Brain Drain, Fiscal Competition, and Public Education Expenditure

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Motivation

- Increasing mobility of skilled labor
  - In 1990, 12.5 million tertiary educated lived in OECD
  - In 2000, increase to 20.4 million
  - Half of them migrated to US (Docquier and Marfouk, 2006)
  - High emigration rates in Caribbean (42.7%), Central America (16.9%), Sub-Saharan Africa (13.1%), but also in some European countries
- Problem of public education finance
  - In OECD, 73,1% of tertiary education expenditure publicly financed in year 2005 (EU19: 82.5%)
  - High public education spending makes country prone to brain drain

    $\Rightarrow$ fiscal competition
  - Higher emigration reduces tax base in source country and increases it in host country, triggering further migration

    $\Rightarrow$ agglomeration effects

Motivation

- Main features of our analysis:
  - Multiple equilibrium
  - Economies may differ in total factor productivity (TFP)
- Questions:
  - Race to the bottom regarding public education system in fiscal competition?
  - Does policy coordination among national governments necessarily improve social welfare?
  - Are public expenditure levels everywhere higher in social optimum compared to non-cooperative policy setting?
  - Direction of migration flows $\Rightarrow$ role of asymmetry?
    - Is policy coordination more or less likely to involve migration than non-cooperative policy setting?
    - May policy coordination reverse direction of migration flow?
    - Is direction of migration flow under coordination socially optimal?

Related Literature

- Tax system
  - Less progressive income taxation (e.g. Wildasin, 2000)
  - Emigration tax (e.g. Bhagwati and Wilson, 1989; Poutvaara, 2004)
  - Inefficient policy setting vs. curbing excessive taxation (Anderson and Konrad, 2003)
- Human capital formation – brain gain:
  - Mountford (1997)
  - Beine, Docquier and Rapoport (2001, 2008)
- Public education system
  - Under-provision (Justman und Thisse, 1997, 2000) in symmetric equilibrium. But: “the most interesting problems may arise in asymmetric cases”
  - Argument for coordinated policy (e.g. Council of Europe, 1995, 2000)

The Model

- 2 countries (or jurisdictions), *Home* and *Foreign*
- Homogenous good (*Y*) produced under perfect competition with low-skilled (*L*) and skilled (*S*) labor:

$$Y^j = A^j (S^j)^{\beta} (L^j)^{1-\beta}, \; A^j > 0, \; j = H, F$$

- Individuals choose
  - whether to acquire higher education (at identical time costs)
  - whether to migrate (if educated)
- Individuals may differ in migration costs
  - Utility at home: $U=c$ (consumption level)
  - Utility abroad: $U=c/(1+\theta)$ for fraction q, $U=0$ for fraction $1-q$ (labor market integration lowers $\theta>0$)

The Model

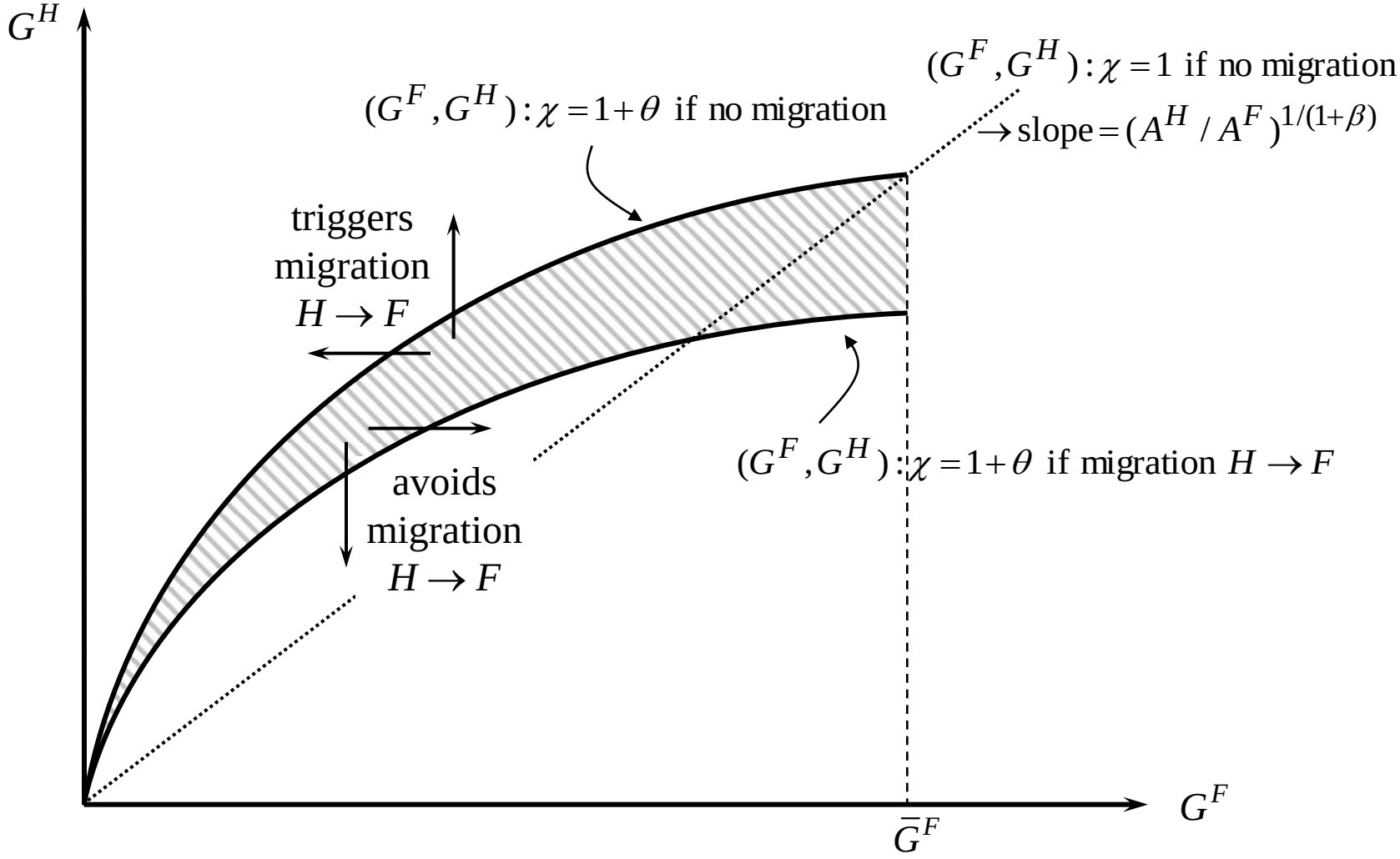
- Government choose education expenditure G^H, G^F
  - proportional income taxation (balanced public budget): tax rate τ^H, τ^F
  - higher G^j enhances efficiency units of a skilled worker born in $j = H, F$ whether working at home or abroad
- Skilled individuals in *H* migrate if relative net wage per efficiency unit abroad sufficiently high:

$$\chi \equiv \frac{(1-\tau^F)w_S^F}{(1-\tau^H)w_S^H} > 1+\theta$$

  - χ increases when migration $H \to F$, decreases when $F \to H$

    $\Rightarrow$ agglomeration effects from taxation: multiple equilibria
  - χ is increasing in G^H, decreasing in G^F

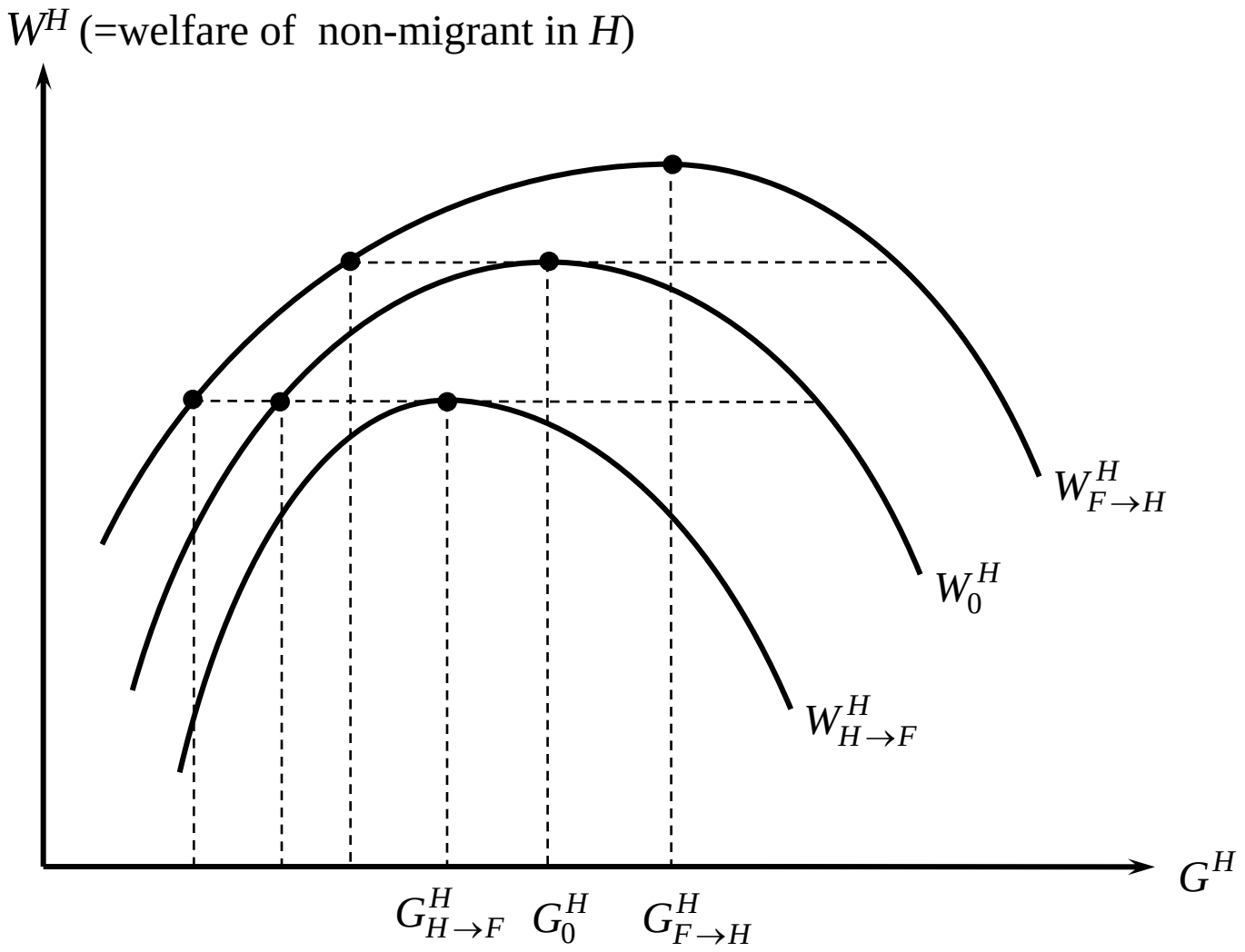
Facing Brain Drain: How Much Scope for Policy?



Education Expenditure under Fiscal Competition

- Each government maximizes welfare of median voter (who is non-migrant), by choosing *G*-level (given *G*-level abroad)
- Under "*stay-home*" beliefs
  - if θ is high,
    - only an equilibrium w/o migration exists
    - autarky *G*-levels (optimal)
  - if θ is low, no equilibrium exists ("race to the bottom")
- Under "*go-abroad*" beliefs
  - if θ is high, again, only equilibrium w/o migration possible
  - if θ is low,
    - only an equilibrium with migration is possible
    - under-provision

Optimal Policy Setting for Given Migration Pattern



International Policy Coordination

- Governments bilaterally maximize sum of median voters' welfare: $W^{coop} = W^{H} + W^{F}$

  $\Rightarrow$ neglect of migrants: coordinated policy $\neq$ social planer solution

- Under "stay-home" beliefs:
  - If θ is high, no role of coordination (no migration, autarky *G*-levels)
  - If θ is low, coordination on autarky levels; overcomes race to the bottom
- Under "go-abroad" beliefs:
  - Coordination may reverse migration flow
  - Coordination raises total education spending, but may *lower* social welfare
  - Social planer tends to concentrate spending on advanced country
    - Education spending in less advanced country may be lower than in non-cooperative equilibrium
    - Migration from more to less advanced country, in contrast to coordination outcome

Conclusion

- A jurisdiction with too ambitious education expenditure (relative to TFP) triggers brain drain
- Non-cooperative policy game
  - may either lead to socially optimal outcome or to under-provision of public education
  - may only lead to migration under go-abroad beliefs
- Policy coordination
  - tends to avoid migration
  - possibly reduces social welfare compared to non-cooperation
- Social planer
  - tends to concentrate education expenditure on advanced country
  - may reverse migration flow compared to coordinated policy