

Consumer Theory: Review and Extensions

Econ 50 | Lecture 11 | February 9, 2016

Lecture

- Labor/Consumption Tradeoff
- Review of Units
- Looking forward to producer theory

Group Work

- One last midterm question

Part I

Labor/Consumption Tradeoff

Endowment Budget Constraint

- Instead of starting with money income (I), you start with an **endowment of X and Y**
- You can buy and sell **X** and **Y** for prices **P_x** and **P_y**
- If you sold your endowment for money, you would get:
- Therefore your budget constraint may be written:

Labor Supply Budget Constraint

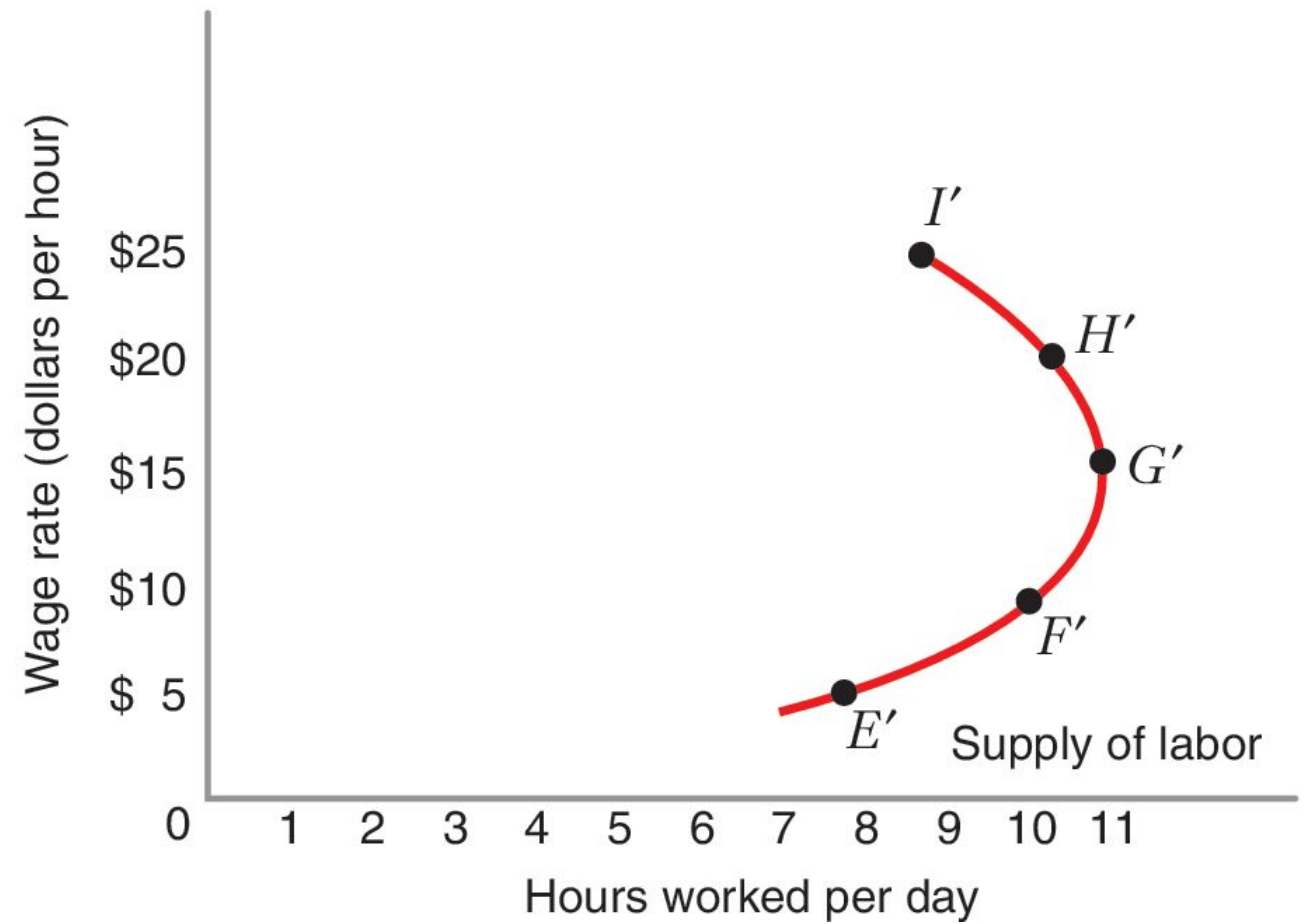
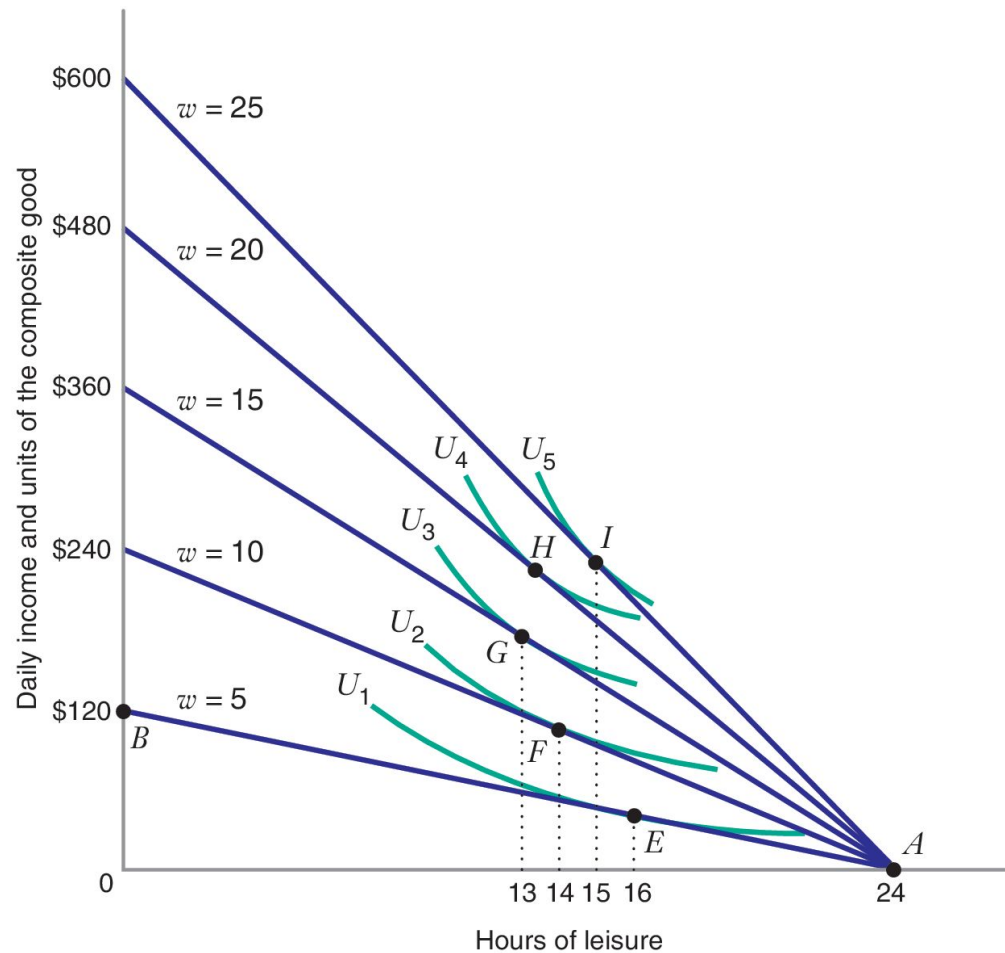
- Instead of starting with an endowment of goods, you start with an **24 hours of leisure time (L)**
- You can sell your time wage rate **w**
- If you sold all your time for money, you would get: **$24w$**
- Therefore your budget constraint may be written: **$wL + Y = 24w$**

Labor Supply Problem

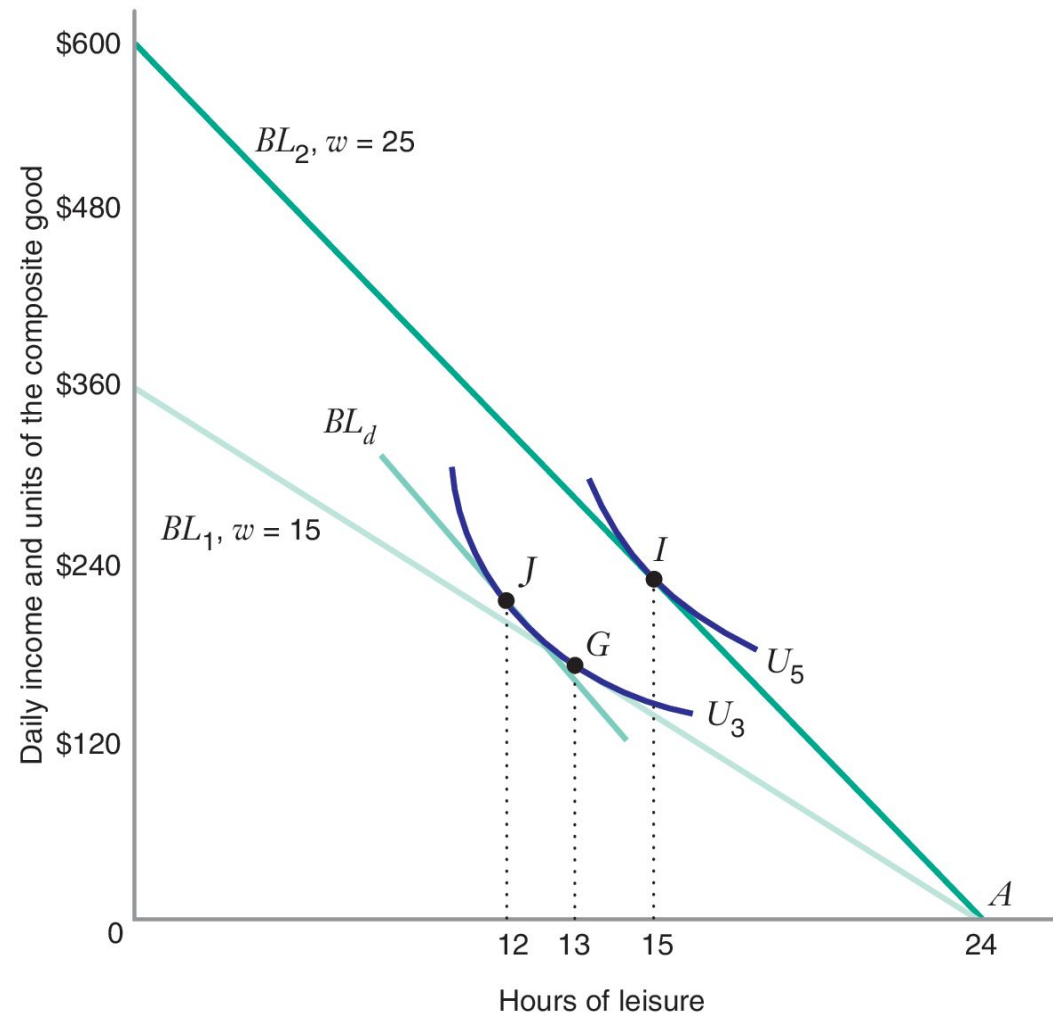


Why is **w** the price of leisure?

Backward-Bending Labor Supply Curve



Why backward-bending?



Labor Supply Budget Constraint with Nonwage Income

- Instead of starting with just leisure, your endowment is **24 hours of leisure time (L)** and **Y^E** dollars of nonwage income
- You can sell your time wage rate **w**
- If you sold all your time for money, you would get: **$24w + Y^E$**
- Therefore your budget constraint may be written: **$wL + Y = 24w + Y^E$**

Labor Supply Problem with Nonwage Income



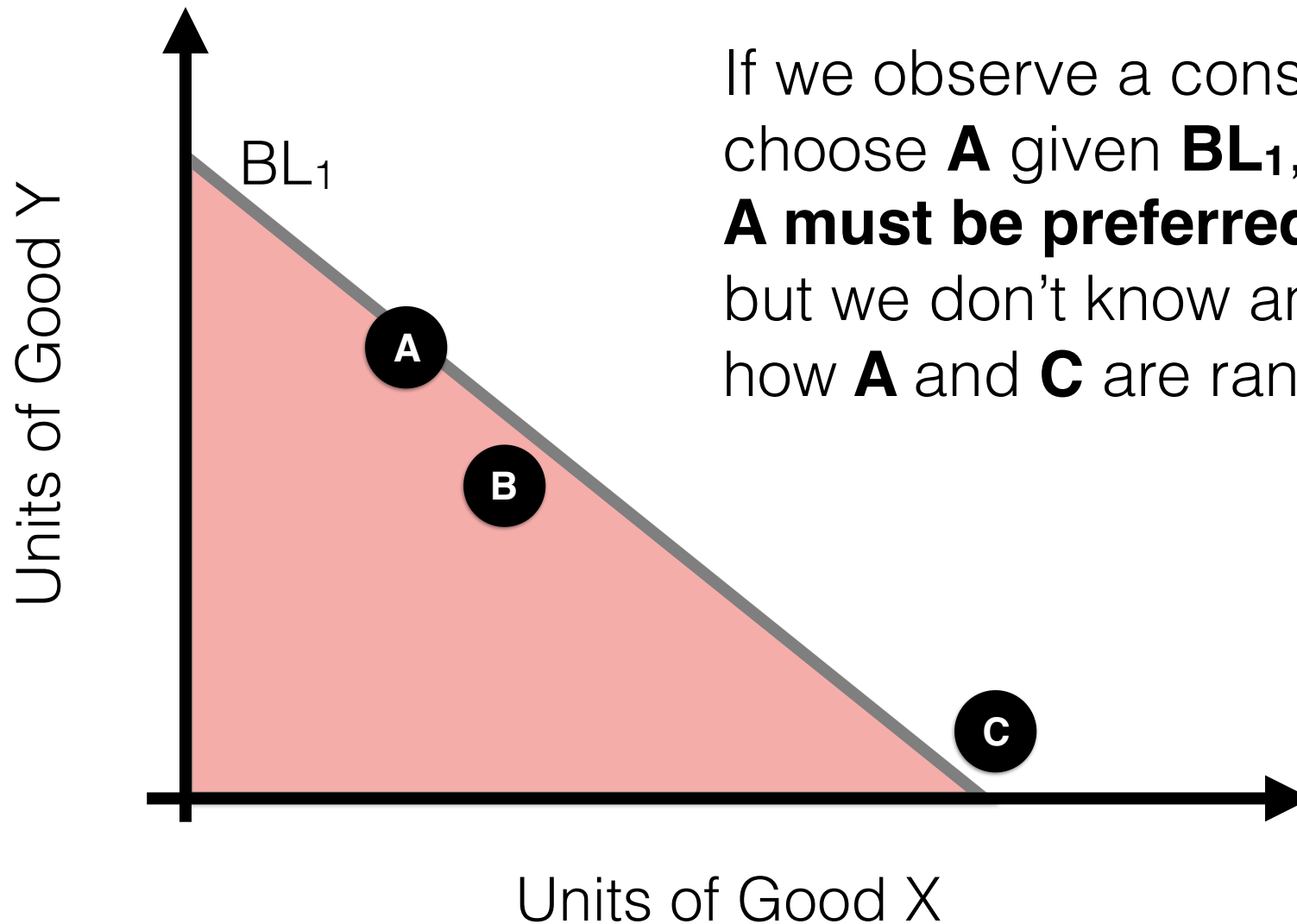
Part II

Revealed Preference

Revealed Preference

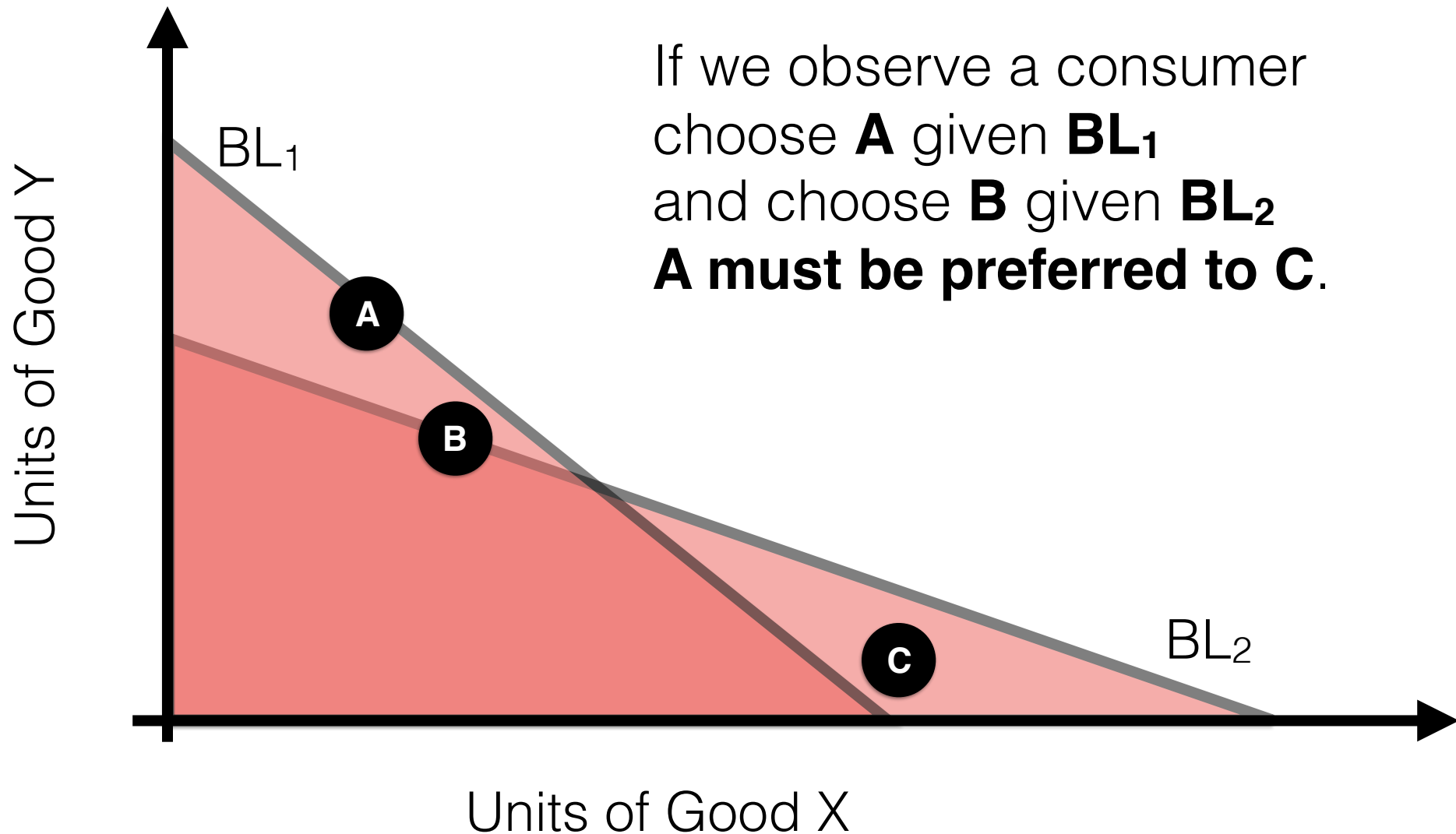
- We don't observe utility functions directly
- We do observe **choices**
- What can we deduce about preferences from observed choices?
- For this section, assume **strict convexity**

Direct Revealed Preference

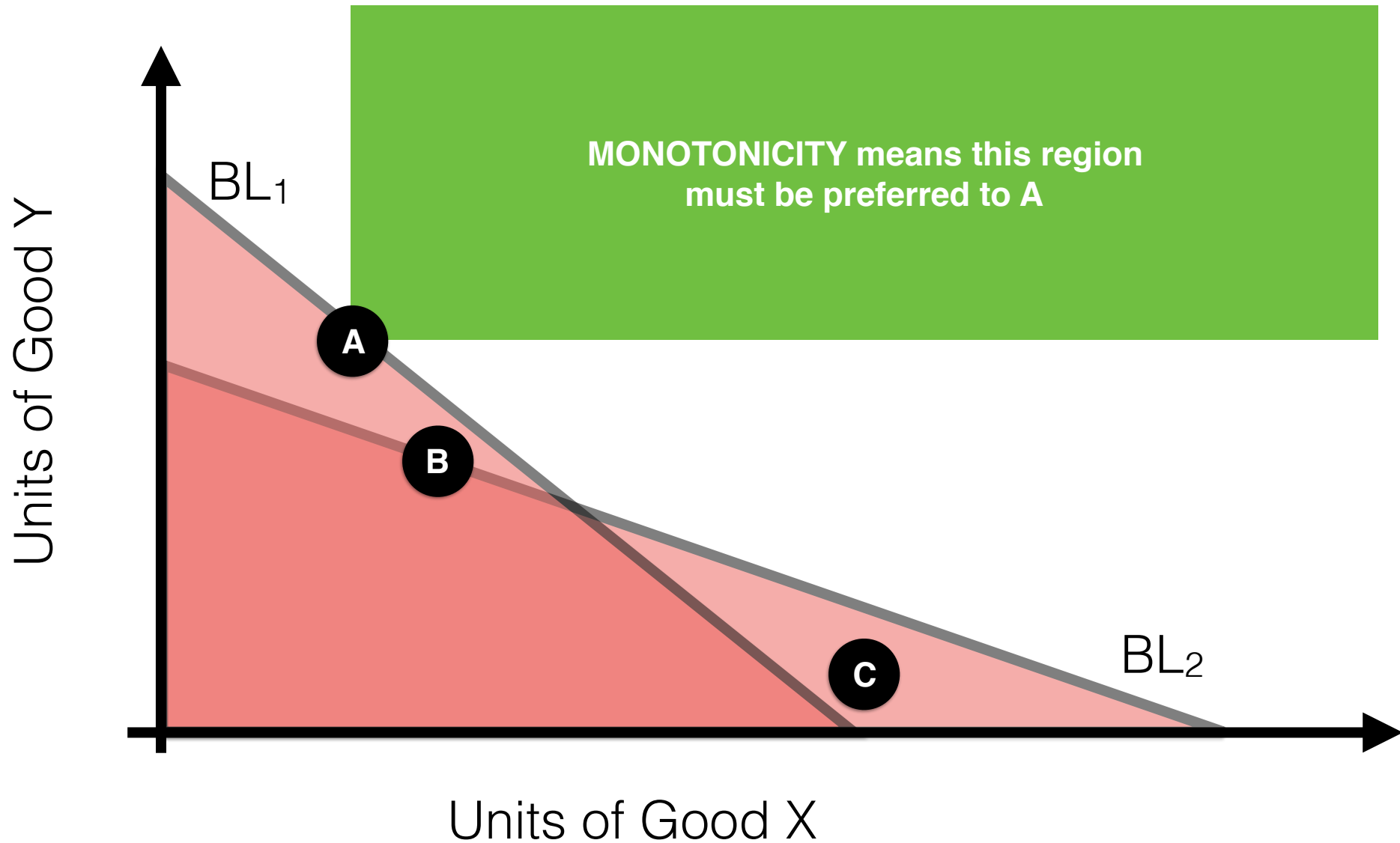


If we observe a consumer choose **A** given **BL_1** ,
A must be preferred to B
but we don't know anything about
how **A** and **C** are ranked.

Indirect Revealed Preference



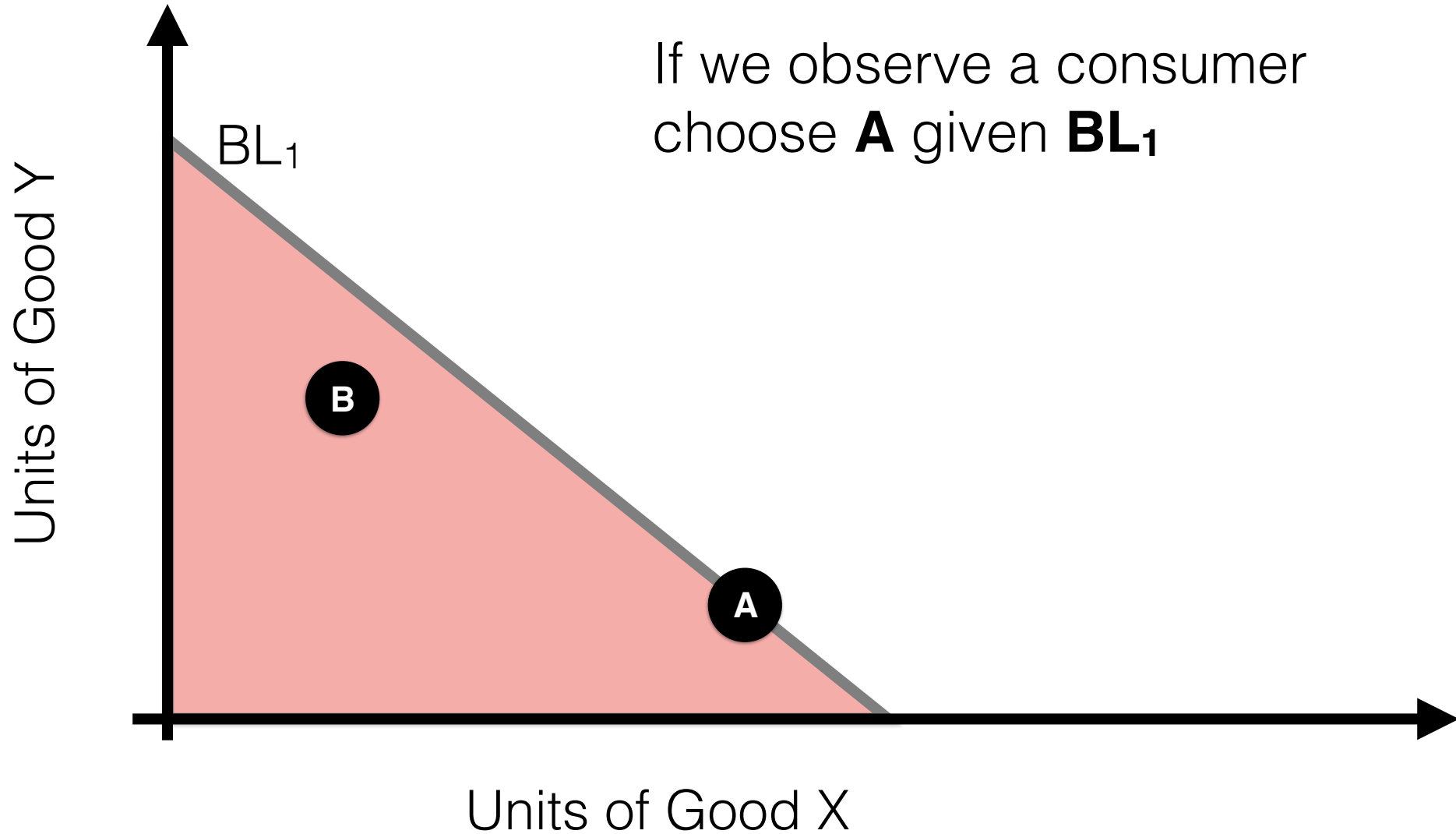
Trapping the Indifference Curve



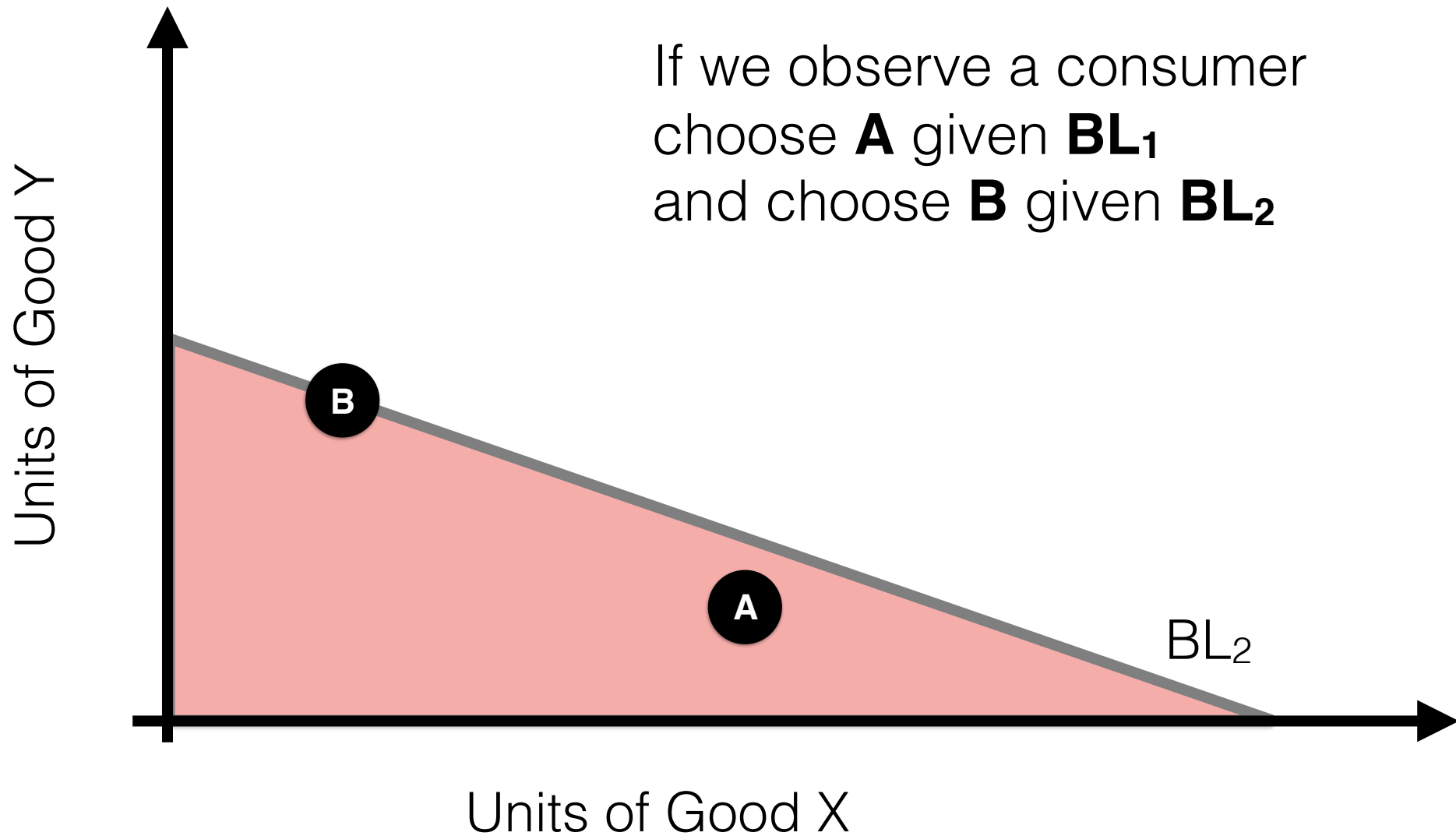
Weak Axiom of Revealed Preference

- If A is directly revealed preferred to B,
and the two bundles are not the same,
then it cannot be
that B is directly revealed preferred to A

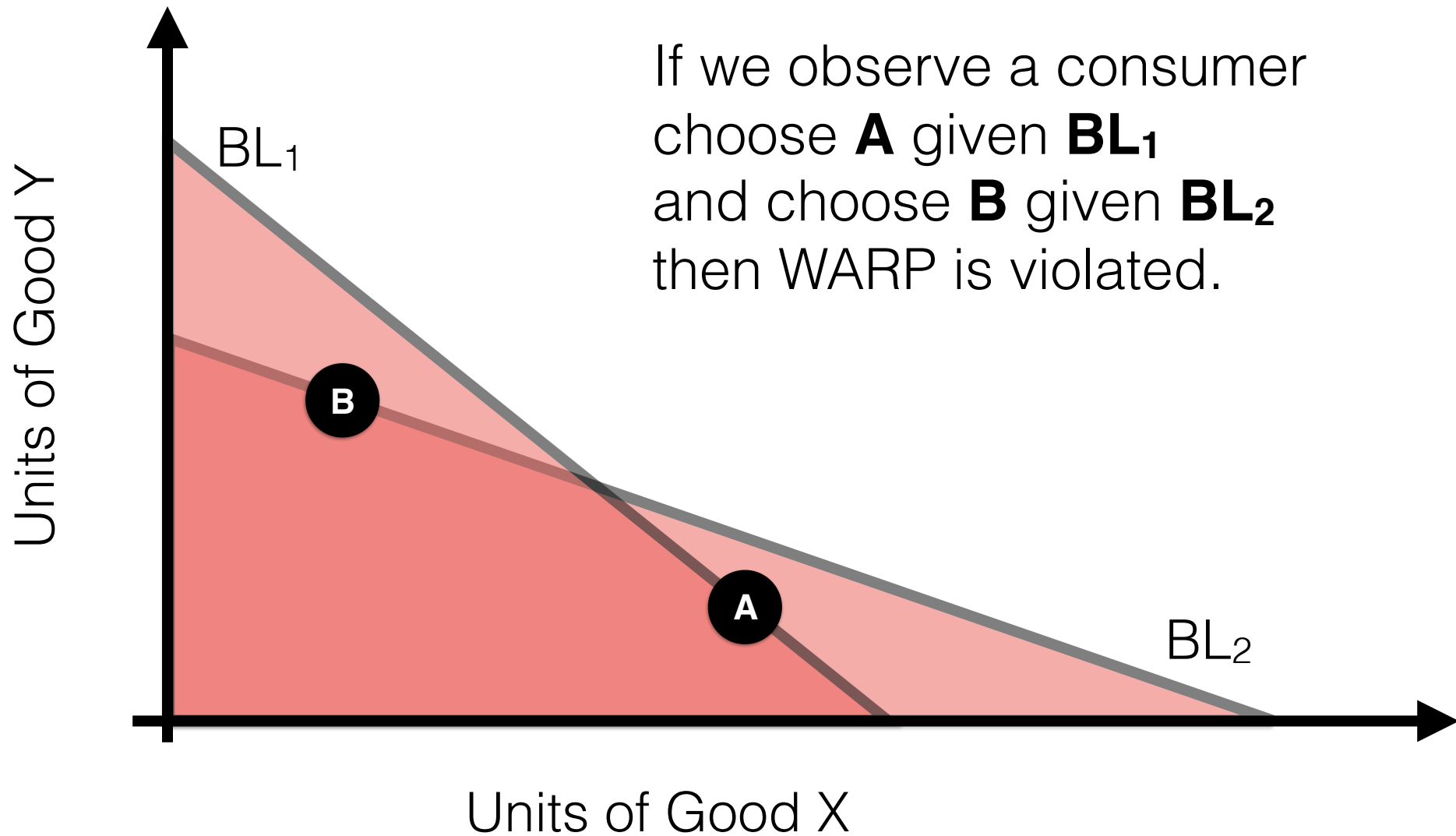
WARP Violation



WARP Violation



WARP Violation



Part III

Units and Lagrange

Units: MRS

$$MRS_{x,y} = \frac{\frac{\partial u(x,y)}{\partial x}}{\frac{\partial u(x,y)}{\partial y}} = \frac{MU_x}{MU_y}$$

Units: Lagrange Utility Max

$$\mathcal{L}(x, y, \lambda) = u(x, y) + \lambda(I - P_x x - P_y y)$$

Units: Lagrange Cost Minimization (Consumers)

$$\mathcal{L}(x, y, \lambda) = P_x x + P_y y + \lambda(U - u(x, y))$$

Cost Minimization: Consumers and Firms

$$\mathcal{L}(x, y, \lambda) = P_x x + P_y y + \lambda(U - u(x, y))$$

$$\mathcal{L}(L, K, \lambda) = wL + rK + \lambda(q - f(K, L))$$

Units: Lagrange Cost Minimization (Firms)

$$\mathcal{L}(L, K, \lambda) = wL + rK + \lambda(q - f(K, L))$$

What does λ represent?

The marginal change in the **objective function**
due to a marginal relaxation of the **constraint**

Interpreting the first two FOCs

$$\mathcal{L}(x, y, \lambda) = u(x, y) + \lambda(I - P_x x - P_y y)$$