MIT 14.582: PhD International Economics II
Sp 2026, Lecture 16: Economic Geography and Urban Economics (Theory I)

Dave Donaldson

Plan for Today's Lecture

- Introduction to simple economic geography models
- A more detailed look at a core economic geography model (Kucheryyavy, Lyn and Rodriguez-Clare, 2024)
  - ...which nests Krugman (1991) and Allen and Arkolakis (2014) as special cases

Economic Geography Theory

- Previous 2 lectures have established the plausibility of agglomeration externalities
- A number of questions present themselves:
  - Q1: What determines the spatial allocation of economic activities? Fundamentals? Spillovers?
  - Q2: When is the spatial concentration of economic activities sustainable?
  - Q3: How do changes in market integration (trade costs, migration costs) affect the answers to the previous question?
  - Q4: Is the market allocation of activity to space efficient? Equitable?
- We will now progress towards an understanding of these questions, starting with the help of some simple theory

A Toy Model

- We'll start with a simple example today to build intuition.
  - Subsequent lectures will cover more complicated models that build on this setup.
- Consider Armington model with:
  - Two locations $i = 1, 2$
  - Perfect labor mobility between the two locations
  - External economies of scale (EES) in production
- Utility for people who reside in i:

$$U_i = \Big[\sum_{j=1,2} (c_{ij})^{\frac{\varepsilon}{\varepsilon+1}} \Big]^{\frac{\varepsilon+1}{\varepsilon}}, \text{ with } \varepsilon > 0$$

- Technology for any firm using amount of labor input l_i in location i:

$$q_i = A(L_i) l_i, \text{ with } A(L_i) = L_i^{\psi} \text{ and } \psi > 0$$

  where L_i = total employment in location i. Agglom. externality elasticity $= \psi$.
- Total labor in fixed supply: $L_1 + L_2 = L$

Free Trade Equilibrium

- We'll focus first on (competitive) free trade equilibrium:
  - Firms maximize profits taking prices and total employment levels as given; consumers maximize utility; markets clear.
- Equilibrium conditions can be reduced to intersection of (relative) labor supply and (relative) labor demand
  - Same idea as trade in factor services in 14.581, but with labor supply now a (perfectly) elastic function of relative *real* wages
- **Relative labor supply** (since $p_{k1} = p_{k2}$ in any region k, by free trade):

$$\frac{w_2}{w_1} = 1 \text{ if } \frac{L_2}{L_1} \in (0, \infty)$$

- **Relative labor demand:**

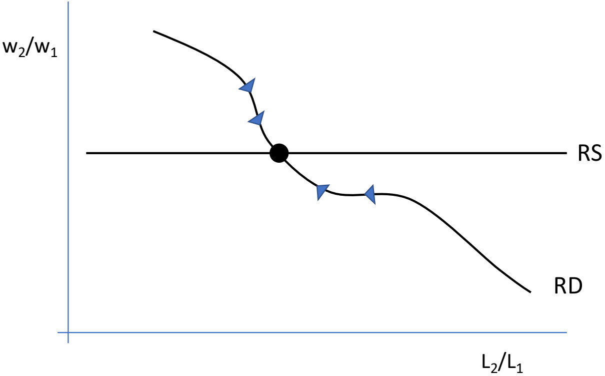
$$\frac{Q_2}{Q_1} = \left(\frac{p_2}{p_1}\right)^{-(\varepsilon+1)} \iff \frac{A(L_2)L_2}{A(L_1)L_1} = \left(\frac{w_2/A(L_2)}{w_1/A(L_1)}\right)^{-(\varepsilon+1)}$$

$$\iff \frac{w_2}{w_1} = \left(\frac{L_2}{L_1}\right)^{-\frac{1-\psi\varepsilon}{\varepsilon+1}}$$

A Quick Detour: Stable and Unstable Equilibria

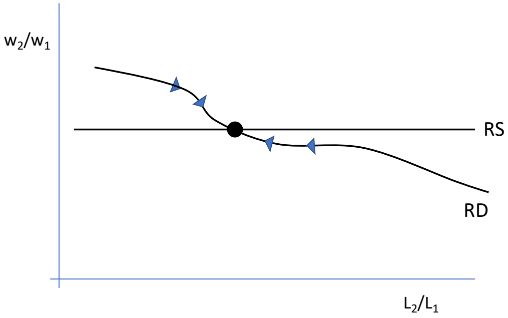
- Most economic geography models (like trade models) are static
- How do we think about stability in this context?
- Fujita, Krugman and Venables (1999) propose to assume the following ad-hoc dynamics:
  - At any date t, $\frac{w_{2,t}}{w_{1,t}} > 1 \Rightarrow \frac{d(L_{2,t}/L_{1,t})}{dt} > 0$ and $\frac{w_{2,t}}{w_{1,t}} < 1 \Rightarrow \frac{d(L_{2,t}/L_{1,t})}{dt} < 0$
  - This is like quantity tatonnement:
    - In the short-run, i.e. for fixed labor allocation, the economy is in equilibrium
    - In the long-run if welfare not equalized across locations, people tend to move where welfare is higher
- **Definition:** *A competitive equilibrium is stable if, starting from an arbitrary distribution of labor around that equilibrium, movements along the relative labor demand curve satisfying the previous ad-hoc dynamic would lead back to that same equilibrium*

Free Trade in a Neoclassical Economy: $\psi = 0$



- Recall, inverse RD curve is $\frac{w_2}{w_1} = \left(\frac{L_2}{L_1}\right)^{-\frac{1-\psi\varepsilon}{\varepsilon+1}}$
- Unique stable equilibrium is "regular" (aka interior): no economic concentration

Free Trade with Weak IRS: $\psi > 0$ but $\psi\varepsilon < 1$

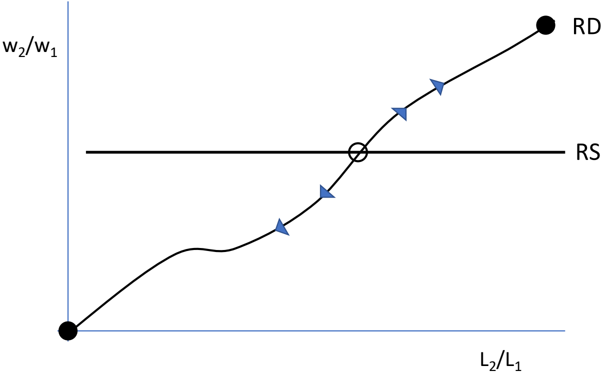


- Recall, inverse RD curve is

$$\frac{w_2}{w_1} = \left(\frac{L_2}{L_1}\right)^{-\frac{1-\psi\varepsilon}{\varepsilon+1}}$$

- Relative labor demand curve is now flatter
  - Since larger region is becoming relatively more productive, a smaller decrease in relative wages is required to incentivize firms to hire more workers there
- But relative labor demand curve remains downward slopping
- Might think that aggr. non-convexity in technology ($\psi > 0$) would cause multiplicity. Not if concavity in preferences is strong ($\varepsilon >> 0$).

Free Trade with Strong IRS: $\psi(\sigma - 1) > 1$



- Recall, inverse RD curve is
  $$\frac{w_2}{w_1} = \left(\frac{L_2}{L_1}\right)^{-\frac{1-\psi\varepsilon}{\varepsilon+1}}$$
- Relative labor demand curve is now upward slopping:
  - Two stable equilibria are "irregular" (aka corner): economic concentration
  - One unstable regular equilibrium
- Now non-convexity in tech. is strong enough to outweigh concavity in prefs.

Spatial Concentration and IRS (Q2)

- **Summary so far:** *If agglomeration externality is large enough (i.e. $\psi\varepsilon > 1$), then only stable equilibria are irregular equilibria (extreme spatial concentration). Otherwise, unique equilibrium = regular equilibrium (spatial diversification).*

- Aside on $\varepsilon > 0$ assumption: note that $\psi\varepsilon > 1 \iff$ "agglom. externality large enough" is only true if $\varepsilon > 0$:
  - If $\varepsilon < 0$, then an increase in ψ makes relative labor demand curve *more* downward sloping...
    - Recall impact of productivity shocks in two-sector closed economy
  - Since we do not have monopolistic competition, a priori no theoretical reason to restrict attention to $\varepsilon > 0$
  - On empirical grounds, one may argue that $\varepsilon > 0$ is relevant...
    - True if we think about aggregate trade elasticity between countries (standard estimates > 0).
    - But within a country, can't we imagine that many rural location export agricultural goods in exchange for manufacturing goods? If so, perhaps the elasticity of substitution between agriculture and manufacturing (usually < 1) should apply?

Autarky Equilibrium

- What about the role of trade costs (Q3)? To start, consider extreme case where the two regions cannot trade
- **Relative inverse (real) labor supply:**

$$\frac{w_2/p_2}{w_1/p_1} = 1 \text{ if } \frac{L_2}{L_1} \in (0, \infty)$$

- **Relative inverse (real) labor demand is:**

$$\frac{p_2}{p_1} = \frac{w_2/A(L_2)}{w_1/A(L_1)} \iff \frac{w_2/p_2}{w_1/p_1} = \left(\frac{L_2}{L_1}\right)^{\psi}$$

- Under autarky, real wage = aggregate productivity at each location
- Suppose that $\psi > 0$ but $\psi\varepsilon < 1$. As we go from free trade to autarky:
  - RD goes from being downward-sloping to upward-sloping
  - So we go from unique (stable) regular equilibrium to multiple (stable) irregular equilibria
  - That is: trade integration *reduces* spatial concentration

Equilibrium with Arbitrary Trade Costs

- More generally, suppose that there are iceberg trade costs, $\tau \geqslant 1$
- **Relative (real) labor supply:**

$$\frac{w_2/P_2}{w_1/P_1} = 1 \text{ if } \frac{L_2}{L_1} \in (0, \infty)$$

where P_i is CES price index at location i such that

$$P_i^{-\varepsilon} = \left[\frac{w_i}{A(L_i)}\right]^{-\varepsilon} + \left[\frac{\tau w_j}{A(L_j)}\right]^{-\varepsilon}$$

- So **RS (nominal) Curve**: Defined implicitly by solution $\frac{w_2}{w_1}$ of

$$\frac{\left(\tau \frac{w_1}{w_2}\right)^{-\varepsilon} + \left(\frac{L_2}{L_1}\right)^{\psi\varepsilon}}{1 + \left(\tau \frac{w_2}{w_1}\right)^{-\varepsilon}\left(\frac{L_2}{L_1}\right)^{\psi\varepsilon}} = 1 \qquad (1)$$

Equilibrium with Arbitrary Trade Costs (Continued)

- **Relative (real) labor demand:**

$$\frac{p_2 Q_2}{p_1 Q_1} = \frac{\left(\frac{\tau p_2}{P_1}\right)^{-\varepsilon} w_1 L_1 + \left(\frac{p_2}{P_2}\right)^{-\varepsilon} w_2 L_2}{\left(\frac{p_1}{P_1}\right)^{-\varepsilon} w_1 L_1 + \left(\frac{\tau p_1}{P_2}\right)^{-\varepsilon} w_2 L_2}$$

$$\iff \frac{w_2 L_2}{w_1 L_1} = \frac{\left(\frac{\tau w_2}{P_1 A(L_2)}\right)^{-\varepsilon} w_1 L_1 + \left(\frac{w_2}{P_2 A(L_2)}\right)^{-\varepsilon} w_2 L_2}{\left(\frac{w_1}{P_1 A(L_1)}\right)^{-\varepsilon} w_1 L_1 + \left(\frac{\tau w_1}{P_2 A(L_1)}\right)^{-\varepsilon} w_2 L_2}$$

- **RD Curve=** Defined implicitly by solution $\frac{w_2}{w_1}$ of

$$\frac{\left(\frac{(\frac{\tau w_2}{w_1})^{-\varepsilon}(\frac{L_2}{L_1})^{\psi\varepsilon}}{1+(\frac{\tau w_2}{w_1})^{-\varepsilon}(\frac{L_2}{L_1})^{\psi\varepsilon}}\right)^{-\varepsilon} \frac{w_1 L_1}{w_2 L_2} + \left(\frac{(\frac{w_2}{\tau w_1})^{-\varepsilon}(\frac{L_2}{L_1})^{\psi\varepsilon}}{1+(\frac{w_2}{\tau w_1})^{-\varepsilon}(\frac{L_2}{L_1})^{\psi\varepsilon}}\right)^{-\varepsilon}}{\left(\frac{1}{1+(\frac{\tau w_2}{w_1})^{-\varepsilon}(\frac{L_2}{L_1})^{\psi\varepsilon}}\right)^{-\varepsilon} + \left(\frac{1}{1+(\frac{w_2}{\tau w_1})^{-\varepsilon}(\frac{L_2}{L_1})^{\psi\varepsilon}}\right)^{-\varepsilon} \frac{w_2 L_2}{w_1 L_1}} = 1 \qquad (2)$$

Equilibrium with Arbitrary Trade Costs (Continued)

- In line with analysis of free trade and autarky equilibria in the $\psi(\sigma - 1) < 1$ case, one can show (see Kucheryavyy, Lyn, and Rodriguez-Clare, 2024) the existence of a cut-off for trade costs,

$$\tau^* = \left[\frac{2 + \psi}{\psi(1 + 2(\varepsilon + 1))} \right]^{1/(\varepsilon+1)},$$

  such that there exists a unique (stable) interior equilibrium iff $\tau < \tau^*$

- **Heuristic Proof:**
  - Differentiate (1) and (2) to compute $\frac{d(w_2/w_1)}{d(L_2/L_1)}|_{RS}$ and $\frac{d(w_2/w_1)}{d(L_2/L_1)}|_{RD}$
  - Compare $\frac{d(w_2/w_1)}{d(L_2/L_1)}|_{RS}$ and $\frac{d(w_2/w_1)}{d(L_2/L_1)}|_{RD}$ at symmetric eq $(\frac{w_2}{w_1} = 1, \frac{L_2}{L_1} = 1)$
  - τ^* is s.t. we switch from $\left|\frac{d(w_2/w_1)}{d(L_2/L_1)}|_{RS}\right|$ $<$ to $>$ $\left|\frac{d(w_2/w_1)}{d(L_2/L_1)}|_{RD}\right|$

Equilibrium with Arbitrary Trade Costs (Continued)

- In line with analysis of free trade and autarky equilibria in the case $\psi(\sigma - 1) < 1$, one can show (see Kucheryavyy, Lin, and Rodriguez-Clare 2024) the existence of a cut-off for trade costs,

$$\tau^* = \left[\frac{2+\psi}{\psi(1+2(\varepsilon+1))}\right]^{1/(\varepsilon+1)},$$

  such that there exists a unique (stable) interior equilibrium iff $\tau < \tau^*$
- **Intuition:**
  - In an Armington world, trade is a source of diminishing marginal returns (recall Acemoglu and Ventura, 2000)
  - Under free trade, we assume that this force is the dominant one ($\psi\varepsilon < 1$), which leads to a unique interior equilibrium
  - As trade costs rise, source of diminishing marginal returns become less and less important and multiplicity of equilibria arises

- More on KLR (2024) below!

Lower Trade Costs $\Rightarrow$ Less Spatial Concentration?

- In toy model, trade integration = force against spatial concentration
- **Questions:**
  - Is this a robust feature of economic geography models, that arises from IRS and factor mobility?
  - Is this specific to the way trade has been modeled?
  - And what happens if we add (within-region) input-output loops?
- Answer depends on whether trade is a source of diminishing marginal returns. In Armington, it is, but it does not have to be:
  - In Ventura (1997), trade leads to "factor price insensitivity" (to factor endowment shocks) and removes diminishing marginal returns to capital accumulation
  - In Matsuyama (1992), a small open economy behaves like a closed economy with linear utility
  - In such environments, we expect the opposite comparative static results
- To study this in more detail, need an extended model

An extended model (KLR 2024)

- KLR (2024) write down a model that extends many of the features of our toy model above
- It also nests the canonical Krugman (JPE 1991) model and a 2-region version of the Allen-Arkolakis (QJE 2014) model (that we will study the full N-region version of in next lecture)
- Paper fully characterizes all equilibria in this model. We will look at some of their results, but see paper for much more.

KLR (2024): Technology

- "Manufacturing":
  - Armington-differentiated (EoS $= \varepsilon + 1$)
  - Firms produce using $q_i = A_i L_i^{\zeta} Q_i^{1-\zeta}$, where L_i is "manufacturing labor" and Q_i is manufacturing goods (so $\zeta < 1$ implies I-O loop within region)
  - Agglomeration externalities: $A_i = \bar{A}_i L_i^{\psi}$
  - Manufacturing labor is freely mobile across regions, paid w, and in fixed aggregate supply $\bar{L}$.
  - Trade costs $\tau_{ij} \geqslant 1$, $\tau_{ii} = 1$

- "Agriculture":
  - Competitive and homogeneous good
  - Uses immobile agricultural labor, in fixed supply $\bar{L}_i^A$
  - Same CRTS technology (productivity $= 1$) in both locations. No externalities.
  - Always produced in both locations. So $p_i^A = w_i^A$.
  - Freely traded, so $w_i^A = w^A$ for all i

KLR (2024): Preferences

- Nested CES-CD, with residential amenities with congestion externality.
- So for manufacturing laborers in location i, indirect utility is:

$$V_i = \frac{w_i}{P_i^{\beta}(w^A)^{1-\beta}} u_i, \qquad \text{with} \qquad u_i \equiv \bar{u}_i L_i^{-\delta}$$

- Migration like in our toy model. That is, for some endogenous $\bar{V} \geqslant 0$:

$$L_i \geqslant 0, \qquad \bar{V} - V_i \geqslant 0, \qquad L_i(\bar{V} - V_i) = 0$$

Equilibrium conditions

- Manufacturing goods market clearing:

$$\begin{aligned}\lambda_{ni} &\equiv \bar{A}_i^{\varepsilon} L_i^{\varepsilon\psi} (\tau_{ni} w_i^{\zeta} P_i^{1-\zeta})^{-\varepsilon} P_n^{\varepsilon} \\ w_i L_i/\zeta &= \sum_n \lambda_{ni} [\beta(w_n L_n + w^A \bar{L}_n) + (1-\zeta) w_n L_n/\zeta]\end{aligned}$$

- Agricultural goods market clearing:

$$\sum_i w^A \bar{L}_i^A = (1-\beta) \sum_i (w_i L_i + w^A \bar{L}_i^A)$$

- Manufacturing labor market clearing:

$$\sum_i L_i = \bar{L}$$

- Manufacturing laborers' spatial arbitrage:

$$L_i \geqslant 0, \qquad \bar{V} - V_i \geqslant 0, \qquad L_i(\bar{V} - V_i) = 0$$

Special Cases

- This model nests a number of highly influential models as special cases...
- Define:

$$\alpha \equiv \frac{(\psi - \zeta\delta)\varepsilon}{1+\delta}$$

- Krugman (JPE 1991) "Core-periphery model":
  - Uses Dixit-Stiglitz microfoundations, so $\psi = 1/\varepsilon$. Has no amenities, so $\delta = 0$. Hence $\alpha = 1$ in KLR notation.
  - No I-O linkages ($\zeta = 1$).
  - Symmetric: $\bar{A}_i = 1$, for all i; $\bar{u}_i = 1$, for all i
- Allen and Arkolakis (QJE 2014):
  - Actually has arbitrary N locations (even a continuum of them). Today $N = 2$ but we will cover the $N > 2$ case in the next lecture.
  - But $\beta = 1$, $\sum_i \bar{L}_i^A = 0$ (what we'll call "no agriculture")
  - No I-O linkages ($\zeta = 1$)

Regular/irregular equilibria

- KLR's **Proposition 1:**
  - If $\alpha < 1$: all equilibria are regular
  - If $\alpha > 1$: both irregular outcomes ($L_1 = 0$ and $L_2 = \bar{L}$; and vice versa) are equilibria
  - (If $\alpha = 1$: it's complicated)

- This nicely generalizes what we had already seen for the simple model above
  - With one caveat: "$\alpha < 1 \Rightarrow$ all equilibria are regular" contradicts our result in the simple model (i.e. with $\beta = 1$) that the autarky case has irregular equilibria when $\alpha < 1$ (but $\psi > 0$). I *think* this is because KLR restrict to $\beta < 1$ for this proposition.

Free trade case

- **Proposition 2:** With free trade (i.e. $\tau_{ij} = 1$),
  - If $\alpha < 1$, there is only one regular equilibrium and it is stable
  - If $\alpha > 1$, there is only one regular equilibrium and it is unstable
  - If $\alpha = 1$, in symmetric econ, then any allocation satisfying $\sum_i L_i = \bar{L}$ is an equilibrium.
  - If $\alpha = 1$, in asymmetric econ, there are no regular equilibria
- Recall, we saw the $\alpha < 1$ case of this in our simple model above (for special case of symmetric econ, $\beta = 1$, $\delta = 0$, and $\zeta = 0$).

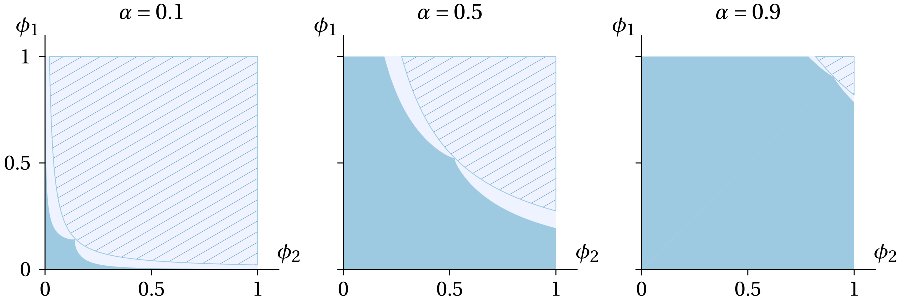
Costly trade

- Define "free-ness" of trade: $\phi_1 \equiv \tau_{12}^{-\varepsilon}$ etc. Case of costly trade is then where $\phi_1 \phi_2 < 1$
- KLR's **Propositions 3-4 & Corollaries 1-2:** With costly trade:
  - for $\alpha \leqslant 0$, there is a unique regular equilibrium
  - for $0 < \alpha < 1$, there is a unique regular (and "generically stable") equilibrium whenever trade costs are low enough ($\phi_1 \phi_2 \to 1$), or α is low enough, or β is high enough
  - for $\alpha \neq 1$, there exists no more than 5 regular equilibria
  - for $\alpha = 1$, there exists no more than 3 regular equilibria
- So the broad idea that at lower trade costs we can sustain a unique regular equilibrium even in the face of weak positive externalities (e.g. $\psi > 0$, $\delta = 0$, but $\alpha < 1$) continues to be possible. But it depends on β, as we shall see.

Two special (but useful, and famous) cases

- Next steps will explore special cases where we can learn more
- **Part 1**: AA (2014) economy (i.e. $\beta = 1$)
  - (a) Symmetric fundamentals (i.e. $G = 1$) but asymmetric TCs (i.e. $\phi_1 \neq \phi_2$)
  - (b) Symmetric TCs (i.e. $\phi_1 = \phi_2$) but asymmetric fundamentals parameterized by $G \equiv \left(\frac{\bar{u}_1}{\bar{u}_2}\right)^{\alpha+\zeta\varepsilon} \left(\frac{\bar{A}_1}{\bar{A}_2}\right)^{\varepsilon}$
- **Part 2**: Krugman (1991)-like economy (i.e. $\beta < 1$)
  - But focus on $\alpha < 1$ case (even though K91 had $\alpha = 1$)
  - And allow for I-O linkages ($\zeta < 1$)
  - But symmetric economies: $G = 1$, $L_1^A = L_2^A$, $\phi_1 = \phi_2 = \phi$ (i.e. $\tau_{12} = \tau_{21} = \tau$)
  - Denote $\mu \equiv \beta\alpha/\varepsilon + 1 - \zeta(1 - \beta)$.

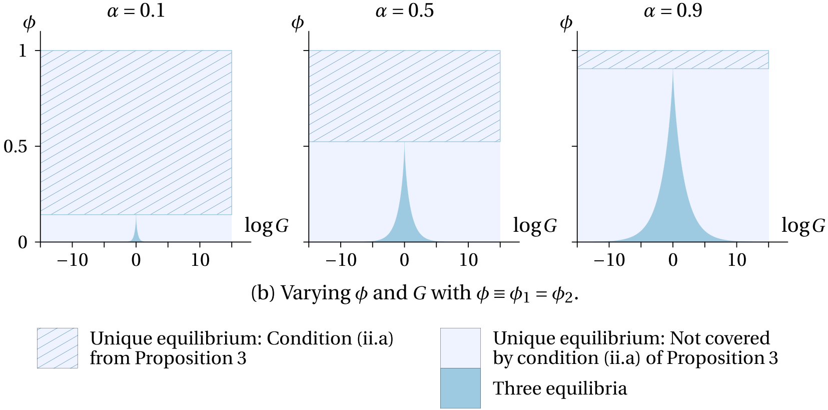
Part 1(a): AA (2014) economy with symmetric fundamentals but asymmetric TCs



(a) Varying ϕ_1 and ϕ_2 with $G = 1$.

Dark blue = multiplicity (legend on next slide). So, loosely speaking, it's the product $\phi_1\phi_2$ that governs the uniqueness boundary...but need lower TCs to drive uniqueness when α is high (as in our toy model above).

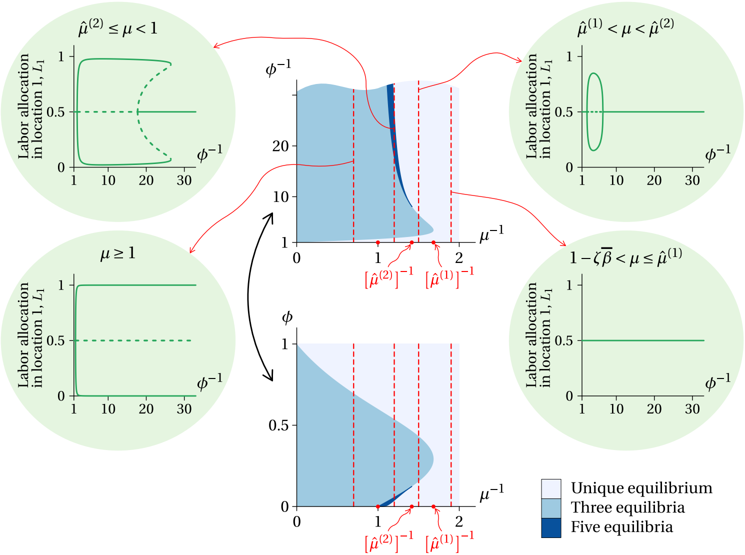
Part 1(b): AA (2014) economy with symmetric TCs but asymmetric fundamentals



(b) Varying ϕ and G with $\phi \equiv \phi_1 = \phi_2$.

So at any $\alpha < 1$, asymmetric fundamentals ($G \neq 1$) and/or low trade costs (high $\phi = \phi_1 = \phi_2$) supports uniqueness. What is the intuition?

Part 2: Krugman (1991) economy (with $\alpha < 1$; here, $\alpha = 0.7$)



- Figure varies β to vary μ, but while holding $\zeta\beta$ constant. Green lines are regular equilibria, solid = stable.
- High β (low μ^{-1}): like AA case (unique iff high ϕ)
- But at lower β (more ag. in utility) this reverses. Impact of ϕ can be non-monotone or even irrelevant for uniqueness.

The Krugman (1991) "tomahawk" diagram

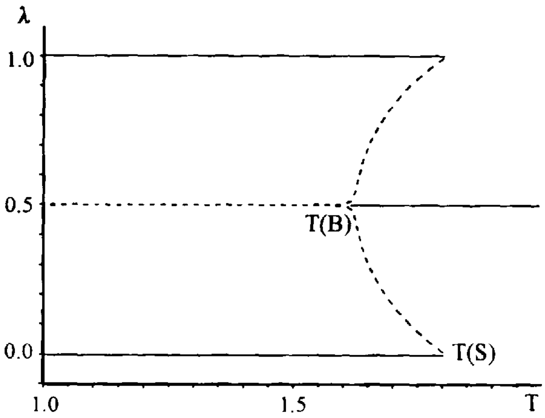


Figure 5.4
Core-periphery bifurcation

- From Fujita, Krugman, Venables (1999) book
- $\lambda \equiv L_1/\bar{L}$; $T \equiv \tau^{\varepsilon}$
- This is for $\alpha = 1$ so the uniqueness at free trade (from KLR's $\alpha < 1$ diagram) goes away
- Apart from at free trade, the impact of trade integration on concentration is now monotone and in the opposite direction from what we saw in our toy model (or the AA model)

The role of agriculture ($\beta < 1$)

- Notice what has happened here:
  - Without agriculture (i.e. AA economy): get uniqueness (despite $0 < \alpha < 1$) when τ is low
  - However, with agriculture: get uniqueness (despite $0 < \alpha < 1$) when τ is *high*
- What is going on?

The Case for Lower Trade Costs $\Rightarrow$ More Concentration

- The usual intuition offered: agricultural labor can't move, so the demand propped up by ag. labor income in each region acts as a "dispersion force".
- But the "terms of trade (ToT) as DRTS" view offers a different intuition:
  - Think of the ToT of the *manufacturing workers* in a location: this is a mix of the ToT from their trade with ag. workers (very low elasticity due to C-D prefs) and their trade with other location's manuf. workers (higher elasticity σ).
  - Starting at high τ they mostly trade with local ag. workers. Lowering τ from there actually dampens the ToT force because it makes the trade with other location's manufacturing workers (i.e. high elasticity) matter more.

Further Discussion

- This point helps to clarify some disparate effects seen in the literature...
- Helpman (1998) presents a model that replaces Krugman's agriculture sector (recall: freely tradable) with a housing sector (i.e. non-tradable), and flips the Krugman (1991) result, as we would expect
  - Indeed, AA (2014) show that Helpman (98) is nested in their setup since the presence of a local housing sector that is in fixed supply ends up being (with CD preferences for housing) isomorphic to the δ congestion force
- FKV's Chapter 7 is devoted to exploration of trade costs (and relaxing the homogeneous good assumption) in the ag. sector. They argue that effects in Krugman (1991) continue to hold for "low" ag. trade costs

Other Important Models in the Literature

- Krugman and Venables (QJE 1995):
  - Start with same HME-like setup (2 sectors with differing amounts of agglomeration externalities) as in Krugman (1991)
  - Retain input-output linkages
  - But drop factor mobility
  - Emphasize scope for multiplicity (now of aggregate production in each region) due to interaction between externalities and IO linkages
  - See Bartelme, Kucheryavyy, Jiang and Rodriguez-Clare (2025) for modern treatment

- Baldwin, Forslid, Martin, Ottaviano, Robert-Nicoud (2003) book:
  - Considers models with "footloose entrepreneurs", "footloose capitalists", accumulation of capital, accumulation of ideas (i.e. endogenous growth)
  - Same basic idea of models we have seen: multiplicity when you combine local IRTS and something that acts as an endogenous amplifying factor (mobile factors, new inputs made from immobile factors, new factors, new ideas, etc) that reinforces the effects of IRTS
  - Basic question is always whether agglomeration is IRTS on net (race between production externalities, congestion, and ToT effects)