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Source: Gherghina, S. C., Onofrei, M., Vintila, G. and Armeanu, D. S. (2018) Empirical evidence from EU-28 countries on resilient transport infrastructure systems and sustainable economic growth, *Sustainability*, 10, 2900. Available Here

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How investing in resilient transport Infrastructure affects economic growth

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An assessment of economic and transport data for the EU Member States found that, between 1990 and 2016, investments in transport infrastructure had a positive impact on gross domestic product per capita (GDPC) for every type of transport, except inland waterways. In contrast, transport emissions negatively affected GDPC. The assessment outlined several recommendations to improve EU policy making and transport investment.

The transport sector is a major contributor to the economy as it provides services that enable mobility and access to amenities, employment and tourism. It depends on transport infrastructure to provide basic physical systems and structures for people and businesses. Well-organised transportation networks can produce employment and wealth, and lead to economic growth. Yet, transport has several negative impacts such as polluting air emissions (e.g. nitrogen oxides, hydrocarbons and fine particulate matter) that contributes to climate change and poor air quality as well as traffic-related crashes and injuries.

This assessment investigated the relationship between transport infrastructure systems and economic growth for EU-28 countries during the period 1990 to 2016. It examined the influence of different forms of transport (e.g. rail, road, water and air) on GDPC and the impact of investments on economic growth.

The study team gathered data from Eurostat, the Organisation for Economic Co-operation and Development (OECD) and the World Bank for the 28 EU Member States. GDPC was taken as a proxy for sustainable economic growth, which considered several transport infrastructure measures, investments, transport pollution and country level controls.

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D I G E S T

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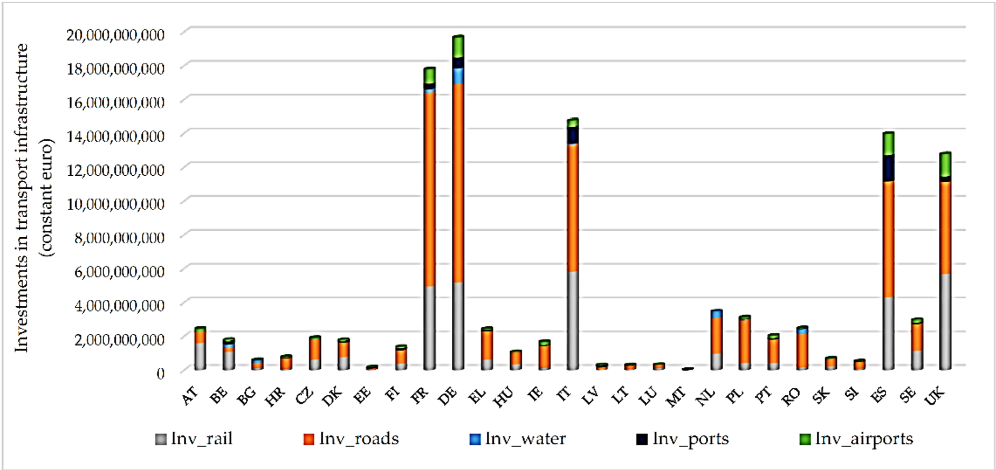
The assessment found that, on average, Germany had the highest investment in transport infrastructure (due to the contribution of road and inland waterway transport) followed by Italy (railway investment), Spain (maritime port infrastructure investment) and the United Kingdom (airport infrastructure). With regard to air pollutants, carbon dioxide emissions from road transport was the most damaging environmental stressor in the EU-28 countries.



Transport infrastructure investment (mean values) by transport type

A multi-variate linear regression was then used to investigate the relationship between transport infrastructure, associated investments, carbon dioxide emissions and economic growth. This statistical model tests a hypothesis, analyses data and describes relationships between variables.

The assessment found that road, inland waterway, maritime and air transport infrastructure had a positive impact on economic growth. In addition, transport infrastructure investment positively influenced GDPC for every transport mode, apart from inland waterways. Moreover, transport emissions of carbon dioxide and other pollutants had a negative impact on economic growth.

Future research should segregate transport infrastructure investment to distinguish between public, private and public-private partnerships. In addition, high-speed rail should be considered separately from traditional rail.

The study concludes by recommending that EU Member States should continue to enlarge the railway system in accordance with the European Transport White Paper. To meet EU transport emission reduction targets, manufacturers should reduce the reliance on fossil fuels and improve the fuel efficiency of vehicles.