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Government and economics: An emerging field of study ☆

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A B S T R A C T

In this paper, we discuss the field of *government and economics*, an emerging body of work that aims to better understand government's role, incentives and behavior in a modern market economy, as well as how government actions shape the economy's performance.

In the first part of the paper, we present evidence that the size and scope of government in market economies have grown much larger since the industrial revolution. We then briefly examine particular periods in the histories of the U.S., Germany, Japan, South Korea, and China when these countries' governments played an especially vigorous role in promoting rapid economic growth. We also provide statistical evidence that, across countries, more robust market-supporting behavior from governments is associated with higher per capita income and faster growth.

The second part begins with a review of existing areas of economic research suggesting that, so far, the discipline has neglected some significant questions concerning government as an active player in a modern market economy.

Finally, we propose a number of possible future research topics that we think are tailored for the new field of government and economies.

1. Introduction

If Adam Smith could see today's world, he would undoubtedly be surprised to find how dramatically the size and the role of government have expanded during the past 250 years. In most pre-industrial revolution economies, the government sector typically correspond to 15% of GDP at most, whereas today, government budgets typically correspond to anything between 30% to 50% of GDP in market economies. Along with this much larger budget, government's scope of operation has also greatly increased. Besides national defense, today's governments provide extensive social welfare and social insurance services, regulate markets, invest in companies, produce and maintain public goods, and in some cases, directly supply private goods and services. Given this prominence, we hold out great hope for the emerging field of research called *government and economics*, which aims to study the government's role, behavior, and incentives in a modern market economy, as well as how government action shapes the economy's performance.

In part 1 of this paper, we first cite evidence that confirms the increased size and scope of government. We show that government has become a major player—if not the most important player—in many market economies. Next, we use historical cases and cross-country statistics to illustrate that government behavior has been crucial to the performance of market economies. In the second part, we argue that existing fields of economics such as public finance, public choice, and political economy ignore some significant questions concerning government as an active player in a modern market economy. Finally, we mention a few research topics for future investigation.

2. Government has become an active and influential participant in modern market economies

To consider how large the size and scope of government have become in modern market economies can be eye-opening.

2.1. Increased government size

Let's first look at the size of government budgets. Governments raise their revenue from taxes, fees, investment returns, and bonds. In Table 1, we display the ratio of government expenditure relative to GDP over time for key countries—including OECD countries and emerging market economies—as well as the world average. Three general stylized facts emerge.

First, in the 250 years since the industrial revolution, the size of government has greatly expanded. In the mid-19th century, government budgets around the world made up 10% of GDP on average. Now, the worldwide average is around 39%. In the case of the U.S., during the period directly following the Civil War, the budget of the federal and local governments accounted for 7% of GDP. Today, the ratio is 38%.

Second, across countries in today's world, high-income countries on average have larger governments per capita than low-income countries. The average ratio of government budget to GDP among develop-

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Table 1
The Ratio of General Government Expenditure to GDP (%).

	1870	1913	1920	1937	1960	1980	1990	1996	2002	2007	2010	2015	2018
Australia	18.3	16.5	19.3	14.8	21.2	34.1	34.9	35.9	35.6	34.9	36.1	36.7	35.6
Canada	—	—	16.7	25.0	28.6	38.8	46.0	44.7	41.4	39.3	43.1	40.0	41.1
France	12.6	17.0	27.6	29.0	34.6	46.1	49.8	55.0	53.6	52.6	56.9	56.8	56.0
Germany	10.0	14.8	25.0	34.1	32.4	47.9	45.1	49.1	48.5	43.9	48.1	44.0	44.5
Italy	13.7	17.1	30.1	31.1	30.1	42.1	53.4	52.7	48.0	48.5	50.1	50.4	48.6
Japan	8.8	8.3	14.8	25.4	17.5	32.0	31.3	35.9	39.8	36.0	39.1	39.0	38.4
Sweden	5.7	10.4	10.9	16.5	31.0	60.1	59.1	64.2	58.3	52.6	50.4	49.5	49.8
U.K.	9.4	12.7	26.2	30.0	32.2	43.0	39.9	43.0	41.1	44.6	47.4	42.3	40.9
U.S.	7.3	7.5	12.1	19.7	27.0	31.4	32.8	32.4	34.1	36.6	43.2	37.9	37.8
OECD Average	**10.7**	**13.0**	**20.3**	**25.1**	**28.3**	**41.7**	**43.6**	**45.9**	**44.5**	**43.2**	**46.0**	**44.1**	**43.6**
China	—	—	—	—	—	—	30.7	16.4	21.3	20.7	23.2	32.1	33.7
Brazil	—	13.4	12.5	9.9	13.7	6.8	—	39.0	39.5	38.3	40.4	49.3	48.7
India	6.3	5.6	6.4	5.0	11.2	17.5	27.2	24.3	27.7	26.0	27.3	—	—
Russian Federation	—	—	—	4.4	—	—	—	—	36.3	33.1	38.5	39.6	34.2
South Africa	—	15.9	18.5	15.9	16.7	21.8	28.7	28.5	25.8	28.1	33.0	60.0	44.2
Chile	8.0	12.3	8.8	11.5	19.7	23.8	19.0	21.5	24.3	20.4	25.1	24.9	25.4
Indonesia	—	—	—	—	14.4	22.1	15.8	12.6	18.7	20.3	18.3	17.8	16.4
Thailand	—	—	—	—	12.1	18.7	16.6	17.8	25.2	20.8	23.0	22.0	21.1
Emerging Market Average	**7.2**	**11.8**	**11.6**	**9.3**	**14.6**	**18.5**	**23.0**	**22.9**	**27.4**	**26.0**	**28.6**	**35.1**	**32.0**
World Average	**10.0**	**12.6**	**17.6**	**19.5**	**22.8**	**32.4**	**35.4**	**35.8**	**36.4**	**35.1**	**37.8**	**40.1**	**38.5**

Data source: (1) OECD countries, 1870–2007, Tanzi, 2011; 2010–2018, IMF Government Finance Statistics. (2) China, 1990–2018, China Statistical Yearbook, Finance Yearbook of China. (3) For other emerging markets, 1870–2010, Mauro et al., 2013; 2015–2018, IMF Government Finance Statistics.

Table 2
Government Employment as a Share of Total Employment (%).

	1870	1913	1937	1960	1980	1994	2007	2010	2017
Canada	—	—	—	18.4	18.8	20.4	19.1	19.9	19.4
France	2.5	3.0	4.4	—	20.0	24.8	22.4	22.6	21.8
Germany	1.2	2.4	4.3	9.2	14.6	15.1	11.4	11.4	10.6
Italy	2.6	4.4	5.1	7.7	14.5	16.2	14.5	14.4	13.4
Japan	1.0	3.1	5.0	—	6.7	6.9	6.1	6.1	5.9
Sweden	2.2	3.5	4.7	12.8	30.3	32.0	30.4	29.2	28.9
U.K.	4.9	4.1	6.5	14.8	21.1	15.0	19.3	19.6	16.1
U.S.	2.9	3.7	6.8	14.7	15.4	14.5	15.2	17.1	15.2
China	—	—	—	—	4.7	6.8	10.7	10.9	9.8
Average	2.5	3.5	5.3	12.9	16.2	16.9	16.6	16.8	15.7

Data source: (1) OECD countries, 1870–1994, Tanzi and Schuknecht (2000); (2) OECD countries, 2007–2017, OECD Statistics, FRED Economic Data, Federal Reserve Bank of St. Louis; (3) China, 1980–2017, China Statistical Yearbook.

ing countries in 2018 was around 32%, whereas the average for high-income countries was about 44%. Just to make one comparison: the 2010 budget of the government of India, a large and low-income emerging market economy was 27% of GDP, whereas the U.S. government budget that year was around 43% of GDP.

The third stylized fact is that for the past four decades, high-income countries have demonstrated a relatively stable government size as measured by the share of government budget in GDP. When an economy reaches an income level of around $10,000 to $12,000 USD per capita, the ratio tends to stabilize. For most industrialized countries as shown in Fig. 1, this stabilization occurred around the late 1970s and early 1980s. In the case of developing countries, we have witnessed a steady increase in government size during the past several decades, especially in the BRICS countries.

Another measure of government size is government employment. From Table 2 and Fig. 3, it is clear that it has grown as a share of total employment.

A third measure of government's economic role is the ratio of productive assets under government control to GDP. There are limited data on this measure and so Tables 3 and 4 and Fig.s 4 and 5 provide evidence only for select countries.

Table 3
General Government Total Assets to GDP Ratio (%).

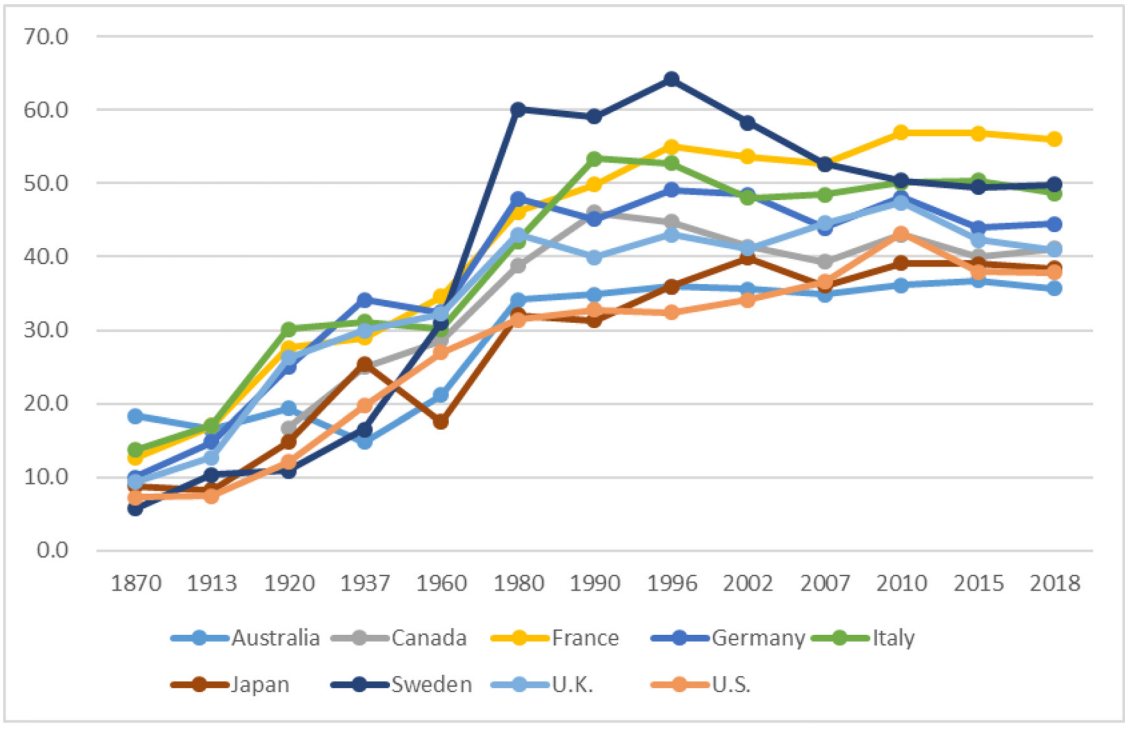
	1990	1997	2000	2010	2015	2018
Canada	84.0	86.1	90.8	111.1	118.8	125.7
Germany	—	—	92.5	100.6	96.1	96.8
Japan	—	191.3	209.9	235.6	244.7	245.1
U.K.	—	54.4	52.8	70.4	70.4	72.9
China	—	—	114.0	210.3	199.2	—
Average	84.0	110.6	112.0	145.6	145.8	135.1

Data source: Statistics Canada; Deutsche Bundesbank; Cabinet Office, Government of Japan; Office for National Statistics, United Kingdom; Li, Zhang and Chang (2018).

2.2. *The expanded scope of government*

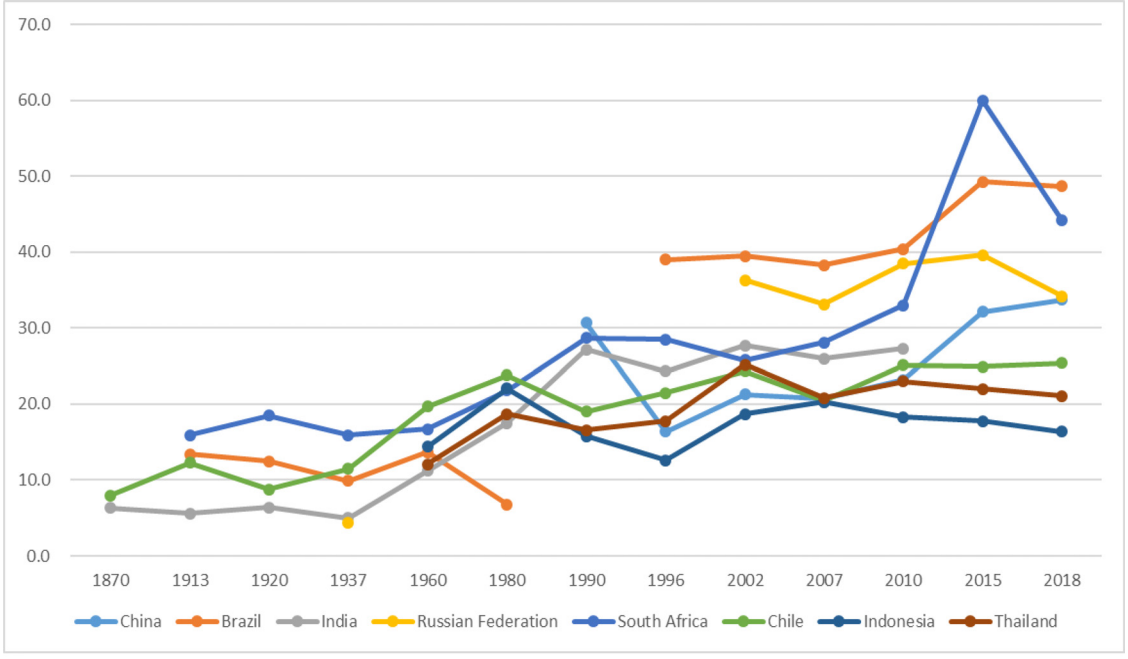
There is widespread evidence that the scope of government today is much larger than before the twentieth century, although some of this is difficult to quantify. First, let us examine national defense. Today's national governments bear almost sole responsibility for national defense, although certain logistical services are sometimes outsourced to private companies. Modern governments rarely hire mercenaries to fight for national interests, in contrast with historical practice. For example, the Dutch East India Company (1602–1799), as a commercial company, had 40 battleships and an army of 10,000 soldiers which it used to perform military services on behalf of the Netherlands.

Second, let us consider law and order, including the police force, court system, and immigration management (Razin and Sadka, 2021). In this area, modern governments are much larger today than 150 years ago. In the U.K., government expenditure on police, fire and rescue,



Note: General government includes central government and local governments.

Fig. 1. General Government Expenditure to GDP Ratio (%): OECD Countries. Note: General government includes central government and local governments.



Note: General government includes central government and local governments.

Fig. 2. The Ratio of General Government Expenditure to GDP (%): Emerging Markets. Note: General government includes central government and local governments.

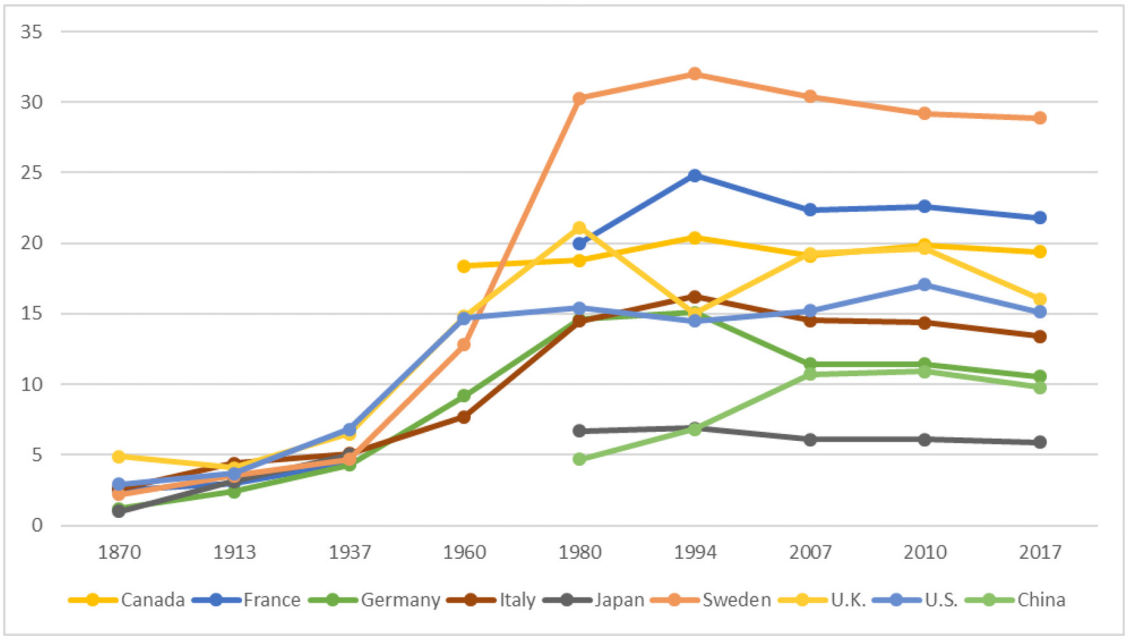


Fig. 3. Government Employment as a Share of Total Employment (%).

Table 4
U.S. Government Total Assets to GNP Ratio (%).

	1900	1912	1929	1939	1945	1955	1965	1975
Federal Government	10.7	5.1	7.7	28.5	37.0	60.0	45.2	33.2
State and Local Government	26.7	33.0	40.4	55.9	32.8	45.9	54.2	73.1
General Government	37.4	38.1	48.1	84.3	69.8	105.9	99.4	106.3

Data source: Goldsmith and Lipsey (1963); Goldsmith (1982); Palgrave Macmillan Ltd 2013.

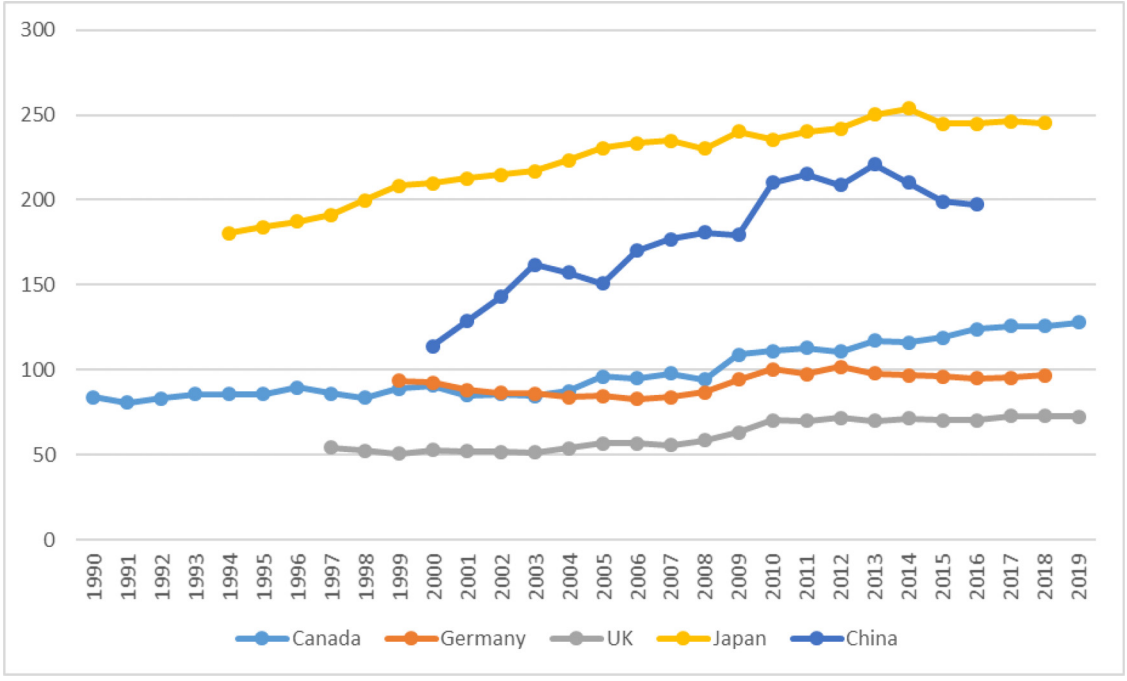


Fig. 4. General Government Total Assets to GDP Ratio (%).

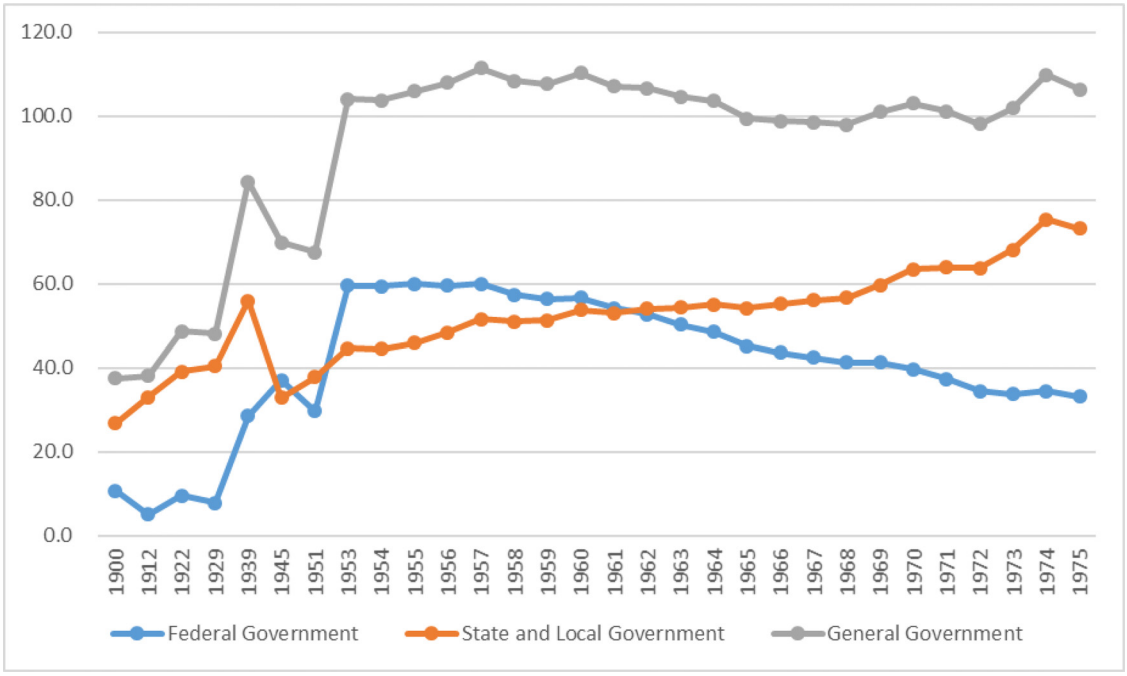


Fig. 5. U.S. Government Total Assets to GNP Ratio (%).

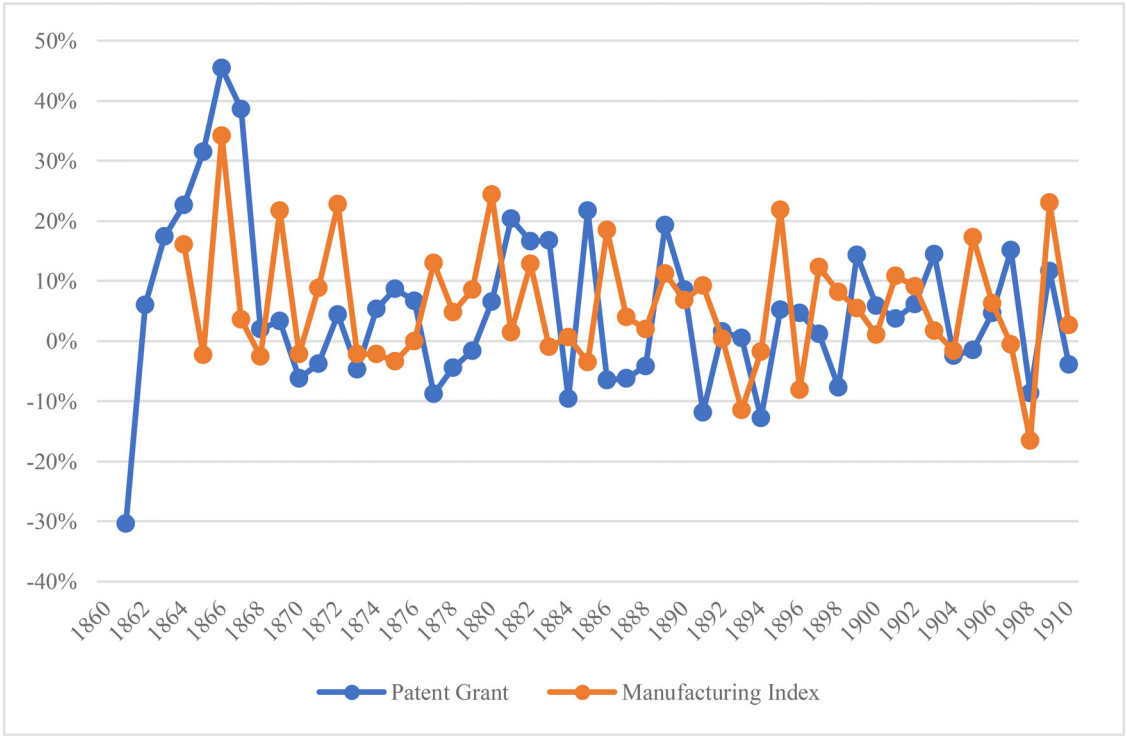


Fig. 6. Growth Rate of Patent Grant and Manufacturing Index Between 1860–1910. Source: NBER Data and USPTO.

and administration of justice only accounted for 0.25% of GDP in 1870, rising to 2% by 2004 (Lee, 2011). In the case of the U.S., government expenditure on public order and safety was 0.8% of GDP in 1959, but reached 1.9% by 2019.[1]

Next, are government operations intended to ensure the proper function of the market: regulating financial markets, managing the monetary system, maintaining adequate market competition, protecting consumers, negotiating trade and investment agreements, and establishing and enforcing technical standards for products. Except for international trade (historically, governments of European city-states negotiated trade agreements and protected trade routes), almost all of these operations did not even exist two hundred years ago. Indeed, government's role continues to expand. In China, Europe, and the U.S., for example, there

[1] Data source: NIPA Table 1.1.5 and 3.16, Bureau of Economic Analysis, U.S. Department of Commerce.

is currently intense pressure for government to regulate the behavior of internet platform companies such as Facebook and Tencent.

The fourth category of government functions comprises perhaps the largest expansion of all, that is, social welfare and social insurance. Historically, sovereign governments have attempted to provide relief for the population in case of natural disasters. But modern governments go far beyond disaster relief by conducting vast programs of social security and social insurance, including healthcare and programs for citizens who are elderly, low income, unemployed, or disabled. For high-income market economies, on average one-half of the government budget is spent on such welfare programs. They are now at the core of government operations.

2.3. Why the Increased Size and Expanded Scope?

Why has government involvement in the economy grown so much in size and scope? There is a wide range of answers, which we group into four major categories.

The first sort of explanation centers on the crucial role of government in promoting *development* of markets. We will look at several historical case studies in Section 3.

A different kind of answer focuses on the idea that modern economies are much more complicated than those of the industrial revolution. In contemporary economies, transactions take place between people who scarcely know one other, and this requires regulation by government. Modern economies demand much knowledge on the part of citizens and industry, both so that they can adequately function in a complicated environment and also produce the new ideas that lead to growth. Hence, government has become heavily involved in public education and funding for scientific research.

A third sort of explanation starts from the fact there is less social tolerance today for extreme inequities in income and economic opportunity than there was hundreds of years ago. Hence, governments have been pushed to establish programs to help the disadvantaged. Along this line, Rodrik (1998) shows there is a positive correlation between an economy's exposure to international trade and the size of its government, since international trade introduces risk, which especially affects the poor. In prior eras, governments ignored such risk.

Fourth, as noted before, contemporary governments are essentially the sole provider of national defense. And modern military equipment is extremely expensive, so military budgets loom large in most countries' GDPs.

Finally, there is an argument that government itself is the reason for government expansion. Governments consist of people who self-interestedly try to expand their own influence. Therefore, government tends to expand endogenously, which may occur at the expense of social welfare. In this paper, we don't attempt to evaluate this line of argument. However, we note that it constitutes one more reason for the discipline of economics to include government as an essential player in the market economy. That is, it strengthens the argument for a new research field devoted to government and economics.

3. Government's role in five historical episodes of rapid economic growth: The U.S., Germany, Japan, South Korea, and China

Not only has government's role in the economy grown, it has been critical to bringing many countries to the economic forefront. Below we give several prominent examples.

3.1. The U.S. economy after the civil war

The thirty years after the U.S. Civil War, from 1865 to 1894 were perhaps the most important period of U.S. economic development. The U.S. economy expanded rapidly during this time, rising to become the largest industrial economy in the world by 1894, with a GDP of $227 billion (in 1990 International Dollars), overtaking the U.K. ($156 billion). During this period, the U.S. federal and local governments played an essential role in the economy. There are at least five areas in which the government intervened (Maddison, 2007).

3.1.1. Facilitating infrastructure investment

First, the U.S. government facilitated infrastructure investment, especially railroad construction. The period of 1868 to 1892 saw the fastest pace of railroad construction in U.S. history. In 1860, the total length of U.S. railroads was 30,000 miles, accounting for about half of the world total. Between the 1860s and 1890s, 140,000 miles of railroad were added, allowing railroad transportation volume to multiply by a factor of 30 (Engerman and Gallman, 1996).

The U.S. government contributed to railroad construction in two major ways: (i) through provision of land and (ii) financial support.

In the Pacific Railroad Act of 1862, the federal government authorized two companies to construct the Pacific Railroad and granted them the land to do so. From 1862 to 1871, the federal government granted a total of nearly 200 million acres of land (about 30 times the size of the state of Massachusetts) for railroad construction (Engerman and Gallman, 1996). This land proved to be more than enough—about one-third remained unused and was returned to the government.

As for financial support, federal and state governments provided about $350 million in railroad construction subsidies between 1862 and 1873—about 5% of the total investment (Engerman and Gallman, 1996). Of this $350 million, $65 million was given in federal loan credits while the rest consisted of local subsidies. Subsidies mostly took the form of stock and bond purchases financed by state governments by issuing tax-based municipal bonds.

During this time, state and local governments also invested on a huge scale in other infrastructure projects, including roads, waterworks, schools, hospitals, recreational parks, etc. In 1860, the total outstanding local debt, not including state debt, was about 4.6% of GDP. By 1880, it had grown to about 7.9% of GDP in the amount of $821 million (Engerman and Gallman, 1996). Innovative debt financing approaches were used, in which local governments issued income bonds and special assessment bonds. Public services like schools and parks were recognized as a special types of governmental institutions with debt-financing powers. Thus, these public services were able to raise their own debt independent of government.

3.1.2. Promoting education and human capital accumulation

Second, government facilitated education and training. The Morrill Act of 1862 expanded tertiary education in agricultural modernization. Federal and local governments granted over 17 million acres of land to be sold to raise money for the establishment of land-grant colleges (Engerman and Gallman, 1996), which specialized in agriculture, engineering, and the sciences. Most of these colleges gradually became state universities that grew to offer a full spectrum of educational opportunities, and made higher education available to ordinary people. The introduction of agriculture and engineering education in universities greatly increased in the educated population and proved crucially important for the U.S. economy.

3.1.3. Facilitating technological innovation

Third, the U.S. government facilitated technological innovation by establishing the world's first modern patent system. The government passed the first patent act in 1790 and later revised it in 1793 and 1836. By 1836, the law established clearly defined administrative review procedures and set only modest fees for patent registration. It gave ownership rights to innovators, thus encouraging invention and promoting the creation of new technologies. The U.S. experienced a patent boom

between 1865 and the late 1880s, coinciding with the rapid growth of manufacturing.[2,3]

3.1.4. International economic policies to promote industrialization

Finally, the U.S. federal government adopted sophisticated international policies to promote industrialization. First, the U.S. maintained an open-door policy toward foreign investment, which provided much-needed capital for U.S. industrialization. Between 1861 and 1870, the net inflow of foreign capital into the U.S. economy was about $87.5 million per year, around 1–2% of GDP. By today's standards, this is remarkably high. Between 1881 and 1890, the net capital inflow was at 2% of GDP. As a result, the U.S. was able to accumulate international liabilities amounting to about 19% of GDP by 1890. Between 1860 and 1869, most foreign capital was invested in federal bonds, while after 1869, it gradually moved into the infrastructure sector. Through 1880, about 72% of long-term foreign investment was in the railroad sector. After 1880, during the development of the western US, considerable foreign capital moved to mining, agriculture, and the oil sector – growing from less than 1% to about 10% of investments in these sectors (Engerman and Gallman, 1996).

In contrast to its policy on foreign investment, the government protected its growing industries by maintaining high tariffs on foreign goods. During the Civil War, the government raised tariff rates from about 15% to about 30%, and after the war, these rates remained in place. From the 1860s through the 1890s, the average tariff rate was over 30%. This especially benefited the iron and steel industry (Engerman and Gallman, 1996), whose competition from imports fell from 12% in 1869 to about 1.5% by 1909 amid a rapid increase in the demand for iron and steel. In the early 1900s, when protectionist tariffs were no longer needed, the government lowered tariff rates dramatically (although, during the early Great Depression, the government misguidedly attempted to use protective tariffs as a damage control measure, provoking retaliation by European countries). In 1934, the U.S. Congress passed the Reciprocal Tariff Act to promote trade liberalization. Since then, the U.S. generally has maintained a policy of free trade, with low tariff rates (Census, 1975).

3.2. The Case of Germany's Economic Emergence after 1871

After Germany was united in 1871, its economy grew very rapidly. The average annual growth rate of GDP was 1.9% from 1875 to 1891 and 3.2% from 1892 to 1913. Meanwhile, the index of industrial production increased from 18.8 in 1870 to 61.4 in 1900 (with 1913 as the base year). From 1880 to 1913, exports grew from 2.923 billion marks to 10.097 billion marks, an increase of 245% (Habakkuk, 1965; Hoffmann, 2013).

3.2.1. International tariffs

The German government aggressively promoted this economic development. First, it vigorously supported its infant industries through trade protectionism. Before 1879, Germany had pursued a free trade policy, conducive to agricultural exports. However, in the late 1870s, the country switched to a protectionist trade system for its domestic industries—a decision directly triggered by the world economic crisis of 1873–1874, during which numerous German enterprises went bankrupt. In 1879, in order to protect infant industries, the Reichstag (Germany's parliament) raised tariffs (to 18% on pig iron and 15%~30% on textiles) and raised them twice more in the following years (Habakkuk, 1965).

High tariffs caused widespread dissatisfaction among German consumers, who had to buy most of their industrial and agricultural products at prices above the international market. They were also met with retaliatory measures from other countries. Therefore, the German government arranged a series of agreements with surrounding agricultural countries wherein Germany agreed to reduce import tariffs on agricultural products in exchange for more purchases of German industrial exports.

As a result of protectionism, Germany was able to balance its trade and, more important, protect its industries. In 1872, Germany imported 3.262 billion marks and exported 2.31 billion marks worth of goods. By 1880, the country imported 2.83 billion marks and exported 2.9 to 3 billion marks, showing a trend of surplus (Habakkuk, 1965). With the help of trade protectionism, Germany developed strong, competitive industrial sectors. Once this advantage was firmly established, German industries were re-exposed to foreign competition, as the country returned to free trade in the 1890s.

3.2.2. Promoting scientific research and technological progress

The German government also helped promote the economy through active investment in and support for scientific research. Soon after unification, the government established a series of scientific research institutions. It also invested in national research institutes and helped universities and enterprises set up research centers, institutes, and laboratories. A series of new inventions such as generators, the gas engine, electrical furnaces, and automobiles were born out of these scientific research institutions. Many of the world's leading scientists also emerged from the German system. In the 14 years from 1900 to 1913, 13 German scientists won the Nobel Prize, including 4 in medicine, 4 in physics, and 5 in chemistry.

To further promote technological progress, the German government also passed the patent law of 1879 and revised it in 1895. Consequently, the number of patents granted increased steadily, from 550 in 1860, to 6280 in 1894, to 12,100 in 1910.[4] Through this strategy, Germany was able to catch up with and later surpass the industrial technologies of Britain and France. By the late 19th century, Germany had become the world leader in the production of acids, alkalis, dyes, and other chemicals. The electrical industry provides a particularly vivid example: in the 22 years from 1891 to 1913, the total output of Germany's electrical industry increased 28-fold. By 1913, German electrical products accounted for 34% of global production of similar products, while the United States' share stood at around 29% (Habakkuk, 1965; Kiesewetter, 1996).

3.2.3. Investing in education

Education is another area in which the German government invested heavily. By the end of the 1840s, 82% of school-aged children were enrolled in school. By the end of the 1860s, the enrollment rate stood at 97.5%. In comparison, Britain's enrollment rate in 1903 was only 88%. The German government also worked to enhance secondary education, which greatly improved the quality of the German labor force. In order to strengthen the technical education of young workers and apprentices, It set up many technical schools, vocational schools, amateur technical night schools, and Sunday schools (Habakkuk, 1965).

3.2.4. The social security program

The German government was the first in the world to establish a nationwide social security system to alleviate the pains of rapid industrialization. Industrialization resulted in health problems for many working-class people, and shocks from market fluctuations spurred frequent labor protests in the 1880s. In response, the German government took the

[2] USPTO. (2019). U.S. patent activity calendar years 1790 to the present. *USPTO. Retrieved May 7, 2021, from* https://www.uspto.gov/web/offices/ac/ido/oeip/taf/h_counts.htm

[3] NBER. (2004). U.S. industrial production index (1790-1915). *NBER. Retrieved May 7, 2021, from* http://www2.nber.org/data/industrial-production-index/

[4] Khan, B. Z. (2008). An economic history of patent institutions. *EH. Net Encyclopedia.* http://eh.net/encyclopedia/article/khan. *patents.*

lead in social security by introducing a series of social insurance programs, including medical insurance, industrial-injury insurance, endowment insurance, and unemployment insurance. Social security mitigated the pains of industrialization, alleviated social tensions, and helped stabilize society throughout the rapid industrialization process.

3.3. The Case of Japan after the Meiji Restoration

The Japanese economy rapidly industrialized after the Meiji Restoration of 1868. Before this, the economy had been heavily agricultural. In 1870, the per capita output of Japan was only about 25% of that of Britain (Maddison, 2007). In 1872, 72% of Japan's employed population worked in the agricultural sector, compared with 19% in the U.K. At that time, Japan was forced to sign a sequence of unequal treaties with Western powers. Against this background, the Japanese government implemented a series of reforms to establish a vigorous market economic system.

3.3.1. Establishing a unified domestic market

First, the Japanese government unified the country in order to create a unified market. It abolished the han system and established a system of prefectures in its place, which facilitated this unification. The government also helped direct social resources to industrialists (and away from gentry). In addition, it abolished the rigid hierarchical system among gentry, farmers, workers, and merchants, thereby promoting the free flow of labor across the country.

As a result, the annual growth rate of non-agricultural employment reached over 4% between 1875 and 1891, while that of Great Britain was no more than 1.6% (Umemura, 1965). This rapid increase occurred mainly because farmers were now free to leave their land and work in industry. But the government also attended to agriculture: it initiated reform to establish private land ownership, which improved agricultural productivity, and it expanded cultivated land area by 22% between 1874 and 1890. Agricultural production and real income rose by more than 2% per year during 1868–1911, i.e., more than twice the rate of population growth (Umemura, 1965).

3.3.2. Establishing state-owned enterprises as showcases

To demonstrate how modern industries should work, the Japanese government established state-owned enterprises as showcases in the railway, mining metallurgy and ship building industries. Later, when private entrepreneurs were convinced of the value of modern business methods, the government privatized these enterprises on terms favorable to investors. In traditional East Asian societies like Japan, the most talented people had historically been concentrated in government, so this strategy helped bridge the gap between the public and private sectors.

State-owned enterprises promoted modern management by employing foreign specialists and adopting the latest machinery. These enterprises also helped train Japanese technical specialists, which laid the groundwork for the rapid growth of private-sector factories. To quote Toshimichi Okubo, one of the leaders of the Meiji Restoration, "The strength of a country depends on the wealth of the people, and the wealth of the people depends on the quantity of products. Although the quantity of products depends on whether the people devote themselves to industry or not, the root of it depends on the guidance and encouragement from government officials." Following this logic, government-owned factories were used as examples to guide and encourage the development of private enterprises.

Between 1884 and 1893, 21 state-owned factories were sold to private enterprises, including Sumitomo, Mitsui, and other leading companies that still exist today (Ōkubo, 1965; Andō, 1979). Subsequently, the government's direct operations were limited to sectors such as mining, printing, railroad, telecommunications, and postal services.

In sectors where private enterprises were weak, the Japanese government provided support until they could stand on their own. The case of Mitsubishi is a good illustration. Before the Meiji Restoration, Japanese maritime trade was mainly dominated by British and U.S. companies, while Japanese domestic shipping was nearly nonexistent. In the early Meiji era, the shipping industry in Japan was still based on traditional sailboats. For example, in 1870 there were only 35 steamships and 11 Western-style sailboats registered nationwide in Japan—far below the level of Western companies. Then, the Japanese government decided to help Mitsubishi compete with foreign companies along the Yokohama-Shanghai route (Yamamura, 1967). Between 1875 and 1876, the government supplied over 30 ships for Mitsubishi to use free-of-charge and provided a shipping subsidy of 250,000 yen to help Mitsubishi cut its prices and compete with the Pacific Mail Steamship Co., its U.S.-based competitor. The government also provided Mitsubishi with preferential loans of 800,000 yen, which ultimately pushed Pacific Mail out of the Yokohama-Shanghai route. It even imposed cumbersome boarding procedures on Japanese passengers taking foreign ships, thus inducing them to choose domestic options. The Japanese government also provided special convenience and low freight rates for Mitsubishi's goods, while enacting tariffs and transportation barriers against British goods. In August 1876, the Peninsular and Oriental Steam Navigation Company, Mitsubishi's main British competitor, also withdrew from the Yokohama-Shanghai route. Since then, although many foreign merchant ships have continued to engage in maritime activities along the coast of Japan, they no longer pose a competitive threat to Mitsubishi.

3.3.3. Investing in infrastructure

Beginning in 1870, the Japanese government made a great effort to promote infrastructure development, including the rapid construction of railroads. Nippon Railway, Japan's first private railway company, was founded in 1881 with the direct support of the government, which raised 20 million yen for railway construction. Japan's railways grew from a total length of only 138 miles in 1881 to 3855 miles by 1900 (Ike, 1955). The Japanese government raised the funds necessary for this accomplishment by issuing public debt and reforming. In 1870, 4.88 million yen was raised in Britain to build the Tokyo-Yokohama line, the first modern railway of Japan. In 1878, 12.5 million yen in public debt was issued expressly to finance construction of railways, mines, ports, and roads. From 1870 to 1880, public debt issued by the Japanese government amounted to 237 million yen, about 9.6% of GDP in 1874 (Ike, 1955; Takao, 1965).

3.3.4. Consolidating public finance for industrialization

At the beginning of the Meiji Restoration, Japan consolidated its public finance for industrialization, which the government accomplished through land tax reform. Unlike in the U.S., the Meiji government could not rely on tariffs to raise revenue since this option had been eliminated by treaties with Western powers. Thus, the Meiji government implemented a land tax reform. Previously, Japan's land rent was paid in kind, which made tax collection difficult and costly. In 1873, Japan announced the abolition of physical land rent and stated that all land taxes were to be collected in yen at 3% of the assessed land value. This improved tax collection and improved tax revenue. The land rent reform of 1873 raised land tax revenue from approximately 20 million yen in 1872 to about 68 million yen in 1875, which markedly strengthened the financial basis of the Meiji government. In 1877, the 3% tax rate was lowered to 2.5% in response to pressure from landowners, but nevertheless, from 1873 until 1878, land taxes accounted for 88% of total central government taxes. Even by the end of the 1880s, land taxes continued to account for more than 60% of total government revenue (Bird, 1977).

3.3.5. Establishing a modern financial system

To further support economic development, the Japanese government promoted a modern monetary and financial system. In November 1872, the National Bank Act established four national banks in Tokyo, Yokohama, Niigata, and Yokohama. Then, in August 1876, Japan revised its national banking regulations to support privately-owned commercial

banks. At the time of these revisions, there were only six state banks and one private bank, with a total capitalization of 4.5 million yen. By 1880, the number of total banks had reached 312, with a total capitalization of 50.5 million yen (Nakamura, 1966). After the Bank of Japan was established in 1882, it began to play the role of central bank, and the former national banks gradually stopped issuing banknotes until they were merged or reorganized into ordinary commercial banks. Meanwhile, in 1878, the Japanese government established two securities markets – the Tokyo and Osaka Stock Exchanges – along with the necessary rules and guidelines to manage them. When many state-owned enterprises were sold to the private sector between 1884 and 1893, stock trading increased accordingly.

3.4. The Case of the South Korean Economic Miracle

The Republic of Korea experienced extremely rapid economic growth between 1960 and 1990 in an episode often called the South Korean Economic Miracle. This growth was made possible by government efforts under President Park Chung-hee, who prioritized key industries for rapid development and implemented an export-oriented strategy.

3.4.1. Identifying key industrial sectors for support

South Korea's first five-year plan began in 1961, when the government established an economic planning board to coordinate production, consumption, and investment in various economic sectors. The board also set an ambitious goal of rapid industrialization and export growth. To accomplish this, the government first nationalized privately-owned commercial banks and took control of the credit supply. The idea was to funnel investment into key industrial firms, which remained in private hands and continued to compete in the free market.

Between 1960 and 1962, the focus industries were cement, electricity, and coal mining. Between 1967 and 1971, the priority shifted to automobiles and fertilizers. From 1971 to 1976, shipbuilding, iron and steel, nylon, and machinery became the most crucial. Between 1977 and 1981, the industries of electronics, petrochemistry, shipbuilding, iron and steel, and machinery took center stage. The growth rates of these favored industries significantly outpaced the rest of the economy. For instance, from 1977 to 1981, South Korean GDP grew by 79%. However, the iron and steel industry grew by 246%, the machinery industry grew by 300%, the electronics industry grew by 338%, the shipbuilding industry grew by 211%, and the petrochemical industry grew by 311% (Kim, 1991).

The government promoted this remarkable growth in several ways. First, as already mentioned, through finance. In particular, the national pension service and the Korean Development Bank provided low-interest loans for key industries. Second, through tax reductions for these industries and protectionist import tariff rates. Third, through land—the government built industrial parks and sold them directly to large enterprises. Fourth, to build human capital, the government also established many universities and colleges to train engineers.

3.4.2. Export-oriented policy

Before 1963, South Korea mainly implemented an import substitution strategy, whereas an export-oriented strategy was formally proposed in a supplement to the country's first five-year plan published in 1964. At first, South Korea focused on cultivating labor-intensive light industries and handicraft exports. Later, it gradually turned to heavy and high-tech industries. Along the way, multiple policies were used to support exports. For example, the government controlled and maintained a stable exchange rate and actively manipulated the value of the Korean won. Financial support was also provided through export promotion funds, foreign exchange loans, tax breaks, and tariff reductions for export industries importing raw materials from overseas. In addition, the government lowered shipping and transportation fees for exporting firms and encouraged exporting industries to form export associations.

3.5. China's Rapid Economic Growth During the Era of Reform and Opening Up, 1978–2018

China's development over the last 40 years constitutes the most rapid period of economic growth in history. China's share of world GDP increased from 4.9% in 1978 to 18.3% in 2017 (the second-fastest growth occurred in the U.S. after the Civil War: the U.S. share of world GDP increased by about 10%). Throughout this period of growth, the Chinese government, at both the central and local levels, has played a significant role in promoting the market economy. Of course, market forces themselves have clearly been the decisive force, but government has been crucial in kickstarting market forces and mitigating excessive market fracture during the economic takeoff. There are five specific areas in which the Chinese government's contribution to growth has been particularly noteworthy.

3.5.1. Facilitating the rapid entry of new enterprises

The Chinese government played a notable role in facilitating the rapid entry of new enterprises. Before the era of reform, most enterprises had been state-owned. This began to change after 1979, but almost all new private enterprises have received help from local governments.[5]

Help has taken various forms. The most common approach has been for local governments to set up industrial parks in which necessities such as electricity, steam power, water, roads, and waste collection are pre-established. As of 2017, there were more than 5000 industrial parks in China, all competing with one another to provide the most enticing incentives to attract new enterprises.

The second approach has been for provincial and local governments to help private enterprises adapt to the changing economic environment. For example, before the early 1990s, many private enterprises had been initially organized as cooperatives in which the employees owned shares. However, government realized that these enterprises could provide better incentives if they were owned by management. Consequently, it promoted the privatization process by helping management borrow enough from banks to buy out the other shareholders.

The Chinese government has also introduced various incentives to attract foreign enterprises to China. One example is the case of Tesla in 2019, when the municipal government of Shanghai wooed the company with free land and tax breaks. As a result, Tesla was able to begin production in 2020, after only one year of investment—a remarkably quick rollout.

3.5.2. Rapid land conversion

Assisting with rapid land conversion has been a notable policy of the Chinese government. In China, there are two types of land: agricultural land (which is typically owned by collectives in the countryside) and non-agricultural land. In most other countries, a change of land use from agricultural to non-agricultural – or from one kind of non-agricultural use to another – is determined by negotiation between the current landowners and the prospective new owners. Such bargaining is often slow and subject to zoning restrictions.[6]

In China, by contrast, government has typically circumvented bargaining by unilaterally taking control of agricultural land it wishes to convert. It pays collectives a non-negotiated fee and then prepares the land for industrial use. Finally, it sells or even gives away the land to the new users. This process is fast and efficient, to the point that many local governments complete the first two steps before a new tenant is even lined up, thus creating a "land bank." That is, they create a buffer stock

[5] Li, D. D., Li, K., Jin, X., Wang, H., Xu, X., & Lang, K. (2021). Rapid entry and development of enterprises. Economic Lessons from China's Forty Years of Reform and Opening-up, 9.

[6] Li, D. D., Hu, S., Li, B., Zhao, H., Chen, Y., & Zhang, H. (2021). Rapid land conversion. Economic Lessons from China's Forty Years of Reform and Opening-up, 41.

of land for future industrial use. This is how Tesla was able to move to Shanghai and begin production so quickly.

The incentives for local governments to follow this process come from the future revenue of the industrial projects in question. In particular, the new tenants often sign explicit contracts promising to pay a certain stream of future taxes to local government.

3.5.3. Financial deepening

We say that financial deepening occurs when households and enterprises hold increasing proportions of their assets in the form of financial investments, such as bank deposits. In 1978, Chinese assets held in bank deposits were less than 50% of GDP in 1978. By 2020, this ratio had increased to over 400%.[7]

Financial deepening is essential to the development of the economy because it allows savings to be channeled into investments in the industrial and commercial sectors. The Chinese government has developed many policies to speed up this process. For example, in the early 1990s, China experienced high inflation, and depositors began to withdraw their bank deposits to stockpile goods at home. In response, the government effectively stabilized bank deposits by implementing a policy of value-preserving interest rates. That is, depositors were paid an interest rate indexed to inflation. Another critical measure was the decision to restructure the four largest state-owned commercial banks, which had technically gone bankrupt in the late 1990s. The central government recapitalized these banks and invited foreign banks, such as the Bank of America in the U.S., to become strategic investors. As a result, these four banks were significantly modernized and were able to issue tradable shares, eventually becoming highly profitable. The policy bolstered China's financial sector by boosting the confidence of Chinese households and enterprises.

3.5.4. Proactive macroeconomic management

In its four decades of rapid economic growth, China has avoided serious financial crises or dramatic macroeconomic downturns. The Chinese government deserves much credit for this through its proactive macroeconomic management.

First, government has used the traditional means of macroeconomic adjustment: fiscal policy and monetary policy. One example was the 4 trillion RMB stimulus package in the wake of the global financial crisis of 2008. The size of the stimulus was equivalent to about 7.5% of China's GDP at the time (roughly equal to the trade surplus), to be spent over two years. The rationale was to try and make up for the loss of foreign demand due to the crisis.[8]

Second, government has deliberately induced the exit of many enterprises during episodes of excess production capacity. For example, during the late 1990s, there were too many firms in the textile and home appliance industries. In response, the central government offered a significant subsidy to enterprises willing to depart.

Third, government has sped up privatization. In the Asian Financial Crisis of the late 1990s, for example, government first sold existing urban public housing to workers at a discounted rate determined by length of tenure. Then, the government encouraged employees to take out home mortgage loans with commercial banks. This gave rise to China's booming property market and helped the government mitigate the impact of the Asian Financial Crisis.

3.5.5. Learning from best practices

From the beginning of the reform process, the Chinese government realized that learning from the best economic practices elsewhere would be critical for development. In the spring of 1978, a high-level delegation led by Vice Premier Gu Mu spent one month visiting Europe. On Gu's return, he gave an hour-long eye-opening lecture to his senior colleagues, including Deng Xiaoping, about the lessons China could glean from Europe's experience. Subsequently, in 1979, China set up four special economic zones to attract foreign investment and experiment with modern market economic institutions.[9]

In 1984, China convinced Volkswagen to form a joint venture in Shanghai to produce cars at a time when China's comparative advantage was clearly not in capital- and technology-intensive industries. The idea was to promote the education of Chinese entrepreneurs and government officials by having Volkswagen set up a local supply chain of automobile parts. Indeed, many other auto and parts producers and firms quickly joined. By 2015, China had become the world's largest car producer.

Finally, and perhaps most importantly, the Chinese government sent thousands of government officials to leading foreign universities for training. For example, many senior officials benefited from executive training sessions at the Harvard Kennedy School. Such programs were instrumental in familiarizing Chinese government officials with Western market economies.

4. Statistical evidence on the importance of government effectiveness across countries

We now turn from historical cases to statistics to demonstrate government's critical role in fostering economic growth. For this, we rely on cross-country and time-series statistics collected by the World Bank on the quality of business environments and public governance.

We do not claim to have proved that market-supporting government behavior causes successful economic performance. Rather, we show a significant correlation between the two. There are two barriers to establishing causality. First, as is often the case with evidence from the field, our data don't have enough random variation in the independent variables. Second, the indices of the World Bank were not designed to specifically measure how proactive a government has been in supporting the market economy. Indeed, in some cases, they cannot distinguish between proactive government behavior and laissez-faire policy. In any case, the indices are measures of positive or neutral government behavior with respect to the market economy.

We first examine the World Bank's Doing Business Index, which has tracked the business environment in member countries for over two decades (Table 5). The idea has been to provide a set of measures for the effectiveness of the government in helping establish a healthy business environment. There are about 10 sub-indices, including the ease of starting a business, obtaining construction permits, getting access to electricity, registering a piece of property, obtaining credit, protecting minority investors, paying taxes, conducting trade across borders, enforcing contracts, and resolving insolvency. Although there has been some criticism of the accuracy and reliability of the data, the Index is a widely-used measure of government effectiveness.

We first show that a country's Doing Business Index score is closely correlated with its income level. Fig. 7 demonstrates the single variable correlation between a country's absolute score on the Doing Business Index and the logarithm of per capita GDP, showing a positive correlation.

Next, we run a set of regressions to show how economic performance is positively correlated with a country's Doing Business Index score (Table 6). We control for other factors affecting economic performance, such as the ratio of fixed asset investment to real GDP, the ratio of urban population to total population, and industrial value-added as a share of real GDP. Moreover, we introduce country fixed effects to con-

[7] Li, D. D., Shi, J., Chen, D., Lu, L., Wang, X., & Liu, K. (2021). Financial deepening and financial stability. Economic Lessons from China's Forty Years of Reform and Opening-up, 67.

[8] Li, D. D., Feng, M., Long, S., Yuan, G., Zhou, P., & Li, Y. (2021). Proactive macroeconomic management. Economic Lessons from China's Forty Years of Reform and Opening-up, 183.

[9] Li, D. D., Zhang, C., Fu, L., Guo, M., & Zhou, D. (2021). Learning Through Opening Up. Economic Lessons from China's Forty Years of Reform and Opening-up, 119.

Table 5
The Descriptive Statistics of Variables.

Variable	Obs	Mean	Std.Dev.	Min	Max
Doing business index	2026	60.720	13.190	19.978	89.541
Voice and accountability	4217	-0.025	0.998	-2.313	1.801
Political stability and absence of violence/terrorism	4184	-0.029	0.998	-3.315	1.965
Government effectiveness	4155	-0.035	0.991	-2.483	2.437
Regulatory quality	4155	-0.034	0.993	-2.645	2.260
Rule of law	4227	-0.033	0.994	-2.606	2.100
Control of corruption	4169	-0.032	0.998	-1.869	2.470
Logrithm of per capita GDP	4100	8.575	1.502	5.234	12.186
Growth rate of GDP	4112	3.762	5.413	-62.070	123.139
Growth rate of per capita GDP	4112	2.309	5.306	-62.378	121.780
Fixed asset investment / GDP	3462	22.736	7.686	1.097	79.461
Urban population / Population	4255	57.351	24.124	7.412	100.000
Industrial added value / GDP	3840	26.413	12.534	0.960	87.797

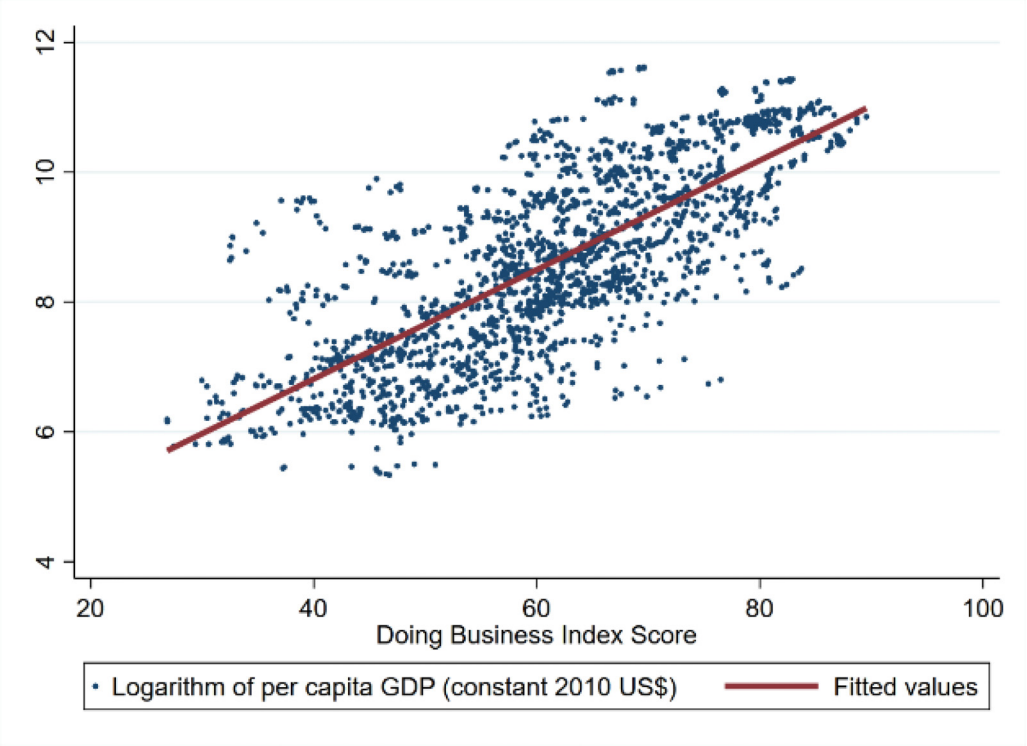


Fig. 7. The Correlation Between Per Capita GDP and the Doing Business Index.

Table 6
The Correlation Between Economic Performance and the World Bank Doing Business Index Score.

	(1)	(2)	(3)	(4)
	Growth rate of GDP		Growth rate of per capita GDP	
Doing business index	0.080**	0.066***	0.082**	0.105***
	(0.035)	(0.013)	(0.035)	(0.013)
Fixed asset investment / GDP		0.102***		0.083***
		(0.023)		(0.021)
Urban population / Population		-0.005		-0.013*
		(0.008)		(0.008)
Industrial added value / GDP		0.008		-0.008
		(0.012)		(0.012)
Logarithm of per capita GDP		-1.110***		-0.869***
		(0.147)		(0.145)
Country Fixed Effect	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes
Observations	1972	1684	1972	1684
R-squared	0.261	0.194	0.244	0.170

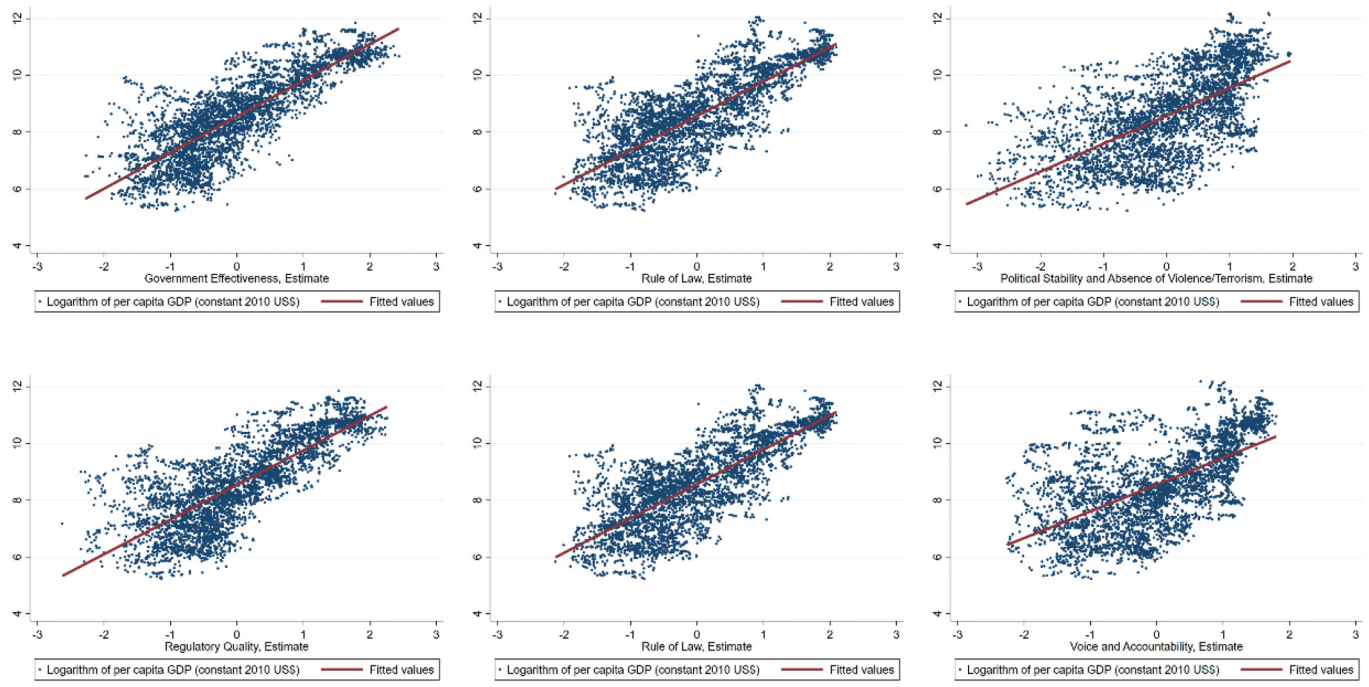


Fig. 8. The Correlation Between Per Capita Income and the Worldwide Governance Indicators.

trol for other country-specific unmeasured factors and year fixed effects to control for global macro factors.

After controlling for these factors, we focus on the GDP growth rate, an important indicator of economic performance. We find that this growth rate is positively correlated with the Doing Business Index score. The same pattern holds for the regression on the growth rate of per capita income. Overall, we can conclude that a country's Doing Business Index score is closely correlated with a country's growth rate as well as its income level.

Next, we consider another set of indices evaluating government behavior. The Worldwide Governance Indicators (WGI) by the World Bank report the quality of governance according to performance in six subcomponents, covering 215 countries from 1996 to 2019. The WGI subindices we use include the voice and accountability of the government, political stability and absence of violence, government effectiveness, quality of regulation, quality of the rule of law, and control of corruption.

We redo the regressions from above using each of the six indices to explain the growth rates of GDP and of per capita GDP (Table 7). Again, we find economic performance to be positively correlated with the quality of government. The most robust indicator among all subindices is that for government effectiveness.

5. Existing fields of study on government and markets

So far, we have demonstrated that government has become a prominent and influential participant in the modern market economy. In addition, we have shown that the behavior of a government is critical to economic performance. That is, the most prominent historical episodes of rapid economic growth have been spurred by the government's active involvement in the development of the market economy. Furthermore, across many countries in recent decades, more effective government is statistically correlated with higher per capita income and faster economic growth.

In this section, we briefly discuss the fields of study within economics that examine government and the economy, but argue that, taken together, they paint an incomplete picture.

5.1. Public economics

Public economics, sometimes referred to narrowly as public finance, is a major area of modern economic research. According to the Journal of Economic Literature (JEL), public economics is one of the 20 primary categories of economic research, with eight secondary subcategories ranging from the structure and scope of the government to state and local governments and inter-governmental relations.

At the risk of over-generalizing, we would assert that most research in public economics begins with the assumption that some consequences of a market economy are undesirable, and that the government, as guardian of social welfare, can step in to correct or mitigate these consequences. Therefore, research in public economics mainly focuses on the following questions: How can government mitigate economic inequality at the smallest cost to efficiency? How can government make up for incomplete insurance markets? How can the government help bring about the most socially desirable market equilibrium when there are multiple market equilibria? How can the government deal with externalities? And, how should the government provide public goods? (Stiglitz, 1986; Atkinson and Stiglitz, 2015) Where public economics makes behavioral assumptions, it presumes that government is acting to maximize social welfare.

In reality, of course, government often does not act to maximize social welfare. That doesn't mean that public economics is useless; it serves the valuable function of laying out the possible policies that government could choose. However, it does not predict or explain which policies government actually *will* choose. For example, it typically ignores how the desire to get re-elected affects politicians' behavior.

5.2. Public choice

By contrast, the field of public choice (pioneered by James Buchanan and Gordon Tullock; see Buchanan and Tullock, 2003) assumes that government is self-interested, just like consumers and private entrepreneurs. Simply put, public choice is the economic study of political decision-making (Mueller, 1989). However, it focuses on the behavior of government without paying much attention to the rich interactions

Table 7
The Correlation Between Indicators of Economic Performance and the World Governance Indices.

	(1)	(2)	(3)	(4)
	Growth rate of GDP		Growth rate of per capita GDP	
Voice and accountability	-0.871***	-0.499***	-0.048	0.051
	(0.143)	(0.151)	(0.138)	(0.156)
Political stability and absence of violence/terrorism	0.340*	0.088	0.394**	0.177
	(0.175)	(0.162)	(0.173)	(0.165)
Government effectiveness	0.492	0.782*	1.257***	1.218***
	(0.356)	(0.441)	(0.354)	(0.454)
Regulatory quality	0.011	0.678***	-0.157	0.479*
	(0.304)	(0.240)	(0.294)	(0.245)
Rule of law	-0.506	-0.552	-0.803**	-0.967***
	(0.399)	(0.359)	(0.390)	(0.371)
Control of corruption	-0.303	-0.141	-0.844***	-0.566**
	(0.273)	(0.278)	(0.265)	(0.281)
Fixed asset investment / GDP		0.121***		0.117***
		(0.017)		(0.018)
Urban population / Population		-0.002		-0.010*
		(0.006)		(0.006)
Industrial added value / GDP		0.011		-0.002
		(0.013)		(0.012)
Logarithm of per capita GDP		-0.802***		-0.287**
		(0.134)		(0.136)
Country Fixed Effect	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes
Observations	3984	3313	3984	3313
R-squared	0.086	0.157	0.065	0.121

between government and the economy and how such interactions shape economic outcomes.

Moreover public choice focuses mainly on the mature market economies of Western countries. It largely ignores emerging market economies.

5.3. Industrial organization

Research in the field of industrial organization often studies market outcomes that are not socially optimal (Jensen and Waldman, 2019). A common research approach is to first analyze the most socially desirable outcome as a benchmark and then identify a key feature in the actual market arrangement preventing the optimum from occurring. The analysis often goes on to propose possible policies for government. If monopoly power is the problem, the proposals often entail antitrust measures. If externalities are the issue, then government regulation may be the solution. Whatever the recommended policy, the literature typically presumes that government can implement it. Thus, like public economics, industrial organization focuses on market failure and (unlike public choice) ignores the possibility of government failure. What we are calling for, by contrast, is a new field that studies the interaction between *both* kinds of failure.

5.4. Political economy

Political economy is the area of economic research that studies how strategic political interactions influence economies function. In fact, political economy is the origin of modern economics. In the 19th century, when Adam Smith followers analyzed economic issues, they usually referred to their studies as explorations in political economy. Nowadays, political economy focuses on how politics interacts with the market economy, e.g., how politicians can win elections by promising particular economic policies or how interest groups and lobbies can influence the economic decisions of a legislature[10] (Grossman and Helpman, 1994; Drazen, 2018).

[10] For a survey of political economy, as it stood 25 years ago, see Alt and Alesina (1996).

As valuable as modern political economy studies are, they generally neglect the fact that many governmental actors are mostly shielded from politics. Specifically, bureaucrats in government agencies are largely free from the influence of elections, lobbies, and other political games. Moreover, these career government officials often have more power over the economy than elected politicians. Therefore, we need to go beyond political economy as it now stands to understand the effect of government on the economy.

6. Government and economics as an emerging field of study

Now that we have argued that existing fields if economics do not adequately cover the relationship between government and the economy, we wish to propose a new research agenda to fill the gap. Below is a selection of topics for future study in the emerging field of government and economics.

6.1. Positive research issues

6.1.1. Incentives of government officials

A government consists of government officials, and officials are people with their own personal goals. Through theory, empirical research and case studies, we think it would be valuable to understand how different ways of assembling these people to form a government will affect that government's economic decisions.

For people seeking elected office, one obvious personal goal is winning election and (once in office) winning reelection. For bureaucrats, a common goal is internal promotion. Most officials in China, face this latter sort of goal (as do bureaucrats in the U.S., Europe, the U.K., and Japan). Indeed, it can be argued that competition for promotion among local and regional officials had much to do with the Chinese success story (Li and Zhou 2005 and Maskin, Qian, and Xu 2000).

6.1.2. Entry and exit of enterprises

The entry and exit of enterprises have a significant impact on the performance of a market economy. For a country attempting to catch up with its competitors, rapid entry of new enterprises is a key to success. And the same is true for the case of new industries.

Normally, entry depends not only on the behavior of investors and entrepreneurs, but on government. Indeed, government usually has multiple instruments to speed up or impede the entry process. For example, local government can offer tax breaks or land to woo companies to their cities.

Exit of enterprises is also greatly affected by government decisions. In many cases, governments tend to impede the exit of enterprises. Kornai (1980) named this phenomenon the "soft budget constraint," and there is a large literature on the topic. Dewatripont and Maskin (1995) showed that the phenomenon results when the government cannot commit to refrain from refinancing a state-owned firm once the sunk costs, needed to set the firm up have already been incurred. That is, even though the firm was a bad idea in the first place, the government may stick with it, even if it can't recoup its losses. There can also be other reasons for government to interfere in the exit decision, e.g., protecting employment (Li and Liang, 1998). Our main point here is merely to suggest that examining government's role in entry and exit while taking into account government's own peculiar objectives seems an important item for the research agenda.

6.1.3. Market Development and regulation of markets

Development and regulation of markets is another area in which government behavior has a critical impact on an economy. A modern market economy grows when new markets arise, such as online retail, mobile communications and music streaming. Government has played a significant role in all three of these examples.

Many high-tech markets require prior government investment; the internet itself was created by government. And the mobile telephone industry could not possibly have been so successful had not government auctioned off large bands of radio frequencies.

In emerging market economies, government can greatly speed up development of new markets. In China, for example, the central government helped kickstart the stock market by setting down basic regulations and preventing fraud. Local Chinese governments provided the physical infrastructure and the rulebook that made possible the establishment of wholesale hubs for low-value commodities such as clothing, buttons, shoelaces, and zippers. These hubs have since grown to global prominence.

Governments have multiple motives for establishing markets: revenue, employment, political popularity, and so on. As for market regulation, the situation is even more complicated. Sometimes government acts in the interests of consumers represented by elected officials. Sometimes it acts to protect the interests of small enterprises against larger rivals. In other cases, a government may act in response to international pressure. Regardless, its behavior, we believe, it is worthy of deeper analysis.

6.1.4. Macroeconomic fluctuations and crises

All governments deal with macroeconomic fluctuations and major disruptions to the economy such as the global financial crisis of 2008–9 and the spread of COVID-19 in 2020–21.[11] However, their strategies differ greatly. Some governments prefer to stabilize the production side during an economic downturn, e.g., by subsidizing enterprises to help them maintain employment. The Chinese and German governments tend to follow this pattern, whereas other governments (e.g., that of the U.S.) prefer to stabilize or stimulate the demand side by directly issuing bank checks to consumers. There are yet other strategies, such as attempting to stabilize the financial sector and asset prices.

Why do governments have such different macroeconomic approaches? The literature usually assumes that a government will use the best instruments available to promote social welfare. In reality, the motivations of different governments are quite distinct. In the Chinese and German cases, governments seek to protect jobs and future tax bases by preventing the premature exit of enterprises. In the U.S. case, the government typically chooses to stabilize household consumption—a decision motivated by the need for popular support during an economic downturn. Thus, standard macroeconomic analysis is not enough. Analysis of government's motivations is needed too.

6.1.5. State-owned assets

State-owned assets are much more extensive than most people realize. The U.S. government for example, owns, the U.S. Postal Service, Amtrak, and a vast amount of federal land. In Germany, the government owns significant shares in many enterprises, (including, for example, Volkswagen) giving them powerful voting rights. In China, the government controls about 40% of all enterprises (contributing about 30% of GDP), although this number has been rapidly decreasing. The Chinese government also holds significant shares in commercial banks and in other financial assets.

What are the reasons for and consequences of state ownership of assets? Not enough research has been conducted on this topic, especially considering its high prevalence. In particular, more needs to be learned about the implications of state-owned assets for government budgets. State assets change government incentives and government decisions. We need to understand exactly what these changes are.

6.1.6. Infrastructure investment and public good provision

Infrastructure investment and public good provision have been widely debated in many countries. How they are driven by underlying government incentives is an understudied subject. For example, some governments seem able to adopt a long-term perspective and to commit to long-term investment projects even when these result in many years of financial losses before paying off. Others are stuck with taking a short-term perspective.

The way these investment projects are financed also varies a lot across countries. In some countries, government officials are happy to use debt financing to borrow money because they know the responsibility of paying off the debt will fall on their successors. In other cases, officials may be overly cautious because they worry the country's credit rating will fall, damaging their own reputations. There is much to do to disentangle these opposing forces.

6.1.7. Government and economic openness

To what extent an economy should be opened to world markets is one of government's most important decisions. Much research has already been devoted to understanding the politics behind tariffs, (e.g., Grossman and Helpman, 1992). One recent stylized fact that has emerged is that in countries with competitive new industries such as telecommunications, internet-related businesses, and electric vehicles, government seems to push more for economic openness. Further research is required in order to determine whether this is indeed the case and, if so, to identify the factors behind the correlation.

6.2. Normative Research Issues in Government and Economics

In addition to positive topics, there are also a number of big issues for normative research in government and economics. Here the goal is to determine the best institutional arrangements for government in order to achieve socially optimal economic outcomes. Below, we list a few questions in the hope of stimulating further study.

6.2.1. Optimal size and scope of government

Given a set of political and economic institutions, what is the optimal size and scope of government? This is a highly stylized question. The answer provides a benchmark against which reality can be measured. An oversized government will draw too many resources from the private sector, detracting from efficiency. A government that is too small may have insufficient capacity to adequately support a market economy. Similarly for proper government scope.

[11] On the topic of the post Covid recovery, Stiglitz (2021) makes a strong case why the government has an important role to play.

6.2.2. Optimal structure of taxation

Research in government and economics should also yield insights into optimal taxation. Traditional research in public economics typically assumes that government motivations are independent of the form and level of taxes and therefore focuses on the behavior of economic agents. In reality, however, a government's behavior is shaped by the nature of the of taxes it collects. For example, if government collects value-added taxes from enterprises and can retain a significant proportion for its own operations, it tends to be pro-business. This brings us to an important research question: Taking into account the consequent behavior of government, what structure of taxation is the most socially desirable overall?

6.2.3. Optimal structure of government and compensation for government officials

Here are a few of the leading questions that interest us:

What offices in government should be decided by election? Should there be term limits for offices? What kind of positions should be assigned to long-term career officials? How should career officials be evaluated and promoted in order to give them the most effective incentives for good performance (a preliminary analysis can be found in Maskin and Tirole 2004)?

What should be the relationship and discussion of responsibility between central and local governments? Should local governments collect most tax revenue from their own regions, or should taxes be collected by the central government and then transferred back to regions? These alternative arrangements would presumably have different effects on the behavior of local governments. For example, when local governments collect most taxes on their own, they might have greater incentive to support the local economy. When revenue is transferred from the central government, local officials might be expected to be more supportive of a unified national market.

Finally, what is the best way for a government to reward officials for good performance? Even if officials are not primarily interested in pecuniary benefits, we know that the government sector finds attracting talented people harder when salaries and benefits are low (Makridis, 2021). Moreover, underpaid government officials seem more vulnerable to bribery and improper influence. Such considerations prompt the questions: Should compensation of government officials be similar to that of comparable positions in the business sector?[12] Should government officials be given fixed incomes or should compensation be tied to economic performance? Answers to these questions are not only of academic interest but of practical value.

7. Concluding remark

We hope that this paper has convincingly made the case that government plays a critical role in a modern economy and that the interaction between government and the economy deserves wider and deeper study. We look forward to seeing how the emerging field of government and economies develops.

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[12] Garibaldi, Gomes, and Sopraseuth (2021) recently examined a related issue why government hires disportionately highly educated people.