Post-Keynesian Perspectives on Open Economy Macroeconomics

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Theme:
Conflict and cooperation in international trade

The orthodox view of international trade

- In neoclassical economics, international trade is generally **cooperative**
  - All countries gain by specializing according to comparative advantage
  - With the caveat of possible domestic redistributive effects
    - Stolper-Samuelson Theorem: Owners of the "scarce" factor lose from free trade
    - There are still net efficiency gains
- This optimistic view rests on several **key assumptions**, including:
  - Constant returns to scale
  - Full employment
  - Perfect competition
  - Exogenously given "factor endowments" and technology)
  - Trade is barter (always balanced, money and finance don't matter)

The post-Keynesian alternative

- **Post-Keynesians reject those five assumptions**
  - In the real world, we find increasing returns to scale, involuntary unemployment, imbalanced trade, and oligopoly/monopoly power
    - Accumulation of capital and technological change are endogenous
  - Competitive advantages are created, not "endowed"
  - Trade inherently involves monetary and financial relations
  - ➢ The macroeconomic and developmental aspects of trade cannot be ignored
- Trade relations can be **conflictive** as well as cooperative
  - Robinson (1947) on the "beggar-thy-neighbour" character of trade policies and currency devaluations
  - Kaldor (1970) on cumulative causation and unequal "regional" growth
- To analyze this, we need to turn to the macro side →

Plan of presentation

1. **Short run**
   - Neo-Kaleckian open economy models and empirical estimates
   - Focuses on competitive advantages in unit labor costs (ULC)
     - International competition affects whether demand is wage-led or profit-led

2. **Medium run**
   - Export-led growth with cumulative causation
     - Kaldor-Verdoorn law; Dixon-Thirlwall/Setterfield-Cornwall model
   - Virtuous or vicious cycles, convergence vs. divergence, path dependency

3. **Long run**
   - Balance-of-payments-constrained growth (BPCG, or "Thirlwall's law")
     - Extensions: two large countries, structural change, relative price (RER) effects
   - Sceptical views

Similar to the three time periods in Riberio et al. (2017a)

1. Short Run

International competition in neo-Kaleckian models

Wage-led versus profit-led demand in an open economy (simple overview)

- International competitive effects help to determine whether a country has wage-led or profit-led demand (Lavoie & Stockhammer 2013)
  - Where π is the profit share and $\psi = 1 - \pi$ is the wage share

- We expect that a rise in π will have the following **direct** effects on aggregate demand:

$$AD = \text{Consumption} + \text{Investment} + \text{Govt Purch} + \text{Net Exports}$$
$$\quad - \qquad\qquad + \qquad\qquad 0\ ? \qquad\qquad +$$

  - A stronger negative effect of higher labor costs on net exports and a higher share of trade in output increase the likelihood that demand is profit-led ($\partial AD/\partial \pi > 0$)
  - Also FDI and GVCs can make investment inversely related to labor costs

Results from Onaran and Galanis (ILO, 2012)

| | C/Y | I/Y | NX/Y | Total direct effect on Private excess demand/Y |
	A	B	C	(A+B+C)
Euro area-12	-0.439	0.299	0.057	-0.084
Germany	-0.501	0.376	0.096	-0.029
France	-0.305	0.088	0.198	-0.020
Italy	-0.356	0.130	0.126	-0.100
United Kingdom	-0.303	0.120	0.158	-0.025
United States	-0.426	0.000	0.037	-0.388
Japan	-0.353	0.284	0.055	-0.014
Canada	-0.326	0.182	0.266	0.122
Australia	-0.256	0.174	0.272	0.190
Turkey	-0.491	0.000	0.283	-0.208
Mexico	-0.438	0.153	0.381	0.096
Korea	-0.422	0.000	0.359	-0.063
Argentina	-0.153	0.015	0.192	0.054
China	-0.412	0.000	1.986	1.574
India	-0.291	0.000	0.310	0.018
South Africa	-0.145	0.129	0.506	0.490

- These are effects of a 1 pct. pt. rise in the profit share π
- Totals do not include multiplier effects (typo corrected)
- 0.000 indicates insignificant
- Effects on investment are often small or insignificant
- All economies are domestically wage-led: $\partial(C + I)/\partial\pi < 0$
- **Usually *NX* makes the difference**
- Smaller and more open economies tend to be more profit-led

Implications

- Countries with profit-led demand due to net export effects can gain by devaluing their currency or repressing wages (relative to productivity)
    - The same types of countries would be adversely impacted if their currencies appreciate or (relative) unit labor costs rise
    - Thus gains (in output and employment) for some countries can come at the expense of other countries
        - Similar to Robinson's "beggar-thy-neighbour" analysis of a devaluation, but with the added twist that it requires total private demand to be profit-led

- With wage-led demand, the competitive gains from a devaluation or wage cut are not sufficient to outweigh the negative effects on aggregate output
    - But the composition of output between tradable and nontradables goods and services can still be affected (with medium/long-run implications)

It's more complicated

- Overall (total) effects should include dynamic interactions between C, I, and NX that are not captured by separate estimation of "single equations"
  - So "adding up" the effects may not be accurate

- Income distribution is endogenous
  - Wage and profit shares may respond to changes in $Y = AD$ and employment
  - So π (or ψ) is not exogenous

- Net exports (NX) are affected differently by different sources of variation in income distribution (Blecker, 1989, 1999)
  - A rise in relative unit labor costs (ULC) or currency appreciation decreases π and lowers NX
  - A fall in monopoly power decreases π but raises NX
  - *Therefore demand may be **either** wage-led **or** profit-led in response to different shocks*

Results from Blecker, Cauvel, and Kim (2022)

Table 1. *Marginal effects of one standard deviation shocks to monopoly power and unit labour costs on the wage share (in percentage points) and private aggregate demand (as percentage of GDP)*

Data are for the US economy. Models 1 and 2 use alternative proxies for monopoly power.

		Model 1			Model 2		
		Wage share	Private demand		Wage share	Private demand	
			All effects	Significant only		All effects	Significant only
Fall in monopoly power, μ	OLS	0.86***	0.66*	0.50***	2.62***	1.14	0.00
	GMM	0.86***	0.79***	0.90***	2.33***	1.66**	0.90**
Rise in *ULC*, 1963–1981	OLS	−0.57	−2.08***	−1.80***	−2.11	−2.72**	−1.67***
	GMM	−0.35	−1.72***	−1.45***	−1.73	−2.66***	−1.08***
Rise in *ULC*, 1982–2016	OLS	3.68***	−0.80	−1.24*	8.54***	1.29	0.28
	GMM	3.66***	0.60	1.14	8.58***	4.15	2.16*

Source: Authors' calculations. Significance levels: *** 1%, ** 5%, * 10%.

Interpreting the results (GMM estimates)

- US private demand was wage-led in response to shocks to monopoly power of firms for the whole sample period, 1963-2016

  - Increased monopoly power reduced the wage share after 1980s

- For shocks to ULC (relative to foreign prices), results varied by subperiod:

  - Demand was strongly profit-led in response to ULC shocks in 1963-1981

  - It was weakly (insignificantly or 10% level) wage-led in response to ULC shocks in 1982-2016

- *Before* 1982, the US was a *relatively* closed economy

  - Oligopolistic firms could fully pass through increases in ULC into prices, but this hurt external competitiveness

- *Since* 1982, the US is a more open economy

  - Pass-through of ULC increases is partial and squeezes profit margins

    - In reality, wages have lagged behind productivity so ULC increased slowly resulting in a rising profit share, which (along with a mostly strong dollar) lessened competitive gains

Summary on short run

- International conflict is most intense for countries that have profit-led demand overall due to strong negative effects of ULC on Inv. and NX
  - Gains in market shares, output, and employment for some countries come at the expense of losses for others
    - For example, China vs. Mexico around 2001-2007
    - Or USA and UK vs. West Germany, Japan, South Korea, etc. in 1960s–70s
- Such conflict is partially mitigated if overall demand remains wage-led
  - Still, international competition affects net exports, with consequences for the *composition* of domestic industries (e.g., USA vs. China, early 2000s)
  - Import-competing sectors decline, export industries grow slowly, if a country is less competitive (opposite for a more competitive economy)
  - These compositional effects can have medium-run and long-run implications (next)
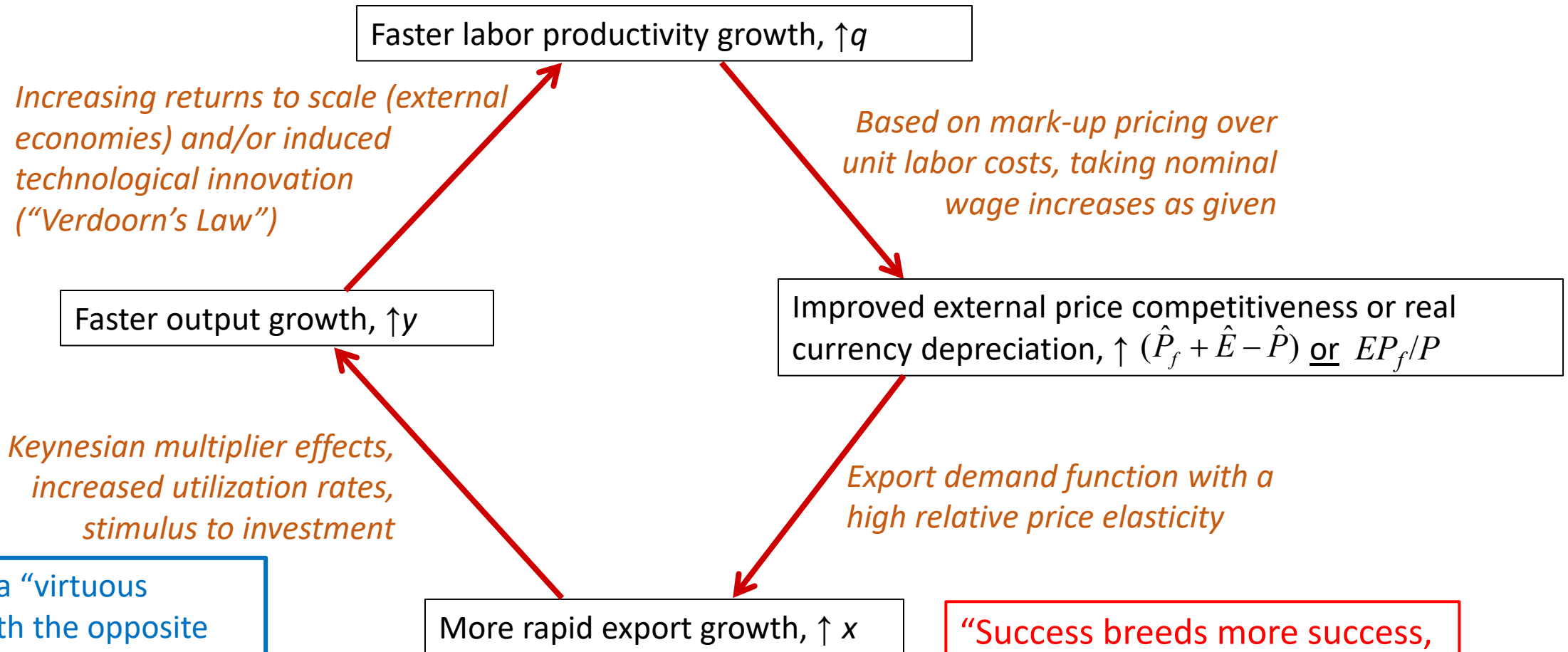
2. Medium Run

Cumulative causation and unequal growth in neo-Kaldorian models

Nicholas Kaldor on increasing returns and uneven development

- Kaldor (1966): growth of manufactures is key to overall growth and is characterized by increasing returns to scale (IRS)
  - Both static and dynamic IRS, including induced innovation
    - Cites Adam Smith, Allyn Young, Kenneth Arrow, P.J. Verdoorn
  - Reallocation of labor from agriculture to manufactures raises average productivity and boosts aggregate growth
- Kaldor (1970): invokes Myrdal's (1957) idea of "cumulative causation"
  - Positive feedbacks make success (or failure) self-reinforcing, implying:
  - "the region that is initially more developed industrially may gain from the progressive opening of trade *at the expense of* the less developed region...." (emphasis added)
  - "trade may *injure* one region to the greater benefit of the other"
    - "Regions" may be countries, country groups, or geographic areas within a single country

Export-Led Growth with Cumulative Causation

(inspired by Dixon & Thirlwall 1975; Cornwall 1977; Setterfield & Cornwall 2002)

Faster labor productivity growth, $\uparrow q$

Increasing returns to scale (external economies) and/or induced technological innovation ("Verdoorn's Law")

Based on mark-up pricing over unit labor costs, taking nominal wage increases as given

Faster output growth, $\uparrow y$

Improved external price competitiveness or real currency depreciation, $\uparrow (\hat{P}_f + \hat{E} - \hat{P})$ <u>or</u> EP_f/P

Keynesian multiplier effects, increased utilization rates, stimulus to investment

Export demand function with a high relative price elasticity

More rapid export growth, $\uparrow x$

This shows a "virtuous circle"— with the opposite changes ($\downarrow$), it becomes a "vicious circle."

"Success breeds more success, failure breeds more failure"

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A note on notation

Growth rates of **quantity** variables are in <u>lower case</u>:

- Thus x is the growth rate of exports (X), y is the growth rate of income or output (Y), etc.

Rates of change in **nominal** variables (prices, wages, exchange rates) are indicated by <u>"hats" or circumflexes</u>:

- Thus $\hat{P}$ is the inflation rate (rate of change in the price level P),
    - $\hat{E}$ is the rate of nominal currency depreciation (rate of change in the exchange rate E, defined as home currency/foreign currency), etc.

A subscript f indicates a foreign variable

Math for export-led cumulative causation (ELCC) model
(Dixon & Thirlwall, 1975; Setterfield & Cornwall, 2002)*

Reminder: lower-case Roman letters are quantities in growth rate form.

1) Export demand: $x = \varepsilon_X(\hat{P}_f - \hat{P}) + \eta_X y_f$

Assuming $\hat{E} = 0$ or E is constant

Export growth depends positively on changes in relative foreign prices and foreign income growth

2) Mark-up pricing: $\hat{P} = \hat{W} - q$

Price inflation = wage inflation – labor productivity growth (assuming the markup rate does not change in the long run)

3) Verdoorn's Law: $q = q_0 + \rho y$

Supposed to reflect external economies of scale and/or endogenous technical progress

Labor productivity growth is an increasing function of output growth (dynamic increasing returns)

4) Output growth: $y = k_X(\omega_X x + \omega_A g_A)$

Note: The original version omits the $\omega_A g_A$ term, so $\omega_X = 1$.

Where k_X is the Keynesian multiplier, g_A is the growth rate of exogenous domestic demand, and the ω's are weights reflecting the export and domestic shares of autonomous demand

NOTES:.
*Based on presentations in Blecker & Setterfield (2019, chap. 8), Blecker (2013), Setterfield (2013).

Solving the models: parallel equations for the "foreign" country (rest-of-world)

Assuming a similarly-specified model for the "foreign" country:

- Markup pricing (with a constant markup):

$$\hat{P}_f = \hat{W}_f - q_f$$

- Verdoorn's Law:

$$q_f = q_0 + \rho_f y_f$$

- Some simplifying assumptions (factors assumed to be equal across countries):

$$\hat{W} = \hat{W}_f, \quad q_0 = q_{f,0}$$

➤ Note: this is one way to "close" the model, with some symmetry
  - The countries still differ in the Verdoorn coefficients ρ and elasticities ε, η

ELCC model solution

- For the "home" country, the model boils down to 2 equations in 2 endogenous variables, q and y:

The Verdoorn equation or
"Productivity Regime" (PR): $\quad q = q_0 + \rho y$
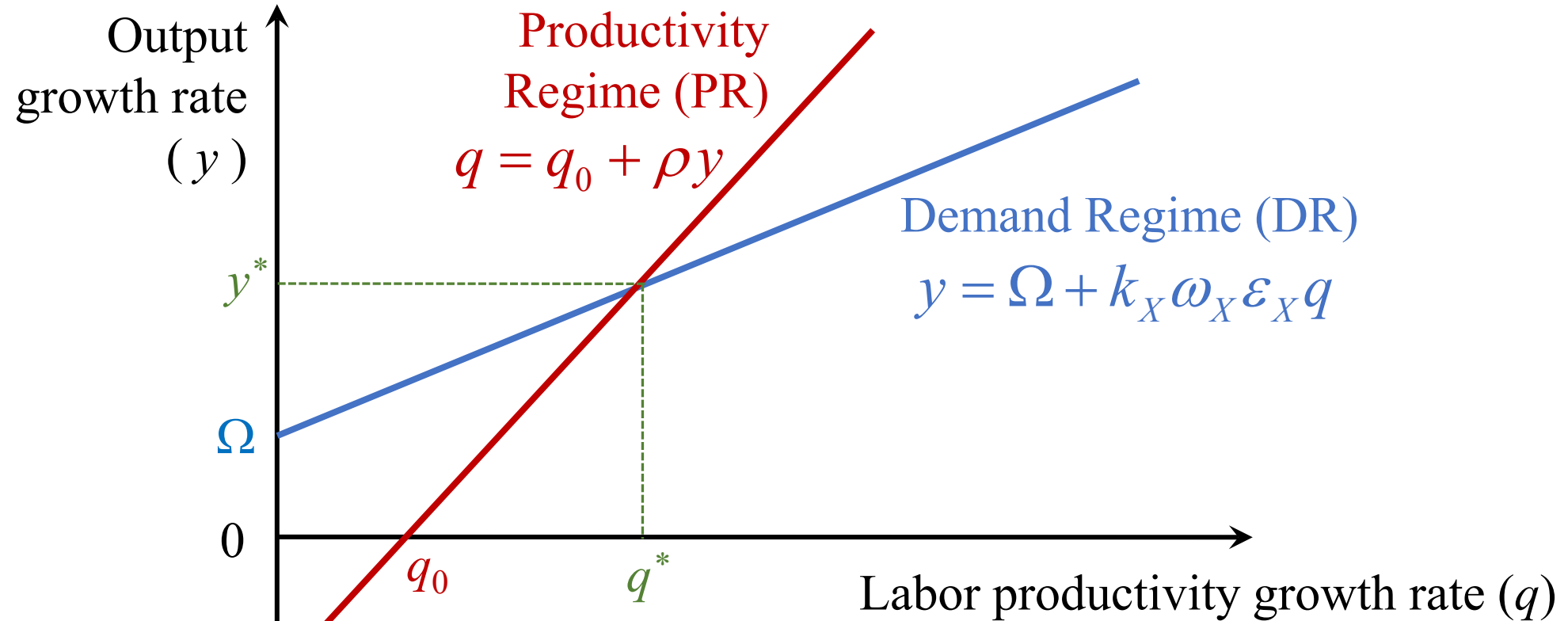
The other 3 equations solve for the
"Demand Regime" (DR): $\quad y = \Omega + k_X \omega_X \varepsilon_X q$

with intercept $\quad \Omega = k_X \left(\omega_A g_A + \omega_X [(\eta_X - \rho_f \varepsilon_X) y_f - \varepsilon_X q_0] \right)$

Equilibrium solution: $\quad y^* = \dfrac{\Omega + k_X \omega_x \varepsilon_x q_0}{1 - \rho k_X \omega_x \varepsilon_x}$

Graphical Solution of ELCC Model

Output growth rate (y)

Productivity Regime (PR)

$$q = q_0 + \rho y$$

Demand Regime (DR)

$$y = \Omega + k_X \omega_X \varepsilon_X q$$

y^*

Ω

0

$-q_0/\rho$

q_0

q^*

Labor productivity growth rate (q)

There is a *stable equilibrium* as long as the slopes are as shown, which requires

$$1/\rho > k_X \omega_X \varepsilon_X \qquad \text{or} \qquad \rho k_X \omega_X \varepsilon_X < 1$$

*in other words, **not too much** cumulative causation!*

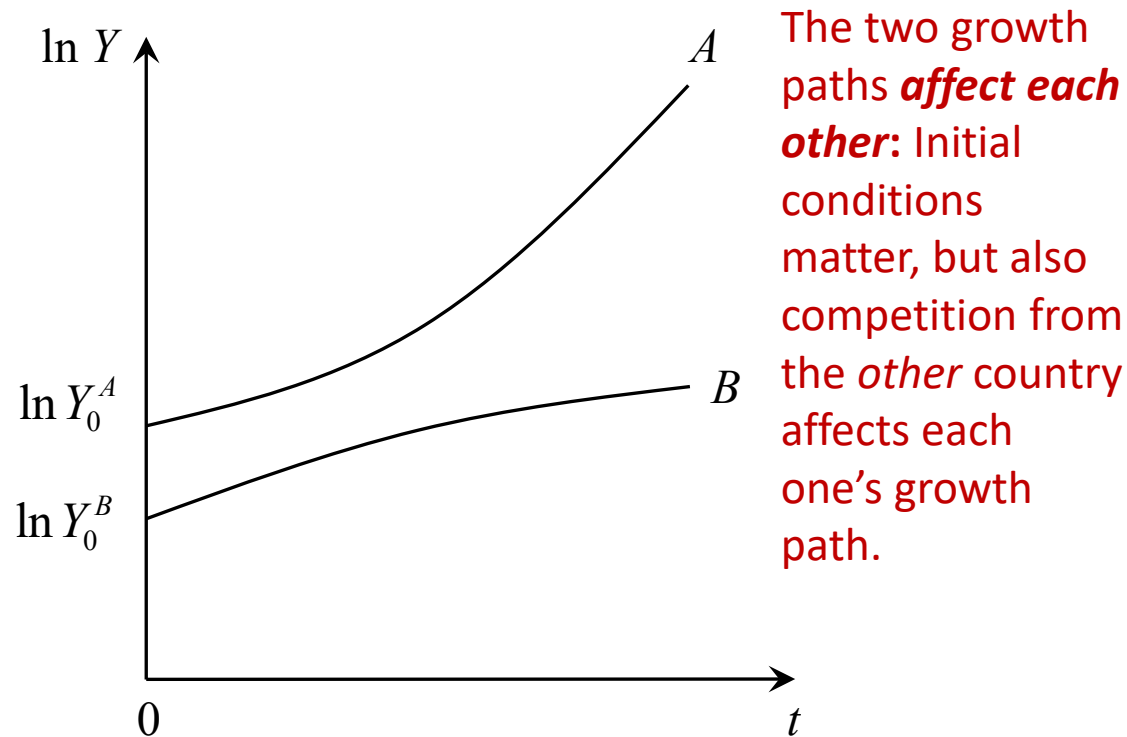# Conflict and cooperation in the export-led growth model

- Greater *foreign* technological dynamism (stronger foreign Verdoorn effects) *lowers* the *home* country's growth rate by slowing its export growth
  - Thus *one country's faster growth of productivity comes at the expense of another country's slower growth*
  - Formally, this a negative effect on the intercept Ω in the DR equation (red circled term):

$$\Omega = k_X \left(\omega_A g_A + \omega_X [(\eta_X - \rho_f \varepsilon_X) y_f - \varepsilon_X q_0] \right)$$

    - where q_0 here is actually foreign $q_{f,0}$

- But there is also room for international cooperation via expansionary Keynesian demand policies that raise y_f, assuming $\eta_X > \rho_f \varepsilon_X$ (green circled terms)
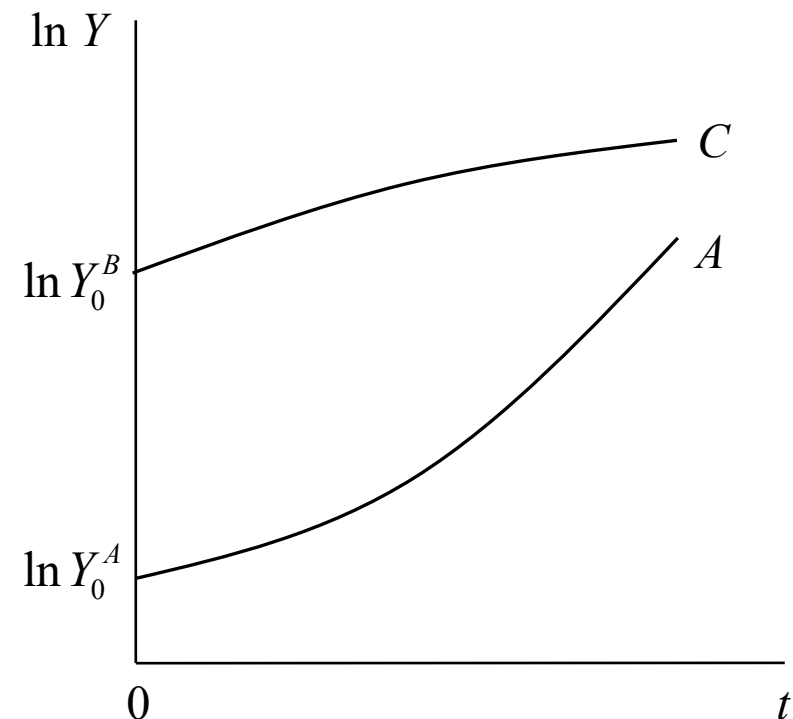
International divergence (or convergence)

If country *A* starts out ahead, it will increase the proportional gap with *B* (**divergence**)

If *A* starts out behind, it will close the gap with *C* (**convergence** or **catch-up**)

The two growth paths **affect each other**: Initial conditions matter, but also competition from the *other* country affects each one's growth path.

East Asia (*A*) relative to Latin America (*B*)

East Asia (*A*) relative to USA and Western Europe (*C*)

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Important qualifications

- This is an aggregative model, but the positive feedbacks are mostly limited to manufactures, a few other industries, and modern services (IT etc.)
  - Disaggregating the model and incorporating structural change are needed extensions
- Kaldor (1970) originally spoke of the *more advanced* economies having increasing competitive advantages
  - But it's really the *fast-growing* economies that attain such cumulative advantages (as he recognized in Kaldor, 1981)
- With more than two countries, there can be several "winners"
  - A number of countries with different specializations can all benefit
  - The gains will still be concentrated
  - Other countries will grow more slowly or deindustrialize

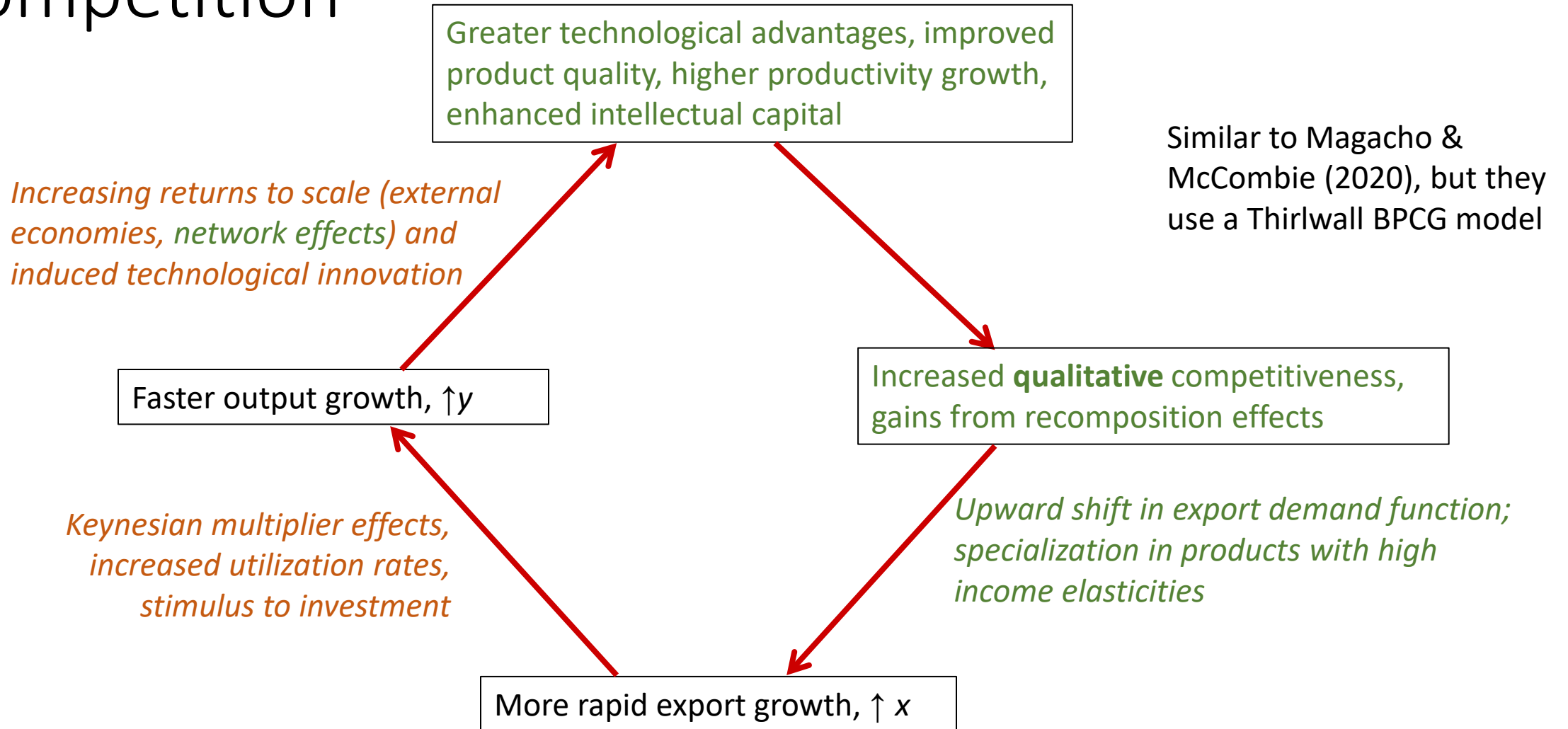# "Provisional" or "conditional" equilibria

- The "equilibrium" of this model is **not** a long-run steady-state
  - Full employment and balanced trade are not guaranteed
  - Economies are normally in a "traverse" (transition) *toward* such a position
    - A country may never reach the model's equilibrium before the underlying conditions change (Setterfield 2002)
- Equilibria are subject to path-dependent shifts (Setterfield, 2013)
  - A particular growth regime (DR + PR) can generate *endogenous* changes in the underlying conditions that in turn alter the model's equilibrium
  - Exhaustion of a technological paradigm, strengthening (or weakening) of labor vs. capital, adjustments in wages or exchange rates, technological diffusion, etc.

Sympathetic critiques and extensions

- Too many positive self-reinforcing effects
  - Wage increases, currency appreciation, or spillovers of technology to other countries can eventually limit or reverse the gains (Blecker, 2013)
  - Previously less developed countries can leverage initially low labor costs combined with imported or improving technology to launch export-led growth drives
    - These countries can achieve cumulative gains and catch up with or even displace former leaders

- Qualitative vs. price competition
  - For many products, competitive advantages are based on product quality, technological superiority, branding, etc. rather than lower costs
    - Now augmented by monopolies over intangible assets, intellectual propertyk and network effects – Durand & Milberg (2020)
  - This is **not** an either/or; **both** kinds of competition exist but for different types of goods and services (Caglayan & Demir, 2019; Pariboni & Paternesi Meloni, 2022; Blecker, 2023)

Cumulative causation with non-price competition

Greater technological advantages, improved product quality, higher productivity growth, enhanced intellectual capital

Similar to Magacho & McCombie (2020), but they use a Thirlwall BPCG model

Increasing returns to scale (external economies, network effects) and induced technological innovation

Faster output growth, ↑y

Increased **qualitative** competitiveness, gains from recomposition effects

Keynesian multiplier effects, increased utilization rates, stimulus to investment

Upward shift in export demand function; specialization in products with high income elasticities

More rapid export growth, ↑ x

3. Long run

Balance-of-payments-constrained growth (BPCG) and extensions

Alternative heterodox views of long-run analysis

- Skeptical views
  - Kalecki (1971): "the long-run trend is but a slowly changing component of a chain of short-period situations; it has no independent entity"
  - Kaldor (1972): increasing returns and endogenous innovate imply path dependency
    - "the actual state of the economy during any one 'period' cannot be predicted except as a result of the sequence of events in previous periods which led up to it"

- More positive views
  - Sraffian supermultiplier model emphasizes a long-run steady-state (strong attractor) driven by growth of "autonomous demand" (Serrano, 1995; Freitas & Serrano, 2015)
    - Independent of income and non-capacity-creating
  - Open economy version: growth is export-led *and* balance-of-payments-constrained in the long run (Thirlwall, 1979)

The balance-of-payments-constrained growth (BPCG) model: basic version

- Originated by Thirlwall (1979), Thirlwall & Dixon (1979)

- Key assumptions (of basic model):
  - Trade must be balanced in the long run
    - Or there could be a sustainable current account imbalance or debt-GDP ratio
  - Goods are nationally differentiated, imperfect substitutes
  - Supplies are infinitely elastic (prices fixed in seller's currency)
  - Output (growth) is the adjusting variable in the long run
    - Relative prices (RERs) are either constant (on average, in the long run) or else have little impact (elasticity pessimism)

- Here we will focus on what this model and its extensions imply for conflict vs. cooperation in the international economy

The simplest BPCG model in growth rate form (no financial flows)

- Export demand: $\quad x = \varepsilon_X(\hat{E} + \hat{P}_f - \hat{P}) + \eta_X y_f$

- Import demand: $\quad m = -\varepsilon_M(\hat{E} + \hat{P}_f - \hat{P}) + \eta_M y$

> Note: the nominal exchange rate *E* is explicitly included now.

- Balance of payments equilibrium (assuming zero net financial flows so CA = 0):

$$\hat{P} + x = \hat{E} + \hat{P}_f + m$$

> *The value of exports must grow at the same rate as the value of imports*

  - Note $\hat{E}$ is the rate of nominal depreciation of the home currency (percentage increase in home currency/foreign currency)

- Some standard Marshall-Lerner assumptions:

  - One home and one foreign good which are imperfect substitutes, prices are fixed in seller's currency (no partial pass-through), exogenously given price & income elasticities

Thirlwall's (post) Keynesian solution

- Assuming that income (output) growth adjusts in the long run, we can solve for the BP-constrained growth rate of output:

$$y_B = \frac{(\varepsilon_X + \varepsilon_M - 1)(\hat{E} + \hat{P}_f - \hat{P}) + \eta_X y_f}{\eta_M}$$

most general solution (includes price effects)

- Thirlwall further assumes that relative price changes don't matter *in the long run* because of <u>either</u>

  - Elasticity pessimism: $\varepsilon_X + \varepsilon_M \approx 1$ <u>or</u>

  - Constant relative prices (RER): $\hat{E} + \hat{P}_f - \hat{P} = 0$

- Then the solution simplifies to one of the following:

Two versions of Thirlwall's law
(Perraton, 2003)

- **Strong form**: assuming *either* elasticity pessimism *or* constant RER

$$y_B = \frac{\eta_X}{\eta_M} y_f$$

- **Weak form**: *only* on the assumption of constant RER $(\hat{E} + \hat{P}_f - \hat{P} = 0)$

$$y_B = \frac{x}{\eta_M}$$

  - Because in this case only,

$$x = \eta_X y_f$$

Policy implications of BPCG/Thirlwall's Law (I)

- **Exports** are still vital to LR growth, as in ELCC, but *for a different reason:*
  - To obtain the foreign exchange to finance necessary imports without a growing trade deficit and rising foreign debt

- **Non-price or qualitative competition** (reflected in the income elasticities η_X and η_M) is more important than price or cost competition

- Although the model is (external) demand-driven, **supply factors also play a role**
  - Greater (or more diversified) domestic productive capacity reduces η_M; investment and innovation in export industries can increase η_X
  - These factors operate *only* through their impact on income elasticities

Policy implications of BPCG/Thirlwall's Law (II)

- "Mercantilist" trade policies (export-promotion *cum* import restrictions, or selective import liberalization) *can* make sense

  - *If* such policies effectively boost η_X <u>relative</u> to η_M

  - But <u>not</u> pure protectionism, if it simply closes markets and fails to promote exports

  - Enhanced access to foreign markets can potentially raise y_f

- Trade liberalization can **fail** to increase LR (BP-equilibrium) growth – in fact it may even <u>lower</u> y_B – if it increases η_M proportionately more than x or $\eta_X y_f$

  - See Moreno-Brid (1998–99), Santos-Paulino & Thirlwall (2004), Pacheco-López (2005), others

Extensions of the basic BPCG model

- Two large countries

- Structural change (multisectoral model)

- Long-run relative price (real exchange rate) effects

- Small vs. large countries

- Reintroducing cumulative causation (Verdoorn's law)

- Endogenous income elasticities

- International capital (financial) flows

- Ecological constraints

- Distributive cycles

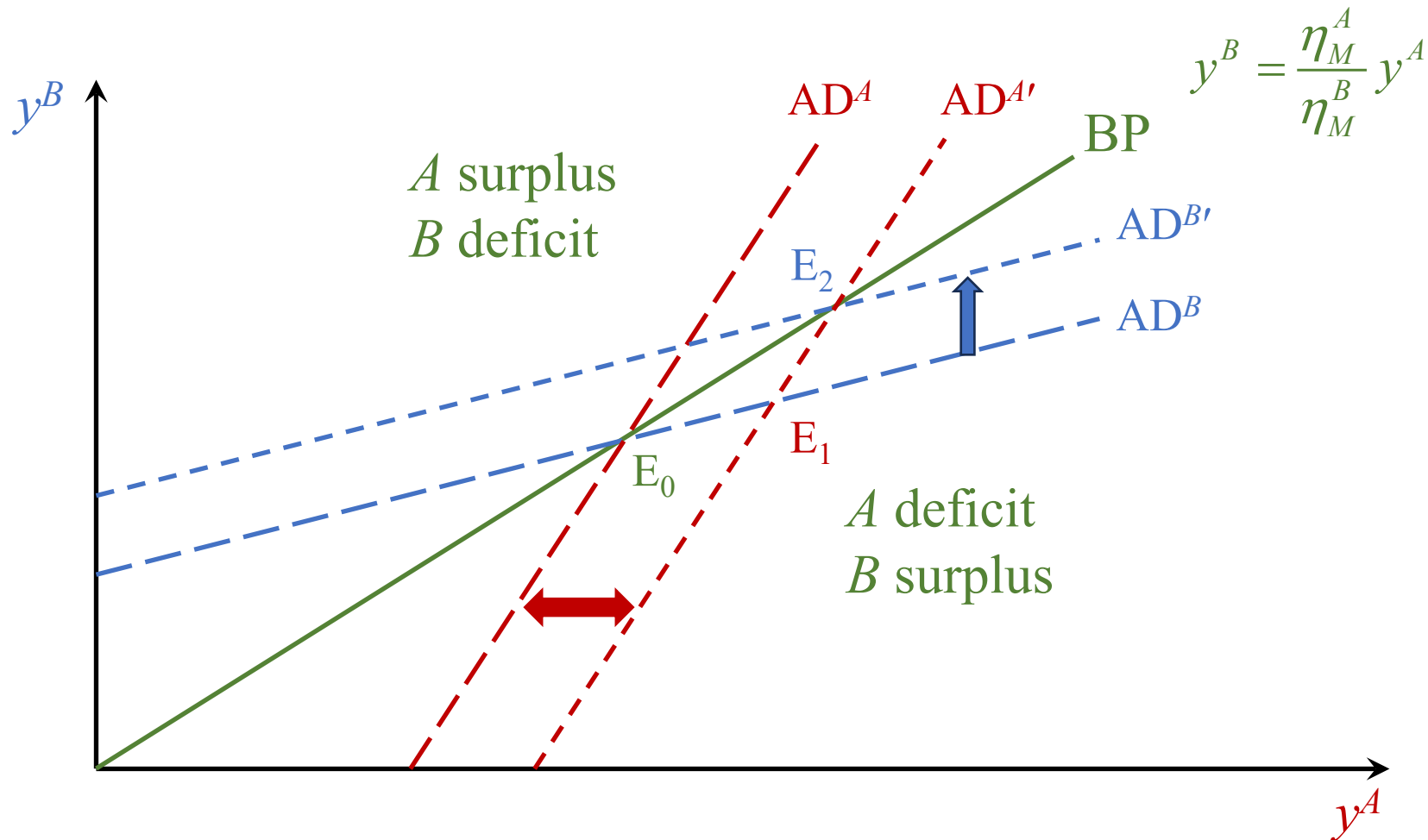For surveys see Blecker & Setterfield (2019), Blecker (2022b)

Notes:
1) Some of these literatures overlap
2) We will focus on the ones most relevant to conflict vs. cooperation.

Two large countries (McCombie, 1993)

- Implies potential for conflict *or* cooperation in macro policies:

- If one large country (*A*) adopts a fiscal expansion but the *other* country (*B*) does not, *A* will face growing BP (current account) deficits
  - The refusal of *B* to cooperate can force *A* to reverse its stimulus policy (conflict)

- A **"global Keynesian solution"** is also possible
  - If the other country (*B*) *also* adopts expansionary policies, *both* countries can grow faster without trade becoming imbalanced
  - Thus the model supports coordinated fiscal expansions (a form of cooperation)

The BPCG model with two large countries

$$y^B = \frac{\eta_M^A}{\eta_M^B} y^A$$

y^B

A surplus
B deficit

AD^A AD$^{A\prime}$ BP

AD$^{B\prime}$

E$_2$

AD^B

E$_0$ E$_1$

A deficit
B surplus

y^A

Incorporating structural change: The "multi-sectoral Thirlwall's law" (MSTL)

Originally due to Araujo & Lima (2007), Gouvêa & Lima (2010).

- Aggregate income elasticities of export and import demand are weighted averages of industry-level elasticities:

  - For any given "home" country (Gouvêa & Lima, 2013):

$$y_{B,t} = \frac{\sum_{i=1}^{G} \alpha_{i,t} \eta_{X,i}}{\sum_{i=1}^{G} \beta_{i,t} \eta_{M,i}} y_{f,t}$$

where i indexes the good or industry, t indexes time, $\alpha_{i,t}$ and $\beta_{i,t}$ are the shares of good i in total exports and imports (respectively) at time t, $\eta_{X,i}$ and $\eta_{M,i}$ are the income elasticities of export and import demand for each good i, there are G total industries or goods, both the foreign growth rate $y_{f,t}$ and the domestic BP-equilibrium growth rate $y_{B,t}$ are time-varying, and

$$\sum_{i=1}^{G} \alpha_{i,t} = 1, \ \sum_{i=1}^{G} \beta_{i,t} = 1.$$

Note: The BP-equilibrium growth rate $y_{B,t}$ **becomes time-varying.**

Conflict or cooperation in the MSTL

- Shifting the **composition** of exports or imports (shares $\alpha_{i,t}$ and $\beta_{i,t}$) to goods with higher (lower) income elasticities raises (lowers) **_average_** elasticities
  - Structural change can affect the BP-equilibrium growth rate even if industry-level elasticities remain constant
- If *some* countries get more favorable shares, this can disadvantage *other* countries
  - More favorable means higher export shares $\alpha_{i,t}$ for high $\eta_{X,i}$ goods, lower import shares $\beta_{i,t}$ for high $\eta_{M,i}$ goods
  - Other countries could be saddled with the opposite, and their BP-equilibrium growth rates would decrease
  - Unless there is specialization in different products that all have high income elasticities for exports (possible for some countries, unlikely for all)

Relative price/real exchange rate (RER) effects in BPCG models

- The "canonical" Thirlwall model assumes no role for relative prices or the RER

  - These are assumed to either remain constant or have negligible effects in the long run

  - Only "qualitative" or "non-price competition" is supposed to matter

  - But these assumptions apply only to *continuous changes* in relative prices or the RER

- Several new theories have challenged this, arguing that changes in *average levels* of the RER **can** have a long-run impact

RER *level* effects in extended BPCG models: three approaches

1. The RER (or other measure of relative prices or relative costs) affects the **composition** of exports and imports

   - RER depreciation induces **structural change** that raises (***weighted-average***) η_X relative to η_M (Setterfield & Ozcelik 2018; Cimoli et al. 2019)

2. The RER affects **capital accumulation** in tradable goods industries

   - A real depreciation raises **profitability** and encourages **investment** (Blecker 2007; Ibarra 2018)
   - This **relaxes supply-side constraints on exports** in "small open economies" (Razmi 2016)

3. A more competitive RER raises **income elasticities** for export products

   - **Export quality improves** via induced innovation, technological upgrading (sophistication effect), and encouraging new products (diversification effect) (Missio et al. 2017; Marconi et al. 2021)

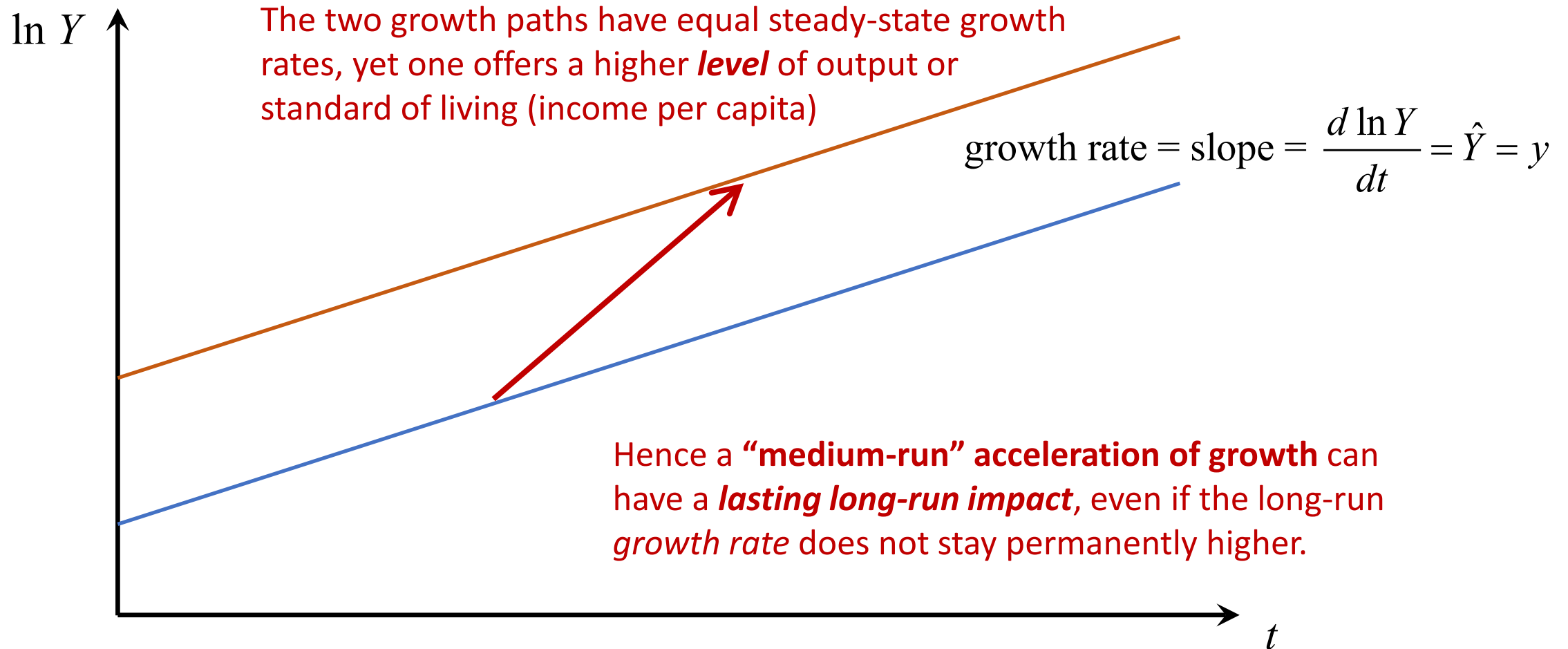# Implications of RER effects for international conflict and uneven development

- All countries can't have a real depreciation at the same time
  - **If some depreciate, others must appreciate**
  - This can raise the BP-equilibrium growth rate for the depreciating country
  - But it's "beggar-thy-neighbour" (slower growth) for other countries (Robinson 1947)

- Depending on the model, countries whose RERs *appreciate* will experience
  - Compositional shifts toward exports with low income elasticities, imports with high ones
  - Less investment in tradable goods industries (Blecker 2007, Ibarra 2018)
  - Less qualitative improvements and lower income elasticities for exports

- Caution: Some sceptics don't believe RER effects are important in the long run
  - See Ribeiro et al. (2017b, 2020)

Empirical evidence on RER effects

As summarized in Blecker (*EJEEP*, forthcoming, 2023)

- **Exports**: Overwhelming evidence that RER depreciation boosts export growth, but with qualifications
  - Effects vary by type of products, advanced economies vs. EMDEs, and direction of trade
  - Usually significant for medium- and lower-technology/skill manufactures, insignificant for primary products and high technology
    - Caglayan & Demir (2019), Bottega & Romero (2021), Pariboni & Paternesi Meloni (2022), Palazzo & Rapetti (2023)
- **Growth**: Robust evidence that RER depreciation raises output growth, again with qualifications
  - Results are sensitive to econometric specifications, control variables, etc.
  - Econometric estimates mostly pertain to "medium run" time periods
  - Nonlinearities and asymmetries: negative effects of overvaluations are stronger than positive effects of undervaluation
    - Surveyed (with new results) in Rapetti (2020), Demir & Razmi (2022)

Why "medium run" effects are important: output levels versus growth rates

$\ln Y$

The two growth paths have equal steady-state growth rates, yet one offers a higher *level* of output or standard of living (income per capita)

$$\text{growth rate} = \text{slope} = \frac{d \ln Y}{dt} = \hat{Y} = y$$

Hence a **"medium-run" acceleration of growth** can have a *lasting long-run impact*, even if the long-run *growth rate* does not stay permanently higher.

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Missing elements and areas for future research: **Global value chains (GVCs)**

- In GVCs, manufacturing is often "offshored" to EMDEs, but with low value added
  - Big firms in advanced economies monopolize "intangible assets" (intellectual property, data centralization, network economies, etc.) (Durand & Milberg 2020)
    - The benefits are highly concentrated *within* these countries
- In this context, who gets the gains from cumulative causation/increasing returns?
  - Are nations even the right units of analysis?
- We need to extend our analyses to incorporate GVCs
  - One exception: Trigg (2020) extends the MSTL to GVCs
    - Countries with low value added in their exports have lower BP-equilibrium growth rates

Missing elements and areas for future research: **Middle-income trap** for EMDEs

- EMDEs can get significant job creation in manufacturing activities within GVCs
  - But they don't capture the rents from monopolies of intellectual assets
  - They are highly import-dependent (e.g., assembling imported components)
- Rapid productivity growth in export production does not necessarily spill over into domestic sectors
  - An extreme case is Mexico, whose aggregate growth has been extremely slow in spite of rapid expansion of manufactured exports
    - Ibarra & Blecker (2016), Blecker (2022a)
- Do our models offer (a) diagnoses and (b) policy alternatives?

Conclusions

- Post-Keynesian models of open economies offer significant insights into how international trade relations can be conflictive instead of cooperative

- The degree of conflict or cooperation depends on policies pursued and the strength of various effects

  - Coordinated fiscal stimulus allows room for cooperation; exchange rate policies tend to be more conflictive

  - Conflictive possibilities are stronger when RER or relative price effects are significant (debated)

- New features of the global economy call for new extensions of heterodox models

  - Especially GVCs and the middle-income trap

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