

Force Modernization Trends - India and Pakistan

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Conditions of Regional Security

- Conventional-nuclear interacts in 1990s
- Slow-burn “arms race” exists in South Asia
- China is factor in South Asian rivalry
- Internal threats are salient
- Terrorism is endemic, not new
- RMA? burro-gait, no stallion-gallup
- Asymmetric vs. US? No. Each other? Yes.

Conventional arms modernization

- hardware - combat equipment, EW, C³
- software - strategy, planning, doctrine, IT
- organization - command and personnel quality, rational task allocation, morale, adaptability
- indigenous R&D
- budget and procurement rationality

Geopolitical watersheds

- Independence challenges
- Cold War problems and opportunities
- Indo-Pakistani wars of 1965 and 1971
- Energy Security: 1973 OPEC challenge
- Crescent of Crisis: Iran and Afghanistan
- Cold War transition and Soviet demise
- 1991 Gulf War
- Nuclear transition

Defense Budgets and Burdens

- Comparing India and Pakistan, 1970-2000
- Defense expenditures - in US dollars
- Defense expenditures - as % of GDP
- Comparing India and China, 1979-2000 ...
- estimates of defense expenditure

Chart 1. Defense Expenditures, India and Pakistan, 1970-2000

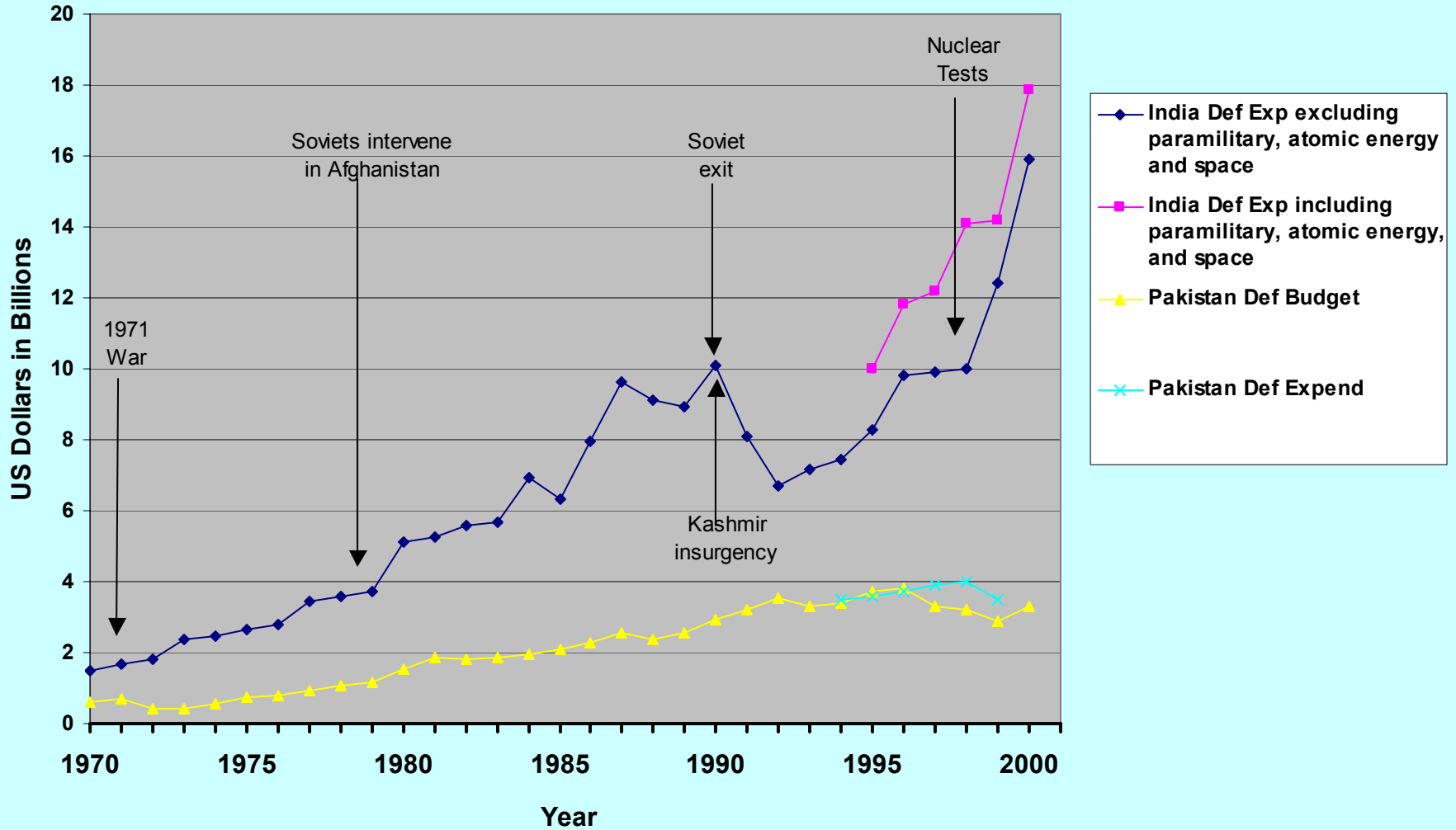


Chart 1 I-P Defense Expenditures, 1970-2000: Noteworthy Watersheds and Trends (1)

- Slope of Indian increase high, Pakistani gradual
- I-P ratio changes from 2:1 (1970) to 4+:1 (1999)
- Pak exp drops after 71 war and 91 Pressler cutoff
- Pak budgets and actual exp diverge (post-96)
- Pak under severe duress after Soviet exit from Afghanistan, when US pulls plug on assistance, and Cold War is over
- Pak above-budget expenditures: nuclear? Taliban?

Chart 1 I-P Defense Expenditures, 1970-2000 - Watersheds and Trends continued (2)

- Indian def exp doubles in 1970s, again in 1980s
- Why? Because Soviets intervened in Afghanistan?
- Or because Soviets “bought India out”?
- Indian exp rose at unprecedented pace in 1980s
- Then dropped after Soviet exit ...
- Despite insurgency in Kashmir
- Then rose sharply again in 1993 (econ growth?)
- Jumped phenomenally in 1999 (BJP? nuclear?)

Chart 2. Defense Expenditures as Per Cent of GDP - India and Pakistan, 1970-2000

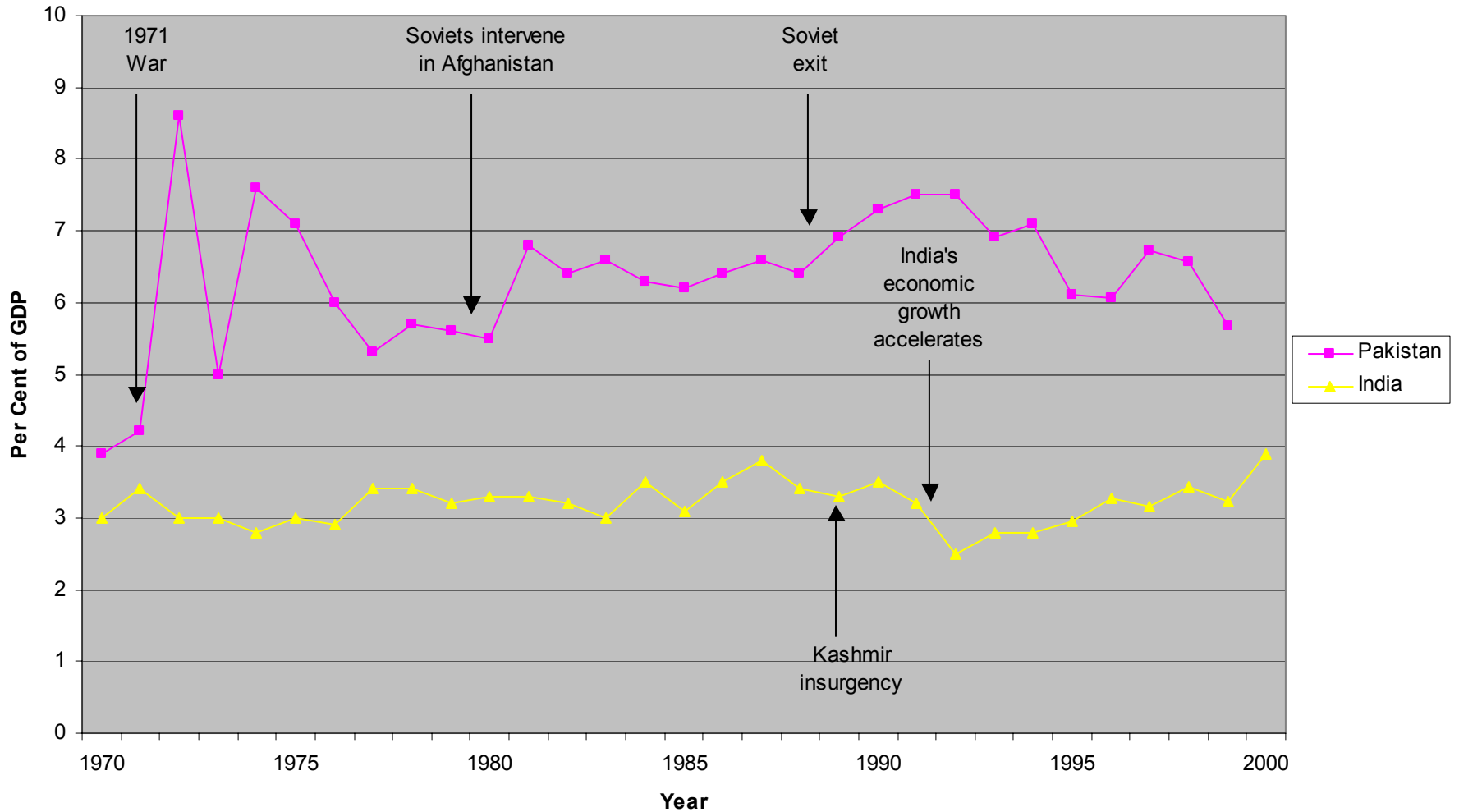


Chart 2 India-Pakistan Defense Expenditure as Percentage of GDP

- Pak % of GDP closer to India's in 1970
- Pak profile jagged after loss of East Pakistan GDP
- Pak burden rises after Soviets occupy Afghanistan
- Continues up after Soviet exit, till 92-93 ...
- Then drops as economy labors in 1990s
- India's profile less volatile, but climbs 93-99

Chart 3. Comparison of Chinese and Indian Defense Expenditure, 1980-2000

US Dollars in Billions

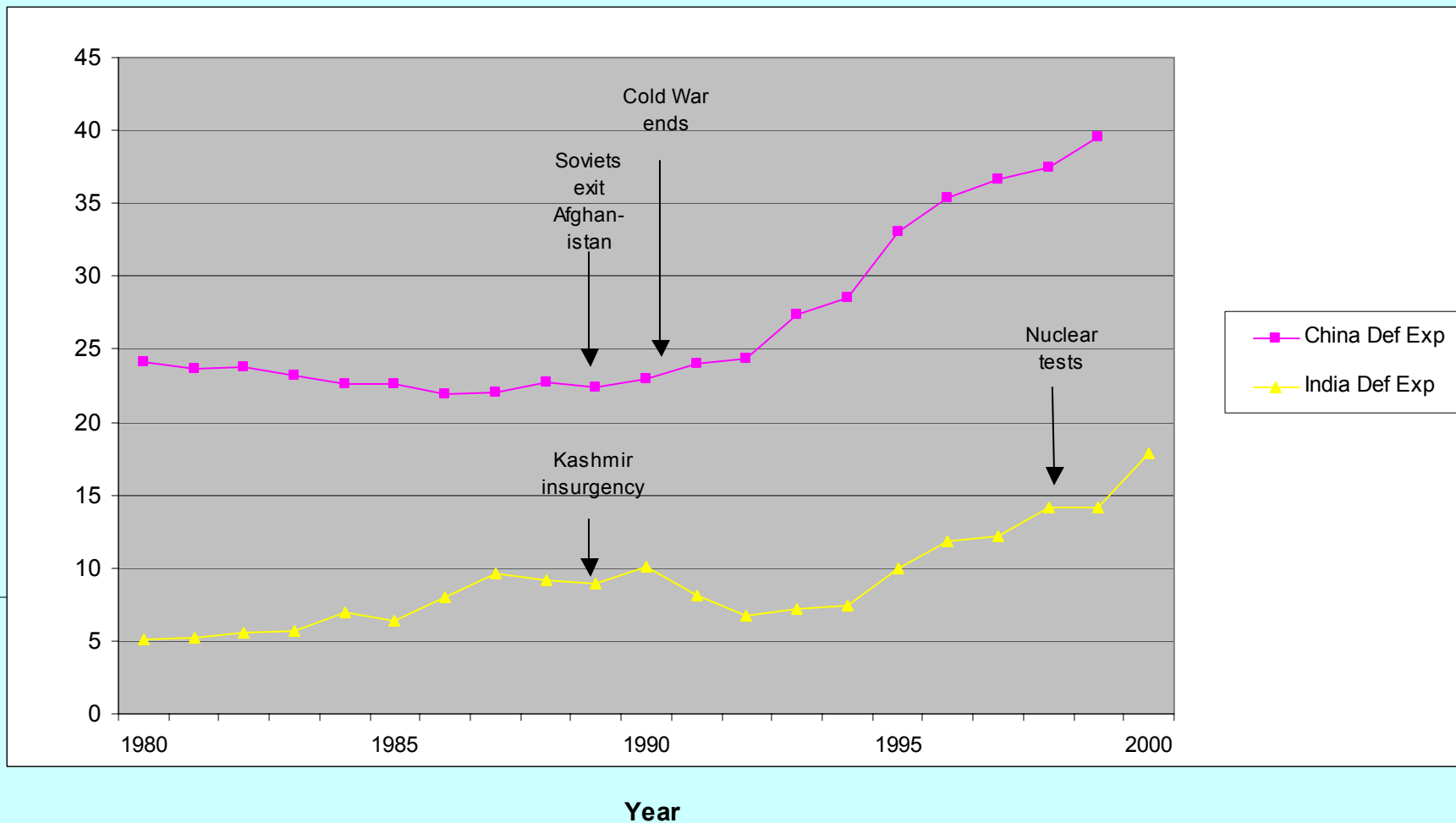


Chart 3 Chinese and Indian Defense Expenditure - 1980-2000

- Chinese slope is down until Cold War ends
- China-India ratio drops from 5:1 to 2.3:1
- Then Chinese expenditures climb (econ growth?)
- Indian expenditures drop briefly after 1990
- Then Indian expenditures climb, fast ...
- But not quite as fast as China's
- Are they linked? Big Russian sales to both!

Chart 4. Composition of India's and Pakistan's Air Forces 1980-2000

Combat Aircraft

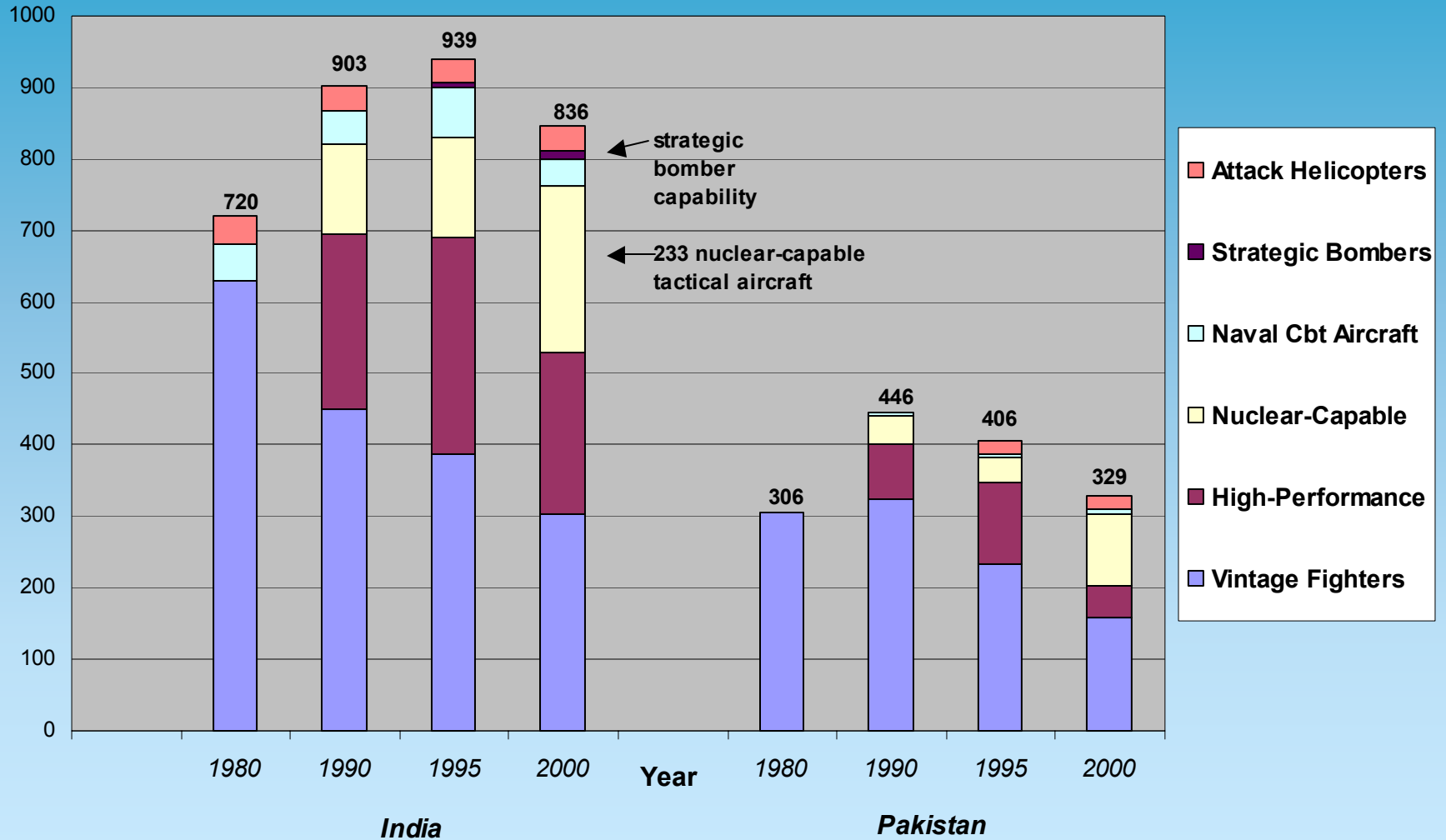


Chart 4. India and Pakistan - Air Forces, 1980-2000

- “Vintage” combat aircraft dominate until 1980
- Modernization jumps sharply from 1980-1990
- High-performance and nuclear-capable dominate
- India’s superiority increases vs. Pakistan ...
- Especially in high-performance, ground-attack
- India adds “strategic” (long-range) aircraft
- IAF doctrine to preempt airfields ...
- Nuclear instability?

**Table 1. Nuclear-Capable Strike and Reconnaissance Aircraft
India and Pakistan - 2000**

| Aircraft Type | Operating Radius (km, unrefueled) | Inventory | Supplier |
|-------------------------------|---|------------------|-----------------|
| India | | | |
| Modern | | | |
| Su-30 MK | 1,200 | 40 | Russia |
| Mirage 2000H/TH | 1,475 | 35 | France/UK |
| Jaguar S(I) | 900 | 88 | France/UK |
| MiG-29 (Fulcrum) | 630 | 64 | Russia |
| Vintage | | | |
| MiG-21 MF/PFMA | 250 | 69 | Russia |
| MiG-23 BN/UM | 350 | 53 | Russia |
| MiG-27 (Flogger) | 390 | 147 | Russia |
| Strategic (Long-Range) | | | |
| Tu-142 (Bear F) ASW | 6,200 | 8 | Russia |
| Ilyushin-38 (marit recon) | 3,600 | 5 | Russia |
| Tu-22M (Backfire) | 4,430 | 4 | Russia |
| Total | | 513 | |
| Pakistan | | | |
| Modern | | | |
| F-16 A/B | 850 | 25 | US |
| Vintage | | | |
| Mirage IIIEP | 500 | 16 | France |
| Mirage 5 | 500 | 52 | France |
| Total | | 93 | |

Chart 5. Composition of India's and Pakistan's Ground Forces - Armor and Artillery, 1979-2000

Vehicles and Systems

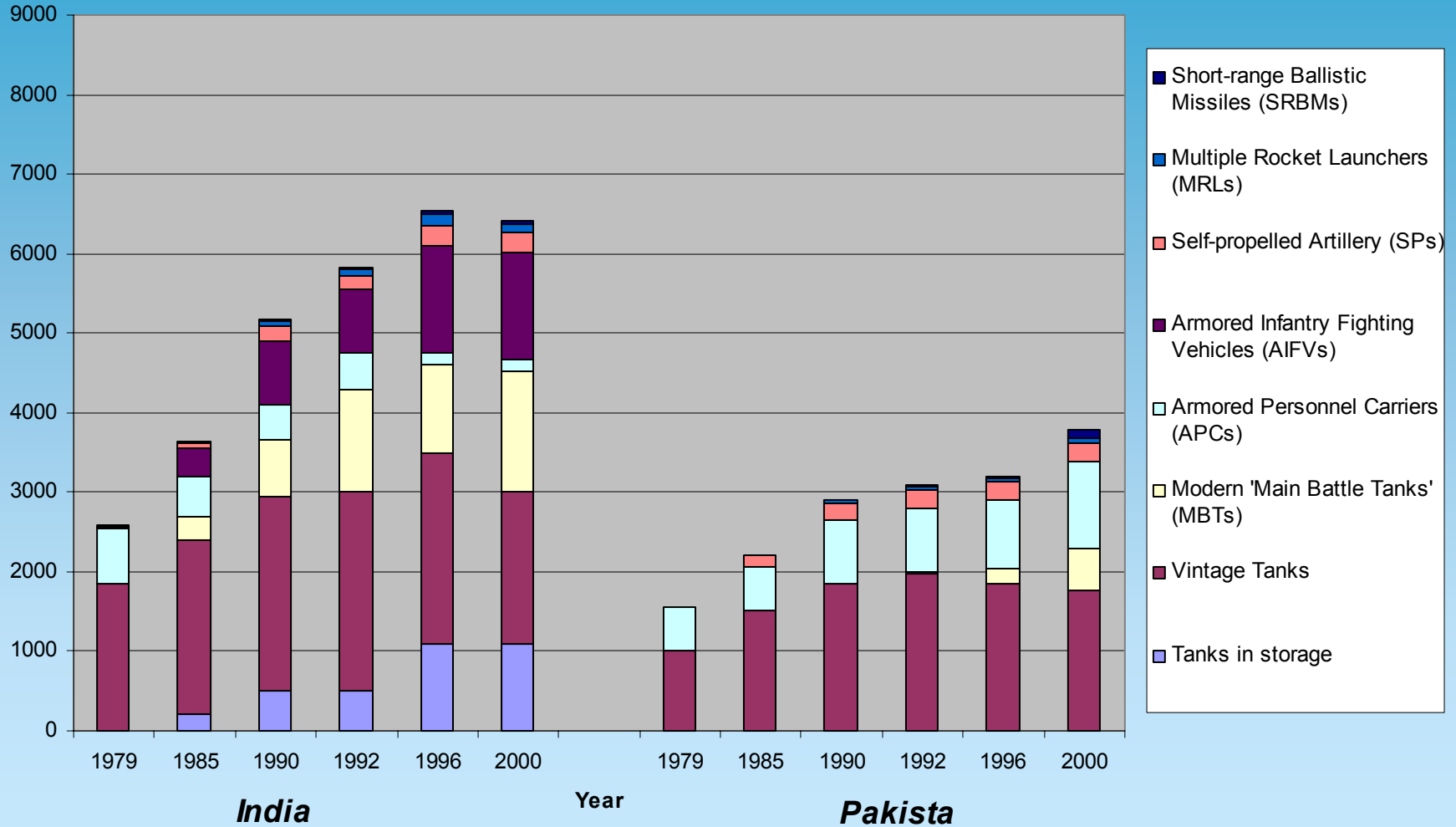


Chart 5 India and Pakistan, Armor and Artillery - 1979 to 2000

- Vintage vs. modern (e.g., self-propelled artillery)
- India modernizes rapidly 1979-90, MBTs, AIFVs
- Pakistani reequipment much slower, less potent
- Quantitative balance roughly constant
- Qualitative balance worse for Pakistan after 1990
- Indian ground force coordination makes strides
- Surface-to-surface missiles being introduced
- India with strategic depth, Pakistan narrow

Chart 6. India's and Pakistan's Naval Forces, 1980-2000

Naval Combat Vessels

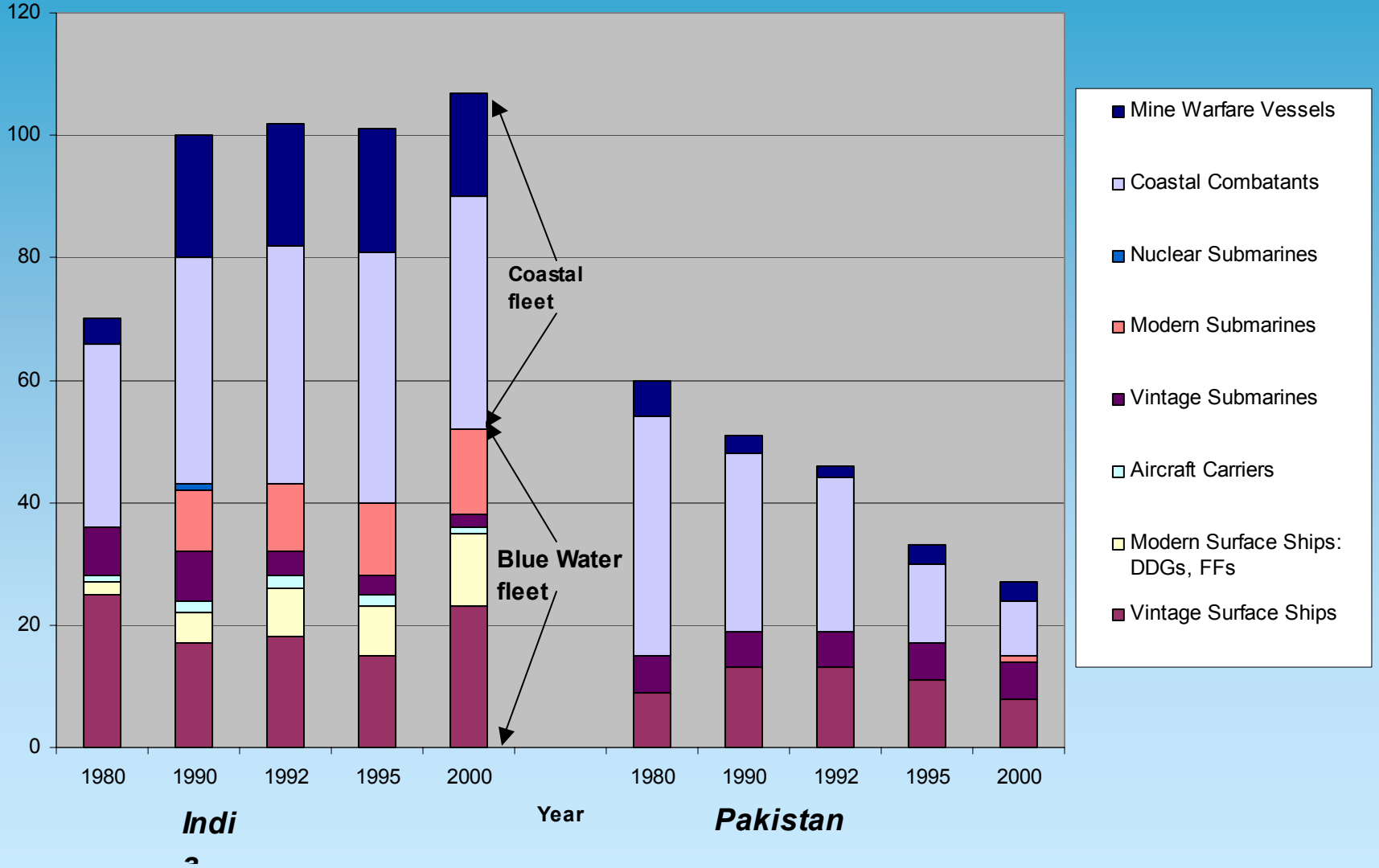


Chart 6 India and Pakistan Naval Forces 1980-2000

- Vintage vs. modern
- Indian “blue-water” fleet increasing slowly
- Pakistani navy actually shrinking
- India acquires modern diesel submarines 1980-90
- India upgrades surface missile ships after 1990
- India seeks nuclear-powered submarines, future
- India’s aircraft carriers and SSN/SSBN plans indicate power project ambitions, but slow results

Chart 6.2 India's and Pakistan's Naval Air and Airborne Warning 1980-2000

Aircraft

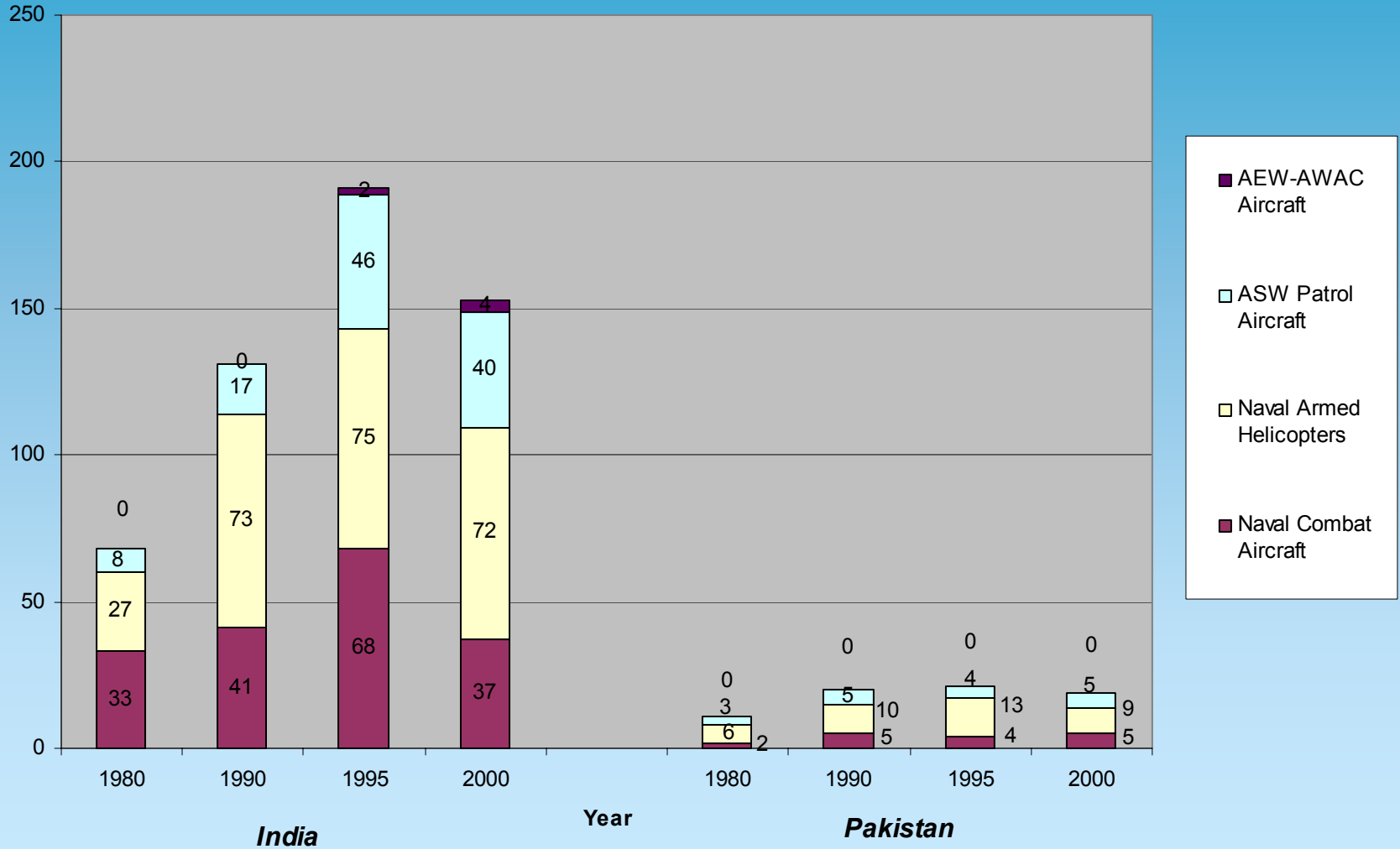


Chart 6.2 India and Pakistan Naval Air and AEW

- Shows efforts to build up naval capabilities
- Indian emphasis on ASW and AEW aircraft
- India also has trouble sustaining naval combat air
- But Pakistan has very thin naval air capabilities
- Pakistan vulnerable to blockade

7. Space and Air Surveillance

● India

- remote sensing satellites
- 8 Tu-142M Bear
- 5 Il-38 maritime reconn
- 19 Dornier-228 reconn
- 4 HS-748 AEW
- 8 MiG-25R/U photograph
- 5 Tu-22M3 to lease

● Pakistan

- satellite in development
- no counterpart
- no counterpart
- 3-4 Atlantique
- no counterpart
- no counterpart
- no counterpart

8. India and Pakistan Air Force Procurement

● India

- Su-30MK FGA (new)
- Jaguar FGA (upgrading)
- Mirage 2000 (more, upgr)
- MiG-21 FGA (upgr)
- LCA (develop, since 83)
- Astra AAM
- HS-748, ELINT
- Nishant UAVs

● Pakistan

- FC-1, FGA (China)
- F-7MG, FGA (China)
- Mirage-3 (upgrade)

8 (cont) India and Pakistan - Air Force Procurement

● India

- Searcher-2 UAV (Israel)
- Il-78, tanker aircraft
- HJT-36 trainers (domest)
- Iskra TS-11 trainer (Pol)

● Pakistan

9. India and Pakistan - Navy Procurement

● India

- Adm Gorshkov A/Carrier
- SSN (ATV) for 2007
- Kilo SSK subs (Russia)
- Type 209 subs (Germany)
- Delhi DDs (domestic)
- Brahmaputra FFGs (dom)
- Krivak FF (Russia)
- Kora FSG corvette (Russ)

● Pakistan

- no counterpart
- no counterpart
- Khalid SSK subs (France)

9. India and Pakistan Naval Procurement cont

● India

- Super Dvora T-81 fast patrol craft (Israel)
- Harrier TMk4 (UK)
- P-3C Orion maritime patrol ASW (US)
- Dornier-228 (Germany)
- K-31 EW heli (Russia)
- Magyar LST

● Pakistan

- Shujat fast patrol cr (PRC)

10. India Pakistan Army Procurement

● India

- T-90 MBT (Russia)
- Arjun MBT (domestic)
- Casspir APC (S. Africa)
- Mi-17iB heli (Russia)
- Nag ATGW (domest)
- M-46 artillery upgr (Israel)
- 2S6 self-prop AA (Russia)
- T-72VT, armored recover

● Pakistan

- T-80UD MBT (Ukraine)
- M-113 APC (US)
- Al-Khalid MBT (domest)

11. India's Modernization Summary

- Slow but steady
- Import dependent for first-line equipment, despite domestic R&D programs
- Breadth and depth in capabilities, e.g. surveillance
- Blue water naval ambitions, eyes bigger than stomach
- Air and ground forces potent vs. Pakistan
- Russia main supplier, some European, Israeli

12. Pakistan's Modernization Summary

- Technical modernization is slow
- Dependent on China for most new equipment
- Some aircraft upgrades from Europe
- Falling far behind India in surveillance and connectivity
- Vulnerability to preemptive conventional air attack is destabilizing
- Incentive to rely on unconventional warfare

13. Policy Implications

- Conventional military imbalance - unstable
- Asymmetry is worsening for Pakistan
- Pakistan's nuclear threshold is dropping
- Pakistan highly dependent on China
- Pakistan, unconventional incentives growing
- US war against terrorism is opportunity to provide relief on Afghanistan and economy
- Is conventional rebalancing possible?