What next?: Reducing Consumption Levels

Sonja Dobkowitz

September 11, 2021

University of Bonn

Motivation

- **due to climate change, we need to reduce the consumption of resources**

Motivation

- due to climate change, we need to reduce the consumption of resources
- **macroeconomic research largely focuses on a green recomposition of consumption**

Motivation

- due to climate change, we need to reduce the consumption of resources
- macroeconomic research largely focuses on a green **recomposition** of consumption
- **but it is unclear whether recomposition alone is sufficient to fight climate change at today's high consumption levels**

Motivation

- due to climate change, we need to reduce the consumption of resources
- macroeconomic research largely focuses on a green **recomposition** of consumption
- but it is unclear whether recomposition alone is sufficient to fight climate change at today's high consumption levels

$\Rightarrow$ **this project focuses on a reduction of consumption**

Research Question

What are the effects of a reduction in consumption?

Research Question

What are the effects of a reduction in consumption?

Model

Research Question

What are the effects of a reduction in consumption?

Model

- **demand-determined production level** allowing for excess supply of labour (building on models of economic slack, such as Auerbach et al. (2021))

Research Question

What are the effects of a reduction in consumption?

Model

- **demand-determined production level** allowing for excess supply of labour (building on models of economic slack, such as Auerbach et al. (2021))
- sectors differ with respect to the degree of resource usage

Research Question

What are the effects of a reduction in consumption?

Model

- **demand-determined production level** allowing for excess supply of labour (building on models of economic slack, such as Auerbach et al. (2021))
- sectors differ with respect to the degree of resource usage
- **Inequality**: Households differ with respect to

Research Question

What are the effects of a reduction in consumption?

Model

- **demand-determined production level** allowing for excess supply of labour (building on models of economic slack, such as Auerbach et al. (2021))
- sectors differ with respect to the degree of resource usage
- **Inequality**: Households differ with respect to
  - the sector where they are employed in

Research Question

What are the effects of a reduction in consumption?

Model

- **demand-determined production level** allowing for excess supply of labour (building on models of economic slack, such as Auerbach et al. (2021))
- sectors differ with respect to the degree of resource usage
- **Inequality**: Households differ with respect to
  - the sector where they are employed in
  - the composition and environmental cost of their consumption bundle due to **basic needs**

Research Question

What are the effects of a reduction in consumption?

Model

- **demand-determined production level** allowing for excess supply of labour (building on models of economic slack, such as Auerbach et al. (2021))
- sectors differ with respect to the degree of resource usage
- **Inequality**: Households differ with respect to
  - the sector where they are employed in
  - the composition and environmental cost of their consumption bundle due to **basic needs**
  - firm ownership

Research Question

What are the effects of a reduction in consumption?

Model

- **demand-determined production level** allowing for excess supply of labour (building on models of economic slack, such as Auerbach et al. (2021))
- sectors differ with respect to the degree of resource usage
- **Inequality**: Households differ with respect to
  - the sector where they are employed in
  - the composition and environmental cost of their consumption bundle due to **basic needs**
  - firm ownership
- **directed innovations**

Research Question

What are the effects of a reduction in consumption?

Model

- **demand-determined production level** allowing for excess supply of labour (building on models of economic slack, such as Auerbach et al. (2021))
- sectors differ with respect to the degree of resource usage
- **Inequality**: Households differ with respect to
  - the sector where they are employed in
  - the composition and environmental cost of their consumption bundle due to **basic needs**
  - firm ownership
- **directed innovations**

Research Question

What are the effects of a reduction in consumption?

Model

- **demand-determined production level** allowing for excess supply of labour (building on models of economic slack, such as Auerbach et al. (2021))
- sectors differ with respect to the degree of resource usage
- **Inequality**: Households differ with respect to
  - the sector where they are employed in
  - the composition and environmental cost of their consumption bundle due to **basic needs**
  - firm ownership
- **directed innovations**

Focus of this paper

(1) indirect effects on climate externality and (2) societal acceptance of such a policy

How to model a reduction of consumption?

- intrinsic change in household preferences **?**

How to model a reduction of consumption?

- intrinsic change in household preferences **?**
- policy

How to model a reduction of consumption?

- intrinsic change in household preferences **?**
- policy
  - reduction of working time as suggested by Gough (non-separable utility)

How to model a reduction of consumption?

- intrinsic change in household preferences **?**
- policy
  - reduction of working time as suggested by Gough (non-separable utility)
  - foster and establish easy ways to share durable consumption

How to model a reduction of consumption?

- intrinsic change in household preferences **?**
- policy
  - reduction of working time as suggested by Gough (non-separable utility)
  - foster and establish easy ways to share durable consumption
  - economic-ecological education (long-run policy)

How to model a reduction of consumption?

- intrinsic change in household preferences **?**
- policy
  - reduction of working time as suggested by Gough (non-separable utility)
  - foster and establish easy ways to share durable consumption
  - economic-ecological education (long-run policy)
  - empirically study/ draw from literature studying relation of ecological cost of consumption bundles and household characteristics/ events

How to model a reduction of consumption?

- intrinsic change in household preferences **?**
- policy
  - reduction of working time as suggested by Gough (non-separable utility)
  - foster and establish easy ways to share durable consumption
  - economic-ecological education (long-run policy)
  - empirically study/ draw from literature studying relation of ecological cost of consumption bundles and household characteristics/ events

How to model a reduction of consumption?

- intrinsic change in household preferences **?**
- policy
  - reduction of working time as suggested by Gough (non-separable utility)
  - foster and establish easy ways to share durable consumption
  - economic-ecological education (long-run policy)
  - empirically study/ draw from literature studying relation of ecological cost of consumption bundles and household characteristics/ events

Exercise and Goal

- compare effects of different policies to reduce aggregate consumption as to limit global warming to 1.5 °C above pre-industrial levels (accounting for indirect effects)
- shed light on societal acceptance/ optimal implementation of reduction

Why a quantitative model?

- Does a reduction in demand slow down green innovation? Or does a triggered recomposition imply an acceleration?

Why a quantitative model?

- Does a reduction in demand slow down green innovation? Or does a triggered recomposition imply an acceleration?
- If the poor get poorer, do they adjust their composition of consumption in a way that emissions increase?

Why a quantitative model?

- Does a reduction in demand slow down green innovation? Or does a triggered recomposition imply an acceleration?
- If the poor get poorer, do they adjust their composition of consumption in a way that emissions increase?
- Who profits, who loses? Does such a policy increase inequality? For example, because the poor see a lower labour income, or do profits sink in a ways so that inequality decreases?

Data

- **Quantity**: measure resource consumption by household using consumption bundle from CEX

Data

- **Quantity**: measure resource consumption by household using consumption bundle from CEX
- **Quality**: proxy share of green goods consumed by Nielsen sustainable panel

Data

- **Quantity**: measure resource consumption by household using consumption bundle from CEX
- **Quality**: proxy share of green goods consumed by Nielsen sustainable panel

$\Rightarrow$ How high is emission-conusmption by household type? What consumption to target by policy?

Data

- **Quantity**: measure resource consumption by household using consumption bundle from CEX
- **Quality**: proxy share of green goods consumed by Nielsen sustainable panel

$\Rightarrow$ How high is emission-conusmption by household type? What consumption to target by policy?

$\Rightarrow$ How do households differ by the share of green goods consume?

Data

- **Quantity**: measure resource consumption by household using consumption bundle from CEX
- **Quality**: proxy share of green goods consumed by Nielsen sustainable panel

$\Rightarrow$ How high is emission-conusmption by household type? What consumption to target by policy?

$\Rightarrow$ How do households differ by the share of green goods consume?

$\Rightarrow$ Informs model on how a reduction of emission-consumption can be implemented

References

Auerbach, A. J., Gorodnichenko, Y., and Murphy, D. (2021). Inequality, fiscal policy and COVID19 restrictions in a demand-determined economy. *European Economic Review*, 137.

Gough, I. CAN GROWTH BE GREEN? Technical report.