Optimal Development Policies with Financial Frictions

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June 2015
Questions

1 Normative:
   - Is there a role for governments to accelerate economic development by intervening in product and factor markets?
   - Taxes? Subsidies? If so, which ones?

2 Positive:
   - Most emerging economies pursue active development and industrial policies
   - Under which circumstances may such policies be justified?
## Historical accounts of development policies

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- **Example of wage suppression: South Korea**
  - official upper limit on real wage growth: nominal wage growth $< 80\%$ (inflation + productivity growth)
  - Park Chung Hee: 1965 “year to work”

- not in table: exchange rate policies
### Historical accounts of development policies

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Detailed discussion of sources in Appendix of future draft. E.g. for China:

- **Example of wage suppression: South Korea**
  - official upper limit on real wage growth: nominal wage growth < 80% (inflation + productivity growth)
  - Park Chung Hee: 1965 “year to work”, 1966 “year of harder work”

- not in table: exchange rate policies
Questions

- All these policies are “crazy” from neoclassical perspective
- This paper: some of them may be justified under particular circumstances
What We Do

• Optimal Ramsey policy in a standard growth model with financial frictions
  ① one-sector economy: uniform policies
  ② multi-sector economy: targeted policies

• Environment similar to a wide class of development models
  — financial frictions ⇒ capital misallocation ⇒ low productivity

• but more tractable ⇒ Ramsey problem feasible: $G_t(a, z) \to \bar{a}_t$

• Features:
  — Collateral constraint: firm’s scale limited by net worth
  — Financial wealth affects economy-wide labor productivity
  — Pecuniary externality: high wages hurt profits and wealth accumulation
Main Findings

1. Optimal uniform policy in one-sector model
   - *pro-business* (*pro-output*) policies for developing countries, during early transition when entrepreneurs are undercapitalized
   - *pro-labor* policy for developed countries, close to steady state
   - Rationale: dynamic externality akin to learning-by-doing, but operating via misallocation of resources

2. Optimal targeted and exchange rate policies in multi-sector model
   - favor comparative advantage sectors and speed up transition
   - compress wages in tradable sectors if undercapitalized...
   - ... but whether this results in depreciated real exchange rate is instrument-dependent
One-Sector Economy

Workers: representative household with wealth (bonds) \( b \)

\[
\max \left\{ c(\cdot), \ell(\cdot) \right\} \int_0^\infty e^{-\rho t} u(c(t), \ell(t)) \, dt,
\]

s.t. \( c(t) + b(t) \leq w(t)\ell(t) + r(t)b(t) \)
One-Sector Economy

1. **Workers**: representative household with wealth (bonds) \( b \)

\[
\max_{\{c(\cdot), \ell(\cdot)\}} \int_0^\infty e^{-\rho t} u(c(t), \ell(t)) \, dt,
\]

s.t. \( c(t) + \dot{b}(t) \leq w(t)\ell(t) + r(t)b(t) \)

2. **Entrepreneurs**: heterogeneous in wealth \( a \) and productivity \( z \)

\[
\max_{\{c_e(\cdot)\}} \mathbb{E}_0 \int_0^\infty e^{-\delta t} \log c_e(t) \, dt
\]

s.t. \( \dot{a}(t) = \pi_t(a(t), z(t)) + r(t)a(t) - c_e(t) \)

\[
\pi_t(a, z) = \max_{n \geq 0, \ 0 \leq k \leq \lambda a} \left\{ A(t)(zk)^\alpha n^{1-\alpha} - w(t)n - r(t)k \right\}
\]

- Collateral constraint: \( k \leq \lambda a, \ \lambda \geq 1 \)
- Idiosyncratic productivity: \( z \sim iid\text{Pareto}(\eta) \)
Policy functions

- **Profit maximization:**

  \[
  k_t(a, z) = \lambda a \cdot 1\{z \geq z(t)\},
  \]

  \[
  n_t(a, z) = \left( \frac{1 - \alpha}{w(t)} A \right)^{1/\alpha} z k_t(a, z),
  \]

  \[
  \pi_t(a, z) = \left[ \frac{z}{z(t)} - 1 \right] r(t) k_t(a, z),
  \]

  where

  \[
  \alpha A^{1/\alpha} \left( \frac{1 - \alpha}{w(t)} \right)^{1-\alpha/\alpha} z(t) = r(t)
  \]

- **Wealth accumulation:**

  \[
  \dot{a} = \pi_t(a, z) + (r(t) - \delta) a
  \]
Aggregation

• Output:

\[ y = A \left( \frac{\eta}{\eta - 1} z \right)^\alpha \cdot \kappa^{\alpha} \ell^{1 - \alpha} \]

• Capital demand:

\[ \kappa = \lambda x z^{-\eta} , \]

where aggregate wealth \( x(t) \equiv \int a \, dG_t(a, z) \) evolves:

\[ \dot{x} = \Pi + (r - \delta) x , \]
**Aggregation**

- **Output:**
  \[ y = A \left( \frac{\eta}{\eta - 1} z \right)^\alpha \cdot \kappa^\alpha \ell^{1-\alpha} \]

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where aggregate wealth \( x(t) \equiv \int adG_t(a, z) \) evolves:

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- **Lemma:** *National income accounts*

  \[ w\ell = (1 - \alpha)y, \quad r\kappa = \alpha \frac{\eta - 1}{\eta} y, \quad \Pi = \frac{\alpha}{\eta} y. \]
General equilibrium

1. **Small open economy:** \( r(t) \equiv r^* \)
   and \( \kappa(t) \) is perfectly elastically supplied

   - Lemma:
     \[
     y = y(x, \ell) = \Theta x^\gamma \ell^{1-\gamma}, \quad \gamma = \frac{\alpha/\eta}{(1 - \alpha) + \alpha/\eta}
     \]
     and \( z^n \propto (x/\ell)^{1-\gamma} \)
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     \]
     and \( z^\eta \propto (x/\ell)^{1-\gamma} \)

2. **Closed economy**: \( \kappa(t) = b(t) + x(t) \)
   and \( r(t) \) equilibrates capital market

   - **Lemma**:
     \[
y = y(x, \kappa, \ell) = \Theta_c (x\kappa^{\eta-1})^{\alpha/\eta} \ell^{1-\alpha}
     \]
     and \( z^\eta = \lambda x/\kappa \)
Excess Return of Entrepreneurs

- Key to understanding all policy interventions: entrepreneurs earn higher return than workers
  - not only individually
    \[
    R(z) = r \left( 1 + \lambda \left[ \frac{z}{z} - 1 \right]^+ \right) \geq r
    \]
  - but also on average
    \[
    \mathbb{E} R(z) = r + \frac{\alpha y}{\eta x} > r
    \]

- Could generate Pareto improvement with transfer from workers to all entrepreneurs at \( t = 0 \) + reverse transfer at later date
  - essentially allows planner to sidestep friction
  - perhaps not feasible, e.g. for political economy reasons

Next: explore alternative policies
Excess Return of Entrepreneurs

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Optimal Ramsey Policies in a Small Open Economy

- Start with three policy instruments:
  1. $\tau_\ell(t)$: labor supply tax
  2. $\tau_b(t)$: worker savings tax
  3. $T(t)$: lump-sum tax on workers; GBC: $\tau_\ell w \ell + \tau_b b = T$
Optimal Ramsey Policies
in a Small Open Economy

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Lemma (Primal Approach)

Any aggregate allocation $\{c, \ell, b, x\}_{t \geq 0}$ satisfying

$$c + \dot{b} = (1 - \alpha) y(x, \ell) + r^* b$$
$$\dot{x} = \frac{\alpha}{\eta} y(x, \ell) + (r^* - \delta)x$$

can be supported as a competitive equilibrium under appropriately chosen policies $\{\tau_\ell, \tau_b\}_{t \geq 0}$.
Optimal Ramsey Policies

• **Benchmark:** zero weight on entrepreneurs

• **Planner’s problem:**

\[
\max_{\{c, \ell, b, x\}_{t \geq 0}} \int_{0}^{\infty} e^{-\rho t} u(c, \ell) dt
\]

subject to

\[
c + \dot{b} = (1 - \alpha)y(x, \ell) + r^* b,
\]

\[
\dot{x} = \frac{\alpha}{\eta} y(x, \ell) + (r^* - \delta)x,
\]

and denote by \( \nu \) the co-state for \( x \) (shadow value of wealth)

• **Isomorphic to learning-by-doing externality**
Optimal Ramsey Policies
Characterization

• **Inter-temporal** margin undistorted:

\[
\frac{\dot{u}_c}{u_c} = \rho - r^* \quad \Rightarrow \quad \tau_b = 0
\]

• **Intra-temporal** margin distorted:

\[
-\frac{u_{\ell}}{u_c} = \left[1 + \gamma(\nu - 1)\right](1 - \alpha)\frac{y}{\ell} \quad \Rightarrow \quad \tau_{\ell} = \gamma - \gamma \cdot \nu
\]

• Two confronting objectives:

1. **Monopoly effect**: increase wages by limiting labor supply

2. **Dynamic productivity externality**: accumulate \( x \) by subsidizing labor supply to increase future labor productivity

• Which effect dominates and when?
Optimal Ramsey Policies

Characterization

- ODE system in \((x, \nu)\) with a side-equation:

\[
\begin{align*}
\dot{x} &= \frac{\alpha}{\eta} y(x, \ell) + (r^* - \delta)x, \\
\dot{\nu} &= \delta \nu - (1 - \gamma + \gamma \nu) \frac{\alpha}{\eta} \frac{y(x, \ell)}{x}, \\
- \frac{u_\ell}{u_c} &= (1 - \gamma + \gamma \nu)(1 - \alpha) \frac{y(x, \ell)}{\ell}, \\
\tau_\ell &= \gamma - \gamma \cdot \nu
\end{align*}
\]
Optimal Ramsey Policies

Characterization

- ODE system in \((x, \tau_\ell)\) with a side-equation:

\[
\begin{align*}
\dot{x} &= \frac{\alpha}{\eta} y(x, \ell) + (r^* - \delta)x, \\
\dot{\tau}_\ell &= \delta(\tau_\ell - \gamma) + \gamma(1 - \tau_\ell) \frac{\alpha}{\eta} \frac{y(x, \ell)}{x}, \\
\ell &= \ell(x, \tau_\ell; \bar{\mu})
\end{align*}
\]

- **Proposition:** Assume \(\delta > \rho = r^*\). Then:

1. unique steady state \((\bar{x}, \bar{\tau}_\ell)\), globally saddle-path stable
2. starting from \(x_0 \leq \bar{x}\), \(x\) and \(\tau_\ell\) increase to \((\bar{x}, \bar{\tau}_\ell)\)
3. labor supply subsidized \((\tau_\ell < 0)\) when \(x\) is low enough and taxed in steady state: \(\bar{\tau}_\ell = \frac{\gamma}{\gamma + (1 - \gamma)\delta/\rho} > 0\)
4. intertemporal margin not distorted, \(\tau_b \equiv 0\)
Optimal Ramsey Policies

Phase diagram

Optimal Trajectory

\( \dot{x} = 0 \)

\( \dot{\tau}_\ell = 0 \)
Optimal Ramsey Policies

Time path

(a) Labor Tax, $\tau_\ell$

(b) Entrepreneurial Wealth, $x$

- Equilibrium
- Planner
Deviations from laissez-faire
Optimal Ramsey Policies

Discussion

• Many alternative implementations

• common feature: make workers work hard even though firms pay low wages
  1. Subsidy to labor supply or demand
  2. Non-market implementation: e.g., forced labor
  3. Non-tax market regulation: e.g., via bargaining power of labor

• Interpretation:
  — Pro-business (or wage suppression, or pro-output) policies
  — Policy reversal to pro-labor for developed countries

• Intuition: pecuniary externality
  — High wage reduces profits and slows down wealth accumulation
Optimal Policy with Transfers

• Generalized planner’s problem:

\[
\max_{\{c, \ell, b, x, \varsigma x\}_{t \geq 0}} \int_0^\infty e^{-\rho t} u(c, \ell) \, dt
\]

subject to

\[
c + \dot{b} = (1 - \alpha)y(x, \ell) + r^*b - \varsigma x x,
\]

\[
\dot{x} = \frac{\alpha}{\eta} y(x, \ell) + (r^* + \varsigma x - \delta)x,
\]

\[
s \leq \varsigma x(t) x(t) \leq S
\]

• Three cases:

1. \( s = S = 0 \): just studied
2. \( S = -s = +\infty \) (unlimited transfers)
3. \( 0 < S, -s < \infty \) (bounded transfers)

• Why bounded transfers?
Unlimited Transfers

(a) Transfer, $\varsigma_x$

-\(0\) to \(0.03\)

Equilibrium Planner

(b) Entrepreneurial Wealth, \(x\)

-\(0\) to \(1\)

Equilibrium Planner
Bounded Transfers

(a) Labor Tax, $\tau_\ell$

(b) Entrepreneurial Wealth, $x$

Equilibrium
Planner, No Transf.
Planner, Lim. Transf.
Additional Tax Instruments

• Additional policy instruments, all affecting entrepreneurs and financed by a lump-sum tax on workers

1. $\varsigma_\pi(t)$: profit subsidy
2. $\varsigma_y(t)$: revenue subsidy
3. $\varsigma_w(t)$: wage bill subsidy
4. $\varsigma_k(t)$: capital (credit) subsidy

• Budget set of entrepreneurs:

$$\dot{a} = (1 + \varsigma_\pi)\pi(a, z) + (r^* + \varsigma_x)a - c_e,$$
$$\pi(a, z) = \max_{\substack{n \geq 0, \\ 0 \leq k \leq \lambda a}} \left\{ (1 + \varsigma_y)A(zk)^\alpha n^{1-\alpha} - (1 - \varsigma_w)w\ell - (1 - \varsigma_k)r^*k \right\}$$
**Additional Tax Instruments**

- Generalize output function

\[ y(x, \ell) = \left( \frac{1 + \varsigma_y}{1 - \varsigma_k} \right)^{\gamma(\eta - 1)} \Theta x^{\gamma \ell^{1-\gamma}} \]

- Proposition:
  
  (i) Profit subsidy \( \varsigma_\pi \), as well as \( \varsigma_y = -\varsigma_k = -\varsigma_w \), has the same effect as a transfer from workers to entrepreneurs, and dominates other tax instruments.

  (ii) When a transfer cannot be engineered, all available policy instruments are used to speed up the accumulation of entrepreneurial wealth.

- E.g.: \( \varsigma_k, \varsigma_w \propto \gamma(\nu - 1) \)

- Pro-business policy bias during early transition
Multi-Sector Economy: Targeted Policies

- Want framework for thinking about policies targeted to particular sectors
  - arguably most prevalent type of development policy

- Generalize framework to multiple sectors
  - both tradable and non-tradable sectors

- In addition to sectoral policies, also explore implications for real exchange rate
Multi-Sector Economy: Households

- Households have preferences
  \[ \int_{0}^{\infty} e^{-\rho t} u(c_0, c_1, \ldots, c_N) dt \]
  - goods 0, \ldots, k: tradable
  - goods k + 1, \ldots, N: not tradable
  - good 0 is numeraire \( \Rightarrow p_0 = 1 \)
Multi-Sector Economy: Households

- Households have preferences
  \[ \int_0^\infty e^{-\rho t} u(c_0, c_1, \ldots, c_N) dt \]
  - goods 0, \ldots, k: tradable
  - goods k + 1, \ldots, N: not tradable
  - good 0 is numeraire \( \Rightarrow p_0 = 1 \)

- Inelastically supply \( L \) units of labor, split across sectors
  \[ \sum_{i=0}^{N} \ell_i = L \]

- Budget constraint
  \[ \sum_{i=0}^{N} (1 + \tau_i^c) p_i c_i + \dot{b} \leq (r - \tau^b) b + \sum_{i=0}^{N} (1 - \tau_i^\ell) w_i \ell_i + T \]

- As before, can extend to additional tax instruments
• Within each sector, everything as before

• Output in sector $i$:

$$y_i(x_i, \ell_i; p_i) = \Theta_i x_i^{\gamma_i} \ell_i^{1-\gamma_i} p_i^{\gamma_i(\eta_i-1)},$$

where

$$\gamma_i = \frac{\alpha_i/\eta_i}{1 - \alpha_i + \alpha_i/\eta_i} \quad \text{and} \quad \Theta_i = \frac{r}{\alpha_i} \left[ \frac{\eta_i \lambda_i}{\eta_i - 1} \left( \frac{\alpha_i A_i}{r} \right)^{\eta_i/\alpha_i} \right]^{\gamma_i}$$

• Wealth accumulation

$$\dot{x}_i = \frac{\alpha_i}{\eta_i} p_i y_i(x_i, \ell_i; p_i) + (r - \delta)x_i$$
Optimal Targeted Ramsey Policies

- Planner’s Problem:

\[
\max_{\{x_i, \ell_i\}_{i=0}^N, \{p_i\}_{i=k+1}^N} \int_0^\infty e^{-\rho t} u(c_0, \ldots, c_N) dt \quad \text{s.t.}
\]

\[
\dot{b} = rb + \sum_{i=0}^N (1 - \alpha_i) p_i y_i(x_i, \ell_i, p_i) - \sum_{i=0}^N p_i c_i
\]

\[
\dot{x}_i = \frac{\alpha_i}{\eta_i} p_i y_i(x_i, \ell_i, p_i) + (r - \delta) x_i, \quad i = 0, \ldots, N
\]

\[
c_i = y_i(x_i, \ell_i, p_i), \quad i = k + 1, \ldots, N
\]

\[
L = \sum_{i=0}^N \ell_i
\]
Optimal Targeted Ramsey Policies

• Optimal taxes

\[ \tau^b = 0, \]

\[ \tau_i^c = \frac{1}{\eta_i - 1}(1 - \nu_i), \quad i = k + 1, \ldots, N \]

\[ \tau_i^\ell = \gamma_i \left(1 - \nu_i - \frac{\eta_i}{\alpha_i} \tau_i^c\right) = \begin{cases} 
\gamma_i(1 - \nu_i), & i = 1, \ldots, k, \\
-\tau_i^c, & i = k + 1, \ldots, N \end{cases} \]

• Explore two special cases

1. all sectors are tradable: implications of comparative advantage
2. one tradable, one non-tradable sector: implications for RER
All Sectors are Tradable
Comparative advantage and industrial policies

- International prices \( \{ p_i^* \} \)
- Sectoral revenues: \( p_i^* y_i = \Theta_i^* x_i \gamma_i \ell_i^{1-\gamma_i} \), \( \Theta_i^* = (p_i^*)^{\gamma_i \eta_i / \alpha_i} \Theta_i \)

- Comparative advantage:
  - Long run (latent): \( \Theta_i^* \)
  - Short run (actual): \( \Theta_i^* x_i^{\gamma} \)
All Sectors are Tradable
Comparative advantage and industrial policies

- International prices \( \{p_i^*\} \)
- Sectoral revenues: \( p_i^* y_i = \Theta_i^* x_i^{\gamma_i} \ell_i^{1-\gamma_i}, \Theta_i^* = \left(p_i^*\right)^{\gamma_i \eta_i / \alpha_i} \Theta_i \)
- Comparative advantage:
  - Long run (latent): \( \Theta_i^* \)
  - Short run (actual): \( \Theta_i^* x_i^{\gamma} \)
- Optimal policy: favors the (latent) comparative advantage sector and speeds up the transition
All Sectors are Tradable
Comparative advantage and industrial policies

- Sector one has (latent) comparative advantage: $p_1^*\Theta_1 > p_2^*\Theta_2$
- Optimal policy speeds up the transition
- Potentially measurable sufficient statistic: $\gamma_i \cdot \nu_i$, where

$$\dot{\nu}_i - \delta \nu_i = - \left(1 - \alpha_i + \frac{\alpha_i}{\eta_i} \nu_i\right) p_i \frac{\partial y_i}{\partial x_i}$$
Non-tradables and the RER

- Consider economy with two sectors
  - sector 0 produces tradable good, \( p_0 = 1 \)
  - sector 1 produces non-tradable good

- For simplicity \( u(c_0, c_1) = \text{CES}(\theta) \)

- What are implications of optimal policy for real exchange rate

\[
\text{RER} = \left( p_0^{1-\theta} + p_1^{1-\theta} \right)^{\frac{1}{1-\theta}}
\]

- Intuition: if want to subsidize tradables \( \Rightarrow \) compress economy-wide \( w \propto p_1 \Rightarrow \text{RER depreciates} \)
  - see e.g. Rodrik (2008)
Non-tradables and the RER

- Consider economy with two sectors
  - sector 0 produces tradable good, \( p_0 = 1 \)
  - sector 1 produces non-tradable good

- For simplicity \( u(c_0, c_1) = CES(\theta) \)

- What are implications of optimal policy for real exchange rate

\[
RER = \left( \frac{1}{\theta} \right)^{\frac{1}{1-\theta}} (p_0^{1-\theta} + p_1^{1-\theta})
\]

- Intuition: if want to subsidize tradables \( \Rightarrow \) compress economy-wide \( w \propto p_1 \Rightarrow RER \text{ depreciates} \)
  - see e.g. Rodrik (2008)

- We find: \textbf{robust} policy recommendation = compress \textbf{wages} in \textbf{tradable} sector if that sector is undercapitalized.

- instead implications for RER are \textit{instrument-dependent}
  - if can differentially tax T and NT labor, RER \textbf{appreciates}
  - conjecture: if instead cannot differentially subsidize T and NT \( \Rightarrow \) RER depreciates (i.e. intuition correct)
Non-tradables and the RER

(a) Sectoral Wealth, $x_i$

(b) Cons Tax on NT Sector

(c) Labor Tax on NT Sector

(d) Emp Share in T Sector

(e) Sectoral Wage

(f) Producer Price RER
Non-tradables and the RER

- Planner subsidizes NT demand (thereby increasing NT producer price) and taxes NT labor supply

- Intuition: try to mimic transfer (equivalent to output subsidy + taxes on both labor and capital)

- **Conjecture:** if planner cannot differentially subsidize sectors
  \[ \Rightarrow \] RER depreciates
Other Extensions

1. Positive Pareto weight on entrepreneurs

\[ \tau_\ell = \gamma [1 - \nu - \omega/x] \]

2. Closed economy

3. Persistent productivity shocks
Closed Economy

- Planner’s problem:

$$\max_{\{c,\ell,\kappa,b,x,\varsigma\}} \int_0^\infty e^{-\rho t} u(c, \ell) \mathrm{d}t$$

subject to

$$\dot{b} = \left[(1 - \alpha) + \alpha \frac{\eta - 1}{\eta} \frac{b}{\kappa}\right] y(x, \kappa, \ell) - c - \varsigma x x,$$

$$\dot{x} = \left[\frac{\alpha}{\eta} + \alpha \frac{\eta - 1}{\eta} \frac{x}{\kappa}\right] y(x, \kappa, \ell) + (\varsigma x - \delta)x,$$

$$\kappa = x + b$$
Closed Economy

- Planner’s problem:

\[
\max_{\{c, \ell, \kappa, b, x, s_x\}_{t \geq 0}} \int_0^\infty e^{-\rho t} u(c, \ell) dt
\]

subject to

\[
\dot{\kappa} = y(x, \kappa, \ell) - c - \delta x,
\]

\[
\dot{x} = \left[ \frac{\alpha}{\eta} + \alpha \frac{\eta - 1}{\eta} \frac{x}{\kappa} \right] y(x, \kappa, \ell) + (s_x - \delta) x
\]

- We study three cases:
  1. Unlimited transfers and \( x, \kappa \geq 0 \) only
  2. Unlimited transfers and \( x \leq \kappa \)
  3. Bounded transfers (limiting case \( s = S = 0 \))
Closed Economy

- Planner’s problem:

$$\max_{\{c, \ell, \kappa, b, x, \varsigma x\}} \int_{0}^{\infty} e^{-\rho t} u(c, \ell) dt$$

subject to

$$\dot{\kappa} = y(x, \kappa, \ell) - c - \delta x,$$

$$\dot{x} = \left[ \frac{\alpha}{\eta} + \alpha \frac{\eta - 1}{\eta} \frac{x}{\kappa} \right] y(x, \kappa, \ell) + (\varsigma x - \delta)x$$

- We study three cases:

1. Unlimited transfers and $x, \kappa \geq 0$ only
   - No distortions ($\tau_b = \tau_\ell = 0$) and $x : \frac{\alpha}{\eta} \frac{\varsigma y}{x} = \delta$

2. Unlimited transfers and $x \leq \kappa$
   - No labor supply distortion ($\tau_\ell = 0$); subsidized savings: $\tau_b \geq 0$

3. Bounded transfers (limiting case $s = S = 0$)
   - Both labor supply and savings are distorted: $\tau_\ell, \tau_b \propto (1 - \nu)$
Conclusion

• **Optimal Ramsey** policy in standard growth model with financial frictions

• **Main Lesson from one-sector model**: *pro-business* policies accelerate economic development and are welfare-improving
  — during initial transitions, and not in steady states
  — when business sector is undercapitalized

• **Main Lesson from multi-sector model**:  
  — favor *comparative advantage* sectors and speed up transition
  — implications for RER are instrument-dependent

• Although stylized, model points towards a measurable sufficient statistic: $\gamma_i \cdot \nu_i$, where

$$\dot{\nu}_i - \delta \nu_i = - \left(1 - \alpha_i + \frac{\alpha_i}{\eta_i} \nu_i \right) p_i \frac{\partial y_i}{\partial x_i}$$