

Exploring different food security futures – what might be in store for the poor?

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International Policy



FOODSECURE
FOR POLICIES THAT MATTER



Inequality is key
for food security



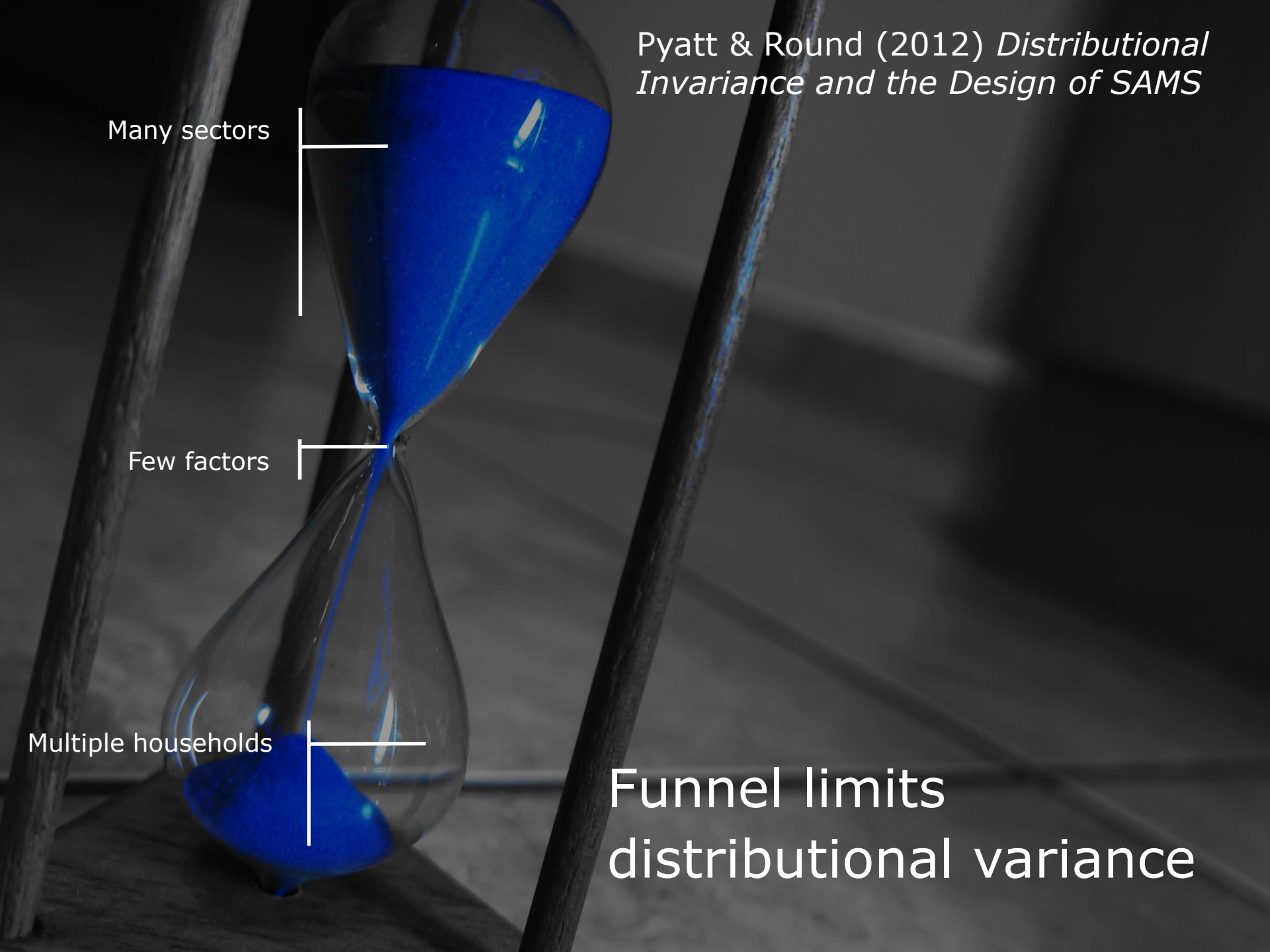
Inequality explicit in **model** and in **scenarios**

Many sectors

Few factors

Multiple households

Funnel limits
distributional variance

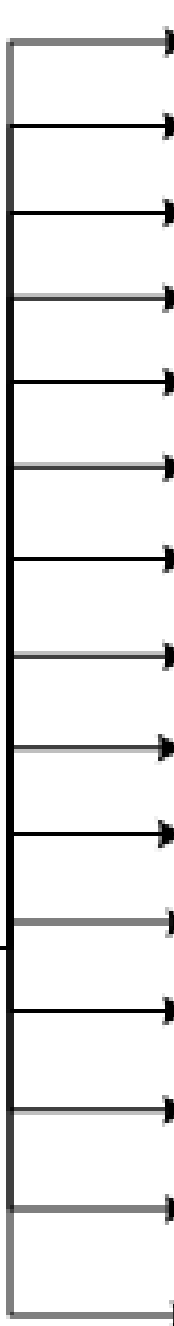


Does splitting factors
affect distributional
outcomes for households in
long term projections?



MAGNET - modular CGE modelling



- 
- **MGTAP** – minor modifications to standard GTAP & links to the modules ✓
 - **Extended production structure** – fully flexible CES production structure ✓
 - **Land** - endogenous land supply & flexible CET land allocation structure ✓
 - **Consumption** – PPP corrected consumption function
 - **Segmented factor markets** – CET or dynamic allocation of factors ✓
 - **CAP** – pillars of the EU Common Agricultural policy
 - **Quota** – imposing production quota
 - **Biofuel directive** – mandates for 1st and 2nd generation biofuels
 - **Investment** – alternative investment regime specifications
 - **Tariff rate quotas** – bilateral TRQs
 - **Labour supply** – alternative labour supply specification
 - **Residues** – residue supply
 - **GHG** – greenhouse gas emissions
 - **Households** – removes the regional household & allows multiple households ✓
 - **Nutrients** – nutrients in household consumption ✓

• **Labour supply** – alternative labour supply specification

• **Residues** – residue supply

• **GHG** – greenhouse gas emissions

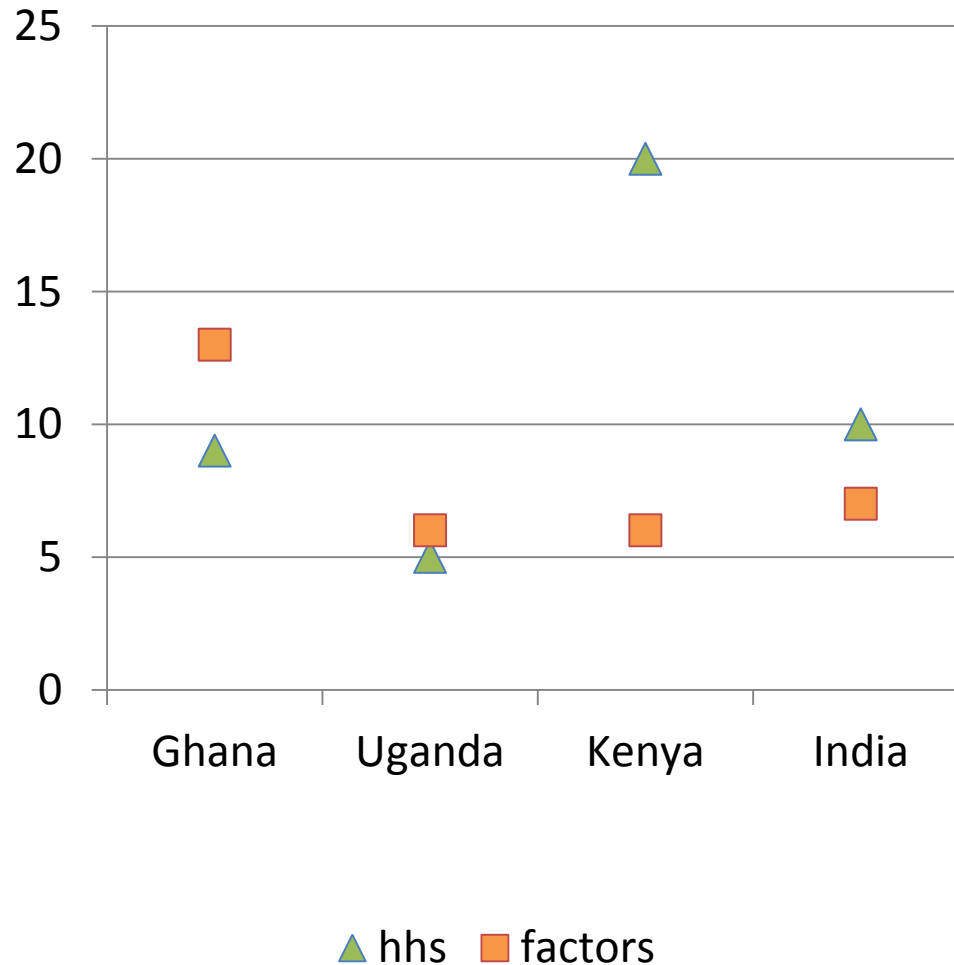
• **Households** – removes the regional household & allows multiple households

• **Nutrients** – nutrients in household consumption

MyGTAP model code
for households

National SAMs for
households & splitting factors

No. of factors and households by region



Pipeline:
China,
Indonesia,
Ethiopia,
Nigeria

FoodSecure exploratory scenarios



FoodSecure exploratory scenarios



What **can** happen?

Participatory scenario development



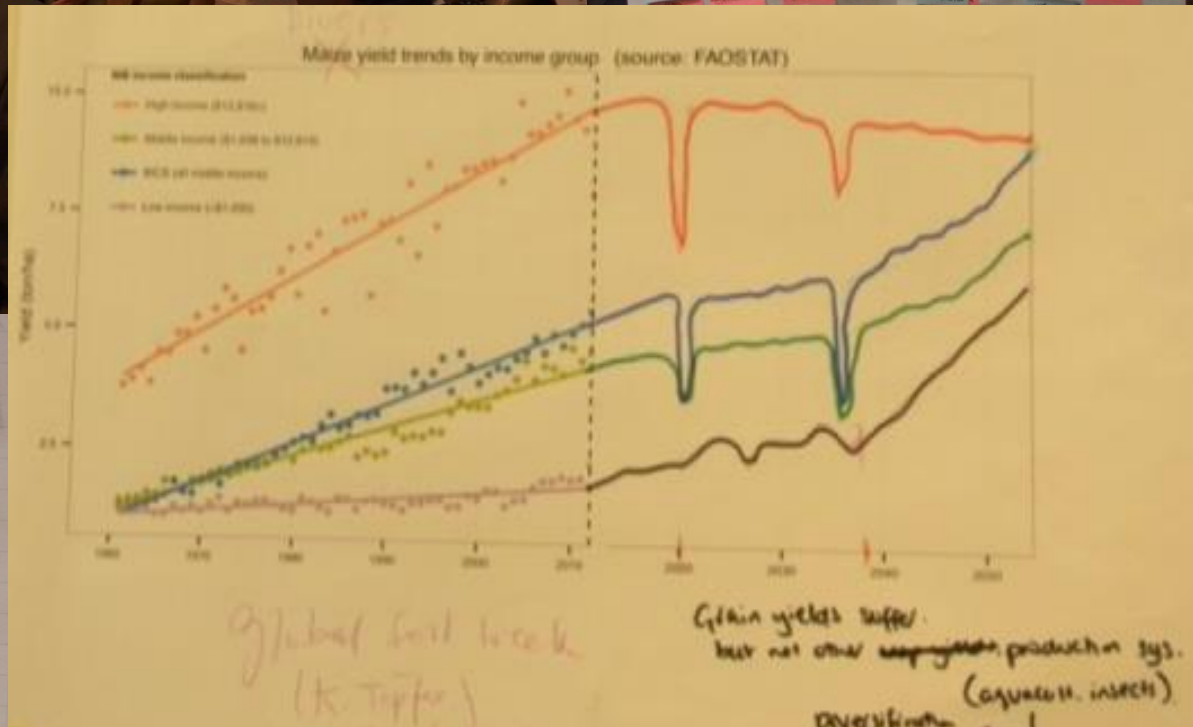
MARKETS & TRADE

FINANCIAL CRISES 78

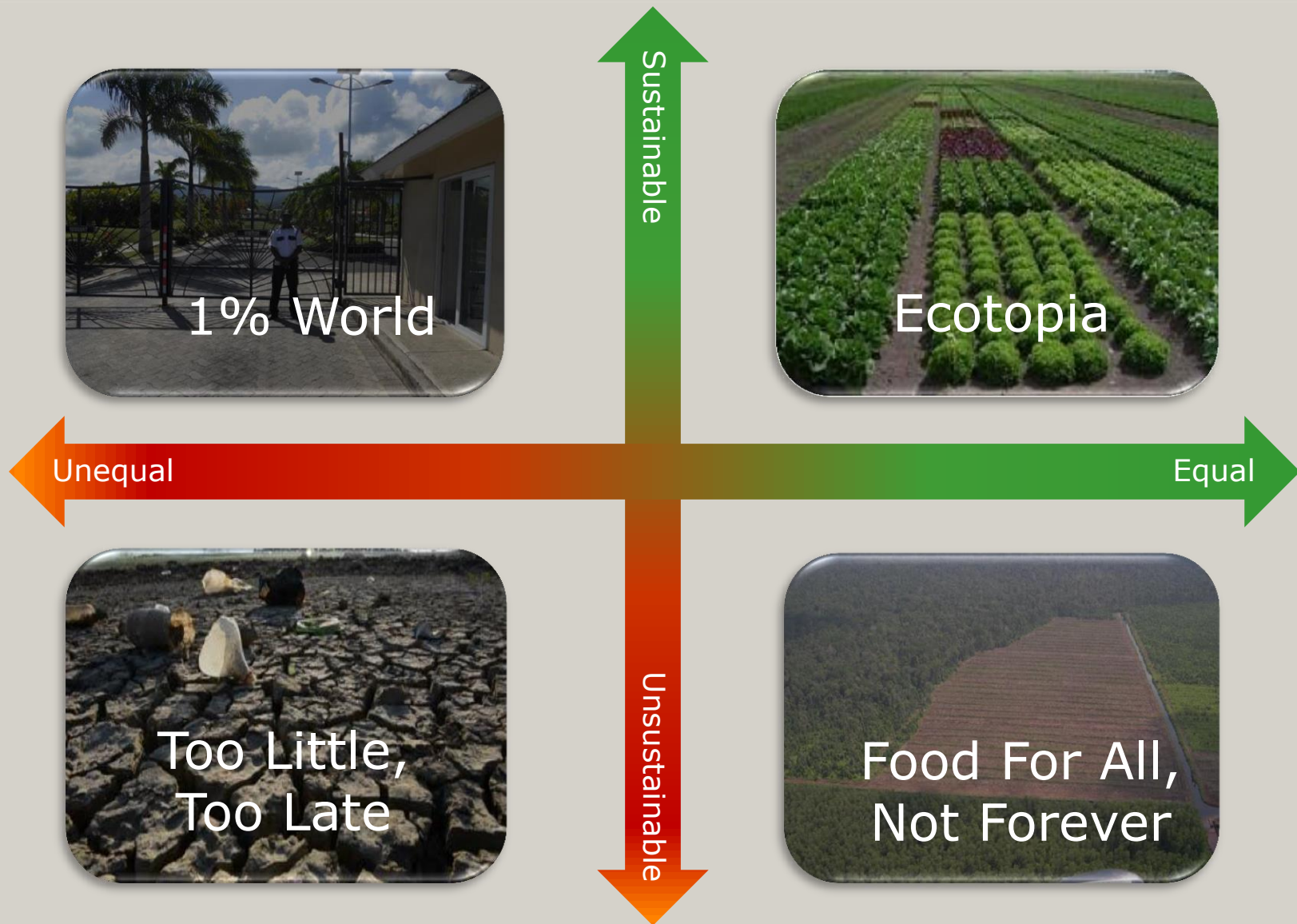
MARKET PROTECTION

TRADE POLICIES 79

Financiais/



FoodSecure scenarios – what can happen?



4x food for all, but not forever (FFANF)

Model set-up:

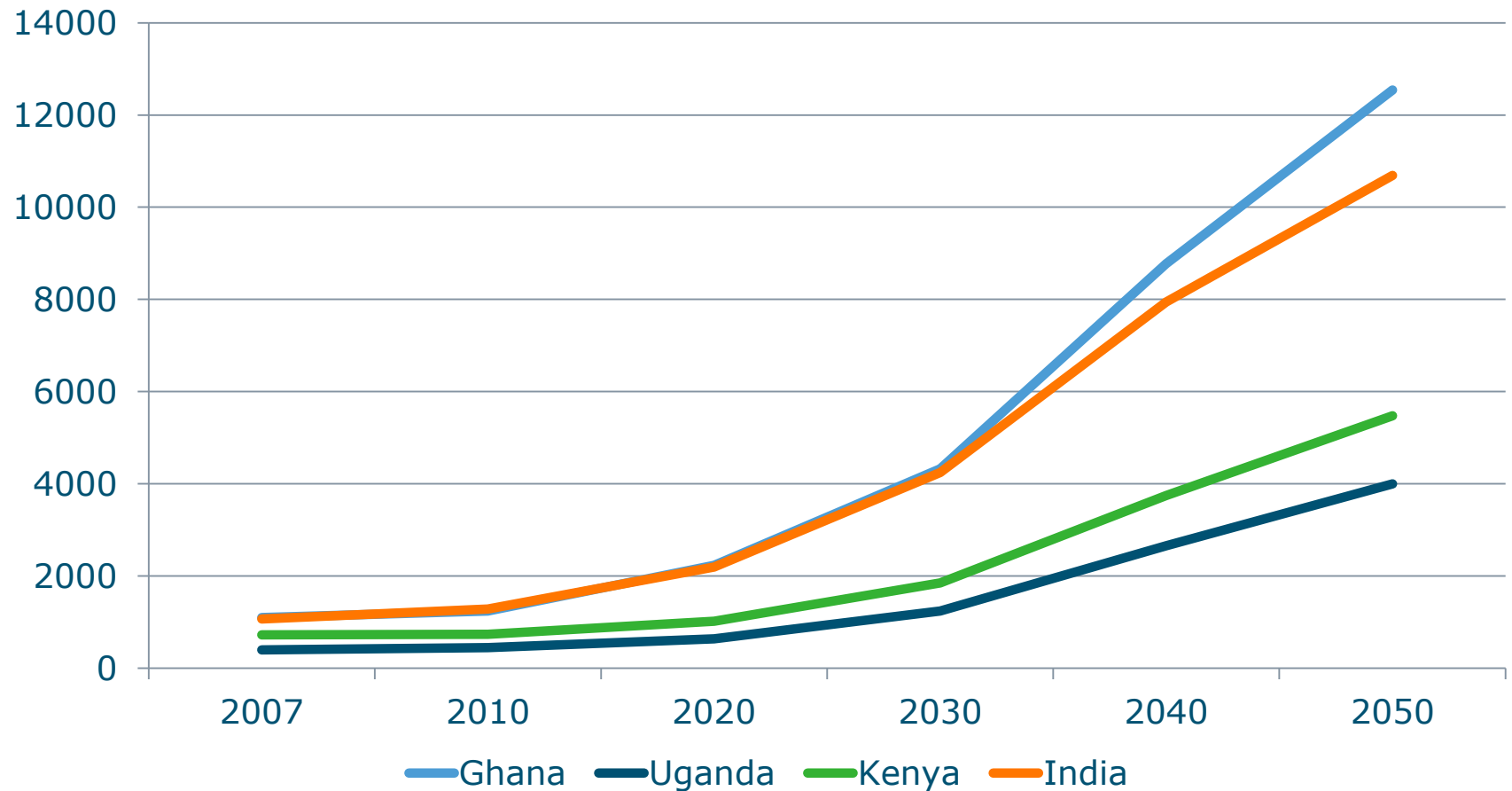
S1 – GTAP regional household (govt + 1 hh)

S2 – govt + 1 private household

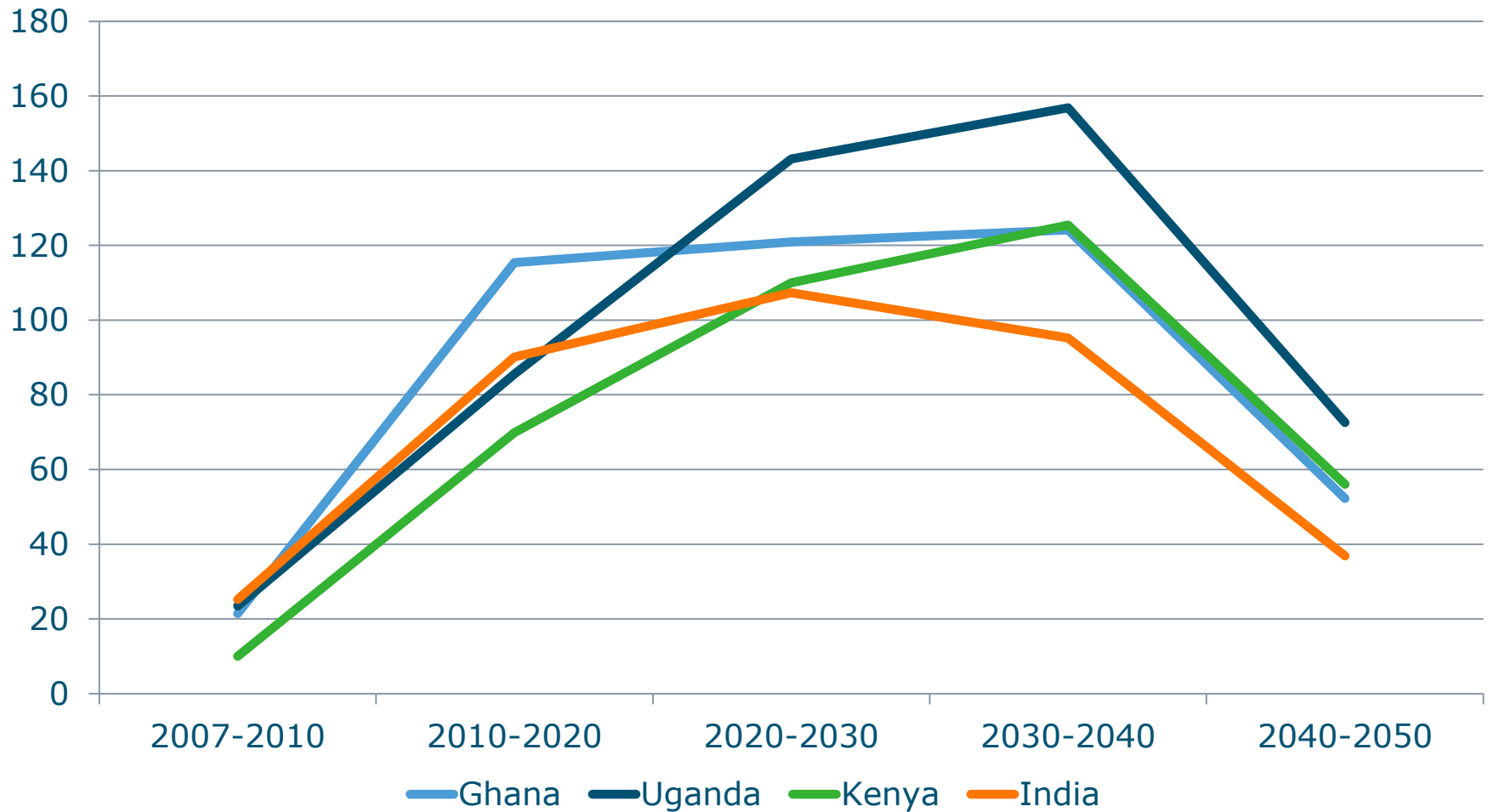
S3 – govt + multiple households

S4 – govt + multiple households + factor split

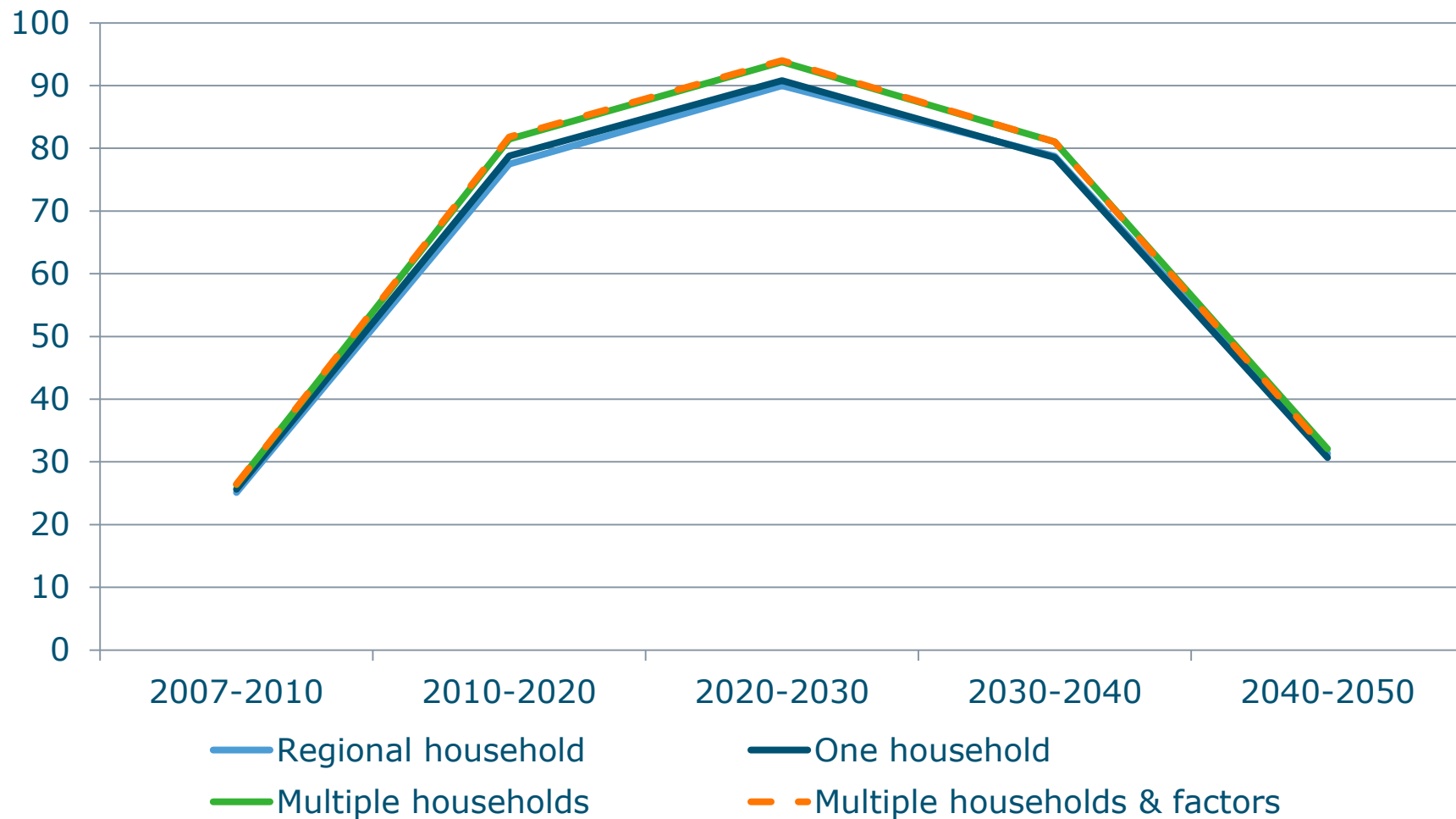
Projected GDP/capita in FFANF (2007 US \$)



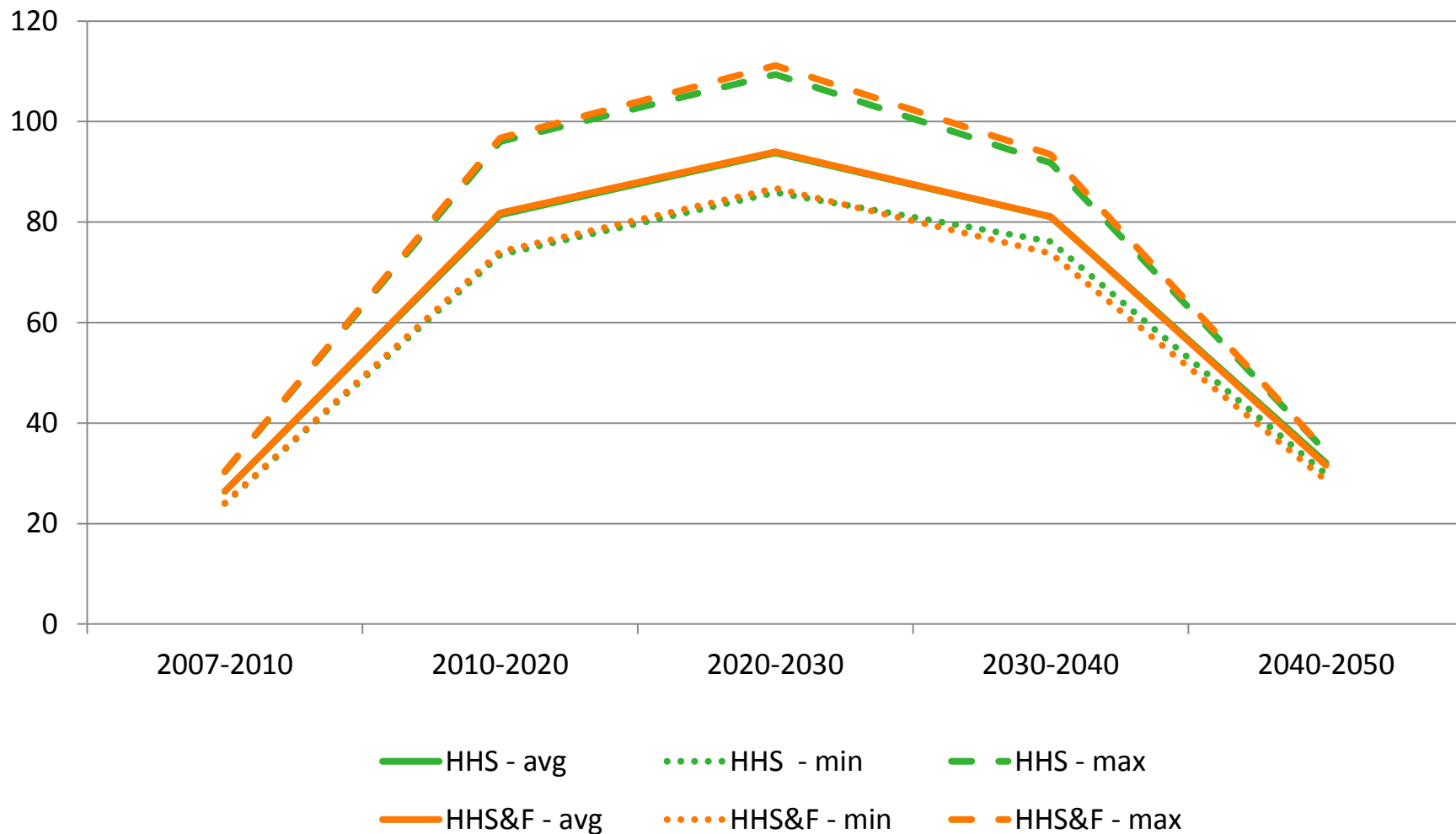
FFANF change in GDP per period (%)



India – total household income (% change)

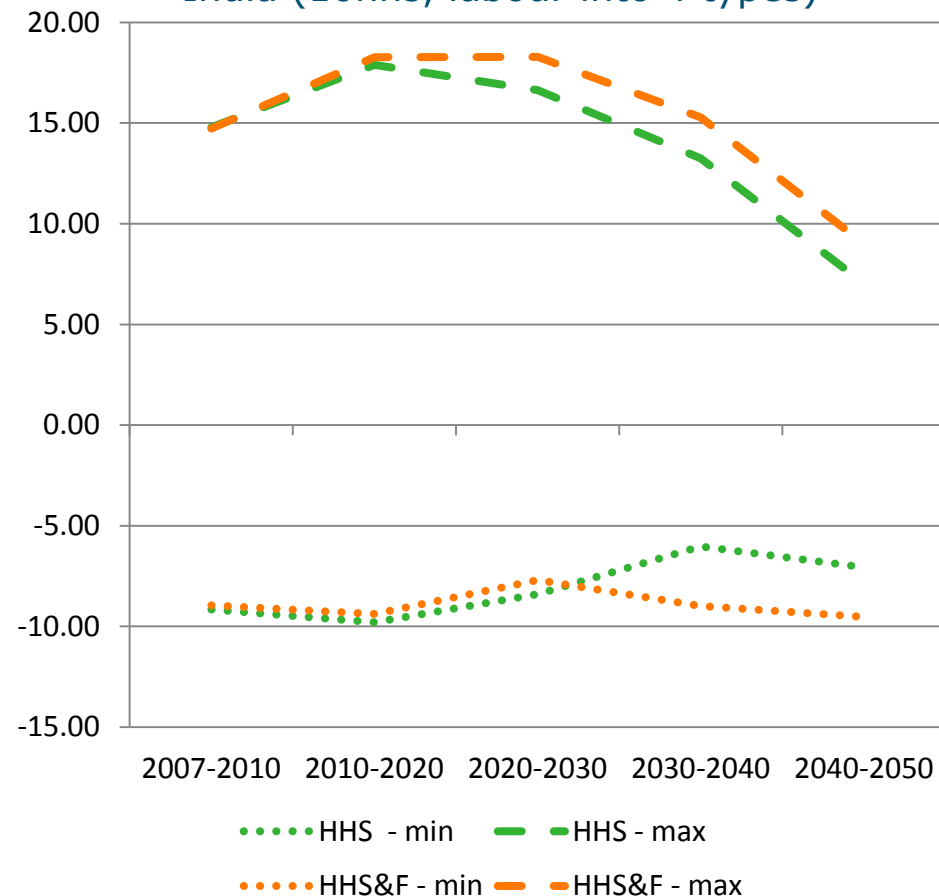


Household income (%), average and spread - India

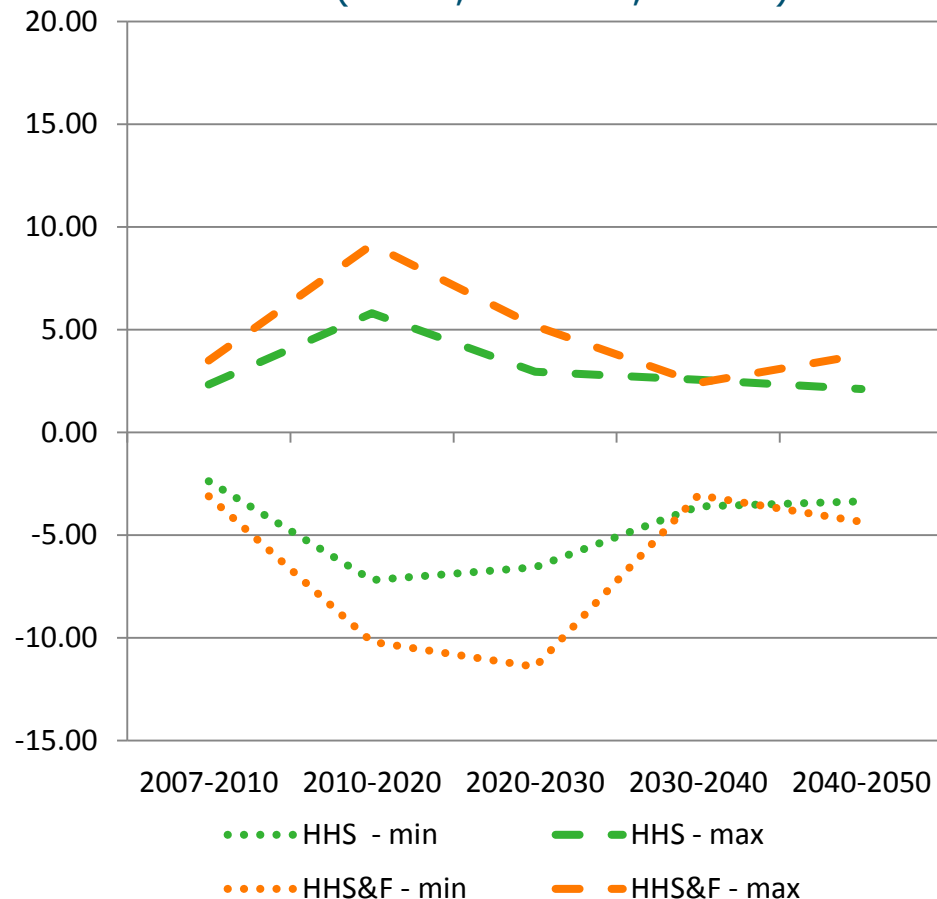


Min and max as % of average income change

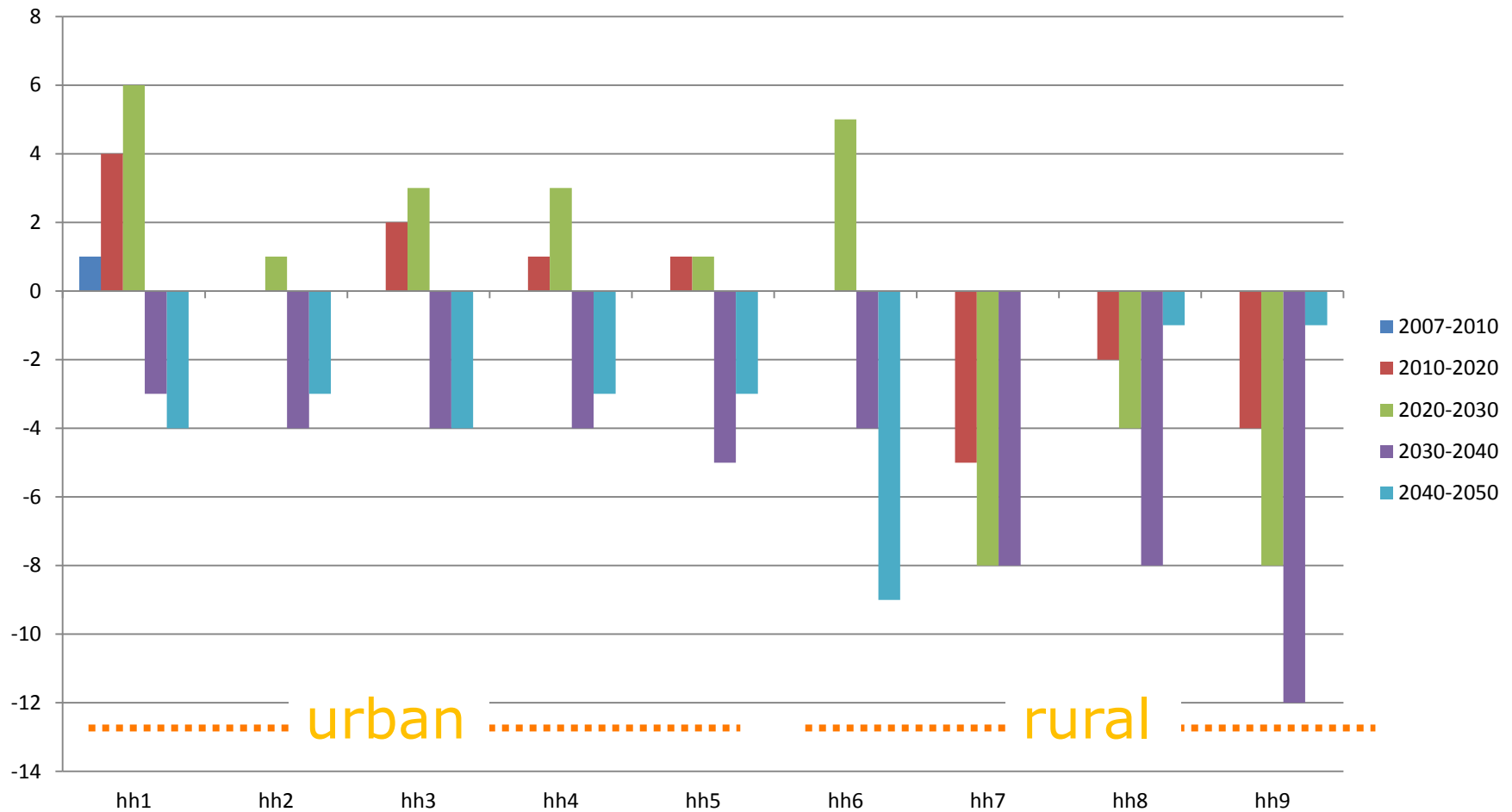
India (10hhs, labour into 4 types)



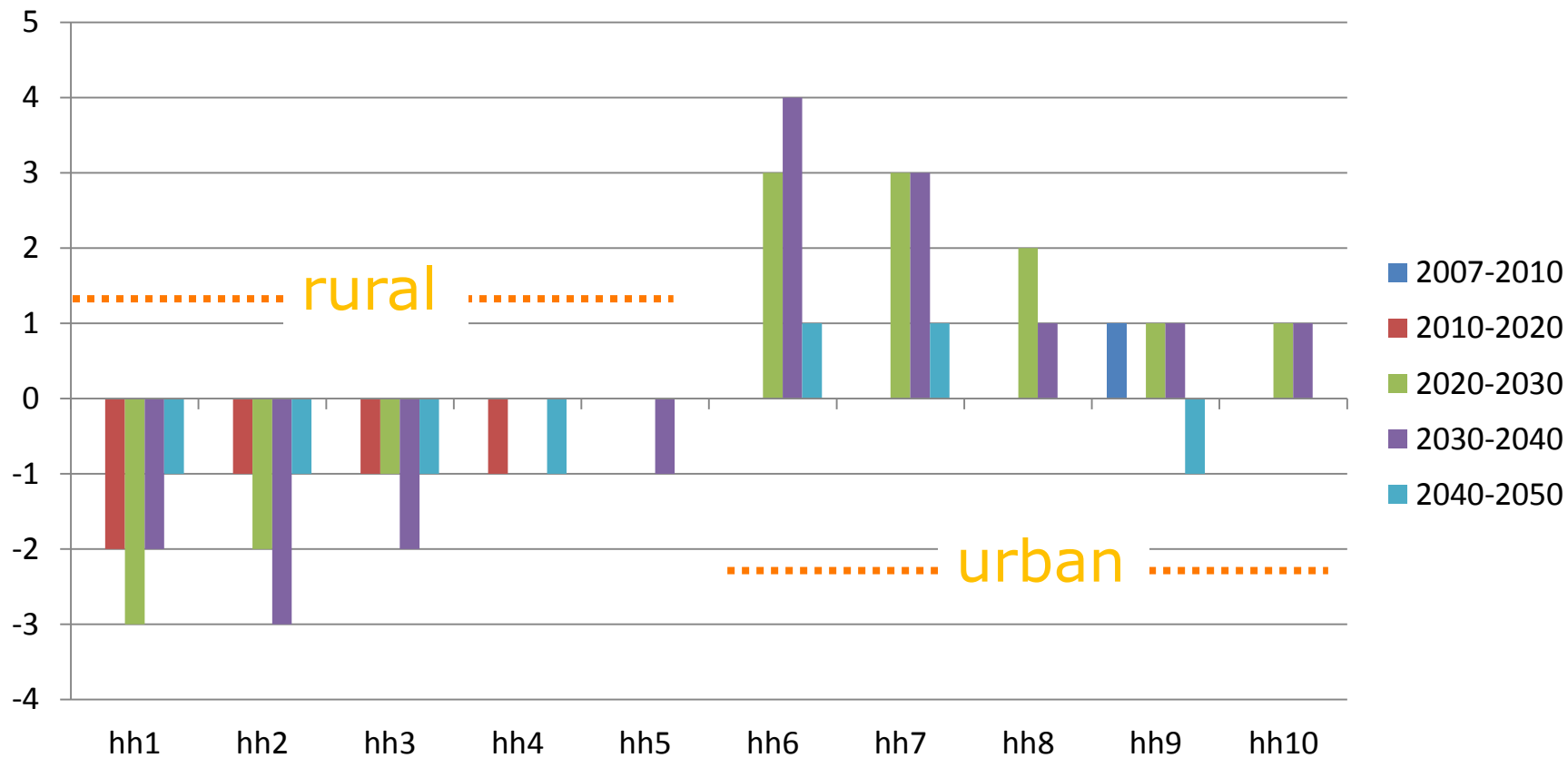
Ghana (9 hhs, 7 labour, 4 land)



Difference in hh income with factors (% points) - Ghana



Difference in hh income with factors split (% points) - India



Splitting factors affects
distributional outcomes for
households in
long term projections



Aggregate results are almost identical
Splitting factors increases variance in income changes

Next steps

- > Add capital splits
- > Explore mapping to 5 labour types (GTAP V9)
- > Check & adjust factor use by sector
- > Add new household regions
- > Properly calibrate model

- > Enrich scenario drivers
- > Run model with all four scenarios

Future work on www.foodsecure.eu

