

INTERVIEW

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Research: How “Data Analytics” Affects the Gap between Rich and Poor

Interview with Carl-Christian Groh,
EPOS Economic Research Center

Bonn, Mannheim, 06.06.2024 – **Around 75 percent of US manufacturing companies already use “predictive analytics” to forecast future results. The companies analyze huge amounts of data, so-called “big data”. This enables them to predict key components of their future profitability, such as demand, operating costs and even strategic decisions of competitors. Yet, the ensuing rising profits of capital owners and entrepreneurs can exacerbate income inequality in societies. This is the result of a new study by the EPOS Economic Research Center at the Universities of Bonn and Mannheim published in the discussion paper “Big Data and Inequality”.**

Mr. Groh, how can predictive analytics widen the income gap?

Carl-Christian Groh: Companies can make more profit thanks to predictive analytics. The reason: analyzing big data helps to predict key business factors. This makes it possible to reduce operating costs and optimize expenses. Capital owners and entrepreneurs benefit directly from these advantages – not necessarily employees. On the contrary, their wages may even fall at the same time.

This is a new insight, as it was previously unclear whether such technological developments also have distributional effects. I have examined this question in a simple theoretical model.

Please briefly explain the theoretical framework...

Carl-Christian Groh: In the model, companies produce using capital and labor. Companies can adapt their required workforce faster than the capital stock, such as machines. This is well documented empirically.

Companies determine the use of capital in advance. At this point, without big data, there is a degree of uncertainty with regard to their future profitability.

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In an economy with big data, profitability can be predicted well in advance – in this case, the demand for capital increases. This has an important side-effect: on average, this suppresses the demand for labor and can reduce employees' income overall.

You also document an impact on the so-called “skill premium” – what does that mean?

Carl-Christian Groh: The skill premium is the ratio of the wages of qualified to unqualified employees. The model demonstrates that the available big data leads to a further widening of the skill premium. The reason: companies can react more flexibly to the demand for unskilled workers than for skilled workers. Overall, income can therefore fall.

What do you recommend to policymakers based on your findings?

Carl-Christian Groh: Big data technologies are playing an increasingly important role in modern economies. Advances in artificial intelligence will help to realize the full potential. Policymakers should understand that this has an impact on different social groups. It may be necessary to respond in terms of distribution policy. This is all the more important given that, according to the OECD and the World Bank, inequality between social groups has already increased significantly around the world.

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