SOCIO-ECONOMIC EFFECTS OF COVID-19 IN A RESOURCE-BASED ECONOMY – AN ANALYSIS USING THE MACROECONOMIC MODEL E3.DZ FOR ALGERIA

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Overview

The COVID-19 pandemic has far-reaching consequences for economic development worldwide. Algeria was also affected by a lockdown and severe trade and travel restrictions. In addition, the international energy markets, which are very important for Algeria's economy, were strongly influenced by the global recession in spring 2020. Shortly before, the Algerian government had passed new targets for the expansion of renewable energy sources (RES).

Methods

The impact of the COVID-19 pandemic on the economy and in this context of the role of RES are analyzed using the macro-econometric input-output model e3.dz which was developed in a project in cooperation with GIZ and Algerian partners in 2019 (Lutz et al. 2019). The new set of scenarios, though building on this work, is independent from this project and compares different paths of economic recovery and RES expansion: Scenario S3 assumes that the new RES targets of 15,000 MW by 2035 (République algérienne 2020) are maintained, but does not take into account the economic consequences of the COVID-19 pandemic. The RES targets are also achieved in S4 scenarios, even though the expansion is delayed at the beginning due to COVID-19. For the economic development, a fast (S4.1) and slower (S4.2) recovery after 2020 is distinguished. In S5 scenarios, the expansion of renewables is delayed, so that only 9,000 MW can be built up by 2035. Here too, a distinction is made between different paths of economic recovery (S5.1/S5.2). To model these economic developments in e3.dz, oil and gas production and prices as well as macroeconomic variables such as consumption and investment are adjusted to the current situation.

The economic assumptions are made in particular for the production and prices of oil and gas. In the scenarios with slow recovery (S4.2 and S5.2), the negative effects last longer. In addition, the macroeconomic variables of private consumption, government consumption and investment are adjusted to the COVID-19 situation via multiplicative factors on the values calculated by the model. The quantification for this is based on the observed developments, which could be estimated in summer 2020: Private consumption is set to be 5% and investment 15% below the (endogenous) model value for 2020. Furthermore, the structure of private consumption is adjusted to account for different patterns in the approximately three-month lockdown. Government consumption remains unchanged in 2020 to stabilize the economy. In 2021, a 5% reduction to calculated model value is assumed.

Results

Scenario S3, without COVID-19, shows an economic development with a constantly growing trend. Compared to the reference scenario from 2019, in which the expansion of renewable energies is frozen, scenario S3 shows that the new expansion targets for RES have a positive effect on the socio-economic development due to higher installation of wind and PV plus additional operation and maintenance.

In S4 scenarios, COVID-19 has a strong negative effect on socio-economic development: In 2020, the GDP decreases by 6.7% compared to the previous year which is mainly driven by the change in foreign trade. With rapid economic recovery (S4.1), there is a strong upswing in 2021, leading to GDP growth of 6.2%; with the slower recovery (S4.2), GDP will increase by only 2.3% due to ongoing constraints imposed by COVID-19. The perspectives for the long-term socio-economic development are also below the expectations presented in the 2019 scenarios and in scenario S3 due to IEA's reduced long-term price projection for oil and gas. The Algerian business model largely based on fossil fuels is not resistant to COVID-19 and the prospects cloud over strongly.

In scenario S5.1 (S5.2), the same economic development is assumed as in S4.1 (S4.2), but the development targets for RES are not reached. A comparison of S5 scenarios with S4 scenarios shows that even in the current situation with COVID-19, a more ambitious RES expansion as in S4.1 or S4.2 can have a positive effect on the economy and employment and can help the economy to move towards green recovery; the differences are particularly visible in the medium and long term. In 2035, the GDP is 0.35% higher and there are almost 40 thousand more jobs due to maintained RES expansion. The effects on the socio-economic variables are very similar regardless of the speed of economic recovery.

Figure 1: Deviations in GDP and employment between S4 and S5 scenarios for rapid (left) and slow economic recovery (right)
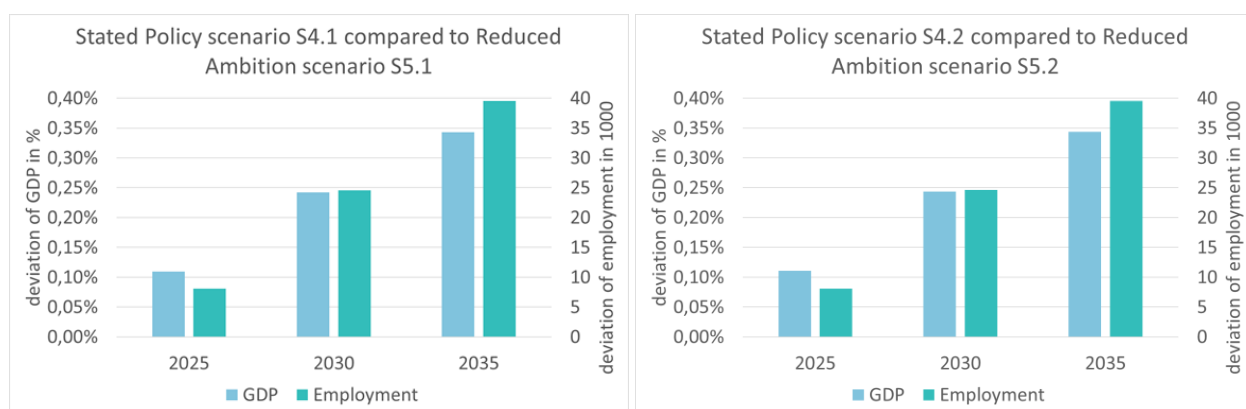
Source: Own figures.

Conclusions

Algeria is heavily hit by COVID-19, the global economic downturn and induced price effects on oil and gas markets. Long-term price projections for oil and gas have fallen significantly since 2019, so that perspectives for the long-term socio-economic development are therefore below the expectations presented in scenario S3. Prospects for the Algerian business model which relies heavily on oil and gas cloud over strongly, on the one hand due to the increasing orientation of many energy importing countries (e.g. of the EU) towards a green economy (not considered in the scenario analysis), on the other hand due to the developments triggered or reinforced by COVID-19 such as the price decline and potential long-term lower demand of fossil fuels.

RES expansion is an option to adjust the Algerian business model: Maintaining the RES expansion targets according to the new government plan has positive socio-economic effects and can help as a green recovery to transform the economy. Additional RES expansion could be developed jointly with foreign partners seeking new carbon-free energy sources. It will further strengthen economic development and create additional jobs.

References

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