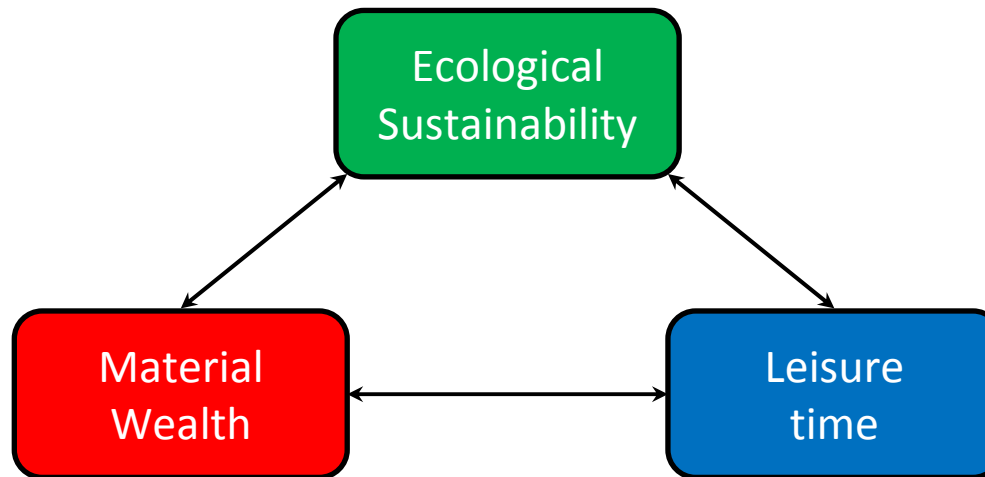


Prospects of an unconditional basic income in a degrowth economy

**Thomas Frisius
University of Hamburg**

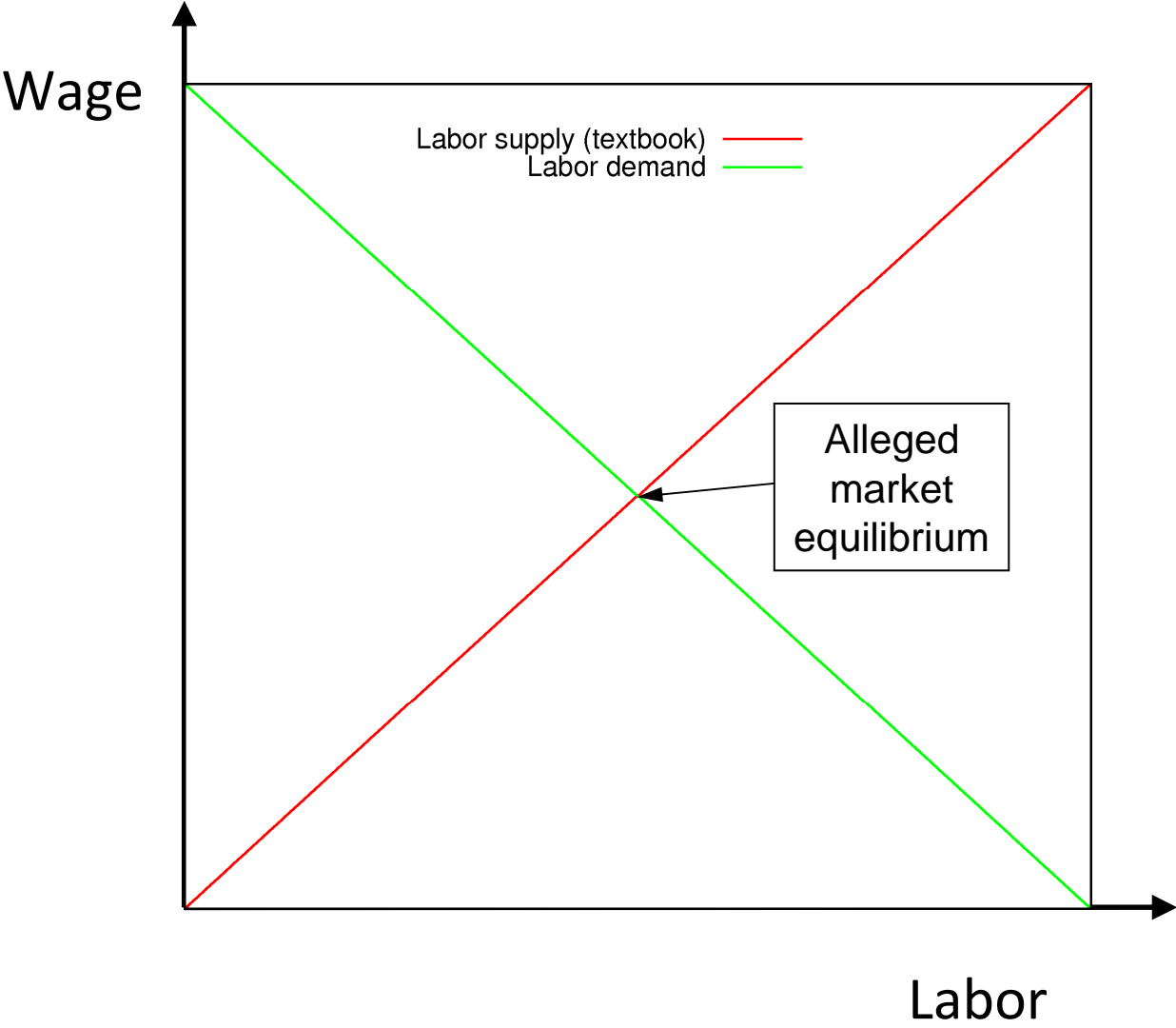
1 Introduction

Objectives of economy

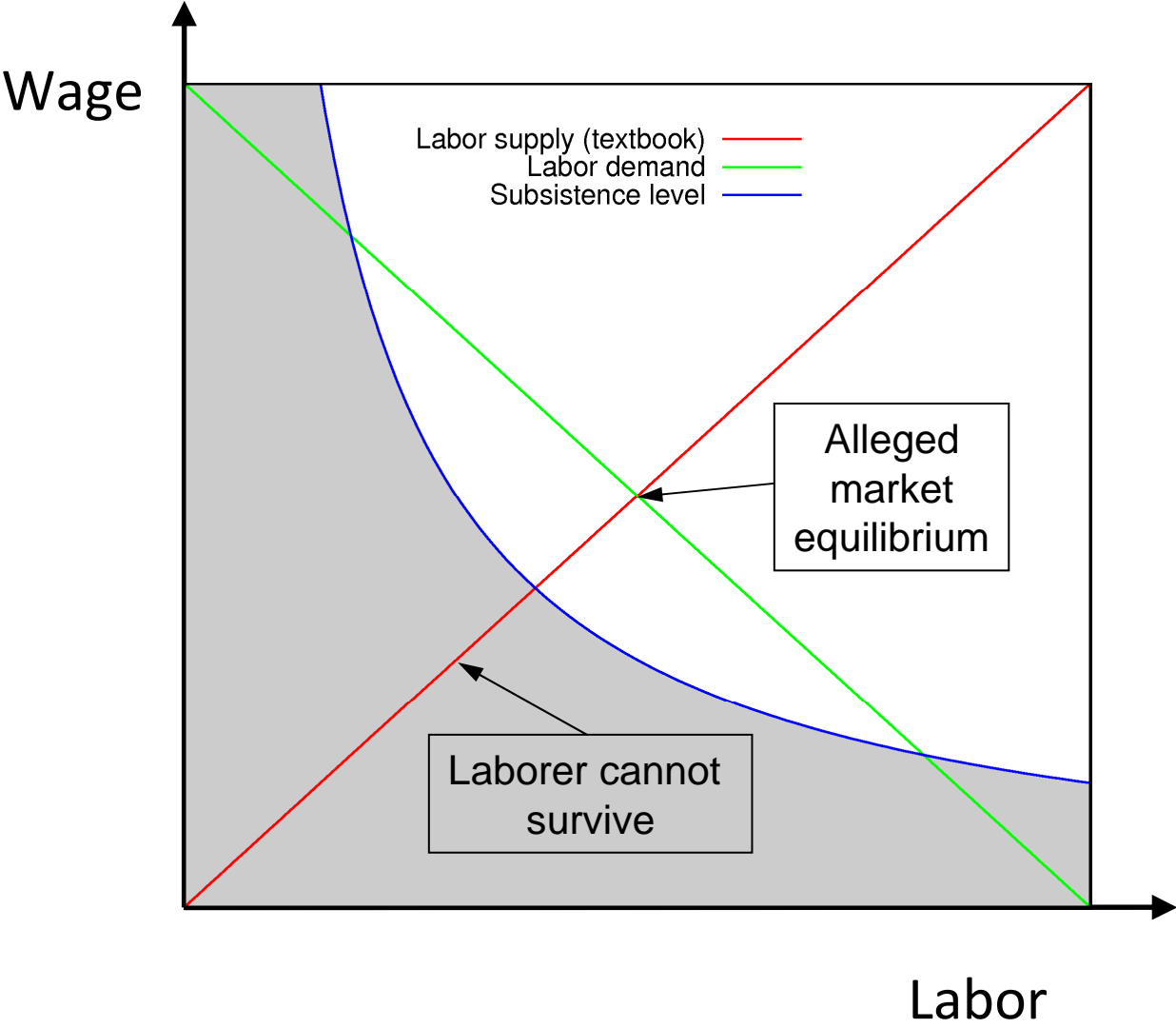


- Ecological sustainability, material wealth and leisure time are positive things but they are to some degree contradicting.
- A unconditional basic income (UBI) could increase leisure time. This lessens average consumption which could increase ecological sustainability.

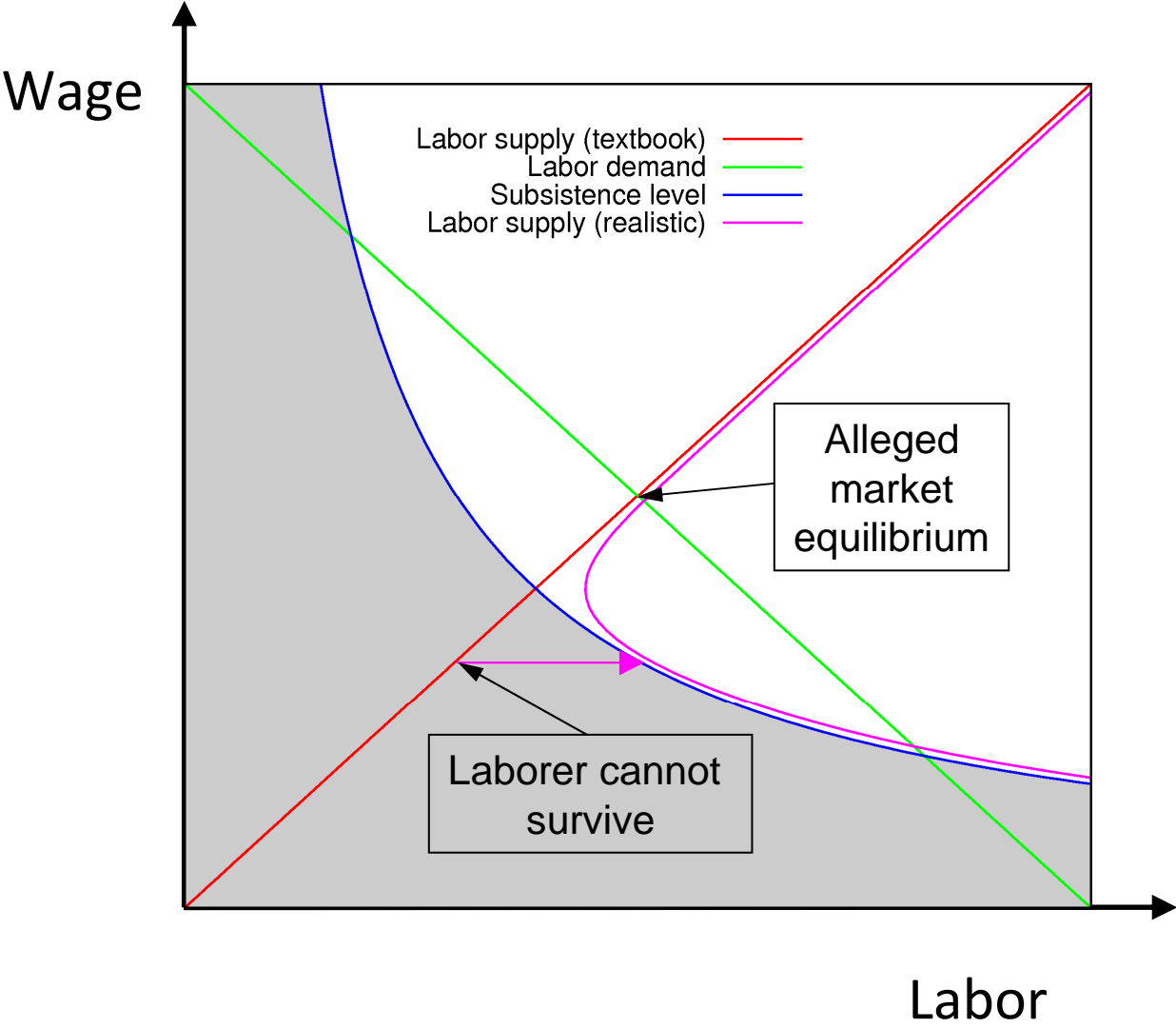
Labor market in an economy without a basic income



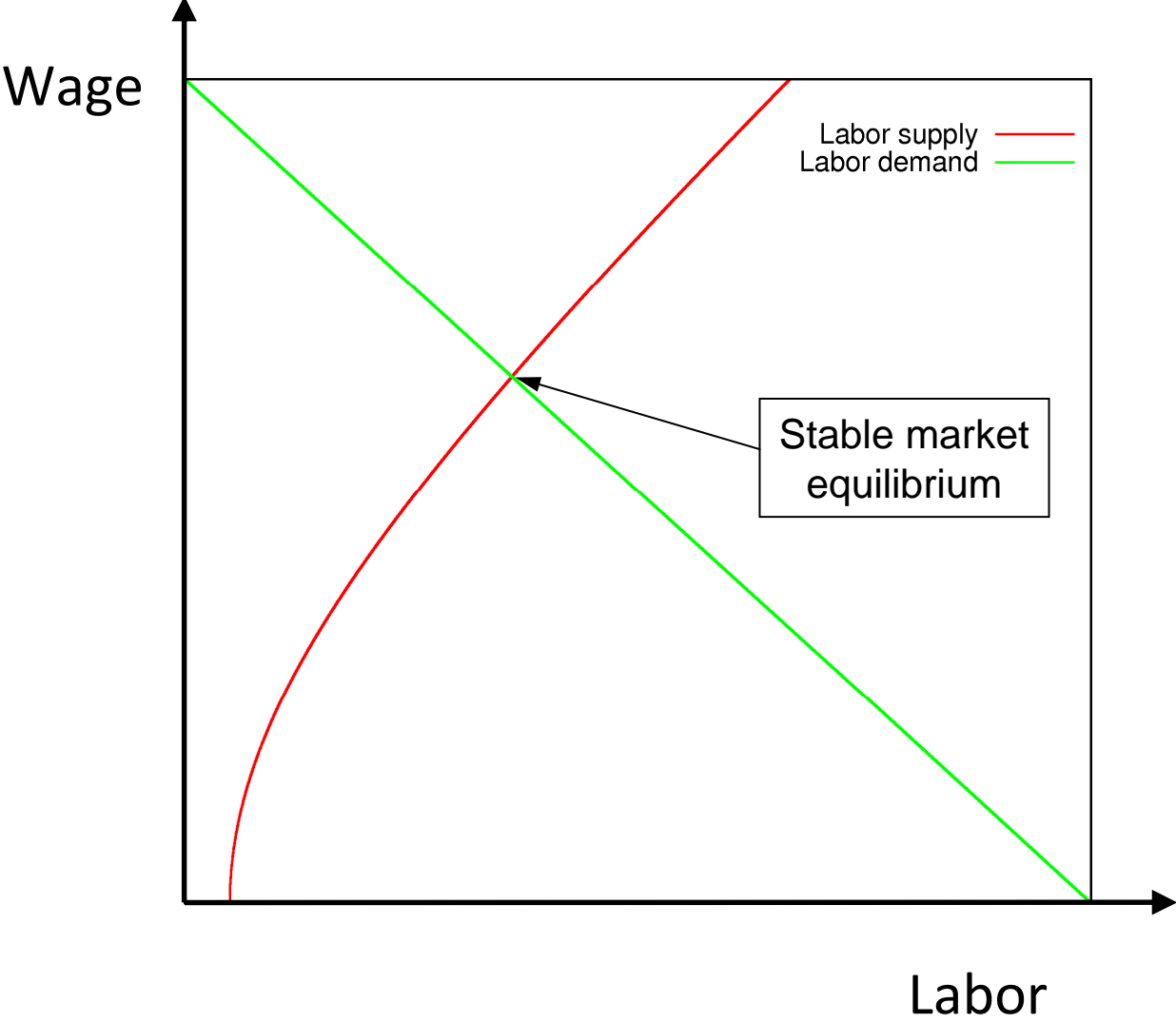
Labor market in an economy without a basic income



Labor market in an economy without a basic income



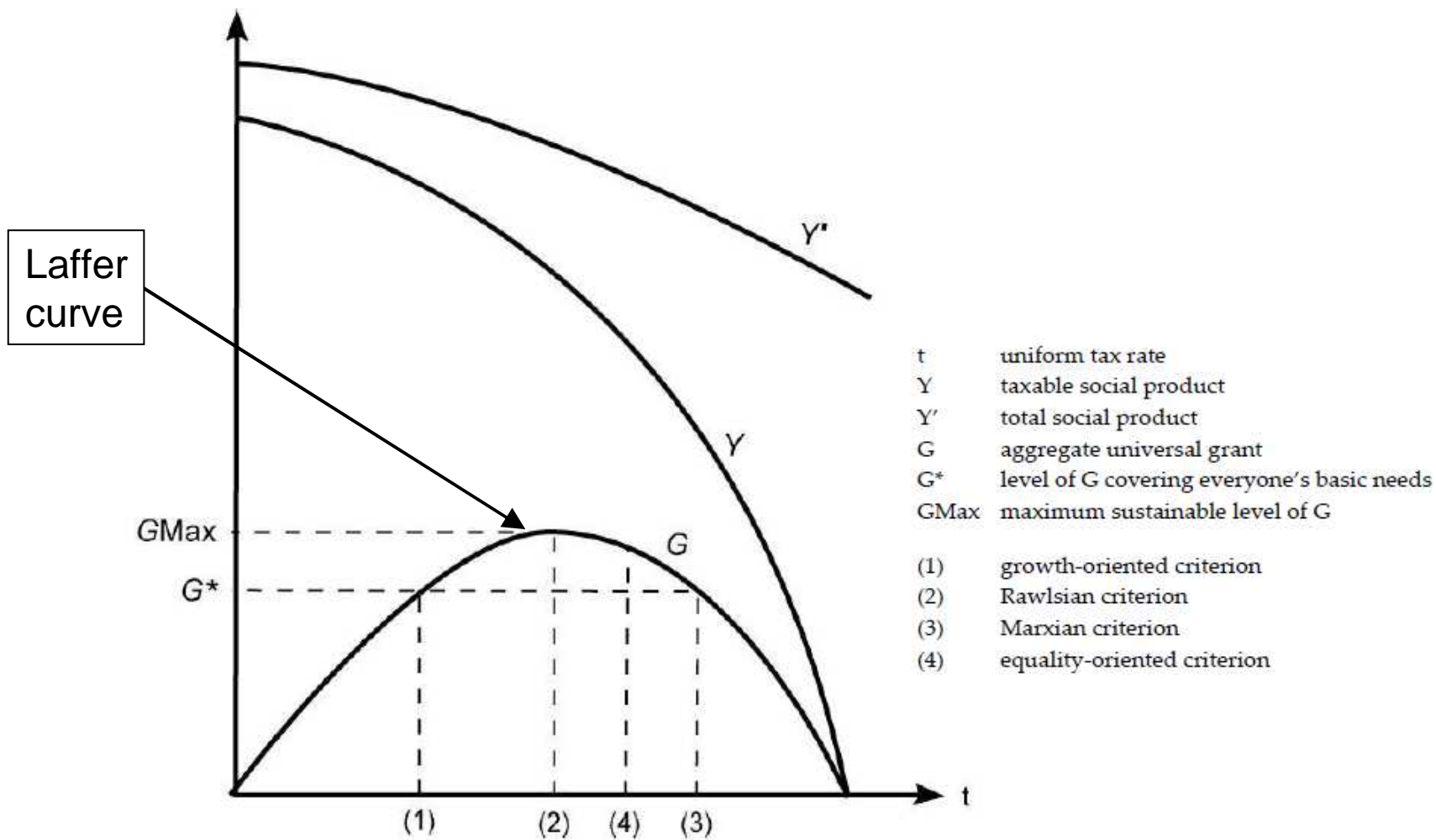
Labor market in an economy with an UBI



- In an economy without any basic income there is no stable equilibrium on the labor market and a wage dumping instability may arise which could lead to crisis due to decrease of aggregate demand.
- With an UBI above the subsistence level an equilibrium on the labor market can establish as every laborer has the sovereignty to deny an inappropriate job opportunity.
- It is, however, not clear how far the UBI and, therefore, degrowth can be increased without risking an economic collapse.

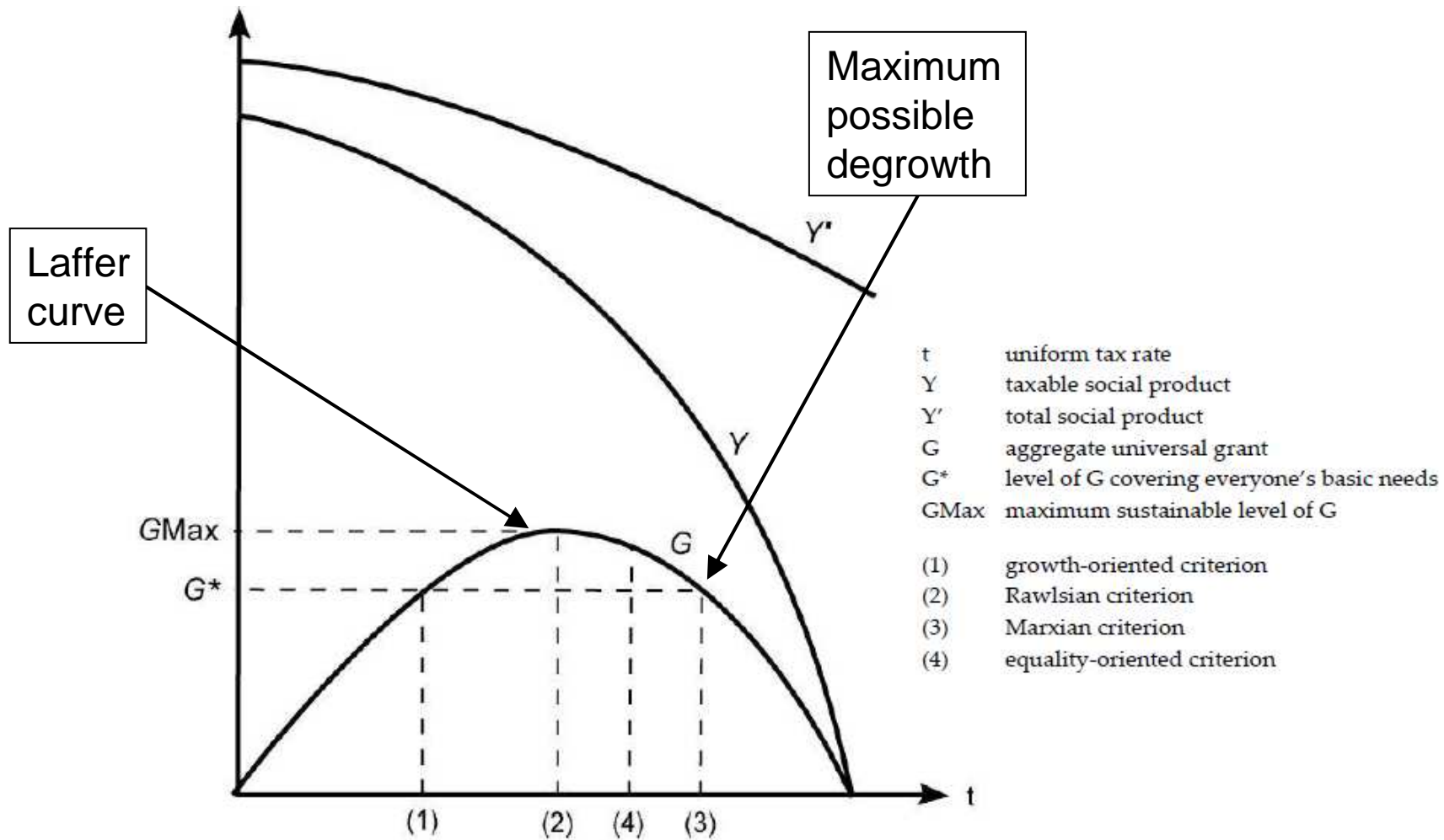
Possible impact of UBI on social product

(after van der Veen and van Parijs, 1986: A capitalist road to communism)



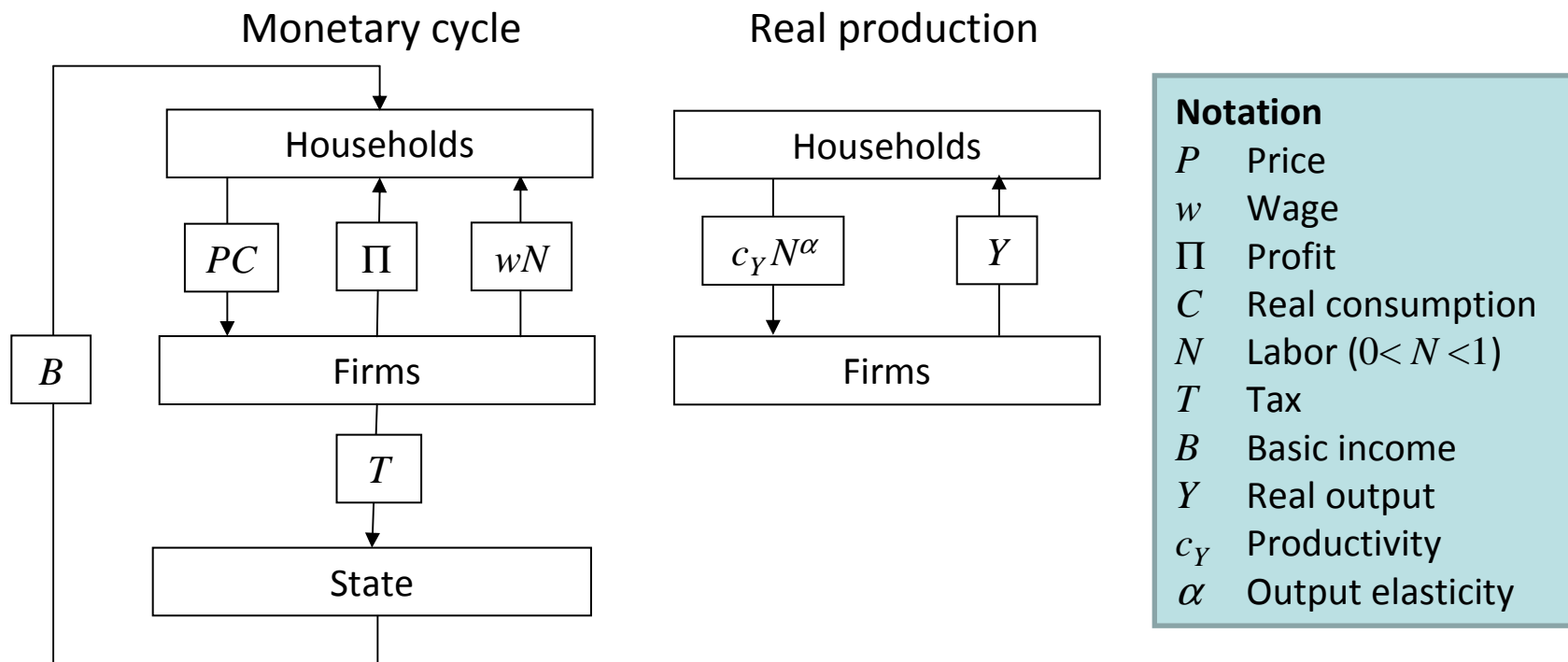
Possible impact of UBI on social product

(after van der Veen and van Parijs, 1986: A capitalist road to communism)



2 Simple equilibrium model for an UBI economy

- The possible impact of an UBI is studied within a simple (static) economic model
- The simple model has the aggregates firms, households and state as sketched below.



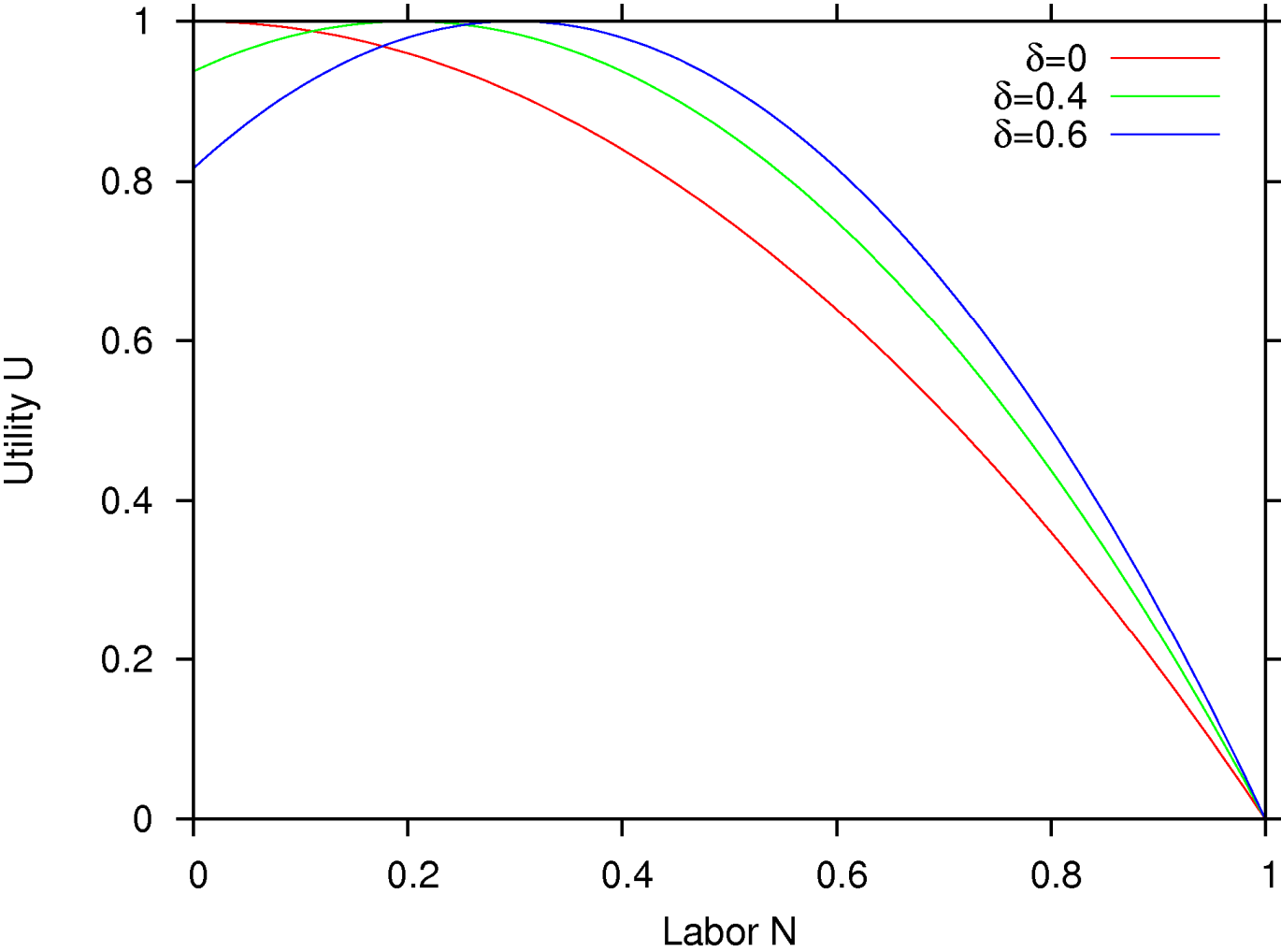
Model equations

Budget of the Firm :	$\Pi = PC - wN - T$
Production :	$Y = c_Y N^\alpha$
Consumption :	$Y = C_{\min} + C^+ = C$
Utility of households :	$U = 4[\delta(N-1) + 1 - N^2] / (2 - \delta)^2 C^\gamma$
Unconditional basic income :	$B = T = PC_{\min}$

Notation

C_{\min}	Guaranteed minimum consumption
C^+	The additional consumption that is paid by profits and wages
δ	Propensity to work
γ	Elasticity of utility with respect to consumption

Utility as a function of labor for different δ (propensity to work)



Method and assumptions

- The households maximize utility
- By including the firms budget in the utility function we obtain

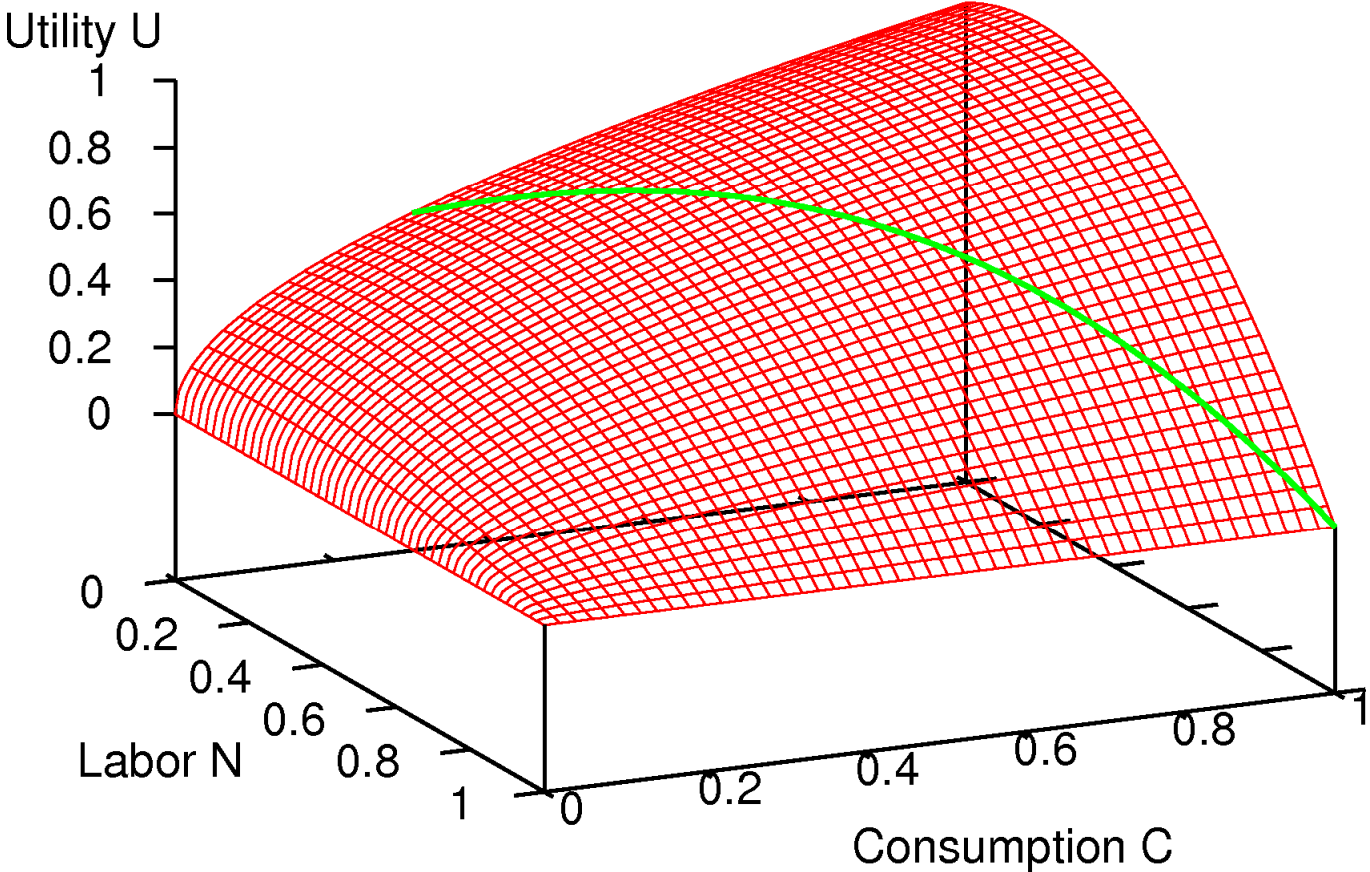
$$U = 4[\delta(N-1)+1-N^2]/(2-\delta)^2 (C_{\min} + C^+)^{\gamma}$$
$$= 4[\delta(N-1)+1-N^2]/(2-\delta)^2 \left(C_{\min} + \frac{w}{P}N + \frac{\Pi}{P} \right)^{\gamma}$$

- The maximal utility results by setting the derivative of U with respect to N to zero (varying labor supply at constant real wages and profits)

$$\frac{\partial U}{\partial N} = 0 \quad \rightarrow \quad \frac{1}{\gamma} (C_{\min} + C^+) = -\frac{w}{P} \frac{\delta(N-1)+1-N^2}{\delta-2N}$$

Utility as a function of labor N and consumption C

Utility ——— (red line)
Utility with side condition ——— (green line)



- To determine the real wage we assume that the firm profits result from a mark-up θ so that

$$\Pi = wN\theta \rightarrow PC^+ = wN(1+\theta) \rightarrow \frac{w}{P} = \frac{C^+}{N(1+\theta)}$$

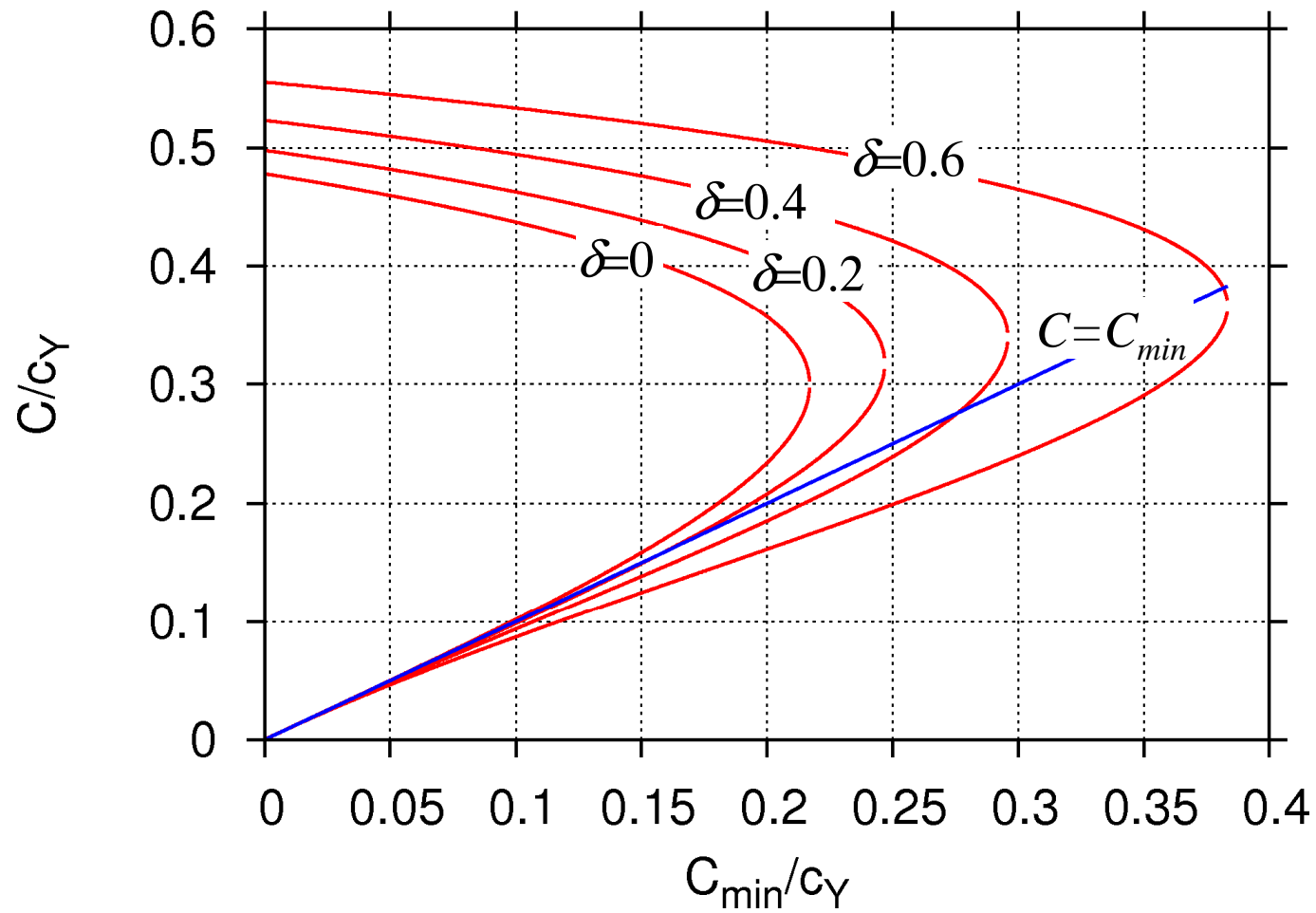
- From the production function we get

$$C^+ = c_Y N^\alpha - C_{\min} \rightarrow \frac{w}{P} = \frac{c_Y N^\alpha - C_{\min}}{N(1+\theta)}$$

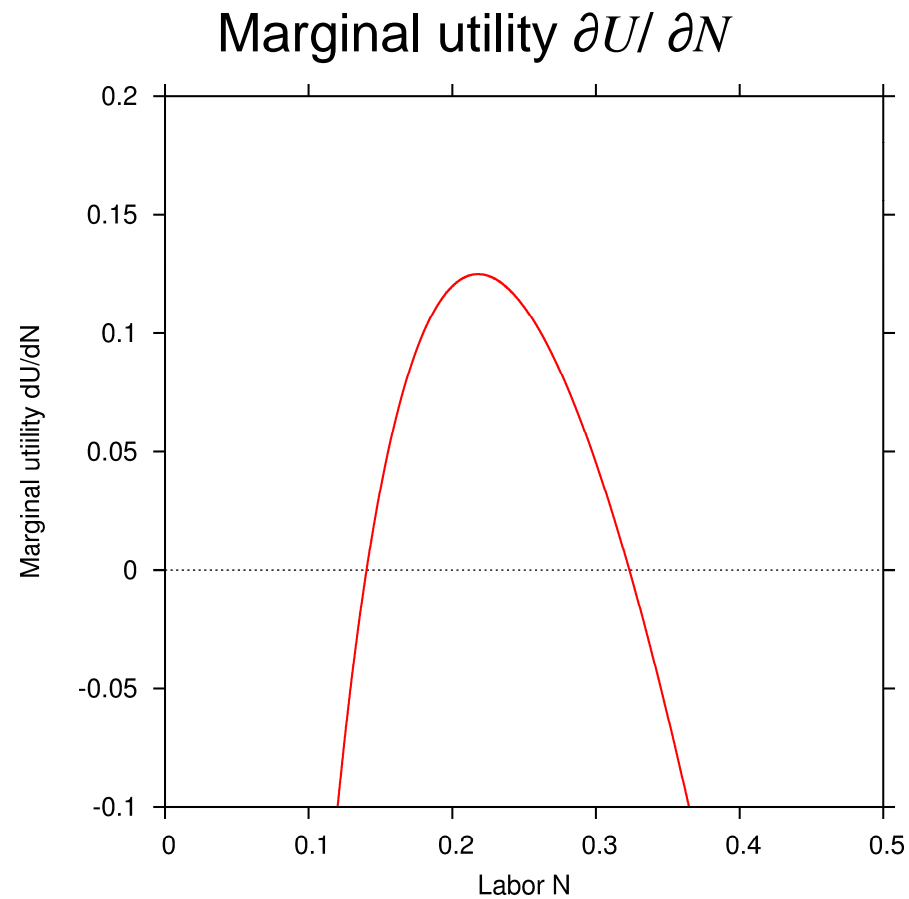
- Inserting C^+ and w/P into the maximization equation for utility yields the following polynomial

$$N^{\alpha+2} - \frac{(1+\theta)/\gamma+1}{2(1+\theta)/\gamma+1} \delta N^{\alpha+1} - \frac{1-\delta}{2(1+\theta)/\gamma+1} N^\alpha - \frac{C_{\min}/c_Y}{2(1+\theta)/\gamma+1} N^2 + \frac{C_{\min}/c_Y \delta}{2(1+\theta)/\gamma+1} N + \frac{C_{\min}/c_Y (1-\delta)}{2(1+\theta)/\gamma+1} = 0$$

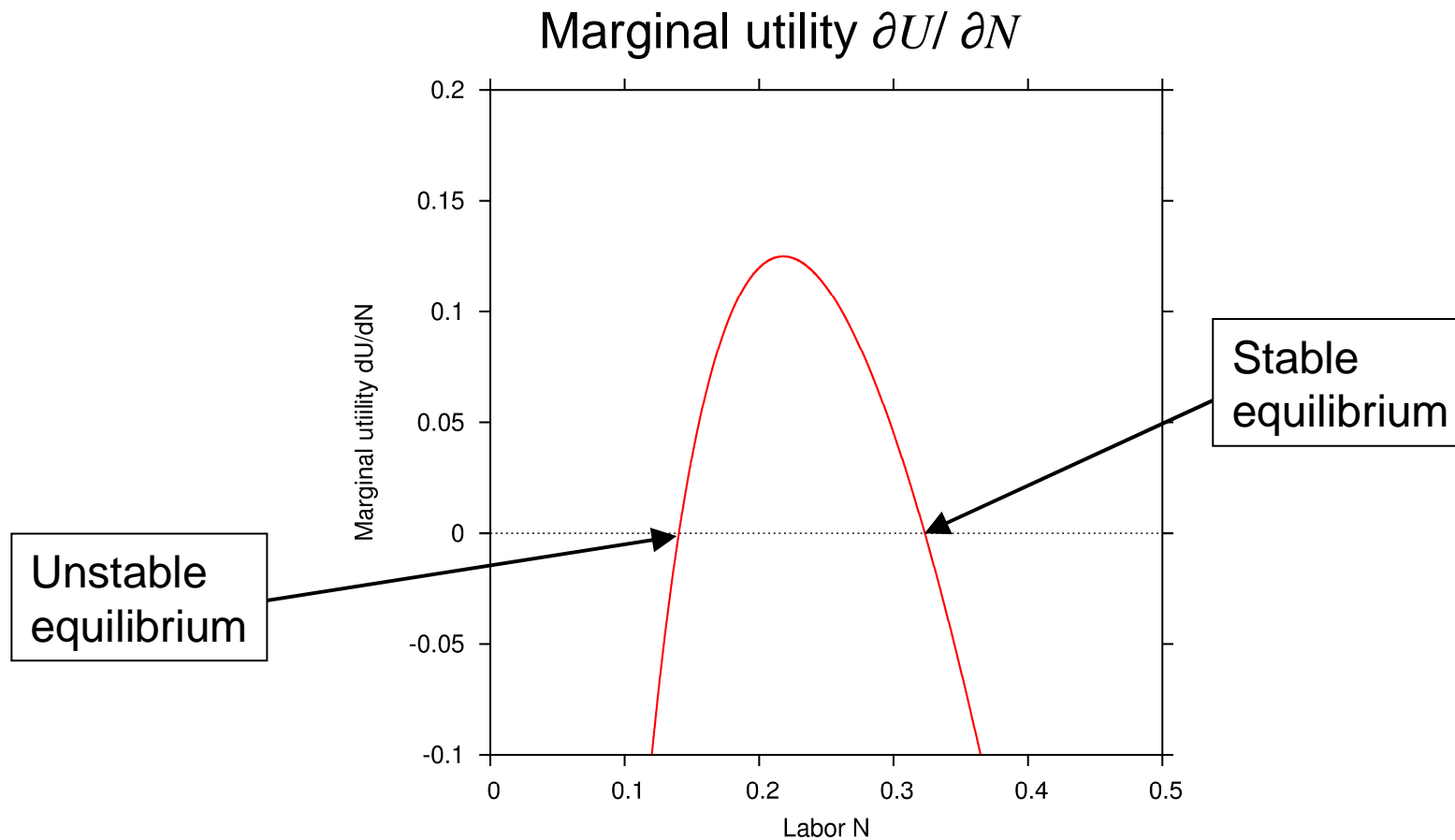
Solution: Consumption as a function of guaranteed consumption for different δ values (Laffer curves)



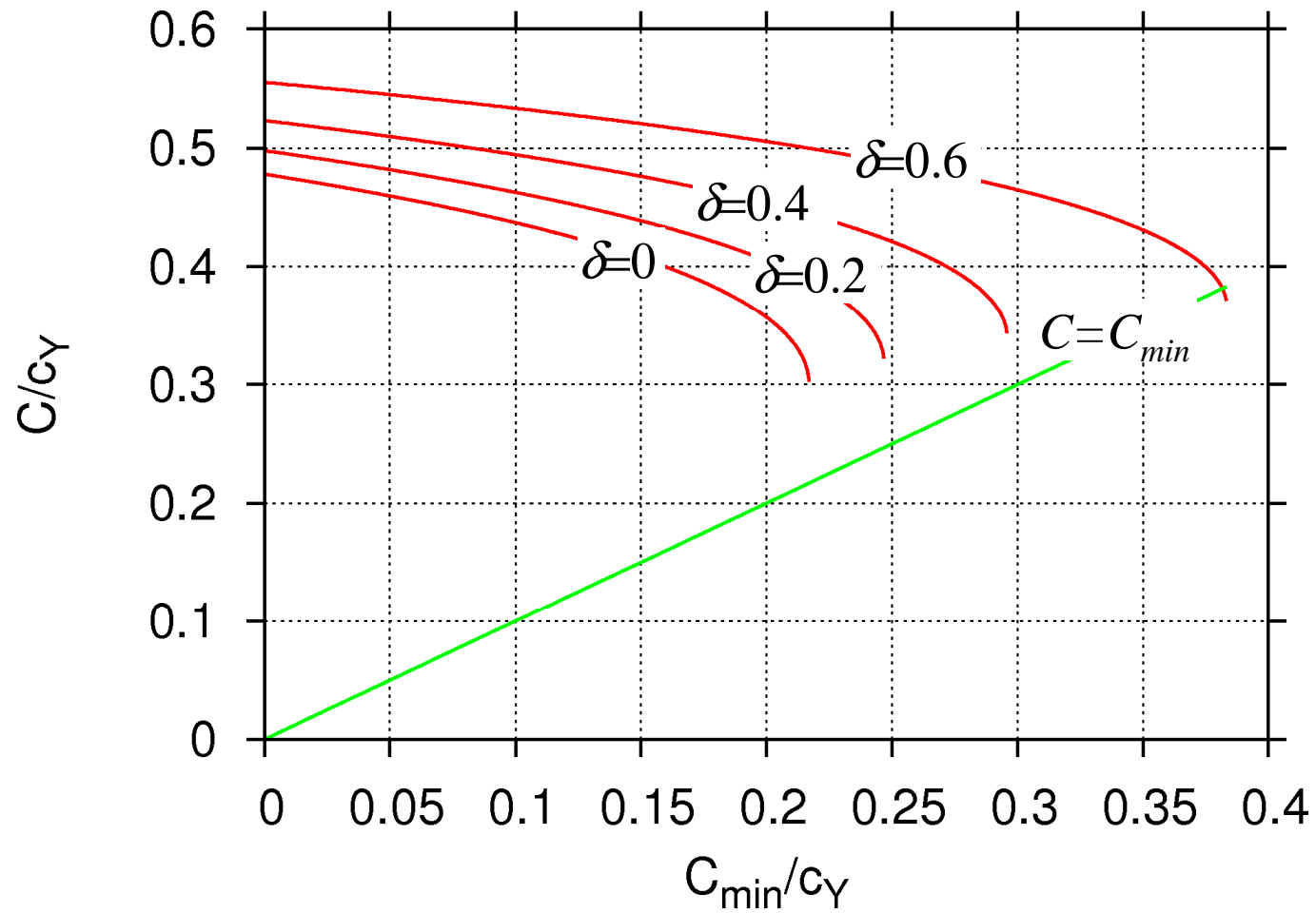
- We found two solutions which correspond to the normal and prohibited ranges of the Laffer curve, respectively.
- However, we can show that the lower prohibited branch is unstable and must be rejected.



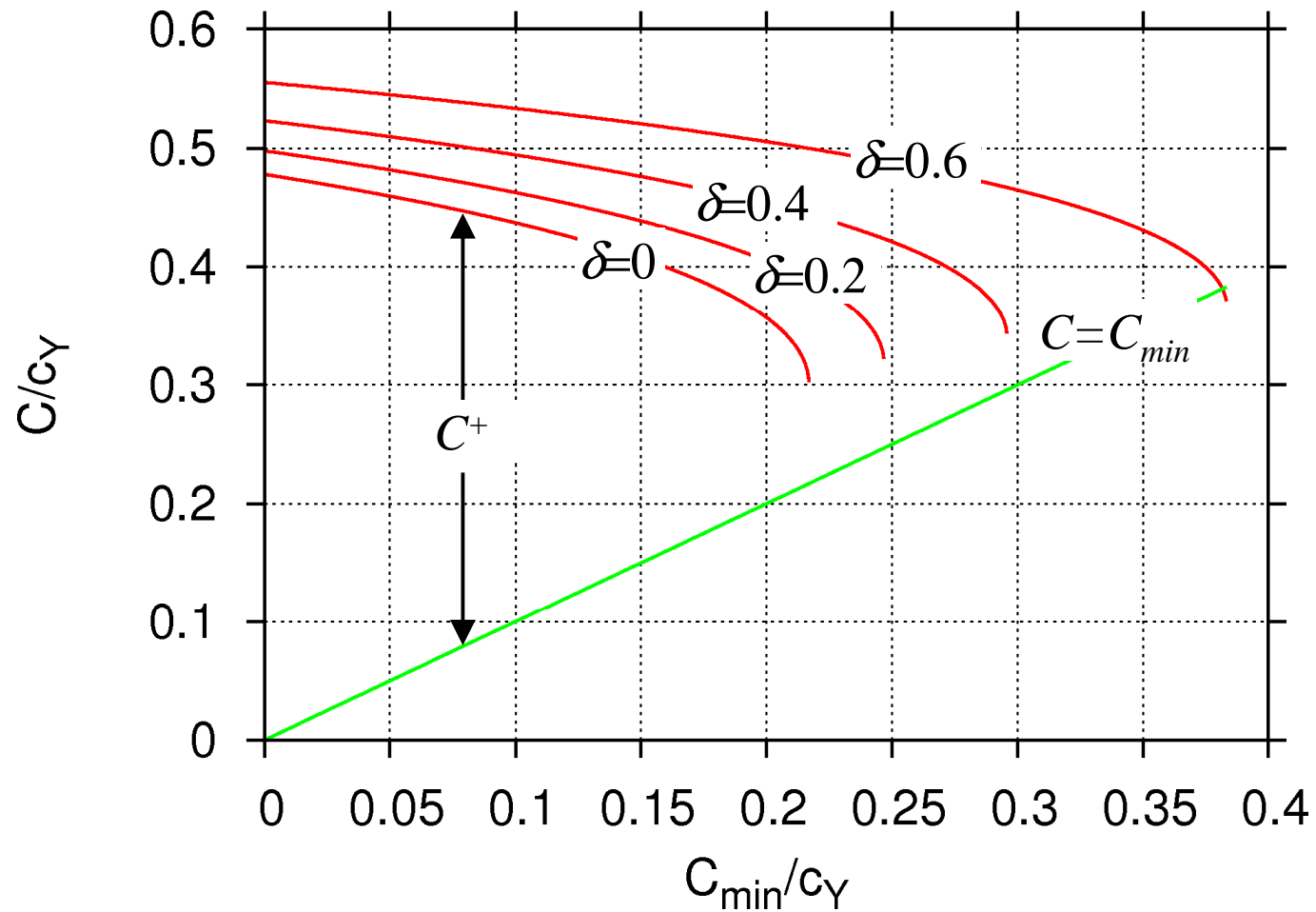
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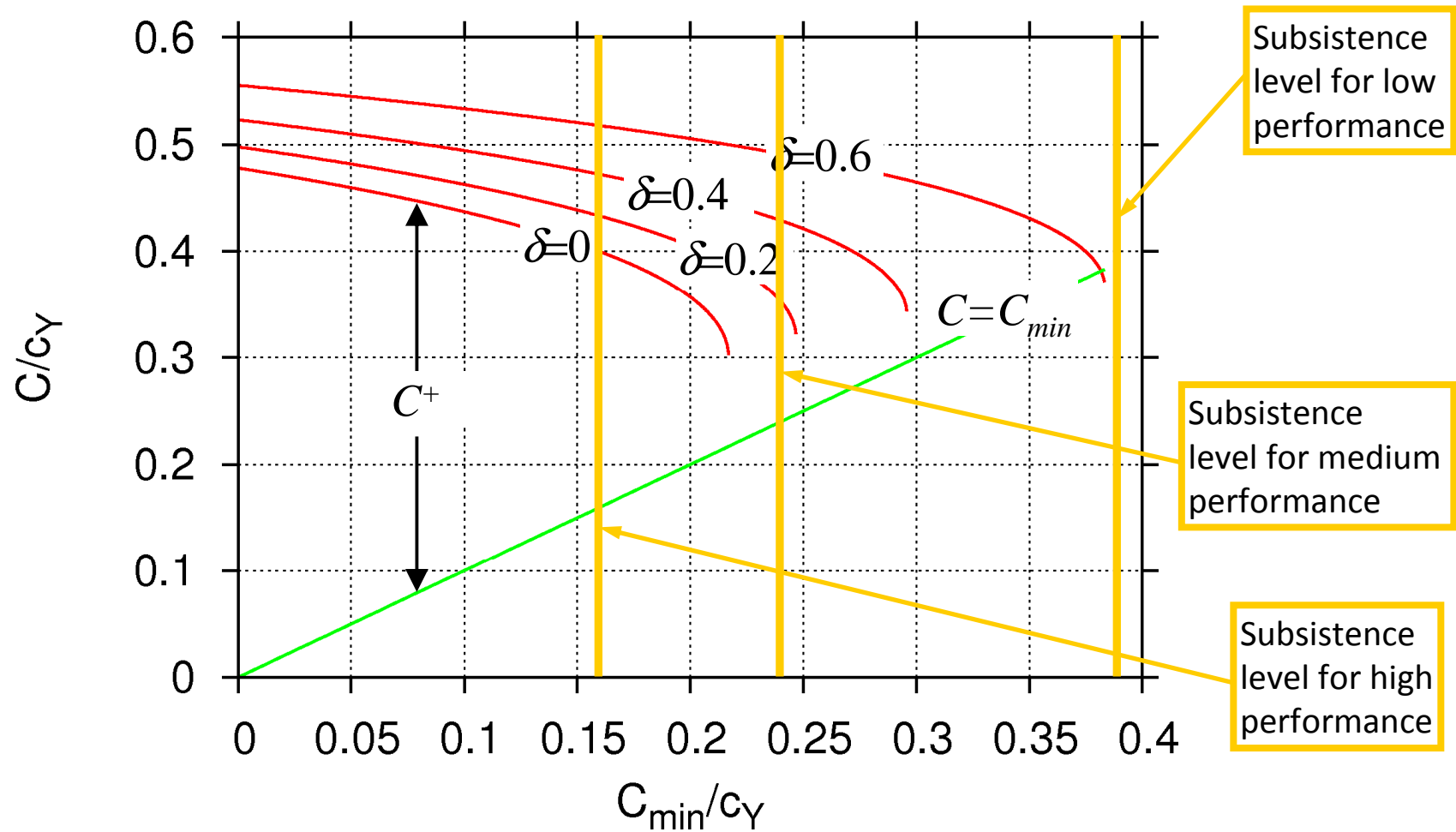
Consumption as a function of guaranteed consumption for different δ



Consumption as a function of guaranteed consumption for different δ



Consumption as a function of guaranteed consumption for different δ



3 Summary

In the presented simple model we found that

- Consumption decreases with increasing UBI (degrowth effect).
- The economy collapses when the UBI exceeds a critical value.
- The critical value increases with increasing propensity to work.
- The additional consumption C^+ decreases with increasing UBI.
- The prohibited range of the Laffer curve is unstable. The maximum possible degrowth that guarantees an UBI above the subsistence level is therefore more restricted than in the studies of van der Veen and van Parijs.
- A radical degrowth strategy requires a basic income not much above the subsistence level and a low ratio C^+/C . A small „additional gift“ for laborers C^+ results for a high propensity to work and an efficiency of the economy that is just enough (!) to guarantee an UBI above the subsistence level.

4 Further thoughts

- For an economic performance that is not sufficient for an UBI above the subsistence level, a “means-tested” basic income could be an alternative.
- Reducing the division of labor, the level of the UBI necessary to finance subsistence could be made lower by reducing the division of labor. Example: Reduction of services -> more self-made.
- If this does not work out a basic income could be combined with noncommercial obligatory labor that is exclusively devoted to the production of subsistence goods. Then, the market economy has a socialist core that can expand or shrink depending on the present economic state.
- Besides the UBI other measures are necessary to shape a sustainable economy.

Parameters of the model

- δ : Propensity to work
- C_{\min}/c_Y : Ratio guaranteed minimum to maximum possible consumption
(ratio guaranteed income to economic performance)
- $(1+\theta)/\gamma$: Ratio mark-up factor to elasticity γ
(θ determines distribution and γ the marginal utility of consumption)
- α : Output elasticity

Ratio C^+/C (parameter for inequality) as a function of C_{\min}/c_Y

