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P1.4 Money, finance & property

‘Property ownership, property-based money and the self-expanding nature of capitalism’

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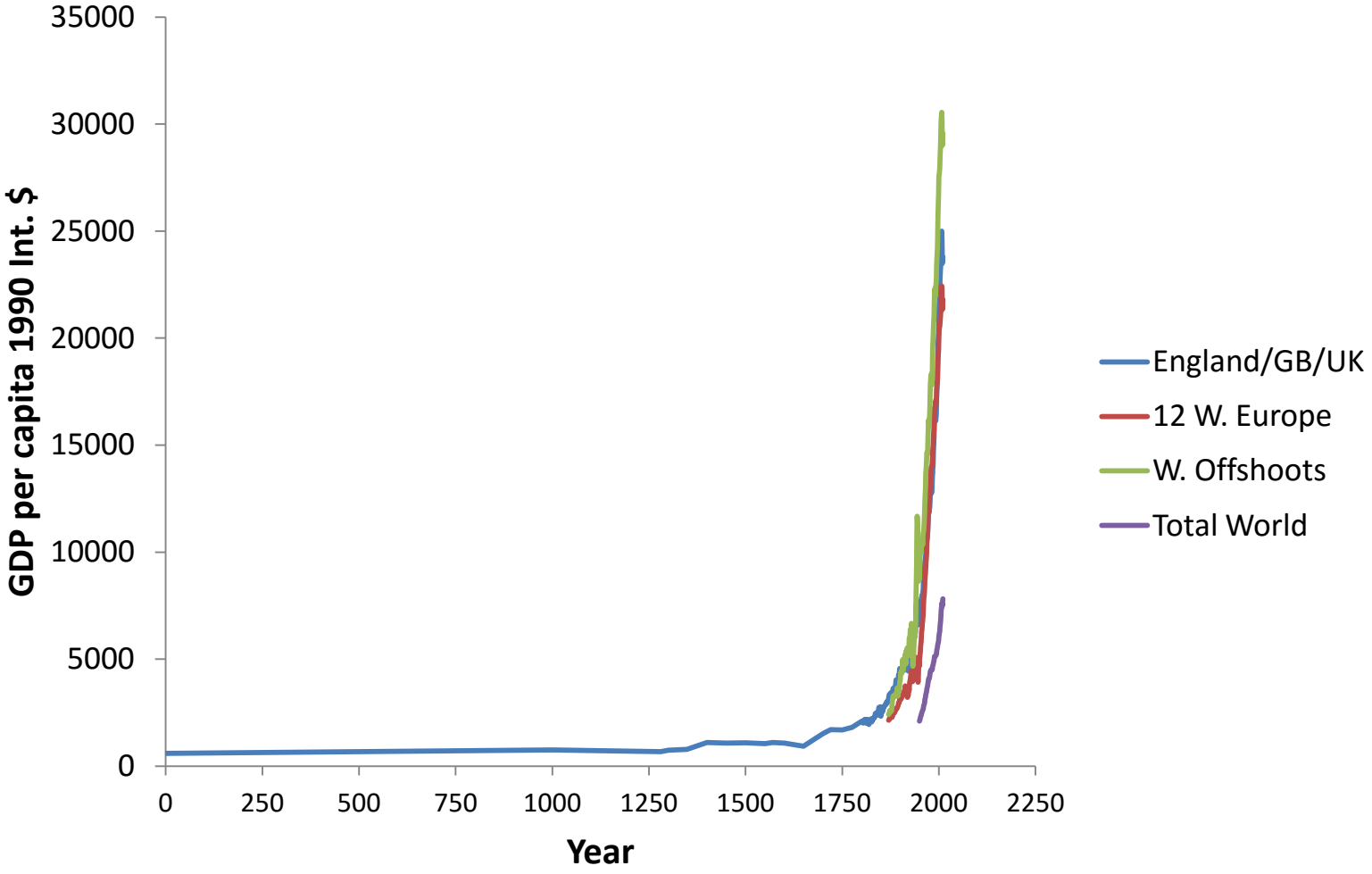
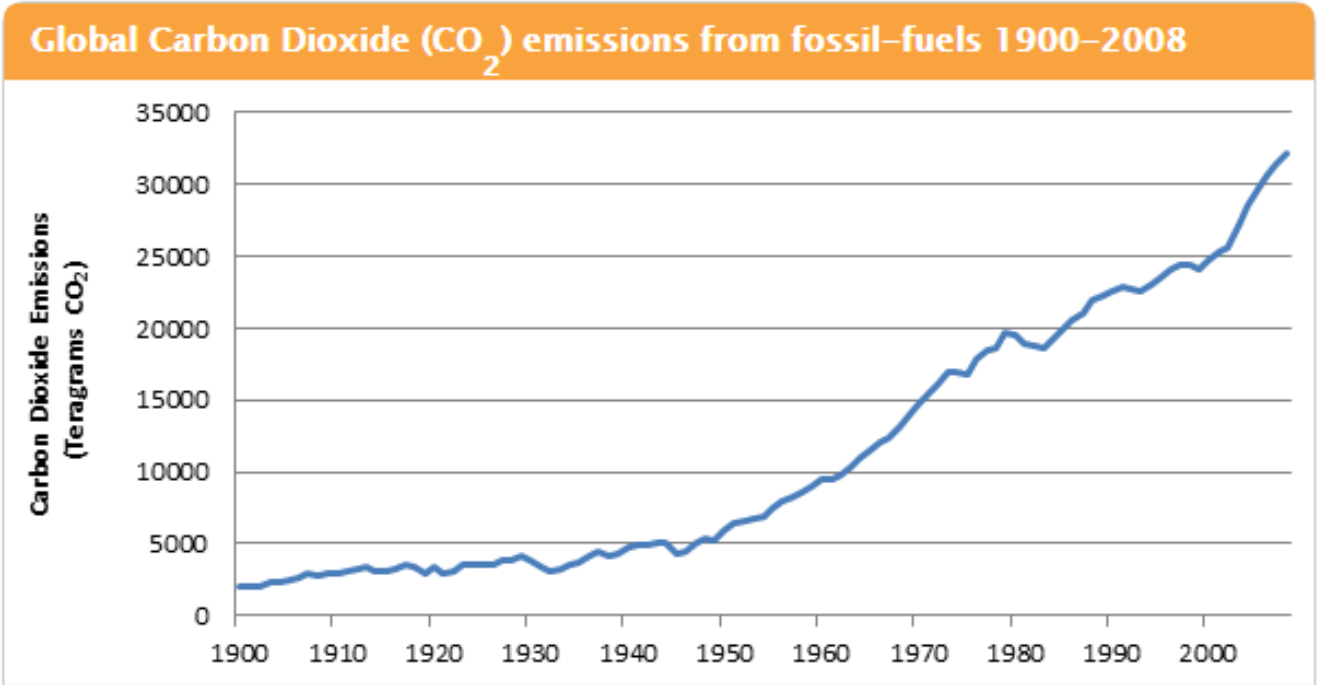
After 1,700 years of stagnation, Western Europe has experienced a phenomenal growth dynamics...



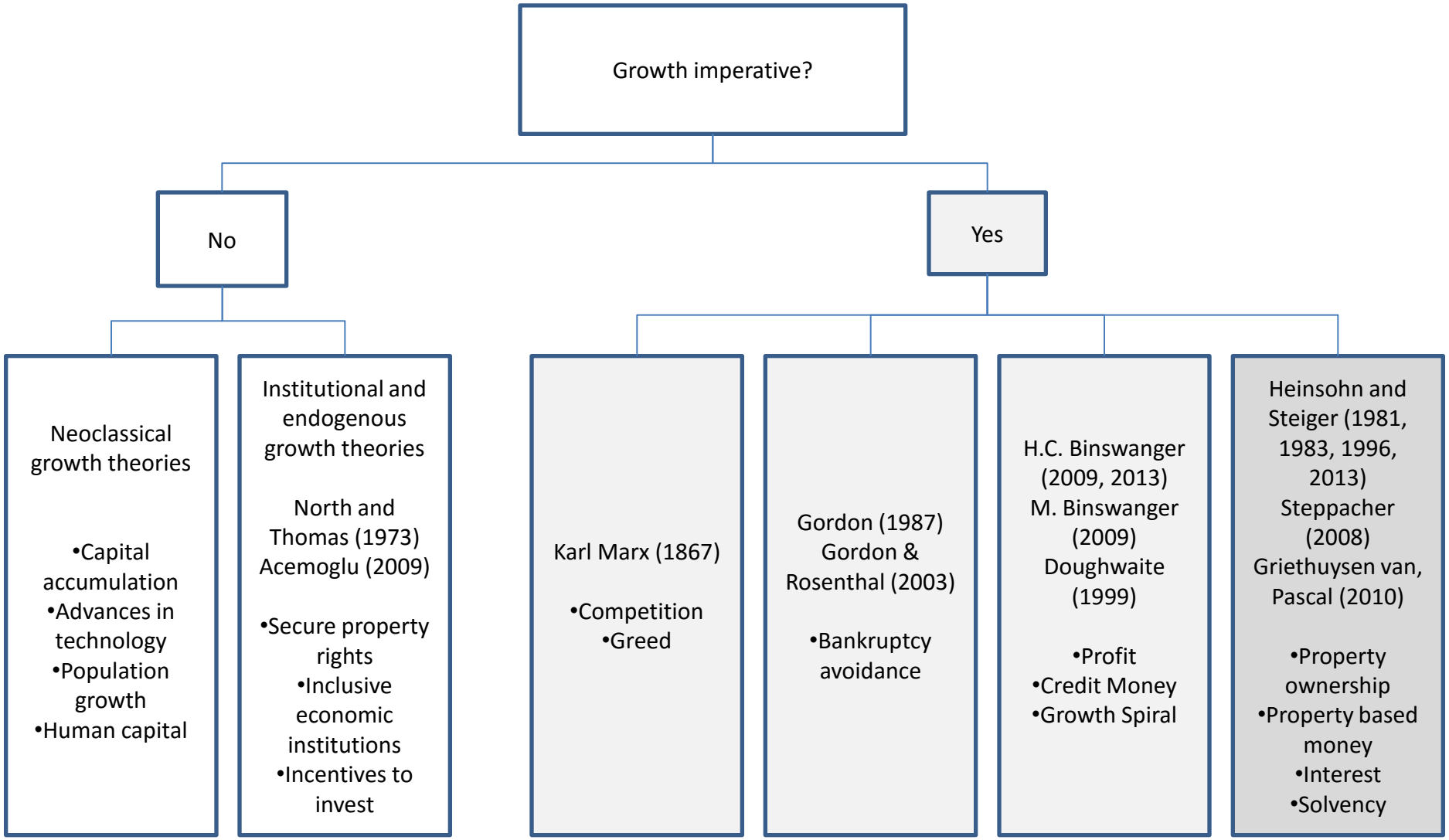
Data: Maddison Project 2013

... which is now threatening the balance of the global ecosystems and appears to be difficult to contain



Source of data: Boden, T.A., G. Marland, and R.J. Andres (2010). Global, Regional, and National Fossil-Fuel CO_2 Emissions. Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, U.S. Department of Energy, Oak Ridge, Tenn., U.S.A. doi 10.3334/CDIAC/00001_V2010.

A number of growth theories have therefore argued that capitalist systems are subject to a growth imperative



See Decker (2016)

There are a number of reasons to revisit Heinsohn and Steiger's original growth theory

1. Growth imperative argued only quantitatively

2. Conflicting views about the role of interest
   - Dittmer (2015) in *Ecological Economics :* '[the] debt money growth-imperative […] has yet to be rigorously shown to exist"

3. Piketty's 'central contradiction of capitalism" (r > g)
   - At odds with an interest-based growth imperative

A new mathematical model of a simplified money economy confirms that...

...monetary institutions created on the basis of ownership underpin the capitalist growth dynamics (g ~ i)

Qualitative :
Interest and property-based (bank)money emergence as a consequence of ownership

Liquidity pressures arising from money creation with interest result in monetary growth imperative

Heinsohn / Steiger 1981, 1996, 2013:

Quantitative - monetary growth model:

A nominal growth imperative is created as soon as part of the interest income is retained (g ~ i)

Translation into productive growth depends on additional factors

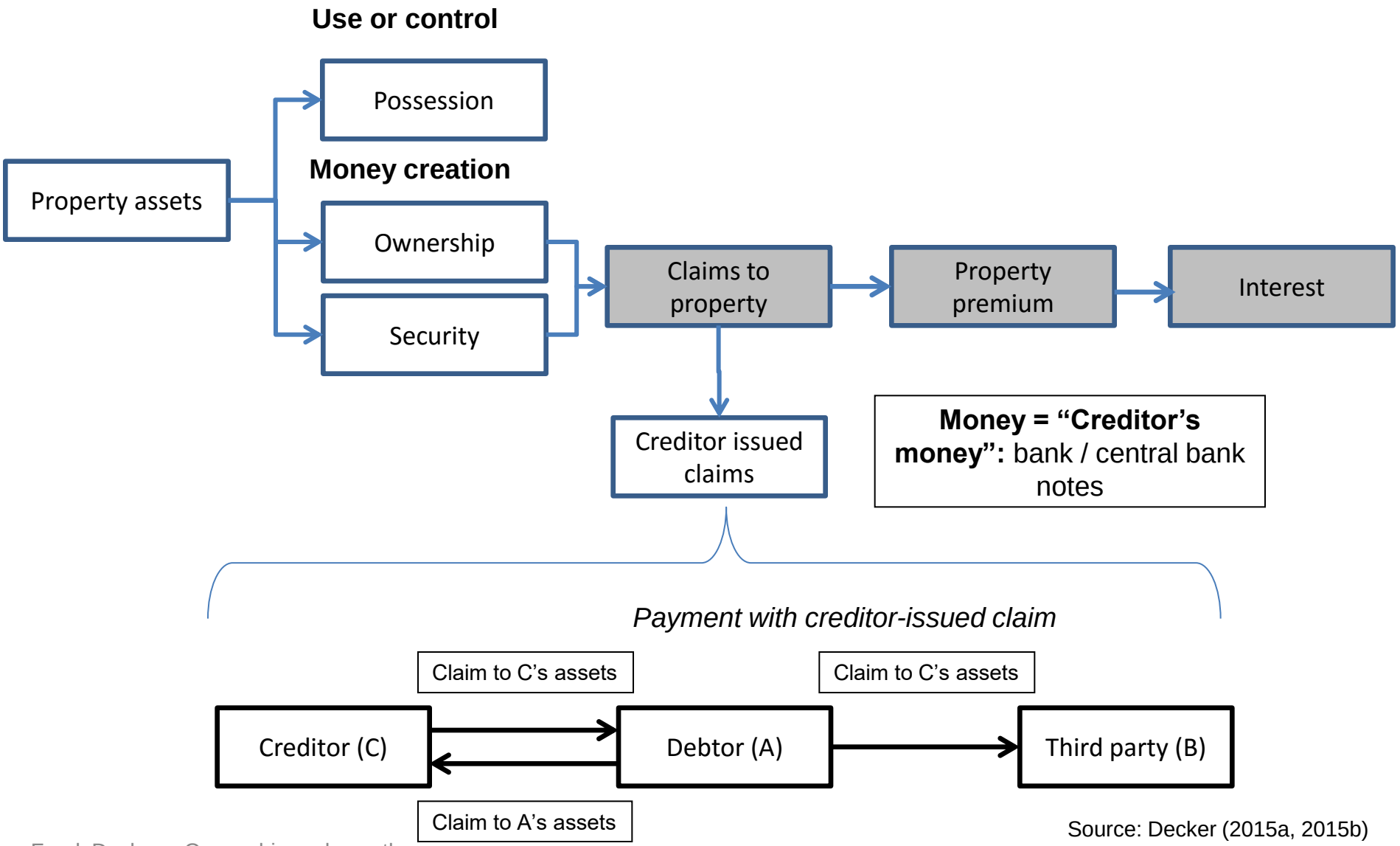
Argument that monetary factors impact growth has validity:

Bank-money creation and interest provide **underlying mechanism and stimulus** for self-expanding nature of capitalist growth

Not sufficient conditions for productive growth

See Decker (2016)

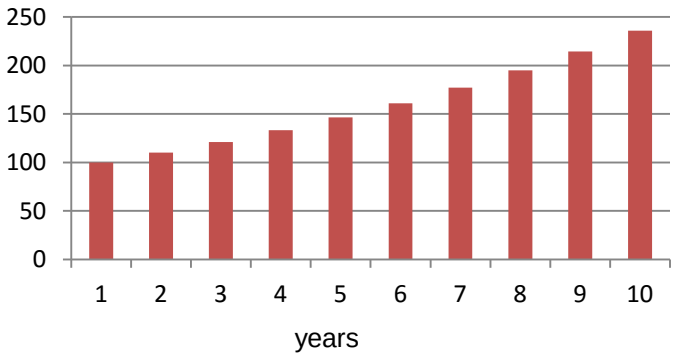
Heinsohn and Steiger argue that interest and bank-created money emergence as a consequence of property ownership...



Source: Decker (2015a, 2015b)

… which underpins the self-expansionary dynamics of capitalist growth

‘For the economy in aggregate ‘it is always the case that **less money is lent than owed**’ (Heinsohn and Steiger, 2013, 113)

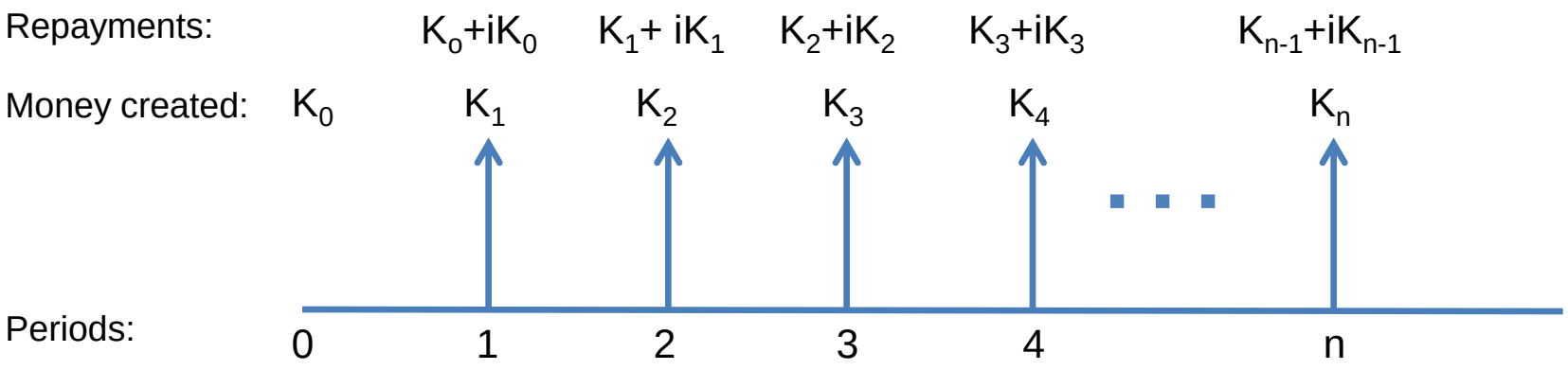


Principal at 100; interest 10%; money supply if all loan contracts rolled-over and interest income is retained

‘The extension of loans on collateral […] has therefore in the nature of things a **cumulative character**’ (Veblen 1904, 105-6)

‘The exploitation of minerals, particularly fossil fuels, together with engines and machines provide the **technically most feasible configuration through which exponential economic growth pressures can be met**. ’ (Steppacher 2008, 343)

We have constructed a new mathematical model of a simplified economy in order to analyse the monetary growth mechanism in detail...



Key assumptions:
- All producers fulfill their credit contracts
- Products sold at end of period
- Velocity of money = 1 = constant

Money supply
- $M_0=K_0$ start of period 1
- $M_1 = K_0 + iK_0$ end of period 1

Additional money iK_n must be created in each cycle :

$iK_n = (1-\gamma)\, iK_n$ (by producers) $+ \gamma\, iK_n$ (by banks)

$\gamma=1$ if banks spend everything

Source: Decker (2016)

... this shows that a growth imperative is created as soon as part of the interest income is retained

Money supply growth rate: $g_n=(M_n - M_{n-1})/M_{n-1}$

Define **capital growth rate a** with $K_n = (1+a)^n K_0$

$g_n \sim i$ for $n \to \infty$ and $0 \leq \gamma < 1$; $-1 < a < i$; banks **retain part of interest** income

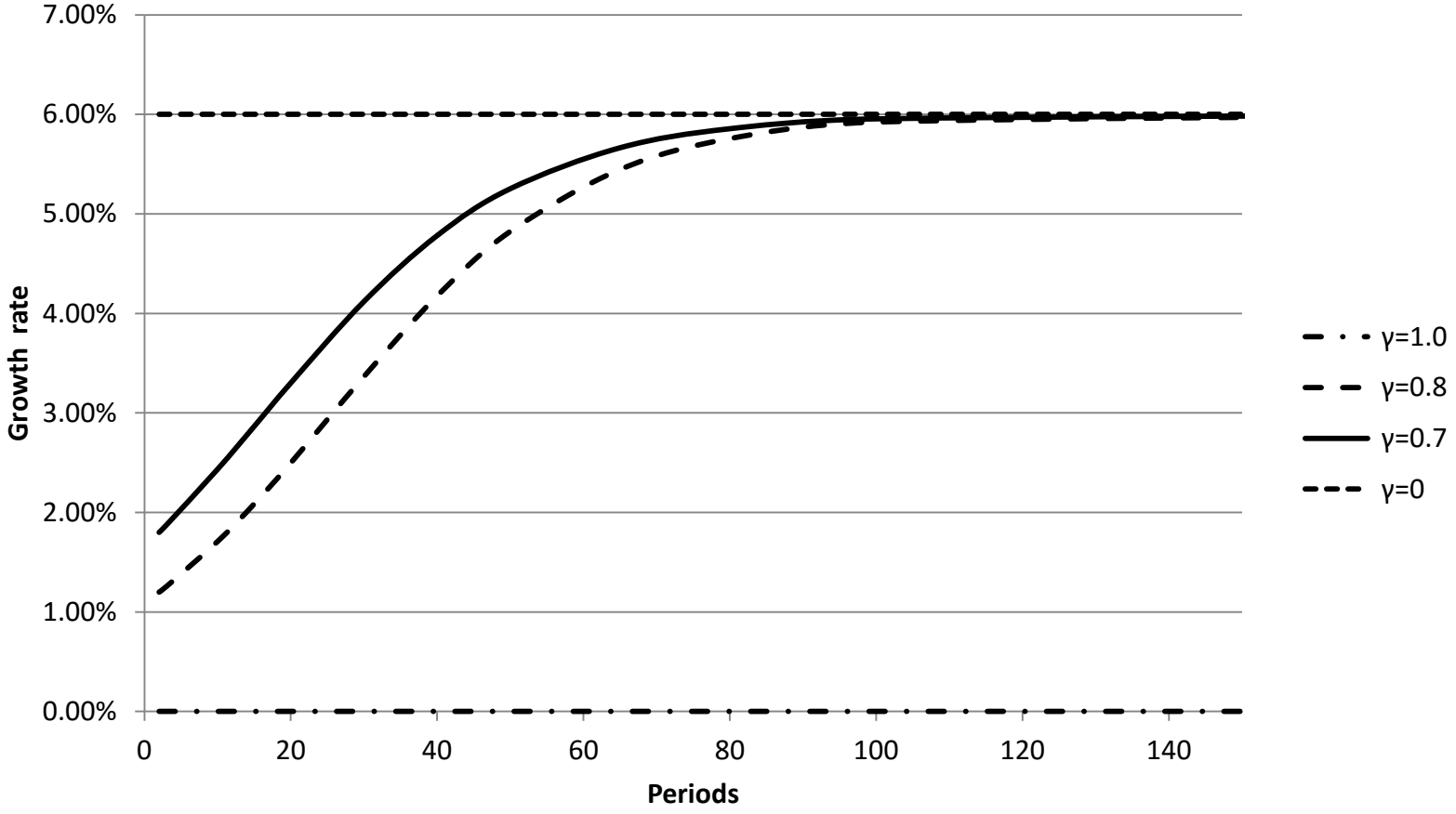
$g_n \sim 0$ for $\gamma = 1$; banks **spend all interest**

$g_n \sim a$ for $n \to \infty$ and $0 \leq \gamma < 1$; $a > i$; capital increases at higher rate than interest

At odds with Piketty's $g < r$

Source: Decker (2016)

A numerical calculation shows that growth rates converge towards the interest rate at typical bank income retention parameters



Interest rate i=6%

Source: Decker 2016

However, this is insufficient to explain productive growth

Repayment obligations are nominal

- Producers can raise prices ‘in step’, if accommodated by monetary policy (Stadermann 2002)

This raises the importance of

- Importance of restrictive money policies (Stadermann 2002)
- Credit allocation to producers that demonstrate innovation (Stadermann 2006, Binswanger 2009)
- Existence of wage labour (Heinsohn and Steiger 1996)
- Existence of minimum wage (Stadermann 2006)
- Competition (Heinsohn and Steiger 2013, Marx 1867)
- Successful investments in product and process innovations (Stadermann 1996)

Underlying mechanism and stimulus for self-expanding nature of capitalist growth

Conclusion

- Monetary factors play an important role in the capitalist growth process
- Link between ownership, property-based money, interest and growth
- Subject to assumptions, growth rate converges towards:
  - Interest rate ($g \sim i$) or
  - Capital growth rate ($g \sim a$)
- At odds with Piketty's $g < r$
- Property-based money creation and interest not sufficient condition for productive growth:
  - Provides the underlying mechanism and stimulus for growth
  - But other factors important

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