KEEPING UP WITH CONSUMERS: UNDERSTANDING THE POLICY IMPLICATIONS OF A CHANGING LANDSCAPE

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ÉVOLUER AU MÊME RYTHME QUE LES CONSOMMATEURS: COMPRENDRE LES EFFETS D'UN ENVIRONNEMENT EN ÉVOLUTION SUR LES POLITIQUES

Innovation and Consolidation: Chicken or Egg?

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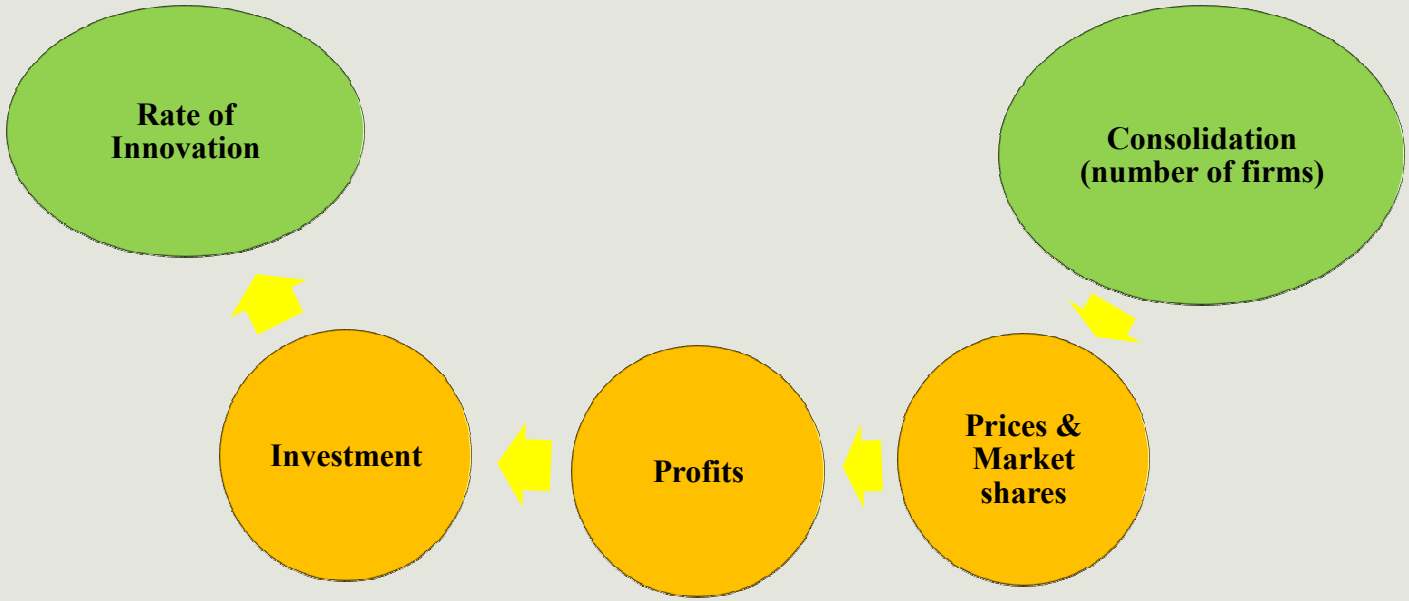
Motivation: what causes what?

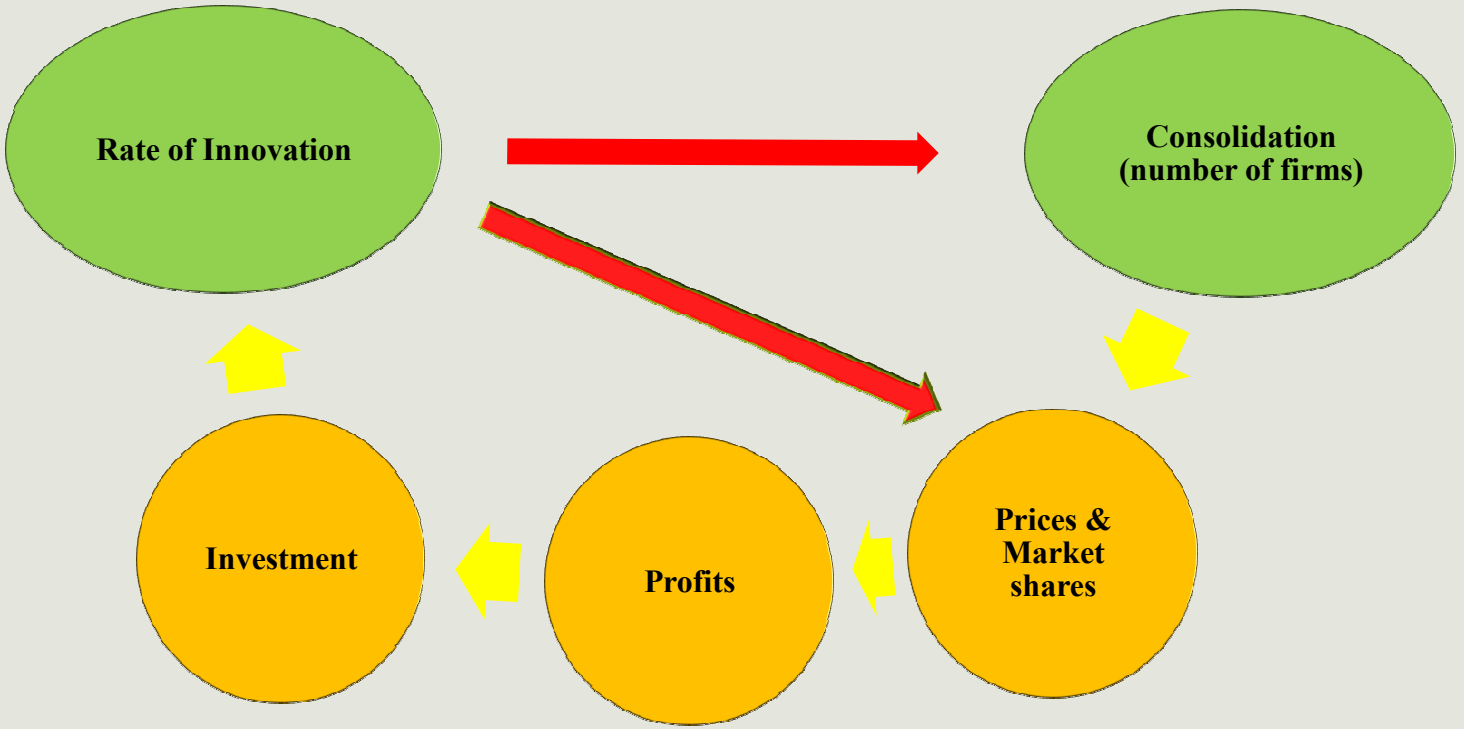
- Economic literature has extensively explored the effect of market structure on innovation.



- **Does this seem complete?!**
- **Or…is there an effect from innovation to market structure as well?**

Motivation: what causes what?

- The causal effect of Innovation on Market Structure has been largely unexplored (since Schumpeter, 1934).



- But how does this work…?

Theoretical Model and Numerical Simulations

- The theoretical model finds the market equilibrium conditions for products that are:

1. Sequentially introduced
2. Differentiated
3. Improve over time (with rate of innovation of k).

Table 1- Distribution of market shares for rate of innovation of k=0.02

Time / Variety	1	2	3	4	5	6	7	8	9	10
1	1	0.49	0.32	0.22	0.16	0.12	0.09	0.06	-	
2		0.51	0.33	0.24	0.18	0.14	0.11	0.08	0.06	
3			0.35	0.26	0.20	0.16	0.12	0.10	0.08	
4				0.28	0.22	0.18	0.14	0.12	0.10	
5					0.24	0.19	0.16	0.13	0.12	
6						0.21	0.18	0.15	0.13	
7							0.20	0.17	0.15	
8								0.19	0.17	
9									0.19	
10										

exit

entry

❖

Results: Effect of Innovation on Market Structure

Table 1. Distribution of market shares for rate of innovation of k=0.02

Time / Variety	1	2	3	4	5	6	7	8	9	10
1	1	0.49	0.32	0.22	0.16	0.12	0.09	0.06	-	-
2		0.51	0.33	0.24	0.18	0.14	0.11	0.08	0.06	-
3			0.35	0.26	0.20	0.16	0.12	0.10	0.08	0.06
4				0.28	0.22	0.18	0.14	0.12	0.10	0.08
5					0.24	0.19	0.16	0.13	0.12	0.10
6						0.21	0.18	0.15	0.13	0.12
7							0.20	0.17	0.15	0.13
8								0.19	0.17	0.15
9									0.19	0.17
10										0.19

8 firms at equilibrium

6 firms at equilibrium

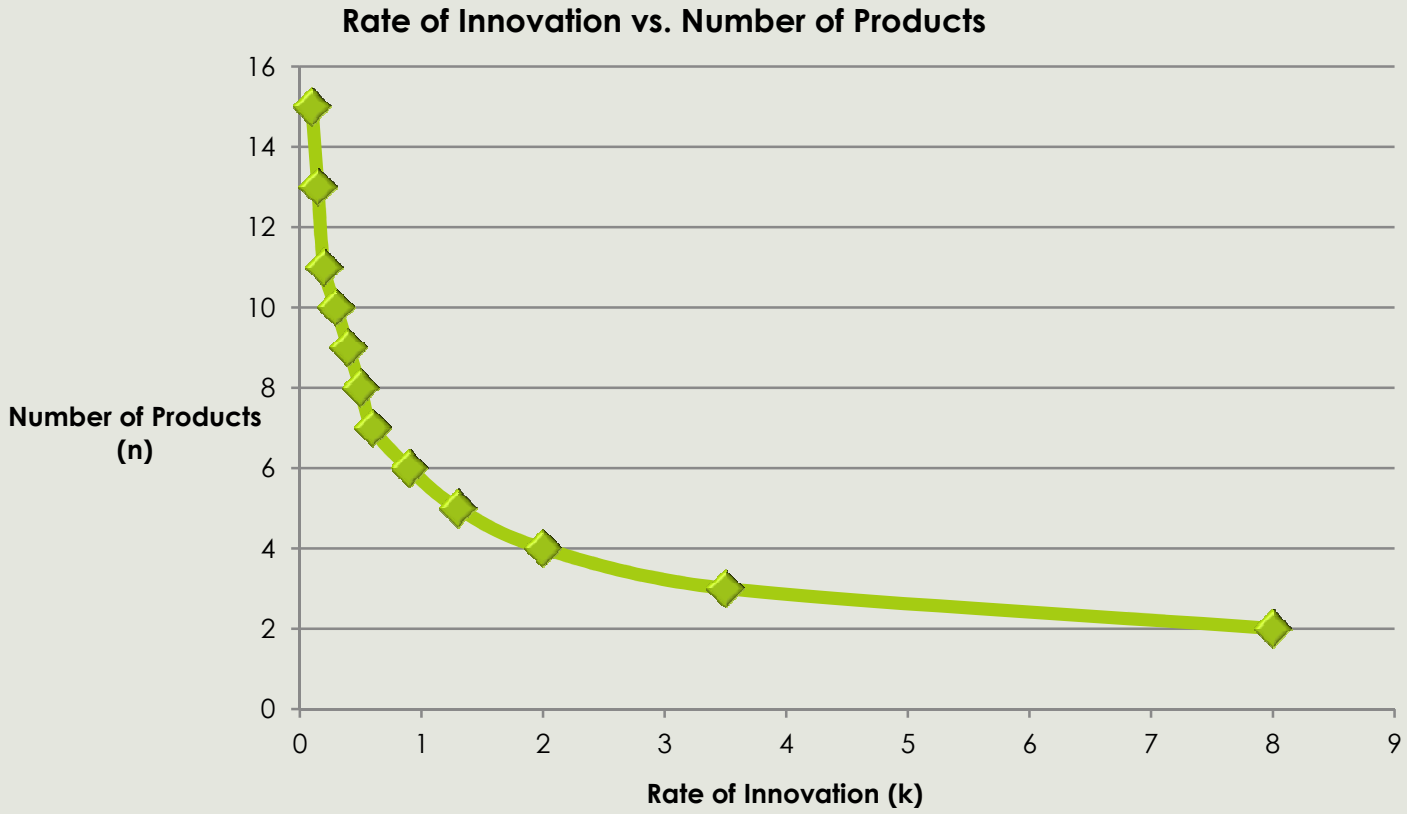
Table 2. Distribution of market shares for rate of innovation of k=0.05

Time / Variety	1	2	3	4	5	6	7	8
1	1	0.48	0.29	0.19	0.11	0.05	-	-
2		0.52	0.33	0.23	0.16	0.10	0.05	-
3			0.37	0.27	0.20	0.14	0.10	0.05
4				0.31	0.24	0.19	0.14	0.10
5					0.29	0.23	0.19	0.14
6						0.28	0.23	0.19
7							0.28	0.23
8								0.28

- A higher rate of innovation (k) causes fewer firms/products in the market.
- Example: Smart phone industry

Non-linear Effect of Rate Innovation on Market Structure

- It takes a lot more innovation to increase consolidation when consolidation level is already high.



- Example: Seed Industry (1996-2008 from 200 to the "big-six")

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Policy Implications

- How does a new drastic innovation such as hybrid or GM affect an industry?
- Innovations not only affect the cost structure but also the market structure (i.e. number of firms and/or products).
- Innovations may increase the number of firms and/or products in the beginning by creating the capacity for more innovation. However, as rate of innovation increases number of firms/products decreases until rate of innovation stagnates and industry matures.

Innovation and Consolidation: Chicken or Egg?

Thank you…

Questions and comments?