

GLOBAL WARMING

# Climate policy influence on CO2 reduction so far modest

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There is, as is well known, great potential for savings in the transport sector

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**R** If you add up the effects of all climate measures implemented by Austrian politicians, they have reduced greenhouse gas emissions by a maximum of around 2.5 percent compared to 2005 levels. Researchers at the Vienna University of Economics and Business (WU) arrived at this conclusion using a calculation method they developed and presented in the journal "Scientific Data". In an analysis for Austria available to the APA, the focus is on more targeted measures.

The recent history of greenhouse gas emissions in this country follows a flat, inverted V: From 1995 to 2005, the curve went up, reaching a historic high of 79 million tons in 2005. From then on, it went down in a bumpy line by around 20 million tons, or 26 percent, until 2023. In their figures on CO2 emissions, the two WU researchers Talis Tebecis and Jesús Crespo Cuaresma focus on emissions that are attributable to fossil fuels of all kinds, as this accounts for the majority of total greenhouse gas emissions, according to the analysis written by Tebecis.

## New method finds influence of political measures

With the new statistical method, the two scientists aim to find out what such reductions are ultimately due to. This involves eliminating effects that are purely due to the overall economic development of the gross domestic product (GDP), the population development in a country or general technological progress, as Crespo Cuaresma explained to the APA. The effects of the Covid-19 lockdowns, for example with their massive, temporary reductions in the transport sector, can also be eliminated using the "reverse causal analysis approach".

What remains are striking fluctuations in the emissions data, "which are most likely due to climate policy," said Tebecis in a WU press release: "These statistical outliers can often be linked to specific political measures. Our data set can therefore serve as a basis for checking the effectiveness of climate measures."

## Austria largely benefits from international trends

When applied to Austria, their effectiveness appears to be extremely limited. Rather, the figures support the view that the country has largely benefited from overarching economic-technological-demographic trends or the implementation of EU guidelines - a factor that is repeatedly criticized by experts. How little greenhouse gas savings are "homemade" is shown, for example, by the fact that scientists in this country identified only 62 statistical events between 1995 and 2021 that can be attributed to political measures: "Compared to the other EU countries, this is very few - in Germany, for example, there were 131 and in Ireland as many as 261," says Tebecis. Countries such as Israel, the USA, Hungary and Poland were similarly inactive as Austria.

According to the researchers, the "statistical breaks" found in this way - which can potentially be attributed to climate policy measures - only resulted in "a reduction in CO2 emissions of less than 2.5 percent of Austria's total annual emissions, based on the 2005 level." If you compare this with the goal of reducing domestic emissions by 48 percent by 2030 compared to 20 years ago, the targets are far below the desired values. Even if Austria were to implement all planned measures by then, it would only achieve a reduction of around 35 percent. Overall, much more needs to be done politically to bring the country to the legally binding savings target, stresses Tebecis.

**Researchers for nationwide solutions tailored to economic sectors**

In terms of the various economic sectors, the most savings were made in this country in the metal industry, which is known to have the highest emissions intensity, based on national or EU regulations. The team also found significant savings in refineries, biomass and waste incineration plants, and in the electronics industry. Little, however, was done in the areas of electricity and heat generation, waste water treatment, and manure management.

From this it can be deduced that measures that are more precisely tailored to different economic sectors are needed in order to really drive forward the reduction. In addition, politics should primarily focus on those sectors in which the most greenhouse gases are emitted. In this country, these are the transport and transit sector, the electricity and heating industry, the production and construction sector and the housing sector. Ultimately, care must also be taken to ensure that regulatory measures are not watered down and undermined by state regulations. The analysis for Austria was funded by the "eXplore!" initiative of the B&C Private Foundation.

(SERVICE - Analysis for Austria: <https://dx.doi.org/10.57938/92adb3ea-18cd-4d05-8d09-223bea611536> ; Publication in "Scientific Data": <https://doi.org/10.1038/s41597-024-04321-w> )

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