



# Investing in Our Future

Empirical Evidence of the Impact of Public  
Spending on Inclusive Growth

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### Investments in the future and public goods

Harmonizing fiscal policy with an inclusive and sustainable growth model is a complex and often conflict-rich task. To this end, one question that must be answered is how government expenditures with a positive effect on sustainable economic growth can be distinguished from expenditures with a neutral or negative effect in this respect.

The traditional distinction between consumption spending, which is supposed to be solely present-focused, and investment expenditures that are “automatically” regarded as future-oriented is no longer suitable as a standard for judging the quality of spending budgets with respect to their impact on growth and sustainable development. Not every expenditure deemed investment in the traditional sense – that is, every large outlay on capital goods or infrastructure – can be considered to be a macroeconomically productive investment. Likewise, consumption spending can, to some extent, furnish basic inputs for growth and sustainable development, or promote capital formation in some important dimension of sustainability (human capital, social capital, natural capital).

In this broader sense, we conceive future-oriented public investments to be all those activities and related expenditures whose increase have a positive effect on economic – and in the best case – inclusive growth. This paper will clarify which expenditures these are based on in an evaluation of numerous empirical studies. However, the opposing assessment of “not growth-enhancing” is of course not a judgment of unworth, as it is in no way the task of all state expenditures to promote (inclusive) economic growth.

In addition, investments in the future are not the only public activities that are important for a country’s economic prosperity. Prior to these come the more basic public goods. In a market economy, these

include the rule of law and human-rights guarantees, internal and external security, securing clear property rights, political stability within a democratic framework, (free) trade policies, price stability, and competition policies. Without these government tasks nothing further can follow; providing for them is the top priority of every political system. However, once they have been initially secured, additional increases in expenditure on these issues will quickly become unproductive after a certain level. Technically speaking, after reaching an early optimal point, their economic marginal productivity quickly declines with further spending growth.

### Government size and government debt

Before seeking to identify government spending with positive future effects in detail, the survey study briefly addresses the economic growth impact of the ratio between state spending and GDP (public-spending ratio), as well as of government debt. The magnitude of the effect of total public spending on growth has long been quite controversial in the empirical literature. Even the appropriate definition of the public sphere in such measurements is a matter of controversy. In recent times, the majority of empirical work shows very clearly that in rich countries, the correlation between economic growth and government size is significantly negative. However, the negative correlation between the public-spending ratio and economic growth is not a linear function. Also, it is becoming increasingly clear that it is not the size of the state sector, but rather its quality – its composition and efficiency – that is crucial for economic growth.

From a certain level onward, government debt also has a negative effect on economic growth. The empirical analysis of the relationship between state debt and economic growth is complicated by the fact that the direction of causality is difficult to determine.

In developed economies, no systematic relationship between the level of government debt and economic growth rates can be observed under a debt ratio (state debt to GDP) of about 90 percent. Things look different beyond this threshold; here, all empirical work shows a clearly negative relationship between government debt and growth.

The finding that high public-spending ratios and high government-debt levels have a negative effect on growth can be used to derive a clear framework for spending with positive growth effects. Thus, investments in the future can be seen as achieving undiminished effect only if their financing is not associated with a rise in the public-spending ratio or increases in state debt. Where the goal is to strengthen inclusive and growth-promoting public spending, it is a task aimed first and foremost at qualitative improvement in the expenditure structure.

### Investment and infrastructure

The rate of accumulation of physical capital is one of the key determinants of overall economic growth. The government has two channels of influence on the overall national investment rate: indirectly, by influencing the private sector's investment incentives, and directly, through its own public investments.

The empirical evidence for the first group, which involves providing financial investment incentives for the private sector (subsidies), is mixed, at best. However, public-sector investments in the form of infrastructure can serve as a vital input for private economic production.

Empirical studies regularly confirm the role of public investment in promoting growth, while negative findings in this regard are rare. The initial marginal productivity of investment is very high, thanks to its role as input. However, infrastructure in the OECD's industrialized countries is generally already well-developed. In contrast to the very productive nature of infrastructure-maintenance investment, further infrastructure expansion continues to have a positive, but smaller marginal productivity. If, by contrast, new types of infrastructures are being added – digital infrastructure – expansion, too, can exhibit a high marginal productivity.

Within developed industrial societies, a certain consensus has developed in the empirical literature that public investment – despite its growth-promoting effects – is only of secondary importance in comparison to spending for human capital. This is because once a certain development level is reached, the marginal productivity of physical capital progressively declines, while the significance of knowledge-related skills increases.

### Education

Human capital has been in the spotlight since the advent of “new growth theory,” which treats growth-promoting technical progress as endogenous to the model.

The fact that education is both an area with high relevance to growth and is susceptible to government influence is a historically unambiguous state of affairs in the OECD states and in most other countries. However, this is by no means self-evident. As an individual human-capital investment, education provides annual yields of between 5 percent and 15 percent per year, expressed in terms of the marginal product of labor. The empirical evidence for strong growth-promoting effects associated with public-education activities is quite clear. Above all, the average duration, and thus the intensity, of school attendance at the secondary and tertiary level have a positive effect on economic growth.

Education can also represent a missed opportunity for growth when it exacerbates rather than combats inequality. It is therefore important to increase access to high-quality education and training, improve equality of opportunity, and particularly to increase the too-low education-investment rates among low-income groups. This renders economies not only fairer, but also more prosperous. To this extent, education must be seen as a core area of inclusivity- and growth-promoting expenditure.

### Research and development

Technological progress is a key driver of economic growth. It is also a complex economic and social process, in which only few clear causalities can be identified. Within this nexus, the public sector can try

to promote technological progress through investments in research institutions and universities. R&D expenditure can be conceived as investment in knowledge, which can in turn be translated into new technologies and more efficient methods of production. To the extent to which such knowledge-focused investments are successful, it can be assumed that higher R&D expenditures will be associated with higher growth rates.

In examining the empirical literature, the growth-promoting effects of public and private R&D expenditure should be separately considered, as private R&D investments are deemed to be particularly effective with regard to growth. Some researchers recommend supporting companies' innovation particularly by using tax breaks, subsidies, patent protections and similar means. The relationship between public and private R&D spending is also tricky insofar as some authors assert complementarities between the two activities, while others show that public R&D crowds out private activities. A synopsis of the various studies provides a small preponderance of studies that indicate complementarity. However, this is by no means a definitive clarification of the issue. In this respect, one can currently speak of positive but fragile evidence for the growth-promoting effects of public R&D expenditures.

### Family policy

Regarded as growth policy, family policies have a quite ambivalent nature, as they are very heterogeneous in practice. Depending on its design, family policy can certainly have a purely consumption-focused or even explicitly growth-retarding effect. Possible positive growth-promoting effects of family-policy measures can be conveyed through two channels. First, measures that enable career and family to be more easily reconciled produce a higher labor supply, particularly of mothers with preschool-age children. Second, fertility-increasing measures in an aging society such as Germany expand the otherwise shrinking labor supply, and thus also the available stock of human capital.

As an example of the larger overall evaluation of family-policy benefits in Germany, it is clear that within the complex decision-making process associated with the realization of the desire for children, family-policy measures from the outset can serve only as one

influence among many. The most important effect on the labor supply of mothers can primarily be attributed to direct and tax-related support for child care. This is consistent with other empirical research, which has a longer tradition especially in the United States.

The findings overall lead to the conclusion that family-policy benefits can be categorized in the area of growth-promoting state expenditure, although a nuanced consideration remains necessary due to the negative effects of some individual measures.

### Health policy

Health issues sit at the intersection of social and economic sustainability. When considering human capital, health is therefore an important factor relevant to growth, as healthy working people are psychologically and mentally more robust. They are more productive and earn higher wages. Moreover, they rarely miss work. The empirical literature also shows health expenditure to have a significantly positive influence on overall economic growth.

However, the influence of health on economic growth is not as straightforward as it may appear. At least in industrialized countries, the question arises as to whether the causal nature of this relationship might gradually reverse. Under this scenario, with economic growth, rising incomes would also enable people to spend more for their health. Economic growth would in this sense become the explanatory variable for health, and thus also of human capital. However, this alone is no sufficient reason to reject placing health-related expenditures in the category of growth-promoting expenditure. Nevertheless, the potentially bidirectional causality should be cause for caution.

### Gender equality

Equality policy, if viewed simply as referring to gender relations, is directed at all women and men. In this regard, gender policy is differentiated from family policy, which considers only persons with families and children. With equality policy, a clear distinction must also be made between policies in developing countries and policies in developed countries.



For developing countries, significantly positive growth effects can be demonstrated with regard to stronger health and education spending for women, who are often very strongly disadvantaged in these countries as compared with men. In developed countries, there is considerable divergent and contradictory evidence.

In summary, empirical findings indicating a growth-promoting effect for gender-equality policies are primarily present where equality goals coincide with other aspects of growth-promoting policy, as they typically involve the same mechanisms of influence. This includes equality policy and family support, such as maternity policies and state-funded child care. This applies analogously to activities supporting equality in education and the labor market, as well as gender-equitable access to health care.

### Environmental sustainability

The dimension of environmental sustainability poses difficulties, as studies that differentiate between different areas of environmental spending do not exist. With regard to environmental economics, state spending plays only an instrumentally secondary role in comparison to instruments based on the “polluter pays” principle, that is, regulatory or revenue-side instruments. However, this does not mean that environmental expenditure in the course of ecologically sustainable development would be detrimental. Yet since this distinction is of a primarily normative nature, it would be inappropriate given the lack of empirical data to use it as the basis for an evaluation with any nuance. Consequently, environmental-protection and conservation spending will all be (provisionally) regarded as serving this sustainability dimension.

### Quality of life

There is no accepted means of measuring quality of life. The term is quite broad, and is associated with complex actions and reactions. Peoples’ heterogeneous preferences render it impossible to define an exhaustive list of possible positive influences on quality of life. By contrast, it is somewhat easier to ascertain the effects of higher or lower qualities of life on certain indicators such as life satisfaction.

Empirical findings suggest that up to a certain threshold, there is a positive relationship between per capita GDP and life satisfaction. The development of extreme poverty toward economic prosperity is – as might be expected – conducive to individual feelings of happiness. However, the relationship is not linear, and weakens with increasing income. In economic terms, the marginal utility of additional income is low if income is already high. In addition to per capita income, an intact social environment, social interactions, the maintenance of ethical standards, and perhaps protection of the environment are particularly significant for a high quality of life. Public expenditure that one way or another affects the quality of life would thus be assessed correspondingly positively in these dimensions. However, research in this area is not yet broad enough to yield reliable findings.

### About us

“Inclusive Growth for Germany” is a publication series from the Bertelsmann Stiftung’s Shaping Sustainable Economies program. The German economy is as strong as ever. But growth in recent years has not been inclusive. Inequalities between people, generations and regions have increased. In order to make the successful social-market-economy model fit for the future, we must rethink the relationship between growth and a socially inclusive society. The series contributes to this important debate by analyzing current developments and offering feasible recommendations for action.

In keeping with the longstanding social commitment of its founder, Reinhard Mohn, the Bertelsmann Stiftung is dedicated to serving the common good. Independent and non-partisan, the Stiftung acts as an agent of social change in supporting the goals of a sustainable society.

## Three questions for Anja Hajduk

Hamburg-based member of the German Bundestag Anja Hajduk is the Parliamentary Secretary of the Alliance 90/The Greens parliamentary group. As a member of the German Bundestag's Budget Committee, Hajduk is involved in determining tax revenue allocation.

1.

**According to many experts, German public investment levels – particularly in infrastructure and education – are far too low. They warn of a starvation effect. By which criteria do you and your colleagues decide what constitutes an investment in our future?**

It is our responsibility in the Budget Committee to ensure a sustainable and forward-looking budget. This includes, of course, ensuring that we invest enough. Unfortunately, the overall national investment rate is stagnating below ten percent. Much more should be invested – particularly when one considers the strength of our economy right now. Ailing infrastructures, underfinanced education systems and weak efforts to finance climate protection policies pose major burdens for future generations. These are compelling reasons, in our opinion, to increase investment.

An important aspect of this involves an honest assessment that reaches beyond the state budget accounting system. We need to consider the value of public goods in our accounting. This would help define a new investment requirement prohibiting the further erosion of public goods.

Maintaining existing infrastructures is a key growth factor in a structurally sound economy. Several locations in Germany suffer from eroding infrastructures. That's why, instead of introducing new projects, we consider first whether a renovation is more expedient, less expensive and overall better for the public in a holistic sense. Investing in existing infrastructure helps ensure we stay on the right track.

2.

**Spending targeting a rapid integration of recognized asylum-seekers into the labor market and society represents the epitome of forward-looking investment: Incomes increase, social welfare spending decreases. What are the difficulties involved with redirecting consumption spending toward investment-oriented spending?**

You're right, but these things are difficult to separate. Article 13 of the federal budget code offers a clear framework for determining which funds in the budget can be defined as "investments." However, this definition doesn't accurately reflect the state of affairs when it comes to the challenges we face for the future. Long-term developments are underappreciated in our state budget accounting system, which is a weak point. The integration of refugees represents an important investment in their future and our society. It is an investment in the future with predictably high multiplier effects. Our society is increasingly affected by demographic change, as shortages in skilled labor are becoming an ever larger problem.

In addition to the integration of refugees, we must also focus more on public education activities. Education from daycare to universities is – and justifiably so – a key subject of political discussion. Spending in this area is key to making a society fit for the future. However, while debating the expansion of the concept of investment, we must not lose sight of the importance of traditional investments. Even within the framework of the current federal budget code's definition, increasing the investment rate is essential to preventing the deterioration of existing infrastructures in Germany.

3.

**Another issue for the future: At present, public budgets are benefiting from low interest rates and comparatively low unemployment. What do we do when this is no longer the case?**

Clearly, the current low unemployment and interest rate levels provide budget policy a comfortable set of conditions. The high levels of workforce potential and low interest rates account for the strong state of affairs in the federal budget and social security coffers. But the effects of demographic change are bound to weigh heavily upon social security benefits in particular by the end of this decade. It is therefore all the more important to consider aspects of intergenerational justice when making decisions regarding the federal budget and social security. Given the current state of affairs, the Grand Coalition-led decision to introduce “Retirement at 63” was the wrong decision.

In order to meet the challenges ahead, we must act with foresight in spending policy. Of course we cannot know exactly what the state of the world will be in 2050. But if we engage in a wise and astute analysis of things today, we can anticipate certain challenges. In addition to demographic change and skilled labor shortages, this includes the effects of climate change. Investing in long-term co2-neutral energy supplies is a forward-looking economic activity.

More generally we should not let the discussion regarding a future-oriented budgetary structure run into contradictions by demanding a fundamentally “balanced” budget. The goal of strengthening future-oriented investment should always be considered together with – not in opposition to – measures such as the debt brake.



Anja Hajduk, MdB

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