**FSAV Simulation 1**

**Full Employment, Savings-Driven Investment**

**MACRO results**

* **Shock:** ↓FSAV (i.e., decline in foreign capital inflows)
  + Check: FSAV/GDP ratio falls on Macro Sheet
* Two entry points or impact channels (always the case for CGE analysis)
  + **Channel 1: Current account (EQ41): Paired to EXR (exchange rate)**
    - Reduced foreign exchange earnings means we need to ↑QE and/or ↓QM
      * Either increase export dollar earnings or reduce need for dollar imports
    - ↑EXR → ↑PM and ↑PE (**EQ1** and **EQ2**)
      * Depreciation of the real exchange rate makes exports more attractive to local producers and makes imports less attractive to local consumers
      * Check: Real exchange value increases (i.e., more Taka per US dollar)
    - ↓QM and ↑QE (**EQ25** and **EQ22**)
      * Check: Changes in export and import quantities on Macro Sheet
  + **Channel 2: Savings-investment balance (EQ45): Paired to either IADJ or MPS**
    - Reduced foreign savings, means lower investment or higher domestic savings
    - **Closure**: Savings-driven investment (=3) → fixed savings rates, flexible investment (IADJ in **EQ35**)
      * Check: Decline in investment quantity on Macro Sheet
    - Notes:
      * Government **closure** (=1) has flexible public savings (GSAV in **EQ42**), which falls because economy gets smaller (see GDP results below).
      * Since we are using a static model, reduced investment has no second-round feedback effect on capital accumulation or QFS(CAP) = no direct supply-side implications

**GDP results**

* Small ↓ in total GDP
  + Check: Change in real GDP on GDP Sheet
  + Note: Changes in total GDP ← changes in productivity, factor supply, and/or sector composition
    - Full employment **closure** (=1) means QFS is fixed (**EQ39**)
    - No changes in TFP (i.e., alphava in **EQ15**)
    - Therefore, any changes in total GDP are caused by changes in sector composition (i.e., differences in value-added per unit of labor/land/capital).
    - This makes changes in total GDP very small (i.e., we’re moving along the production possibility frontier, rather than shifting it inwards or outwards)
* Large ↓ in total absorption
  + Check: Change in real absorption on GDP Sheet
  + Note:
    - Total absorption = C+I+G (i.e., value of goods/services consumed in-country) – this is a measure of national welfare
    - GDP = (C+I+G) + (X-M) = Absorption + Net exports
    - GDP unchanged (left-hand side) + Exports rise and imports fall (i.e., X-M increases) → Absorption (C+I+G) must therefore fall (i.e., fewer goods produced in-country are consumed in-country, because they are needed to earn dollars)

**SECTOR results**

* **Channel 1**: Positive GDP outcomes for export-oriented and import-competing sectors which benefit from real exchange rate depreciation
  + Note: You can see sectors export/import orientation on the Base Sheet
  + *Textiles/clothing*: High export intensity
    - ↑EXR makes exports more competitive in foreign markets and so exports rise
    - Check: Higher export quantity on Trade Sheet; and higher GDP on Sector Sheet
  + *Processed foods*: High import intensity
    - ↑EXR makes imports more expensive and so import demand falls
    - Check: Lower import quantities on Trade Sheet; and higher GDP on Sector Sheet
  + Paddy and processed rice: Low/no imports or exports
    - Unaffected by ↑EXR
    - But ↓absorption (esp. ↓C) means less demand for local rice
    - Check: Lower GDP on Sector Sheet
* **Channel 2**: Negative sector GDP outcomes due to fall in investment
  + *Construction, machinery, equipment and vehicles*: Major investment commodities
    - ↓IADJ → ↓QINV (**EQ35**)
    - Check: Lower GDP on Sector Sheet
  + *Forestry and nonmetallic minerals*: major inputs into construction sector (e.g., cement)
    - GDP declines because of backward production linkage effects
    - Check: Lower GDP on Sector Sheet

**FACTOR results**

* **Closure**: Full employment → no change in QFS, but changes in WF (**EQ39**)
* *Uneducated rural labor*: Employed intensively in agriculture
  + ↓real wage (WF) ← ↓agriculture GDP ← lower absorption (esp. C)
    - Check: Lower WF on Factor Sheet and Lower agriculture GDP on Sector Sheet
* *Uneducated and primary-educated urban labor*: Employed intensively in textiles/clothing
  + ↑real wage (WF) ← ↑textiles/clothing GDP ← increased exports
    - Check: Higher WF on Factor Sheet and Higher textiles/clothing GDP on Sector Sheet
* *Secondary and tertiary educated urban labor*: Employed intensively in finance, health, education
  + ↓real wage (WF) ← ↓finance/health, etc. GDP ← lower absorption (esp. C)
    - Check: Lower WF on Factor Sheet and Lower finance/health, etc. GDP on Sector Sheet
* *Crop land, crop capital and livestock capital*: Used exclusively in agriculture
  + ↓real wage (WF) ← ↓agriculture GDP ← lower absorption (esp. C)
    - Check: Lower WF on Factor Sheet and Lower agriculture GDP on Sector Sheet
* *Nonagricultural capital*: Used intensively in less export-oriented industries (incl. construction)
  + ↓real wage (WF) ← ↓capital-intensive industries GDP ← lower absorption (esp. I)
    - Check: Lower WF on Factor Sheet and Lower “other industries” GDP on Sector Sheet

**HOUSEHOLD results**

* ↓ real incomes and consumption
  + ↓YF → ↓YH → ↓EH → ↓QH
  + Check: Lower YH and QH on Sheet Households
* Income and welfare changes vary across the income distribution
  + Lower income farm households worst affected
    - Larger declines in agricultural consumption and GDP means larger declines in the returns to rural uneducated labor, crop land, and crop and livestock capital
  + Smaller declines in income for lower income urban households
    - Expansion of labor-intensive exports (e.g., textiles and clothing)
  + Larger declines in income for higher-income urban households
    - Rely more heavily on nonagricultural capital incomes

**FSAV Simulation 2**

**Full Employment, Investment-Driven Savings (Uniform)**

* Channel 1: largely unaffected
* Channel 2: Savings-investment balance (EQ45): Paired to either IADJ or MPS
  + Closure choice: IDS = higher MPS, and lower private consumption
  + Need even more exports, but import decline is smaller… WHY?
* In order to maintain IADJ, need to maintain imports of equipment, vehicles and machinery (all major investment goods) – forestry and construction also needed
* **SO**, EXR depreciation needs to be larger to generate even more exports
* **CHECK 1: TRADE results:** Imports of machinery stays almost the same
* **CHECK 2**: **SECTOR results:** 
  + Forestry and construction GDP do not decline as much
  + Even larger GDP growth for export-oriented/import-competing sectors (SECTOR)
  + Even larger declines in GDP for non-export crops
  + TOTAL GDP rises because we reallocate our fixed supply of resources from low to higher productivity export sectors (this is why we drop full employment assumption in FSAV3)
* **CHECK 3: HOUSEHOLD results:** 
  + Big declines in consumer spending (welfare) for all household groups
  + CPI does not increase as much, but households are now having to save more
  + Poorer household losses are smaller, because they have lower initial savings rates, which are scaled in this closure (this why FSAV4 changes to uniform MPS changes)

**FSAV Simulation 3**

**Unemployment, Investment-Driven Savings (Uniform)**

* **Macro**: Channels 1 and 2 unchanged
  + But smaller consumption losses and smaller import declines (higher exports) – smaller exchange rate depreciation…
  + SO, more exports with a smaller depreciation how is this possible?
* **Answer**: Net increase in employment, which allows us to produce more exports without having to take workers away from non-exporting sectors (i.e., easier for us to produce more exports without sacrificing production for domestic consumption)

**FSAV Simulation 4**

**Unemployment, Investment-Driven Savings (Scaled)**

* Macro: Channels 1 and 2 unchanged
  + Why do we now need even higher exports and have smaller import decline?
* Previously, high income household had to save far more than low income households, but now the impacts is evenly
  + **Check**: HOUSEHOLD results: Low income household consumption much, high income consumption is better
  + High income household have more import-intensive consumption patterns, and so having their consumption decline smaller, means import demand doesn’t fall as much, but this means we need even more exports (hence larger depreciation)
* So changing the distribution of burden across households can have macroeconomic implications