

# Scarcity and Productivity I

MPA 612: Public Management Economics

January 17, 2018

*Fill out your reading report on Learning Suite!*



# Plan for today

Labor and production

Preferences

Opportunity costs

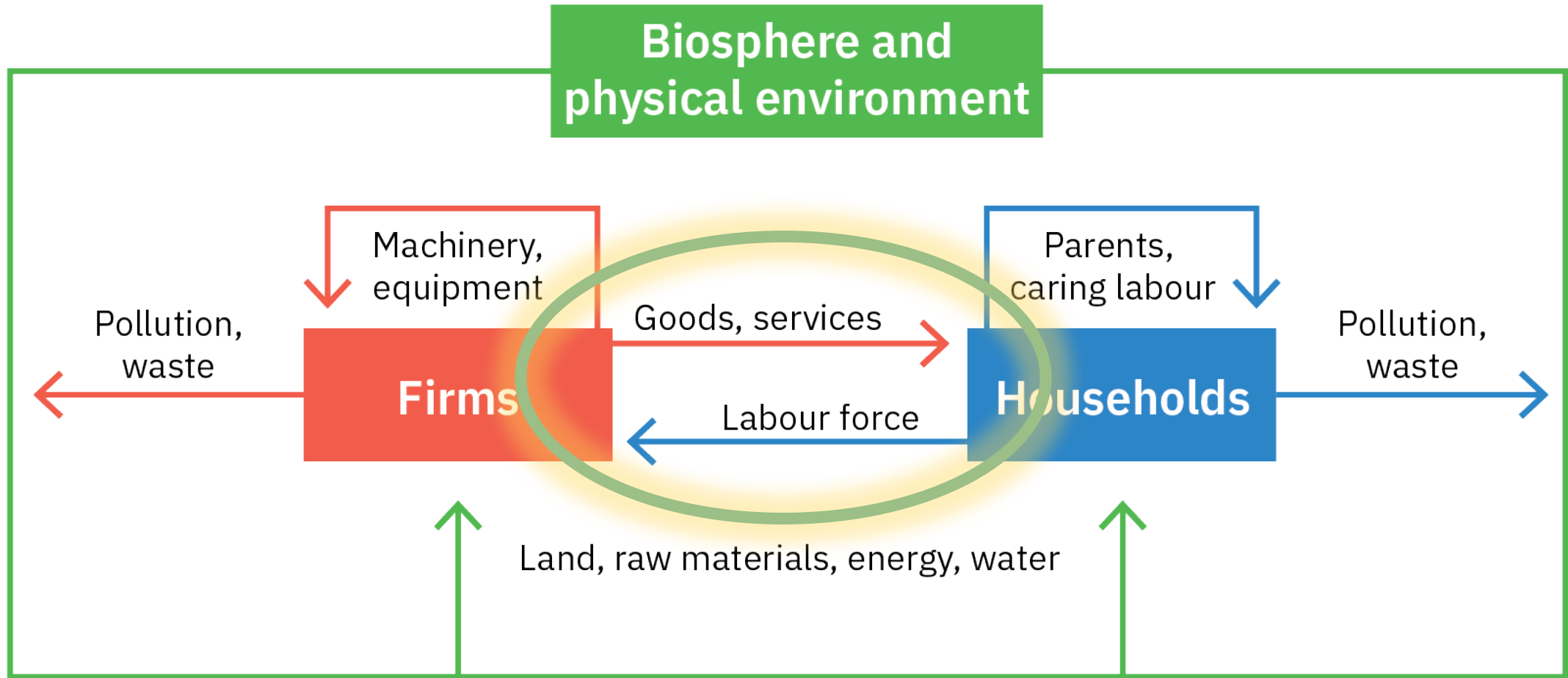
Making decisions under scarcity

Current events

# No class on Monday

Move Monday to Wednesday, Wednesday to Friday?

Labor and production

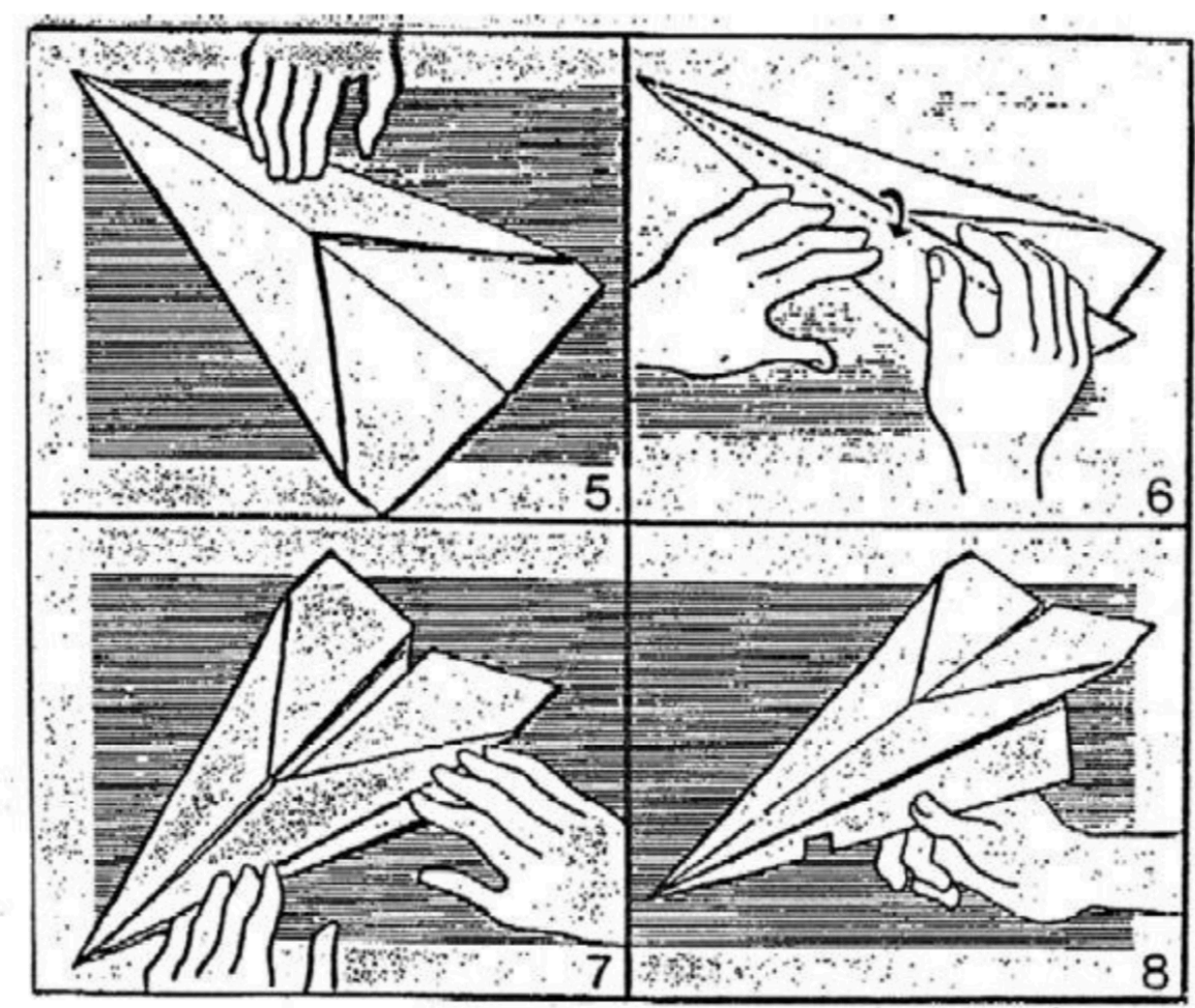
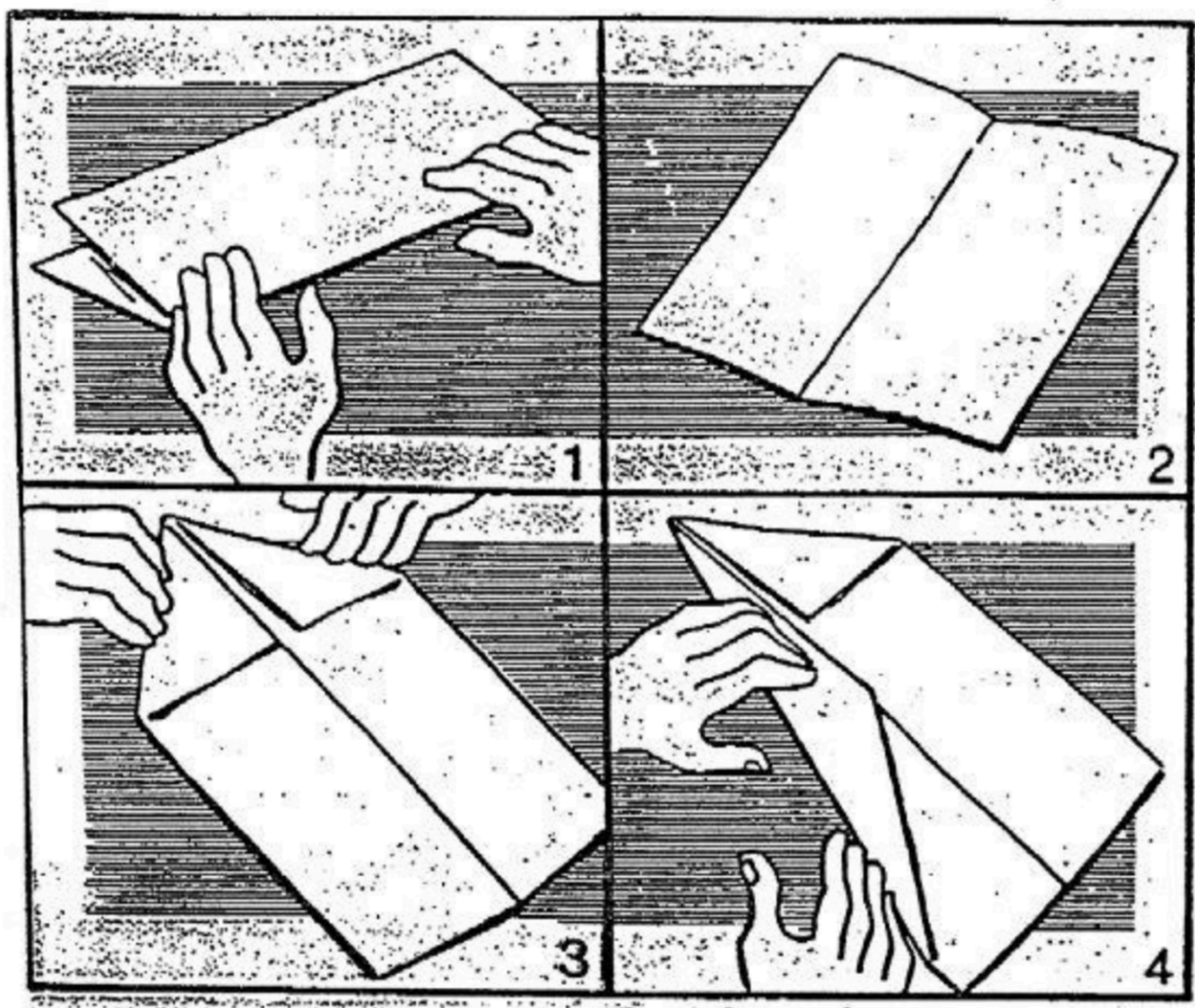


**Capital, labor, raw materials → outputs**

**Production function**

# XYZ Airlines

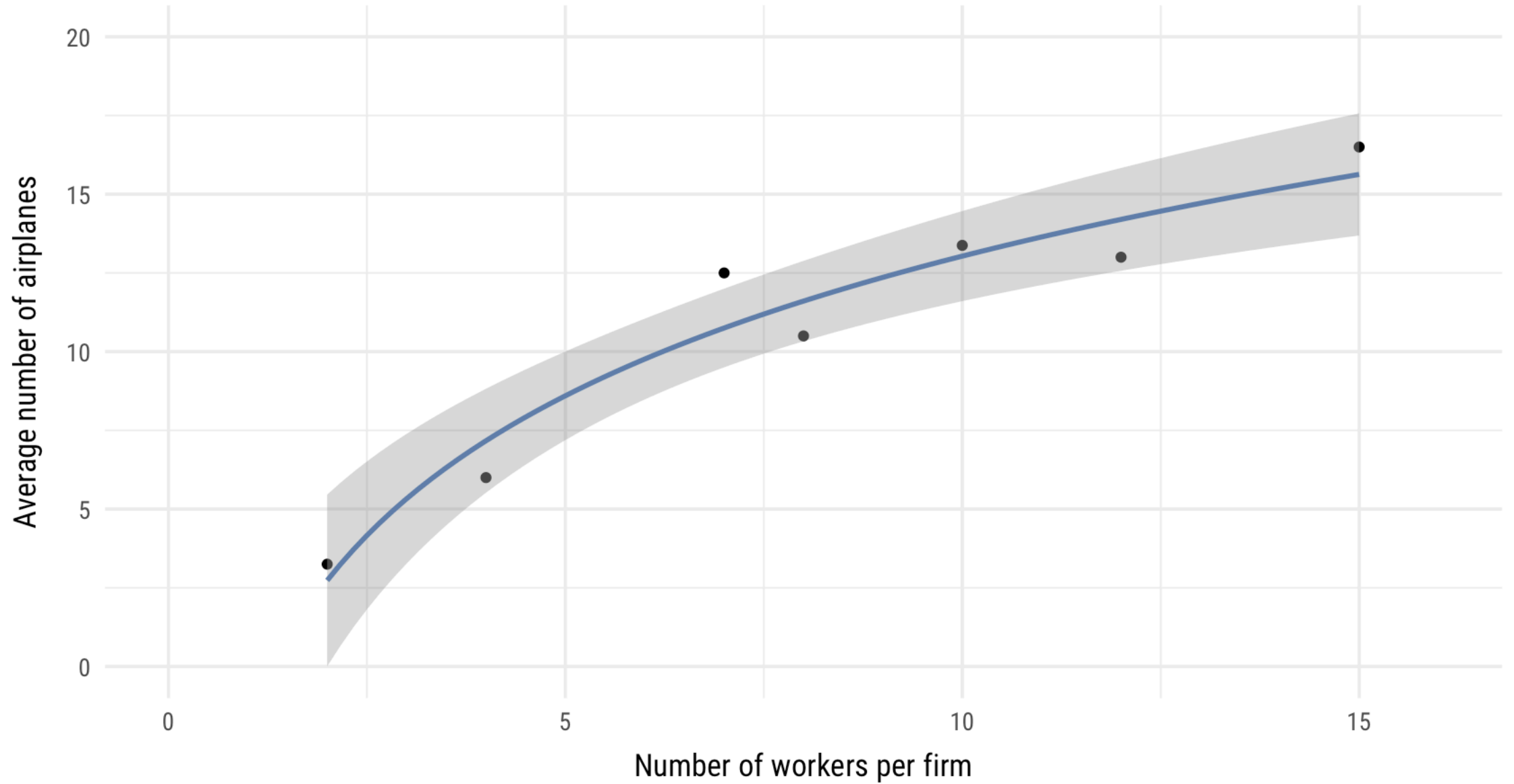
The optimal way to fly





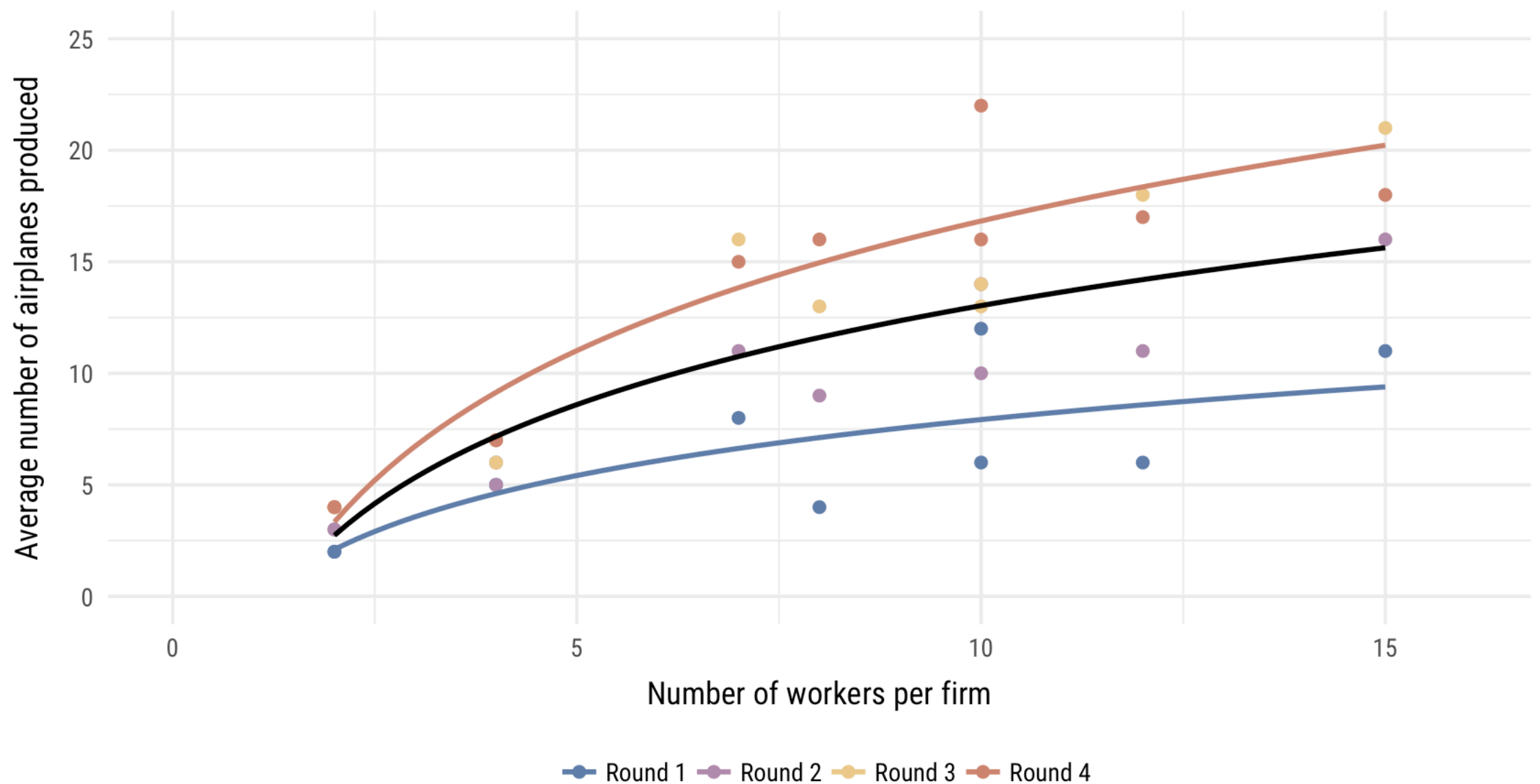
# Average number of airplanes produced by 10 firms

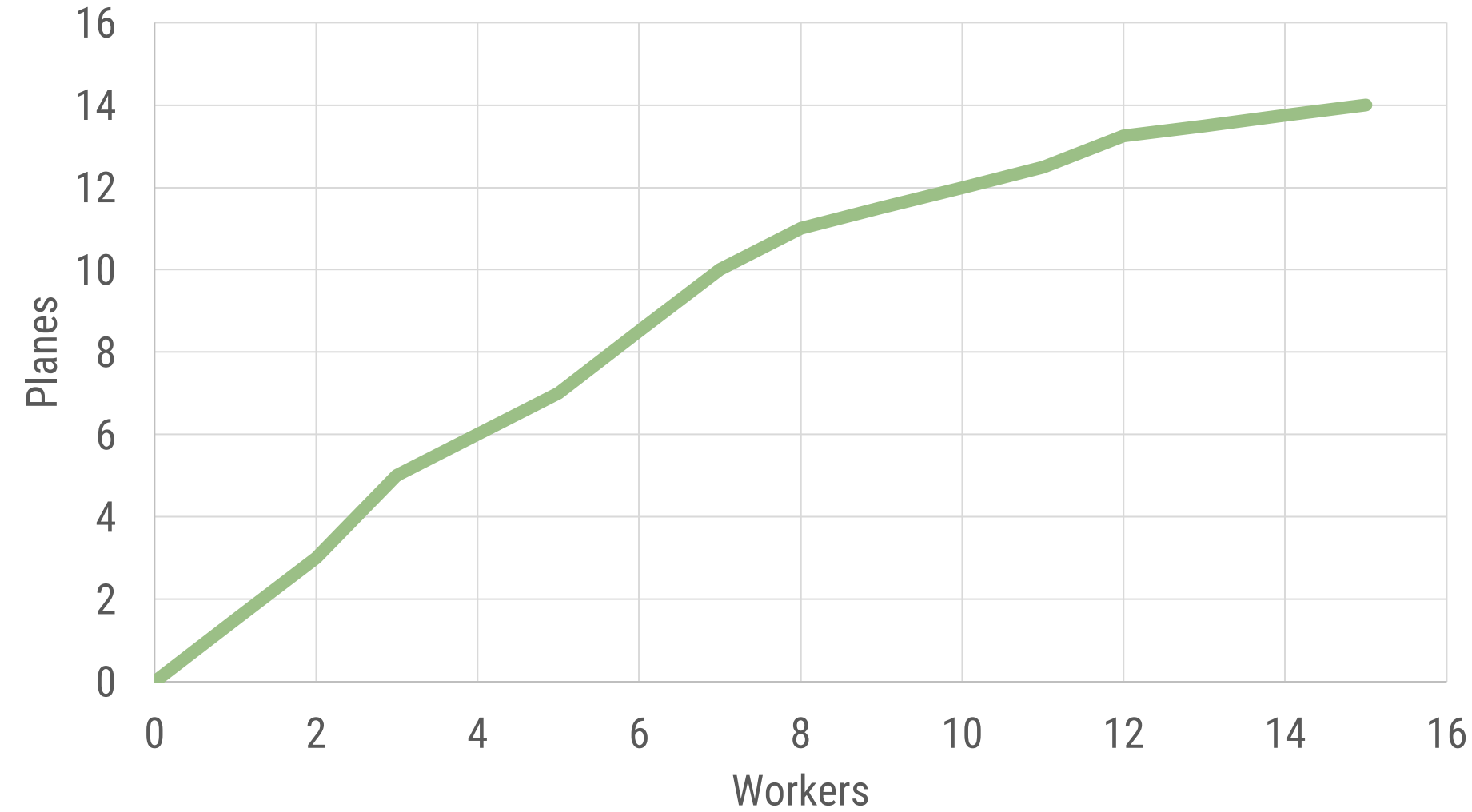
Averaged over 4 rounds; firms varied in size



# Number of airplanes produced by 10 firms

Firms varied in size





**Average product**

Planes per worker

**Marginal product**

Planes per  
*additional* worker

Workers	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Planes	0	1.5	3	5	6	7	8.5	10	11	11.5	12	12.5	13.25	13.5	13.75	14

Does marginal product always diminish?

# Preferences

How do we know what we want?

Stuff we care about

Exogenous

We care about stuff because... reasons

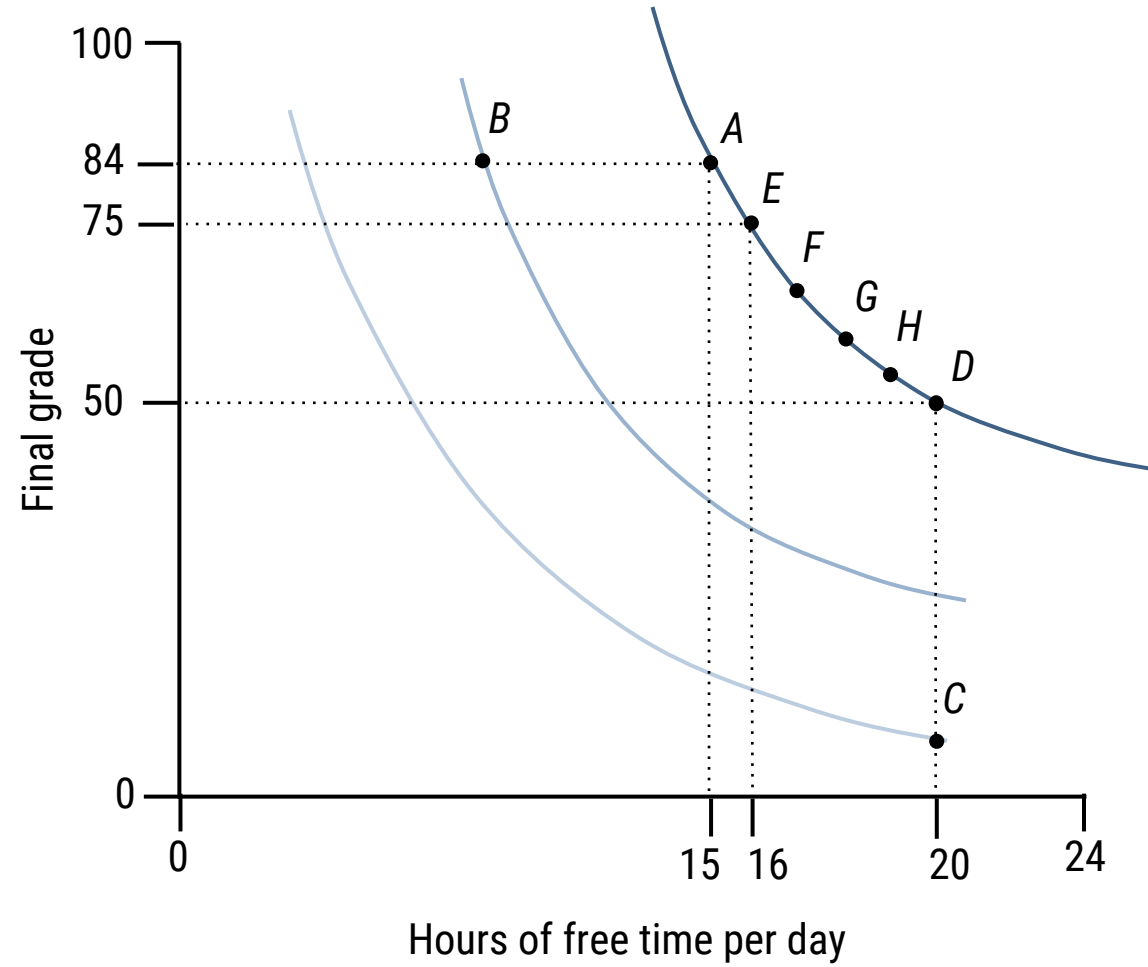
Endogenous

We care about stuff because institutions make us

# Indifference curves

**Theoretical** points where we're equally happy with mix of goods

Measured in utility or "utils"  
(or "happiness points")





# Indifference curves

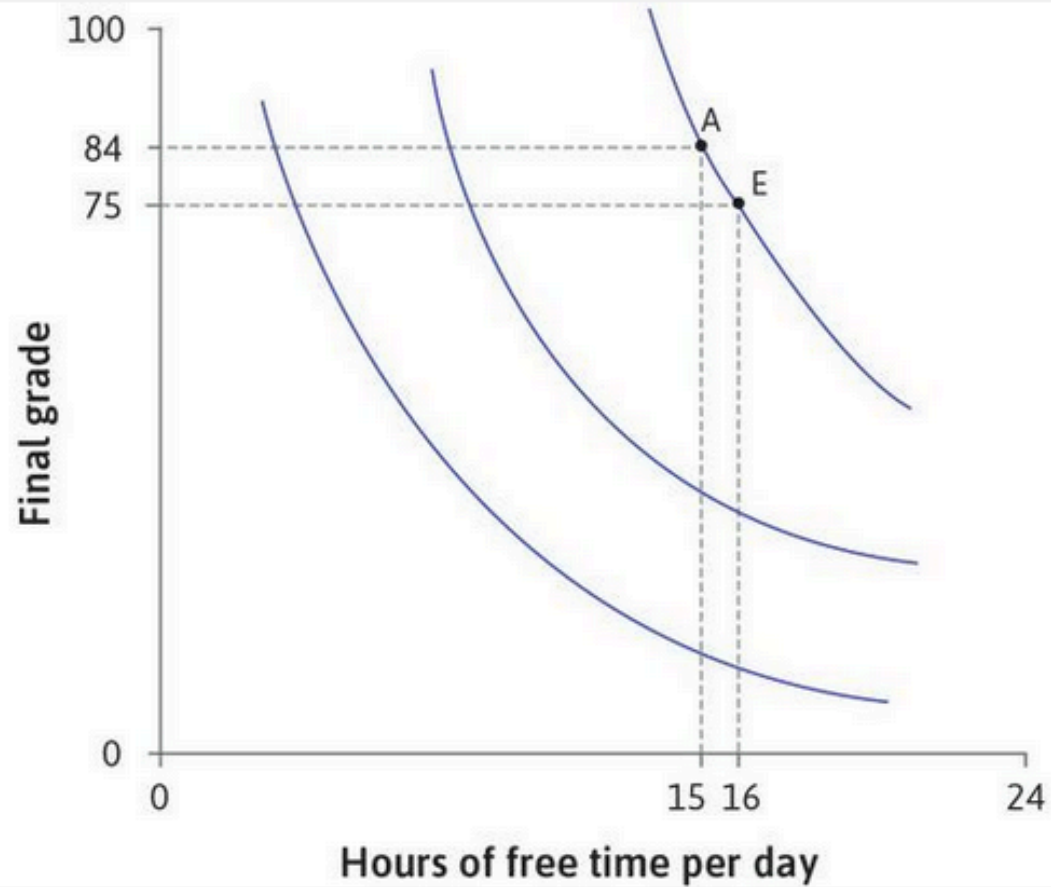
Slope downward

Higher curves = more utils

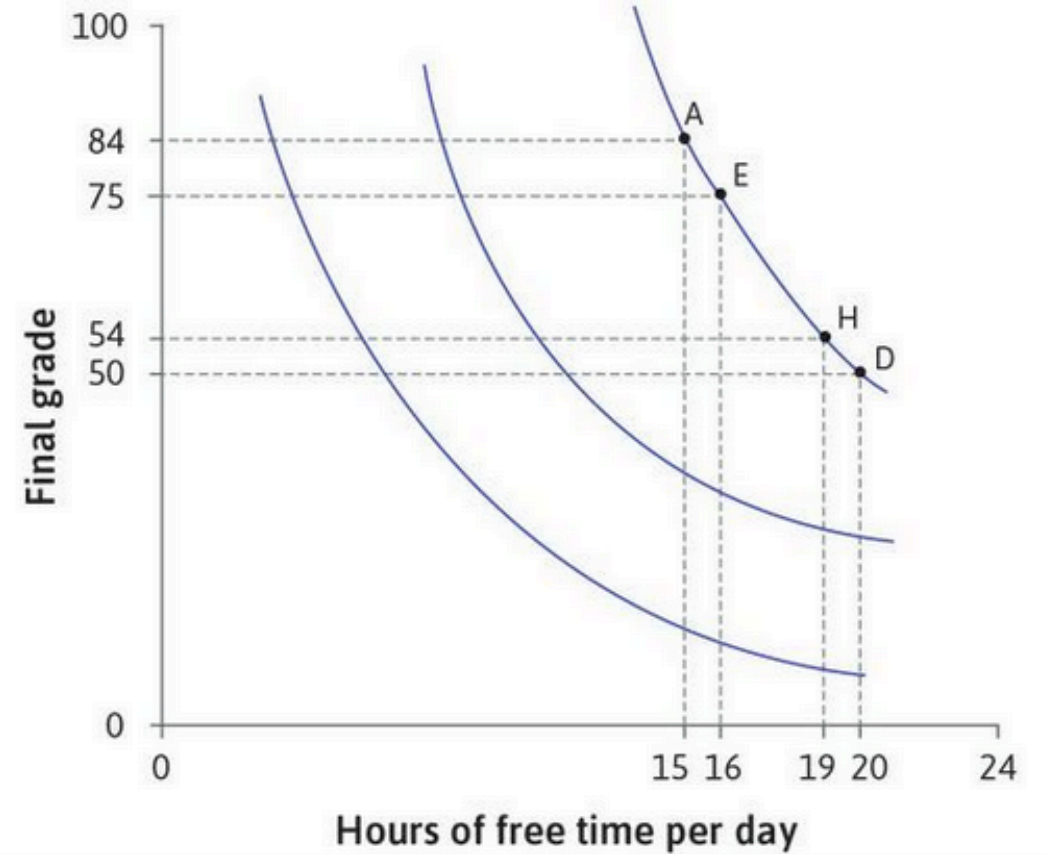
Smooth

No crossing

# Marginal rate of substitution = slope of indifference curve



MRS at A = 9



MRS at H = 4

# Opportunity costs

The benefit of the forgone alternatives

WHY ARE YOU GOING HERE?

GAS IS TEN CENTS A GALLON CHEAPER AT  
THE STATION FIVE MINUTES THAT WAY.

BECAUSE A PENNY SAVED  
IS A PENNY EARNED.



IF YOU SPEND NINE MINUTES OF YOUR  
TIME TO SAVE A DOLLAR, YOU'RE WORKING  
FOR LESS THAN MINIMUM WAGE.

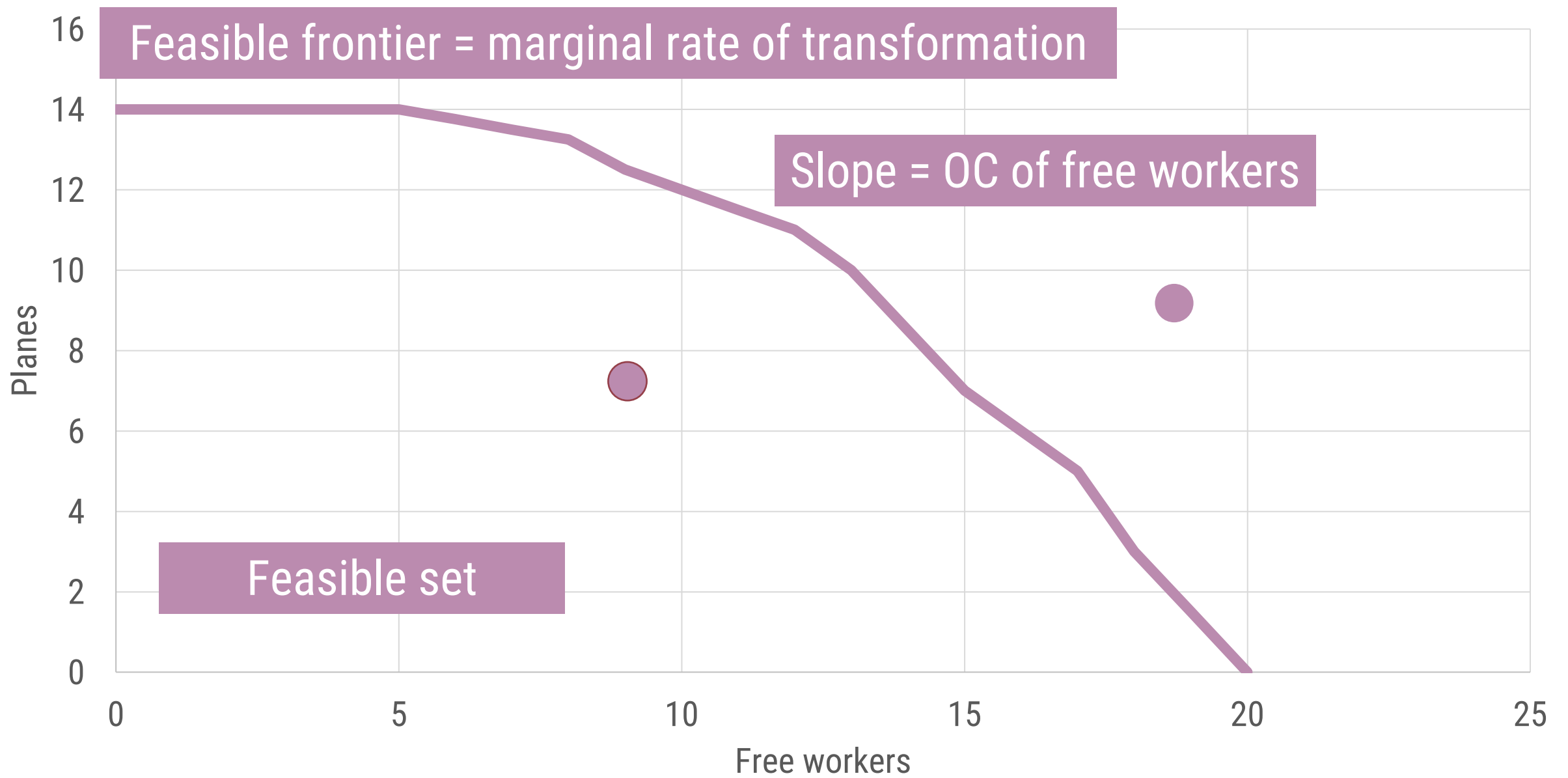
# Concerts in theaters and parks

Cost for theater concert	\$25	
Value of park concert	\$15	
Economic cost	\$40	
Value of theater concert	\$50	\$35
	Theater	Park

Making decisions  
under scarcity

What are the possible combinations of workers and planes, given resources?

What's the **best** number of workers to use/planes to make, given firm preferences?





# Tradeoffs!

## Marginal rate of substitution (MRS)

Theoretical tradeoff between inputs

Slope of indifference curve

## Marginal rate of transformation (MRT)

Actual tradeoff between inputs constrained by feasible frontier

Slope of feasible frontier

