

# Estimating the entry into the pharmacy retail markets

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# Motivation

- Entry barriers assessment is a necessary part of the analysis of the state of competition provided by FAS
- So far in most cases entry analysis was a bottleneck
  - Formal enumeration of barriers' sources
  - No quantitative evidence
- Filling this gap, we conduct entry analysis of the pharmacy market
- Our goals are:
  - To test empirical methodology (Bresnahan, Reiss, 1991) on publicly available data
  - To give recommendations for competition analysis

# Why pharmacy market?

- Antitrust authorities pay close attention to this market
- There are many relatively homogeneous enterprises
- A licensed activity – data can be obtained from open data sources

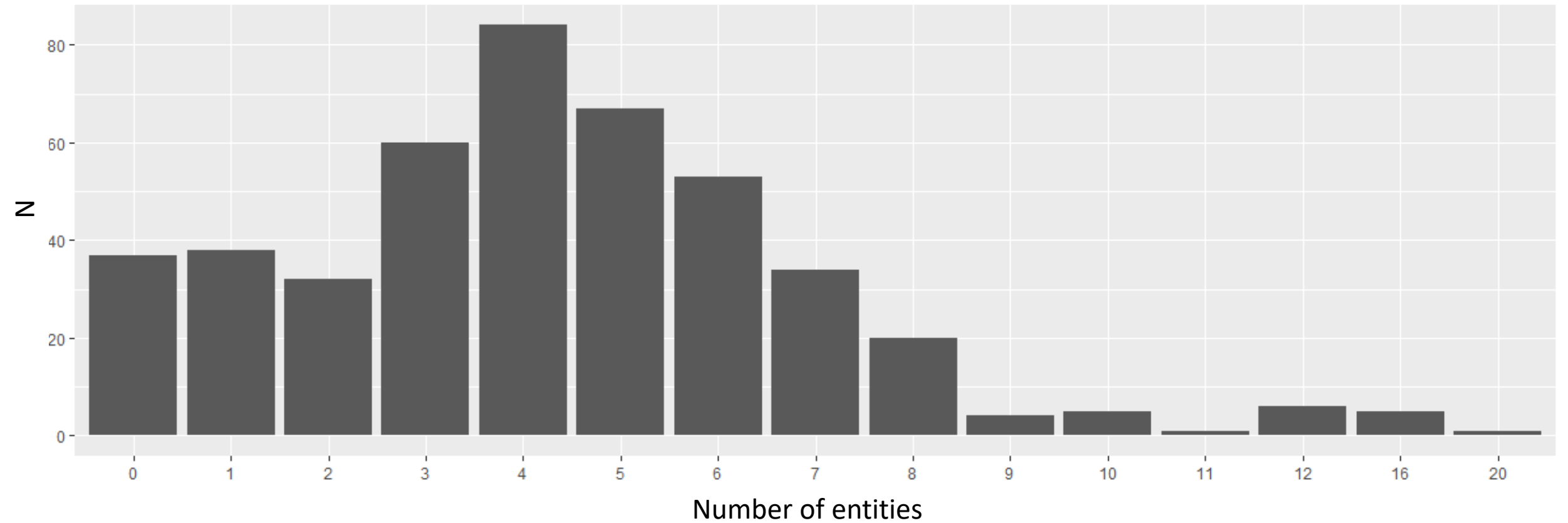
# Katren&Erkapharm Case (2021)

- 2021: FAS considered a merger between Katren JSC (owns the Melodiya Zdorovya pharmacy chain) and JSC Management Company Erkapharm
  - JSC Erkapharm was recognized as occupying a dominant position (collective dominance) on the retail market for medicines, medical devices and related products within St. Petersburg
  - FAS established a ban on opening new pharmacies
- The presence and surmountability of barriers to entry were not analyzed
  - Preliminary analysis: there are sources of competitive pressure in the retail trade from ecosystems
  - Empirical evidence (European data): legalizing e-commerce makes it easier for smaller firms to enter the market, market concentration decreases (Spektor, Ionkina, 2023)
- The potential restriction of competition in regional markets was not considered by FAS

# Data

- Russia, year 2020, municipal level
- Pharmacies data – Roszdravnadzor, data.gov:
  - License data, legal entity, address
- Demographics and controls – Rosstat, INID:
  - Fertility, mortality
  - Average housing area
  - Number of hospitals, total number of active firms
  - Proportion of paved roads
- Only small markets – 20% quantile of population (< 12 139 pers.)
- 405 entries (municipalities, towns)

# Number of entities per town (market)



# Empirical strategy

1. Ordered logit ( $N_{drugs}$  to all controls)
2. Bresnahan-Reiss (1991) model:

$$\pi_N = S(Y, \lambda)V_N(Z, W, \alpha, \beta) - F_N(W, \gamma) + \epsilon$$

$$S(Y, \lambda) = pop + \lambda_1 birth + \lambda_2 death + \lambda_3 nhospitals$$

$$V_N(Z, \alpha, \beta) = \beta_1 pop_{old} + \beta_2 nfirms + \beta_3 apartments\_size - \sum_{n=1}^N \alpha_n$$

$$F_N(W, \gamma) = \gamma_L hardroadrate + \sum_{n=1}^N \gamma_n$$

# Result: ordered logit

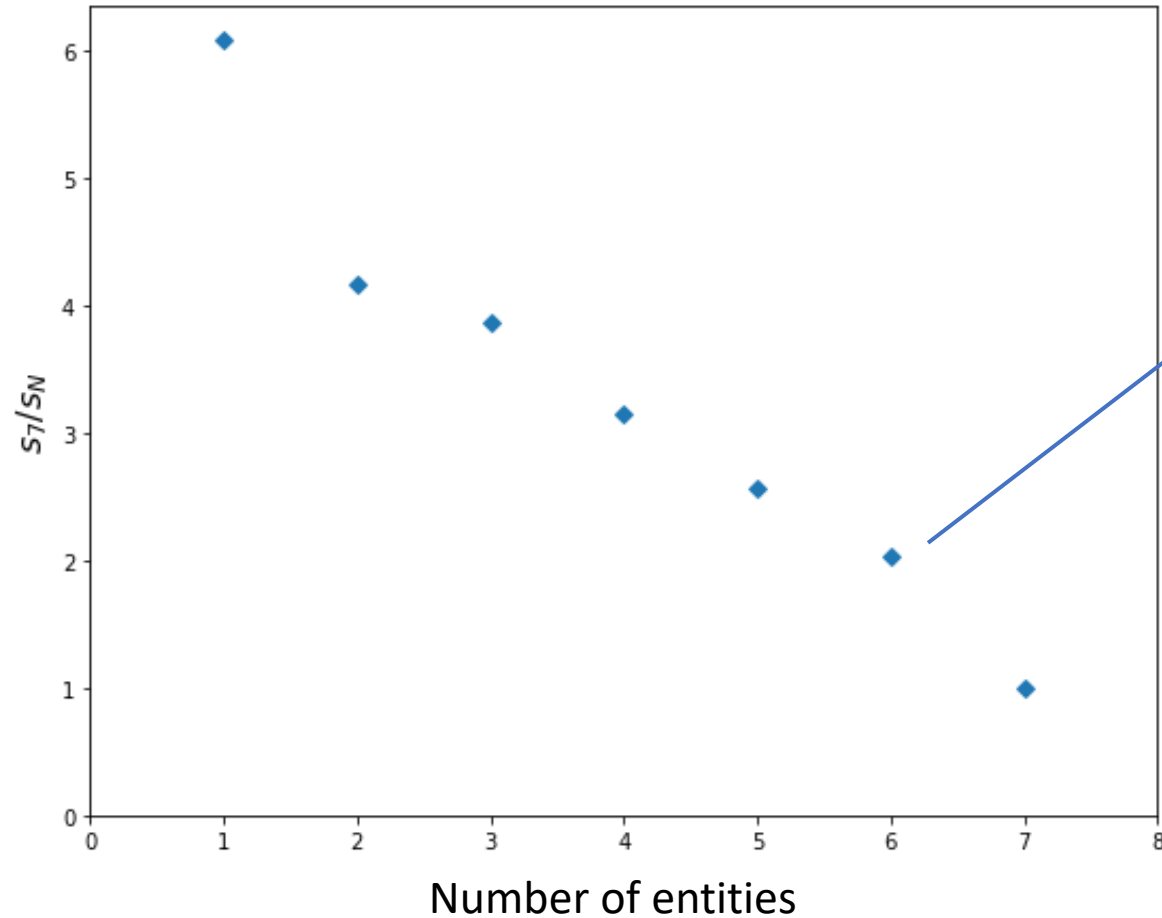
		Number of entities		
		(1)	(2)	(3)
	log(birth)	-0.127 (0.339)	0.004 (0.331)	0.171 (0.286)
<i>Demand</i>	<b>log(death)</b>	0.884* (0.465)		0.451 (0.379)
	log(pop_old)	-0.953 (0.585)	-0.325 (0.482)	
	<b>log(pop)</b>	1.765*** (0.233)	1.766*** (0.233)	1.704*** (0.230)
<i>Fixed costs (sign?)</i>	<b>log(hardroadrate)</b>	-0.264* (0.152)	-0.275* (0.151)	-0.283* (0.151)
	log(nhospitals)	-0.139 (0.124)	-0.109 (0.122)	-0.140 (0.124)
<i>Infrastructure, competition for resources</i>	<b>log(nfirms)</b>	-0.331* (0.182)	-0.297 (0.183)	-0.301* (0.182)
	log(apartments_size)	0.308 (0.511)	0.530 (0.499)	0.033 (0.482)



# Result: BR91

		Number of entities	
		Coeff.	Std. err.
<i>Demand</i>	<i>birth</i> ( $\lambda_1$ )	0.1395	(0.0049)
	<i>death</i> ( $\lambda_2$ )	0.0644	(0.0209)
	<i>nhospitals</i> ( $\lambda_3$ )	-1.4304	(0.0630)
<i>Paying capacity</i>	<i>pop<sub>old</sub></i> ( $\beta_1$ )	-0.0725	(0.0117)
	<i>apartments_size</i> ( $\beta_3$ )	1.8216	(0.1994)
<i>Infrastructure, competition for resources</i>	<i>nfirms</i> ( $\beta_2$ )	-0.0102	(0.0004)
<i>Fixed costs</i> (correct sign)	<i>hardroadrate</i> ( $\gamma_L$ )	0.3584	(0.0103)

# Result: BR91 – competition



$$s_7/s_6 > 1$$

- Even with 6 firms, entry is profitable
  - In our data median number of firms is 4
- In original BR91 article entry stops at  $N=3$

# To predict competition

- Example: Bolsheuluysky municipal district of the Krasnoyarsk Territory (OKTMO 04611000)
- How many pharmacies **are** there?
- How many pharmacies **could be** there?

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- There was 3 pharmacies:

firms_drugs	birth	death	nfirms	apartments_size	nhospitals	hardroadrate	pop	pop_old
3	9.7	16.3	3.610108	0.032824	2.499306	0.87758	7.202	0.157734

- How many pharmacies **could be** there?
- Put original data to likelihood function

# To predict competition

firms_drugs	Likelihood function
0	1.7060
1	2.0426
2	2.2593
3	1.6860
<b>4</b>	<b>1.5463</b>
5	2.5279
6	2.8788
7	2.9960

- ...there was **3** pharmacies
- One more may enter
  - Natural barriers are low – the new entrant will reap more profits
  - But are there strategic barriers?

# Discussion

- BR91 shows a more realistic result than ordered logit
  - Advanced methods allow you to get a more relevant result
- The method can be implemented on publicly available data
  - Only few data is publicly available
  - FAS has greater abilities to collect data from business
- The model shows the factors that make it easier / harder to enter, but says nothing about whether barriers are surmountable
  - Some insights could be obtained due to prediction
  - Additional analysis of strategic barriers needed