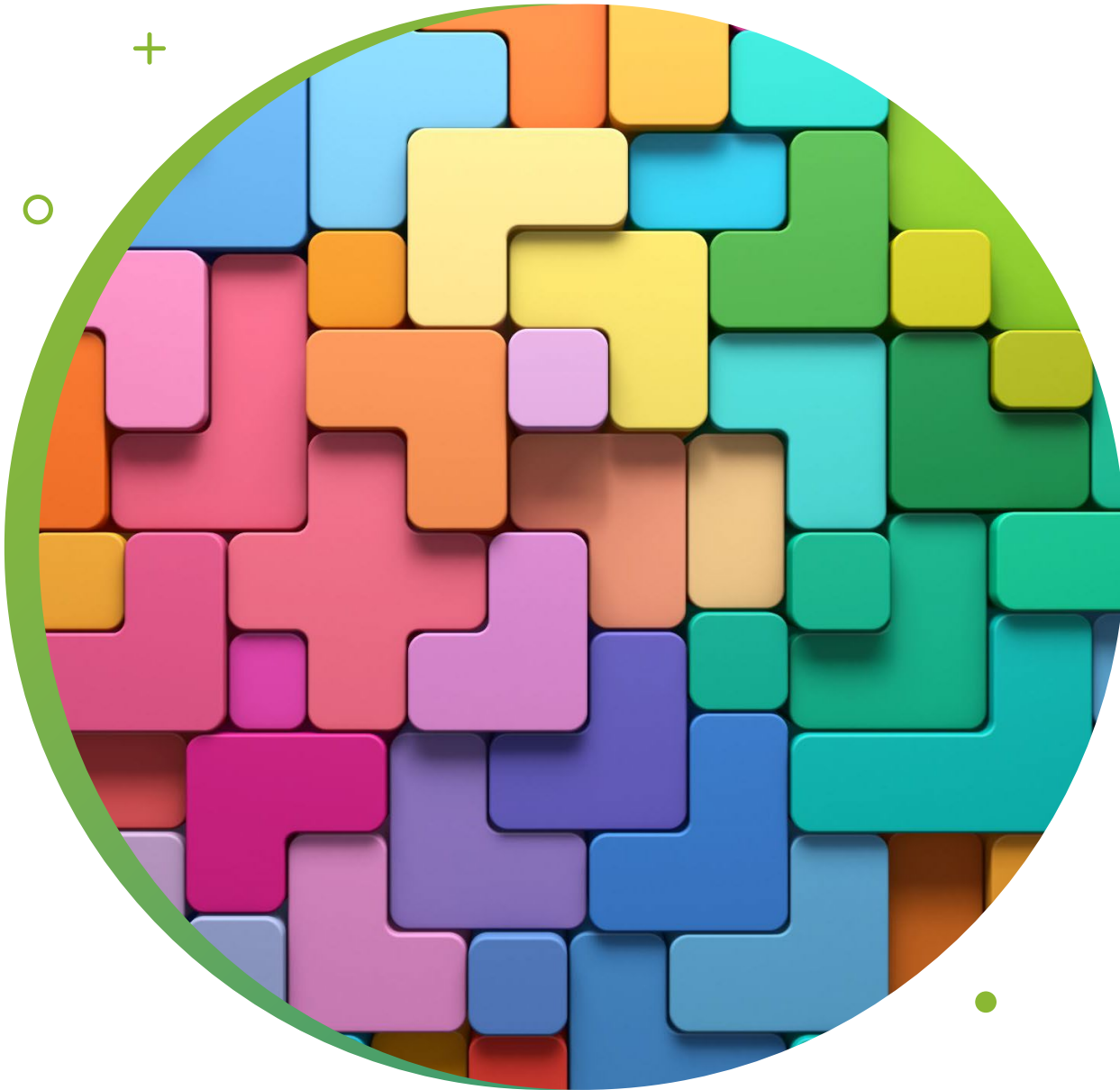




PRIVATE SECTOR ALIGNMENT WITH THE EUROPEAN GREEN DEAL IN THE WESTERN BALKANS

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Introduction

- This paper intends to examine how [the private sector in the Western Balkans aligns with the European Green Deal](#). For this purpose, we developed an economy-wide Computable General Equilibrium (CGE) model to assess the net economic and environmental benefits obtained from climate finance projects, using North Macedonia as an example. We focus on two types of investments: those that target green/digital startups and innovative SMEs (MSME Fund), and others that support large enterprises and infrastructure PPP SPVs (Special Purpose Vehicle) in European Green Deal (EGD) sectors (GSIF) to be initiated by the World Bank.
- Through these interventions, and due to its consistent innovations, the private sector emerges as a key driver of climate action that also maintains its role as an important economic player. Privately-owned financial institutions oversee trillions of dollars' worth of investible capital that can boost the new climate economy. However, to mobilize this capital in line with green investments and necessary innovative improvements, the right regulatory government support is essential. Such a partnership is necessary to create enabling environments for green, inclusive businesses through public funding.
- The GTAP CGE model's resolution accounts for forward and backward linkages from these investments, and assesses their potential impact on GDP, employment, other macro-economic variables such as trade and private consumption, as well as on CO2 emissions.

Strategic Support to Large Enterprises

GSIF's overall development objective includes several factors: the facilitation of private sector financing for a smooth transition to a modern, resource-efficient economy that is independent of resource use; improved compliance with the Sofia Declaration on the green agenda, and an improvement in private financing environments that can alleviate the government's burden. Furthermore, GSIF intends to facilitate and attract "clean" industries that will help create jobs and boost the economy.

As a candidate for EU membership, and as a Western Balkan Contracting Parity of Energy Community, North Macedonia is committed to achieving the 2050 climate neutrality target that is central to the European Green Deal.

The Strategy outlines ambitions and goals across different sectors. To ensure a smooth implementation, existing regulations and standards must be revised while new laws and directives are implemented over the next few years. There are eight key areas that constitute the Green Deal, which also apply to North Macedonia:

- Increasing the EU's climate ambition for 2030 (reducing GHG emissions by at least 55% from 1990 levels by 2030).
- Supplying clean, affordable, secure energy.
- Mobilizing industry for a clean and circular economy.
- Building and renovating in energy and resource-efficient way.
- A zero-pollution ambition for a toxic-free environment.
- Preserving and restoring ecosystems and biodiversity.
- Farm to Fork: a fair, healthy, and environmentally friendly food system.
- Accelerating the shift to sustainable and smart mobility.

Strategic Support ('Ctd.)

These goals require improvements in energy efficiency and transition to renewable sources, as outlined in the National Energy Development Strategy till 2040. Main recommendations include:

- maximizing energy savings,
- limiting the increase of GHG emissions, (green scenario aims at 53.2% CO₂ emissions reduction by 2030 compared to 1990 level)
- decline in coal utilization and mining,
- decarbonization of the economy, and
- greater reliance on renewable energy resources.

Green / Digital Support to MSMEs

The Green/Digital MSME Fund aims to contribute towards the EGD through the SME Strategy for a Sustainable and Digital Europe (EU Commission 2020).

- The Strategy aims to advance the objectives of the EGD, Digital Decade, and other EU actions launched in the context of the digital and green transition towards a climate-neutral, resource-efficient, and agile digital economy, via the mobilization of small and medium-sized enterprises (SMEs) across industrial sectors in Europe.
- The Fund seeks to close the financing gap for startups and SMEs by leveraging private investment, given their alignment with the EGD. Furthermore, the Fund aims to provide timely intervention in supporting start-ups by easing issues around access to finance, considering that the start-up environment in North Macedonia has matured in recent years.
- Based on recent surveys, start-ups seek external financing, as their funding needs grow beyond what the government provides. Banks are reluctant to support high-performing SMEs without “hard collateral” and credit history, and existing regional joint-venture (VC) funds do not fill the identified financing gap for Macedonian start-ups. This creates a finance gap that may prevent new initiatives from acquiring their full potential.

North Macedonia in GTAP

- The GTAP CGE model developed for NM is unique in several aspects: (i) North Macedonia economy was incorporated a global dataset (GTAP) for the first time, (ii) the IO was expanded to capture highly polluting sectors - such as steel- individually and accommodate sectoral interventions, (iii) GHG emission coefficients were linked to the North Macedonia Input-Output (IO) table within the model. The model framework is dynamic and keeps track of the two Funds' annual investments target sectors till 2050.
- This study largely benefited from the analysis of the environmental tax assessment for North Macedonia based on the World Bank's Macro-Fiscal Model (MFMod) (Burns et al., 2019). The CGE model developed for this study complements the short-term macro-economic analysis of environmental taxation (by Burns et al. 2021) by developing a baseline to 2050 that accounts for structural changes, more specifically in production, investment, and international trade.

Model Specifics (I)

- This analysis focuses on investments and technological change in emission abatement based on the output multipliers estimated in IMF (2021). Thus, our CGE analysis estimates the value created by start-up activities that are to be funded by the projects, alongside their contribution to economic activity and job creation.
- There are several reasons why a green stimulus will improve GDP and job creation: the IMF (2021) estimates that green multipliers are higher than traditional ones. For example, renewable energy investment multipliers are about 1.1-1.5 greater compared with 0.5-0.6 for fossil fuel investment.
- Even spending on improving energy efficiency, via actions such as building renovation, can improve resource allocation, as energy cost savings can be used for other avenues over the longer term such as greening activities and green jobs.
- Abstracting from the co-benefits of a greener environment (such as improved health and biodiversity), green investment spending often overlaps with infrastructure spending (such as public transportation), which tends to have conducive effects on private-sector investment and boosts productivity in the long run.

Model Specifics (II)

The standard GTAP model was tailored to the policy question that analyzes the greening potential of the North Macedonia economy and resulting employment impact. For this objective, the standard model was modified as follows:

- (i) Substitution between intermediate inputs (energy v non-energy) made possible
- (ii) Highly polluting sectors such as steel and energy producers were disaggregated than the original IO using information from similar European Countries (clean v dirty activities)
- (iii) Emission coefficients for GHG were incorporated to the GTAP model using IIASA's GAINS-ECLIPSE's model's specific values for North Macedonia
- (iv) Regarding GSIF; sectors were grouped into two as "clean v polluting"; likewise, jobs as "traditional v green"
- (v) Labor supply function was built-in (elasticity wage to labor 1.02).

Baseline to 2050

Table 1. Economic Baseline to 2050 (no project) – Main assumptions

Source: UN-Data (2021) and UNDP (2020)

	2021	2025	2030	2035	2040	2045	2050
Population (millions)	2.08	2.07	2.05	2.01	1.97	1.91	1.86
GDP (USD-millions)	12,792	14,721	17,156	21,232	24,998	29,262	34,254
GDP per capita (USD)	6,142	7,099	8,366	10,541	12,709	15,294	18,448

Analytically and within a long-term horizon (till 2050):

- The GDP is expected to grow by around 2.7 times
- Per capita income's likely to be multiplied by 3

Assumptions

- Expected GDP gain from the project aligns with the green multiplier analysis by IMF (2021), which states that green multipliers are higher than traditional ones.
- GSIF totals \$883 million, while MSME Fund adds up to \$335 million by 2045 (equivalent of 380 million Euros and 1 billion Euros). MSME Investments are funded as follows: 25% by the project (15% government budget v 85% private sector) and 75% by the beneficiary. 20% of GSIF Investments are sourced by the project (47% government budget v 53% private sector) and 80% by the beneficiary.
- Portfolio allocation for the MSME includes agriculture and food, textile, leather, apparel, paper, electronic and electric equipment, manufacturing. It also includes service sector elements such as support to businesses, accommodation, restaurants, etc.
- GSIF investment sectors include: manufacture of motor vehicles, trailers, and semi-trailers; agriculture; manufacture of electrical equipment; printing and reproduction of recorded media; electricity, gas, steam, and air conditioning supply; repair and installation of machinery and equipment.
- Both funds aim to reduce CO2 emissions per unit of production. Emissions from energy use across production activities are estimated using the emission coefficients by IIASA (ECLIPSE, GAINS 4 Europe, www.iiasa.ac.at).

Proposed Interventions (Table 2)

GSIF Investment Sectors	Investments made per sector	Average emission reduction per sector	GTAP sector
Manufacture of motor vehicles, trailers, and semi-trailers	2	50	22
Agriculture	1	25	1
Manufacture of electrical equipment	5	80	20
Printing and reproduction of recorded media	1	50	34
Electricity, gas, steam, and air conditioning supply	2	100	25
Repair and installation of machinery and equipment	2	37.5	21
Total	13		

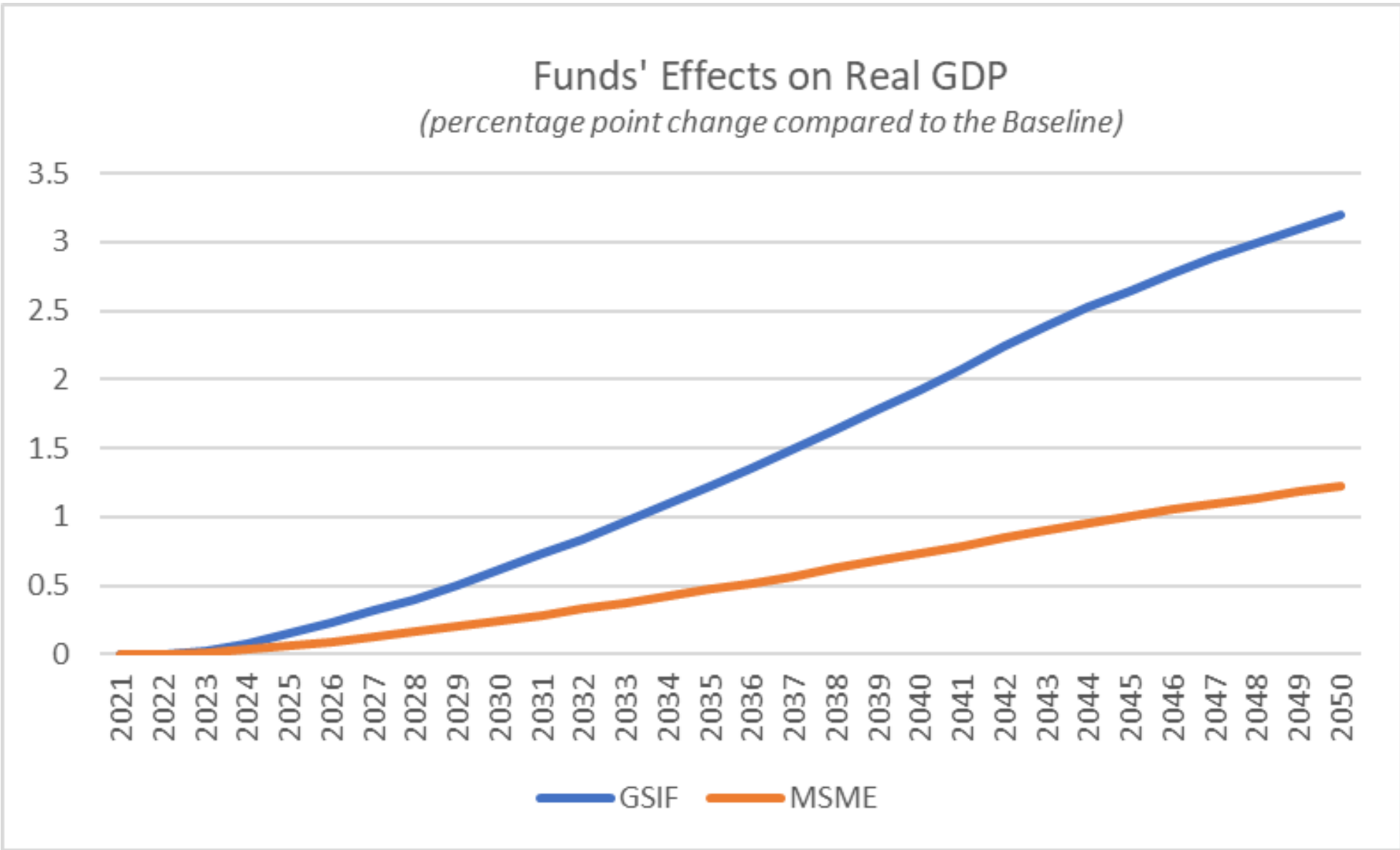
MSME Investment Sectors	Investments made per sector	Average emission reduction per sector	GTAP sector
Manufacture of chemicals and chemical products	5	28	11 and 12
Manufacture of rubber and plastic products	5	28	14
Manufacture of electrical equipment	5	28	20
Manufacture of machinery and equipment, etc.	6	31.7	21
Electricity, gas, steam, and air conditioning supply	1	100	25
Total	22		

Simulation Results - *GDP*

- Both Funds lead to higher real GDP: In cumulative terms, GDP forecast is higher around 1.221 percent for MSME and 3.196 percentage for GSIF above the baseline in 2050 (see Row IV d). GSIF's boost on the GDP is more than twice that of MSME Fund. This is due to the larger size of the Fund amounting to \$335 million for MSME compared to \$883 million for GSIF (380 million Euros v 1 billion Euros respectively).
- Strong GDP effect in GSIF is in line with the IMF (2021) analysis on green investment multipliers; they crowd in the private sector while investment in traditional activities (e.g., fossil fuel-intensive sectors such as steel) would have crowded out private investments.
- Both funds lead to decoupling; GDP increases by around 1 to 2.7 percent above the baseline in 2050 while CO2 emissions decrease by about 5.28 and 6.6 (for MSME and GSIF respectively). Overall effects on GDP components (consumption, exports, imports) are positive and higher for GSIF which is a larger fund than MSME. Exports growth relative to GDP is also higher in GSIF, since this fund targets larger, export-oriented enterprises.

Simulation Results – GDP ('Ctd.)

- Real imports and exports increase under both Funds (by 2.35% in MSME and 6.05% in GSIF), while exports' increase is higher for the GSIF, since it targets large enterprises with high export potential (see Row IV e and f). Import dependence of the economy explains the rise in imports under both Funds (by 0.43% in MSME and 1.79% in GSIF) which are needed to support exporting sectors. These changes are mitigated by the boost in exports (see Row IV e).
- Positive ripple effects from the two funds lead to higher demand for capital and labor, which leads to more jobs and higher value addition across sectors; this improves employment in green activities (GSIF) and decoupling (MSME) towards 2050. GSIF leads to better employment numbers via an increase in existing activities given the larger scale of the investment portfolio, while also adding green jobs across all sectors.
- During the implementation of the MSME Fund and GSIF, GDP increases lead to higher household consumption (respectively by 1.18% and 2.67% above the baseline in 2050) considering the likely price changes. Their positive effects are more pronounced towards the end of the investment period.



Simulation Results - Jobs

- **Indirect effects on Jobs**

The model estimates across sectors a 0.69% increase (or 9,468 jobs) for the MSME Fund and a 1.36% increase (or 18,648 jobs) for the GSIF when compared to the baseline in 2050.

- **Direct effects on Jobs**

- The CGE model predicts a 0.38% increase in employment (Row IIb) in the “sectors within the MSME portfolio”; this accounts for 867 additional jobs compared to the baseline in 2050.
- Regarding the “sectors within the GSIF portfolio” the model estimates a 1.35% increase in employment (Row III b) that translates to 17,867 new jobs in 2050 compared to the baseline.
- Our simulations’ result is in line with the Chamber of Commerce - MASIT report (2020) that highlights higher job creation by the ICT sector compared to traditional sectors: “If additional 1-million-euro revenue is generated in the “Software and IT Services” subsegment it will allow potential employment of 31 new employees with the current average”. <Around 1,000 new jobs>
- Reference year value: 892,399 jobs in 2020 and GDP \$12,263,710,122 (WDI, 2021).

Simulation Results - CO2 emissions

- ***Impact on CO2 emissions:***
- Both investments lead to “decoupling” through promotion of service sectors and greening activities by the Funds.
- In 2050, the model forecasts a 5.28% decrease in CO2 emissions in North Macedonia from the Baseline. Regarding MSME Fund investment sectors, their carbon footprint decreases by 12.2% compared to the baseline in 2050.
- CO2 emissions caused by the “GSIF portfolio sectors” are estimated to decrease by around 14.8% along with an overall emission decrease to 6.6% by 2050 with respect to the Baseline.
- Emissions decrease parallel to GDP increase during the project implementation compared to the Baseline.

Simulation Results (III) – Summary (Table 3)

	MSME	GSIF
I. Incremental Capital – Output ratio, (Cumulative effect in 2050)	1.16	1.15
II. Effects for MSME portfolio sectors, % deviations from baseline in 2050	MSME	
a. CO2 emissions	-12.20	
b. Labor employment	0.38	
c. Capital employment	3.57	
III. Effects for GSIF portfolio sectors, % deviations from baseline in 2050		GSIF
a. CO2 emissions		-14.80
b. Labor employment		1.35
c. Capital employment		4.40
IV. Economy-wide effects, % deviations from baseline in 2050	MSME	GSIF
a. CO2 emissions	-5.28	-6.60
b. Labor employment	0.69	1.36
c. Capital employment	1.58	4.18
d. Real GDP	1.22	3.2
e. Real Imports	0.43	1.79
f. Real Exports	2.35	6.03
g. Real Private Consumption	0.37	2.51

Next Steps

- The limitations of this approach allude to the purely “economic” nature of the CGE model. Emission reduction potential would have been better assessed in an “integrated modeling framework” wherein engineering processes could be captured. For instance, there is no distinction between fossil fuel electricity generation and renewable electricity generation in the CGE model. Greening scenarios refer to the substitution of highly polluting energy types with natural gas and LPG. The CGE model cannot distinguish between existing steel technologies and clean steel technology (based on green hydrogen).
- An expansion of the current model would involve the incorporation of bilateral trade relations with the EU as separate from other trading blocks. Incorporating more country-specific details with a focus on government and financial accounts would allow for an analysis of various funding options for the Government’s contributions to the Funds. It would also be appropriate to incorporate multiple-household consumption data to provide a detailed analysis of poverty alleviation outcomes.

Thank you...

Q & A...

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