

[2014 ITS Europe Regional Conference]

Defining a cluster market: The case of the Korean Internet portal service market

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Objectives and Contents

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- ▶ To propose a new approach to define cluster markets based on revealed consumer preference
- ▶ Applying the method to the Korean Internet portals
- ▶ Motivation
- ▶ Defining cluster markets
- ▶ New approach for the cluster market definition
- ▶ Data, Analyses, and Results
- ▶ Implications

1. Motivation

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- ▶ Multiproduct sellers and multiservice providers
 - ▶ Multiproduct sellers: Carrefour, Tesco, Sears, Walmart, and Meijer



1. Motivation

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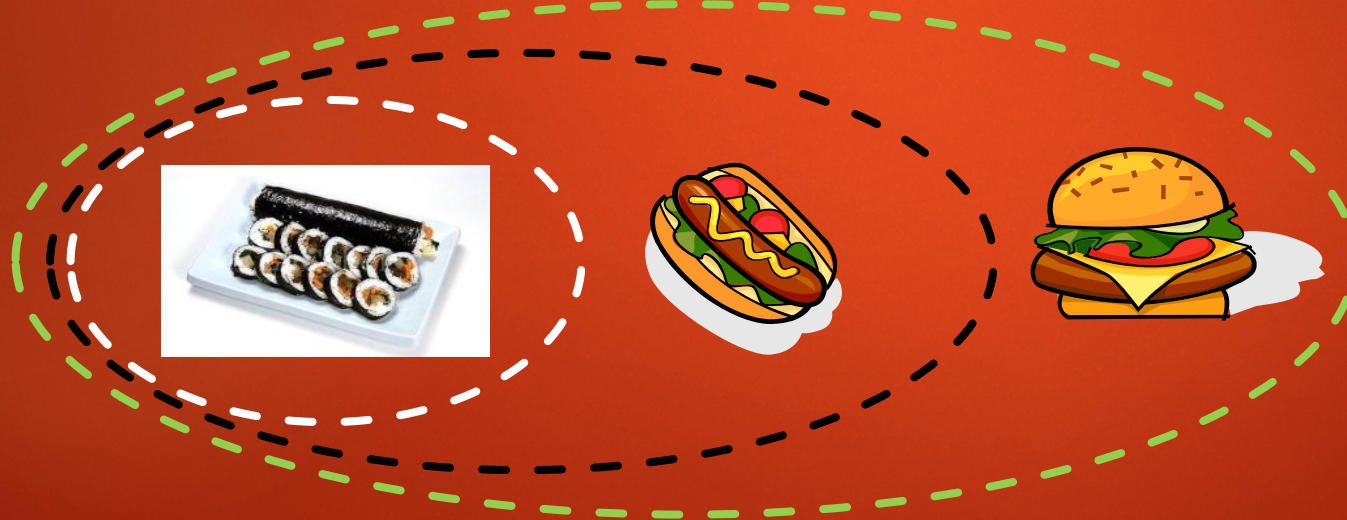
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► Multiservice providers



1. Motivation

- ▶ Why should we define these markets? A prerequisite in the M&A evaluation process!
- ▶ Can we use the traditional market definition method?
 - ▶ The hypothetical monopolist test: the SSNIP test
- ▶ We can't. Why we can't and a practical alternative?



2. Defining cluster markets

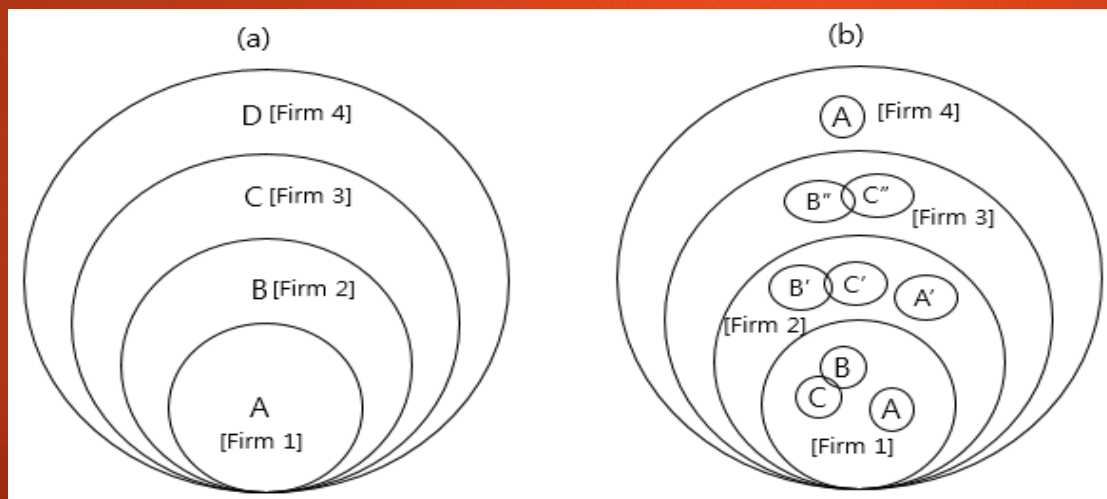
- ▶ Defining cluster markets
 - ▶ Markets that are composed of **multiproduct sellers or multiservice providers**
 - ▶ Determining **the boundary of sellers** of selling a similar mix of multiple products

2. Defining cluster markets

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- ▶ An issue that we face in defining cluster markets
 - ▶ Selling multiple products → difficult to determine the identity of a seller
 - ▶ Regulators and courts tend to set a mix of goods a priori to determine the identity of sellers: ex) KFTC → 1S4C(Search, Commerce, Communication, Content, Community)



2. Defining cluster markets

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- ▶ Other issues that we face in defining cluster markets
 - ▶ SNNIP test cannot be used. Why? No single price.
 - ▶ In the Internet portal service market, users do not pay rates → double sided market.
 - ▶ In the Internet portal service market, there is virtually no transactional complementarity (Ayres, 1985)

3. New approach for the cluster market definition

- ▶ Theoretical basis
 - ▶ Focusing on consumer behavior
 - ▶ US Horizontal merger guidelines: "market definition focuses solely on demand substitution factors..."
 - ▶ Revealed comparative preference
 - ▶ Customers (users) reveal their preference by making purchases
 - ▶ Observe revealed preferences → calculate the relative intensity of revealed preference → determine the location of each sellers on the N dimension.

3. New approach for the cluster market definition

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- ▶ Measuring the revealed comparative preference index

$$RCP_{ij} = \frac{E_{ij} / \sum_{i=1}^N E_{ij}}{\sum_{j=1}^M E_{ij} / \sum_{i=1}^N \sum_{j=1}^M E_{ij}}$$

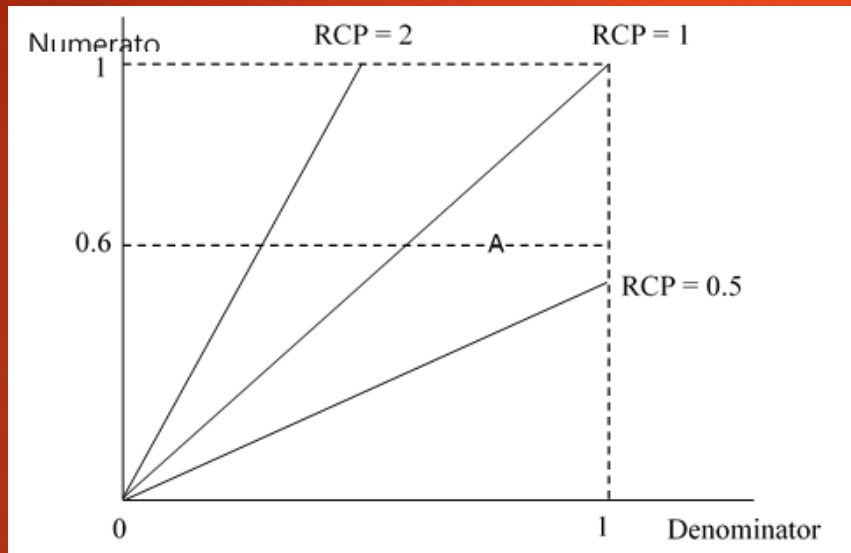
	1	2	j	M	Sales by item
1	F_{11}	F_{12}	F_{1j}	F_{1M}	$\sum_{j=1}^M F_{1j}$
2	F_{21}	F_{22}	F_{2j}	F_{2M}	$\sum_{j=1}^M F_{2j}$
i	F_{i1}	F_{i2}	F_{ij}	F_{iM}	$\sum_{j=1}^M F_{ij}$
N	F_{N1}	F_{N2}	F_{Nj}	F_{NM}	$\sum_{j=1}^M F_{Nj}$
Firm's Sales	$\sum_{i=1}^N F_{i1}$	$\sum_{i=1}^N F_{i2}$	$\sum_{i=1}^N F_{ij}$	$\sum_{i=1}^N F_{iM}$	$\sum_{i=1}^N \sum_{j=1}^M F_{ij}$

3. New approach for the cluster market definition

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- ▶ Measuring the intensity of revealed comparative preference
- ▶ Iso-RCP lines



4. Data, Analyses, and Results

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- ▶ Data were provided by Nielson KoreanClick
 - ▶ Click data were collected from the PC users of 12,000
 - ▶ User age ranges from 7 to 69
 - ▶ Monthly click data were collected over 17 services
 - ▶ PV (page view) data for 16 Internet portal sites were included in the analyses.

4. Data, Analyses, and Results

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► Descriptive statistics

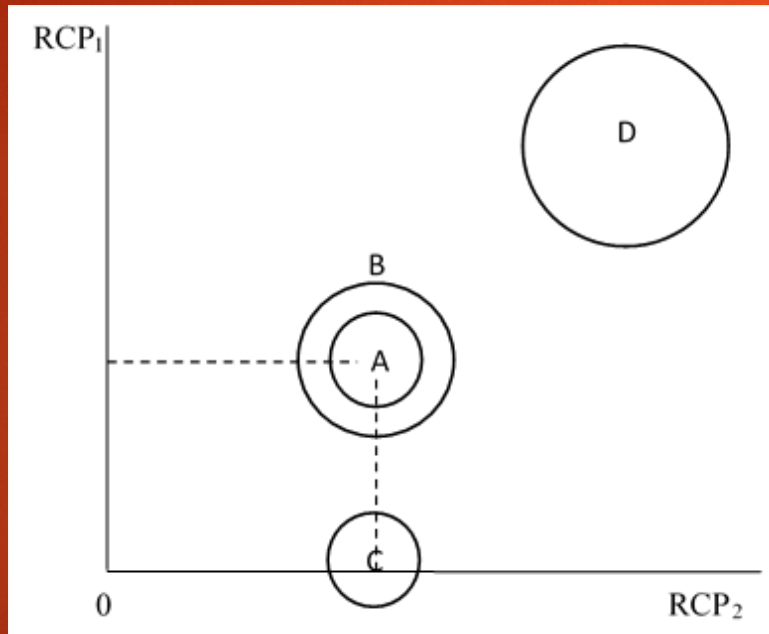
Services	Min. Value		Max. Value		Average		Standard Error	
	2009	2010	2009	2010	2009	2010	2009	2010
Search	.000	.000	4.384	3.696	.7790	.6874	1.254	1.106
Community	.000	.000	2.239	2.52	.5889	.5582	.7123	.8142
Communication	.000	.000	5.865	8.256	1.887	2.242	1.615	2.702
News Media	.000	.000	4.844	5.407	1.230	1.460	1.482	1.638
Life	.000	.000	4.986	7.040	.9370	1.412	1.300	2.320
Commerce	.000	.000	1.695	1.433	.5581	.3558	.5697	.4788
Entertainment	.000	.000	7.834	13.64	1.473	1.756	2.157	3.800
Biz-Finance	.000	.000	1.015	1.329	.2489	.233	.3774	.4298
Education-Job	.000	.000	.666	1.504	.1264	.1664	.2322	.4165
Event	.000	.000	18.62	33.63	1.960	2.497	5.269	8.963
Game	.000	.000	90.57	64.84	7.597	6.233	23.91	17.32
Homepage	.000	.000	.285	.470	.023	.0367	.0757	.1252
Kids	.000	.000	6.845	9.119	.650	.7929	1.855	2.428
Mobile	.000	.000	51.47	165.8	9.918	13.81	16.62	44.11
PDS	.000	.000	206.4	11.76	20.61	1.252	56.16	3.100
Personalized	.000	.000	18.87	5.723	2.444	.8154	5.095	1.544
Video	.000	.000	196.2	209.0	18.28	18.37	53.02	56.06

4. Data, Analyses, and Results

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- ▶ Analyses: Cluster analyses for two time points
 - ▶ Calculating Euclidean distance between Internet portals.



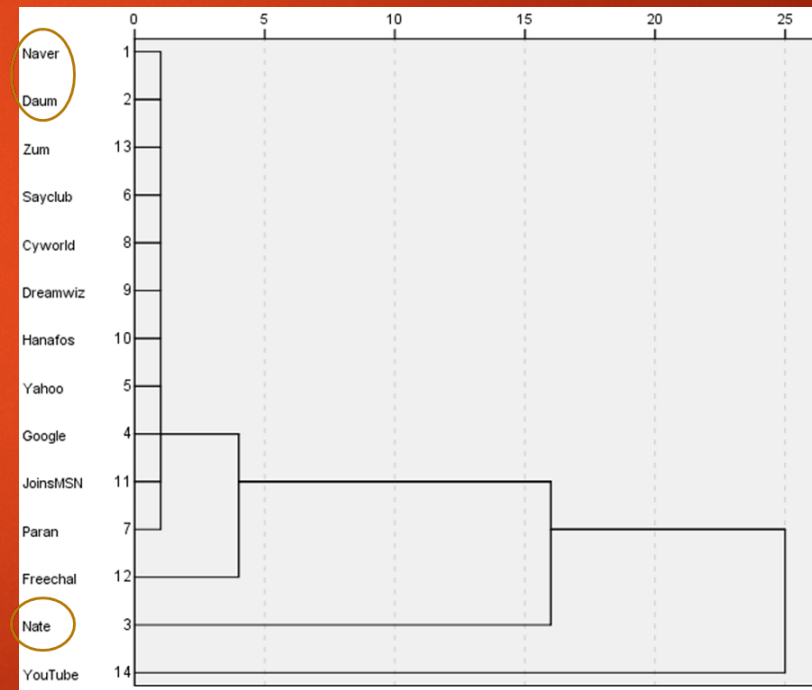
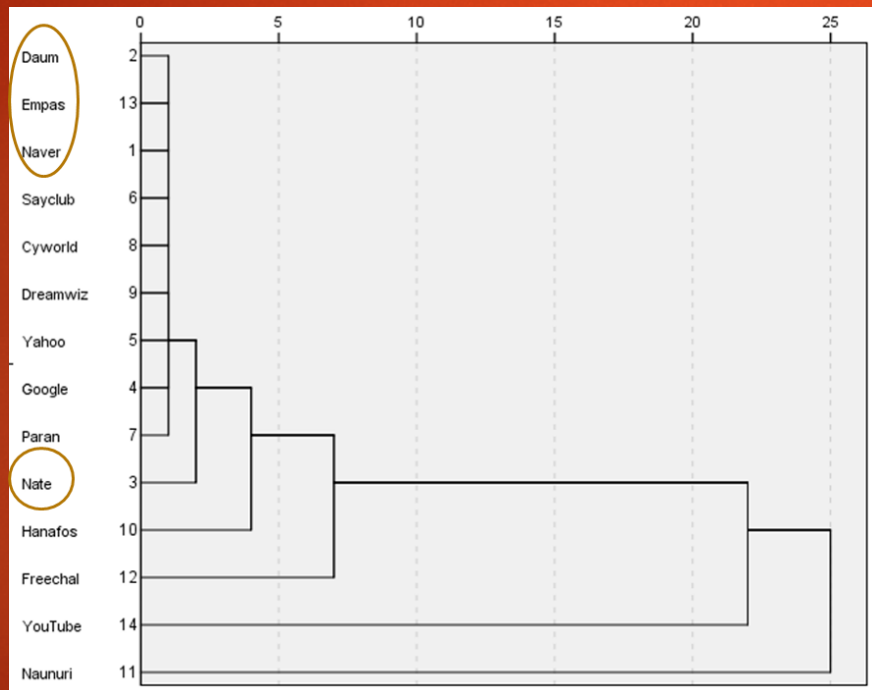
4. Data, Analyses, and Results

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► Results

► One market in the Korean Internet portal market(Dec. 2009, 2010)



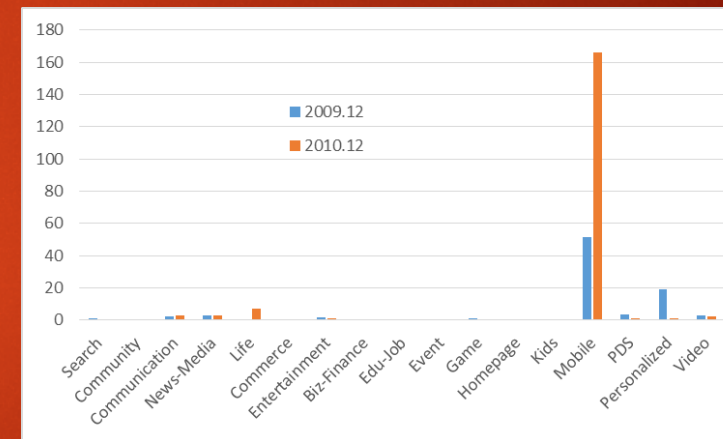
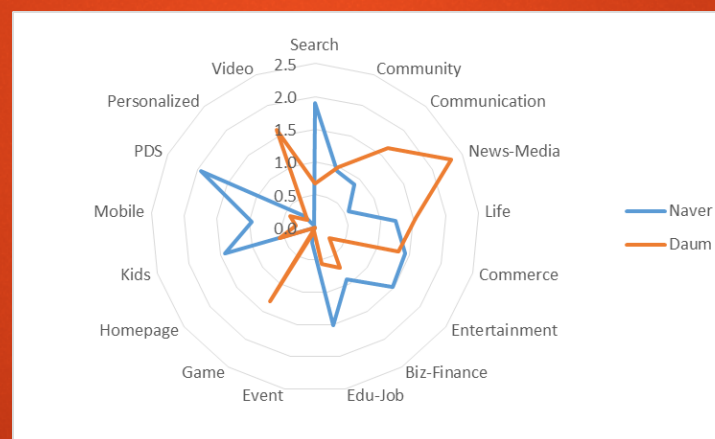
4. Data, Analyses, and Results

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▶ Results

- ▶ Why is Nate different from others?
- ▶ Naver, Daum, and Nate

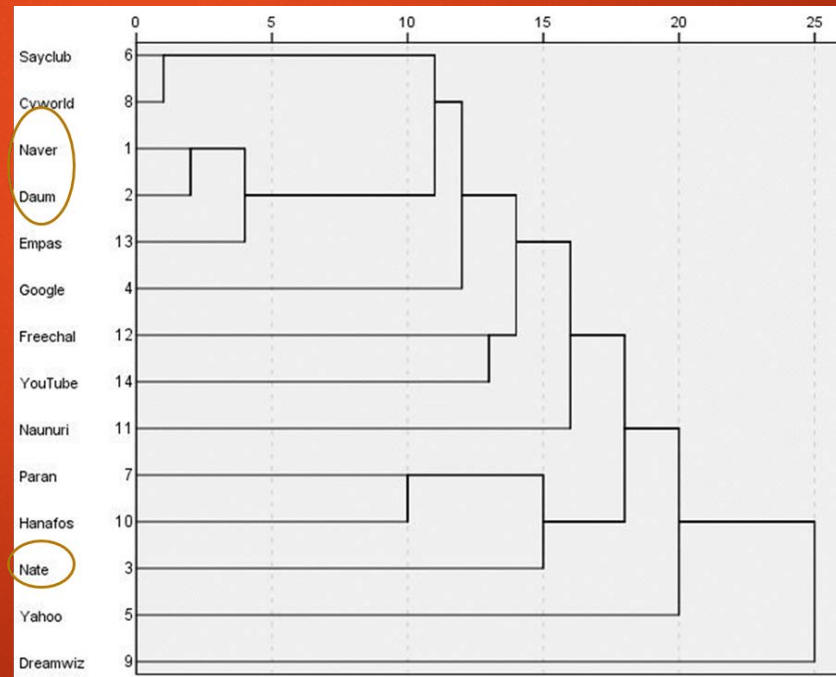


4. Data, Analyses, and Results

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- ▶ Results
 - ▶ Robustness checking using standardized RCP data.
 - ▶ Nate is different.



5. Implications

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- ▶ Cluster market definition needs more scholar's attention.
 - ▶ Choosing a mix of products a priori to determine the identity of multiproduct or multiservice sellers lacks validity.
 - ▶ Cluster analysis using RCP data can be an alternative.
 - ▶ The Korean Internet portal service market can be defined as one market even though Nate, a specialty seller, can also be treated separately.
 - ▶ Need include more specialty sellers.

Questions?