

Patent filing strategies: evidence and open questions

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Hypothesis

- Patents are the result of R&D investments that have a long term horizon. Simple economic theory would suggest that short-term movements in the business cycle should not matter.
- In addition, patent filings have option value, enabling companies to postpone commercialization decisions.

Poll 1: Did you slow, maintain, or accelerate patent filings in the 12 months following the onset of the pandemic in March 2020?

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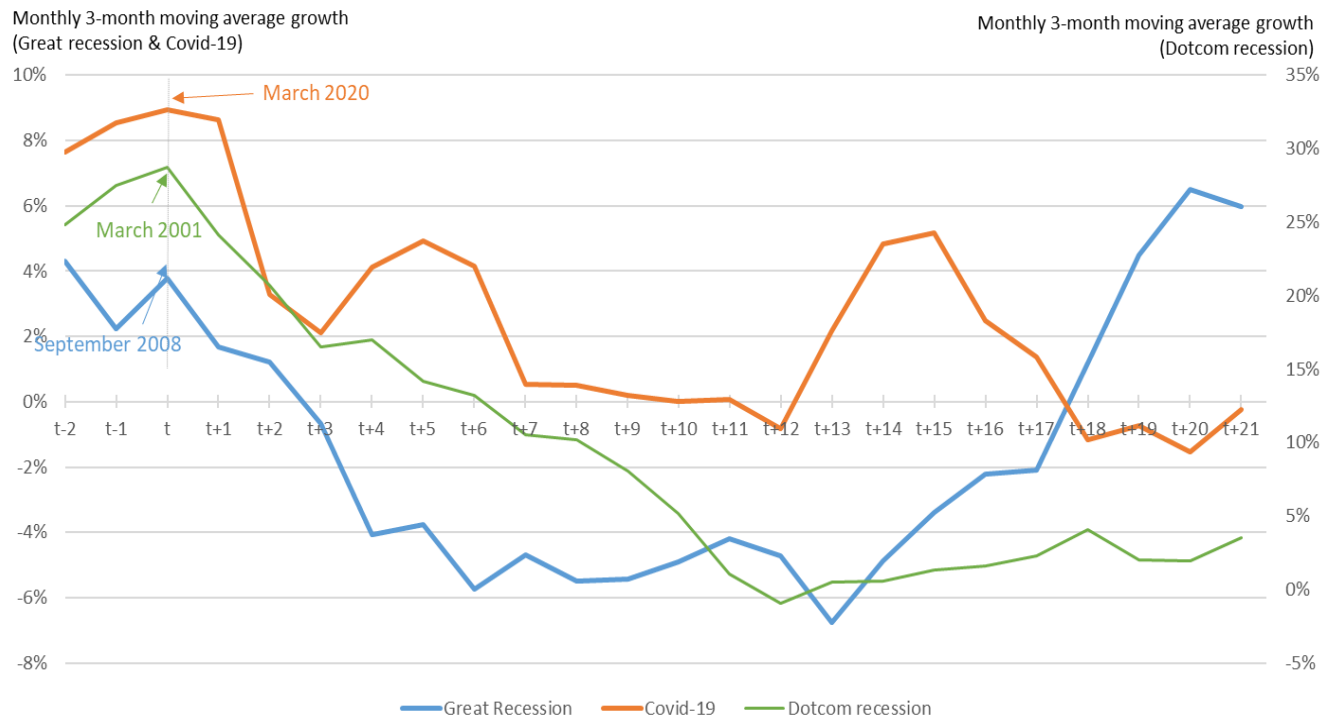
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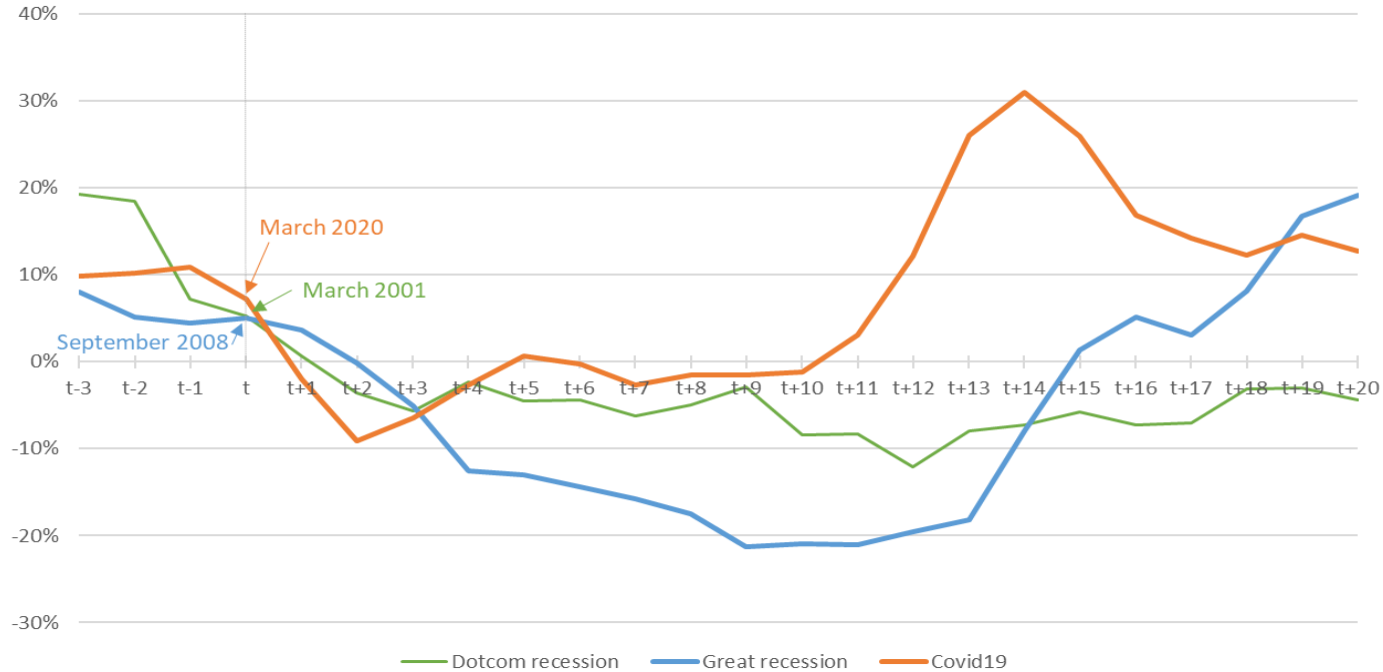
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International patent applications



International trademark applications

Monthly 3-month moving average growth



Possible explanations

- Short-term events can affect expectations about the long-term
- Corporate management considerations
- Curtailed access to equity/debt finance

Poll 2: Do you expect to slow, maintain, or accelerate patent filings in the next 12 months?

Figure 1. Global recession outlook

How likely is a global recession in 2023?

■ Extremely unlikely ■ Somewhat unlikely ■ Neither likely nor unlikely ■ Somewhat likely ■ Extremely likely



Note: The numbers in the graphs may not add up to 100% because figures have been rounded up/down.

Source: Chief Economists Survey, April 2023

More nuanced impact

- Evidence from Japan: new applications fell in the wake of the pandemic, but no change in eventual examination request rate
- Somewhat faster growth of PCT filings than Paris route filings in 2020/21 (with some caveats)

What explains use of the PCT?

- What is the likelihood that an international patent family includes a PCT filing?
- Binary choice model (probit estimation)
- Estimation for 735,00 international patent families from around the world, 2010-2013

Marginal effects of probit estimates

Main variables	
University applicant	0.233
PRO applicant	0.059
3 offices	0.090
4 offices	0.211
5 offices	0.307
6 offices	0.373
7 or more offices	0.494

Marginal effects of probit estimates (2)

Technology fields			
Pharmaceuticals	-0.436	Civil engineering	-1.004
Biotechnology	-0.488	Handling	-1.024
Organic fine chemistry	-0.590	Other special machines	-1.031
Analysis of biological materials	-0.598	Mechanical elements	-1.033
Macromolecular chemistry, polymers	-0.622	Measurement	-1.042
Basic materials chemistry	-0.683	Micro-structural and nanotechnology	-1.051
Digital communication	-0.706	Electrical machinery, apparatus, energy	-1.052
Materials, metallurgy	-0.727	Furniture, games	-1.068
Food chemistry	-0.791	Computer technology	-1.077
Medical technology	-0.818	Machine tools	-1.078
Chemical engineering	-0.844	Transport	-1.080
IT methods for management	-0.853	Engines, pumps, turbines	-1.088
Surface technology, coating	-0.928	Control	-1.104
Environmental technology	-0.940	Audio-visual technology	-1.118
Other consumer goods	-0.945	Semiconductors	-1.126
Thermal processes and apparatus	-0.987	Optics	-1.128
Telecommunications	-0.989	Textile and paper machines	-1.190
		Basic communication processes	-1.248

Open question: sizeable unexplained variation

- Can compare actual PCT share to predicted PCT

	#patent families	Actual PCT share	Predicted PCT share
Japanese multinational #1	4,582	4%	32%
Japanese multinational #2	3,304	96%	52%
US multinational #1	1,376	98%	50%
US multinational #2	1,782	0%	43%

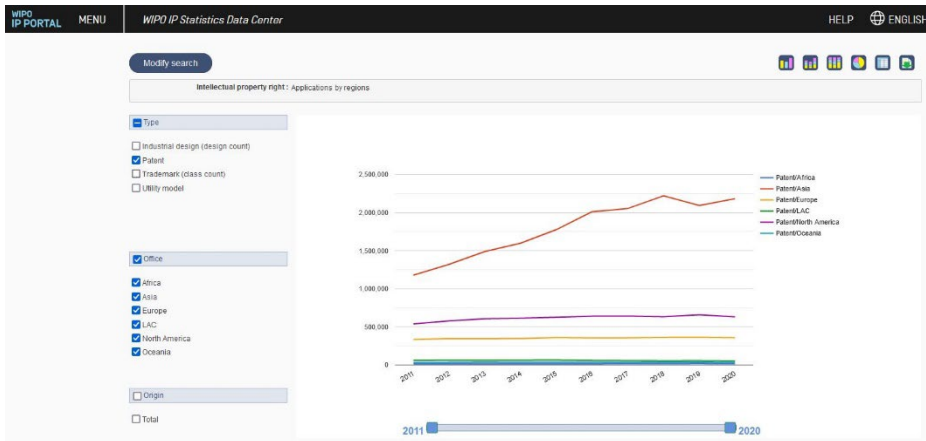
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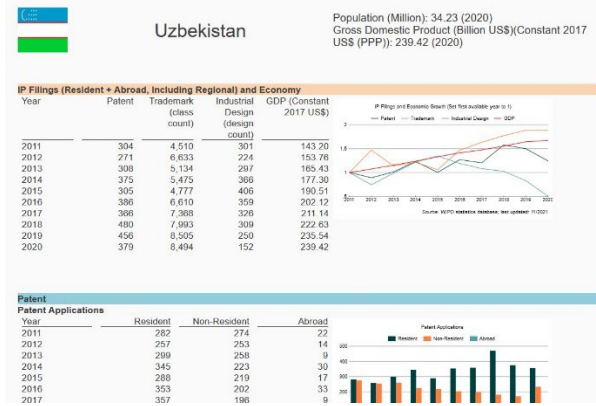
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Thank you!

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