Econ 301 - Microeconomic Theory 2 **Winter 2018**

Lecture 15: March 7, 2018

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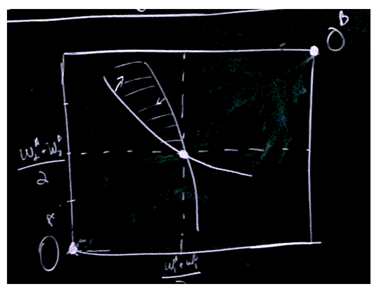
15.1 Welfare Continued

15.1.1 Second Welfare Theorem

In-Class Numbering : 3.2

- We may have reasons to prefer some Pareto-efficient allocations over others.
- Does this limit the importance of the first welfare theorem? (i.e do competitive equilibriums always yield "bad" or "unfair" Pareto-efficient allocations)
- To be concrete : we shall define what it means for an allocation to be fair
- **First Attempt :** say allocations x^A and x^B are fair if $x_i^A = x_i^B$ for all $i = 1, 2$



  - These fair allocations are not generally Pareto-efficient, thus this really isn't a useful definition of fairness.

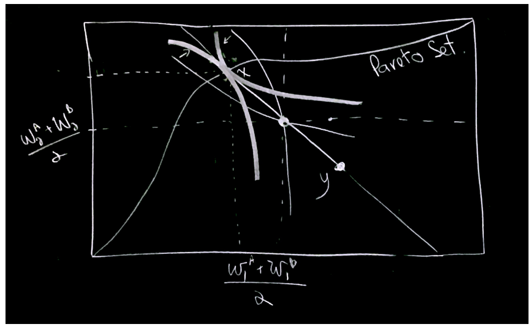
- Pareto-efficiency is minimal normative criterion, we want a definition of fairness that selects among these.

Definition 15.1 *Allocations x^A and x^B have no envy if $u^A(x_1^A, x_2^B) \geq u^A(x_1^B, x_2^B$ and $u^B(x_1^A, x_2^A) \geq u^B(x_1^A, x_2^A)$*

Definition 15.2 *Allocations x^A and x^B are fair if they are Pareto-efficient and satisfy no-envy.*

- How to calculate fair allocations?
  1. Start with equal-division allocation.
  2. If it is pareto-efficient, then its fair.
  3. If equal division is not pareto-efficient,

- Fix any allocations x^A, x^B that are PE and Pareto dominate equal-division.
- Result : If consumers preferences are monotone and convex, then allocations x^A and x^B are fair.



- Say allocations y^A, y^B are such that $y^A = y^B$and $y^B = x^A$
- In the figure, these allocations lie on the line through x and equal-division allocation
- So, we have $U^J(y_1^J, y_2^J) \leq u^J(x_1^J, x_2^J)$ for $J = A, B$