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HIDDEN DISPARITIES ON THE ROAD TO NET-ZERO

IDENTIFYING AREAS OF OPPORTUNITY AND RISK

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Summary

A net-zero transition has uneven socio-economic impacts, creating winners and losers. These disparities are not always fully considered in economic models, meaning policy might not take them into account. Using a leading macroeconomic model, we show that a 1.5°C transition could generate impacts on employment and trade that are more drastic, both positively and negatively, than economy-wide metrics might suggest. This structural change could represent significant economic upsides for some locations, particularly in net fossil fuel importer countries, where decarbonisation improves the trade balance. Simultaneously, regions with large carbon-intensive industries could be at risk of post-industrial decline since demand and employment losses are geographically concentrated. This decline can be avoided, first by identifying the regions and occupations particularly at risk in a net-zero transition. Transformative economic policies will be key to diversifying local economies, improving their resilience and enabling them to make the most of the opportunities of the transition.

Key takeaways

- A move towards net-zero offers many countries an opportunity to improve their trade balance
- Regions that rely heavily on the fossil fuel industry risk post-industrial decline
- Transformative policy will be more effective at reducing this risk than redistributive policy alone
- Regions at risk can leverage existing industrial strengths to develop future export opportunities in the green economy

A transition to net-zero will generate uneven impacts on economic output, trade and employment

Transitioning to a net-zero economy implies structural economic change, where carbon-intensive technologies, industries and occupations are phased out. At the same time, new cleantech alternatives are set to grow due to climate policy and innovation. The impacts of such a transition are commonly estimated by integrated assessment models to be small or moderate at the economy-wide level[1].

However, nations and regions with high levels of carbon-intensive economic activity are likely to experience impacts far more severe than median metrics might suggest. At the same time, regions already aligned with the growing cleantech industries could experience strong economic activity and employment gains because of a net-zero transition. Our regionally and sectorally detailed model[2] shows that the impact of a net-zero transition on employment and trade varies substantially, both between countries and sectors.

Post-industrial decline threatens communities dependent on carbon-intensive industries

In a 1.5°C transition, at an economy-wide level, changes in employment are small. However, a significant portion of employment losses in a transition will be concentrated in the fossil fuel sector, while the construction sector is likely to see an employment gain due to the infrastructure needed to facilitate the transition.

Related industries, particularly carbon-intensive industries, tend to cluster geographically[3]. This can be seen in places like Rotterdam, in the Netherlands, and Antwerp, in Belgium, where the petrochemical industry represents a significant portion of total economic activity. As demand for fossil fuel goods decreases in a transition, output and employment losses are likely to also be concentrated spatially. It is unreasonable to expect that the new cleantech industries will naturally emerge in the same locations. These regions could, therefore, be at risk of post-industrial decline.

Lessons can be learned from past transitions, including deindustrialisation in the Rust Belt in the US and the decline of the coal industry in the UK. In both examples, the spatial clustering of industry resulted in localised decline, with higher-than-average rates of unemployment, crime and chronic illness, as well as lower-than-average educational outcomes and life expectancy[4]. Significantly, for many of these communities, this decline is persistent and deep-rooted, with effects lasting long after the initial economic transition.

Figures 1 and 2 show the potential disparities at the national level, but differences will be even more pronounced within countries as a result of the concentration of similar industries. For instance, while the potential employment loss in fossil fuel industries in the EU does not appear particularly significant, this will be far greater in areas such as the Polish region of Silesia, where fossil fuel industry is concentrated[5]. Without appropriate management, for these and similar regions, a net-zero transition could result in persistent socio-economic decline similar to that seen in the US Rust Belt and former coal-mining communities in the UK.

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Fossil fuel importers stand to profit from improving their trade balance

A net-zero transition will also change global patterns of trade, as demand for fossil fuels decreases rapidly. Eighty per cent of the global population lives in countries that are net fossil fuel importers[6] meaning for the vast majority, the transition represents a significant opportunity to save on import costs and address energy security concerns. This is particularly true for fast-growing economies like India, as energy demands increase significantly in the coming decades.

Meanwhile, net fossil fuel exporters will see their trade balance worsen on account of the falling global demand for oil and gas. High-cost exporters, including the US, could be the most impacted, as lower-cost producers flood the declining oil and gas market. However, avoiding or slowing the net-zero transition is not an option given that no single country controls the speed of the global transition on its own. Instead, countries should prepare to manage the risks a transition could bring while aligning themselves to take advantage of the opportunities.

Transformative economic policies are needed to avoid regional decline

Given the difficulty of reversing post-industrial decline after the fact, avoidance is key to preventing regions dependent on fossil fuel activity from experiencing long-standing socio-economic dislocation. Redistributive policy alone is unlikely to be adequate to deal with post-industrial decline, not least because fossil fuel exporter economies will be faced with a declining fiscal space from which to fund such initiatives due to their worsening trade balances.

Instead, transformative economic policy is required to effectively diversify economies and enable communities to capture the opportunities of the net-zero transition. Regions could identify the green industries that are most similar to their current economic capabilities to find future competitive export opportunities[7]. Additionally, labour market models can show the specific occupations at risk in economic transitions and can inform policy on reskilling[8].

Fossil fuel-dependent regions could also learn from the exemplary case of deindustrialisation in Germany's Ruhr region. Here, economic diversification was managed by local governments and trade unions, and workers were involved in decision making[9]. Educational and labour market policies were key as part of a wider strategic vision for the region to transition toward a knowledge-based economy.

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Figure 1. Percentage employment difference in a 1.5°C scenario relative to a counterfactual baseline scenario.

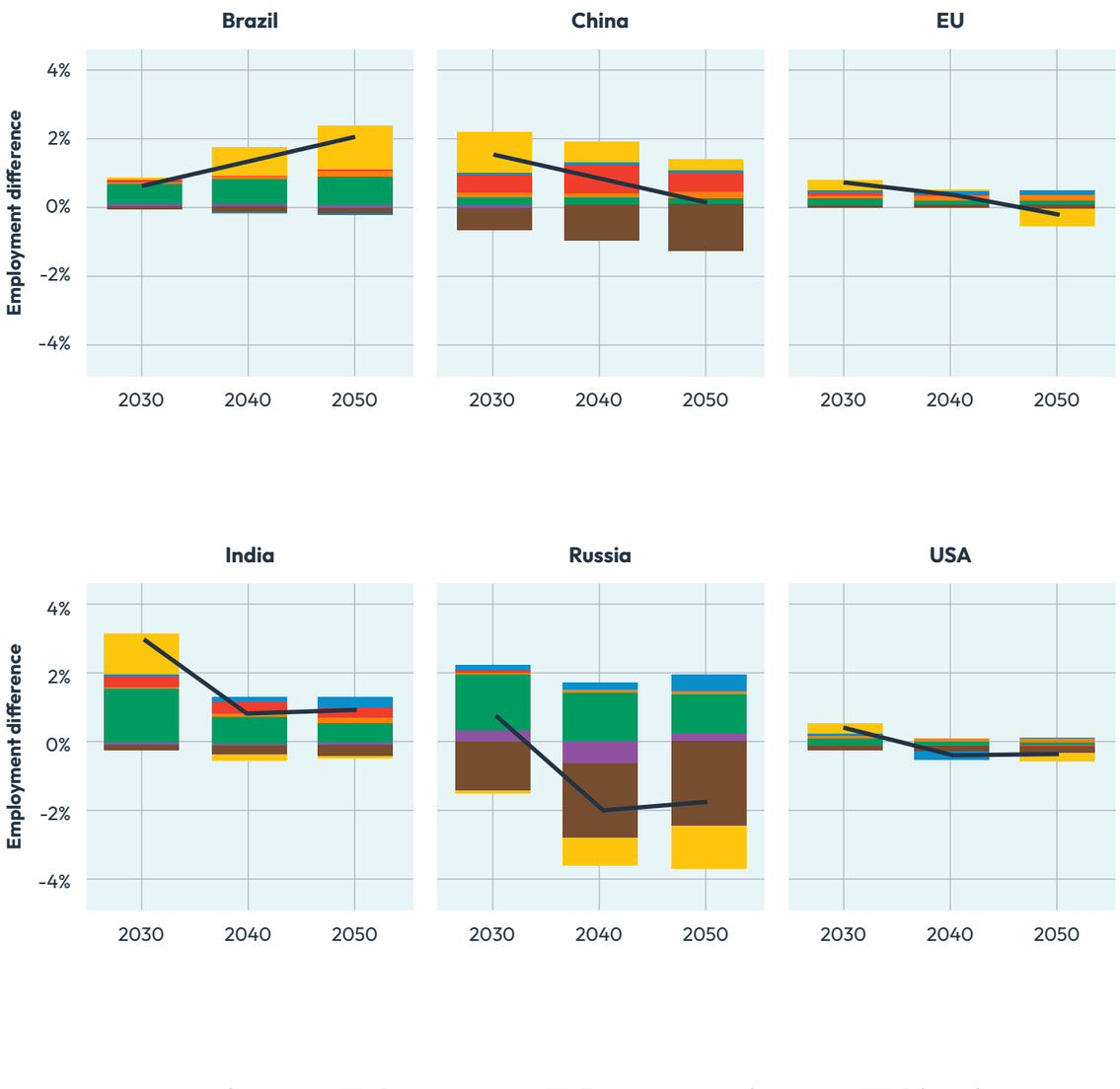
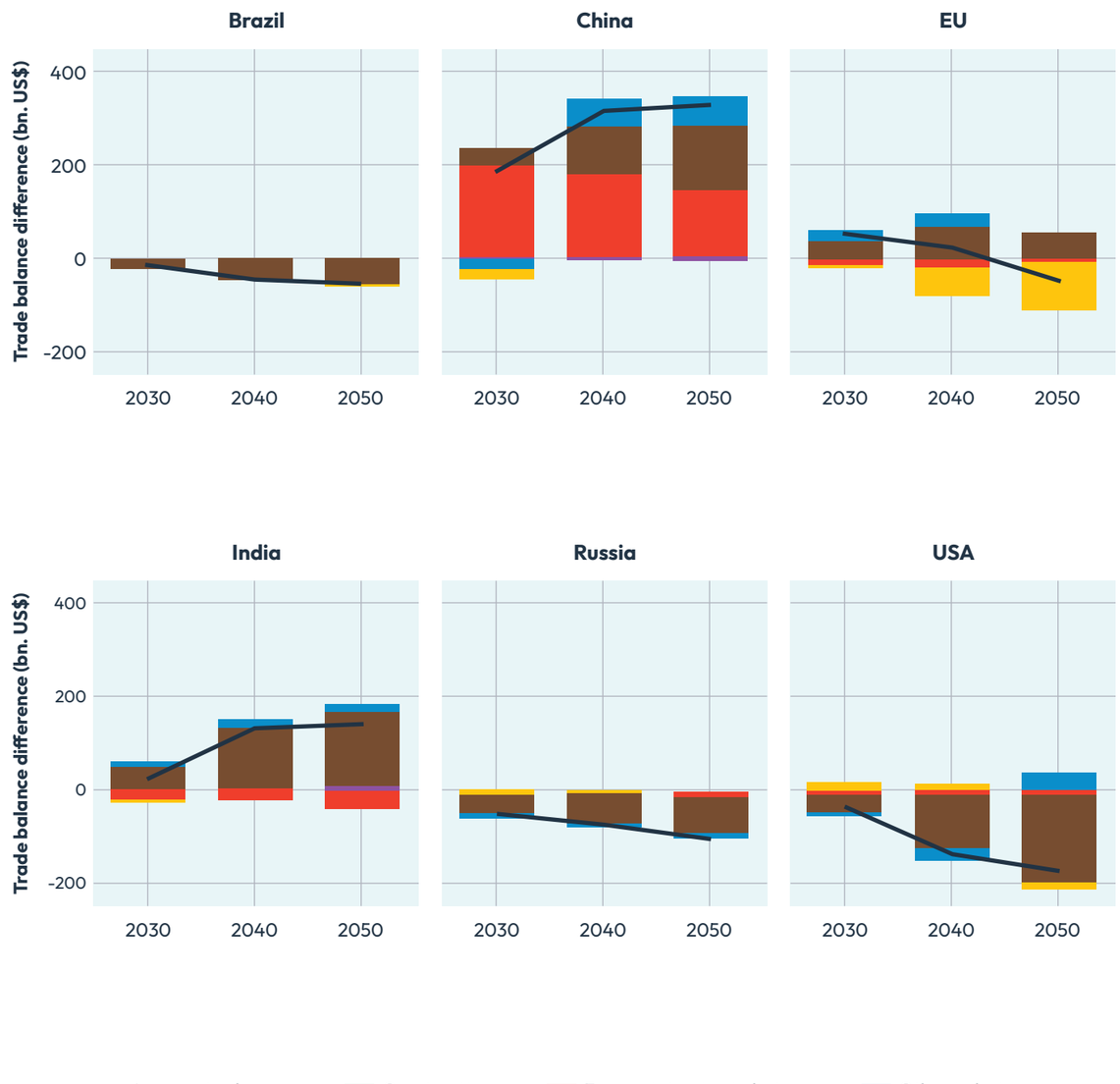


Figure 2: Difference in the trade balance (exports–imports) in a 1.5°C scenario relative to a counterfactual baseline scenario. Negative values indicate either loss of exports or gains of imports, while positive values conversely indicate losses of imports or gains in exports.



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