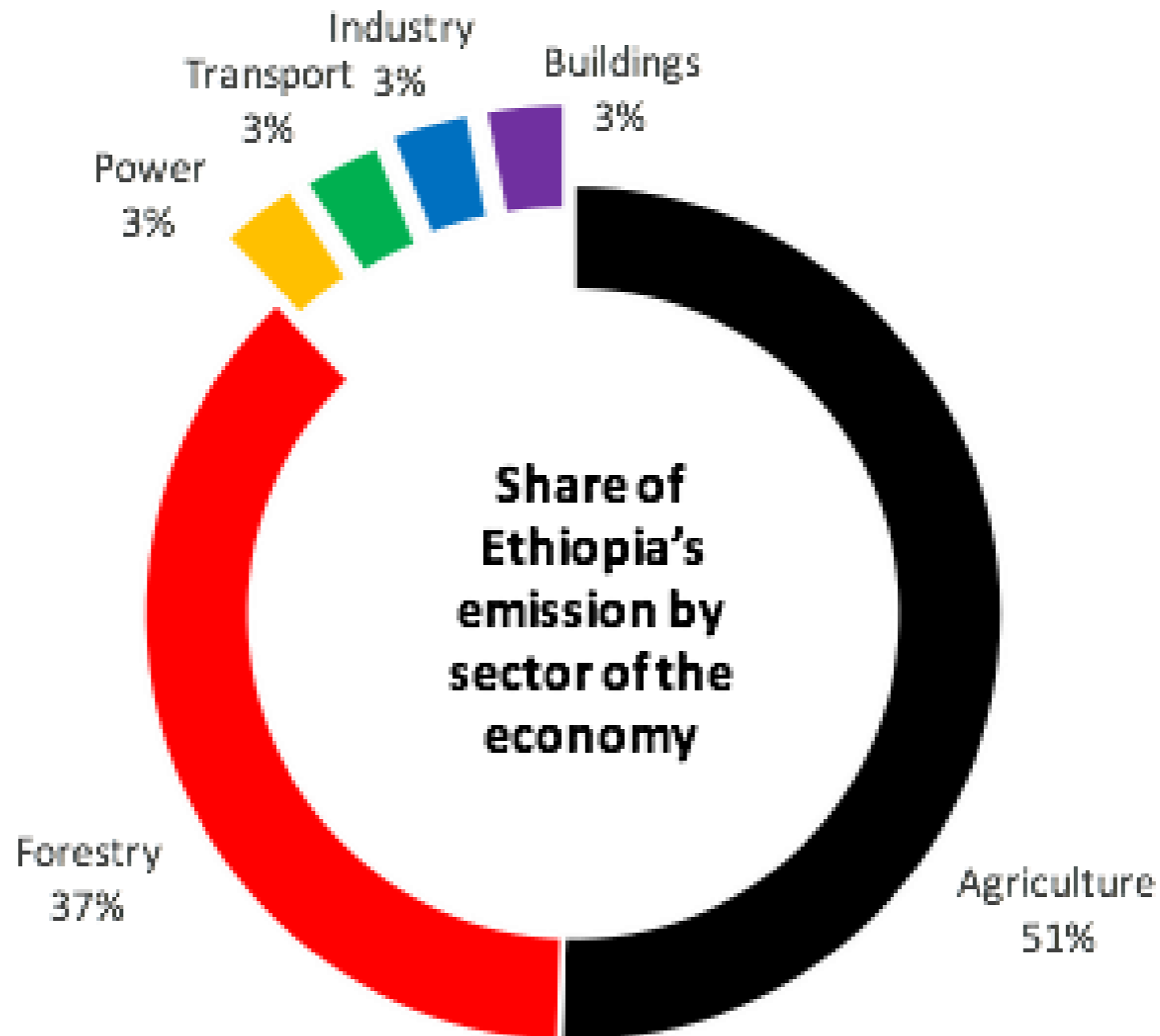


Carbon Pricing in Ethiopia

Mulugeta Mengist Ayalew

Ethiopia's Emissions Profile



Scenarios for analysis

BASE (Business-as-usual, no carbon tax): consistent with first two years' growth rates (i.e., 7.5%) of Growth and Transformation Plan II (2016-17)

CARBON TAX SIMULATIONS: all consider 5 USD/ton in 2018 increasing gradually to 30 USD/ton by 2030. They differ according to what is done with the tax revenues:

STAX: carbon tax + uniform reduction of sales taxes for selected commodities

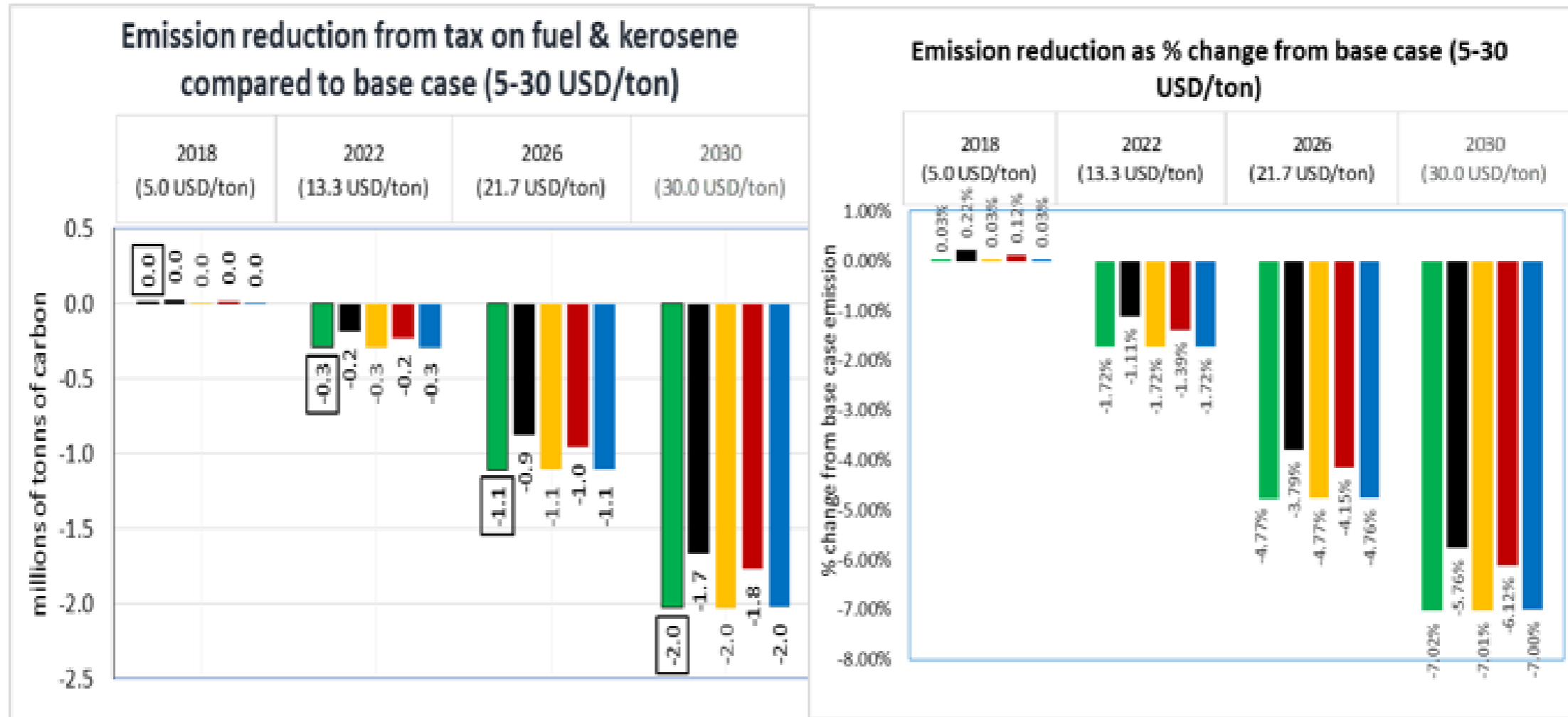
TRANS: carbon tax + lump-sum transfer payment to all households

SAVINGS: carbon tax used to create a saving pool that is invested in most profitable sectors

DTAX: carbon tax + uniform reduction of direct taxes (personal income tax)

CORPOR: carbon tax + uniform reduction of corporate tax

Impact on emissions



STAX

Sales tax reduction

SAVINGS

Government savings

TRANS

Transfer to all households

CORPOR

Reduction in corporate tax

DTAX

Direct tax reduction

Base

No Carbon Tax

Impact on emissions

Results are based on the start-low-increase-over-time approach, going from \$5/ton in 2018 to \$30/ton in 2030.

Compared to the baseline, carbon emissions are expected to reduce by 1.7-2.0% by 2030 i.e. about 2 million tons.

The difference across scenarios is because real economic activity (GDP) decreases less under the STAX and CORPOR reduction scenarios.

Emissions impacts are not larger because:

- baseline emissions from petroleum-based fuels are not that large;
- demand for fuels in transport is only mildly responsive to moderate changes in fuel prices.

GDP and Recycling Options

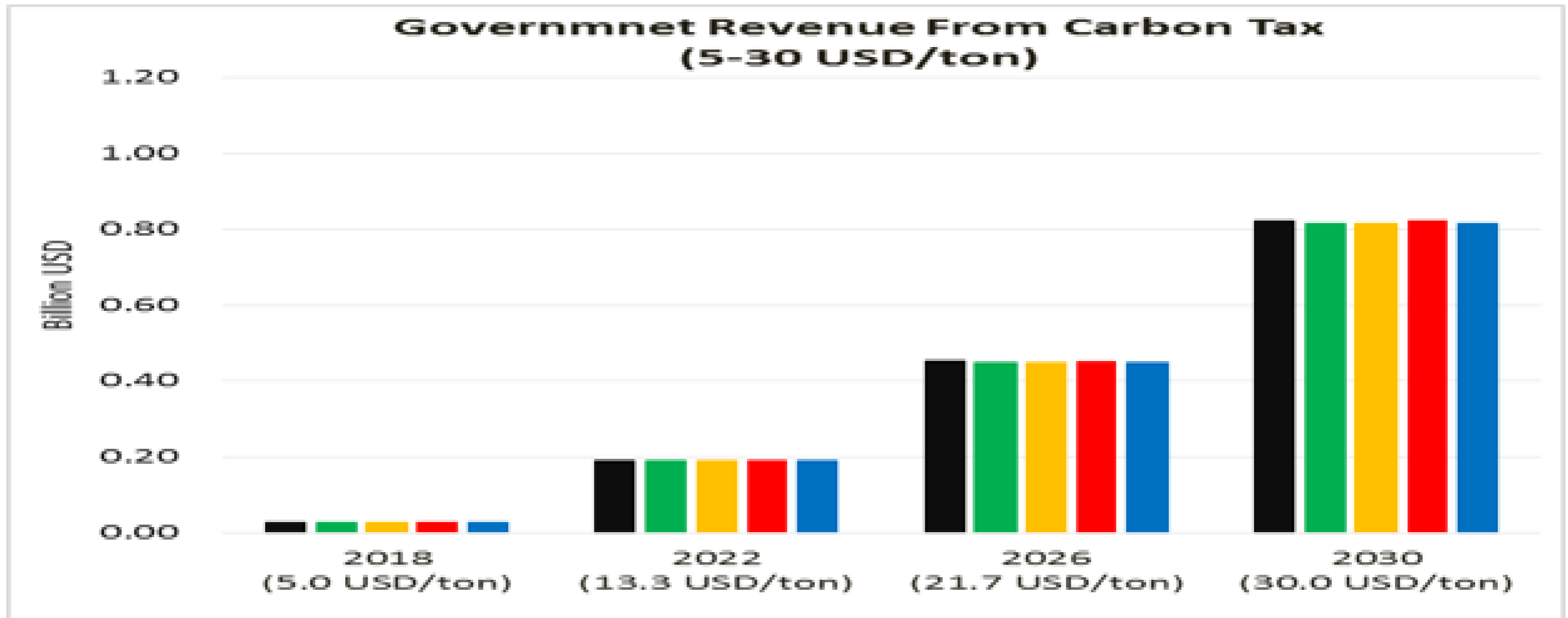
A cut in both sales and corporate tax does better at mitigating negative effects on GDP:

- Lower sales tax reduces cost of goods and services and stimulates demand across income groups.
- Lower corporate tax reduces cost of production for firms and induces increased capital investment.

GDP is relatively larger with these policies compared to other recycling methods, thus so are GHG emissions.

Personal income tax cut and lump sum transfer disproportionately benefit wealthiest households and have less overall economic impact.

Revenue from carbon taxes



STAX	Sales tax reduction	CORPOR	Reduction in corporate tax
SAVINGS	Government savings	DTAX	Direct tax reduction
TRANS	Transfer to all households	Base	No Carbon Tax

Distributional impacts

Poorest households' consumption

- Urban poor affected negatively, for transport accounts for the bulk of their fuel consumption and limited alternatives
 - **TRANS**: Least effect
 - **STAX** and **CORPOR**: Less effect because they receive a larger share of transfers in proportion to income—the increase in economic activity reduces unemployment.
 - **DTAX**: No effect as they pay little or no income tax.
- Rural poor limited effect, for they switch to alternatives (e.g. firewood)
 - **TRANS**: Least effect
 - **STAX** and **CORPOR**: demand for their products increases; employment increases.
 - **DTAX**: No effect as they pay little or no income tax.

Key findings

- Notable decrease in emission reductions from fossil fuels, though absolute reductions are small given a small base
- GDP grows a bit slower than in the baseline, but the effects are **quite modest** relative to baseline anticipated future growth. Cuts in sales tax and corporate income tax have the greatest effect in tempering GDP impacts.
- **Millions of dollars per year in revenue** depending on the carbon tax rate and use of revenues.
- **Minimal income effect on poor rural households.** Urban poor are least affected under the transfer scenario.