

# Deferred Patent Examination

## Searching for a Double Dividend

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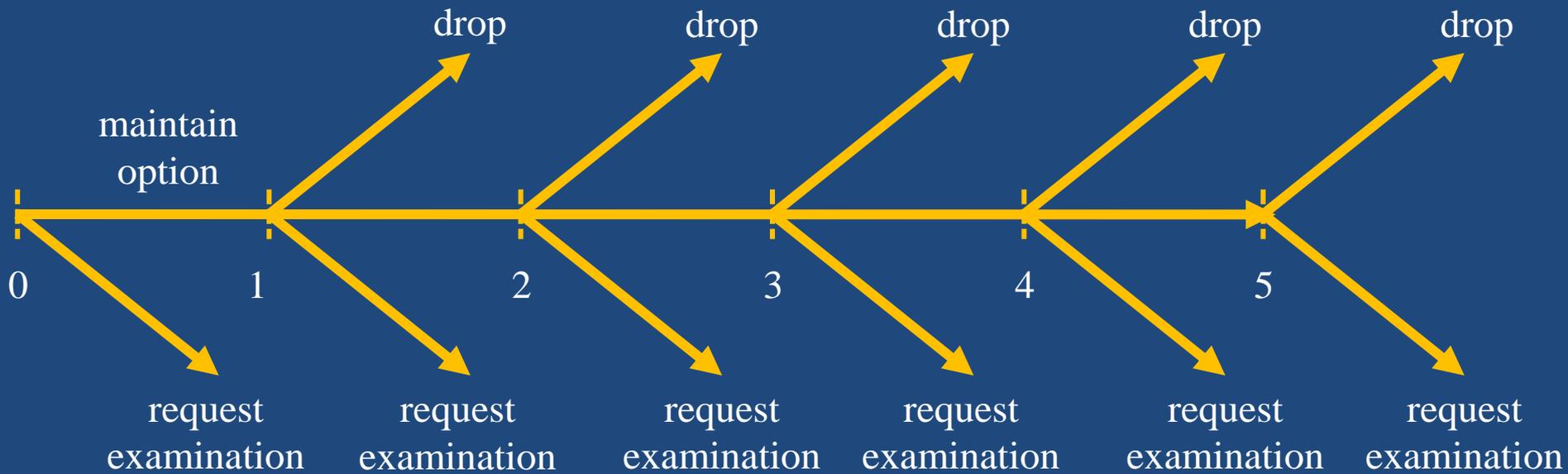
# Agenda

- What and why?
- A Very Simple Option Model
- Canadian Patent Reforms
- Results
  - deferred examination saves capacity *and*
  - deferred examination reduces incentives to engage in delay tactics
- A Policy Proposal
- A Note on Convergence and „Fine-Tuning“

# What and why?

- A Dutch invention from the 1960s ...
- ... which spread rapidly to other countries.
- Today, most patent systems only start examination after a request has been filed within a given time period: „deferred examination“.
- Many applicants never ask for examination – they drop out.
- The patent office only examines the applications for which examination is requested.
- So far, not new. But there is more ...

# What and why?



# What and why?

- Patent offices under siege ...
- Yet, despite some initiatives (e.g., in the Administrative Council of EPO) Europe is not paying attention ...
- ... while the USPTO seriously considers it (Three-Track System).
- Evidence so far: deferred examination saves examination capacity ...at some cost.
- Here: it even generates a double dividend.

# What and why?

Timing of Examination Request	Countries
automatic (immediate) examination	USA, Mexico, <b>Canada (prior to 10/1989)</b>
within 6 months of publication of search report	EPO, Great Britain, Hungary
within 3 years of application date	Argentina, China, Czech Republic, India, Russia, Slovenia, Taiwan, Japan (since 10/2001)
within 5 years of application date	Australia, Costa Rica, Korea, Thailand, Canada (since 10/1996)
within 7 years of application date	Germany, <b>Japan (prior 10/2001)</b> , <b>Canada (prior to 1996)</b> , <b>Netherlands (prior 1995)</b> , Luxembourg
other rules	Bulgaria, Colombia, Ecuador, Hungary, Malaysia, Peru, Romania, Serbia, Turkey

# A Very Simple Option Model

- two possible dates for examination: early (E) versus late (L)
- examination fee  $e$ , grant probabilities  $g_E$  and  $g_L$
- probability of being valuable  $p_V$  (known at  $t=L$ )
- value  $V$
- cost of waiting (renewal fees, ...)  $c_L$
- benefits of waiting (fine-tuning of patent, ...)  $b_L$

$$\Pi_E = p_V g_E V - e$$

$$\Pi_L = p_V (g_L V - e) - c_L + b_L$$

# A Very Simple Option Model

- value of waiting

$$\begin{aligned} \Pi_L - \Pi_E = \\ (1-p_V) e + (g_L - g_E) p_V V - c_L + b_L \end{aligned}$$

- Suppose the option value is high, but delay is not „permitted“. What would applicants do?
- They would dissipate the option value and invest in tactical delay. How?
- Term extensions, divisionals, continuations ...

# Canadian Patent Reforms

- Between 1989 and 1996 CIPO introduced two patent reforms.
- regime 0 – prior to Oct. 1st, 1989
  - first to invent, no disclosure of applications, publication of grants, 17-year term from date of filing
- regime 1 – Oct. 1st, 1989 - Sept. 30th, 1996
  - 7-year deferment option, adjusted fees, first to invent, publication of non-granted applications 18 months from priority date
- regime 2 – after Sept. 30th, 1996
  - 5-year deferment option, adjusted fees

# Canadian Patent Reforms

Type of Filing	Regime 1		Regime 2	
	Oct. 1st, 1989 - Sep. 30th, 1996		Oct. 1st, 1996 - Dec. 31st, 2002	
patent filings <i>with</i> request for examination	141,781	67.0%	176,503	73.9%
<i>granted</i>	94,540	44.7%	93,106	39.0%
<i>not granted (as of end 2010)</i>	47,241	22.3%	83,397	34.9%
patent filings <i>without</i> request for examination (withdrawn)	69,769	33.0%	62,237	26.1%
Total	211,550	100.0%	238,740	100.0%

Source: own computations from Inpadoc Legal Event and PATSTAT data.

# Canadian Patent Reforms

- Deferred examination leads to fewer examinations - confirmed in a number of other studies.
- Historically, this was the reason for introducing deferment.
- What about the option value of delay in a no-deferment system?
- Borrow methodology from Graham/Harhoff (2009) and compare CA patents to their US and EP *equivalents*.

# Canadian Patent Reforms

- Match all CA patents in regime 1 and 2 with corresponding US and EP equivalents.
- If continuations/divisionals are substitutes for making decisions late, we expect that the incidence of observing continuations/divisionals will increase in the decision-making lag at CIPO.
- It does ... with a vengeance.

# Canadian Patent Reforms

- Regime 1 (1989-1996) - the incidence of US continuations among US equivalents of CA patents is 23.4%. For each additional deferment year, it rises by between 1.3 and 1.8 percentage points.
- Regime 2 (1996-2002): the sample incidence is 30.9%. For each deferment year, it rises by 1.8 to 3.0 percentage points.
- This suggests that between one third to one half of continuations could be taken out by allowing for deferment.
- Once technical area dummies are included, the effects decline by about one third to one half: it is more than just a technology story.

# Canadian Patent Reforms

Regression Results for US Equivalents of CA Applications in Regime 2 (1996-2002) – Dependent Variable: Continuation (0/1)

VARIABLES	(1)	(2)	(3)	(4)
	Regime 2	Regime 2	Regime 2	Regime 2
decision lag	0.0176*** [0.000707]	0.0298*** [0.000807]	0.00956*** [0.000724]	0.0202*** [0.000832]
Observations	172,683	136,122	172,198	135,726
log-likelihood	-106,465	- 85,598	-102,990	-82,673
chi-squared	625.6	1,381.0	7,047.0	6,778.0
pseudo-r-squared	0.0029	0.0080	0.0331	0.0394
dof	1	1	30	30
observed probability in sample	0.309	0.330	0.309	0.330
Wald (technology area dummies)	no	no	p<0.001	p<0.001

Note: standard errors in brackets.

# Results

- Deferred examination reduces patent office workloads *directly* by allowing applicants to let their filings lapse over an extended time period.
- There is an additional *indirect* effect which has not been shown in prior work – continuations and divisionals in one system are substitutes for „legal deferment“ in another.
- Preventing applicants from obtaining delays may not be possible by sanctions alone. Why not give them a choice?
- Suggestion: design and implement a 4-year deferment period in the European patent system(s) <sup>15</sup>

# A Note on Convergence

“(...) seemingly minor changes in the institutional design of patent systems can have relatively large effects. (...) Our reading of the literature is that researchers are still far away from fully understanding the impact of the institutional aspects of patent systems. (...) Despite all of their weaknesses, international comparisons of patent systems look like a promising avenue for gaining more insights. However, the main impediment to improving patent systems many not lie in gaining new insights, but in the political economy of patent systems and the vested, often diverging interests that many stakeholders have in the existing system.”

Hall BH, Harhoff D. 2011. Recent Research on the Economics of Patents. *Annu. Rev. Econ.* 3: Submitted. Doi: 10.1146/annurev-economics-080511-111008