Price Volatility and The Political Economy of the Resource Curse

Thierry Verdier
(PSE and CEPR)

Introduction (I)

- An old standing question :
  Natural Resources & Economic Performances: blessing or curse ?

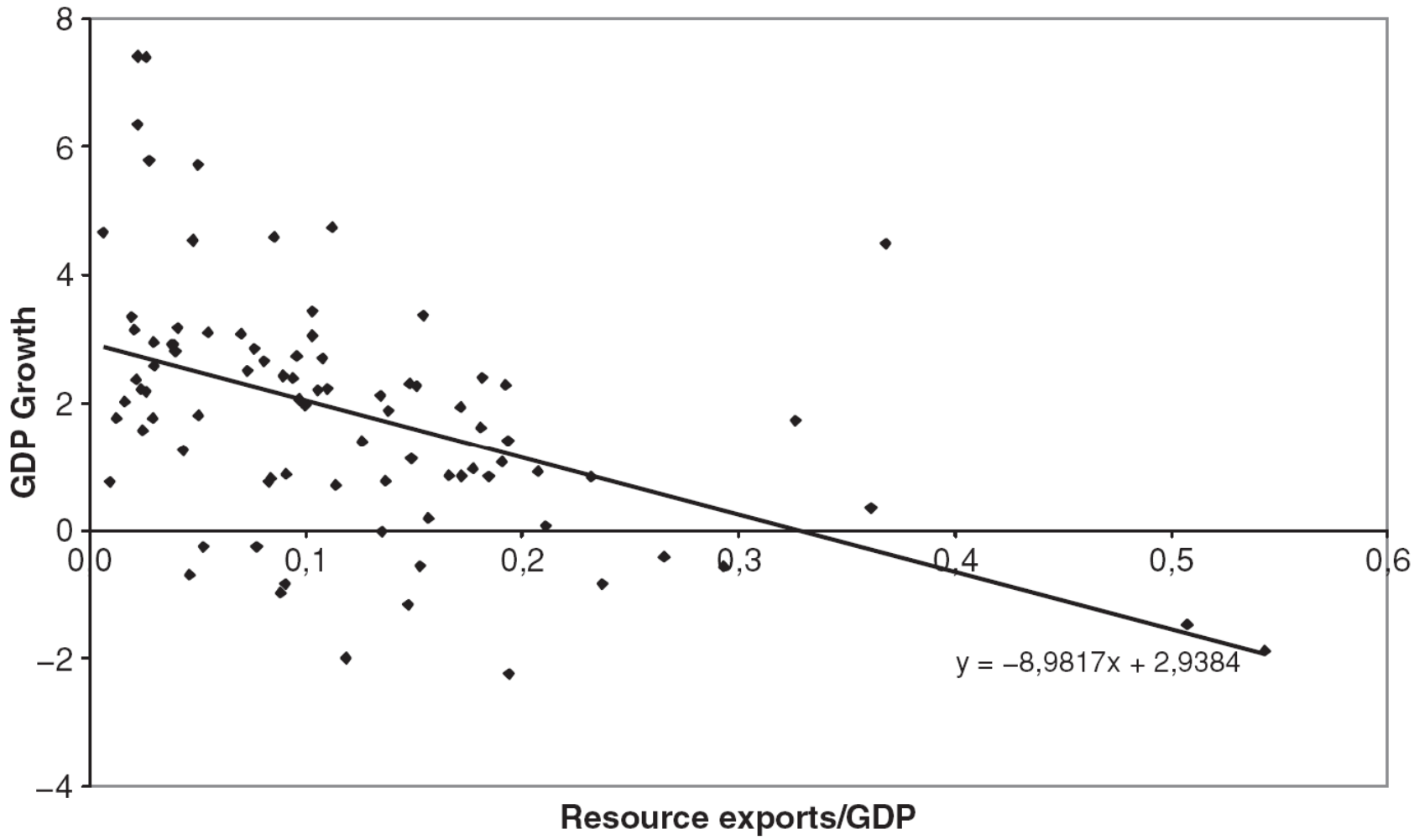
- Prior to late 80s: conventional wisdom : a blessing !
  Economic historians / Industrial revolution : USA, Britain, Australia
  (Viner 1952, Lewis 1955, Rostow 1961, Krueger 1980)

Introduction (I)

- An old standing question :
  Natural Resources & Economic Performances: blessing or curse ?

- Prior to late 80s: conventional wisdom : a blessing !
  Economic historians / Industrial revolution : USA, Britain, Australia
  (Viner 1952, Lewis 1955, Rostow 1961, Krueger 1980)

- After the 80s: Presumption of a Curse !



Source: Data used in Mehlum *et al*. (2006).

Introduction (I)

- An old standing question :
  Natural Resources & Economic Performances: blessing or curse ?

- Prior to late 80s: conventional wisdom : a blessing !
  Economic historians / Industrial revolution : USA, Britain, Australia
  (Viner 1952, Lewis 1955, Rostow 1961, Krueger 1980)

- After the 80s: Presumption of a Curse !
  - Cross country empirical work : Sachs and Warner (1995, 1999),
    Bushy, Isham, Pritchett, Woolcock (2003)
    Bannon and Collier 2003; Davis et al.2003
    Mehlum, Moene and Torvik (2006),

  - Case studies : Gelb (1988), Karl (1997), Auty (2001), Ross (1999, 2001),
    Sala-i-Martin and Subramanian (2003), Eifert et al. (2003)

Introduction (II)

- In fact : great variety of outcomes (even in LDCs) :

Botswana, Chile, Malaysia, Oman and Thailand (Abidin 2001)

Algeria, Ecuador, Mexico, Nigeria, Trinidad &Tobago, Venezuela, Zambia

Introduction (II)

- In fact : great variety of outcomes (even in LDCs) :

  Botswana, Chile, Malaysia, Oman and Thailand (Abidin 2001)

  Algeria, Ecuador, Mexico, Nigeria, Trinidad &Tobago, Venezuela, Zambia

- Skepticism/controversies about existence of Resource Curse

  Pbs of statistical robustness / generalizations / endogeneity:

  Manzano and Rigobon (2001), Ding and Field (2005), Alexeev and Conrad (2009), Brunnschweiler and Bulte (2008), van der Ploeg and Poelhekke (2010)

  Collier and Goderis (2007); Butkiewisz and Yanikkaya (2010)

Introduction (III)

- Shifts in literature from « average effects » of resources to:

1) Explaining diversity of outcomes and mechanisms :
«Why some resource-abundant countries succeed while others do not? »

Introduction (III)

- Shifts in literature from « average effects » of resources to:

1) Explaining diversity of outcomes and mechanisms :
«Why some resource-abundant countries succeed while others do not? »

role of institutions and policies:

Mehlum, Moene and Torvik (2006), Iimi 2007, Kolstad (2009) : Quality of institutions
Andersen and Aslaksen (2008): Presidentialism vs Parliamentary democracies
Arezki and van der Ploeg (2007) : Trade policies/openness

Introduction (III)

- Shifts in literature from « average effects » of resources to:

1) Explaining diversity of outcomes and mechanisms :
«Why some resource-abundant countries succeed while others do not? »

role of institutions and policies:

Mehlum, Moene and Torvik (2006), Iimi (2007), Kolstad (2009) : Quality of institutions
Andersen and Aslaksen (2008): Presidentialism vs Parliamentary democracies
Arezki and van der Ploeg (2007) : Trade policies/openness

→ political economy dimensions

Introduction (IV)

2)Volatility curse : volatility of prices/policies

- Volatility and growth : - Aizenman and Marion (1991)
  - Ramey and Ramey (1995)
  - Aghion, Angeletos, Banerjee, Manova (2005)
  - Aghion, Bachetta, Rancière and Rogoff (2006)

Introduction (IV)

2)Volatility curse : volatility of prices/policies

- Volatility and growth : - Aizenman and Marion (1991)
  - Ramey and Ramey (1995)
  - Aghion, Angeletos, Banerjee, Manova (2005)
  - Aghion, Bachetta, Rancière and Rogoff (2006)

- Volatility curse :

Haussman and Rigobon (2002): reinforcing effects: specialization in non tradables / financial frictions/ RER volatility

van der Ploeg and Poelhekke (2010) : direct positive effect of resource on growth
indirect negative effect through volatility

Bleaney and Halland (2009): negative effect of resources on growth through fiscal volatility

Leong and Mohaddes (2011) : volatility curse /mitigating role of institutions

In this talk… (I)

- Political economy dimensions / volatility curse

In this talk… (I)

- Political economy dimensions / volatility curse

- Political economy channel :
  - «Bad policy » induced by Resource rents
  - Dysfunctional state behavior \ large public sectors \ Inefficient redistributive policies \

  (Gelb (1988), Gavin (1993), Karl (1997), Auty (2001), Ross (2012))

In this talk… (I)

- Political economy dimensions / volatility curse

- Political economy channel for resource curse
  - «Bad policy » induced by Resource rents
  - Dysfunctional state behavior \ large public sectors \ Inefficient redistributive policies \
    (Gelb (1988), Gavin (1993), Karl (1997), Auty (2001), Ross (2012))

- How Resource Booms / volatility affect the extent of inefficient redistribution ?

→ Interactions between political incentives / price shocks volatility

In this talk…(II)

• Political models of resource extraction with price volatility

- Probabilistic voting Model (Lindbeck-Weibull 1993)
  incumbent politician\ resource extraction

In this talk… (II)

• Political models of resource extraction with price volatility

- Probabilistic voting Model (Lindbeck-Weibull 1993)
  incumbent politician\ resource extraction

- Inefficient redistribution : clientelism \ patronage :
  system of political exchange with voters
  Public employment: redistribution of rents (Auty 2001)

Two sided credibility: patron\voters
Exclusivity of patron: social network
Way to gain political support

(Robinson and Verdier (2012))

In this talk… (II)

• Political models of resource extraction with price volatility

- Probabilistic voting Model (Lindbeck-Weibull 1993)
  incumbent politician\ resource extraction

- Inefficient redistribution : clientelism \ patronage :
  system of political exchange with voters
  Public employment: redistribution of rents (Auty 2001)

Two sided credibility: patron\voters
Exclusivity of patron: social network
Way to gain political support

(Robinson and Verdier (2012))

Price shocks
Volatility

⇨

Political support.
Incumbent's incentives
Public Policies

⇨

Resource
Curse

Main Insights (I)

Deterministic price shocks (Robinson, Torvik, Verdier 2006)

- Over extraction of natural resources
- Permanent resource boom: improves efficiency of extraction
- Permanent resource boom: increase resource misallocation in the rest of the economy
- Impact of resource boom : depends on nature of political institutions

Resource booms create underdevelopment
not because of inefficiency in the rate of resource extraction
But because of what politicians do with the resource rents.

Main Results (II)

Extension to Stochastic Resource Prices and Volatility

Volatility →

- Political support / turnover
  (fiscal volatility for risk averse voters)
- Value of staying in power
  (for risk averse politicians)

Main Insights (II)

Extension to Stochastic Resource Prices and Volatility

Volatility → - Political support / turnover
(fiscal volatility for risk averse voters)
- Value of staying in power
(for risk averse politicians)

- When incumbent's constituency « more sensitive » to fiscal shocks than rest of population :

Higher resource volatility →

Inefficient Patronage policies
Crowding out of public investment

Magnification of over extraction of natural resources

More so under « weak » institutions

Roadmap

1) Political Economy models of the resource curse

2) A simple model of clientelism, price shocks and resource curse

3) Political clientelism under price volatility

4) Political clientelism, public investment and price volatility

5) Resource extraction under price volatility

6) Conclusions

Economic /Political models of the resource curse (I)

Surveys: van der Ploeg (2010), Deacon (2011), Frankel (2012).

- «Dutch Disease » literature: Corden and Neary (1982), van Wijnbergen (1984), Krugman (1987), Matsuyama (1992), Sachs and Warner (1995), Gylfason *et al*. (1999), Torvik (2001), Matsen and Torvik (2005), van der Ploeg and Venables (2011)

  Haussman and Rigobon (2002)

Economic /Political models of the resource curse (I)

Surveys: van der Ploeg (2010), Deacon (2011), Frankel (2012).

- «Dutch Disease » literature: Corden and Neary (1982), van Wijnbergen (1984), Krugman (1987), Matsuyama (1992), Sachs and Warner (1995), Gylfason *et al*. (1999), Torvik (2001), Matsen and Torvik (2005), van der Ploeg and Venables (2011)

  Haussman and Rigobon (2002)

- « Rent-Seeking » Literature : Tornell and Lane (1999): « Voracity Effect »

  Baland and François (2000)
  Torvik (2002), Hodler (2006)
  Occupational choices

  - Need for some negative multiplier /externality/ increasing returns effect: not internalized by political system decentralized

  - No explicit role for political/institutional parameters

Political/ Economic models of the resource curse (II)

- Political Economy Models of the resource curse

- Political theories of the « rentier » state: North and Thomas (1973)
  Karl (1997), Ross (1999, 2001)

Political/ Economic models of the resource curse (II)

- Political Economy Models of the resource curse

- Political theories of the « rentier » state: North and Thomas (1973)
  Karl (1997), Ross (1999, 2001)

- Civil conflicts :
  Collier and Hoeffler (2004): Rebels' incentives and capacity
  Aslaksen and Torvik (2006): violent vs democratic competition

- Incumbency distortions and lobbying:
  Acemoglu, Robinson and Verdier (2006): Elite's behavior
  Damania and Bulte (2003): Lobbying incentives
  Caselli and Cunnigham (2009): leader's incentives/ non monotonic effects
  survival function

- Public sector distortions:
  Robinson, Torvik and Verdier (2006) : public employment /clientelism
  Robinson and Torvik (2005) : « white elephants »
  Smith (2008) : Selectorate theory / windfalls / composition of public goods

A Simple Political Economy Model (I)

(Robinson, Torvik and Verdier 2006)

- Two-period probabilistic voting model : periods 1 and 2
- Two parties \ politicians: incumbent A and challenger B.
- Election is at the end of period 1
- Mass of voters normalized to 1
- Stock of natural resources: prices p_1, p_2
- Resource extracted in period 1: e
  in period 2 : R(e)
  with R'(e) < 0 and R''(e) < 0

A Simple Political Economy Model (II)

- Resource income can be used in two possible ways:
  - Consumption by the incumbent
  - Distribution as patronage: public jobs / influence election outcome
  - No taxes
- After election, political winner consumes remaining resource rents.
- No commitment to policies

- Incumbent politician: clientelism / offers public jobs: $L_P < 1$
  public wage: $W > H$

  H : productivity in private sector

- Re-election probability: $\Pi = \Pi(L_P)$ with $\Pi' > 0$

A Simple Political Economy Model (III)

- The incumbent decides policy before the election:
  Resource extraction e and public sector employment L_P

$$\max_{e,L_P} \; p_1 e - WL_P + \Pi(L_P)[p_2 R(e) - WL_P]$$

A Simple Political Economy Model (III)

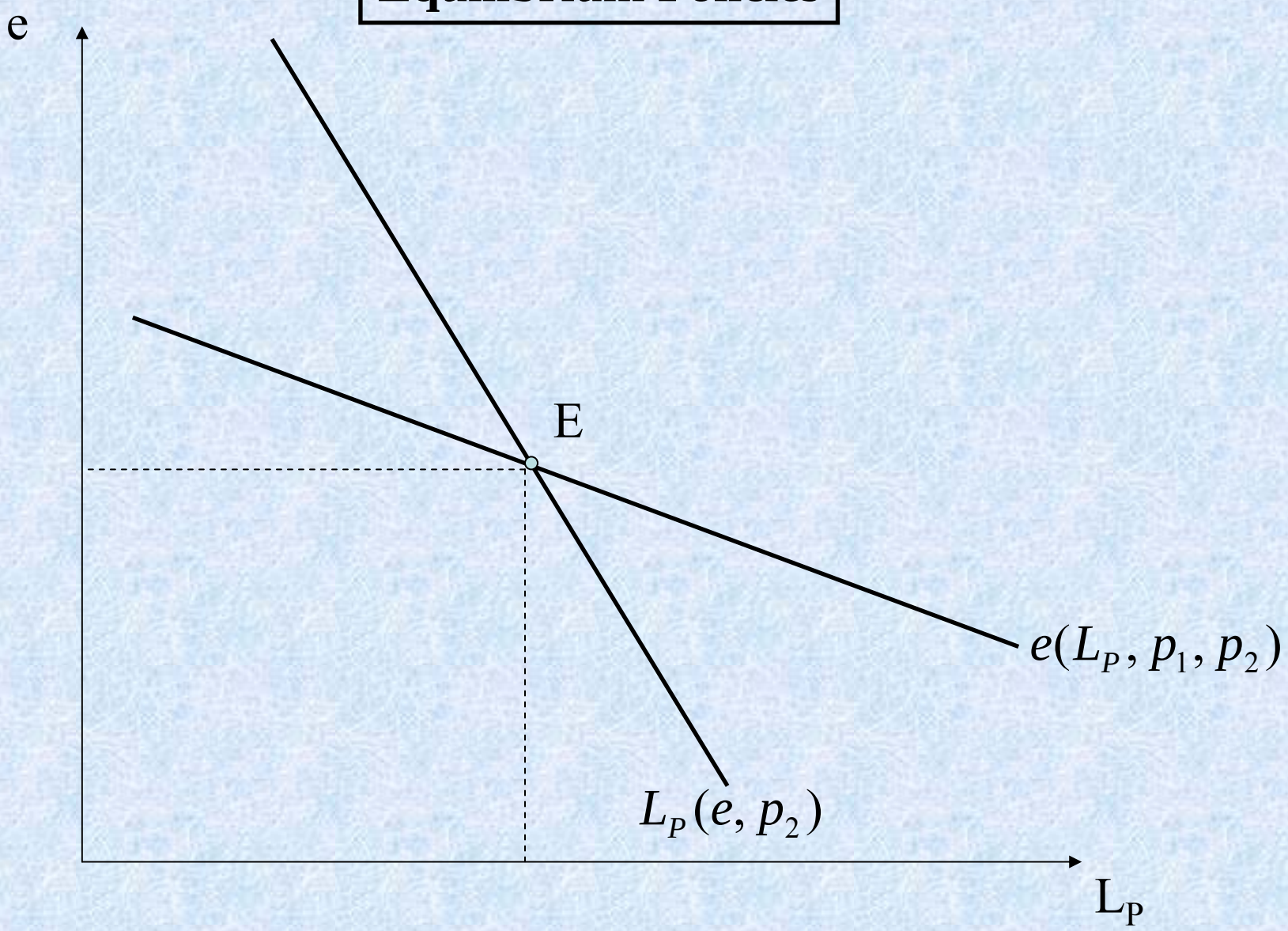
- The incumbent decides policy before the election:
  Resource extraction e and public sector employment L_P

$$\max_{e,L_P} \; p_1 e - WL_P + \Pi(L_P)[p_2 R(e) - WL_P]$$

$$p_1 + \Pi(L_P) p_2 R'(e) = 0$$

$$-[1 + \Pi(L_P)]W + \Pi'[p_2 R(e) - WL_P] = 0$$

Equilibrium Policies



A Simple Political Economy Model (III)

- The incumbent decides policy before the election:
  Resource extraction e and public sector employment L_P

$$\max_{e,L_P} \; p_1 e - WL_P + \Pi(L_P)[p_2 R(e) - WL_P]$$

$$p_1 + \Pi(L_P) p_2 R'(e) = 0$$

$$-[1 + \Pi(L_P)]W + \Pi'[p_2 R(e) - WL_P] = 0$$

- Efficient extraction path : $\underset{e}{\text{Max}} \; p_1 e + p_2 \; R(e)$

(F): $p_1 + p_2 \; R'(e) = 0 \quad \Longrightarrow \quad e > e^f$

Price Shocks and Extractive Efficiency (I)

- Resources are inefficiently over-extracted : $e > e^f$

Price Shocks and Extractive Efficiency (I)

- Resources are inefficiently over-extracted : $e > e^f$

- Comparative statics on price shocks : p_1 , p_2

i) <u>permanent resource boom</u>: $\frac{dp_1}{p_1} = \frac{dp_2}{p_2} = \frac{dp}{p}$

Price Shocks and Extractive Efficiency (I)

- Resources are inefficiently over-extracted : $e > e^f$

- Comparative statics on price shocks : p_1 , p_2

i) <u>permanent resource boom</u>: $\frac{dp_1}{p_1} = \frac{dp_2}{p_2} = \frac{dp}{p}$

- reduces extraction rate and increases efficiency

Price Shocks and Extractive Efficiency (I)

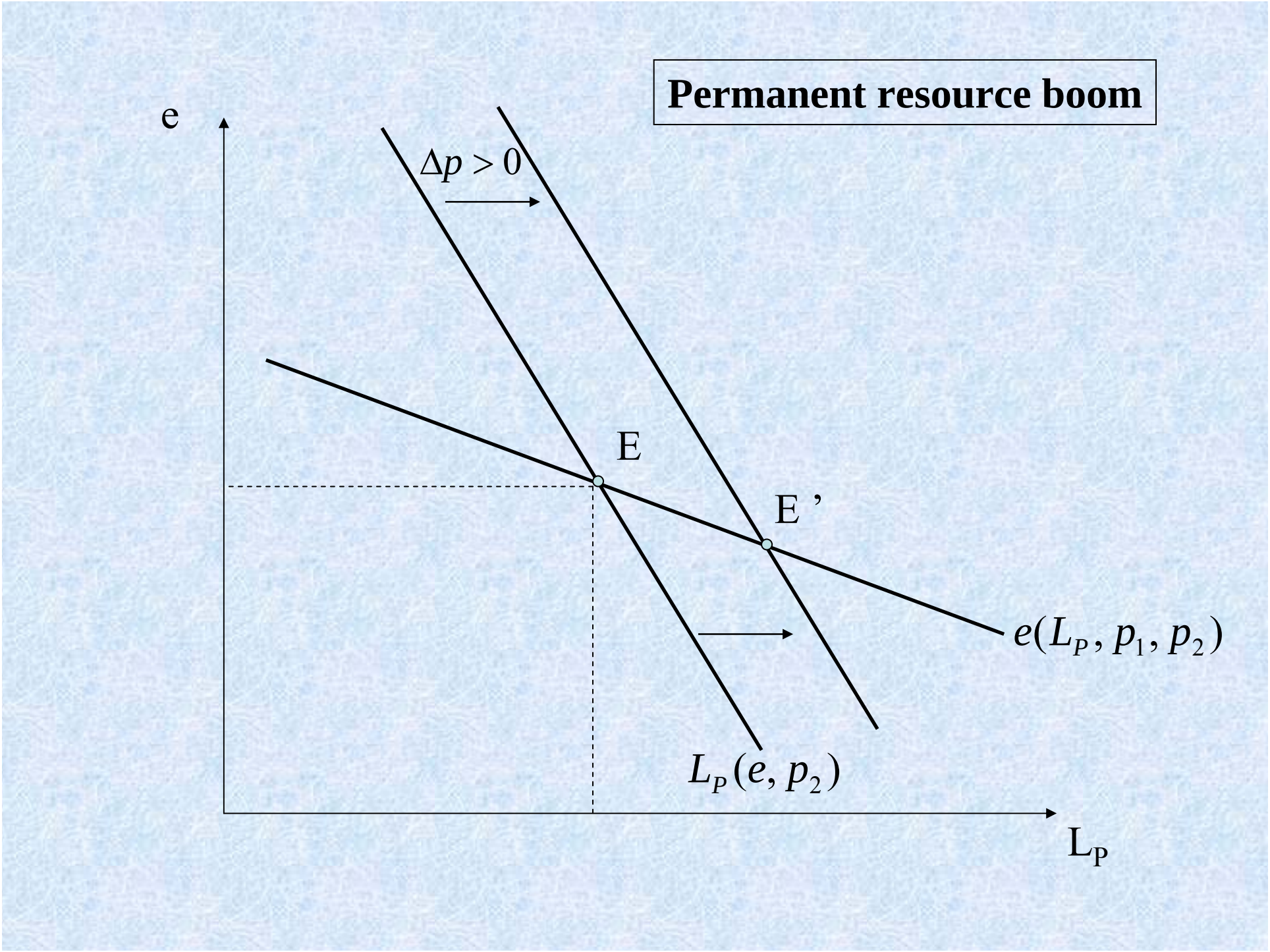
- Resources are inefficiently over-extracted : $e > e^f$

- Comparative statics on price shocks : p_1 , p_2

i) <u>permanent resource boom</u>: $\frac{dp_1}{p_1} = \frac{dp_2}{p_2} = \frac{dp}{p}$

- reduces extraction rate and increases efficiency

Intuition: - value of staying in power: $\nearrow$
- more incentives to bias political competition
- probability of staying in power : $\nearrow$
- politician is less myopic


Permanent resource boom
e
$\Delta p > 0$
E
E '
$e(L_P, p_1, p_2)$
$L_P(e, p_2)$
L_P

Price Shocks and Extractive Efficiency (I)

ii) <u>temporary resource boom</u>: $dp_1 > 0 \;\; and \;\; dp_2 = 0$

iii) <u>anticipated future resource boom</u>: $dp_1 = 0 \;\; and \;\; dp_2 > 0$

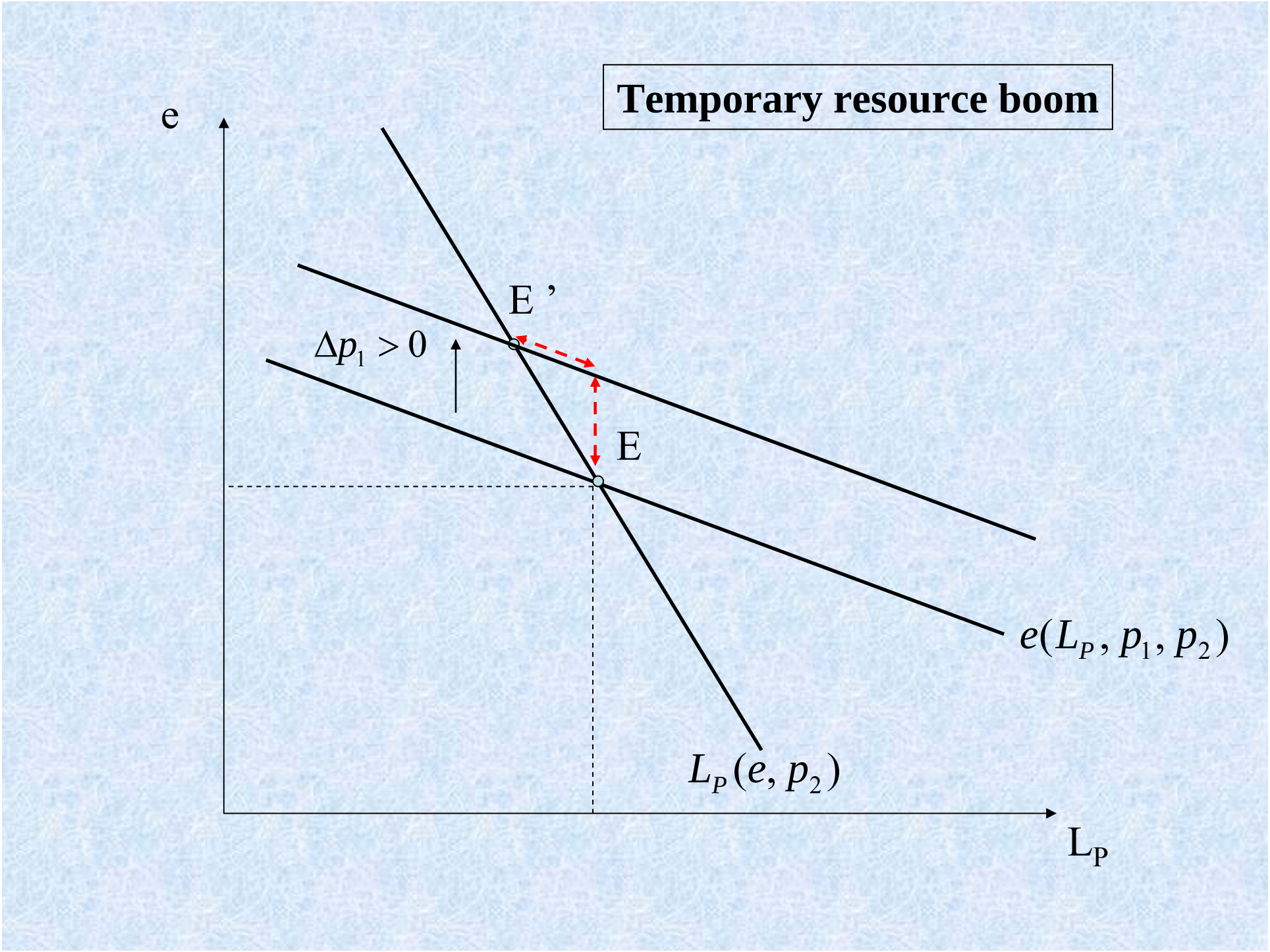
Price Shocks and Extractive Efficiency (I)

ii) <u>temporary resource boom</u>: $dp_1 > 0 \;\; and \;\; dp_2 = 0$

- increases extraction rate and reduces efficiency if $R'''(e) \geq 0$

- equilibrium extraction path change
  Endogenous effect of clientelism: increases myopia

iii) <u>anticipated future resource boom</u>: $dp_1 = 0 \;\; and \;\; dp_2 > 0$


Temporary resource boom
e
E ’
$\Delta p_1 > 0$
E
$e(L_P, p_1, p_2)$
$L_P(e, p_2)$
L_P

Price Shocks and Extractive Efficiency (I)

ii) <u>temporary resource boom</u>: $dp_1 > 0 \;\; and \;\; dp_2 = 0$

- increases extraction rate and reduces efficiency if $R'''(e) \geq 0$

- equilibrium extraction path change
  endogenous effect of clientelism: increases myopia

iii) <u>anticipated future resource boom</u>: $dp_1 = 0 \;\; and \;\; dp_2 > 0$

Price Shocks and Extractive Efficiency (I)

ii) <u>temporary resource boom</u>: $dp_1 > 0 \;\; and \;\; dp_2 = 0$

- increases extraction rate and reduces efficiency if $R'''(e) \geq 0$

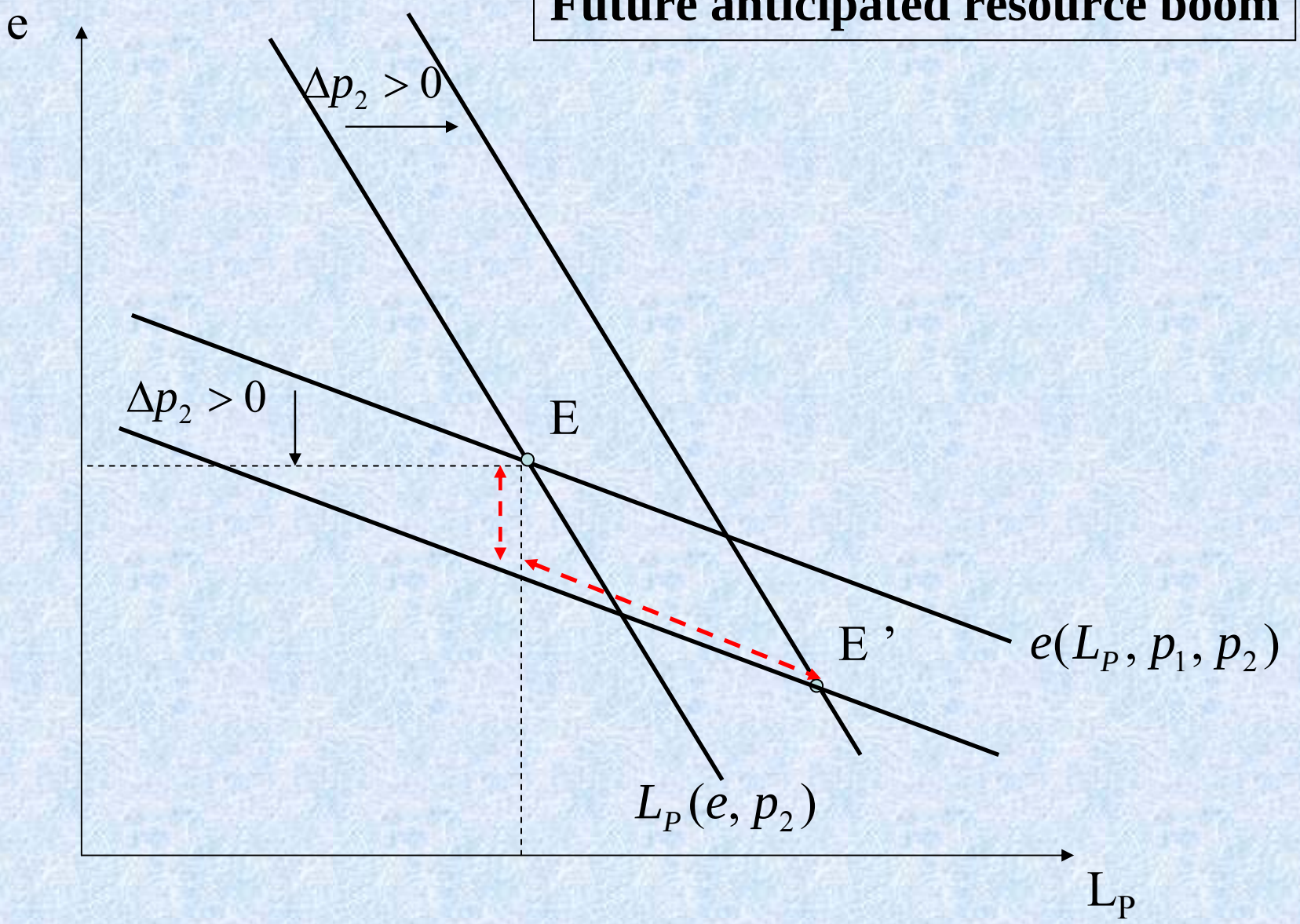
- equilibrium extraction path change
  endogenous effect of clientelism: increases myopia

iii) <u>anticipated future resource boom</u>: $dp_1 = 0 \;\; and \;\; dp_2 > 0$

- reduces extraction rate and increases efficiency if $R'''(e) \geq 0$

- equilibrium extraction path change
  endogenous effect of clientelism: decreases myopia

Future anticipated resource boom



Resource booms and resource allocation (I)

$$\frac{dp_1}{p_1} = \frac{dp_2}{p_2} = \frac{dp}{p}$$

<u>permanent resource boom</u>:

- public sector employment $\uparrow$
- Private sector employment $\downarrow$

Resource booms and resource allocation (I)

permanent resource boom:

$$\frac{dp_1}{p_1} = \frac{dp_2}{p_2} = \frac{dp}{p}$$

- public sector employment ↑
- Private sector employment ↓

Resource Booms lead to politically motivated expansions of the public sector :

- Gavin (1993): Oil Boom in Nigeria from 1973 to 1987 and expansion of public employment
- Gelb (1988): Nigeria
- Auty (1999) : Trinidad and Tobago
- Gelb (1988): Ecuador and Venezuela
- Bates and Colliers (1993), Gelb, Knight and Sabot (1991): Zambia

Resource curse ? (I)

- Opposite extraction path effect and labor misallocation effect :

- ex: permanent boom: - efficiency of extraction rate increases
  - more labor in public sector

- Impact of resource booms on total income: ambiguous

$$Y = 2(1 - L_P)H + p_1 e + p_2 R(e)$$

Resource curse ? (I)

- Opposite extraction path effect and labor misallocation effect :

- ex: permanent boom: - efficiency of extraction rate increases
  - more labor in public sector

- Impact of resource booms on total income: ambiguous

$$Y = 2(1 - L_P)H + p_1 e + p_2 R(e)$$

$$\frac{dY}{dp/p} = \underbrace{p_1 e + p_2 R}_{+} + \overbrace{\underbrace{(p_1 + p_2 R')}_{+}\overbrace{\frac{de}{dp/p}}^{-}}^{-} - \underbrace{2H\frac{dL_P}{dp/p}}_{-}$$

Resource value increase

Positive extraction path effect

Negative reallocation effect

Resource booms and resource allocation (II)

- Negative reallocation effect stronger on public sector when politician has more ability to influence political process through « patronage » redistribution

Resource booms and resource allocation (II)

- Negative reallocation effect stronger on public sector when politician has more ability to influence political process through « patronage » redistribution

- Importance of institutions for resource curse :

Resource booms and resource allocation (II)

- Negative reallocation effect stronger on public sector when politician has more ability to influence political process through « patronage » redistribution

- Importance of institutions for resource curse :

• Weak institutions: (subject to clientelism)	→	Resource curse
• Strong institutions	→	No resource curse

→ Consistent with Mehlum et al. (2006), Iimi (2007), Kolstad (2009) :

Positive effects of Resources on growth when institutions are good

Price Volatility and Political Economy (I)

- Exogenous natural resource endowment: Z
- Intertemporal path of prices (p_1 , p_2) :

$$p_1 = \overline{p_1} > 0 \text{ (deterministic)}$$
$$p_2 = \overline{p_2} + \epsilon \text{ (stochastic)} \quad \overline{p_2} > 0$$

ε: random variable defined on [-a,a]

$$E(\epsilon) = 0 \qquad var(\epsilon) = \sigma^2$$

- Microfoundations of political competition (probabilistic voting):

2 groups of individuals A and B: size 1/2.

2 politicians: incumbent from group A / challenger from group B

- Different preferences: private good/ group specific public good

Price Volatility and Political Economy (II)

voters of type A : $u^A(C_t, G_t) = C_t - \gamma^A \frac{(\overline{G} - G_t)^2}{2}$ $\quad \overline{G} > 0$, $\gamma^A > 0$

voters of type B : $u^B(C_t) = C_t$

- concave public good utility: risk aversion for fiscal volatility
- group specific public good: fiscal volatility affects political turnover
- quadratic specification : "certainty equivalent" forms

• Each politician cares about his own utility:

$$V_t^A = R_t^A - \gamma^A \frac{(\overline{G} - G_t)^2}{2}$$

$$V_t^B = R_t^B$$

R_t^i: politician's private good consumption

Price Volatility and Political Economy (III)

- Productivity in private sector: H
- Productivity in public sector: 0, wage W
- L_P : public sector workers decided by incumbent in period 1
  credible commitment for incumbent in period 2
  (political patronage / clientelistic social networks)
  No commitment for challenger (Robinson and Verdier 2012)
- Per-period Gvt budget constraints (no taxes):

$$G_1 + R_1^A = p_1 Z - WL_P$$

$$G_2(A) + R_2^B = p_2 Z - WL_P$$

$$G_2(B) + R_2^B = p_2 Z$$

Price Volatility and Political Economy (IV)

- Probabilistic voting model : $U_t^i(A) + \sigma^i + \theta > U_t^i(B)$

σ^i : « idiosyncratic component » uniformly distributed on $\left[-\frac{1}{2s}, \frac{1}{2s}\right]$

θ : incumbent specific popularity uniformly distributed on $\left[-\frac{1}{2h}, \frac{1}{2h}\right]$

Price Volatility and Political Economy (IV)

- Probabilistic voting model : $U_t^i(A) + \sigma^i + \theta > U_t^i(B)$

σ^i : uniformly distributed on $[-\frac{1}{2s}, \frac{1}{2s}]$

θ : uniformly distributed on $[-\frac{1}{2h}, \frac{1}{2h}]$

- Timing:

- period 1: - Incumbent chooses: $\left(L_P, G_1, R_1^A\right)$
  - production, consumption
- period 2: - political competition: $\left(G_2(A), R_2^A\right)$ $\left(G_2(B), R_2^B\right)$
  - winner implements ex post optimal rent R_2
  - realization of the price shock ε
  - production, consumption and public good provision

Equilibrium Policies in period 2 (I)

- Credible policies: backward induction

Period 2:

- If politician of type B is elected : $G_2(B) = 0$

No public jobs

consume all the rent $p_2 Z$

Equilibrium Policies in period 2 (I)

- Credible policies: backward induction

Period 2:

- If politician of type B is elected : $G_2(B) = 0$

No public jobs
consume all the rent $p_2 Z$

- For incumbent of type A:

$$G_2(A) = \max\left[p_2 Z - R_2^A - WL_P; 0\right]$$

Public jobs: L_P

Choice of R_2^A : $$\max_{R_2^A} R_2^A - \gamma^A E\left[\frac{\left(\overline{G} - G_2(A)\right)^2}{2}\right]$$

We will consider only regimes where $G_2(A) > 0$ for all realizations of p_2

Equilibrium Policies in period 2 (II)

- Incumbent of type A maximizes expected utility:

$$\max_{R_2^A} R_2^A - \gamma^A \frac{\left(\overline{G} - E[G_2(A))]\right)^2}{2} - \gamma^A \frac{\sigma^2}{2} Z^2$$

with $E[G_2^A(A)] = \overline{p_2} Z - R_2^A - WL_P$

Equilibrium Policies in period 2 (II)

- Incumbent of type A maximizes expected utility:

$$\max_{R_2^A} R_2^A - \gamma^A \frac{\left(\overline{G} - E[G_2(A))]\right)^2}{2} - \gamma^A \frac{\sigma^2}{2} Z^2$$

with $E[G_2^A(A)] = \overline{p_2} Z - R_2^A - WL_P$

- Optimal level of incumbent's rent : $R_2^A = \overline{p_2} Z - WL_P + \frac{1}{\gamma^A} - \overline{G}$

- Provision of the public good A : $G_2(A) = [p_2 - \overline{p_2}]Z + \overline{G} - \frac{1}{\gamma^A}$

Equilibrium Policies in period 2 (II)

- For incumbent of type A:

$$\max_{R_2^A} R_2^A - \gamma^A \frac{\left(\overline{G} - E[G_2(A))]\right)^2}{2} - \gamma^A \frac{\sigma^2}{2} Z^2$$

with $E[G_2^A(A)] = \overline{p_2} Z - R_2^A - WL_P$

- Optimal level of incumbent's rent : $R_2^A = \overline{p_2} Z - WL_P + \frac{1}{\gamma^A} - \overline{G}$

- Provision of the public good A : $G_2(A) = [p_2 - \overline{p_2}]Z + \overline{G} - \frac{1}{\gamma^A}$

- Assumptions for an interior solution: $R_2^A > 0$ and $0 < G_2(A) < \overline{G}$

$$aZ < \min\left\{\frac{1}{\gamma^A}; \overline{G} - \frac{1}{\gamma^A}\right\} \longrightarrow 0 < G_2(A) < \overline{G}$$

$$\overline{p_2} Z - \frac{W}{2} > \overline{G} - \frac{1}{\gamma^A} \longrightarrow R_2^A > 0$$

Equilibrium Voters Utilities (I)

- Period 2 expected utility of private sector voters:

$$U_2^A(A) = H - \frac{1}{2\gamma^A} - \frac{\gamma^A \sigma^2}{2} Z^2 \text{ and } U_2^A(B) = H - \frac{\gamma^A}{2}\left(\overline{G}\right)^2$$

$$U_2^B(B) = U_2^B(A) = H$$

- Voters of type A: - Utility benefit of average public good provision

$$\frac{\gamma^A}{2}\left(\overline{G}\right)^2 - \frac{1}{2\gamma^A} > 0$$

- Fiscal volatility cost related to fluctuations of resource income $p_2 Z$

$$-\frac{\gamma^A \sigma^2}{2} Z^2$$

- Assume volatillity not too high : $U_2^A(A) > U_2^A(B)$

Equilibrium Voters Utilities (II)

- Expected utility for public employees in group A :

$$U_2^L(A) = W - \frac{1}{2\gamma^A} - \frac{\gamma^A \sigma^2}{2} Z^2 \text{ and } U_2^L(B) = H - \frac{\gamma^A}{2} \left(\overline{G}\right)^2$$

- Again when volatility not too high : $U_2^L(A) > U_2^L(B)$

Election probability (I)

- group B voters:
  - Post-election income independent of election outcome:
  - Support incumbent A: $\sigma^{i} + \theta > 0$

$$N_B = \frac{1}{2}\left(\frac{1}{2} + s\theta\right)$$

Election probability (I)

- group B voters:
  - Post-election income independent of election outcome:
  - Support incumbent A: $\sigma^{i} + \theta > 0$

$$N_B = \frac{1}{2}\left(\frac{1}{2} + s\theta\right)$$

- Group A voters:
  - private employees: $U_2^A(A) + s^i + \theta > U_2^A(B)$

$$N_A^H = (1 - L_P)\left(\frac{1}{2} + s\left(\theta + \left[U_2^A(A) - U_2^A(B)\right]\right)\right)$$

  - public workers:

$$N_A^P = L_P\left(\frac{1}{2} + s\left(\theta + \left[U_2^L(A) - U_2^L(B)\right]\right)\right)$$

Election probability (II)

- Election probability of incumbent: $\Pi = \Pr\left\{ N_B + N_A^P + N_A^L \geq \frac{1}{2} \right\}$

$$\longrightarrow \Pi = \Pr\left[\theta + \frac{\gamma^A}{2}\left[\overline{G}^2 - \frac{1}{\left(\gamma^A\right)^2} - \sigma^2 Z^2 \right] + (W - H)L_P \geq 0 \right]$$

$$\Pi\left(L_P, \sigma^2\right) = \frac{1}{2} + h\left\{ \frac{\gamma^A}{4}\left[\overline{G}^2 - \frac{1}{\left(\gamma^A\right)^2} - \sigma^2 Z^2 \right] + (W - H)L_P \right\}$$

Election probability (III)

- Election probability of incumbent: $\Pi = \Pr\left\{N_B + N_A^P + N_A^L \geq \frac{1}{2}\right\}$

$$\longrightarrow \Pi = \Pr\left[\theta + \frac{\gamma^A}{2}\left[\overline{G}^2 - \frac{1}{(\gamma^A)^2} - \sigma^2 Z^2\right] + (W - H)L_P \geq 0\right]$$

$$\Pi\left(L_P, \sigma^2\right) = \frac{1}{2} + h\left\{\frac{\gamma^A}{4}\left[\overline{G}^2 - \frac{1}{(\gamma^A)^2} - \sigma^2 Z^2\right] + (W - H)L_P\right\}$$

- Depends positively on public employment L_P

  Clientelism influences probability to stay in power

Election probability (IV)

- Relection probability of incumbent: $\Pi = \Pr\left\{N_B + N_A^P + N_A^L \geq \frac{1}{2}\right\}$

$$\longrightarrow \Pi = \Pr\left[\theta + \frac{\gamma^A}{2}\left[\overline{G}^2 - \frac{1}{(\gamma^A)^2} - \sigma^2 Z^2\right] + (W - H)L_P \geq 0\right]$$

$$\Pi\left(L_P, \sigma^2\right) = \frac{1}{2} + h\left\{\frac{\gamma^A}{4}\left[\overline{G}^2 - \frac{1}{(\gamma^A)^2} - \sigma^2 Z^2\right] + (W - H)L_P\right\}$$

- Depends negatively on volatility of the resource price

- Type A voters suffer from fiscal volatility when incumbent reelected
- Reduces political support of these voters.
- Economic volatility translates into political instability
- (asymmetry between incumbent/challenger is crucial)

Equilibrium patronage and Price Volatility (I)

- Period 1 problem of the incumbent:

$$\max_{R_1^A, G_1, L_P} R_1^A - \gamma^A \frac{\left(\overline{G} - G_1\right)^2}{2} + \Pi\left(L_P, \sigma^2\right)\left[\overline{p_2} Z - W L_P + \frac{1}{2\gamma^A} - \overline{G} - \frac{\gamma^A \sigma^2}{2} Z^2\right]$$

$$+ (1 - \Pi\left(L_P, \sigma^2\right))\left[-\frac{\gamma^A}{2}\left(\overline{G}\right)^2\right]$$

under budget constraint : $G_1 + R_1^A = p_1 Z - W L_P$

Equilibrium patronage and Price Volatility (I)

- Period 1 problem of the incumbent:

$$\max_{R_1^A, G_1, L_P} R_1^A - \gamma^A \frac{\left(\overline{G} - G_1\right)^2}{2} + \Pi\left(L_P, \sigma^2\right)\left[\overline{p_2} Z - W L_P + \frac{1}{2\gamma^A} - \overline{G} - \frac{\gamma^A \sigma^2}{2} Z^2\right]$$

$$+ (1 - \Pi\left(L_P, \sigma^2\right))\left[-\frac{\gamma^A}{2}\left(\overline{G}\right)^2\right]$$

under budget constraint : $G_1 + R_1^A = p_1 Z - W L_P$

Equilibrium level of public employment (patronage) :

$$\Pi_L'\left[\overline{p_2} Z - W L_P + \frac{1}{2\gamma^A} - \overline{G} - \frac{\gamma^A \sigma^2}{2} Z^2 + \frac{\gamma^A}{2}\left(\overline{G}\right)^2\right] - W[1 + \Pi] = 0$$

Marginal benefit of patronage

Marginal cost of patronage

Equilibrium patronage and Price Volatility (II)

- Effect of price volatility on patronage :

Equilibrium patronage and Price Volatility (II)

- Effect of price volatility on patronage :

  - in general : ambiguous

- Volatility reduces value to stay in power (marginal benefit) :

$$V_{\text{power}} = \overline{p_2} Z - W L_P + \frac{1}{2\gamma^A} - \overline{G} - \frac{\gamma^A \sigma^2}{2} Z^2 + \frac{\gamma^A}{2} \left(\overline{G} \right)^2$$

$\Rightarrow$ Reduces political patronage L_P

Equilibrium patronage and Price Volatility (II)

- Effect of price volatility on patronage :

  - in general : ambiguous

- Volatility reduces value to stay in power (marginal benefit) :

$$V_{\text{power}} = \overline{p_2} Z - W L_P + \frac{1}{2\gamma^A} - \overline{G} - \frac{\gamma^A \sigma^2}{2} Z^2 + \frac{\gamma^A}{2} \left(\overline{G}\right)^2$$

⇒ Reduces political patronage L_P

- Volatility reduces proba of reelection / expected cost of public jobs

⇒ Increases political patronage L_P

Equilibrium patronage and Price Volatility (II)

- Effect of price volatility :

  - in general : ambiguous

- Volatility reduces value to stay in power (marginal benefit) :

$$V_{\text{power}} = \overline{p_2}Z - WL_P + \frac{1}{2\gamma^A} - \overline{G} - \frac{\gamma^A\sigma^2}{2}Z^2 + \frac{\gamma^A}{2}\left(\overline{G}\right)^2$$

⇒ Reduces political patronage L_P

- Volatility reduces proba of reelection / expected cost of public jobs

⇒ Increases political patronage L_P

- For our parametric specification: $L_P \nearrow$ with volatility σ^2
  when public wages are not too high (ie. W/H < 2)
  / Politician not too risk averse

Resource Curse and Volatility (I)

- Total expected wealth :

$$Y = 2H + p_1 Z + \overline{p_2} Z - (1 + \Pi(L_P))L_P H$$

Expected resource cost of political patronage

Resource Curse and Volatility (I)

- Total expected wealth :

$$Y = 2H + p_1 Z + \overline{p_2} Z - (1 + \Pi(L_P))L_P H$$

Expected resource cost of political patronage

⇨ Price volatility leads to a resource curse when political patronage increases

⇨ Moreover when average resource income $\overline{p_2} Z$ is large enough, Negative effect is stronger, the weaker the institutions (ie. $\Pi'_L \uparrow$)

Public Investment and Political Patronage (I)

- Extend the model to public investment/growth

- Curse not only through clientelistic policies but also through crowding out of public investments (infrastructures/education) (Caselli (2006), Caselli and Cuningham 2010).

- Productivity of private sector : $H_1 = H$; $H_2(I) = H + \delta I$
  $\delta > 0$

- Government can tax private sector at the tax rate $\tau > 0$

Public Investment and Political Patronage (II)

- Prb of reelection :

$$\Pi\left(L_P, I\right) = \min\left[\frac{1}{2} + h\left\{\frac{\gamma^A}{4}\left[\overline{G}^2 - \frac{1}{\left(\gamma^A\right)^2} - \sigma^2 Z^2\right] + \left[W - H_2(I)(1-\tau))\right]L_P\right\}; 1\right]$$

$+$ $-$

Rent depends negatively on I

$$\frac{\partial^2 \Pi}{\partial L_P \partial I} < 0$$

Public investment reduces the effectiveness of political clientelism

Political patronage increases the cost of public investment on re-election proba

Public Investment and Political Patronage (III)

- First period problem of the incumbent :

$$\max_{R_1^A, G_1, L_P, I} R_1^A - \gamma^A \frac{\left(\overline{G} - G_1\right)^2}{2}$$

$$+ \Pi\left(L_P, I\right)\left[\tau H_2(I)(1 - L_P) + \overline{p_2} Z - W L_P + \frac{1}{\gamma^A} - \overline{G} - \frac{\gamma^A \sigma^2}{2} Z^2\right]$$

$$+ (1 - \Pi\left(L_P, I\right))\left[-\frac{\gamma^A}{2}\left(\overline{G}\right)^2\right]$$

under the constraint : $G_1 + R_1^A = \tau H_1(1 - L_P) + p_1 Z - W L_P - I$

Public Investment and Political Patronage (III)

- First period problem of the incumbent :

$$\max_{R_1^A, G_1, L_P, I} R_1^A - \gamma^A \frac{\left(\overline{G} - G_1\right)^2}{2}$$

$$+ \Pi\left(L_P, I\right)\left[\tau H_2(I)(1 - L_P) + \overline{p_2} Z - W L_P + \frac{1}{\gamma^A} - \overline{G} - \frac{\gamma^A \sigma^2}{2} Z^2\right]$$

$$+ (1 - \Pi\left(L_P, I\right))\left[-\frac{\gamma^A}{2}\left(\overline{G}\right)^2\right]$$

under the constraint : $G_1 + R_1^A = \tau H_1(1 - L_P) + p_1 Z - W L_P - I$

Public Investment and Political Patronage (IV)

Marginal cost Marginal benefit

$$-(W+\tau H_1)-\Pi(W+\tau H_2)+\Pi_L'[V_{\text{power}}]=0 \quad \dashrightarrow \quad L_P(I)$$

$$-1+\Pi_I'[V_{\text{power}}]+\Pi\tau\delta(1-L_P)=0 \quad \dashrightarrow \quad I(L_P)$$

Marginal cost Marginal benefit

Where :

$$V_{\text{power}}=\tau H_2(1-L_P)+\overline{p_2}Z-WL_P+\frac{1}{\gamma^A}-\overline{G}-\frac{\gamma^A\sigma^2}{2}Z^2+\frac{\gamma^A}{2}\left(\overline{G}\right)^2$$

value to stay in power

Public Investment and Political Patronage (V)

- How is patronage affected by public investment ?

Marginal cost ⟷ Marginal benefit

$$-(W+\tau H_1)-\Pi(W+\tau H_2)+\Pi_L'[V_{\text{power}}]=0 \qquad L_P(I)$$

$I \uparrow$

Public Investment and Political Patronage (V)

- How is patronage affected by public investment ?

Marginal cost Marginal benefit

$$-(W+\tau H_1) - \Pi(W+\tau H_2) + \Pi'_L[V_{\text{power}}] = 0 \qquad L_P(I)$$

$I \uparrow$

$-$ $+$

$L_P \uparrow$ $L_P \downarrow$

Public Investment and Political Patronage (V)

- How is patronage affected by public investment ?

Marginal cost ⟷ Marginal benefit

$$-(W+\tau H_1) - \Pi(W+\tau H_2) + \Pi'_L[V_{\text{power}}] = 0$$

$I \uparrow$

-	+	-	+
$L_P \uparrow$	$L_P \downarrow$	$L_P \downarrow$	$L_P \uparrow$

- Large enough value of resource income $\overline{p_2}Z$ ⟹ $\boxed{L_P(I) \searrow}$
- Patronage and public investment are *strategic substitutes*

Public Investment and Political Patronage (VI)

- How is public investment affected by patronage ?

Marginal cost — Marginal benefit

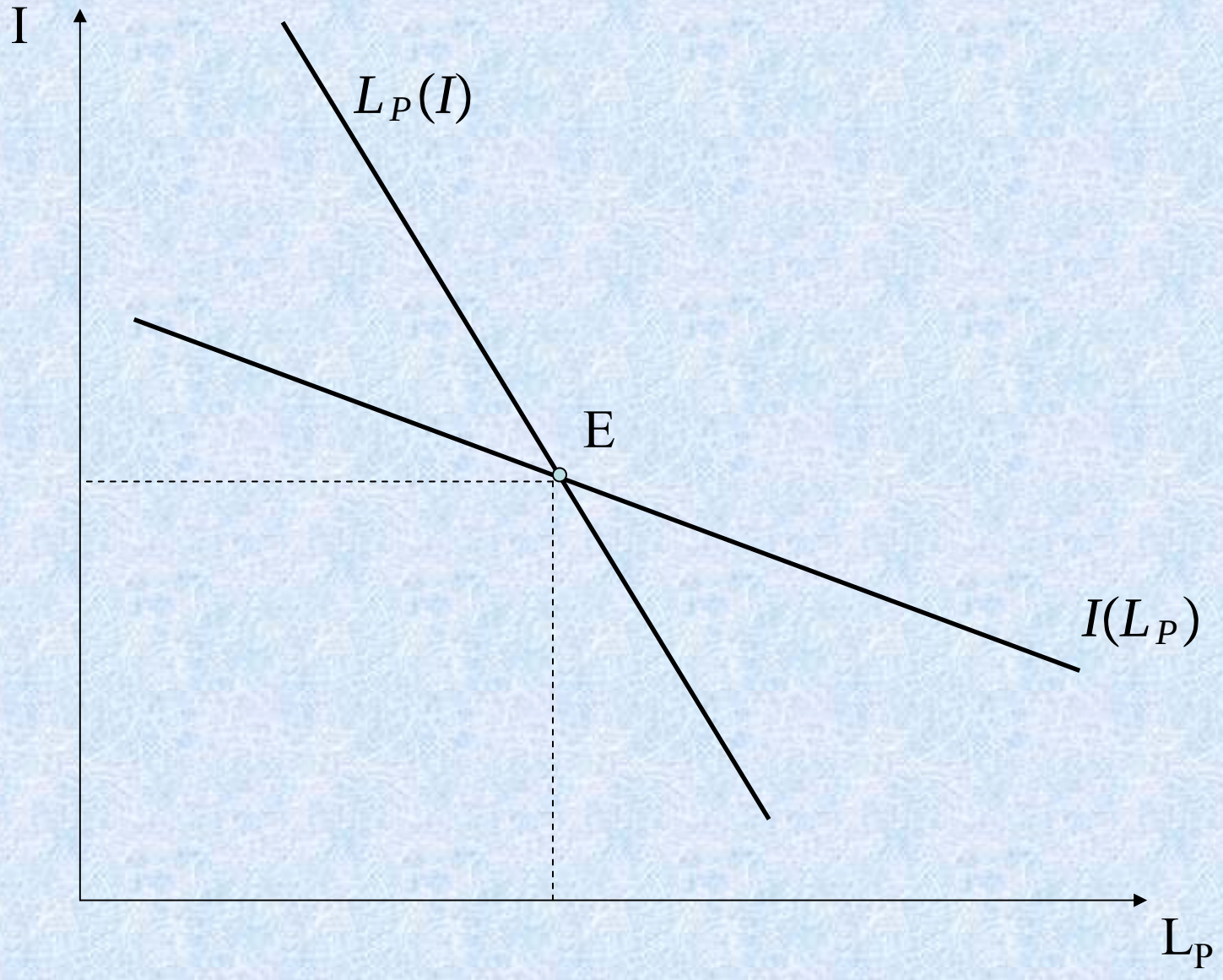
$$-1 + \Pi_I'[V_{\text{power}}] + \Pi\tau\delta(1 - L_P) = 0 \quad \dashrightarrow \quad I(L_P)$$

$L_P \uparrow$

-	+	+	-
I ↓	I ↑	I ↑	I ↓

- Large enough value of resource income $\overline{p_2}Z$ ⇨ $\boxed{I(L_P) \searrow}$

Public Investment and Political Patronage



Public Investment and Political Patronage (VII)

- Effect of price volatility : $\sigma^2 \nearrow$

Public Investment and Political Patronage (VII)

- Effect of price volatility : $\sigma^2 \nearrow$

  - Political patronage $L_P(I)$

1) Political turnover $\uparrow$ Expected cost of public jobs $\downarrow$ $L_P \uparrow$

2) Fiscal volatility $\uparrow$ Value to stay in power $\downarrow$ $L_P \downarrow$

Public Investment and Political Patronage (VII)

- Effect of price volatility : $\sigma^2 \nearrow$

  - Political patronage $L_P(I)$

    1) Political turnover $\uparrow$ Expected cost of public jobs $\downarrow$ $L_P \uparrow$

    2) Fiscal volatility $\uparrow$ Value to stay in power $\downarrow$ $L_P \downarrow$

  - Public investment $I(L_P)$

    1) Political turnover $\uparrow$ horizon for public Investment $\downarrow$ $I \downarrow$

    2) Fiscal volatility $\uparrow$ cost on expected gains to stay in power $\downarrow$ $I \uparrow$

Public Investment, Political patronage And the resource curse

- When public wage/sector not too large / politician not too risk averse

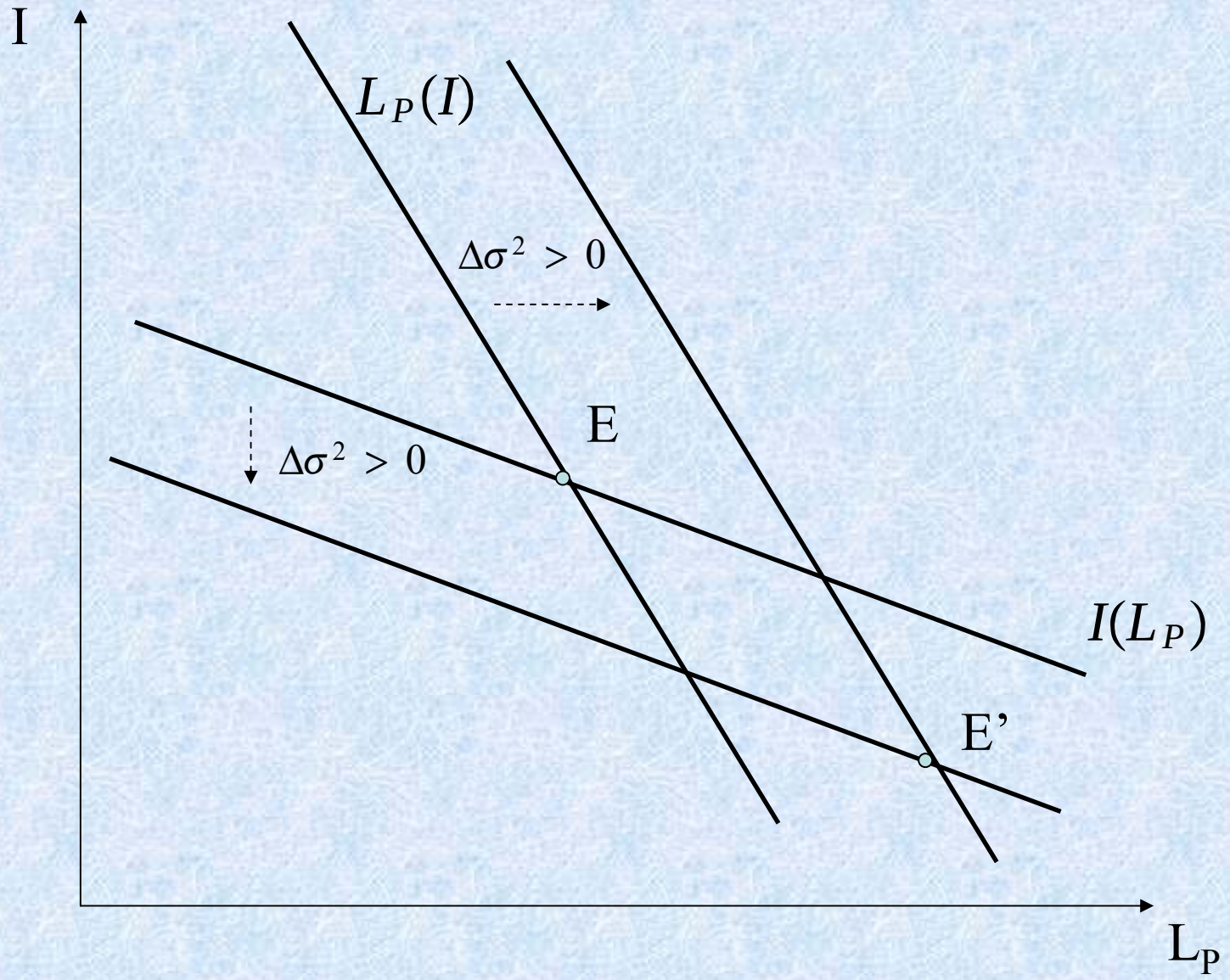
→ political turnover effect dominates

$I(L_P)$ decreases with price volatility

$L_P(I)$ increases with price volatility

- Volatility leads to resource curse :
  magnification effects of interaction between public investment and patronage

Public Investment, Political Patronage and Price Volatility



Rent extraction, Politics and Price volatility (I)

- Extension with rent extraction: $Z_1 = e \qquad Z_2 = R(e)$

  $R' < 0$ and $R'' < 0$

- No public investment I : $H_1 = H_2 = H$
- No taxation $\tau = 0$

Rent extraction, Politics and Price volatility (I)

- Extension with rent extraction: $Z_1 = e \qquad Z_2 = R(e)$

  $R' < 0$ and $R'' < 0$

- No public investment I : $H_1 = H_2 = H$
- No taxation $\tau = 0$
- Proba of incumbent's election:

$$\Pi(L_P, e) = \frac{1}{2} + h\left\{\frac{\gamma^A}{4}\left[\overline{G}^2 - \frac{1}{(\gamma^A)^2} - \sigma^2 R(e)^2\right] + [W - H]L_P\right\}$$

- Proba of reelection increases with extraction rate e :
  Utility cost for voters of type A of price volatility
  is reduced with lower stock of the resource in period 2.

Rent extraction, Politics and Price volatility (II)

- The effect of e on Π stronger when volatility parameter σ^2 larger :

$$\Pi''_{e\sigma^2} = -h\frac{\gamma A}{2}R(e)R'(e) > 0$$

Rent extraction, Politics and Price volatility (II)

- The effect of e on Π stronger when volatility parameter σ^2 larger : $\Pi''_{e\sigma^2} = -h\frac{\gamma^A}{2}R(e)R'(e) > 0$

- period 1 problem of incumbent:

$$\max_{R_1^A, G_1^A, L_P, e} R_1^A - \gamma^A \frac{\left(\overline{G} - G_1^A\right)^2}{2} + \Pi\left(L_P, e\right)\left[\overline{p_2}R(e) - WL_P + \frac{1}{2\gamma^A} - \overline{G} - \frac{\gamma^A\sigma^2}{2}R(e)^2\right]$$

$$+ (1 - \Pi(L_P, e)\left[-\frac{\gamma^A}{2}\left(\overline{G}\right)^2\right]$$

- Equilibrium extraction in case without patronage (ie. L_P=0) :

$$p_1 + \Pi\overline{p_2}R'(e) + \Pi_e(V_{\text{power}}(e, L_P)) - \Pi\gamma^A\sigma^2 R(e)R'(e) = 0$$

Rent extraction, Politics and Price volatility (II)

- The effect of e on Π stronger when volatility parameter σ^2 larger : $\Pi''_{e\sigma^2} = -h\frac{\gamma^A}{2}R(e)R'(e) > 0$

- period 1 problem of incumbent:

$$\max_{R_1^A, G_1^A, L_P, e} R_1^A - \gamma^A \frac{\left(\overline{G} - G_1^A\right)^2}{2} + \Pi\left(L_P, e\right)\left[\overline{p_2}R(e) - WL_P + \frac{1}{2\gamma^A} - \overline{G} - \frac{\gamma^A\sigma^2}{2}R(e)^2\right]$$

$$+ (1 - \Pi(L_P, e)\left[-\frac{\gamma^A}{2}\left(\overline{G}\right)^2\right]$$

- Equilibrium extraction in case without patronage (ie. L_P=0) :

$$\underbrace{p_1 + \Pi\overline{p_2}R'(e)}_{\text{Average price effects}} + \underbrace{\Pi_e(V_{\text{power}}(e, L_P))}_{\text{Political turnover effect}} - \underbrace{\Pi\gamma^A\sigma^2 R(e)R'(e)}_{\text{Fiscal volatility effect}} = 0$$

Rent extraction, Politics and Price Volatility (III)

- Comparative statics on extraction rate e:

$$\frac{\partial e^*}{\partial p_1} > 0$$

Rent extraction, Politics and Price Volatility (III)

- Comparative statics on extraction rate e:

$$\frac{\partial e^*}{\partial p_1} > 0$$

$$\frac{\partial e^*}{\partial \overline{p_2}} < 0$$ (when price volatility not too high)

Rent extraction, Politics and Price Volatility (III)

- Comparative statics on extraction rate e:

$$\frac{\partial e^*}{\partial p_1} > 0$$

$$\frac{\partial e^*}{\partial \overline{p_2}} < 0$$ (when price volatility not too high)

- Effect of σ^2 :

$$p_1 + \Pi \overline{p_2} R'(e) + \Pi_e (V_{\text{power}}(e, L_P)) - \Pi \gamma^A \sigma^2 R(e) R'(e) = 0$$

Rent extraction, Politics and Price Volatility (III)

- Comparative statics on extraction rate e:

$$\frac{\partial e^*}{\partial p_1} > 0$$

$$\frac{\partial e^*}{\partial \overline{p_2}} < 0$$ (when price volatility not too high)

- Effect of σ^2 :

$$p_1 + \Pi\overline{p_2}R'(e) + \Pi_e(V_{\text{power}}(e, L_P)) - \Pi\gamma^A\sigma^2 R(e)R'(e) = 0$$

1) Increased political myopia ⇢ e^* ↑

Rent extraction, Politics and Price Volatility (III)

- Comparative statics on extraction rate e:

$$\frac{\partial e^*}{\partial p_1} > 0$$

$$\frac{\partial e^*}{\partial \overline{p_2}} < 0$$ (when price volatility not too high)

- Effect of σ^2 :

$$p_1 + \Pi\overline{p_2}R'(e) + \Pi_e(V_{\text{power}}(e, L_P)) - \Pi\gamma^A\sigma^2 R(e)R'(e) = 0$$

2) Increased political turnover effect → e^* ↑

Rent extraction, Politics and Price Volatility (III)

- Comparative statics on extraction rate e:

$$\frac{\partial e^*}{\partial p_1} > 0$$

$$\frac{\partial e^*}{\partial \overline{p_2}} < 0$$ (when price volatility not too high)

- Effect of σ^2 :

$$p_1 + \Pi\overline{p_2}R'(e) + \Pi_e(V_{\text{power}}(e, L_P)) - \Pi\gamma^A\sigma^2 R(e)R'(e) = 0$$

3) Reduced value to stay in power → e^* ↓

Rent extraction, Politics and Price Volatility (III)

- Comparative statics on extraction rate e:

$$\frac{\partial e^*}{\partial p_1} > 0$$

$$\frac{\partial e^*}{\partial \overline{p_2}} < 0$$ (when price volatility not too high)

- Effect of σ^2 :

$$p_1 + \Pi\overline{p_2}R'(e) + \Pi_e(V_{\text{power}}(e, L_P)) - \Pi\gamma^A\sigma^2 R(e)R'(e) = 0$$

4) Increased fiscal volatility effect → e^* ↑

Rent extraction, Politics and Price Volatility (III)

- Comparative statics on extraction rate e:

$$\frac{\partial e^*}{\partial p_1} > 0$$

$$\frac{\partial e^*}{\partial \overline{p_2}} < 0$$ (when price volatility not too high)

- Effect of σ^2 :

$$p_1 + \Pi \overline{p_2} R'(e) + \Pi_e (V_{\text{power}}(e, L_P)) - \Pi \gamma^A \sigma^2 R(e) R'(e) = 0$$

1) Increased political myopia +

2) Increased political turnover effect +

3) Reduced value to stay in power -

4) Increased fiscal volatility effect +

Price volatility not too strong ⇨ $e^* \nearrow$

Rent extraction, Politics and Price Volatility (IV)

- More agressive extraction in context of price volatility

Van der Ploeg (2010) : social planner's context /
modified optimal Hotelling rule
Social optimum extraction path brought
forward by future price volatility

Rent extraction, Politics and Price Volatility (IV)

- More agressive extraction in context of price volatility

Van der Ploeg (2010) : social planner's context /
modified optimal Hotelling rule
Social optimum extraction path brought
forward by future price volatility

- Here social utilitarian optimum :

$$\max S = X_1 + \frac{1}{2}u^A(C_1^A, G_1^A) + \frac{1}{2}u^B(C_1^B)$$
$$+ E\left[X_2 + \frac{1}{2}u^A(C_2^A, G_2^A) + \frac{1}{2}u^B(C_2^B)\right]$$

$$X_1 + G_1^A = p_1 e \qquad X_2 + G_2^A = p_2 R(e)$$

$$p_1 + \overline{p_2}R'(e) - \frac{\gamma^A}{2}\sigma^2 R(e)R'(e) = 0$$

Optimum extraction brought forward by price volatility

Rent extraction, Politics and Price Volatility (V)

$$p_1 + \overline{p_2}R'(e) - \frac{\gamma^A}{2}\sigma^2 R(e)R'(e) = 0 \qquad \text{(social optimum)}$$

$$p_1 + \Pi\overline{p_2}R'(e) + \Pi_e(V_{\text{power}}(e, L_P)) - \Pi\gamma^A\sigma^2 R(e)R'(e) = 0 \qquad \text{(political eq.)}$$

Rent extraction, Politics and Price Volatility (V)

$$p_1 + \overline{p_2}R'(e) - \frac{\gamma^A}{2}\sigma^2 R(e)R'(e) = 0 \qquad \text{(social optimum)}$$

$$p_1 + \Pi\overline{p_2}R'(e) + \Pi_e(V_{\text{power}}(e, L_P)) - \Pi\gamma^A\sigma^2 R(e)R'(e) = 0 \qquad \text{(political eq.)}$$

Political turnover effect

Fiscal volatility effect

Rent extraction, Politics and Price Volatility (V)

$$p_1 + \overline{p_2}R'(e) - \frac{\gamma^A}{2}\sigma^2 R(e)R'(e) = 0 \qquad \text{(social optimum)}$$

$$p_1 + \Pi\overline{p_2}R'(e) + \Pi_e(V_{\text{power}}(e, L_P)) - \Pi\gamma^A\sigma^2 R(e)R'(e) = 0 \qquad \text{(political eq.)}$$

Political turnover effect

Fiscal volatility effect

Over extraction of the resource under price volatility
Inefficiency likely to increase with σ^2

Expected total wealth : $Y = 2H + p_1 e + \overline{p_2}R(e)$

Resource curse associated to higher σ^2

Rent extraction, Politics and Price Volatility (VI)

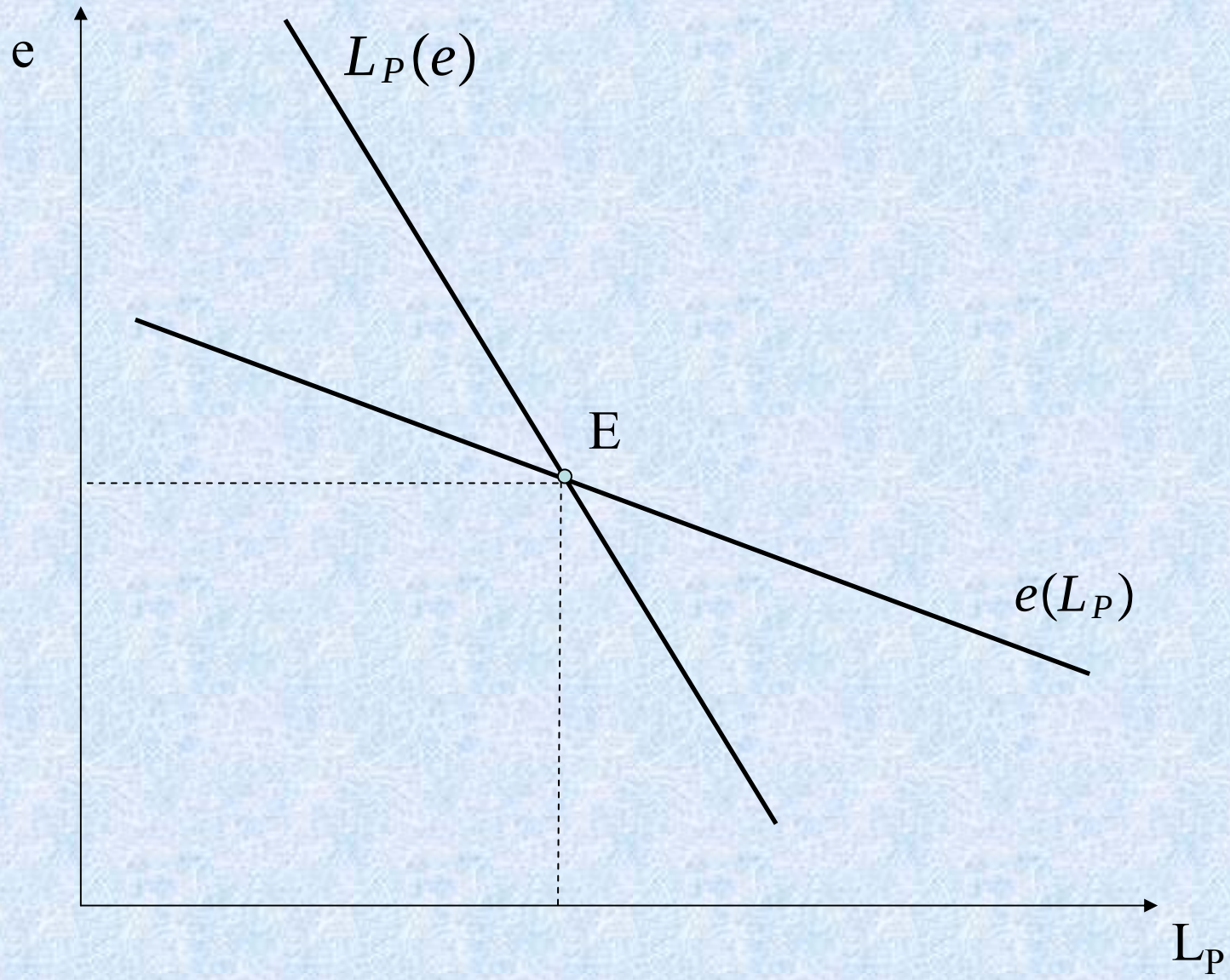
- Analysis can be extended to positive political patronage (ie. $L_P > 0$)

$$-(1+\Pi)W + \Pi'_L[V_{\text{power}}] = 0 \quad \dashrightarrow \quad L_P(e)$$

$$p_1 + \Pi_e[V_{\text{power}}] + \Pi[\overline{p_2} - \gamma^A \sigma^2 R(e)]R'(e) = 0 \quad \dashrightarrow \quad e(L_P)$$

With: $V_{\text{power}} = \overline{p_2}R(e) - WL_P + \frac{1}{2\gamma^A} - \overline{G} - \frac{\gamma^A\sigma^2}{2}R(e)^2 + \frac{\gamma^A}{2}\overline{G}$

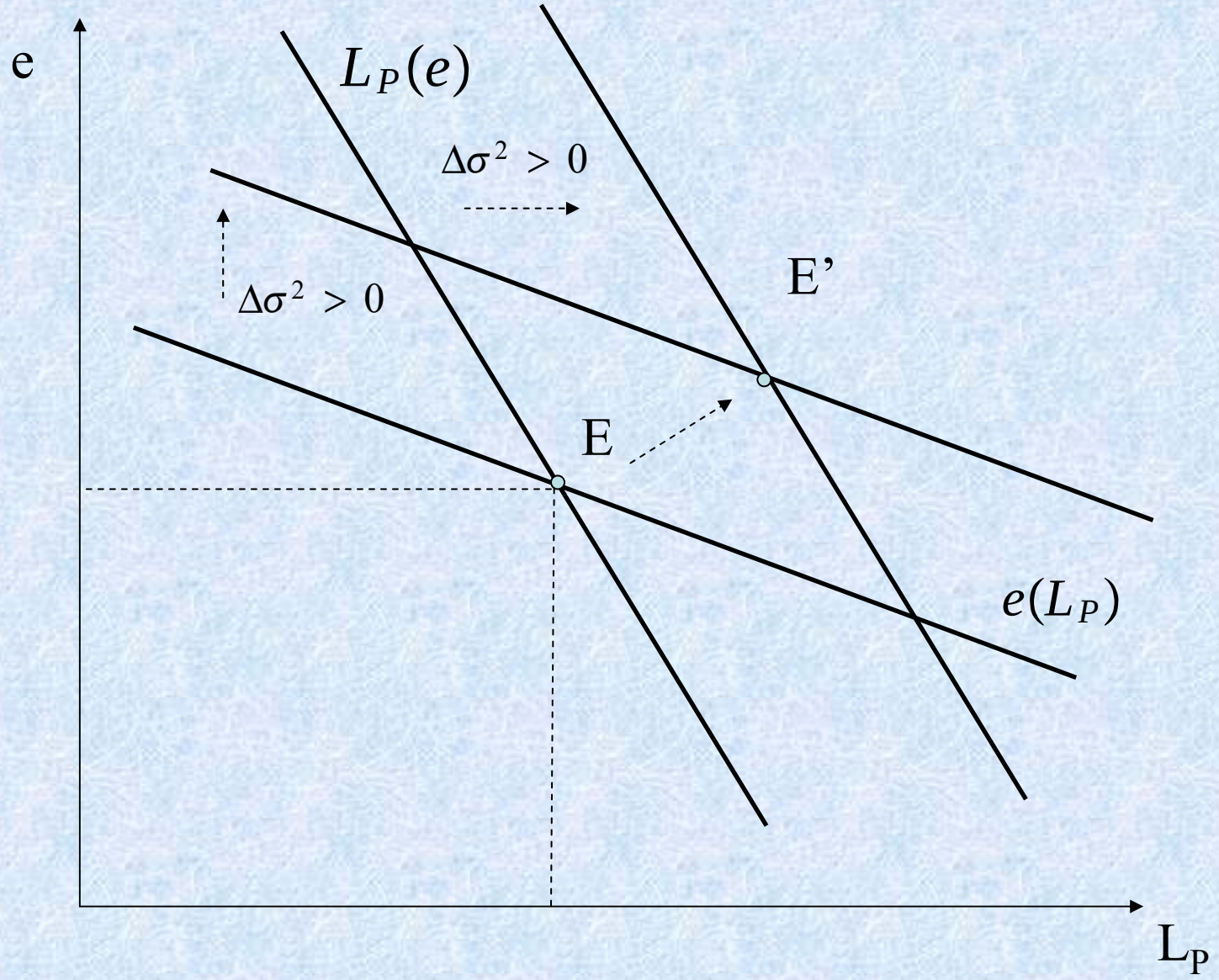
Rent extraction, Politics and Price Volatility



Rent extraction, Politics and Price Volatility (VI)

- Effect of volatility: $L_P(e)$ / $e(L_P)$ shifted up with σ^2

Rent extraction, Politics and Price Volatility



Rent extraction, Politics and Price Volatility (VII)

- Effect of volatility: $L_P(e)$ / $e(L_P)$ shifted up with σ^2

- At least one of the two policy variables: e^* ; L^*_P $\nearrow$ with price volatility

- Negative impact of price/fiscal volatility on income when both variables increase :
  - over extraction / inefficient public employment

Conclusions (I)

- Political-economy models of the resource curse :
  How political incentives interact with price shocks/volatility

- Incumbent's asymmetric capacity:
- Clientelism: inefficient redistribution through public jobs
  tool for influencing people's political behavior.

- Resource booms create underdevelopment
  not because of inefficiency in rate of resource extraction
  But because of political redistribution of the rents.

Conclusions (I)

- Political-economy models of the resource curse :
  How political incentives interact with price shocks/volatility

- Incumbent's asymmetric capacity:
- Clientelism: inefficient redistribution through public jobs
  tool for influencing people's political behavior.

- Resource booms create underdevelopment
  not because of inefficiency in rate of resource extraction
  But because of political redistribution of the rents.

- Resource volatility → Public policy volatility
  voters' perceptions
  political turnover → Incumbent's
  Public policies
  ↓
  Resource allocation
  Redistribution

Conclusions (II)

- Limited public instruments : risk shifting to voters
- Asymmetric effects on constituencies between incumbent/challenger

Conclusions (II)

- Limited public instruments : risk shifting to voters
- Asymmetric effects on constituencies between incumbent/challenger

volatility ⇨ « bad » incumbent's policies
political channel for volatility curse

Conclusions (II)

- Limited public instruments : risk shifting to voters
- Asymmetric effects on constituencies between incumbent/challenger

volatility ⇨ « bad » incumbent's policies
political channel for volatility curse

• Extensions: - The role of Liquidity constraints/ Financial frictions
- Debt policy
- Other public policies
- Nontraded\ traded goods: « Political » Dutch disease ?