



DISTRIBUTIONAL IMPACTS OF ENERGY SUBSIDY REFORM IN INDONESIA

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Fossil fuel subsidies (FFS)

FFS in the world

- USD 544 billion/year energy consumption subsidies (primarily in emerging and developing economies)
- USD 55-90 billion / year for supporting fossil fuel production & use in OECD countries

Motivations to phase out FFS

- Economic efficiency: FFS induce wasteful energy use, pressure on public finance and on current accounts
- Environmental consequences: more energy consumption, pollutant emissions which affect climate and air quality
- Equity: FFS are a very inefficient way to redistribute wealth toward the poor

G20 Pittsburg declaration (2009), high on many national agendas



FFS reform in Indonesia



- FF consumption subsidies 2.5% of GDP in 2011
- Reform is high on the political agenda
 - budget deficit
 - pressure on reserves
 - Climate change and local air pollution
- Substantial previous efforts to reduce FFS but continuing challenge because of equity concerns



Adding distributional aspects to the economic and environmental analysis

Modelling assessment of impacts of FFS reforms in Indonesia

- **Macroeconomic & environmental:** IEA (1999), Magné et al (2014)
- **Macroeconomic & distributional:** e.g. Clements et al (2007), Widod *et al.* (2012)
- **Distributional:** World Bank (2006, 2011), Dartanto (2013)

Goal: Construction of a dedicated framework to deal simultaneously with all 3 dimensions energy subsidy reforms

- Environmental
- Macroeconomic
- Distributional



Analytical framework

Environmental Policy



Economy -wide effects

- Market prices
- Wages and rents
- Taxes and transfers

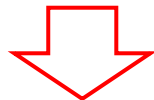
Macro model



Household-level effects

- Income
- Expenditures
- Demand adjustment

Microsimulation models



Economic Efficiency



Environmental effectiveness



Distributional effect



The energy consumption subsidy phase out scenarios

Phase out of energy consumption subsidies in Indonesia from 2012 to 2020

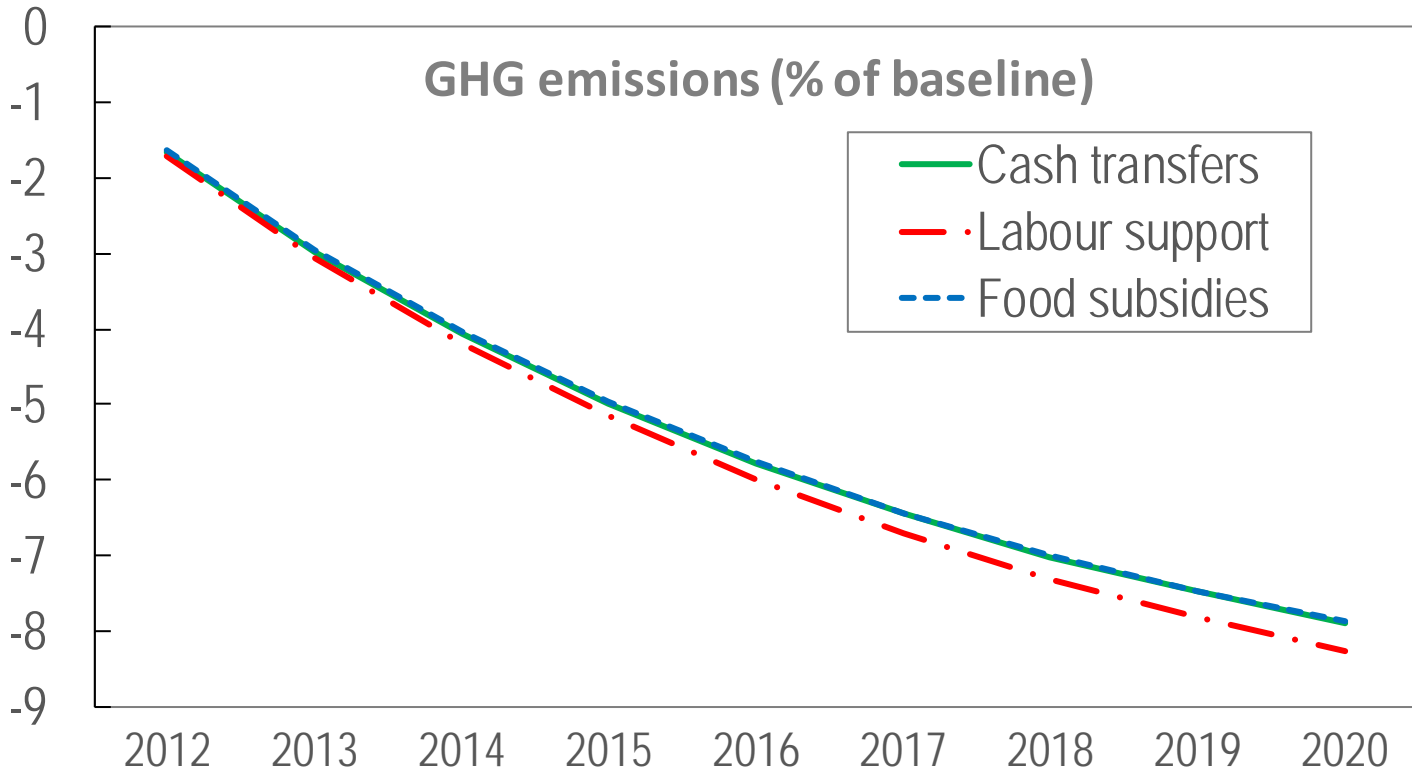
- Electricity, gasoline, diesel, kerosene, LPG
- For firms and households

3 different redistribution schemes:

- 1. Cash transfer:** all the households receive identical payment
- 2. Food subsidies:** food & agricultural products are subsidized
- 3. Labour support:** households receive payments proportional to their labour income



Results (1/4): Environmental impact



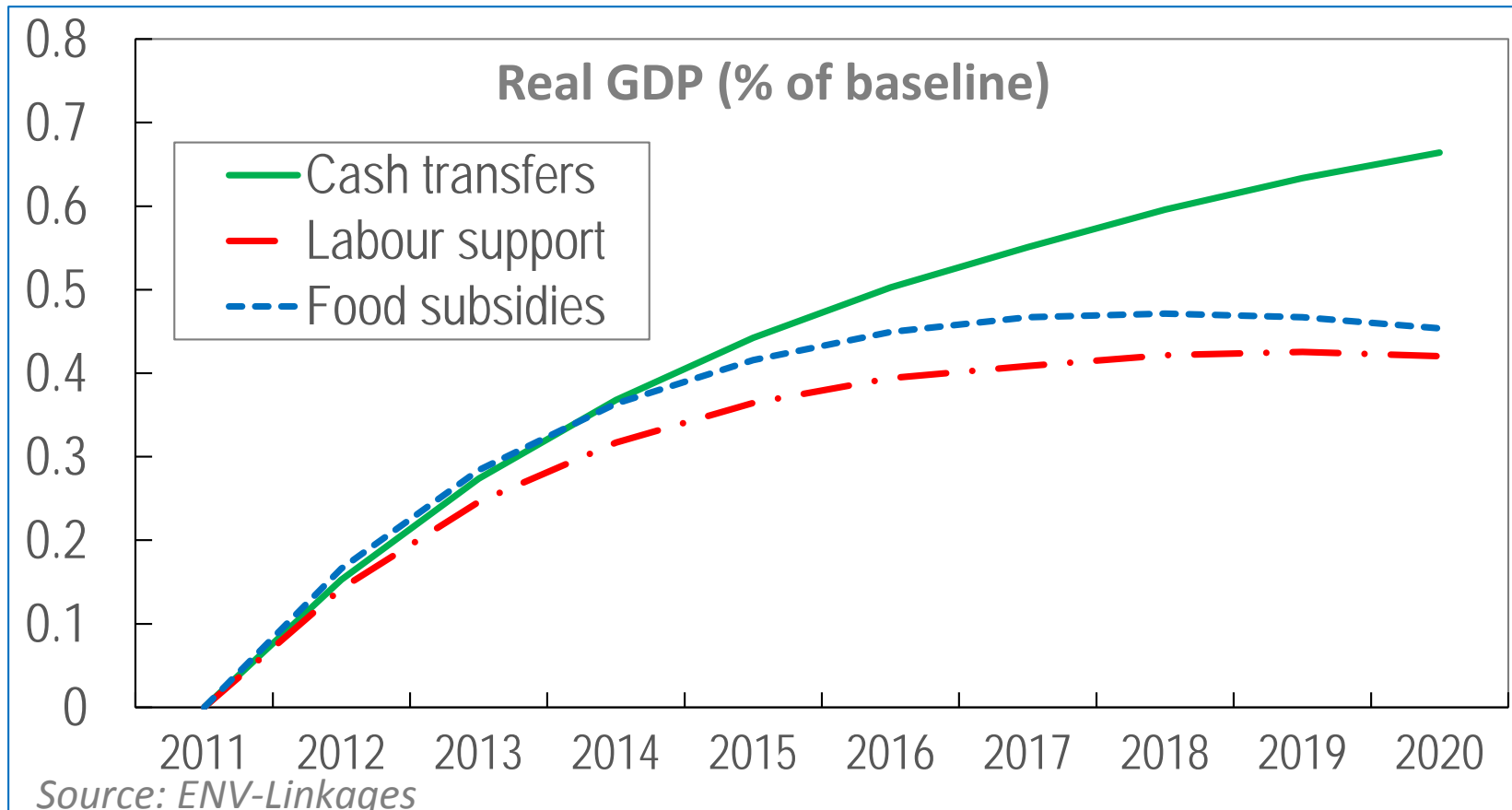
Source: ENV-Linkages

Note: The emission reductions exclude emissions from deforestation, which are large in Indonesia, but highly uncertain and for which the model cannot make reliable projections

Durand-Lasserve et al. forthcoming

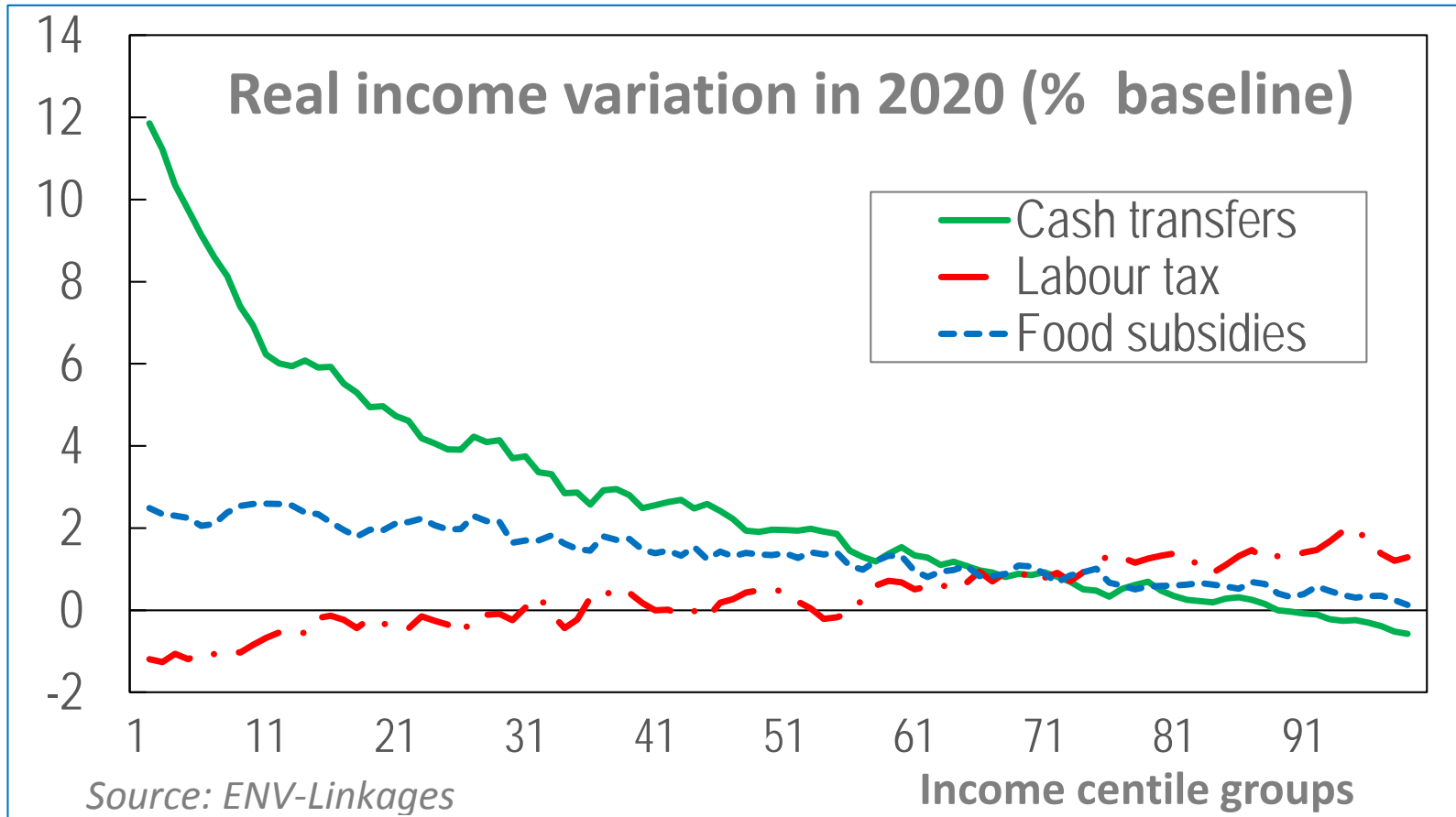


Results (2/4): Macroeconomic impact



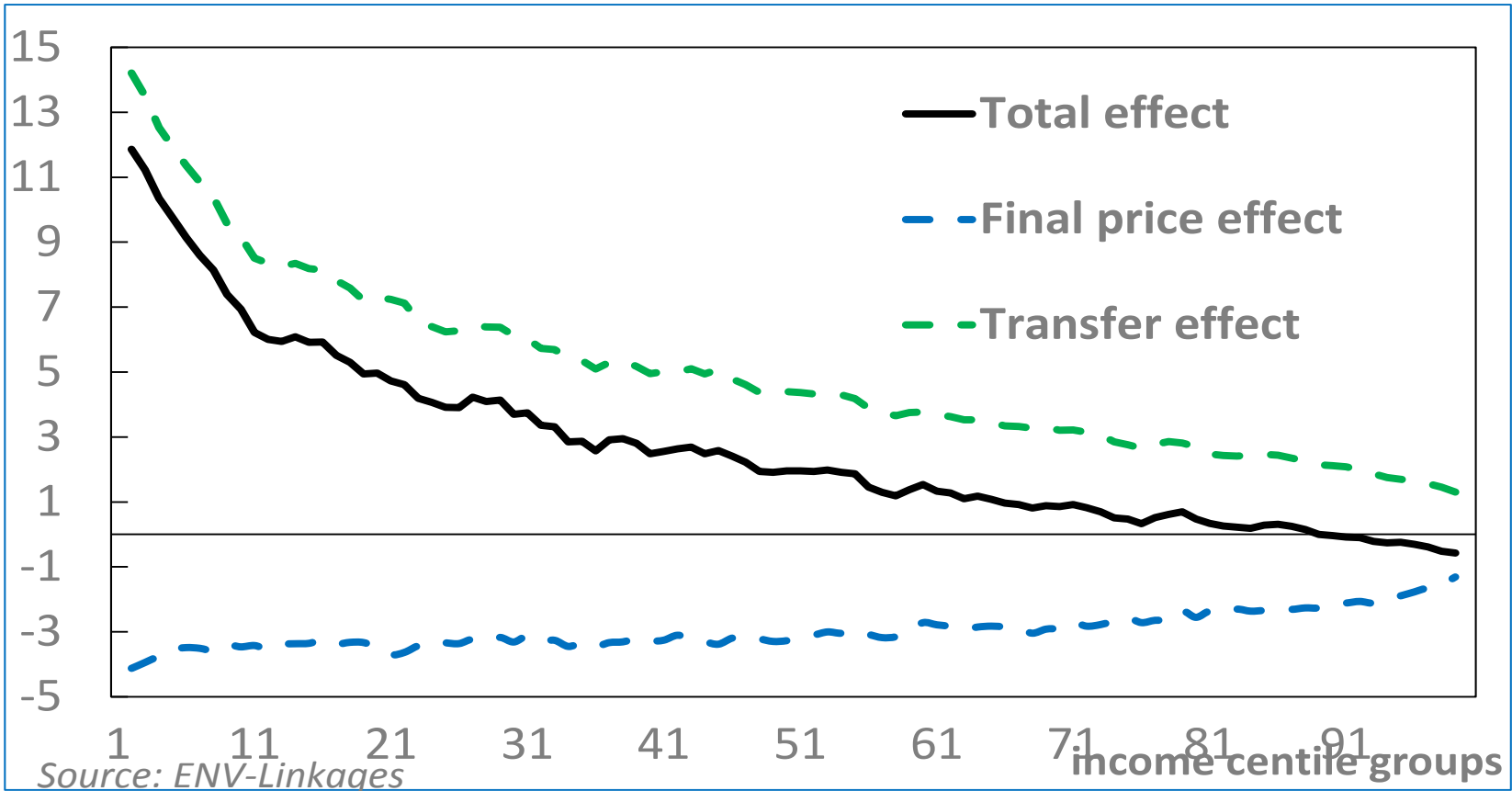


Results (3/4): Distributional impact





Results (4/4): drivers of distributional impact in the *cash transfer scenario*





Conclusions

- Based on our simulations: cash transfers are the best way to make a phase out more efficient and equitable
- But the cash transfer scheme represented is stylized with uniform transfer to all households.
- Other schemes could be designed such as targeted transfers to lower income groups, differential compensation, time-bound benefits, etc.
- Redistribution through development in infrastructure could also have a very high social rate of return, but need for further model development investigated in the future



THANK YOU

For further information:

www.oecd.org/environment/modelling