

# Do Patent Systems Improve Economic Well-Being?

## An Exploration of the Inventiveness of Business Method Patents

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# Statement of Originality

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# Acknowledgements

This thesis has been written to advance the cause that public policy should be made in the public interest, rather than to the benefit of small sections of the community. It is dedicated to the citizens of all countries where economic welfare has been reduced because of accession to the Treaty on Trade Related Aspects of Intellectual Property Rights (TRIPS).

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# **Do Patent Systems Improve Economic Well-Being? An Exploration of the Inventiveness of Business Method Patents**

## ***Abstract***

The reach of the patent system has substantially broadened in recent decades. Subject matter extensions (to life forms, software and business methods) were not introduced by parliaments, but by individual judges considering specific cases, often between private parties. The focus in this thesis is whether these changes create a net economic benefit to society. Because of the lack of data on patents, it is not possible to address this question directly. The thesis therefore focuses on a critical aspect of patents: their inventiveness.

Patents were designed to increase the quantum of inventions used industrially in a society, thereby increasing employment, income and wealth. To provide an incentive to the inventor, a limited term monopoly was granted. Society therefore benefits if the induced inventions generate benefits greater than the monopoly costs. This depends critically on the inventiveness threshold for patentability.

The main contribution of this thesis is a detailed empirical assessment of the inventiveness of patents. This assessment breaks new ground by using the *actual claims* in the patent specification as the basis for a qualitative assessment against the yardstick of *whether there is any new contribution to knowledge*. This yardstick is used because a key social benefit from private invention is the spillovers from new knowledge. In addition a low inventive threshold encourages monopoly grants for inventions that would have occurred absent patents, and thus increases social costs without any offsetting benefits.

A small universe of 72 recently granted Australian business method patents is assessed on this basis. Of these, one possibly contributes new knowledge, and three others possibly contribute new ideas, but without any associated new knowledge. It is hard to find any contribution in the rest of the dataset. The data suggest that the large majority of currently granted patents produce no benefit to society, and do not meet the normal definition of the concept of “invention”.

The detailed analysis shows the underlying problems to include identifying previous knowledge, an issue already suggested by the literature, but more extensively documented here. The legal judgement rules developed through case law are shown to be very poor yardsticks for implementation of an important economic policy. The

narrow legal doctrines result in, for example, the computerisation of well-known methods being judged both novel and inventive. They also allow obvious combinations of old ideas, and trivial variations on old ideas to be granted patent monopolies. Despite the analogous use doctrine, patents are granted for the application of known methods to new areas for which they are well suited.

A number of proposals are put forward for reform of patent policy. The underlying theme is that there should be a good chance, and clear evidence, that the patent system enhances national economic well-being. Specific proposals include writing the objective of patent policy into the statute so that judges have clear guidance in their decision-making, limiting the grant of patents to science and technology based inventions, requiring the patent applicant to demonstrate novelty and inventiveness beyond reasonable doubt, setting the inventiveness standard in the context of a balance between benefits and costs, and introducing a defence of independent invention.

As the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) mandates no discrimination under patent law between fields of technology, the results of this investigation may be generalisable to other technology fields. They may also be generalisable to the inventiveness standards in other jurisdictions: of the 72 Australian patents, 32 have already received at least one overseas grant (18 if New Zealand is excluded).

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## Acronyms

ACIP	Australian Council on Intellectual Property
ALRC	Australian Law reform Commission
ANZAAS	(The) Australian and New Zealand Association for the Advancement of Science
AUSFTA	Australia United States 'Free' Trade Agreement
BERD	Business expenditure on research and development
BIE	(Australian) Bureau of Industry Economics
BPAI	Board of Patent Appeals and Interferences (internal USPTO Board)
CAFC	Court of Appeals for the Federal Circuit (the US court which hears all patent appeal cases)
CBO	(US) Congressional Budget Office
CEO	Chief Executive Officer
CIPPO	Canadian Intellectual Property Office
CIS	Community Innovation Survey (European Union)
CSIRO	Commonwealth Scientific and Industrial Research Organisation (an Australian publicly funded research institution)
DRM	digital rights management
EPC	European Patent Convention
EPO	European Patent Office
EU	European Union
GATT	General Agreement on Tariffs and Trade
IBM	International Business Machines Pty Ltd
IPI	International Intellectual Property Institute
INPADOC	International Patent Documentation Center (EPO database)
IPAC	(Australian) Industrial Property Advisory Committee
IPAustralia	Intellectual Property Australia (including the Australian Patent Office)
IPC	International Patent Classification (system)
IPCRC	Intellectual Property and Competition Review Committee
IPER	International Preliminary Examination Report (issued under PCT arrangements)
IPONZ	Intellectual Property Office of New Zealand
IPSR	International Preliminary Search Report (issued under PCT arrangements)
IRS	Internal Revenue Service (US)
JPO	Japanese Patent Office
JSTOR	Journal Storage: an online archive of academic journals ( <a href="http://www.jstor.org">www.jstor.org</a> )
NAFTA	North American Free Trade Agreement
NBER	National Bureau of Economic Research (USA)
NOIE	(Australian) National Office for the Information Economy
PAIR	Patent Application Information Retrieval (a USPTO database)
PCT	Patent Cooperation Treaty
R&D	Research and development
RFID	Radio-frequency identification
SPLT	Substantive Patent Law Treaty
TBA	Technical Board of Appeal (part of European Patent Office)
TRIPS	(Agreement on ) Trade Related Aspects of Intellectual Property Rights
USPTO	United States Patent and Trademark Office
WIPO	World Intellectual Property Organization
WTO	World Trade Organisation

## ***Glossary, terms and abbreviations***

art	technology
citations	the specific pieces of pre-existing knowledge provided in a patent application or identified by the examiner in examining the application
citations, forward	the extent to which a patent is cited as 'art' by later patent applications
claim(s)	that part of a patent specification which sets out the area claimed as the invention, and thus claimed as a monopoly
CMS survey	Carnegie Mellon Survey of firms (1994, US)
Compustat	a US database of firms, owned by Standard & Poor's
CMS	Carnegie Mellon Survey (1994, US)
expedited examination	fast-track examination
family	a group of patents which are related to each other by way of the priority or priorities of a particular patent document
FDI	foreign direct investment
filing	application
GL	General Ledger
ID	identification
integer	element
IPR	intellectual property rights
manner of manufacture	defines a patentable invention in Australia, and is interpreted as defined in Section 6 of the 1623 <i>Statute of Monopolies</i>
modified examination	exempted from examination in the country as already examined in an approved overseas country
OCR	optical character recognition
pdf	Adobe's portable document format (for electronic documents)
POS	point of sales
prior art	previous knowledge; exactly what material can be used is defined in statute and case law and differs depending on the purpose for which previous knowledge is being used
priority date	the date which defines the body of existing knowledge for a particular patent claim (knowledge at this date)
prosecution	the process of applying for a patent
PSA	person skilled in the 'art'
Section 301	of the US Trade Act (empowers US government to deny access to the US market if patent or copyright legislation in that country is judged "unfair" to US producers)
SME	small and medium sized enterprise
SMS	short message service (text message, usually sent by mobile phone)
VAT	value added tax
WAP	UK patent status code (withdrawn or refused or deemed either)
Yale survey	Yale University Survey of firms (1984, US)

## ***Patent country codes***

Country codes indicate the country or organisation where the patent application was filed or granted. Selected standard codes used for patents are:

<b>Code</b>	<b>Name</b>	<b>Code</b>	<b>Name</b>
AT	Austria	JP	Japan
AU	Australia	KR	Republic of Korea
BE	Belgium	MX	Mexico
BR	Brazil	NL	Netherlands
CA	Canada	NO	Norway
CH	Switzerland	NZ	New Zealand
CN	China	PH	Philippines
DE	Germany	PL	Poland
DK	Denmark	PT	Portugal
EP	European Patent Office	RO	Romania
ES	Spain	RU	Russian Federation
FI	Finland	SE	Sweden
FR	France	SG	Singapore
GR	Greece	TW	Taiwan
HK	Hong Kong	UK	United Kingdom
IE	Ireland	US	United States of America
IL	Israel	ZA	South Africa
IT	Italy	WO	World Intellectual Property Organisation (WIPO)

Note: The patent community uses GB as the code for the UK. But as the UK patent system also covers Northern Ireland, the technically correct abbreviation for the United Kingdom, UK, is used here. Great Britain correctly refers only to England, Scotland and Wales (see [http://www.direct.gov.uk/en/H11/Help/YourQuestions/DG\\_10015114](http://www.direct.gov.uk/en/H11/Help/YourQuestions/DG_10015114) , accessed 2 January 2008).