
SA Inventive Activity in an International Context

Prof Anastassios Pouris
Director: Institute for Technological Innovation
University of Pretoria

Contents

- Patents as indicators of inventiveness
- SA Performance in USPTO
- Reasons for SA performance
- Comments

What is a patent

- Legal document
- Policy Instrument
- Policy Indicator

What is an Indicator

- “statistics of direct normative interest which facilitate concise, comprehensive and balanced judgments about the condition of major aspects of a society. It is in all cases a direct measure of welfare and is subject to the interpretation that, if it changes in the “right” direction, while other things remain equal, things have gotten better or people better off.”

DHEW (1970) *“Towards a Social Report”*
Department of Health, Education and Welfare
University of Michigan Press, Ann Arbor

Importance of Patents as Indicators

- “Patent statistics remain a unique source for the analysis of the process of technical change. Nothing else even comes close in the quantity of available data, accessibility, and potential industrial, organizational, and technological detail.”

Griliches, Z. (1990) “Patent Statistics as Economic Indicators: A Survey.” *Journal of Economic Literature*, 28 :1661–1707 p1702

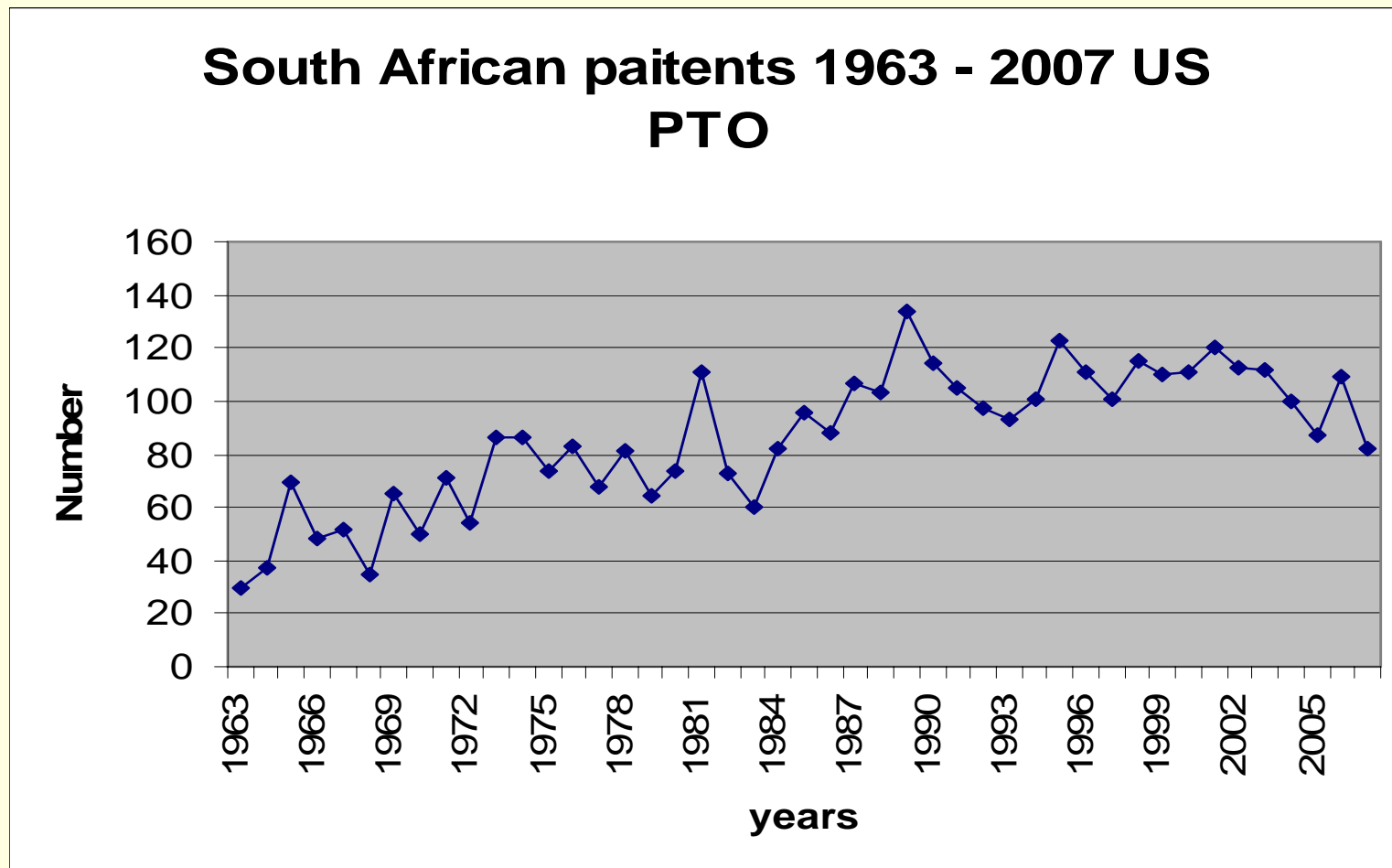
Advantages of Patents as Indicators

- Highly Reliable (well defined, unambiguous)
- Facilitate detailed categorisation
- Identify inventive companies/individuals
- Make possible international comparisons

SA patents in USPTO

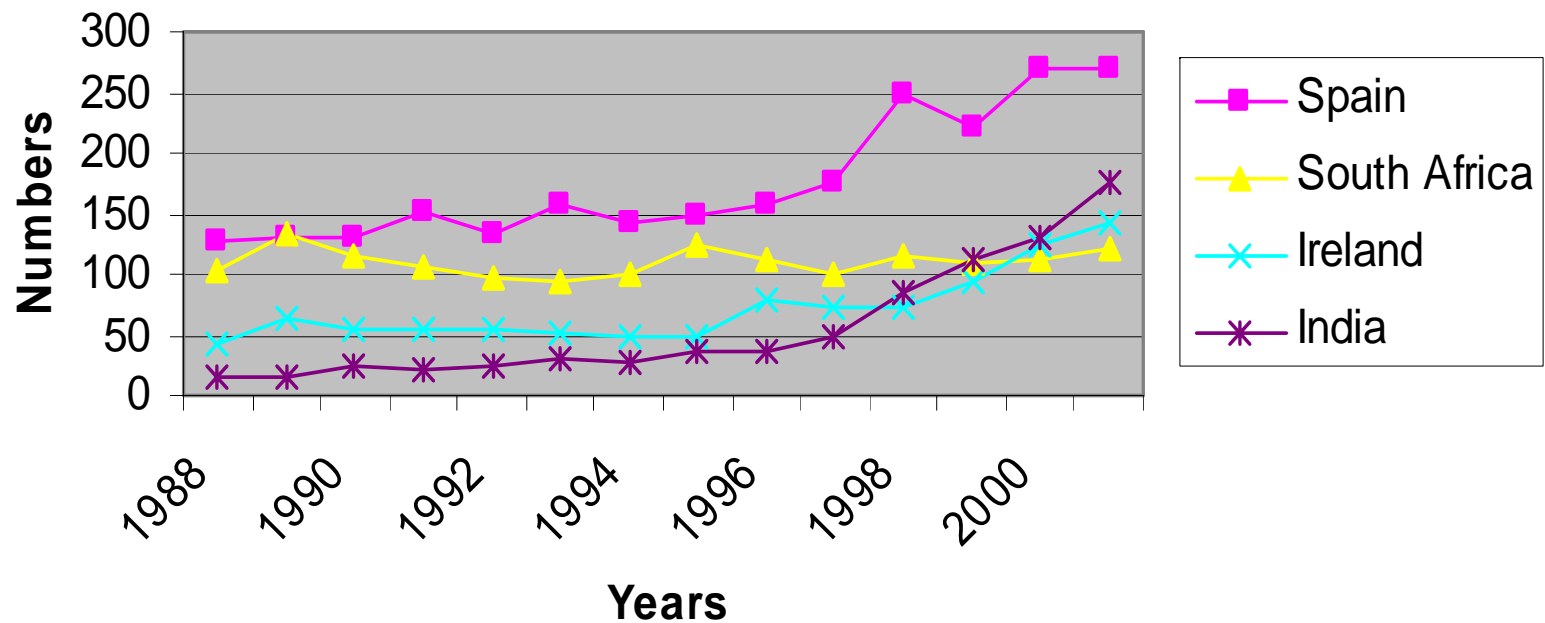
- Patents are examined
- Biggest invention market in World
- High cost eliminates frivolous patents

South African number of patents – USPTO 1963-2007

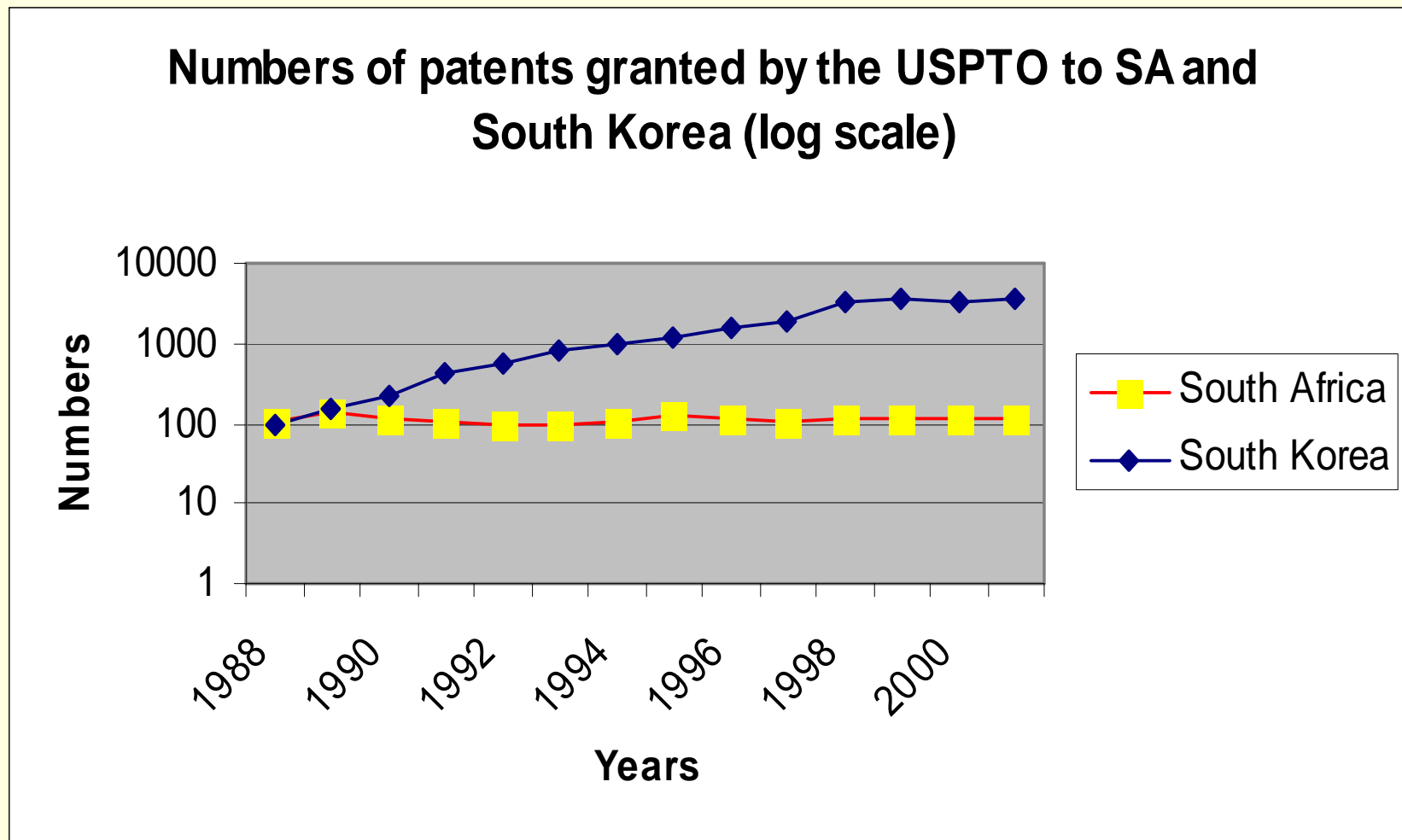


Other countries did it!

Numbers of patents granted by the USPTO to SA and selected countries



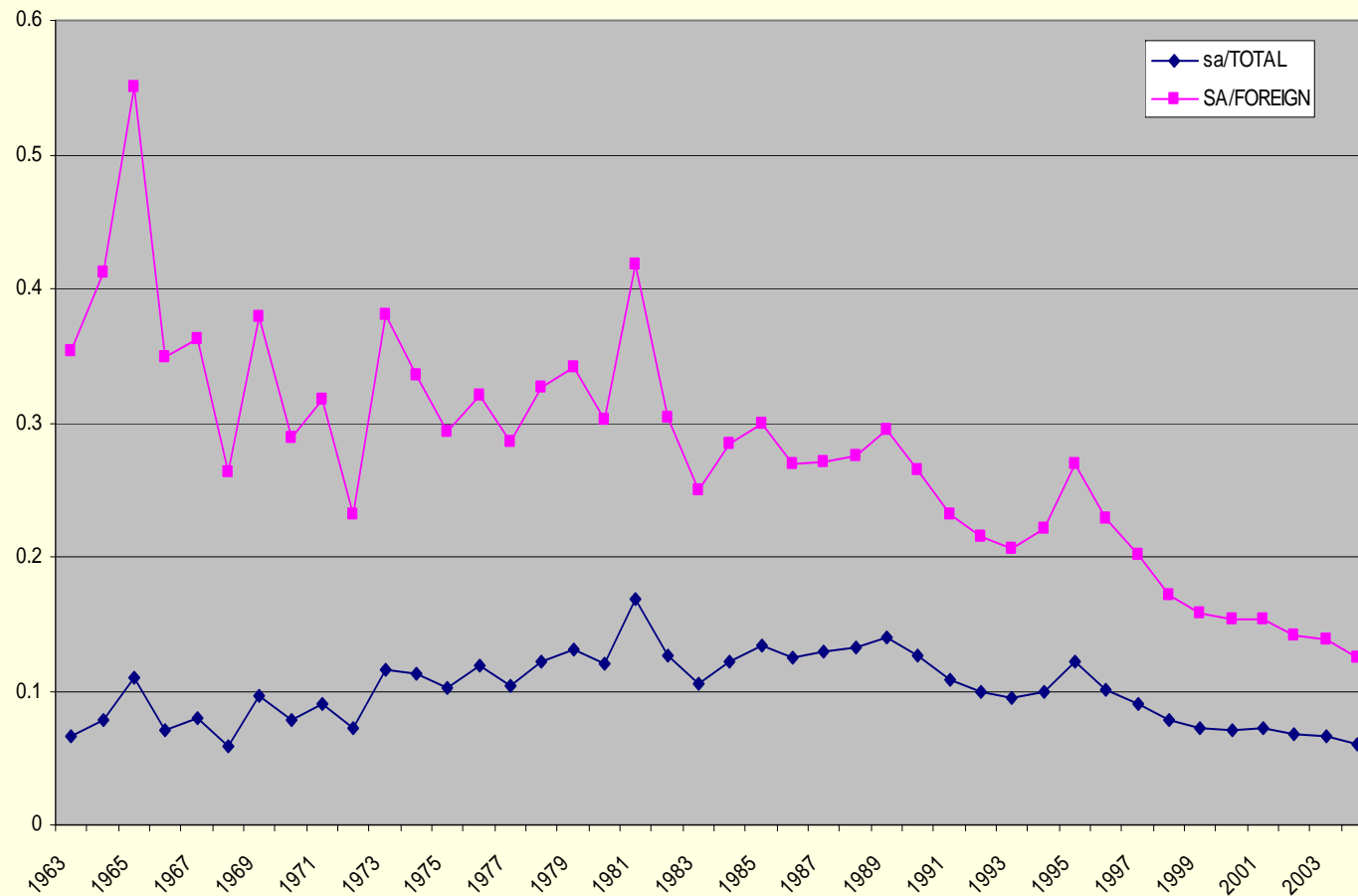
Korea did it!



Number of USPTO patents granted to South Africans and selected countries

<i>Granting year</i>	<i>1991</i>	<i>1994</i>	<i>2000</i>	<i>2004</i>
South Africa	105	101	120	100
China, HK	50	57	179	311
Singapore	15	51	218	449
India	22	27	131	363
Ireland	53	48	121	186
Brazil	62	60	98	106
Norway	111	126	248	243
New Zealand	41	37	107	142
China, P Rep	50	48	119	404
Foreign Origin	45,334	45,610	72,426	80,022

South African share of patents – USPTO 1963-2004



Percent and number of patents granted in year 2004 by country of origin (USPTO): Top countries

	<i>Country</i>	<i>Number</i>	<i>Per Cent</i>
1	USA	84,271	51.5%
2	Japan	35,350	21.6%
3	Germany	10,779	6.6%
4	Taiwan	5,938	3.6%
5	South Korea	4,428	2.7%
6	United Kingdom	3,450	2.1%
7	France	3,380	2.1%
8	Canada	3,374	2.1%
9	Italy	1,584	1.0%
10	Sweden	1,290	0.8%
29	South Africa	100	0.01%

Number of patents from prolific organisations (2004)

<i>Organisation</i>	<i>Number</i>
IBM	3248
Canon	1805
HITACHI	1514
TOSHIBA	1311
Matsushita Elec Ind Co	1934
NEC	813
Sony	1311
Fujitsu	1296
Samsung	1604
Honda Motors	736
University of California	422
NASA	102
Microsoft	629
University of Texas	99
California Inst Technology	135

Patents granted to SA inventors by technology class

<i>Class</i>	<i>Class Title</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>Total</i>
210	Liquid Purification or Separation	7	9	5	4	1	26
424	Drug, Bio-Affecting and Body Treating Compositions (incl. Class 514)	5	4	5	7	1	22
340	Communications: Electrical	5	7	2	3	1	18
075	Specialised Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions and Loose Metal Particulate Mixtures	1	7	2	2	4	16
423	Chemistry of Inorganic Compounds	2	3	3	2	3	13
532	Organic Compounds (incl Classes 532-570)	2	2	3	3	3	13
518	Chemistry: Fischer-Tropsch Processes; or Purification or Recovery of Products Thereof	1	2	2	1	5	11
198	Conveyors: Power Driven	3	3	2	0	2	10

International ranking of South Africa according to technology class

<i>Class</i>	<i>Ranking</i>
518 Chemistry: Fischer-Tropsch Processes	4
075 Specialised Metallurgical Processes	12
210 Liquid Purification or Separation compositions	17
198 Conveyors: Power Driven	18
423 Chemistry of Inorganic Compounds	20
532 Organic Compounds	25
424 Drug, Bio-Affecting and Body Treating Compositions	28

Companies appearing as first assignees in the set of South African patents during 2000-2004 and during 1969-2004

<i>First Named Assignee</i>	<i>2000-2004</i>	<i>1969-2004</i>
CSIR	8	36
SASOL Tech Ltd	29	31
Technology Finance Corp	5	1
DENEL	6	14
WRC	6	14
Windsor Tech Ltd	11	11
MINTEK	3	21
Implico BV	5	9
ESKOM	4	8
Ipcor NN	6	6
SASOL Chemical Industries	1	6
Sentrachem Ltd	0	6
Supersensor Ltd	6	6
University of Pretoria	3	6
Claas Selbstfahrende Entemaschinen GMBH	5	5
SA Invention Development Corp	0	8
AECI	1	41
Rotary Profile Anstalt	0	32
Tobacco Research and Development Institute	1	19
Circuit Breaker Industries Ltd	2	17

Recent South African Patents: USPTO

First-Named Assignee	2005	2006	2006	Total
~INDIVIDUALLY OWNED PATENTS	33	30	26	89
SASOL TECHNOLOGY (PROPRIETARY) LIMITED	8	5	11	24
AZOTEQ (PTY) LIMITED	2	4	2	8
CSIR	2	2	3	7
ESKOM	1	2	1	4
GREENHOUSE INTERNATIONAL LLC	1	2	2	5
MEDTRONIC INC.	0	2	0	2
SUPERSENSOR (PROPRIETARY) LIMITED	3	1	0	4

Reasons for SA Profile

- Industrial structure
- Small number of large corporations
- Small number high tech companies

Number of PCT applications filed by date of filing by South Africa

<i>Year</i>	<i>Number of applications</i>
1997	84
1998	114
1999	317
2000	387
2001	419
2002	384
2003	357
2004	410
2005	360

Protection of academic patents locally and abroad

Technical sector/orientation	CLASS			
	Product development		Process development	
	CIPRO	FOREIGN	CIPRO	FOREIGN
Semiconductors/microelectronics/communication	12	4	16	2
Chemicals	18	9	20	13
Minerals/coal	1	-	18	5
Metal and metals products	10	-	9	-
Bio(technology)	24	4	26	5
Drug/pharmaceuticals	28	6	2	1
Immuno essays, pathology	1	-	3	3
Machine, tools armaments	10	-	10	-
Optics	3	-	3	1
Medical equipment/treatment	7	-	6	-
Water system/Hydraulics/environment	-	-	4	-
Food and agriculture	-	-	4	2
Sea transportation	3	1	-	-
Diagnostics	-	-	9	-
Nuclear	1	-	7	2
Construction/building	5	-	1	-
Acoustics	5	-	-	-
Others	11	-	3	

Reasons for SA Profile

High costs of patenting abroad

■ SA	315 €
■ USA	8,129 €
■ UK	5,214 €
■ Germany	13,781 €

Any Questions???

