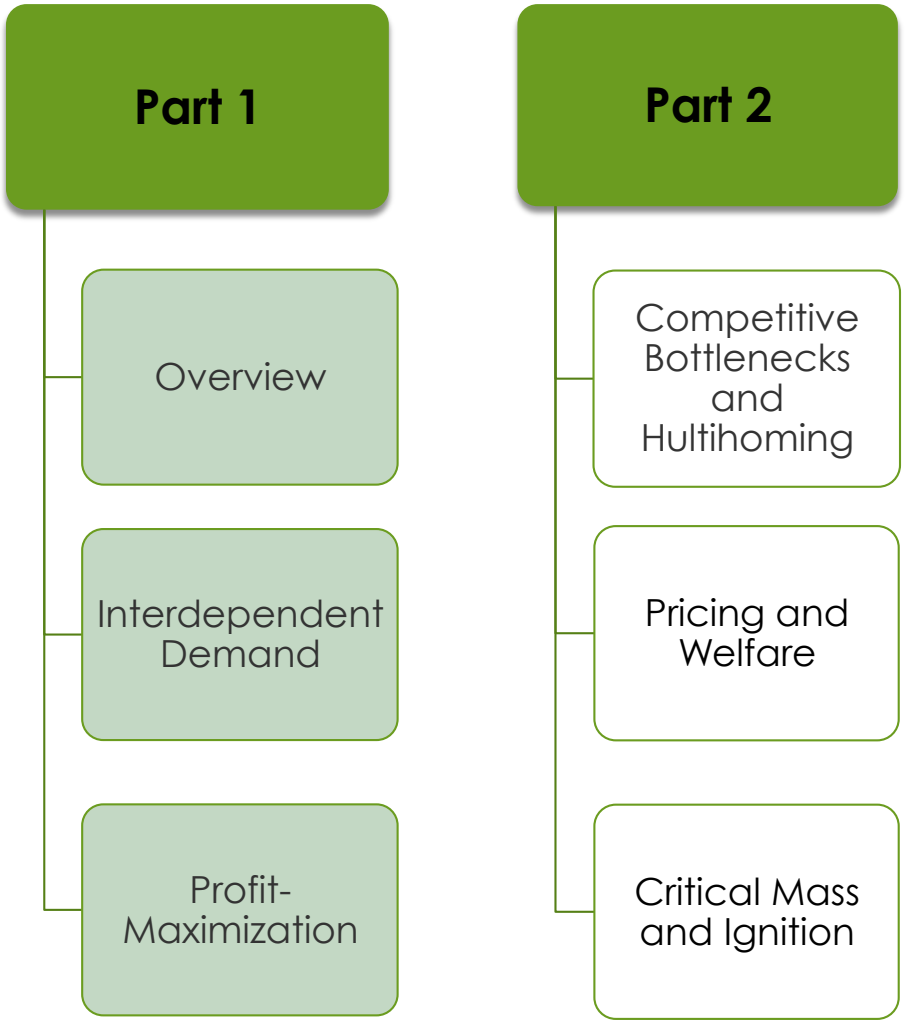
ANTITRUST ECONOMICS 2013

David S. Evans
University of Chicago, Global Economics Group

Elisa Mariscal
CIDE, ITAM, CPI

TOPIC 7: MULTI-SIDED PLATFORMS

Overview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Competitive Bottlenecks and Hultihoming
Pricing and Welfare
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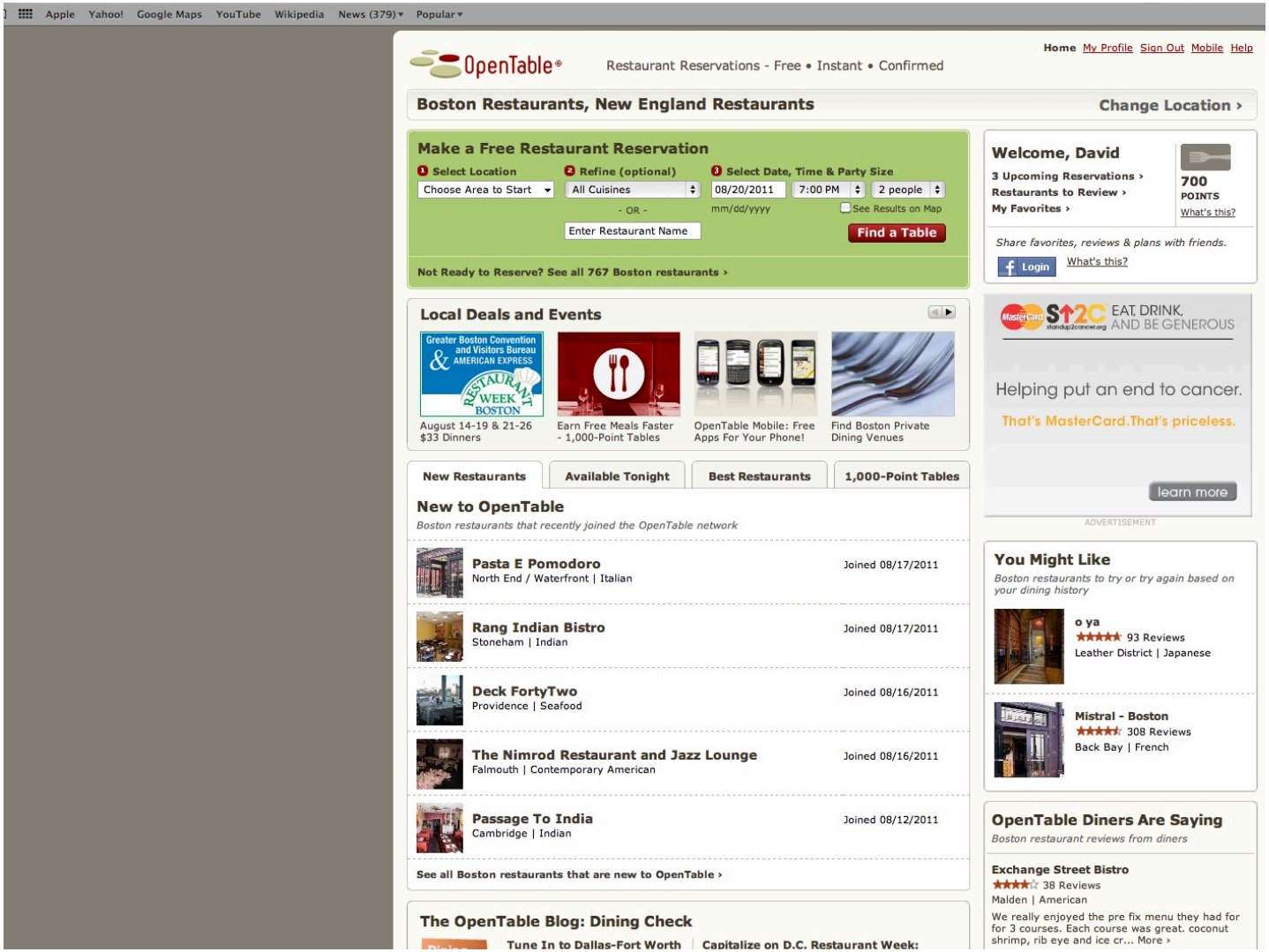
Overview and Definition

OpenTable is an intermediary between diners and restaurants



Restaurants pay and consumers use for free

North American ERB Economics

Approx. $600 revenue per ERB restaurant per month

Monthly ERB Subscription Fee (1)

- Includes touch-screen computer system, 24/7 support, and software upgrades
- List price $199/month
- Add-on licenses and modules range from $25 to $89/month

Pay-for-Performance Per Seated Diner Fee (2)

- $1.00 from OpenTable website/mobile
- $0.25 from restaurant's website
- $7.50 from 1,000-point listings

$162 million revenue in 2012 | $1.4 billion markets cap

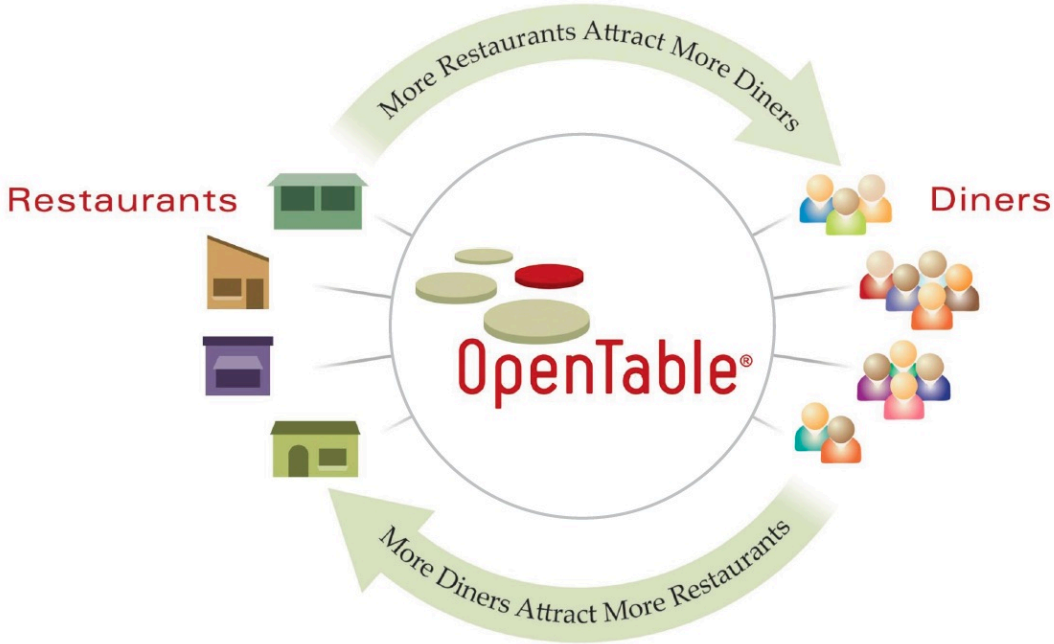
OpenTable solves a transaction cost problem

$139 million NA revenue in 2012 | $1.4 billion markets cap

Positive feedback effects fuel growth

- 122 million diners seated with OpenTable in 2012, up from 96 million in 2011
- 27K restaurants in 2013 Q1 up from 24K in 2011 Q4
- More than 15% annual growth

Our Strategy



Our strategy is simple: We grow the OpenTable network by adding restaurants and attracting more diners. The more restaurant selection we offer to diners, the more diners use the system. The more diners use the system, the more value we offer to restaurants.

OpenTable is a two-sided platform

It provides a web-based "***platform***" that enables diners and restaurants to find each other and get together.

The ***platform*** is an ***intermediary*** between restaurants and diners.

Such a platform is sometimes referred to as a "***two-sided market***".

Platforms can have more than two sides.

Examples of multi-sided platform businesses

COMPANY	CUSTOMER SIDE A	CUSTOMER SIDE B	CUSTOMER SIDE C
Apple iOS	Phone users	Application Developers	Mobile network operators
Sony PlayStation	Console users	Game Developers	
Google Search	Searchers	Advertisers	Websites
Nasdaq	Liquidity providers	Liquidity takers	
Monster	Job seekers	Employers	
Washington Post	Readers	Advertisers	
Copley Place Mall	Retail Stores	Shoppers	
American Express	Cardholders	Merchants	
Facebook	Friends	Advertisers	Application Developers

Large fraction of the economy are based on multisided platforms

Many companies have products or services that are platforms or offer products or services that themselves are parts of platforms.

Multi-sided Platforms are not restricted to typical for-profit firm

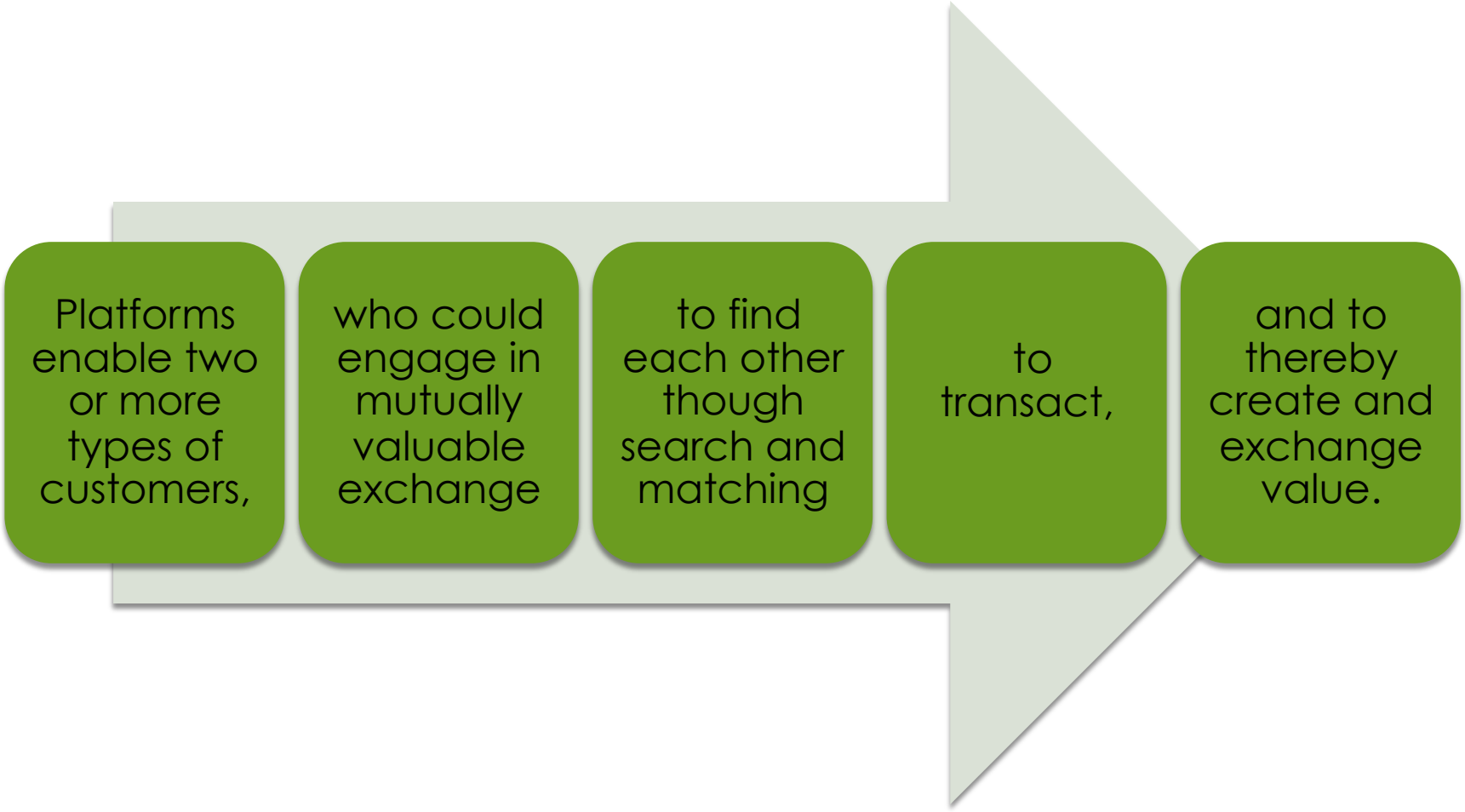
Type	Mode of operation	Examples
For-profit	Integrated firm operates a platform for profit. It works with "complementary" firms that become in effect customers.	American Express, Microsoft, News Corporation, Monster, Apple, Deutsche Borse…
Cooperatives	A group of entities get together to jointly provide a platform. These could be "one side" that wants a platform or it could be firms that collaborate need a shared facility.	Symbian (was a joint venture of mobile phone providers), Visa (was a cooperative of banks), Portobello Road Antique Dealers.
Governments/standards	Government or standard-setting body creates a platform	Euro (government-sponsored money), Place Victor Hugo (market in Toulouse), DVD platform, Bitcoin
Public platforms and loose cooperation	Customers coalesce on their own around a single physical or virtual platform.	Via Condotti, Open source

Multisided platform economics now mainstream

- Well-developed, non-controversial, peer-reviewed literature
- More than 200 articles since literature started in 2000
- Published in top journals in economics by top economists from top institutions
- Well-accepted part of industrial organization literature with no real controversy

Demand Interdependence

Multisided platforms create value by reducing transaction costs



Externalities and transactions costs

- Platforms value arises from facilitating value-creating exchange.
- Platforms solve a "positive externality" problem.
- Two parties would benefit from getting together to exchange value but there are transactions costs of doing that.
- The Platform reduces transactions costs and therefore facilitates exchange.

Usage externalities

A ***usage externality*** exists when party A would benefit if they could get together with party B so that party B's decision to make themselves available by, for example, joining the platform benefits party A.

E.g. a consumer that wants to make a reservation at a restaurant benefits when that restaurant makes itself available on a reservation platform.

Party A and Party B could connect without a platform but the platform reduces the cost of connecting.

Man and woman could find each other but dating venues help increase the odds.

Membership externalities

A ***membership externality*** exists when the the value received by a member on side 1 increases with the number of members on the side. This is a traditional indirect network externality.

Diners get more benefit from a restaurant reservation platform if they have more restaurants to choose from for making a reservation.

The platform creates value to members of side 1 by aggregating members of side 2 and providing access to them.

Externalities are subtle

It is sufficient that positive usage or membership externalities arise on one side of the platform. The Platform creates value by helping customers on that side get access to one or more customers on the other side.

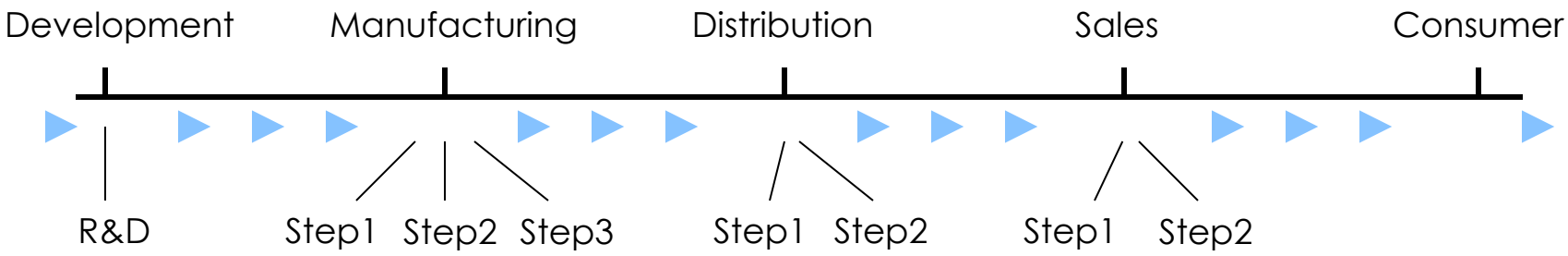
Members on the second side could actually dislike being connected to members on the first side. The Platform can create value so long as there is the possibility of value-creating exchange.

- E.g. Consumers may not like advertising. But so long as the value advertisers get from being connected to consumers is greater than the cost to consumers of seeing the advertising, the platform can "bribe" consumers to be connected to advertisers

Positive externalities could decline and vanish perhaps because of congestion.

Profit Maximization

Traditional businesses are linear

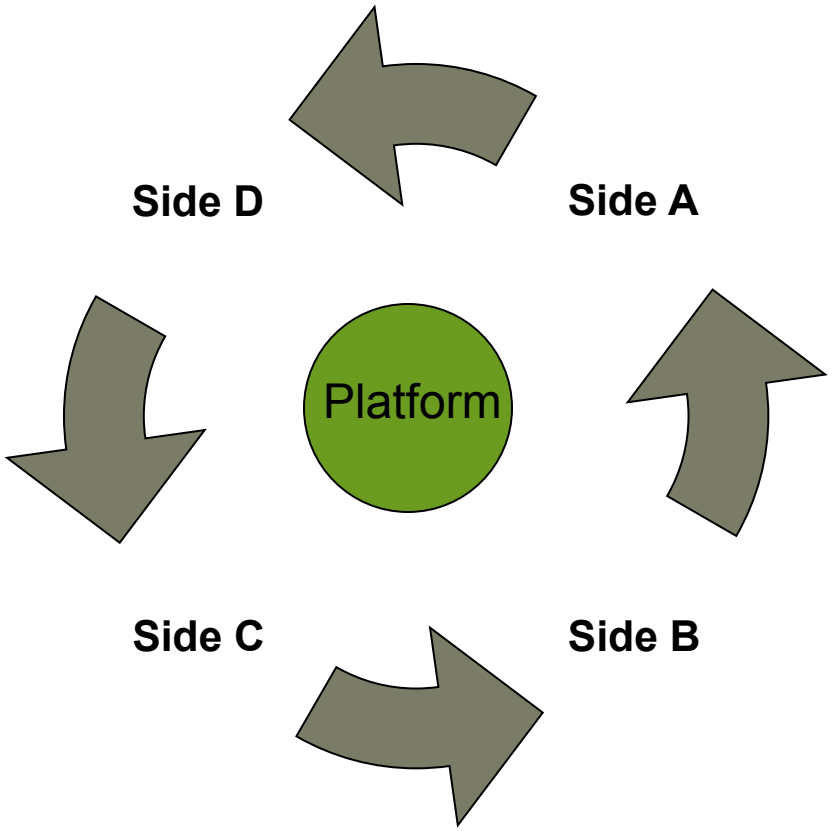


- Possible to replace almost any one of these entities without changing the business much.
- No significant interdependences between the players.
- No significant interdependencies between the customers either.
- The economics of one-sided businesses are well understood:
  - Strive for efficiencies at all levels AND some kind of mark-up type formula over cost

Multisided businesses are nonlinear

Interdependencies exist between:

- Producers of complementary products (video games) and end consumers (game players) → Turns complementary product into customer.
- Different customer groups (advertisers and readers) → Gets different customer groups on the same platform.



Multisided platforms face different profit-maximization problem

Single product firm profit function

$$\Pi = \left(P_1 - C_1\right) D_1\left(P_1\right)$$

Two-sided platform firm profit function

$$\Pi = \left(P_1 - C_1\right) D_1\left(P_1, Q_2\right) + \left(P_2 - C_2\right) D_2\left(P_2, Q_1\right)$$

Two-sided case is mathematically very different than single-sided case. This is basic Armstrong (Rand 2006) model but point is general

Profit maximizing prices can be less than incremental cost

- Robust result is that long-run profit maximizing price for a side can be less than marginal cost including zero or less than zero.
- Radically different result than traditional theory in which long-run price is always greater than marginal cost.
- Platforms choose pricing levels and pricing structure which involves ***relative*** prices between sides.
- Classic Rochet-Tirole definition of platform is that "pricing structure" affects total output.

Platforms can have money and subsidy sides

Subsidy sides common for platforms

COMPANY	CUSTOMER SIDE A	CUSTOMER SIDE B	CUSTOMER SIDE C
Apple iOS	Users	Application Developers	Mobile network operators
Sony PlayStation	Users	Game Developers	
Google Search	Searchers	Advertisers	Websites
Nasdaq	Liquidity providers	Liquidity takers	
Monster	Job seekers	Employers	
Washington Post	Readers	Advertisers	
Copley Place Mall	Retail Stores	Shoppers	
American Express	Cardholders	Merchants	
Facebook	Friends	Advertisers	Application Developers

Critical role of P<MC finding

- Traditional microeconomic theory finds that P ≥ MC.
- That finding has been key to antitrust analysis and is the foundation for everything from SSNIP tests to predation analysis.
- Multisided platform theory finds that on one side of platform ***profit-maximizing*** prices P can be less than MC, 0, or even less than 0.
- Multisided platform empirics finds that P < MC including "free" is common in fact.

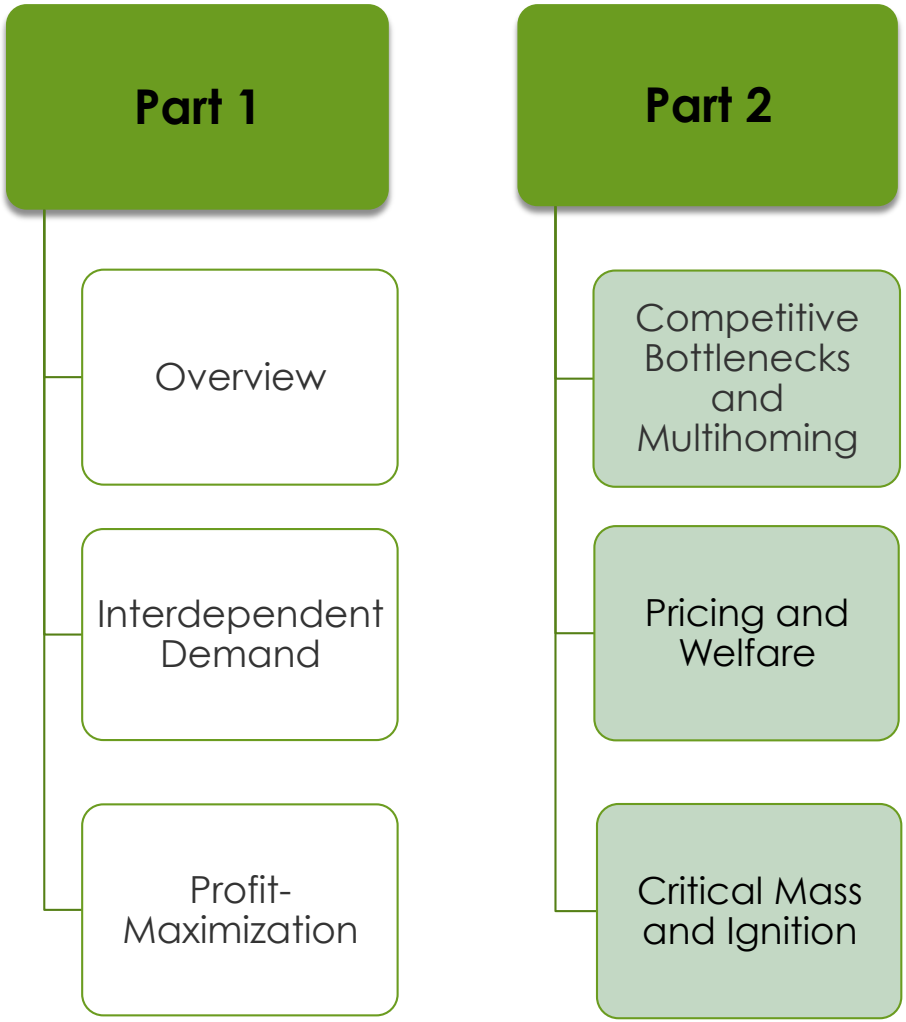
Traditional model results do not necessarily hold for multisided platforms

- Industrial organization models that do not incorporate interdependent demands do not necessarily apply to multisided platforms.
- Seriousness highlighted by fact that basic P > MC result does not necessarily apply in theory and often in fact.
- May be possible to assess existence and direction of bias in simple cases.
- For complex assumption-driven models, you need to do the math to see if the result applies.
- Economic analysis that does not take interdependent demand into account is not likely reliable.

Does multi-sidedness matter In practice?

- May not be multi-sided at all (mining, manufacturing, most traditional services).
- May not be multi-sided enough to matter (supermarkets, law firms?)
- Issues may not hinge on multi-sidedness (merger that leads to consolidation on one side where feedbacks to other side can be safely ignored).
- But, for strongly multi-sided platforms, it often provides important insights into business models, institutional arrangements, and competitive and anticompetitive strategies.

Overview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