
CHANGING PATHWAYS TO A BOMB

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William & Mary



Her Majesty Queen Elizabeth is shown the control panel at the Canada-India Reactor, built at Trombay, India, as a joint project of Canada and India under the Colombo Plan.

Information Services Division, Dominion Bureau of Statistics. 1962. *The official handbook of present conditions and recent progress.* Ottawa, Canada.

HOW STATES GET WEAPONS HAS CHANGED

This paper focuses on *how* states seek weapons

We've long thought covert facilities were the more likely path

But the dynamics of nuclear pursuit have changed, and overt pathways now seem more attractive

This has implications for theory and policy

THE PLAN

What are the pathways for nuclear pursuit?

What factors influence a state's decision to use covert versus overt facilities?

How have those factors been changing?

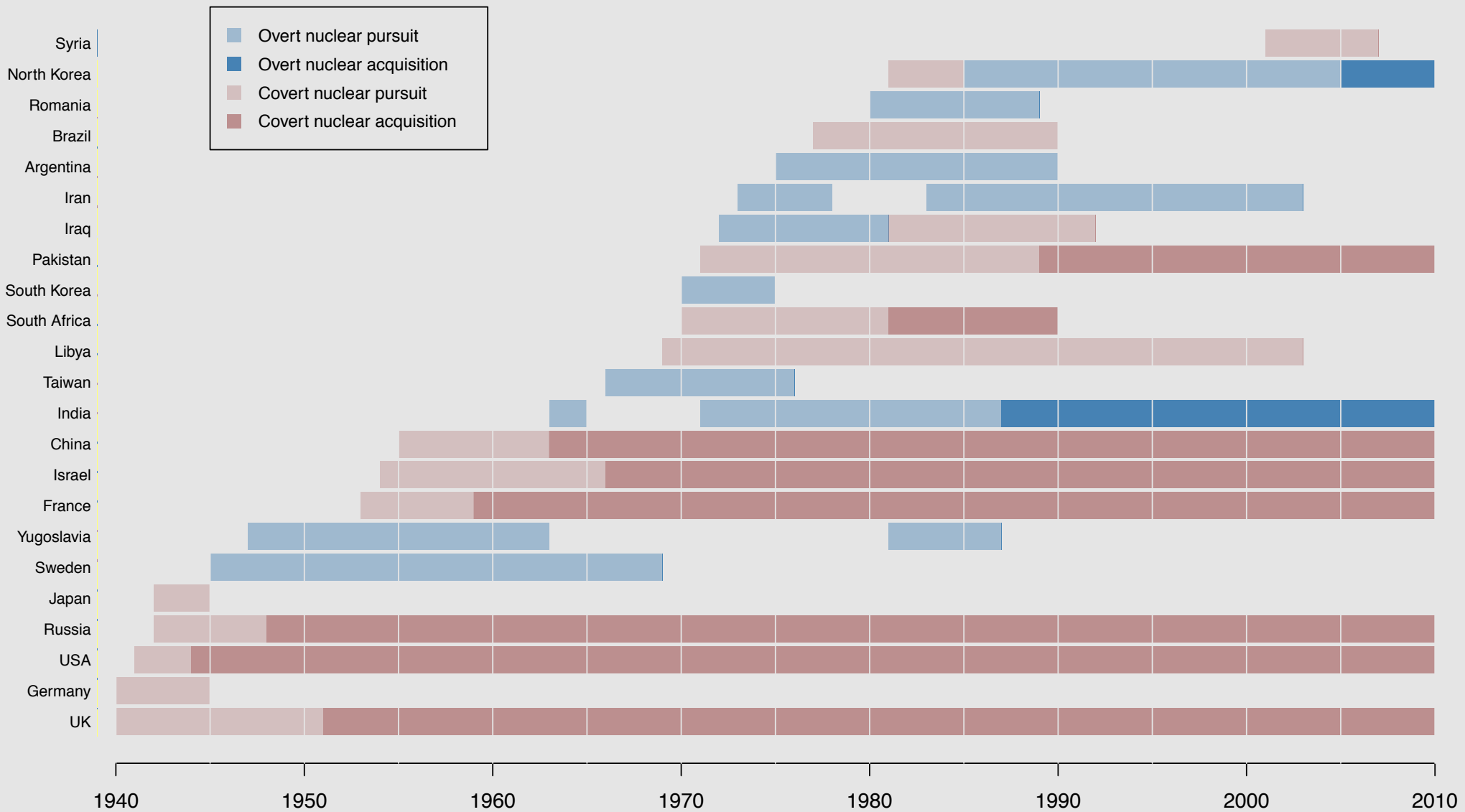
Why does this matter?

NUCLEAR PATHWAYS

Pathways analysis traditionally focuses on three factors:

- Plutonium versus highly enriched uranium
- Foreign supply (of technology, facilities, materials, or weapons themselves)
- Covert versus overt facilities for fissile material production

OVERT VS COVERT PATHWAYS



THE STRATEGIC LOGIC OF COVERT FISSILE MATERIAL PRODUCTION

What factors influence a state's choice of a covert versus overt pathway?

- Risk that covert facilities will be discovered
- Consequences if covert facilities are discovered (political will and window of vulnerability)
- Relative benefit of overt versus covert pathway (speed, size, and flexibility)

THE CONVENTIONAL WISDOM

States are most likely to produce fissile material for a weapon at covert facilities

- Covert efforts are much less likely to be detected than diversion from overt facilities or repurposing those facilities for weapons work

THE CONVENTIONAL WISDOM

States are most likely to produce fissile material for a weapon at covert facilities

- Most often expressed in work that examines the relationship between nuclear energy and proliferation

THE CONVENTIONAL WISDOM

States are most likely to produce fissile material for a weapon at covert facilities

We assess with moderate confidence that Iran probably would use covert facilities— rather than its declared nuclear sites—for the production of highly enriched uranium for a weapon.

— 2007 Iran Nuclear NIE, Key Judgments

THE CONVENTIONAL WISDOM

States are most likely to produce fissile material for a weapon at covert facilities

It may be time to reexamine this conventional wisdom

Factors driving this decision have changed in a way that makes overt facilities more attractive

RISK OF DISCOVERY

The chances that a covert effort will be discovered has increased substantially over time

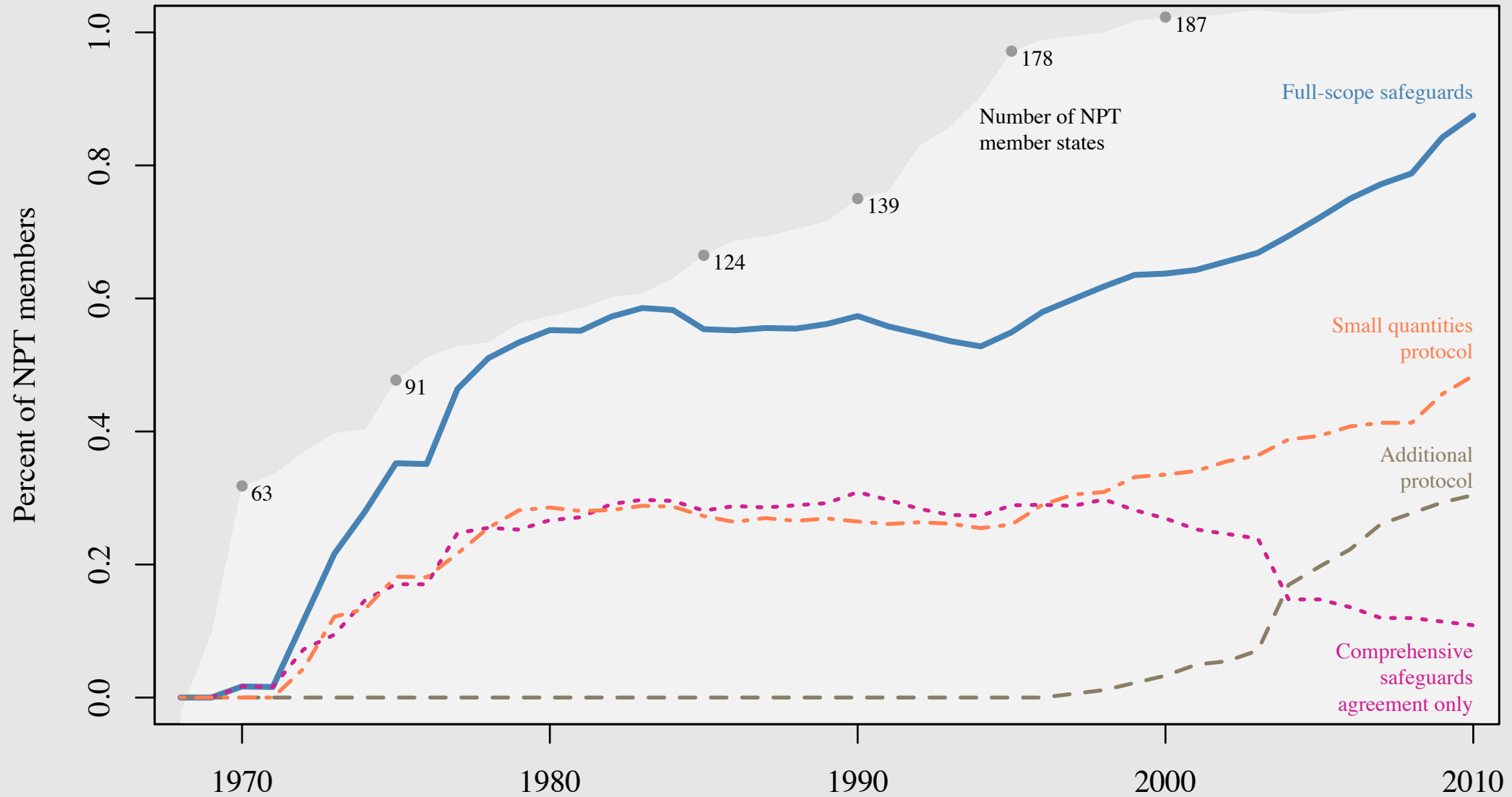
- Improvements in IAEA safeguards (fundamental approach, technologies, and scope of coverage)

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- Improvements in IAEA safeguards (fundamental approach, technologies, and scope of coverage)
- Growth in NPT membership

RISK OF DISCOVERY



CONSEQUENCES OF DISCOVERY

The consequences of discovery of covert efforts have increased relative to overt breakout

- An attempt at punishment seems very likely—all weapons programs since 1990 (Libya, Iraq, Iran, North Korea, and Syria) have been sanctioned or attacked

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- An attempt at punishment seems very likely—all weapons programs since 1990 (Libya, Iraq, Iran, North Korea, and Syria) have been sanctioned or attacked
- The window of vulnerability for overt breakout has narrowed (this is one lesson from Iran)

RELATIVE BENEFIT OF OVERT PATHWAYS

The relative benefit of overt pathways is greater than it used to be

- Sensitive nuclear supply is much harder to come by

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- Sensitive nuclear supply is much harder to come by
- Hedging strategies are more appealing in a world with a stronger norm against proliferation (Narang 2017)

IMPLICATIONS FOR THEORY AND POLICY

This matters!

- Ties into theories of drivers of proliferation and a newer literature on nuclear latency
- Makes proliferation risk assessment much harder
- Places an additional burden on the IAEA
- Shifts the focus of institutional attention away from the NPT and toward NSG/123 agreements

THANK YOU

Any comments or suggestions are appreciated

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