



# Frameworks of the Family: Time Allocation and Household Decision Making



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**Possible Section Times:**

**Tuesday 3-4pm**

**Wednesday 7:30-8:30pm**

**Thursday 6-7pm**

**We will have two section times.**

**T & W**

**or**

**W & Th**

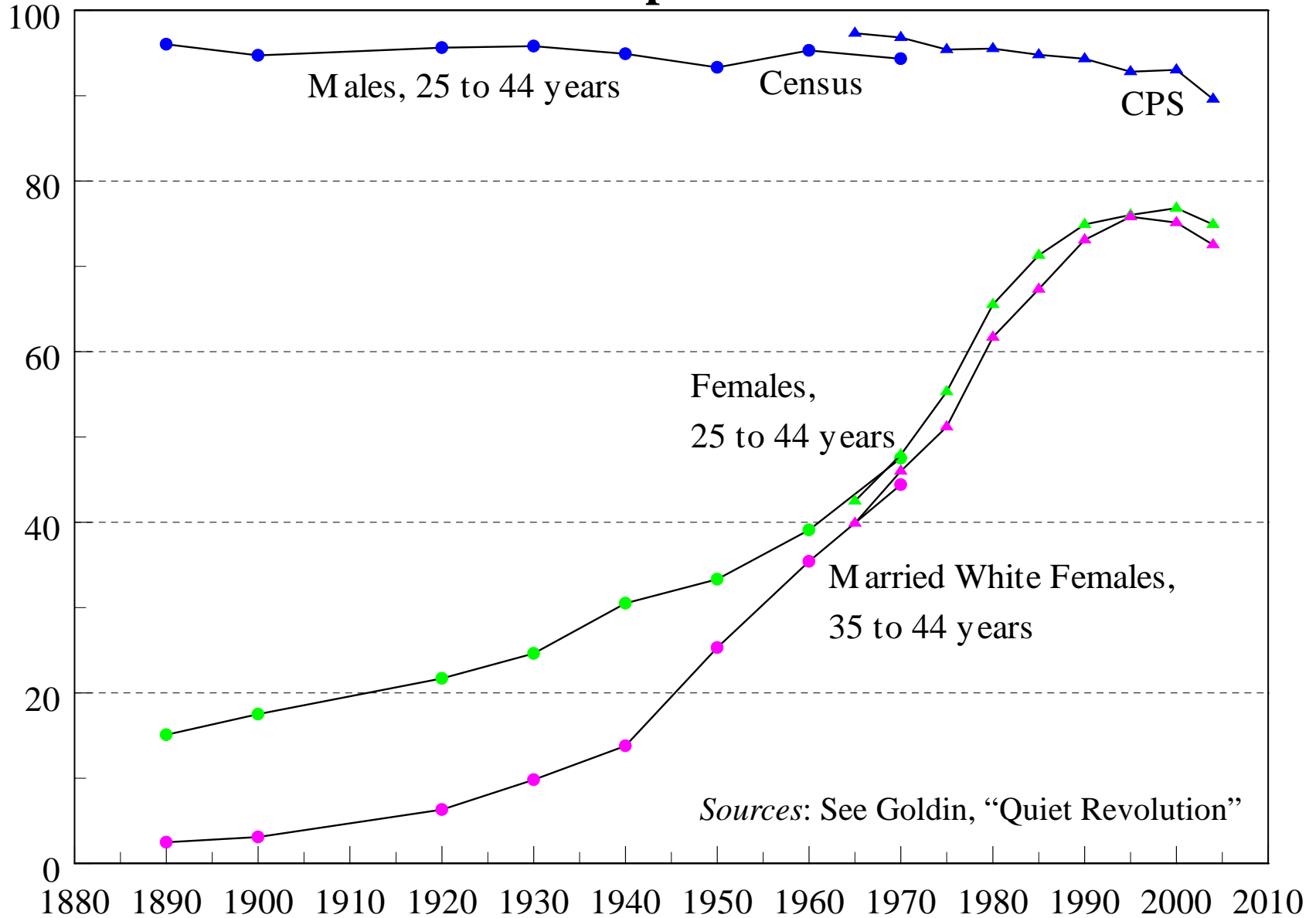
# Frameworks of the Family

- Frameworks: For what purpose?
- Three at this point:
  1. *Labor-Leisure* (or Consumption) time allocation for an individual
  2. *Labor-Leisure-Household Production*. More complicated individual time allocation; adds production in the household, rather than a fixed wage ( $MP_L$ ) per hour (Gronau)
  3. *Specialization and Trade* in the household (BWF). Production is simpler than in Gronau but now two people maximize. Constant  $MP_L$  for household work but possibly different  $MP_L$ 's between individuals. Becker assumes identical people *but* increasing returns to specialization.
- More frameworks later to understand how couples get together, how the “surplus” is divided, and why couples stay together (or do not).

# What Do We Want to Explain?

- Labor market participation and hours
  - Increased market involvement of married women (labor force participation); increase in part-time work (1950s), then full-time work
  - Positive relationship between education and labor force participation (or hours) in post-1950s for married women; but prior to 1940s probably *negative* relationship.
  - Decreased participation of teens, older men, and recently men in prime ages

# Labor Force Participation Rates for Males and Females

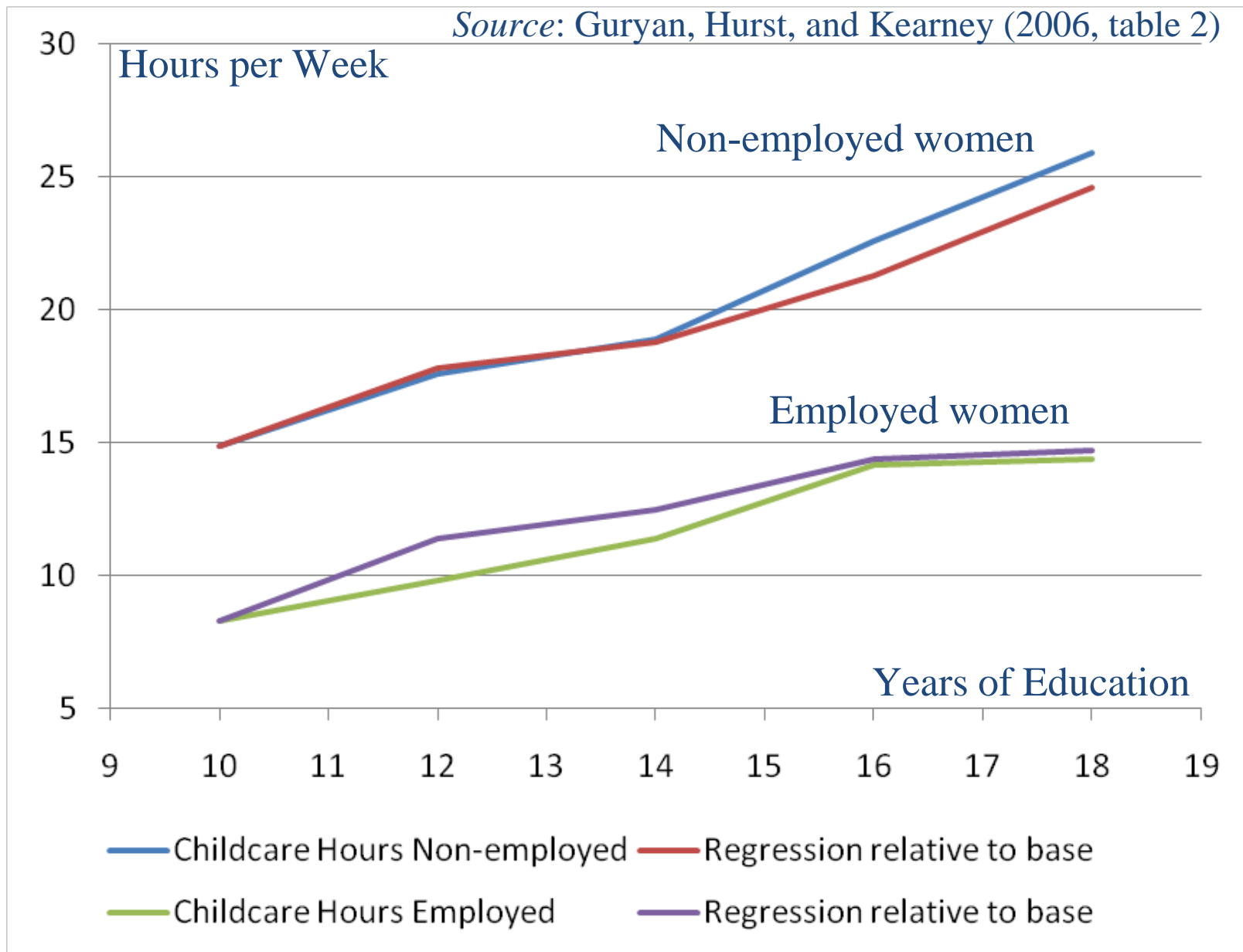


# What Do We Want to Explain?

- Changes in household production (using time-diary data)
  - Relative to 1965, today men (with children) have increased leisure time, increased home production time, and decreased market work time.
  - Relative to 1965, today women (with children) have increased leisure time, *decreased* home production time, and *increased* market work.
  - Increased purchases of goods and services, over the long-run, that substitute for time in household production.
  - Higher educated parents spend *more* time with their children than those with less education across *all* nations studied (Guryan, Hurst, and Kearney 2006).

# Total Child Care, Weekly Hours/Woman: by Education, U.S. 2003-06

Source: Guryan, Hurst, and Kearney (2006, table 2)





# What Do We Want to Explain?

- Marriage age, divorce, family formation
  - Decreased age at first marriage from 1930s to 1950s
  - Increased age at first marriage from 1970s to the present
  - Increased divorce in the 1960s, 1970s, 1980s, and then a *decrease*
  - Family formation: fewer extended families, more single moms, more cohabitation. Separation of sex from marriage and family
  - Changes in birth rates (later in the course): long-term decline, “baby boom,” then “baby bust.” Relationship between mother’s education and number of children is negative.

# What Do We Want to Explain?

- Investments in education (later)
  - Increase in educational investments for men *and* women
  - Much greater relative increase for women in the post-1970s and continuing to the present.
  - Relative increase in educational investments for women are robust across all OECD nations and others.

# Frameworks of the Family: QUIZ

- Assume that the labor force participation rate increases and some people shift from working full-time at home production to full-time at market production. *Question: How much should national income change?*
  1. It does not change at all since the person is working full-time under both conditions.
  2. The full amount that the person earns in the market.
  3. The value of production that had occurred in the home.
  4. The amount the person earns in the market minus the value of the production that occurred in the home.

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# Frameworks of the Family: QUIZ

- Assume that some people work full-time at home production. *Question: How much should we value the time of the person who works at home production?*
  1. We should value each hour at the wage rate facing the person in the market.
  2. We should value each hour at more than the wage rate facing the person in the market.
  3. We should value each hour the person works at home at a different wage rate.

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# Frameworks of the Family: QUIZ

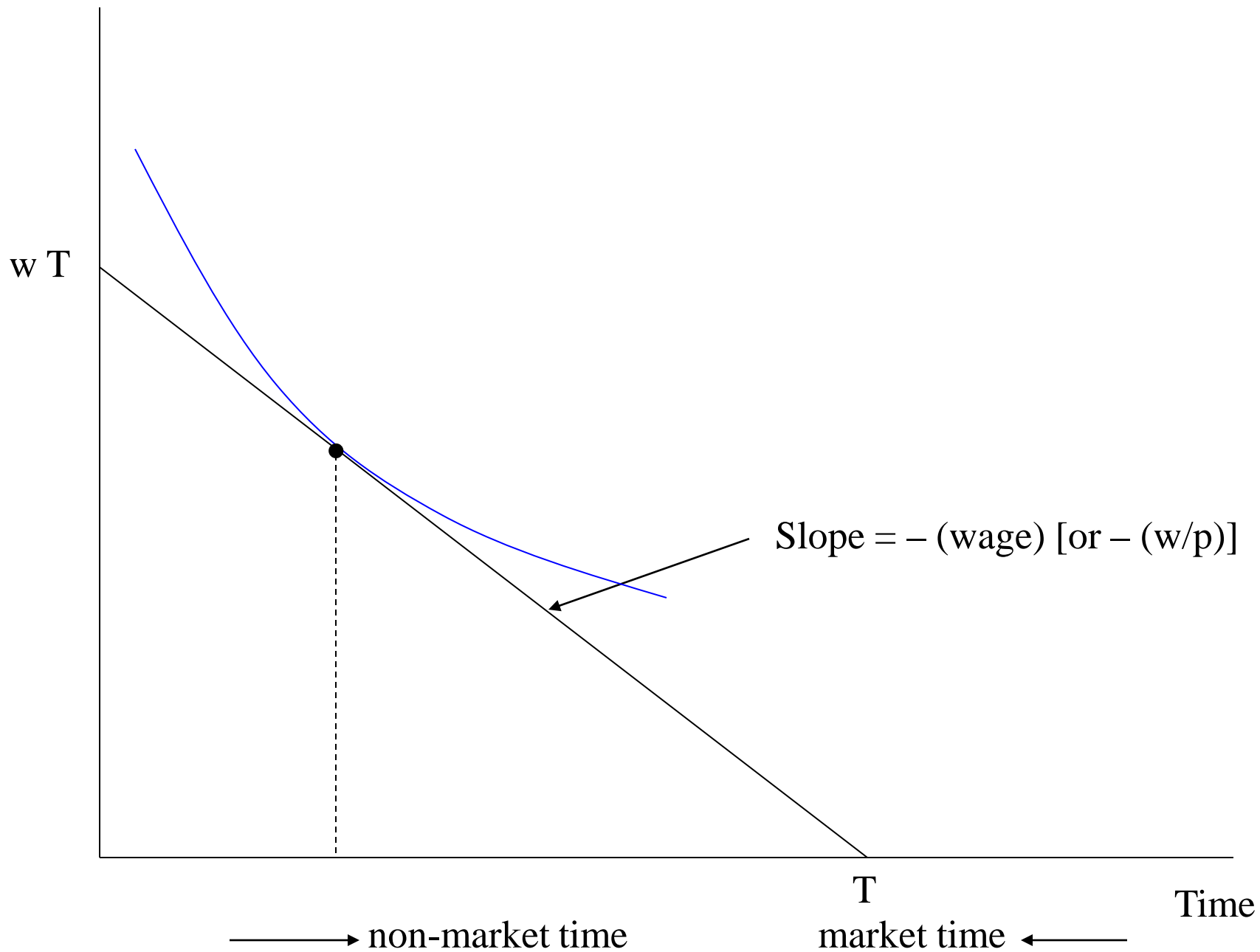
- Assume that some people work full-time at home.  
*Question: How much should we value the time of the person who works at home?*
  1. We should value each hour at the wage rate facing the person in the market.
  2. We should value each hour at more than the wage rate facing the person in the market.
  3. We should value each hour the person works at home at a different wage rate.
- *Question: Would your answer change if the person worked for some hours in the market and some hours at home production?*
  - Yes
  - No

# What Type of Frameworks Should We Use?

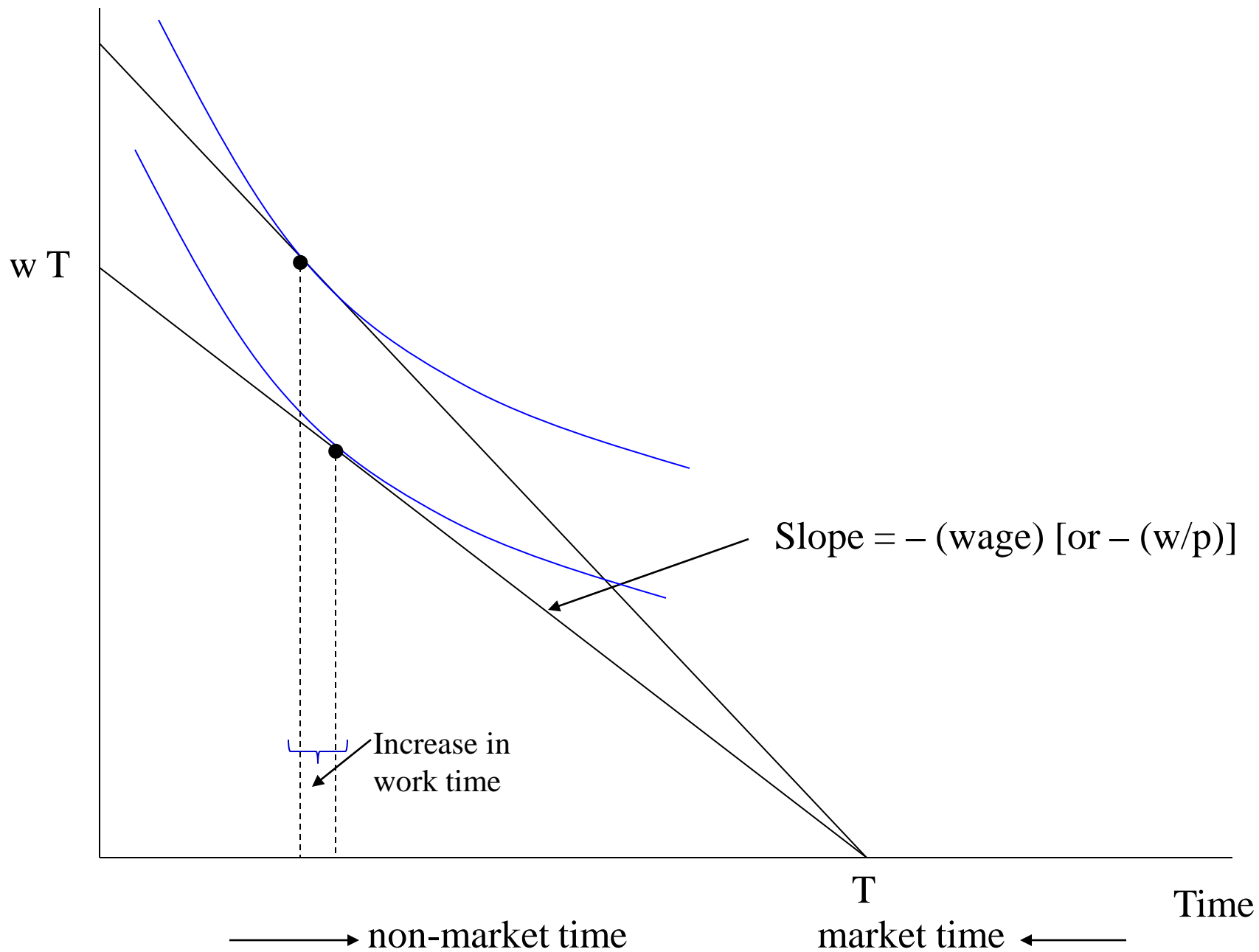
- Deriving a labor supply function: On what will it depend?
  - Wage rate
  - Non-labor income or family income (is that exogenous?)
  - Individual preferences between leisure and work
  - But what about the real “meaning” of employment and activities outside the home? Increased social role of the workplace.
- What if there are three uses of time (market, home, leisure or consumption)?
  - Faced with a market wage rate, first determine where you are most productive (home vs. market), work there until  $w = MP_L$  and then determine how much to work in the market.
  - The residual is leisure (or consumption).
- Start with the simplest of models (always a good thing).  
Review of the workhorse Labor-Leisure model.



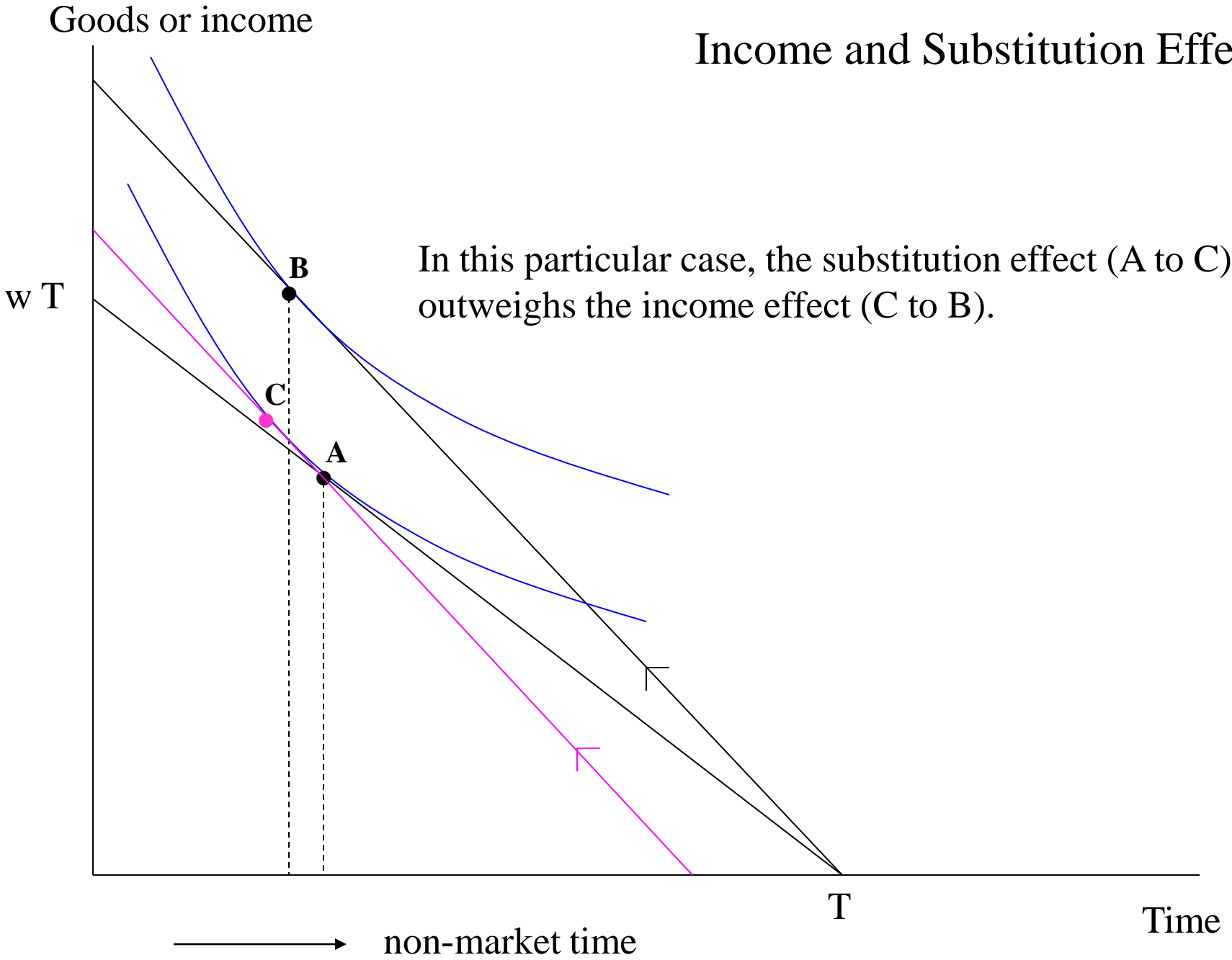
Goods or income



Goods or income

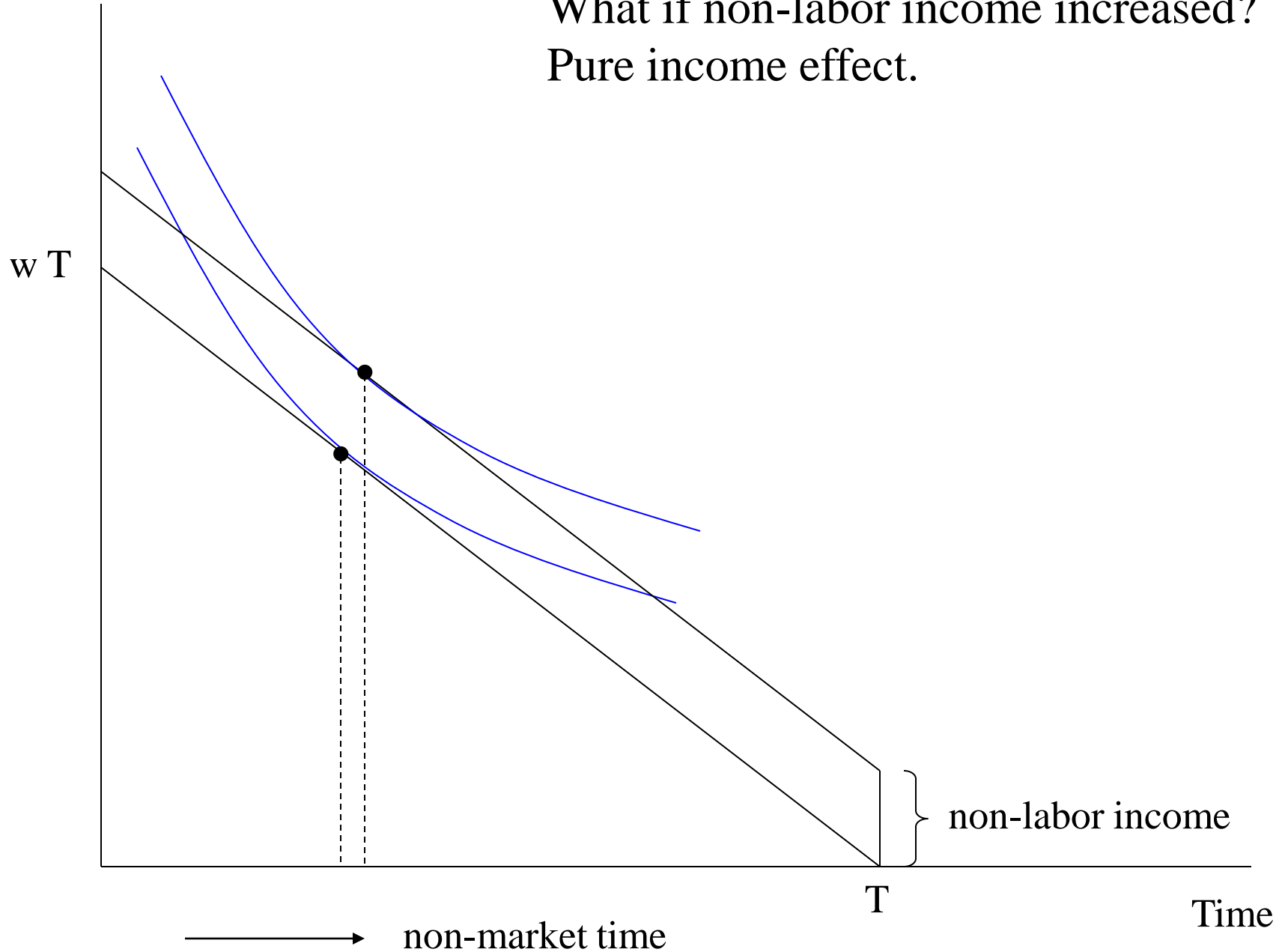


# Income and Substitution Effects

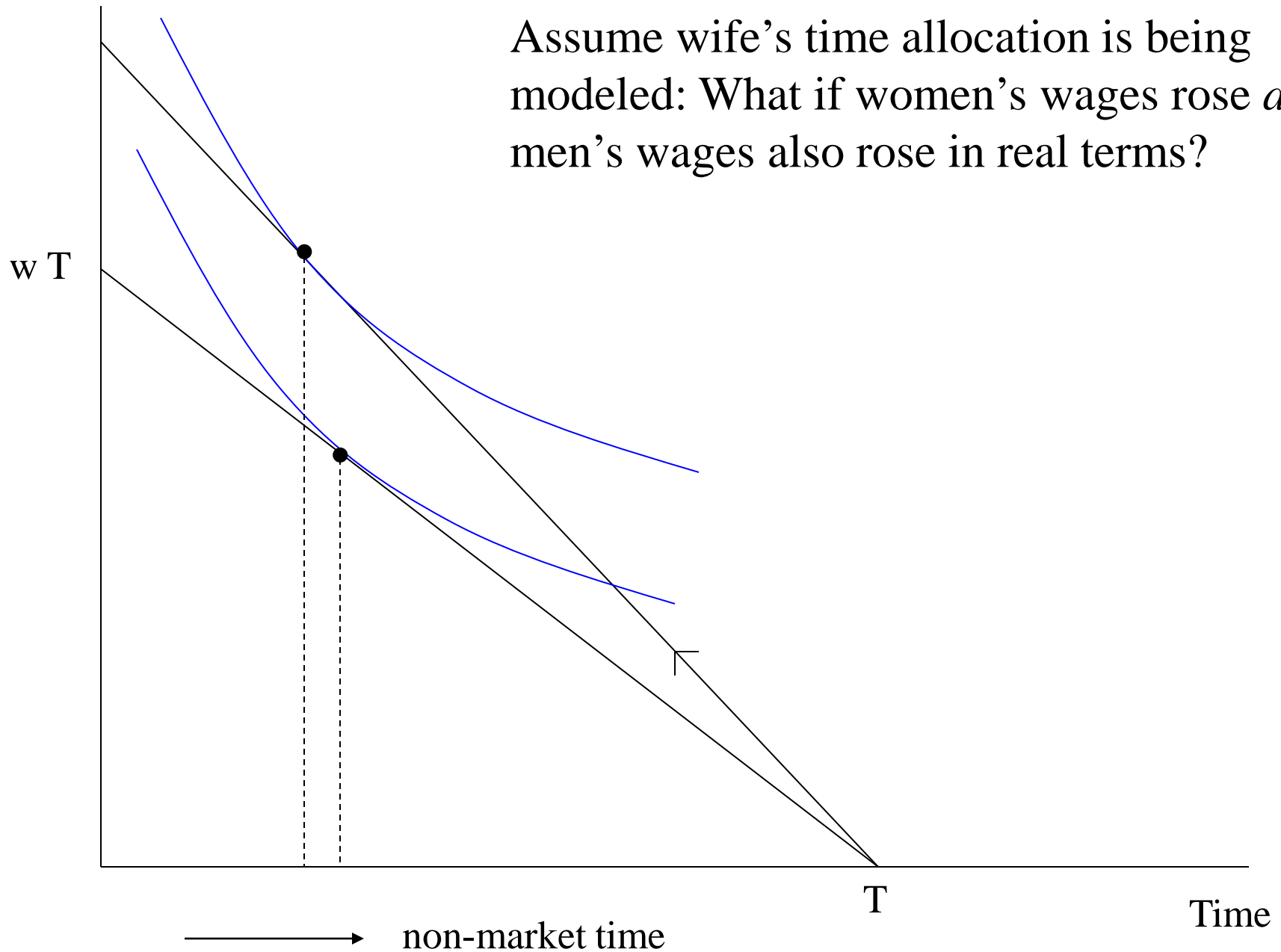


Goods or income

What if non-labor income increased?  
Pure income effect.



Goods or income



Goods or income

Assume wife's time allocation is being modeled: What if women's wages rose *and* men's wages also rose in real terms?

w T

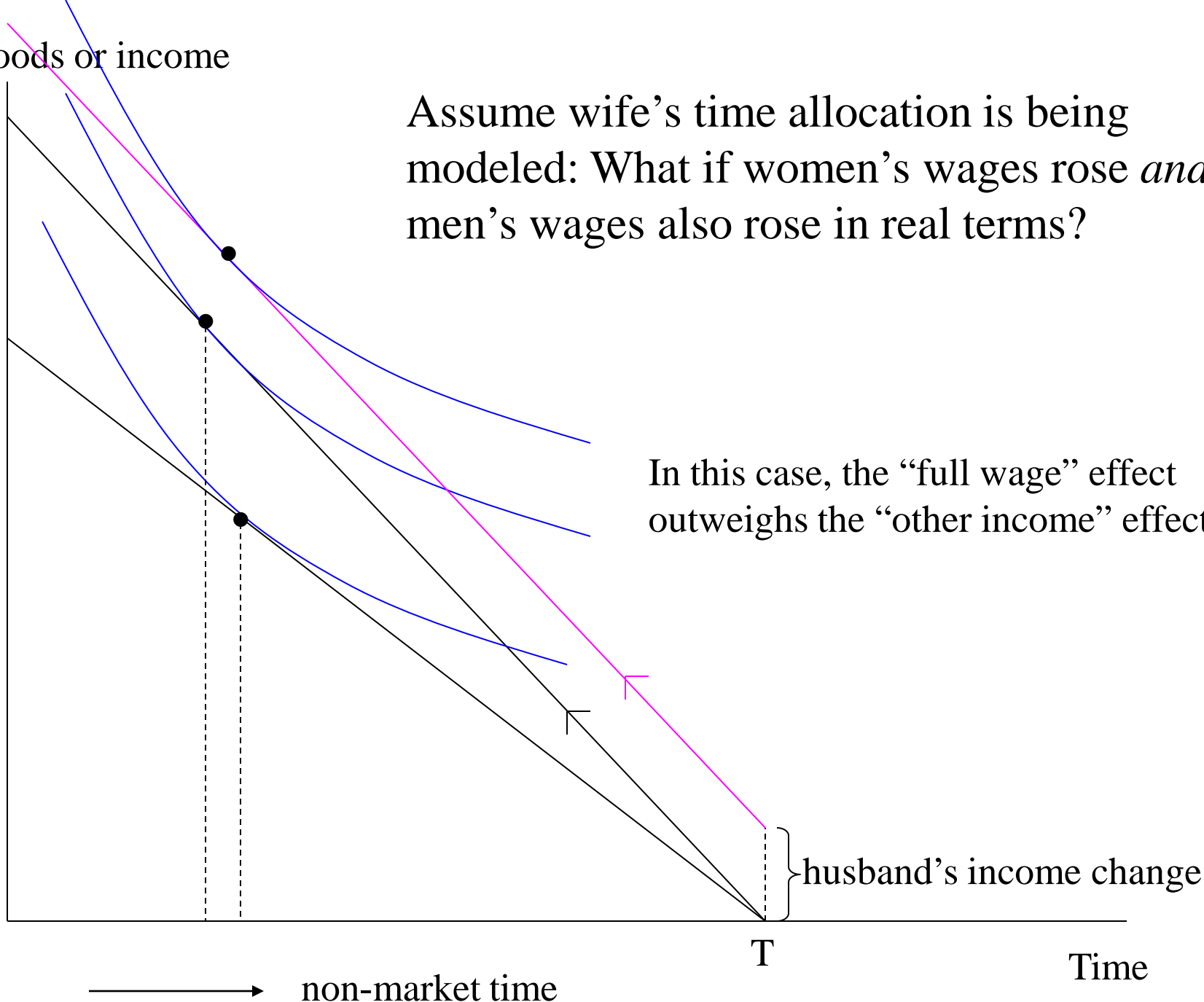
In this case, the "full wage" effect outweighs the "other income" effect.

} husband's income change

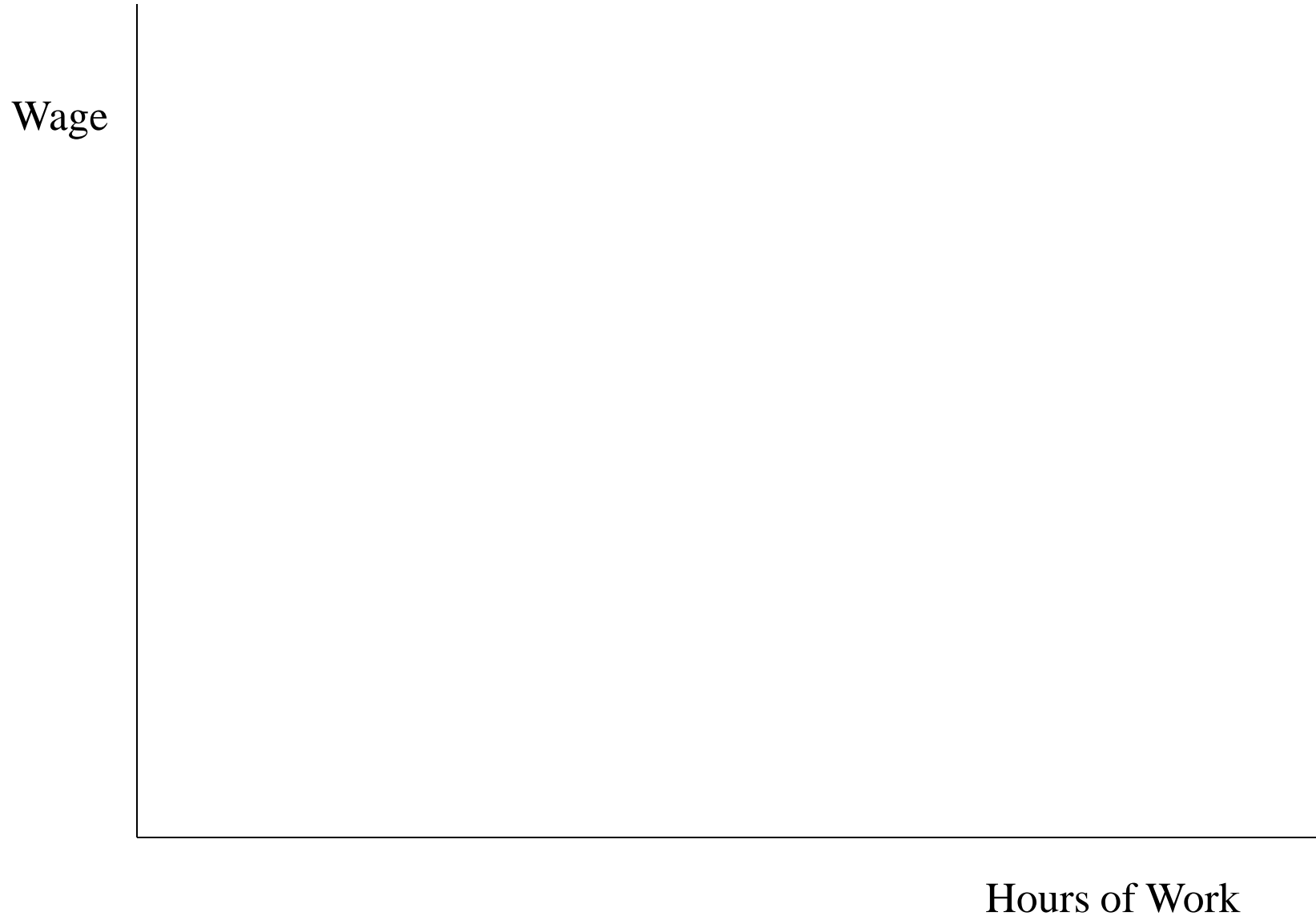
T

Time

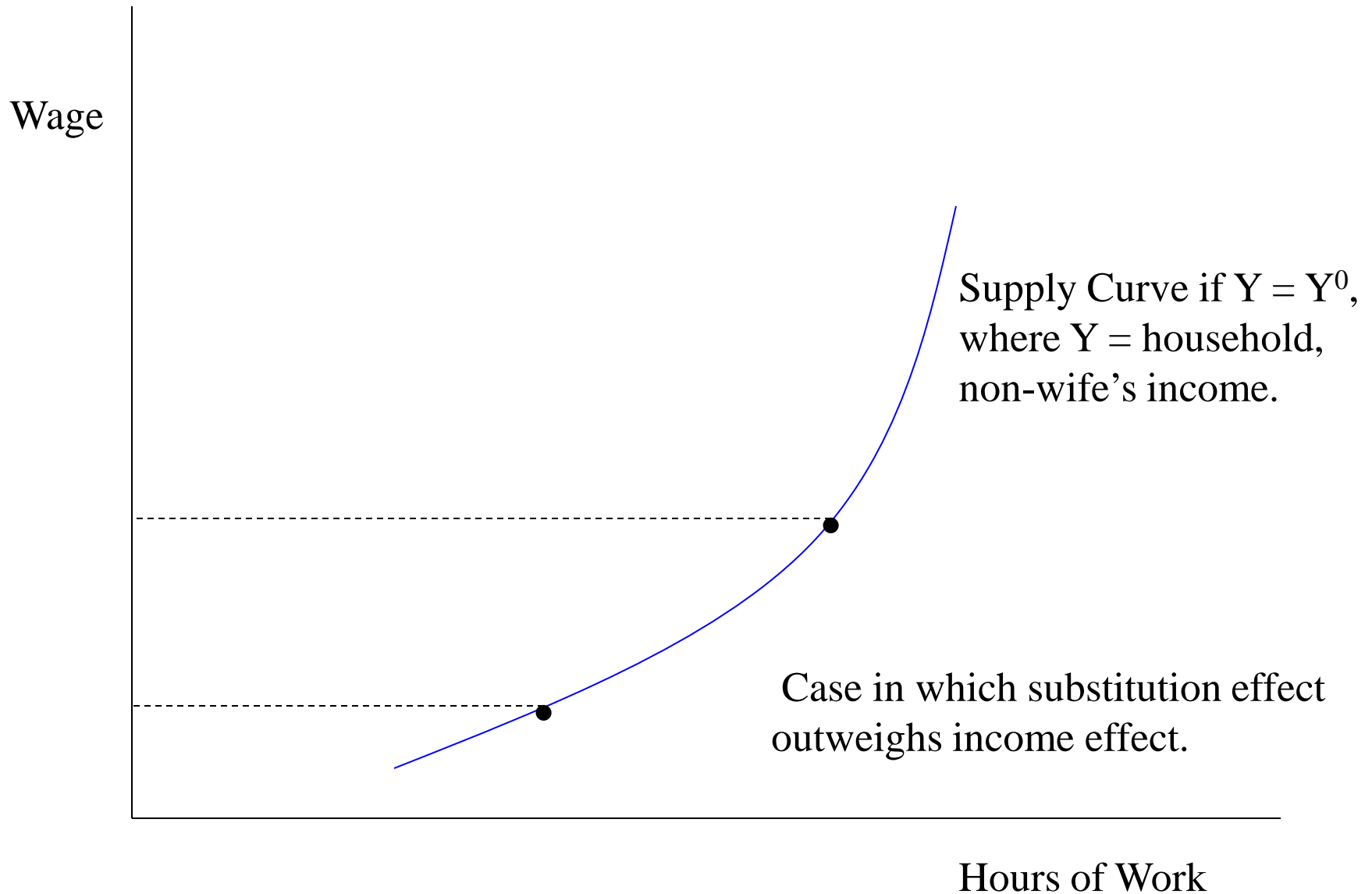
→ non-market time



# Deriving Labor Supply

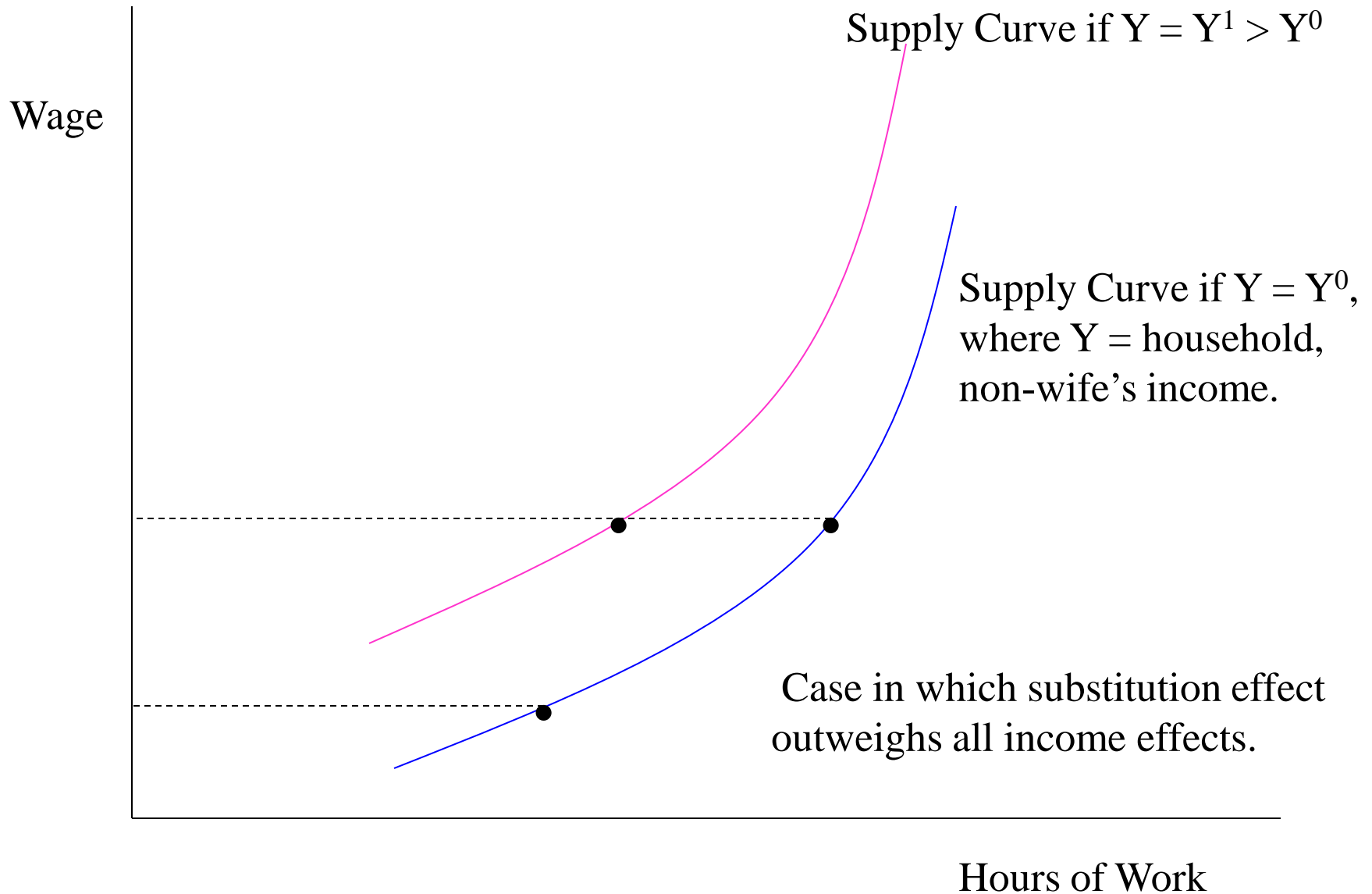


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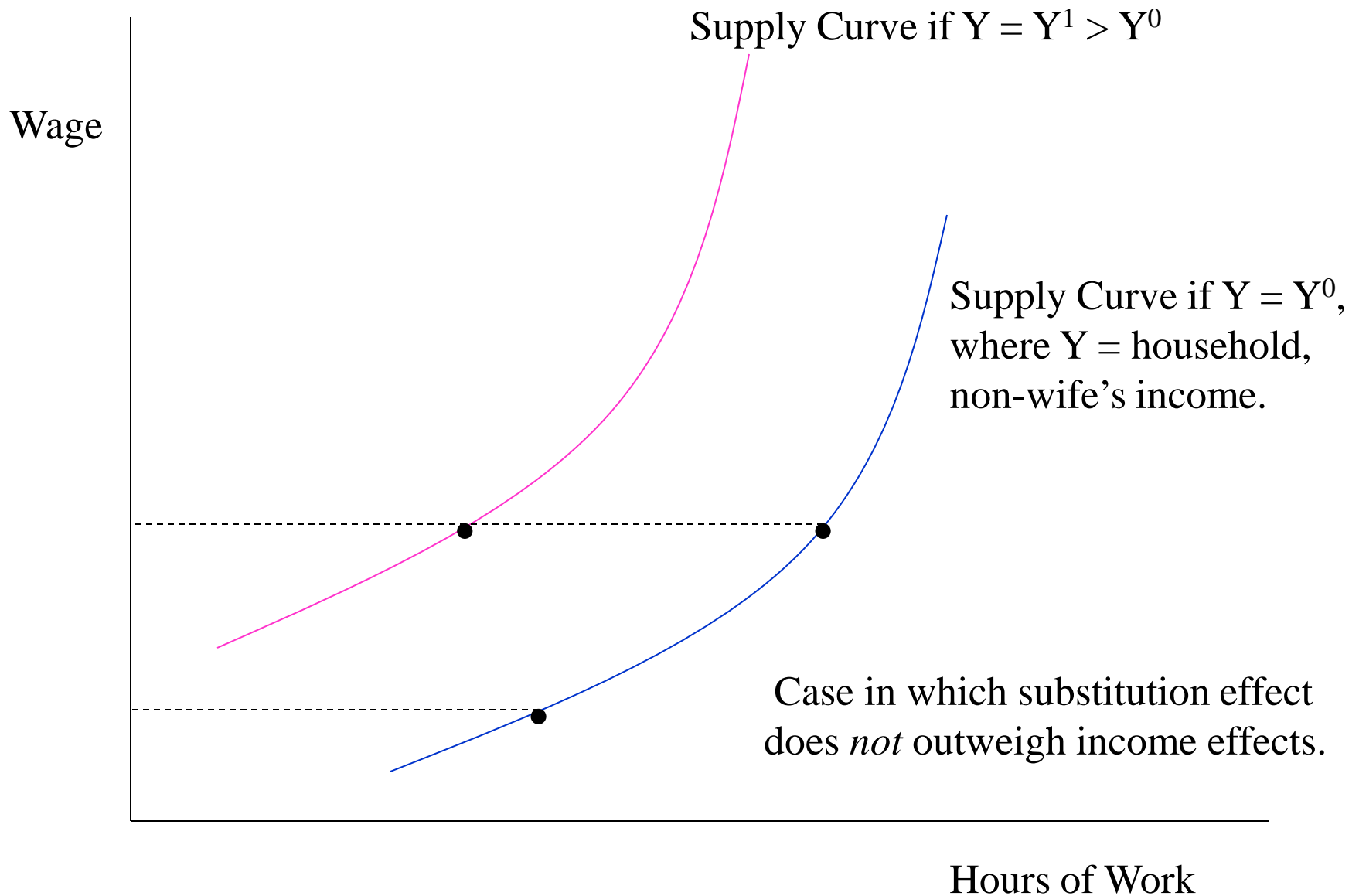




# Deriving Labor Supply



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# Further Complications

- Are there just two uses of time? What about adding another? Household and/or child time?
- Begin with the simplest representation of 3 uses of time: Market, Household production, Consumption (or Leisure)

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- Are there just two uses of time? What about adding another? Household and/or child time?
- Begin with the simplest representation of 3 uses of time: Market, Household production, Consumption (or Leisure)
- A richer framework would account for a multitude of time uses and “commodities” (see Becker, chap. 1).
  - We consume “commodities” such as health, nutrition, entertainment, education, not raw goods.
  - $Z_i = f(x_i, t_{hi})$ ; shadow price is:  $\pi_i = [p_i x_i + w t_{hi}] / Z_i$
  - Why do people purchase more restaurant meals and personal services when their wage increases? Who vacations in an RV and who travels by air?

# Adding Non-Market Production: Three Uses of Time – Gronau Article

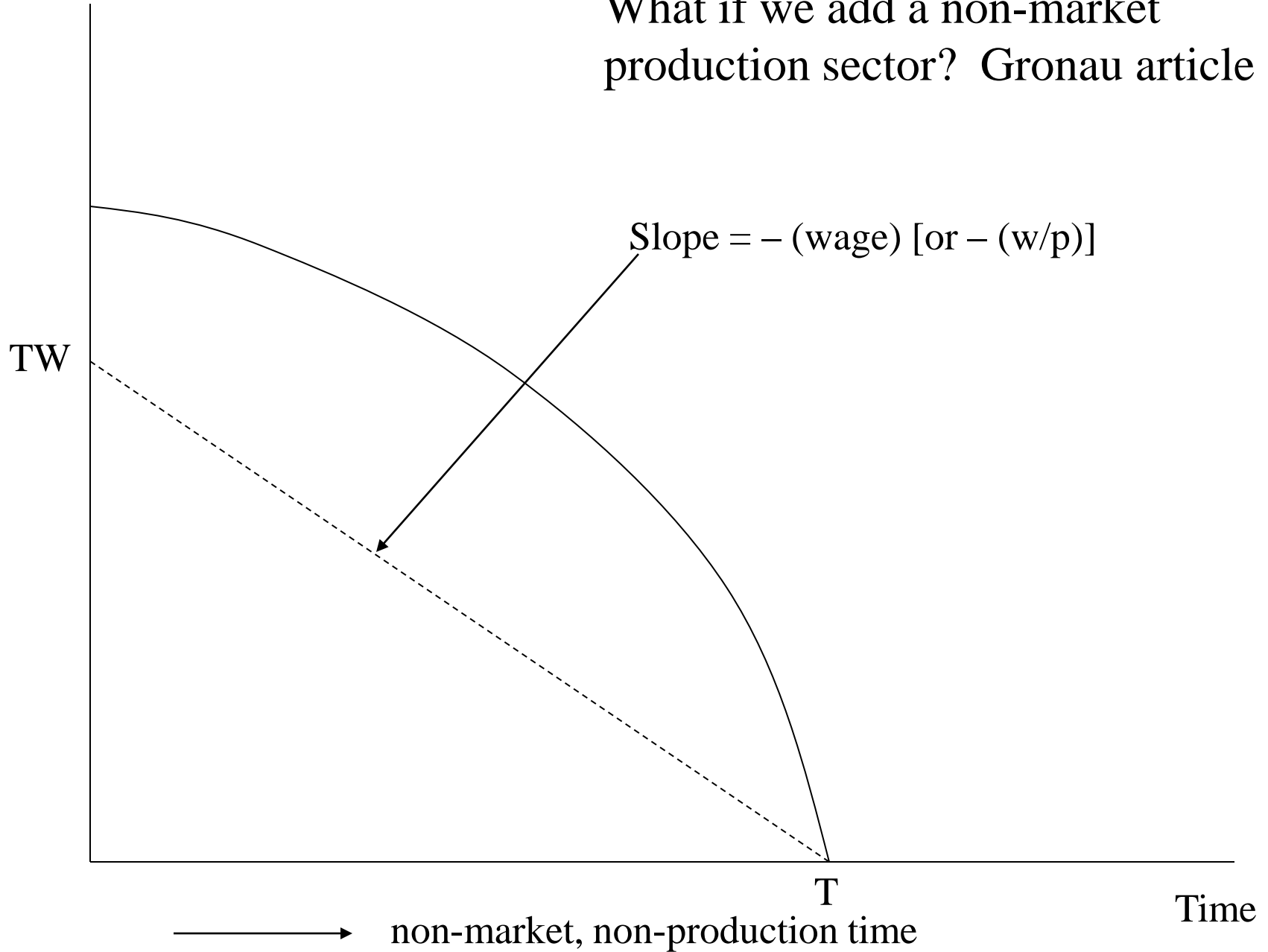
- Set-up and assumptions of the model (using Gronau notation):
  - One-person household can produce  $X$  *or* purchase  $X$ .
  - $X = X_M + X_H$ , perfect substitute assumption
  - Home goods are produced  $X_H = f(H)$  with just home work time ( $H$ ); no capital.

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  - Total time =  $T = H + L + N$ , where  $H$  = home work time,  $N$  = market work time,  $L$  = consumption (leisure) time
  - Objective of individual is:  
 $\max Z = Z(X, L)$ , subject to  $X_M = W \cdot N + V$ ,  
where  $W$  = market wage,  $V$  = non-labor income or wealth,  
and  $T = H + L + N$ , total time constraint.

Goods or income

What if we add a non-market  
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$(T-H)W$   
 $+ f(H)$

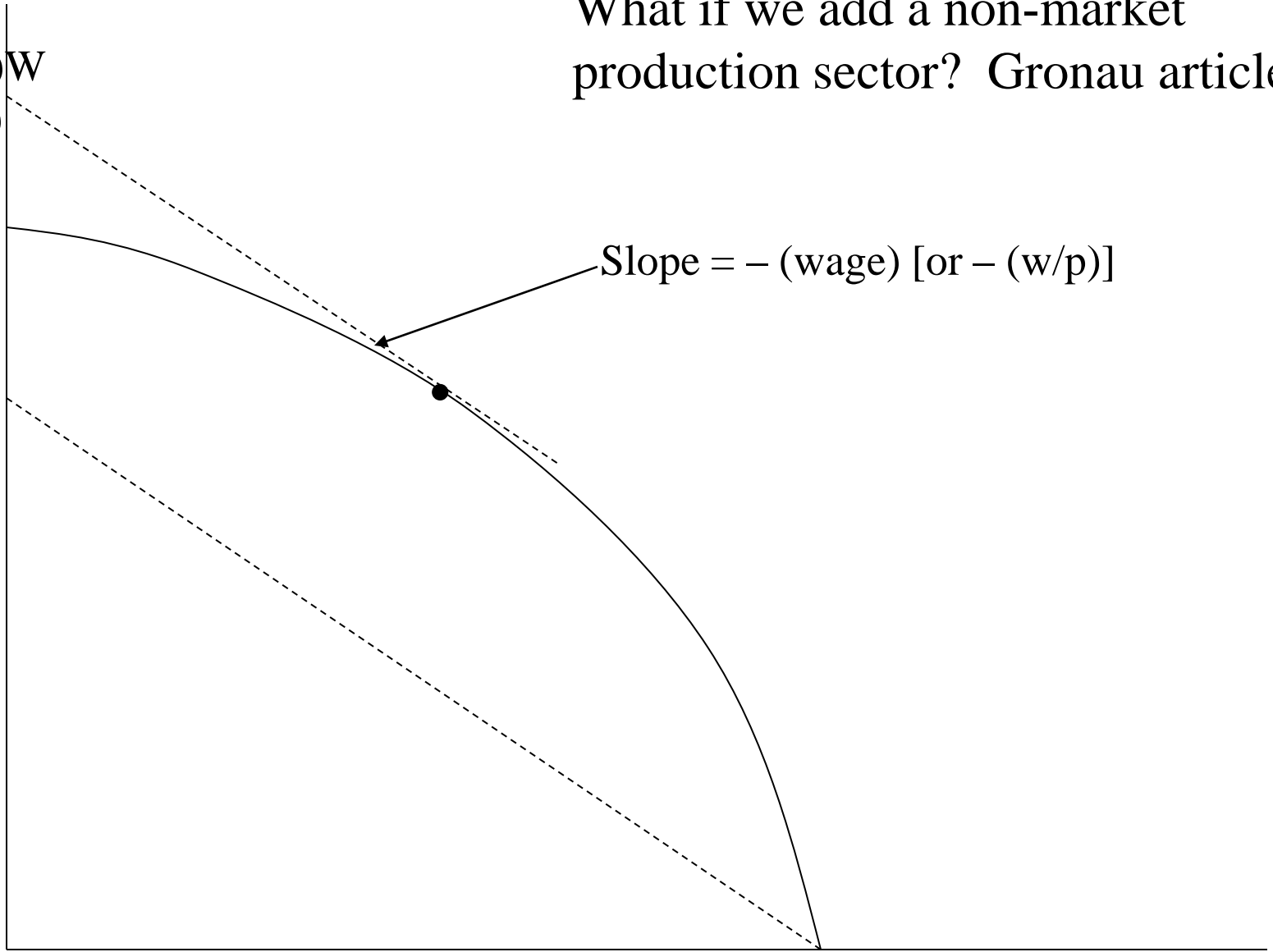
$TW$

Slope =  $-(\text{wage})$  [or  $-(w/p)$ ]

$T$

Time

→ non-market, non-production time





Goods or income

What if we add a non-market production sector? Gronau article

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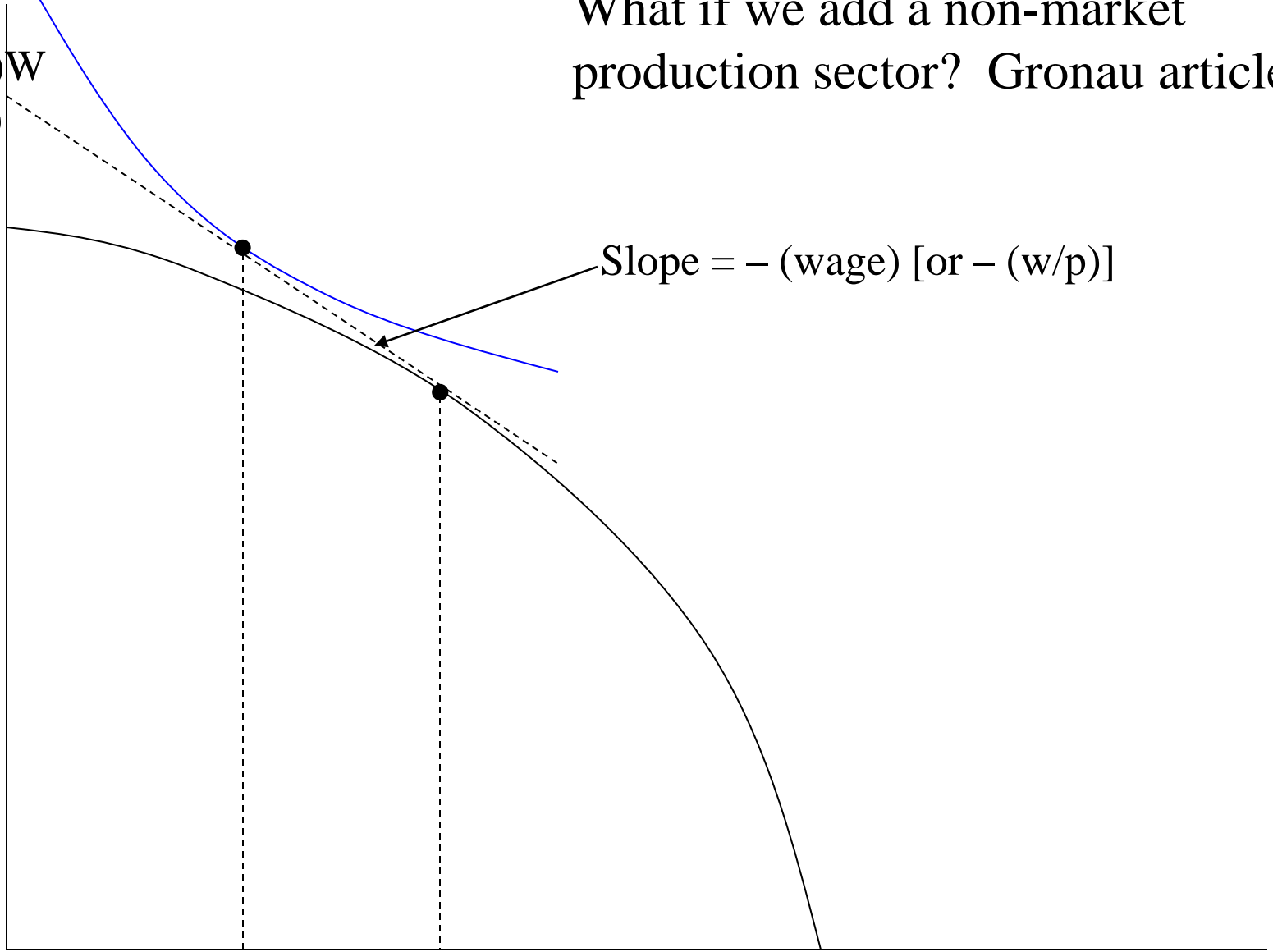
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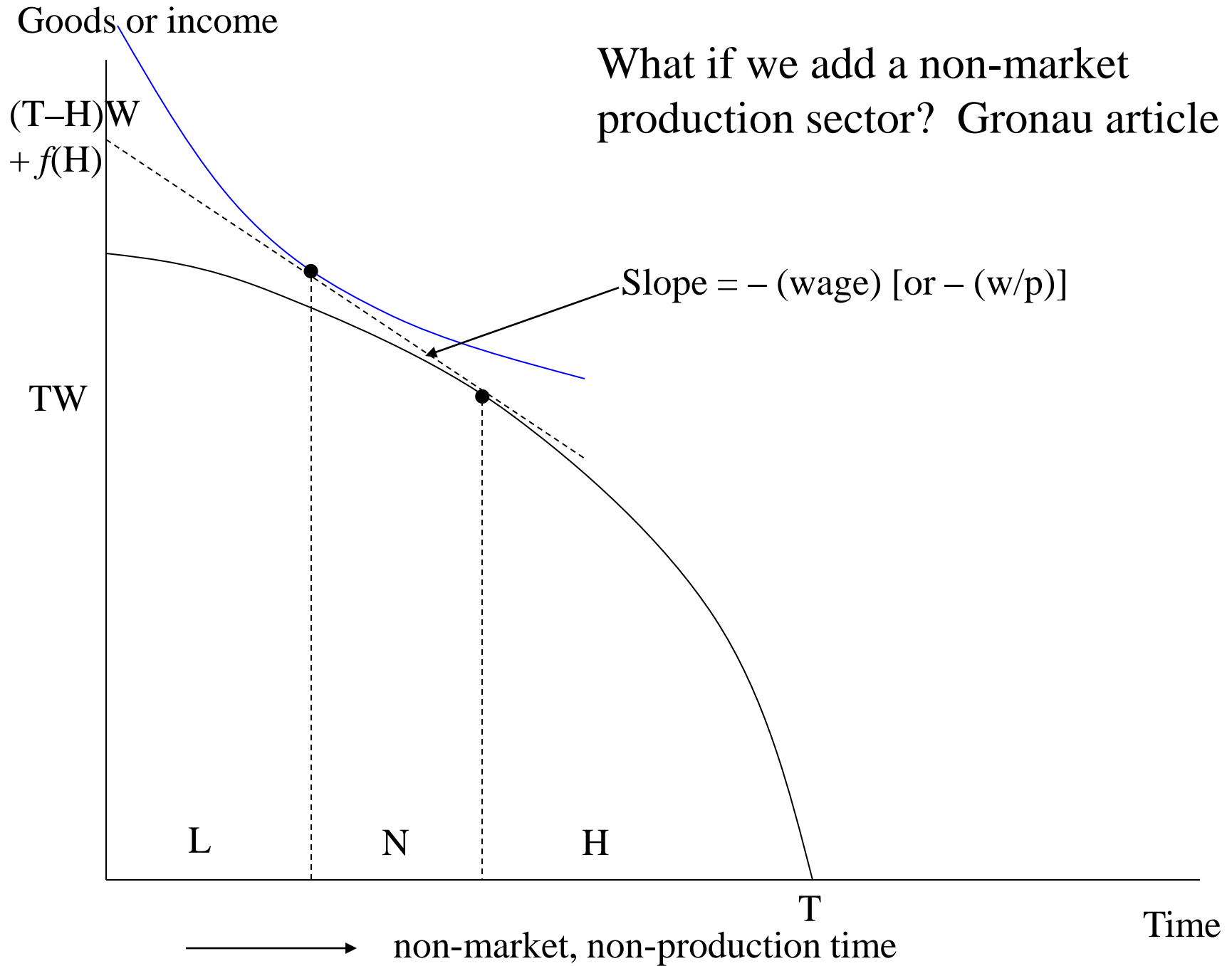
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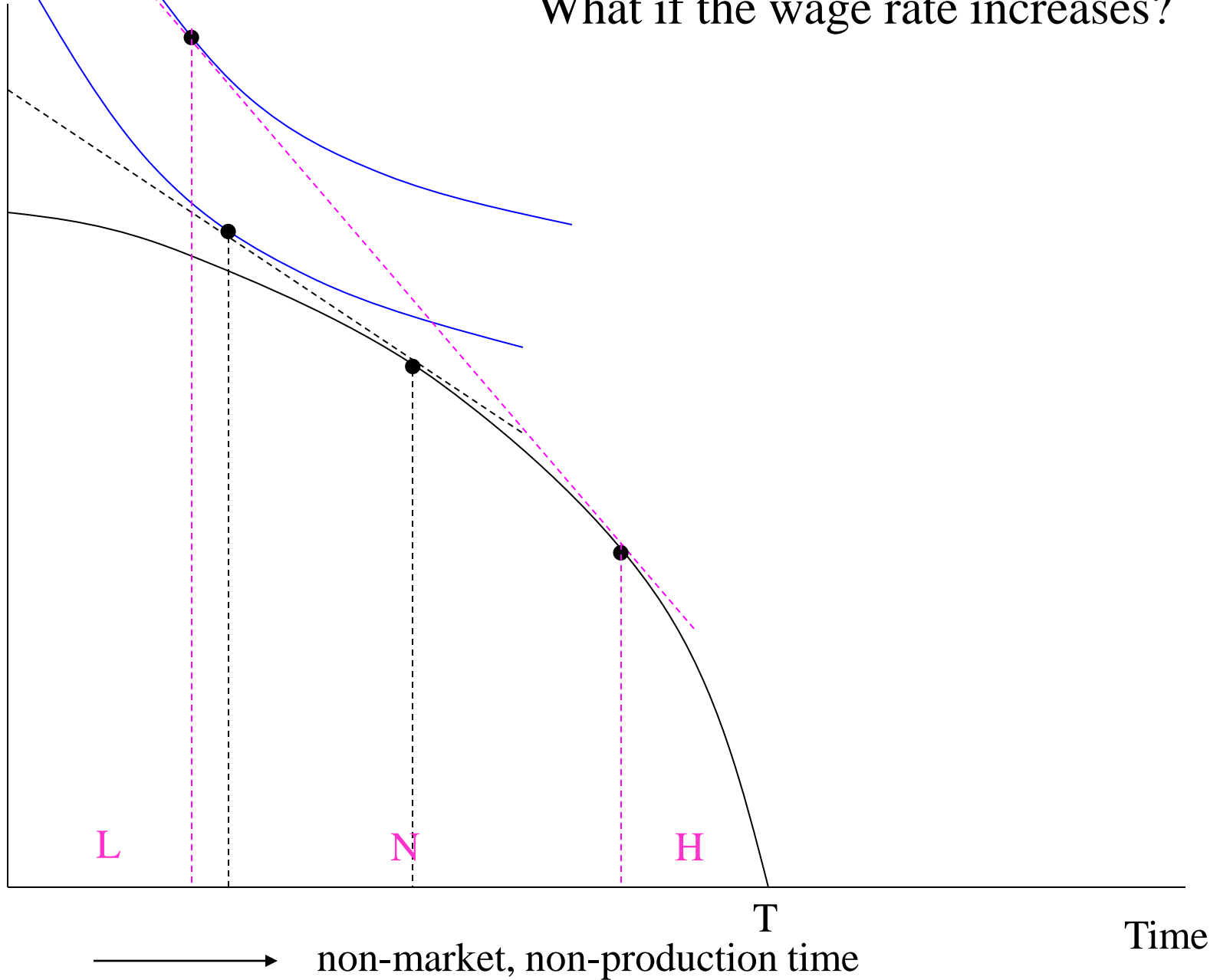


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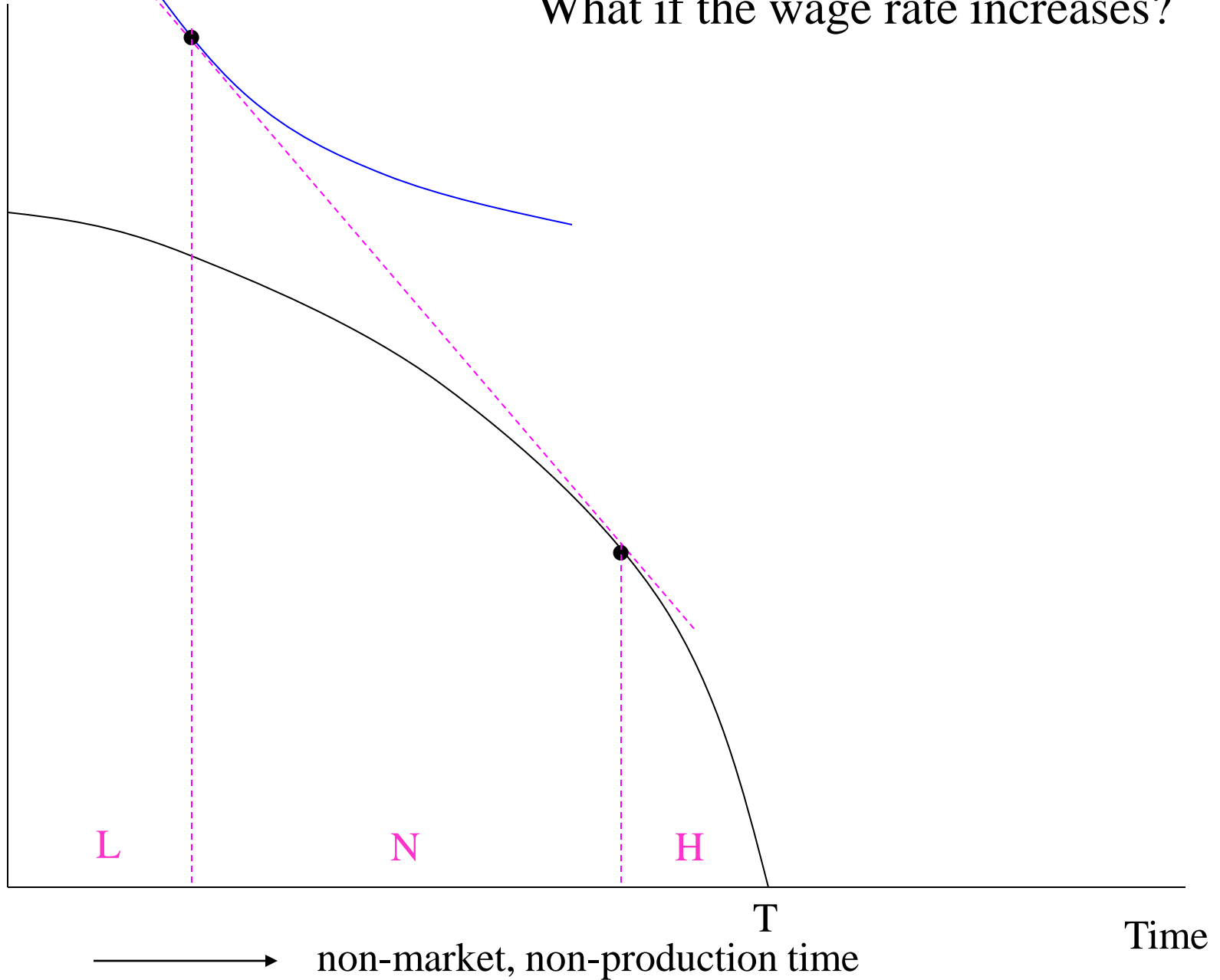
Goods or income

What if the wage rate increases?



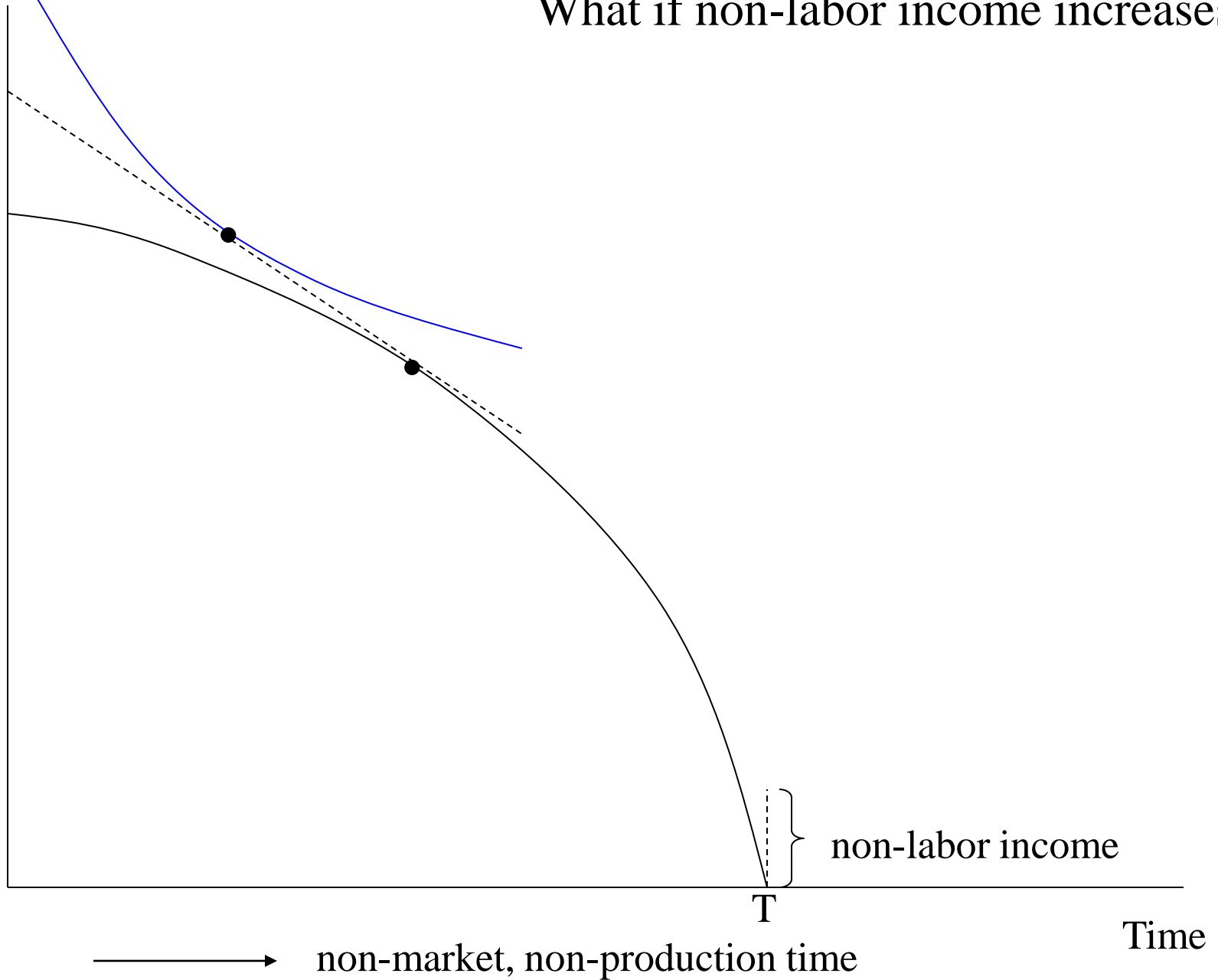
Goods or income

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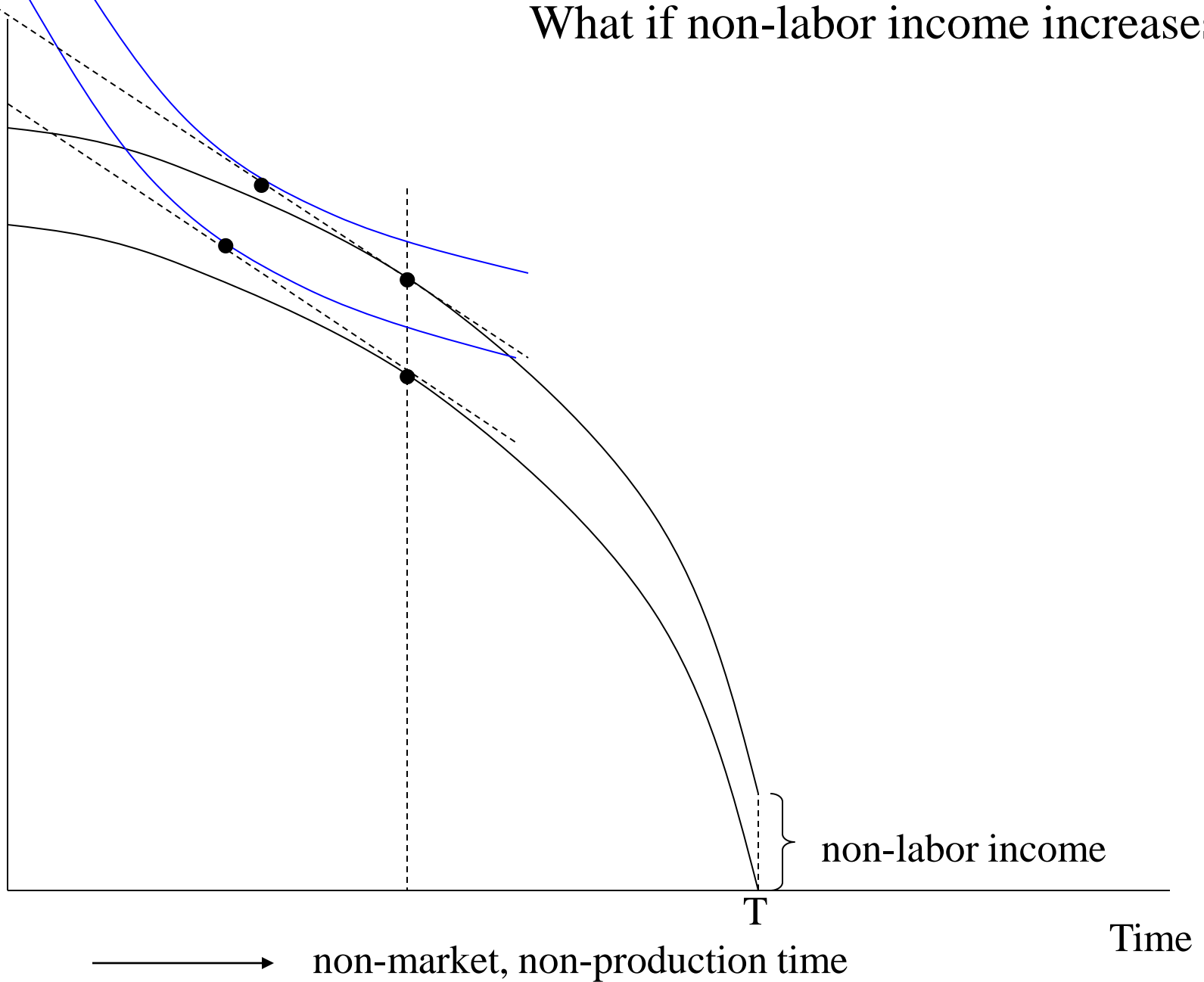
Goods or income

What if non-labor income increases?



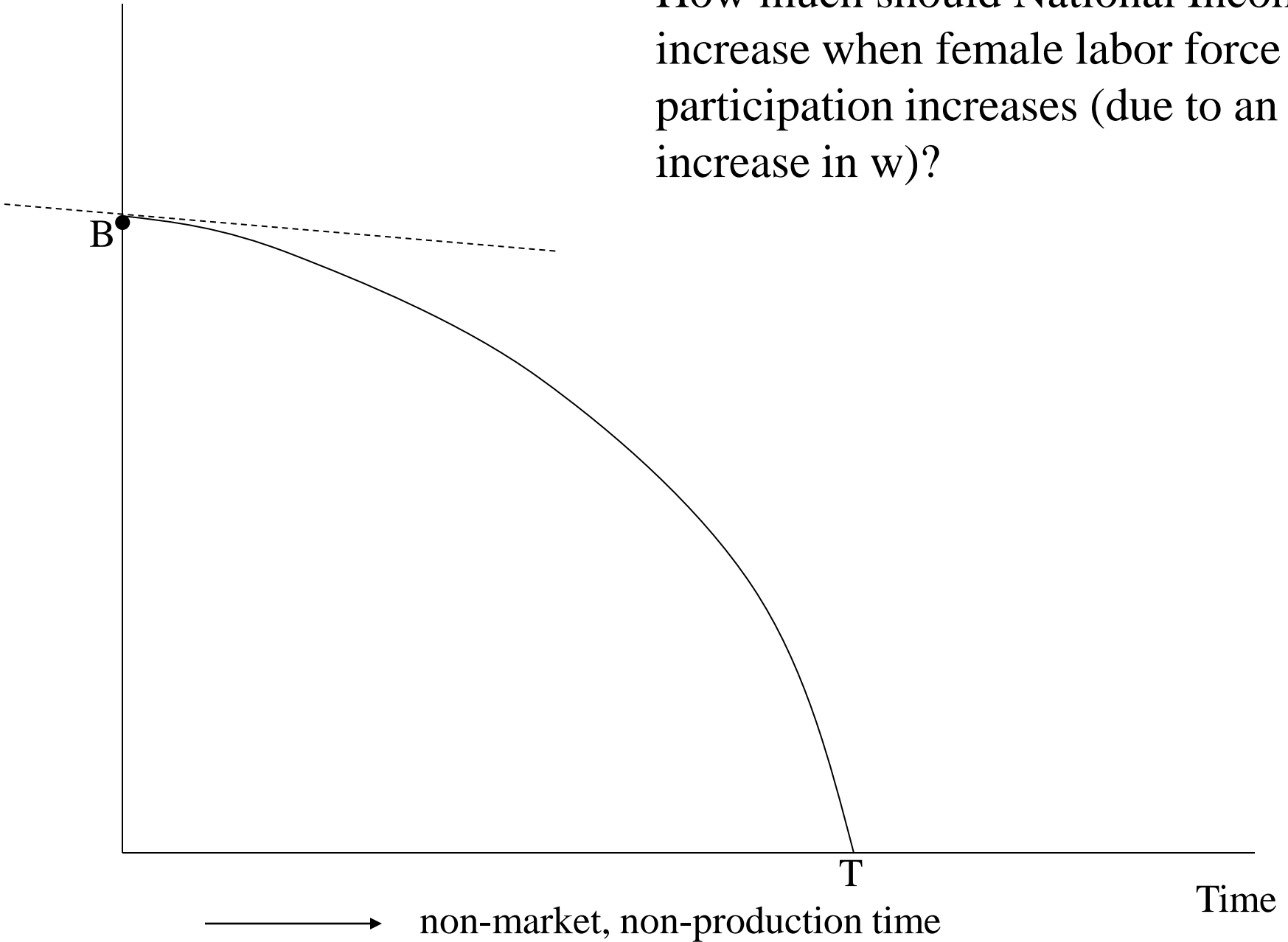
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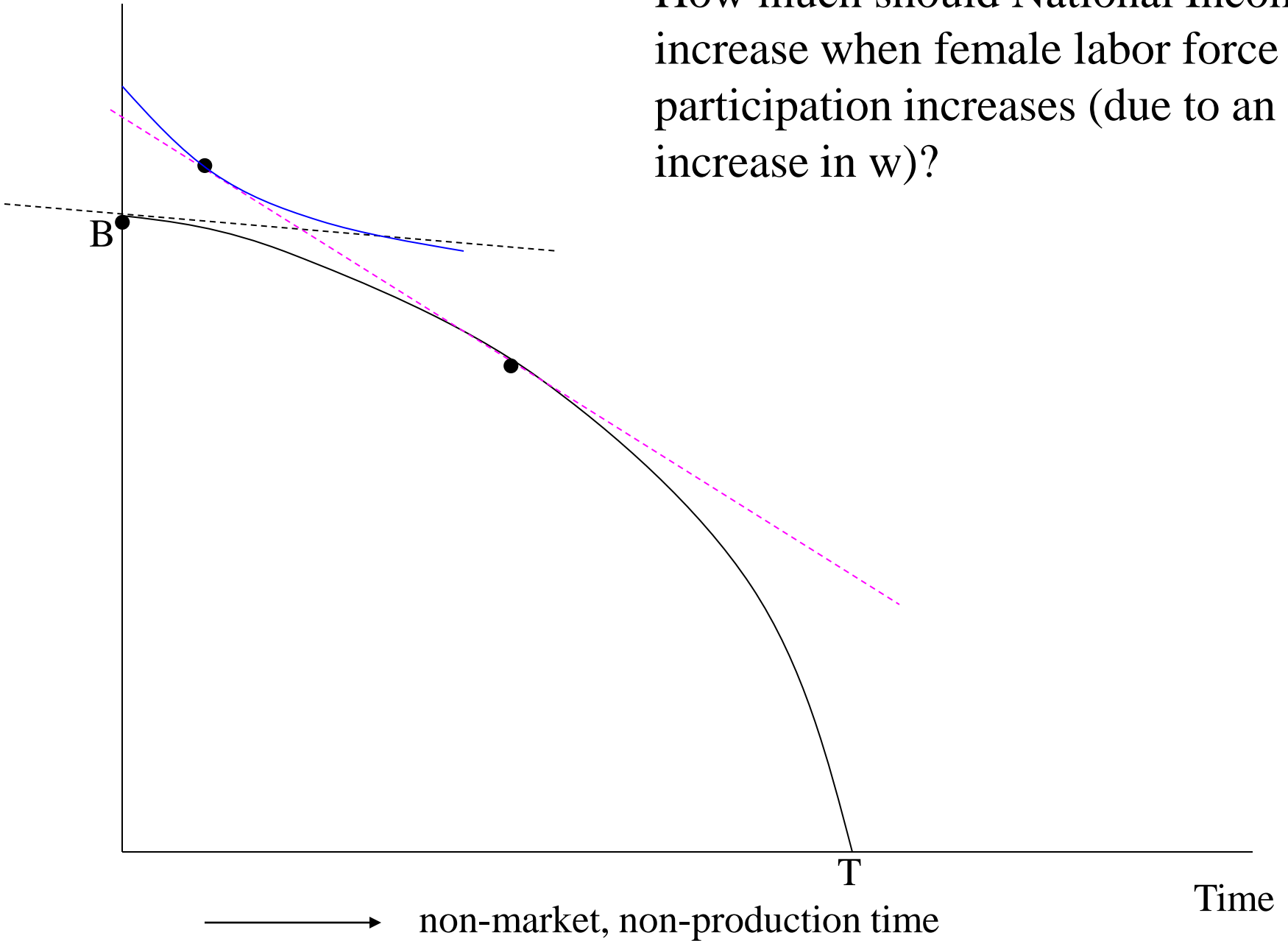
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How much should National Income increase when female labor force participation increases (due to an increase in  $w$ )?



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Goods or income

How much should National Income increase when female labor force participation increases (due to an increase in  $w$ )?

AC or BC or something else?

