 19th century.

Second was never to accept any similar concentration of control over vital production within the U.S. domestic economy. Here again, a prime goal was to ensure the security of the nation by breaking all dangerous chokepoints on vital industrial and transportation capacities. But we also see a second equally important goal – which is the protection of democracy and individual liberty from all concentrations of industrial and economic power and control.

Third was to impose non-discrimination rules on any corporation that succeeded in capturing a dominant position over the provision of a vital product, material, or service. Americans applied such rules to all essential communications platforms and networks, to all essential transportation systems including those that served only particular localities and regions, and to both large manufacturers and the retailers and trading companies that distributed and sold their products.

Domestically, to achieve these aims, the American people established the world's first modern, integrated antimonopoly regime to structure markets, control the power of corporations, maintain a universal distribution of property and education, and ensure that competition within society was not destructive in nature but helped us to achieve fundamental social, political, and economic goals. We see this dramatically in the design of the Constitution itself, the greatest antimonopoly document in human history. We also see this clearly in the extremely close public control 19th century America held over all corporations and all financial and banking activities within the borders of our nation.

Although this system of antimonopoly control broke down late in the 19th century, by early in the 20th century, the American people were well on their way to updating and adapting their traditional principles and goals for the industrial age. The administrations of Woodrow Wilson, Franklin Roosevelt, and Dwight Eisenhower played especially important roles in updating U.S. antimonopoly law and enforcement, as did key leaders from both parties in Congress.

Through the heart of the 20th century, the American people fully understood that our antimonopoly political and legal regime was comprised of far more than our antitrust laws. Just as was true in the first century of the Republic, the American people understood that regulation of trade, communications, corporate governance, patent rights, banking and finance, commodities markets, and the production and distribution of energy must all be designed to reinforce one another in ways that empower us to achieve our aims. Practically this meant

establishing various forms of antimonopoly regulatory and enforcement authority in almost every department and agency of government – including the departments of the Treasury, Transportation, and Agriculture, and the Federal Reserve.

Of great importance as well, the American people established clear and simple “bright-line” rules to govern the structure of markets and the structure and behavior of all corporations. A prime goal in doing so was to ensure that no enterprise or financial institution was ever “too big to fail” and that every entrepreneur enjoyed full freedom to fail in their efforts, without posing any sort of threat to any larger system.

One result of this approach to structuring markets and corporations was a great degree of competition over pricing and the quality of products and services, which helped both to drive down costs and to drive technological innovation forward. A second result was a natural robustness and resiliency within all the industrial, financial, transportation, and energy systems structured along these lines.

This robustness and resiliency were not simply a happy byproduct of some abstract belief in the value of competition. On the contrary, just as was true in the founding era of the nation, this industrial robustness and resiliency was very much an intended outcome of how Congress and the Executive designed these systems in the 20th century. In part, this is because a key lesson that emerged from both world wars was the imperative need to ensure that no foreign or private power ever held chokepoint control over any essential industrial, transportation, or communications system.

Indeed, the United States government during these years developed a keen understanding of how to exploit any such chokepoints in enemy nations. U.S. strategic bombing doctrine in the Second World War, for instance, focused on identifying and destroying such chokepoints to paralyze the ability of enemy nations to build and deploy weapons. Perhaps the most famous example was the bombing raids on Germany’s ball-bearing industry, highly concentrated in a single facility in the city of Schweinfurt.

During the Cold War, the threat of nuclear conflict strongly reinforced the imperative to ensure that all of our essential industrial, financial, and communications systems were structured in ways that distributed risk widely and safely. The Pentagon, for instance, in the 1950s played a major role in forcing defense and electronics corporations to distribute their industrial capacities away from traditional industrial zones in the Northeast and Midwest, into southern and western states beyond the range of Soviet bombers.

Similarly, the Pentagon played a key role in applying such thinking to communications systems, in the original conception and design of the internet. The Pentagon aimed to ensure that the

system was engineered to route information around any disruption. This resulted in design rules that ensured there were no physical or ownership chokepoints to exploit.

The U.S. government after the Second World War also worked to break dangerous concentrations of industrial capacity and control within the borders of former adversaries. For instance, immediately after Germany's surrender in May 1945, President Harry Truman ordered the U.S. military to "effect a dispersion of ownership and control of German industry." The U.S. government also used the August 1945 Potsdam agreement with the Soviet Union and Britain to demand the elimination of all "cartels, syndicates, trusts and other monopolistic arrangements" in Germany. The Truman Administration also imposed a similar set of orders in occupied Japan.

The U.S. government also strove to ensure that the rules of international trading systems were designed to prevent a re-concentration of these capacities. For instance, the Truman Administration used the Marshall Plan to support creation of the European Coal and Steel agreement, which brought key European industries under the joint control of France, the Netherlands, Germany, Italy and others. The Coal and Steel agreement also established Europe's first common antitrust regime, designed to prevent the concentration of any cross-border private control over these vital industries. Ultimately, the agreement served as the foundation for today's European Union. It also provided a model for the liberal international trading system established by the United States and its allies in the 1950s and 1960s to the democratic peoples of the world – as well as private executives and investors – with a simple set of rules to guide international economic cooperation.

II) BUILT TO BREAK - How Pro-Monopoly Thinking Destroyed the Resiliency of Vital Systems and Undermined American Security.

When the Reagan administration began to overthrow America's 200-year-old antimonopoly regime in the early 1980s, it is unlikely that any officials involved in the effort imagined that one result would be to severely compromise America's national security by creating dangerous chokepoints, including within the borders of foreign adversaries.

On the contrary, the Reagan Administration continued to use blunt trade power to block a mid-1980s effort by the Japanese government – in tandem with Japanese electronics manufacturers – to monopolize control over the production of the hardware in personal computers. This included imposing tariffs and import quotas, subsidizing next-generation technologies in the United States, and pressuring U.S. importers to diversify their sourcing of components by buying from non-Japanese manufacturers in South Korea, Taiwan, Singapore, and Europe.

Unfortunately, the Reagan administration's success in imposing an anti-democratic and pro-monopoly competition regime to promote the concentration of power and control in the hands of the few marked the beginning of the larger political and policy revolution that ultimately destroyed key aspects of America's traditional industrial and economic security.

Over the course of the 1980s and 1990s, the Reagan, Bush, Clinton, and Bush administrations radically altered every key component of America's traditional competition regime to favor consolidation of wealth, power, and control in the hands of the few. In doing so, they cleared the way for the radical chokepointing of industrial capacity and control that today so threatens our security – as a nation and as individuals.

Six radical changes in U.S. regulation of industrial competition stand out:

- 1) The 1981 adoption of the “consumer welfare” efficiency test for antitrust enforcement. This changed the goal of competition law and enforcement from protecting the bright-line rules established by Congress to protect liberty and democracy to instead promoting “productive efficiency” based on the theory this would drive down prices. One immediate result was concentration of key domestic capacity and control into duopoly and sometimes straight monopoly structures. A second result was to begin to drive extreme international concentration of certain capacities, as demonstrated by GE's sale of the U.S. television industry to France's Thompson electronics.
- 2) The abandonment of the simple “Rule of Four” approach to regulating industrial concentration that guided U.S. antimonopoly enforcement practice for most of the 20th century, in favor of a practice of using simple economic models to measure the relative efficiency of different levels of concentrated power. One result was to eliminate the engineering-based premises that underlay America's traditional competition and trade regimes, in ways that ultimately helped to blind enforcers, executives, and investors to the dangers posed by concentration of capacity and hence risk.
- 3) The 1994 signing of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT). This agreement – especially as put into effect through the World Trade Organization beginning in 1995 – cleared the way for nations and corporations to use mercantilist means to concentrate capacity and control over key links in international production systems within their own borders.
- 4) The abandonment of America's traditional practice of imposing non-discrimination rules on the corporations that control essential communications, transportation, production, and distribution capacities and infrastructures.

- 5) The embrace of “shareholder” control over America’s industrial corporations, through such actions as the Clinton Administration’s embrace of replacing executive salaries with stock options.
- 6) The concentration of power in ever fewer and bigger private equity funds such as Blackstone Group, through such actions as the 1996 National Securities Markets Improvement Act, which eliminated limits on how much money any one hedge fund could pool from institutional investors.

These and other changes in competition policy cleared the way for the most powerful actors in our political economy to concentrate control over key industrial capacities, and then to strip-mine those assets by outsourcing that capacity, offshoring that capacity, and in some cases simply liquidating that capacity. Worse, these same changes simultaneously eliminated much of our common social capacity to identify and understand the risks posed by such extreme concentration of capacity and control. They did so in part by fundamentally altering the nature of ownership and control through the de facto pooling of production capacities that previously had been highly compartmentalized, and hence the socialization of the resulting risk itself.

None of these threats and harms should have come as a surprise. I myself wrote extensively of the dangers posed to the American people’s ability to design and produce airliners, in a discussion of the effects of Boeing’s new monopsony power over suppliers in in my 2005 book *End of the Line: The Rise and Coming Fall of the Global Corporation*. Then in January 2010 I provided a broader and more fully integrated critique of this same phenomenon, in my book *Cornered: The New Monopoly Capitalism and the Economics of Destruction*.

The first proof that the new structure of industrial production had become physically unsafe came on September 21, 1999, when a 7.5-magnitude earthquake struck Taiwan. Within days, computer assembly plants around the world, including in California and Texas, began to shut down. In the weeks to come, Americans learned that a corporation named Taiwan Semiconductor Manufacturing Corporation, backed directly by the Taiwanese government, had concentrated almost all the global capacity to produce certain forms of semiconductors in a few foundries located in the city of Hsinchu.

The 1999 earthquake, in other words, proved that the compartmentalization of production that had protected the American people from the collapse of industrial capacities had begun to break down in fundamentally important ways. Rather than dampen the effects of a localized shock such as an earthquake, the structure of the new system built by the monopolists served both to transmit and amplify the shock.

As Appendix #2 shows, we have had many other warnings in the years since, due to the fact that U.S. antimonopoly and trade regulators – viewing the world through the pro-monopoly

framework introduced in the 1980s and 1990s – allowed a few corporations to place many or all keystone capacities in a single geographic location, sometimes a single facility. This is true both of industrial components such as chemicals, materials, electronics components, and certain assembly operations. It is also increasingly true of the data storage and computing capacities on which the modern world depends.

As a result, we now live in a world where even relative minor everyday disruptions such as a fire or earthquake can trigger a regional or even global collapse of industrial, financial, and communications systems. Increasingly, this is true even when the disruptions affect the production only of a single product. Consider, for instance, the 2022 crash of baby formula production, or the recent collapse of the systems we rely on for medical masks, testing chemicals, and the iodine solutions required for CT scanners and fluoroscopes.¹ In other instances, such as with semiconductors and container shipping, the disruptions can trigger cascading effects through multiple industries at the same time.

More terrifying yet, it is not at all hard to image events – such as disruptions to normal trading between China and the United States, or simply between China and Taiwan, that would result in a sudden widescale cascading collapse of most of our key industrial and financial systems. Such a disruption does not require China to launch an invasion of Taiwan or even to impose a blockade. China needs simply shut its own borders to disrupt the supply of essential goods and services in almost every nation of the world, including the United States and our closest allies.

Two decades ago, advocates for the unfettered “globalization” of such industrial capacities argued that the resulting system of extreme interdependence would lessen the likelihood of conflict. Unfortunately, as Vladimir Putin’s exploitation of Germany’s dependency on Russia for its supply of natural gas and petroleum makes clear, asymmetrical interdependence can actually increase the likelihood of adventurism and even war, by tempting one party to exploit another’s dependence to achieve some economic and/or political aim.

Finally, the U.S. Department of Defense in recent years has recognized that concentration of industrial capacity and control poses a number of threats to the industrial systems we rely on for production of weapons and other defense-related materials. In a series of reports, the Pentagon “cites dozens of examples in which the vitality and resiliency of the U.S. industrial base” has been “acutely affected” by “extreme consolidation of supply chains in areas like aircraft, ground vehicles, machine tools, missiles, and printed circuit boards, and the risk of dependence on sole source vendors in many others.”²

As the Pentagon put it in one report, “the number of cases, typically three to seven levels from the top of the supply chain, where there is just one—often fragile—supplier is staggering.” This represents a significant deterioration from just a decade ago when three to five suppliers

existed for the same component, let alone several decades ago, when the U.S. military generally enjoyed dozens of suppliers for each such item.

III) TOWARDS A NEW RESILIENCY - The U.S. and Allies Waken to the Crisis.

Since President Biden took office in January 2021, his administration, the U.S. Congress, and key U.S. allies have taken a series of unprecedented actions both to better understand the magnitude and nature of these threats and to directly address them, sometimes with dramatic success. These include:

- 1) A Broad Reassessment of Goals, Philosophy, and Means.** In his first year in office, President Biden ordered his administration to establish new overarching goals for political economic regulation, most notably including the resiliency and stability of complex domestic and international industrial systems. The President in July 2021 also condemned the pro-monopoly competition policy philosophy introduced by presidents Reagan and Clinton in the strongest of terms, in a wide-ranging Executive Order on Competition. Finally, the President also instructed his administration to use every department and agency of government to achieve these ends, in what has been termed a “Whole of Government” approach to battling the systemic, economic, and political threats posed by concentration of capacity and control.
- 2) Investment in New Capacity.** The Biden Administration and Congress have supported this effort in sometimes spectacular fashion. This includes by passing the CHIPS and Science Act and the Inflation Reduction Act, which have made hundreds of billions of dollars available to support the building of new industrial capacities in the United States, in ways that directly target some of the most dangerous industrial chokepoints threatening American security and prosperity. Properly understood, CHIPS and IRA are two of the most important antimonopoly actions by the U.S. Congress in history. They demonstrate that, as Brian Deese, former director of the National Economic Council, put it in 2022, the U.S. government has succeeded in establishing a “modern American industrial strategy” designed to tackle some of the most dangers concentrations of capacity and power.³
- 3) A New Vision for International Trade and Production.** The Biden Administration has also sketched out the most far-reaching and strategic rethinking of trade policy since the Truman Administration at the end of the Second World War. The vision goes far beyond the simple anti-internationalism of the previous administration to establish a broad and strategic plan for protecting the interests of American workers and communities, targeting chokepoints that threaten the security of the United States and the stability of

international systems, increasing smart cooperation with America’s closest democratic allies, and eliminating the concentrations of capacity and control that limit industrial innovation. The first important description of this policy was put forth by National Security Advisor Jake Sullivan in a speech on April 27, 2023. The second was shared by U.S. Trade Representative Katherine Tai in a speech at an event hosted by the Open Markets Institute on June 15, 2023. Both speeches focused closely on the need to rebuild trade systems in ways that ensure resiliency and stability. Amb. Tai’s speech, meanwhile, detailed the fundamental intersection between domestic competition policy and international trade policy.

- 4) **A New Vision to Regulating Information and Communications Infrastructure.** The Biden Administration, as part of the broad reconceptualization of competition and trade policy, has also begun to sketch out a new vision for how to regulate both domestic and international communications systems. Importantly, this includes a careful reappraisal of whether trade policies established over the last 30 years should be updated to account for the recent evolution in thinking about the nature of these corporations, as well as the purpose of these regulatory regimes.
- 5) **A New Map of the Problem:** The Biden Administration has taken a great leap forward in closely studying the effects of the supply chain disruptions of the last two years. The administration has, for instance, organized deep integrated studies of the structure of supply chain fragility generally, the structures of the semiconductor and battery industries specifically, and all links in the container transportation system, including ocean carriers, ports, railroads, and trucking. In addition, and of fundamental importance, the U.S. Congress has also dramatically improved its work on these issues, hosting hearings on supply chain fragility, the concentration of capacity and control within the semiconductor industry, and the concentration of pharmaceutical ingredients in China, among other topics. During this same period, key U.S. allies in Europe and Asia have made similar advances in mapping the chokepoints and in developing plans to effectively distribute capacity.

IV) FINISHING THE JOB – The Next Stage in Rebuilding a Resilient System.

Despite this long list of successes, the administration and Congress must do much more, and swiftly. The United States still lacks any real plan to break dangerous chokepoints in the chemical and pharmaceutical industries, in data storage and computing capacities, in electronics components and materials, in the building of ships and aircraft, and many other key sectors.

To this end, the Open Market Institute recommends the following immediate actions:

- A) **Establish a hierarchy of threats**, to strategically guide action and investment. Such a hierarchy will help policymakers, Congress, and enforcement agencies focus limited resources on the biggest and most immediate threats, and on the solutions that deliver the greatest near-term advances.
- B) **Work with G7 allies and other close industrial partners** to combine our individual national assessments of threats and strengths into a common document that will help us develop our strategic plan of action.
- C) **Speed the use of public investment** to address the most immediately threatening industrial chokepoints. Specifically, Congress should target the offshore concentration of vital capacity in the chemical and pharmaceutical industries, in electronics components and materials, and in the building of ships and heavy industrial equipment. Congress should also target domestic concentration of vital capacity in data storage and computing capacities, as well as in aircraft manufacturing.
- D) **Work with NATO allies to develop and enforce common policies to target China’s** chokepoint power. Most immediately, this means helping the German government block plans by some of Germany’s largest industrial corporations – including the chemical giant BASF – to move additional keystone production capacities to China.
- E) **Target concentrations of capacity and control in cloud storage and computing services.** As a recent report for the Carnegie Endowment made clear, “national governments’ core interest in cloud computing... is to reduce the likelihood of a systemic failure that has a cascading impact on critical functions or national security.” The rapid development of advanced AI technologies is only increasing the need to act.⁴
- F) **Restore traditional approaches to regulating international communications systems.** This should include abandonment of falsifying policy frameworks that call for liberalization of cross-border “trade” in data, and that instead view international communications platforms as essential forms of infrastructure.
- G) **Enlist the World Bank, the International Monetary Fund, and the Organisation for Economic Cooperation and Development** in efforts to map, understand, and counter extreme and dangerous concentrations of industrial and communications capacity.

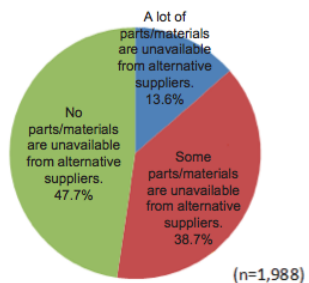
APPENDIX #1

How Concentration Threatens Supply Chain Resiliency – Study by Japan’s Ministry of Economy, Trade, and Industry (METI)

(Strong and weak points in the supply chain (3))

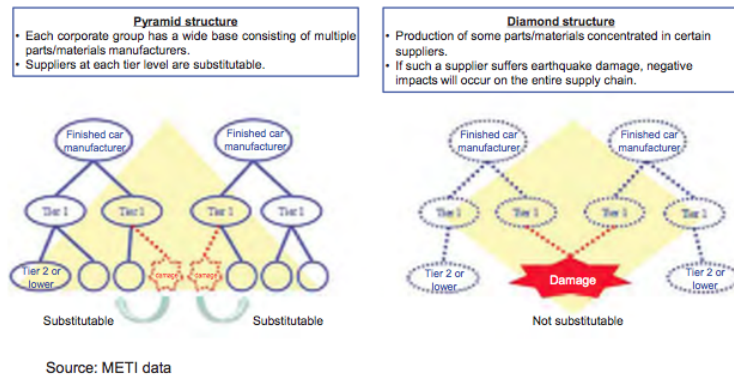
Approximately 50% of respondent firms say some parts/materials that they are procuring are not substitutable. The Great East Japan Earthquake has revealed that the supply chain in the manufacturing industry has a “diamond structure” in which parts/materials supply at tier 2 or deeper in the supply chain is concentrated in a certain supplier.

[Chart 2-47: Do you have any parts/materials unavailable from alternative suppliers than the current suppliers?]



Source: METI data (February 2011)

[Chart 2-48: Diamond structure supply chains]



APPENDIX #2

Principles to Guide Efforts to Restore Industrial System Resiliency

To the extent that we can distill a few simple principles and rules from our research and writing on a wide variety of shocks during the last two decades, we have found that:

- **The basic problem lies in the structure of the system, not the shock.** As Charles Perrow put it in his classic study of how to design safe systems, accidents are “normal.” The challenge, therefore, is not to build systems that depend on human beings preventing all disruptions, but to design systems that are able to absorb any shock.
- **“Just-in-time” manufacturing and distribution** is not the problem. But such practices can accelerate the shock and the speed at which any disruption affects the public and forces the government to act.
- **Our challenge is to engineer resiliency.** Competition law and enforcement are a critical part of the toolkit people use to physically structure complex systems to ensure their resiliency and security. We should therefore apply bright-line rules to all essential production and communications systems.
- **We can make our industrial systems almost perfectly resilient.** There is never a reason for any industrial system to depend on single points of failure. We can structure and link these machines in whichever way we choose. Fragility is proof of bad engineering, hence of poor legal and regulatory design decisions.
- **We can structure these systems to promote peace and cooperation** among peoples in different nations, and in ways that promote broad prosperity.
- **Local systems of distribution can be just as fragile** as national and international systems. A well-designed international system will tend to provide the greatest degree of resiliency and security.
- **Bright-line rules help prevent concentration of political power and control.** As Locke put it more than three centuries ago, “[F]reedom of men under government is to have a standing rule to live by, common to every one of that society, and made by the legislative power erected in it.” Such a rule protects the individual business and person from being “subject to the inconstant, uncertain, arbitrary will of another man.”⁵

APPENDIX #3

Additional Reading – Books, Speeches, Articles

- [“Remarks by Ambassador Katherine Tai at the Open Markets Institute,”](#) National Press Club, June 15, 2023.
- [“Remarks by National Security Advisor Jake Sullivan](#) on Renewing American Economic Leadership,” Brookings Institution, April 27, 2023
- OECD-Open Markets Conference, [“Shock Proof: Building Resilient Systems in the 21st Century,”](#) April 24, 2020.
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- *Cornered: The New Monopoly Capitalism and the Economics of Destruction*, Barry Lynn, Wiley, 2010.
- *The Resilient Enterprise: Overcoming Vulnerability for Competitive Advantage*, Yossi Sheffi, MIT Press, 2005.
- *The Power of Resilience: How the Best Companies Manage the Unexpected*, Yossi Sheffi, MIT Press, 2015.
- *Normal Accidents: Living With High-Risk Technologies*, Charles Perrow, Princeton, 1999.
- *Breakthrough Supply Chains: How Companies and Nations Can Thrive and Prosper in an Uncertain World,”* Christopher Gopal, et. al., Chicago, McGraw Hill, 2023.
- [“Manufacturing and Liberty,”](#) Barry Lynn, *Washington Monthly*, January 2023
- [“Antimonopoly Power,”](#) Barry Lynn, *Foreign Affairs*, July/August 2022
- “To Fix the Supply Chain Mess, Take on Wall Street,” Garphil Julien, *Washington Monthly*, December 2021.
- “Building Food Systems Resiliency Through Different Business Scales and Forms,” an *Open Markets Institute Report*, Claire Kelloway (lead reporter), June 2021.
- “How the United States marched the semiconductor industry into its trade war with China,” Chad P. Bown, Peterson Institute for International Economics, December 2020.
- “Systemic Supply Chain Risk,” Yossi Sheffi and Barry C. Lynn, *The Bridge*, Fall 2014. The first article in which an engineer recognized the systemic nature of international production arrangements and the potential for cascading crashes.
- “The New China Syndrome: American Business Meets Its New Master,” Barry Lynn, *Harper’s*, November 2015.
- “New York’s Looming Food Disaster,” Sidhartha Mahanta, *Atlantic City Lab*, October 21, 2013.
- “A Year After Sandy, Food and Fuel Supplies are as Vulnerable as Ever,” Sidhartha Mahanta, *Reuters*, October 28, 2013.

- “How Detroit Went Bottom-Up: Outsourcing Has Made the Automotive Industry So Co-Dependent and Fragile that One Company’s Downfall is Every Company’s Concern,” Barry Lynn, *The American Prospect*, September 2009.
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- “Built to Break: The International System of Bottlenecks in the Era of Monopoly,” Barry Lynn, *Challenge Magazine*, March/April 2011.
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- “The Fragility That Threatens,” Barry Lynn, *Financial Times*, October 17, 2005.
- “Preparing for the Next Pandemic,” Michael T. Osterholm, *Foreign Affairs*, July/August 2005.
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APPENDIX #4

A PARTIAL LIST OF EVENTS THAT TRIGGERED INDUSTRIAL SHUTDOWNS

- Great Jiji Earthquake in Taiwan, September 21, 1999.
- September 11, 2001 attacks on the World Trade Center and Pentagon.
- SARS Epidemic of 2003.
- Loss of half of U.S. seasonal flu vaccine production capacity in 2004.
- Niigata earthquake in 2007.
- Melamine pet food recall of 2007.
- Wall Street crash of 2008 and effect on international production systems.
- Bailout of General Motors and Chrysler in 2009.
- Iceland volcano explosion of 2010.
- China embargo of rare earth shipments to Japan in September 2010.
- Tohoku triple disaster of March 2011.
- Floods in Thailand in July 2011.
- Chinese Vitamin C cartel in 2013.
- U.S. sanctions Chinese electronics corporation ZTE, April 2018.
- U.S. sanctions Chinese electronics corporation Huawei, Fall 2018
- Collapse of supplies for Covid tests, facemasks, and PPE, 2020.
- Semiconductor shortage begins to affect manufacturing, June 2020.
- Port of Los Angeles/Long Beach begins to shut down, February 2021.
- Colonial Pipeline ransomware attack, May 2021.
- Stranding of the Ever Given Container ship in the Suez Canal, June 2021
- Union Pacific and BNSF report congestion in Chicago, June 2021.
- Baby formula shortage worsens after Abbott plant shut down, Feb. 2022.
- Ukraine war creates shortage of fertilizer, cooking oils, and grains, Feb. 2022.
- U.S. supply of CT scan material cut off by China plant closure, May 2022.

¹ Christopher Rowland, “Covid shutdowns in China are delaying medical scans in the U.S.,” *Washington Post*, May 11, 2022.

² Asher Schechter, “Pentagon Report Points to Two Major Risks to National Security: Consolidation and Shareholder Capitalism,” *ProMarket*, January 25, 2021.

³ Brian Deese, Remarks on a Modern American Industrial Strategy, the White House, April 20, 2022.

⁴ Ariel Levite and John Pendleton, “Cloud Reassurance Project: Interim Report: The universal adoption of cloud-centric operating models is bringing enormous benefits to every sector of the global economy, yet the ubiquity of dependence on common technologies and service providers also creates a new potential for systemic risk.” Carnegie Endowment, June 2023.

⁵ *SEE ALSO*: Friedrich Hayek, “The Constitution of Liberty” (1960). “Being made impersonal and dependent upon general, abstract rules, whose effect on particular individuals cannot be foreseen at the time they are laid down, even the coercive acts of government become data on which the individual can base his own plans. Coercion according to known rules, which is generally the result of circumstances in which the person to be coerced has placed himself, then becomes an instrument assisting the individuals in the pursuit of their own ends and not a means to be used for the ends of others.”