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Article

Fiscal rules migate economic setbacks during crises

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52+53 2020

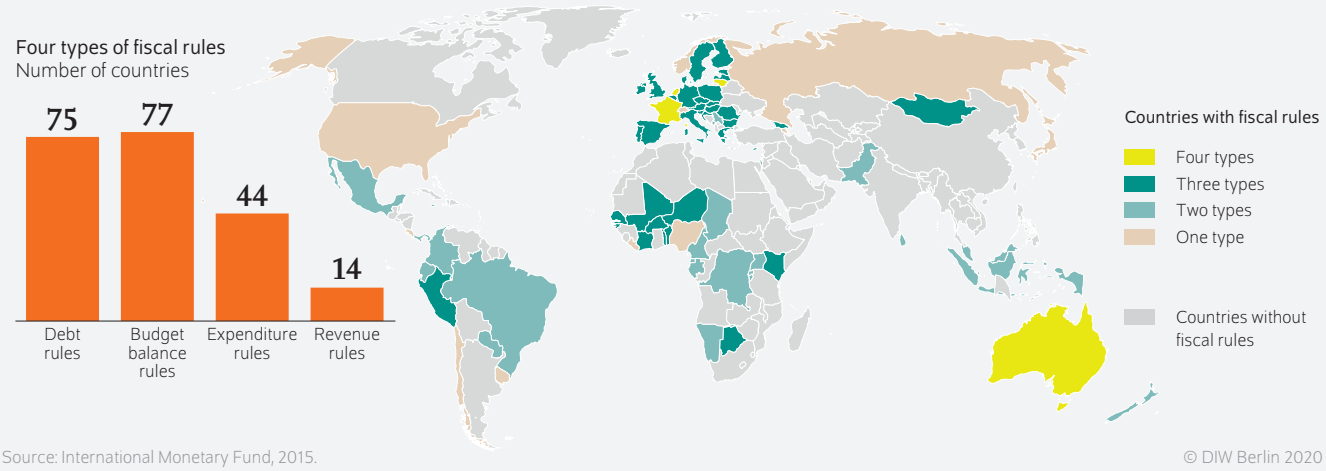
AT A GLANCE

Fiscal rules mitigate economic setbacks during crises

By Alexander Kriwoluzky, Laura Pagenhardt, and Malte Rieth

- Fiscal rules limiting debt becoming more widespread: number of countries with fiscal rules increased from seven in 1990 to 91 in 2015
- Panel model estimates the differences in the economic development of countries with and without fiscal rules in a crisis situation
- GDP, private consumption, and investments develop markedly better and recoveries last longer following a crisis in countries with fiscal rules
- Expansive fiscal policy is an important driver of this positive development, especially when exceptions to fiscal rules are possible
- If suspended, fiscal rules should be reintroduced after the end of the crisis; changes to their design are not ruled out

91 countries have fiscal rules, usually combining several types
Countries with at least one fiscal rule



Source: International Monetary Fund, 2015.

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FROM THE AUTHORS

In the current coronavirus recession, fiscal rules such as the German debt break are likely to have proven their value. It is now important that the debt break—with desirable changes—be reinstated. Only this way can the positive effect of fiscal rules be preserved for future crises.
— Alexander Kriwoluzky —

MEDIA

Audio Interview with Laura Pagenhardt (in German)
www.diw.de/mediathek

Fiscal rules mitigate economic setbacks during crises

By Alexander Kriwoluzky, Laura Pagenhardt, and Malte Rieth

ABSTRACT

91 countries around the world have established fiscal rules to limit national debt and/or budget deficits. Using data from previous natural disasters, this report investigates how these fiscal rules affect overall economic development following a crisis. The results show countries with fiscal rules fare better after such shocks than those without. GDP, private consumption, and investments develop markedly and sustainedly better: They are two to four percent higher and growth lasts for two to four years. The key factor here is likely fiscal policy, which can be expansionary, particularly if the fiscal rules provide for exceptions. This is in adherence with the idea that the rules create fiscal space in good times that can later be used in bad times. For example, during the coronavirus pandemic, the German debt break has proven its worth. However, to be prepared for future crises, it must be re-implemented in a timely manner.

The spring 2020 lockdowns and further containment measures in response to the global coronavirus pandemic have required large-scale assistance to households and businesses, resulting in almost all countries running up enormous debt. Fiscal rules, such as the Stability and Growth Pact in the EU or the debt break in Germany, have therefore been suspended, at least temporarily. The German *Bundestag* has even extended the suspension into 2021. However, there is growing concern worldwide that the debt can no longer be reduced and that fiscal rules will not be taken seriously when not adhered to.

As of 2015, 91 countries had fiscal rules in the form of numerical limits for budgetary aggregates such as debt, the budget balance, expenditures, or revenues. The main objective of the rules is to limit an increase of national debt. Thus, fiscal rules provide an increasingly important framework worldwide and are recommended by international organizations and supranational institutions such as the International Monetary Fund (IMF) and the Organisation for Economic Co-operation and Development (OECD).[1]

There is a growing consensus in the empirical literature that fiscal rules limit national debt effectively and thus also stabilize countries politically.[2] At the same time, the theoretical literature and policymakers often worry that committing to debt stabilization undermines the flexibility required to respond efficiently during crises. This potentially unwanted side effect has received less attention in research. However, given the coronavirus pandemic, the biggest negative economic shock since World War II, it is arguably at least as important.

Fiscal rules can have a major influence on how quickly an economy recovers from shocks. On the one hand, constraints on debt and/or spending could prevent the government from

1 Cf. for example OECD, "Governments should target prudent debt levels and fiscal rules will help get there," press release, July 3, 2015, (available online; accessed on December 11, 2020. This applies to all other online sources in this report unless stated otherwise).

2 Cf. for example Alberto Alesina and Andrea Passalaqua, "The political economy of government debt," in *Handbook of Macroeconomics Vol. 2* (City: Publisher, 2016): 2599–2651.

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Box

Data and model: natural disasters as macroeconomic shocks

Natural disasters have a great impact on the economy, as they destroy real capital and consumer durables. Due to global climate change, storms and floods are increasingly important drivers of macroeconomic fluctuations. Moreover, they function as a measure of shocks, as the existence of a fiscal rule does not affect whether natural disasters occur or not. Thus, they can be assumed to be exogenous in the empirical analysis, allowing causal statements to be made.

The EM-DAT database from the Center for Research on the Epidemiology of Disasters (CRED) is used for the analysis. The database combines data from different sources (like UN organizations, governments, insurance companies, and press agencies) and includes information on meteorological, geophysical, and climatological catastrophes that have occurred worldwide since 1900. For an event to be recorded, it must fulfill at least one of the following criteria: ten or more casualties; 100 or more injured or rendered homeless; the country declared a state of alarm or requested international help.

The database delivers information on the human and economic impact, the date the catastrophe began, and how long it lasted. Following the literature on the macroeconomic consequences of natural disasters, the estimated direct damage to property, crops, and livestock (in USD) is used to measure the shock.[1] Only natural catastrophes that have sudden and direct effects are used in the analysis to concentrate on unexpected and exogenous shocks to the economy. These are earthquakes, landslides, floods, and storms.[2]

Additionally, quarterly macroeconomic data for 68 countries for the period of the first quarter of 1970 to the fourth quarter of 2018 is used. To concentrate on the impact of major shocks, only the 50 percent of the most damaging natural disasters are included. Outliers are removed. This results in a total of 1,026 shocks with estimated damages between 0.03 percent and 4.55 percent of GDP. Of these shocks, 320 occurred in countries with fiscal rules.

Model calculation

From the IMF's annual data on fiscal policy rules, a simple indicator is constructed for the empirical analysis at quarterly frequency, which equals one if a country has adopted one or more fiscal rules. The indicator does not differentiate between the number or type of fiscal rules and does not take into consideration how strictly they are implemented.

The reactions of the dependent variables to a shock (impulse responses) are calculated over four years in an econometric panel data model. The central coefficients in the estimated equation are the parameters for the interactions between the shock and the indicator variable for fiscal rules. These coefficients measure the difference between the dynamic effects of the shocks under fiscal rules and without such rules (Figure 3).

To separate the shock-absorbing effect of the fiscal rules from other potentially relevant characteristics of the respective countries, the level of development and government effectiveness are considered as alternative shock-absorbing mechanisms. Therefore, they are also interacted with the shock variable and included in the regression. Additionally, the following control variables are used when calculating the impact of natural catastrophes: the degree of urbanization, population density, a measure of the state of democracy, and the exchange rate. These are included with a lag of four quarters to prevent influence from the shocks. In addition, there are country fixed effects to account for time-invariant country characteristics (such as exposure to disasters and initial development levels), and year fixed effects to account for unobservable, time-varying factors (for example, global growth and inflation or climate change).

1 Ilan Noy, "The macroeconomic consequences of disasters," *Journal of Development Economics* 88.2 (2009): 221–231.

2 The extent of the catastrophe is standardized using the quarterly nominal GDP in USD one year before the event in order to make the shocks comparable between countries.

responding quickly and flexibly to disasters. On the other hand, if fiscal rules contribute to debt stabilization in good times while still allowing sufficient flexibility during crises through appropriate clauses, they could even expand the government's scope in responding to shocks.

Therefore, this report investigates how countries with fiscal rules fare after experiencing significant negative shocks compared to countries without such rules. Natural disasters are used as a measure of such shocks (Box).

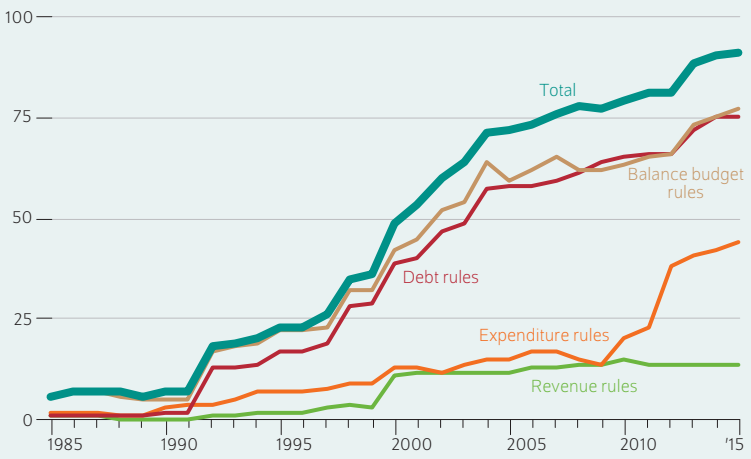
Four types of fiscal rules in 91 countries

The IMF defines fiscal rules as "long-lasting constraints on fiscal policy through numerical limits on budgetary aggregates."[3] Four types of fiscal rules have been defined: debt rules, budget balance rules, expenditure rules, and revenue rules. First, debt rules limit public debt as a percentage of Gross Domestic Product (GDP), thus providing a direct link to debt sustainability. However, they often lack a short-term target and can lead to a procyclical fiscal policy. If an economy

3 Andrea Schaechter et al., "Fiscal rules in response to the crisis. Toward the next-generation' rules: A new dataset," *IMF Working Paper* no. 12/187 (2012) (available online).

Figure 1

Countries with fiscal rules
Number between 1985 and 2015



Source: IMF (2015).

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The number of countries with fiscal rules has been increasing rapidly since the beginning of the 1990s.

is hit by a shock and must adhere to the debt rule, necessary spending and investment is prevented. Debt rules exist in 75 countries, such as European Union Member States.

Second, there are budget balance rules (deficit rules) that limit a government's structural, cyclically adjusted, or overall deficit. While these rules contain precise, operative guidelines, adjusting them in economically difficult times is often challenging. The rules are complex, as there are many different types of deficits, which makes them difficult to monitor and communicate to the public. They are in use in 77 counties, among them Germany, who went above and beyond the regulations in the Stability and Growth Pact by implementing its own stricter deficit rule that limits the Federal Government's structural new debt to 0.35 percent of nominal GDP.

Third, expenditure rules limit total, primary, or current spending. Last, revenue rules determine the upper or lower limits for public revenue. Because these two rules do not directly target debt, they do not risk making spending too procyclical. However, they are implemented much less often: 44 countries, such as Russia, have expenditure rules, and revenue rules are in place in 14 countries only, among them France.

Due to the different advantages and disadvantages, two or more fiscal rules are often combined in practice. These rules can be introduced at a national or supranational level. For example, the European Union introduced the Stability and Growth Pact in 1992, which limits both the level of debt as a proportion of GDP to 60 percent and the annual budget deficit of its members to three percent. Moreover, there are rules at a national level in many European countries, such as the German debt brake.

Over the past 30 years, fiscal rules have become more widespread (Figure 1). In 1990, only seven countries had such a rule. By 2015, the number had increased to 91. Debt and balance budget rules are the most common.

The IMF maintains a database of annual data (Box) that provides information on fiscal rules (type, year of introduction), the legal basis, and monitoring bodies. Moreover, the database also contains escape clauses, which define situations in which it is allowed to deviate from the rules. This can be of particular importance in the case of a natural catastrophe or a pandemic.

Countries with fiscal rules recover better

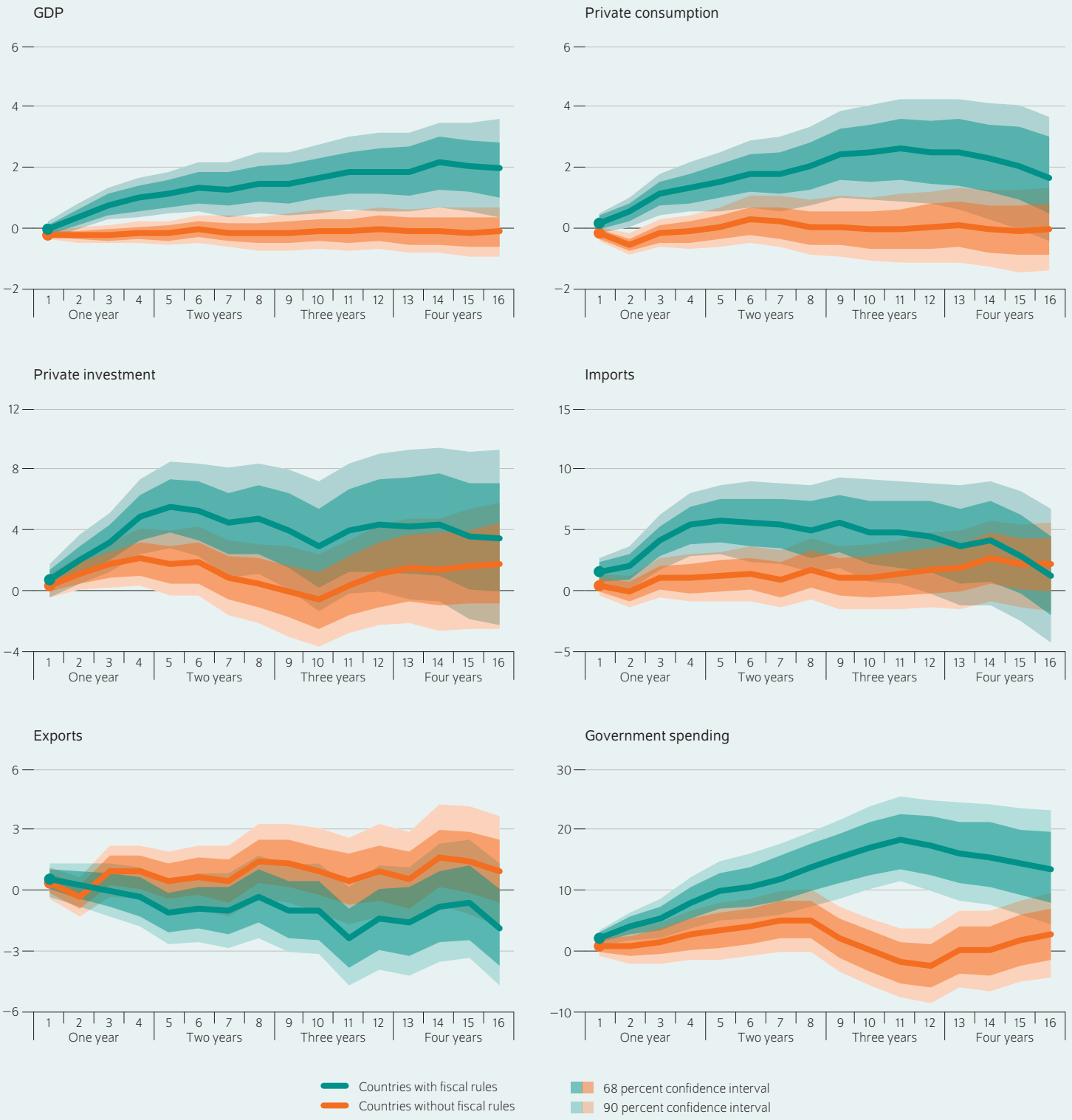
To estimate the different reactions of countries with and without fiscal rules to natural disasters, a panel model is used (Box). The estimates show major differences between the two groups (Figure 2). Above all, production recovers more strongly after a shock in countries with fiscal rules. Growth initially declines only slightly and its subsequent recovery is very strong. Production increases continually and markedly above the pre-shock level. In contrast, GDP decreases in countries without fiscal rules and only returns to the pre-shock level and does not exceed it. Similarly, following a natural catastrophe, private consumption increases in the first group significantly while in countries without fiscal rules, it sinks initially and then recovers only gradually. The situation is similar for imports. Private investments increase in both groups, but the increase is greater and lasts longer in countries with fiscal rules. The opposite is true for exports.

Finally, public spending increases in both groups for about a year and a half after the disaster. Following that period, public spending returns to the previous trend in countries without rules while it continues to increase in countries with fiscal rules. Together, the results show that fiscal rules improve the absorption of negative economic shocks markedly.

To test if the impact of the rules on economic growth after natural catastrophes is statistically significant, the differences between the two groups of countries are calculated. A similar picture emerges (Figure 3). GDP and all of its components (with the exception of exports) are significantly higher following a natural disaster in countries with fiscal rules. The differences are major and long-lasting: they are between two and four percentage points and last for two to four years. Apart from the first quarter, production is markedly higher in countries with rules. The difference after three years is around two percentage points. Private consumption in particular contributes to higher economic output beginning in the first quarter following the catastrophe. The difference

Figure 2

Effects following a shock in countries with and without fiscal rules
Change to GDP and its components in percent according to quarters



Source: Authors' own calculations.

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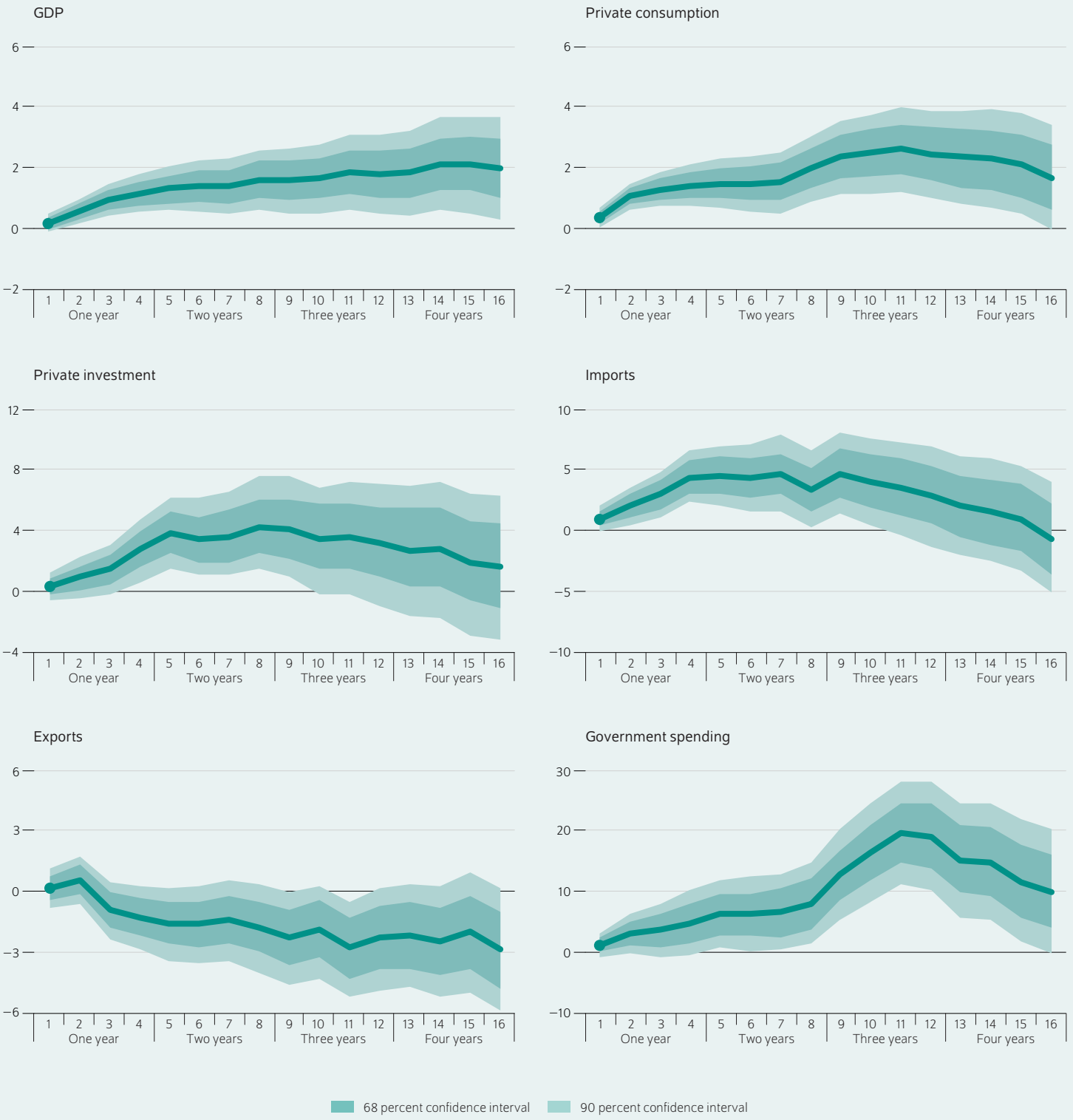
During a crisis, the economy in countries with fiscal rules develops better over the long term in almost all categories.

Figure 3

Differences in the reaction to a shock between countries with and without fiscal rules
Change in GDP and its components, cumulative difference in percentage points



Source: Authors' own calculations.

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There are especially large differences in private investment, imports, and government spending between countries with and without fiscal rules.

for private investments is initially smaller. It begins increasing in the second quarter in countries with fiscal rules and increases significantly beginning in the third quarter. These investments widen the GDP gap with countries without fiscal rules.

A detailed analysis of the four types of fiscal rules shows that the results are mainly driven by countries that have debt and balance budget rules. Qualitatively similar patterns emerge for revenue and expenditure rules, but the results are statistically less significant.

Expansive fiscal policy as a driver

How fiscal policy reacts to a shock is likely to be a key factor in these differences. Total public spending is significantly and sustainedly higher in countries with fiscal rules. The difference is also economically significant: it is almost 20 percentage points and remains ten percentage points higher even after four years. Government consumption, subsidies, and other spending, which includes disaster relief, drive fiscal expansion in particular (Figure 4). The development of subsidies—government transfers to public and private firms for goods and services[4]—is particularly striking. This category accounts for only around three percent of total public spending on average across countries but the differences in the reaction to the shock between the two groups is large, amounting up to 40 percentage points.

Government payments for damages to capital goods due to natural disasters are primarily included in the "other expenditure" category. This category also includes payments and donations to individuals, private non-profit institutions, non-governmental foundations, or companies. In the case of natural disasters, the category also includes government-purchased goods and services that are directly distributed to private households for final consumption as well as extraordinary capital transfers for damages or injuries caused by catastrophes and not covered by insurance. Other expenditure may only comprise five percent of total state expenditure in advanced economies, but it comprises up to 25 percent in developing economies. For this category, the difference in the reactions is largest (100 percentage points after about three-quarters of a year).

Finally, the differences in the growth paths of the total balance, interest rates, and credit premiums following a shock suggest why fiscal policy in countries with fiscal rules is more expansive. The overall deficit in these countries is four percentage points higher. Nevertheless, the ten-year interest rate on government bonds, a measure of financing conditions in a country, is significantly lower. Spreads in credit default swaps, which measure the credit risk of countries, are also lower. Altogether, differences in government solvency and a country's market access explain expansive fiscal policy reactions.

A look at the empirical literature on fiscal rules supports this conclusion. There is increasing evidence that such rules reduce public debt over the long term.[5] Sustainable public finances, in turn, arguably allow governments to borrow more cheaply in times of stress. This would be one possible reason why countries with fiscal rules expand their spending more than countries without. For example, it is known that governments with more fiscal space also react more expansively to financial crises than countries with little space.[6]

In addition, some technical features of fiscal rules are important for understanding these results. For example, budget balance rules often contain the previously mentioned escape clauses and/or are defined cyclically. Both are aimed at being able to respond more flexibly to economic shocks. Formal escape clauses explicitly allow temporary deviations from the rules in the case of natural catastrophes or other shocks beyond the government's control. A current example is the coronavirus pandemic, which triggered an activation of the escape clauses in the EU's Stability and Growth Pact, allowing countries to temporarily exceed the deficit limit without fearing an excessive deficit procedure. Thus, well-defined escape clauses should at least partially explain increased government spending in the event of a disaster.

Conclusion: fiscal rules create space and prepare countries for crises

The economy remains more stable following major negative shocks in countries with fiscal rules than in countries without such rules. This was shown via the example of past natural disasters that exhibit some parallels to the current coronavirus pandemic due to the exogenous nature of shocks. In the four years following a shock, countries with fiscal rules have a significantly higher and longer lasting production level than their counterparts. Private consumption and investments also increase.

Fiscal rules offer sufficient fiscal policy flexibility to react to shocks when they are combined with escape clauses or defined across medium-term time horizons. At the same time, in the long run, they likely only create the fiscal space governments need in the short term to support the economy.

Overall, these results indicate that well designed fiscal rules do not exacerbate but rather mitigate the presumed fundamental trade-off between the commitment to low government debt and the need for an active fiscal policy in

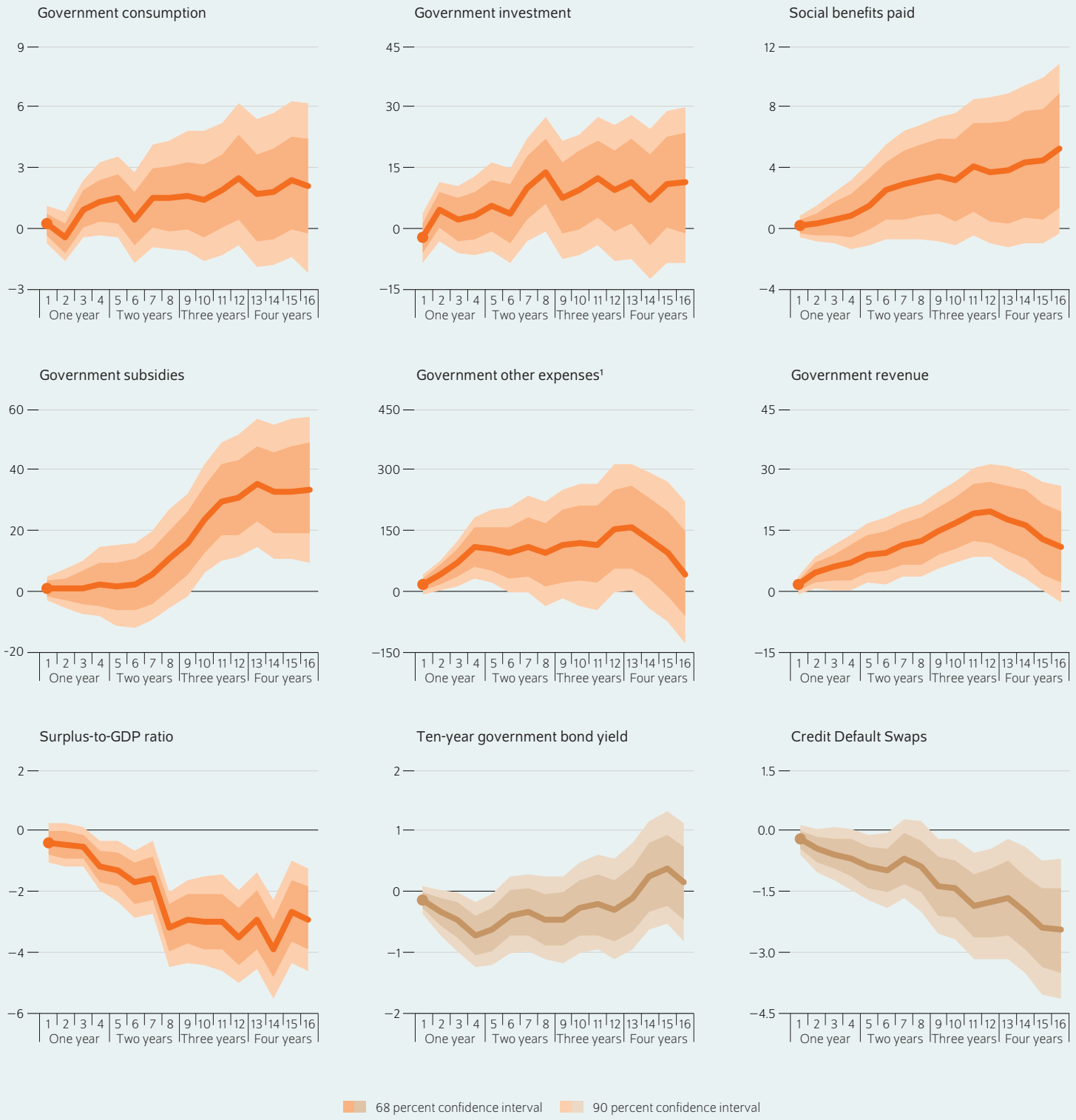
4 Government transfers to households are generally not included in this category unless a household functions as a manufacturer. Instead, these transfers are considered a part of social benefits and other expenditure. These categories are also higher following the shock in countries with fiscal rules.

5 Friedrich Heinemann, Marc-Daniel Moessinger, and Mustafa Yeter, "Do fiscal rules constrain fiscal policy? A meta-regression-analysis," *European Journal of Political Economy* 51 (2018): 69–92.

6 Christina D. Romer and David H. Romer, "Phillips Lecture – Why Some Times Are Different: Macroeconomic Policy and the Aftermath of Financial Crises," *Economica* no. 337, vol. 85 (2018): 1–40 (available online).

Figure 4

Differences in reactions of fiscal policy instruments to shocks in countries with and without fiscal rules
Cumulative difference between the groups in percentage points



1 Disaster relief, for example.

Source: Authors' own calculations.

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Countries with fiscal rules spend significantly more on subsidies and other expenses such as disaster relief and have easier access to financing.

the event of a crisis. Countries with fiscal rules are arguably better prepared to react to major shocks with expansive measures.

Fiscal rules have likely proved their value during the current coronavirus recession. However, this also implies that the rules suspended during the crisis must be re-implemented within a foreseeable time frame. The current debated changes to the debt break, which would make it easier to invest more sustainably, are quite desirable.[7] What is important is that the debt break, in whatever form, is ultimately reintroduced. Only in this way can the positive effect of fiscal rules exist during future crises.

7 Michael Hüther and Jens Südekum, "A new paradigm for Germany's fiscal policy after Corona," *New Economy Working Paper* (2020) (available online); Marcel Fratzscher, Alexander Kriwoluzky, and Claus Michelsen, "Gut investierte Schulden sind eine Entlastung in der Zukunft," *Wirtschaftsdienst* no. 5 (2019): 307–329 (in German; available online).

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