

## **Business use of online platforms: competition, impacts and willingness to pay**

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## Definition

- An online platform is "a digital service that facilitates interactions between two or more distinct but interdependent sets of users (whether firms or individuals) who interact through the service via the Internet" (OECD, 2019) and is operated by a **third party**.

## Motivation

- Growing importance of online platforms (OPFs)
- Multi-sided markets (network effects, new dependencies, etc.)
- Little empirical knowledge about scope, modes and impact of business use

## Contribution to the literature

- Development of a new enterprise survey
- Comprehensive analytical approach
- Empirical tests in a series of econometric estimations

## Funding

- Funded by the *Anniversary Fund of the Austrian National Bank* (grant 18297).

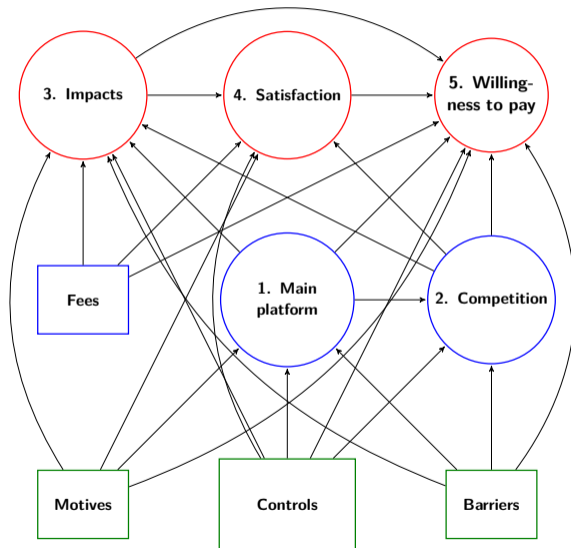
## **New enterprise survey** (winter 2021/22)

- **N = 1,380** companies (with at least 10 employees)
- Net sample: 8,600; response rate: 16.04%.
- Sampling
  - 4 sectors: manufacturing, construction, tourism, other non-financial services
  - Firm size: small, medium, large (50/250 employees)
- 5 areas of corporate activity
  - Sales, procurement, production (incl. R&D and logistics), human resources (HR), information and communication

## **Method of estimation**

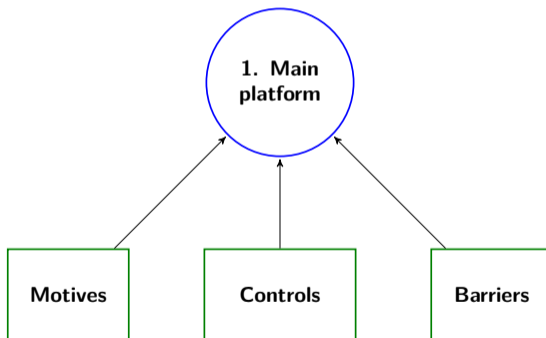
- **(Ordered) probit** with survey weights and marginal effects (where appropriate)
- Conditional correlations (statistical association)

# A bird's eye view



## Most important platform: model

$$P_i^p = \alpha_p + \gamma_p^m M_i^m + \delta_p^b B_i^b + \beta_p^x X_i^x + \epsilon_i^p$$

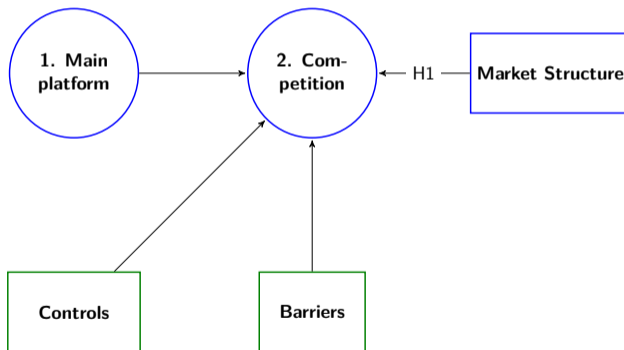


### Scope and drivers of adoption

- Most common **use** in communication (50.5%), followed by HR (44.1%), information (38.3%) and sales (28.4%). More specific and rarer in procurement (10.8%), logistics (8.6%) and production (6.8%).
  - Factors associated with **higher probability of adoption**, e.g.
    - *Sales*: tourism sector, motive of customer loyalty, cost barriers;
    - *Procurement*: broadband access, business model motive, cost barriers;
    - *HR*: firm size, enterprise group, variety and flexibility motive;
    - *Production*: firm age, efficiency motive, concerns about data security;
    - *Communication*: motives of new business model, visibility & reach, customer loyalty.
- => Much **heterogeneity** across management domains

# Competition: model

$$C_i^c = \alpha_c + \rho_c^d D_i^d + \eta_c^p P_i^p + \delta_c^b B_i^b + \beta_c^x X_i^x + \epsilon_i^c$$



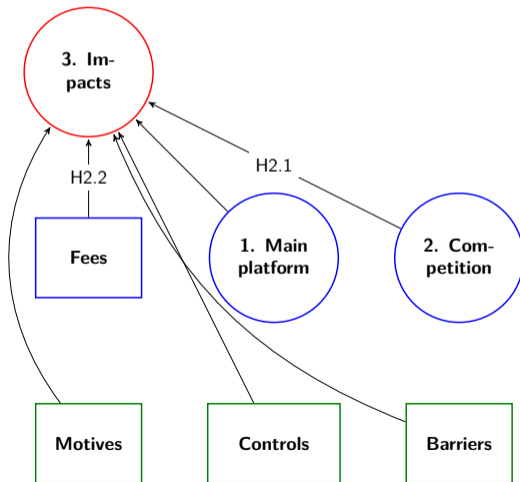


### Market structure and conduct

- Ease of switching between platforms: very easy (10.3%), easy (46.0%), difficult (32.8%), very difficult (10.9%). Ca. 25.8% have at least once switched their most important provider.
  - A larger (expected) number of *rival platforms* associates positively with the ease of switching between them, the probability of already having done so as well as the negotiability and clarity of the terms of use.
  - Rival platforms being considered to be too small is the barrier with the most consistent negative association for all five dependent variables.
  - Similarly, concerns about high adjustment costs and data portability associate with a significantly lesser ease of changing the platform.
- => **More platforms and less barriers to switch associate with better terms of use.**

## Impacts: model

$$I_i^n = \alpha_n + \phi_n F_i + \eta_n^p P_i^p + \kappa_n^c C_i^c + \delta_n^m M_i^m + \delta_n^b B_i^b + \beta_n^x X_i^x + \epsilon_i^n$$

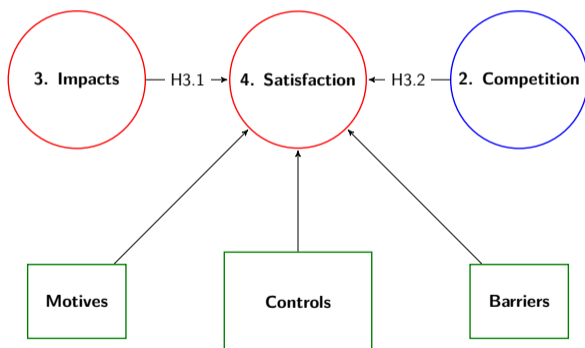


### Focus on competition (and fees)

- Impacts on **overall sales**: strong increase (4.0%), increase (36.8%), **none** (57.4%), decrease (1.8%).
  - More **rival platforms** associate with greater impacts on the number of business partners, sales per customer and the variety of products.
  - The need for **personal contact** as a barrier associates with lower impacts on sales growth, number of customers and sales prices.
  - Firms that fear **increasing competition** due to the platform report higher impacts on revenue per customer and on product quality.
  - **Paying fees** associates with higher impacts on the number of business partners and customers, revenue per customer and growth of total revenues.
- => Platform competition (and fees) associate with higher positive effects of their use.

## Satisfaction: model

$$S_i = \alpha_s + \theta^n N_i^n + \kappa^c C_i^c + \delta^m M_i^m + \delta^b B_i^b + \beta^x X_i^x + \epsilon_i^s$$



### High overall satisfaction

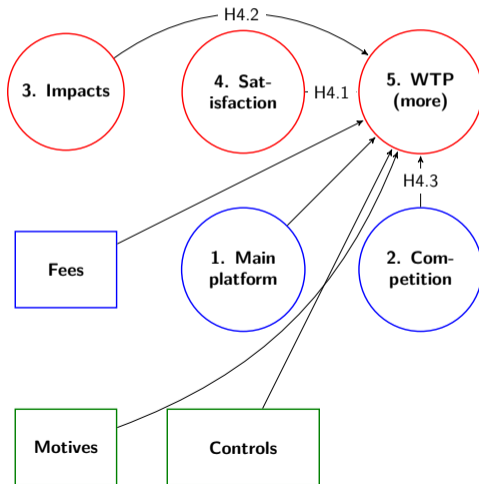
- Very satisfied (13.5%), satisfied (59.49), neither (23.66%), dissatisfied (3.01%), very dissatisfied (0.33%)

### More specifically, e.g.

- **Motives:** (i) *efficiency* associates with a 4.0% (6.6%) higher probability of being (very) satisfied; for (ii) *customer loyalty* the marginal effects are 3.9% and 6.3%
  - **Impacts:** (i) Number of *business partners*: better rating by one unit comes with a 2.1% (2.8%) higher probability of being (very) satisfied; (ii) *Sales prices*: 2.2% (3.6% ) higher probability of being (very) satisfied
  - **Terms of use:** (i) better rating of *clarity* associates with a 3.7% (6.0%) higher probability of being (very) satisfied; (ii) for their actual *implementation* the probabilities of being (very) satisfied increase by 1.2% (1.9%)
- => Most satisfaction with motives of efficiency and customer loyalty, high perceived impacts and good terms of use.

## Willingness to pay: model

$$WTP_i = \alpha_w + \phi_w F_i + \theta^n N_i^n + \kappa^c C_i^c + \delta^m M_i^m + \delta^b B_i^b + \beta^x X_i^x + \epsilon_i^w$$



### WTP as lower bound ...

- 68.5% **pay a fee**: 64.6% of them pay less than 1.0%, 9.5% at least 3.0% of annual sales; 32.4% are willing to pay more if necessary.
  - 31% **pay no fee**: of these 23.4% are willing to pay one.
  - Better **sales-enhancing** effects by one unit has a marginal effect of +9.6%
  - **Satisfaction** with use shows a marginal effect of +5.7%
  - **Ease of switching** platforms has a negative marginal effect of -4.6%.
  - **Terms of use**: no significant marginal effect (though positive association with satisfaction).
- => **Negative conditional correlation between willingness to pay and the intensity of platform competition.**

## Summary and conclusions

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- Austrian companies generally show a **high satisfaction** with the adoption and use of online platforms, confirming the benefits of internalising direct and indirect network effects (i.e., the platform “value proposition”).
- **Competition** between platforms is a critical factor. More rivalry between platforms associates with more favourable terms of use, better rated impacts and satisfaction of business customers, and a lesser willingness to pay (more) for participating in the platform.
- Given the young age, abundant opportunities and efforts to grow by courting users, competition currently appears to be largely effective. But **as markets mature**, network externalities may reinforce a *winner-takes-all dynamic* affecting the future distribution of benefits and costs.
- We interpret the empirical evidence as supporting the relevance and necessity of effective competition policy and **regulation** in this area. For that purpose, **more comprehensive data are urgently needed!**



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