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ESRC /Q-Step – Festival of Social Sciences Event 12/11/15

## **Military Spending: How much is enough**

The logo for the ESRC Festival of Social Science, featuring the text "ESRC FESTIVAL OF SOCIAL SCIENCE" in blue and red, with a stylized graphic of two figures in red and blue.

Q-Step

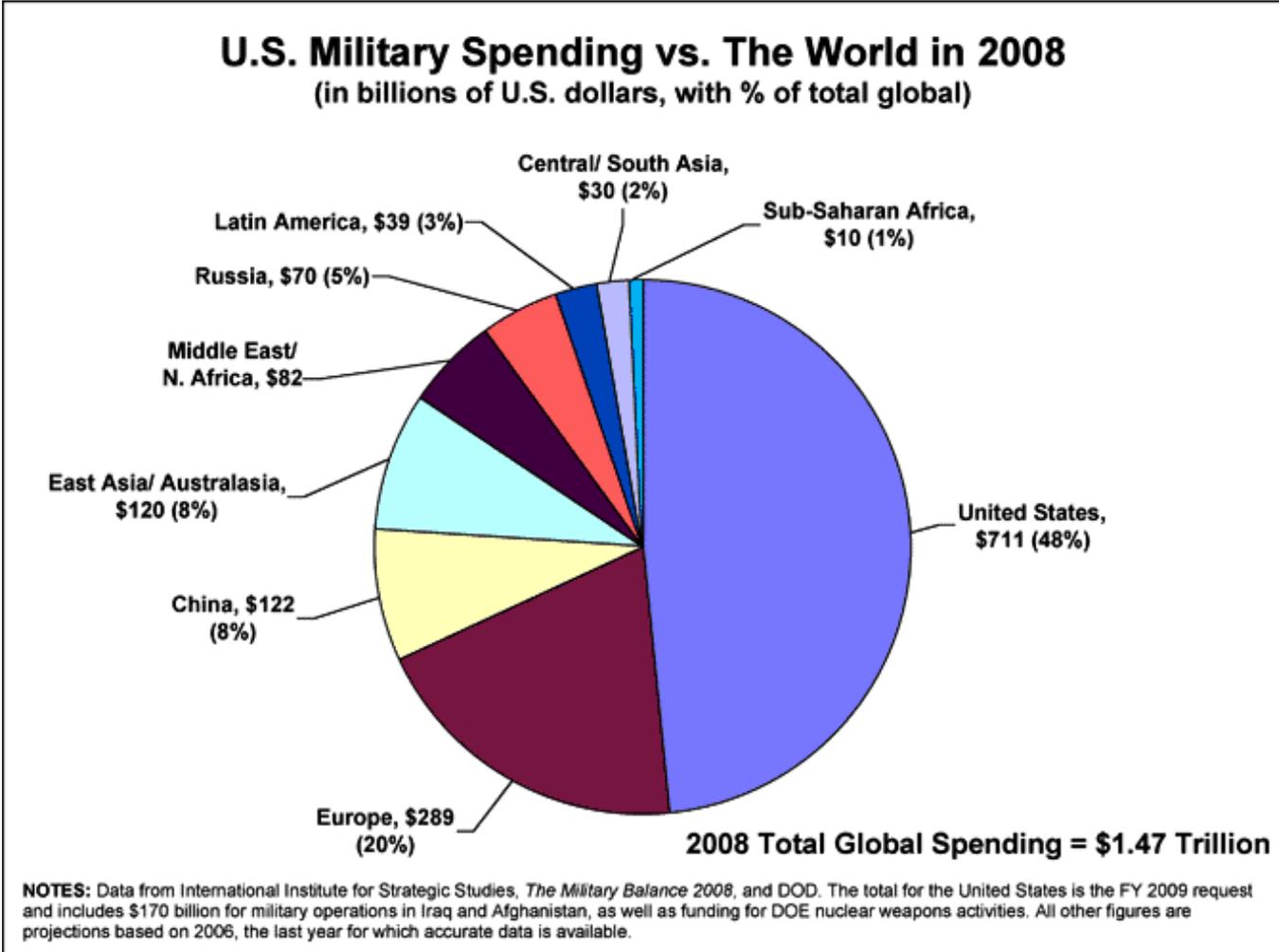
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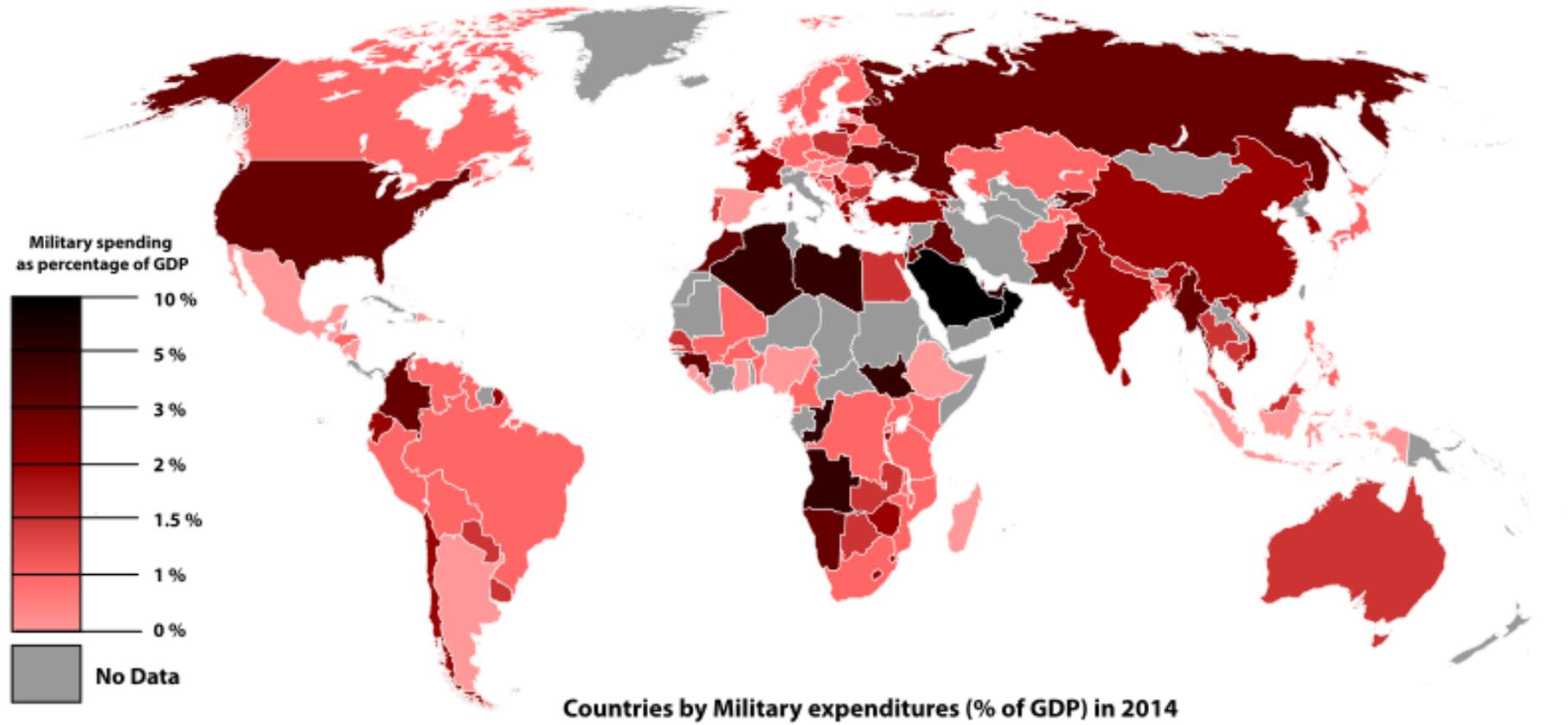
# Top largest military spending



# Military spending in the world



# Military spending in % of GDP



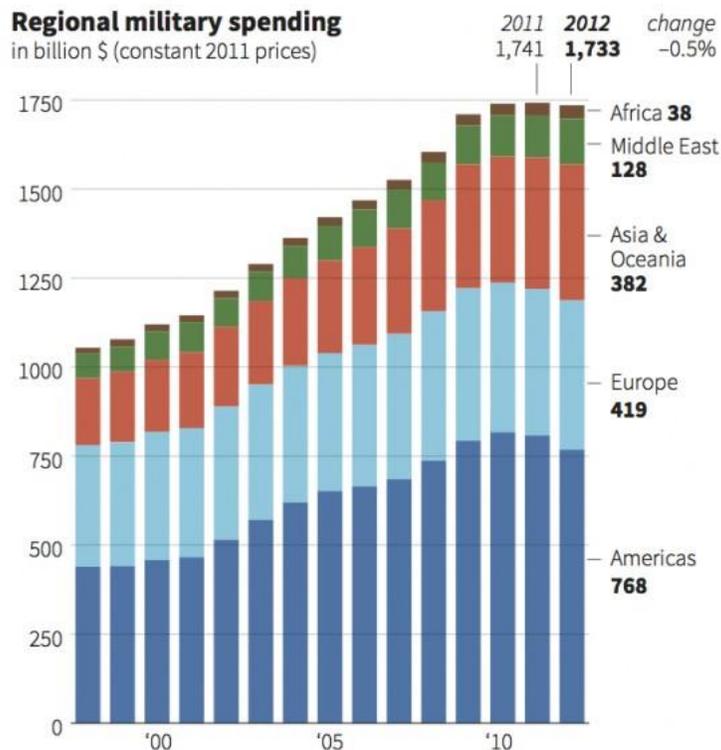
# Some figures

## Global military spending dips

Military spending dropped in 2012 thanks to deep cuts in the United States and Europe which made up for increases in countries such as China and Russia.

### Regional military spending

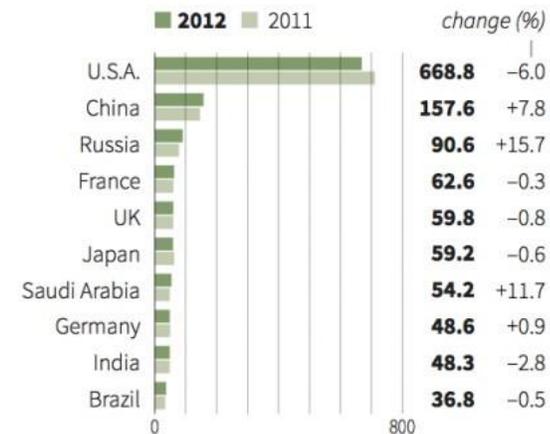
in billion \$ (constant 2011 prices)



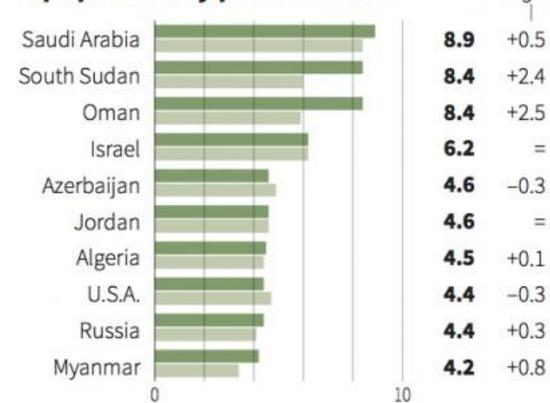
Source: SIPRI Note: Total may not add due to rounding.

C. Inton, 15/04/2013

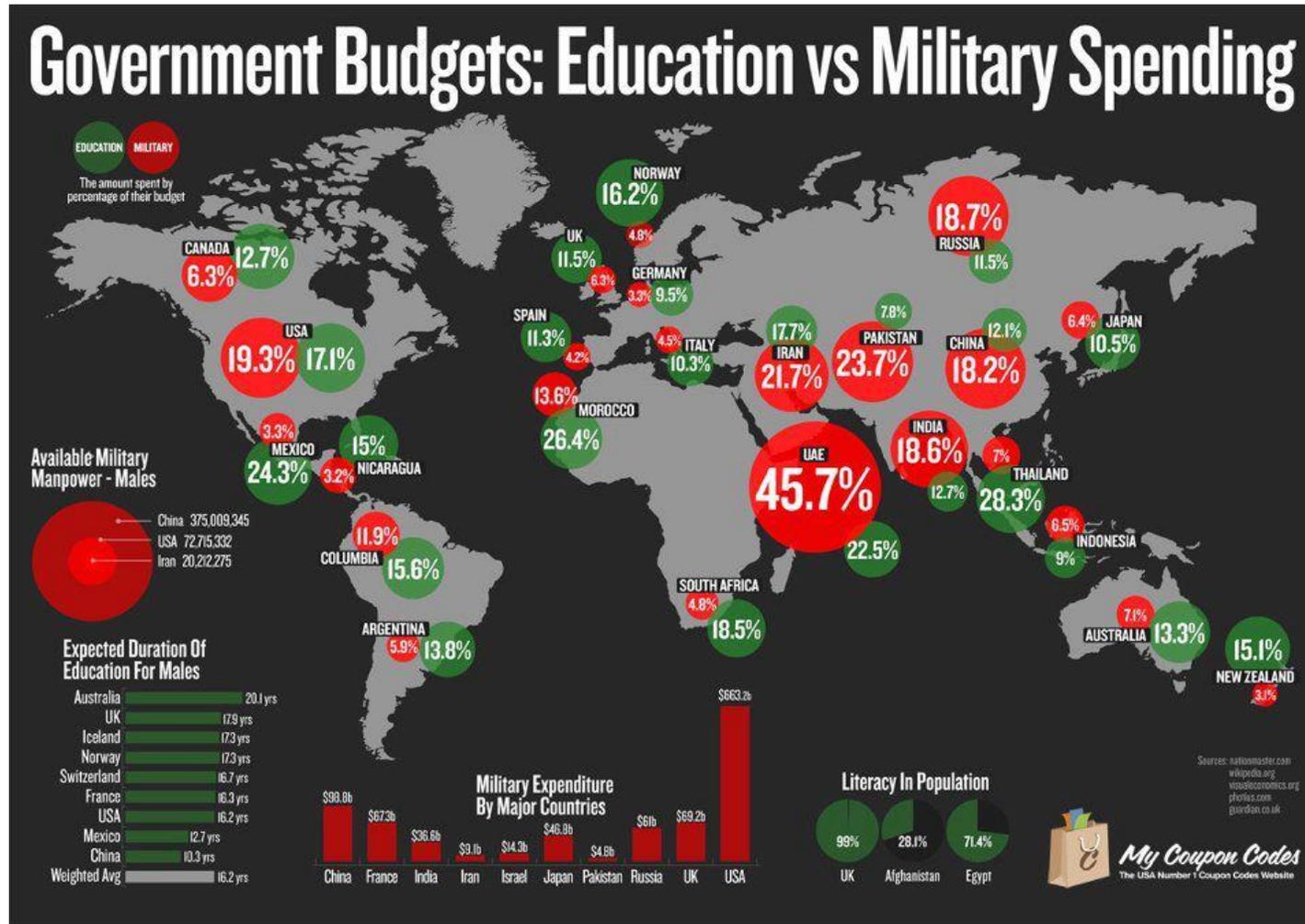
### Top spenders by value in billion \$ (constant 2011)



### Top spenders by percent of GDP



# Butter versus Guns

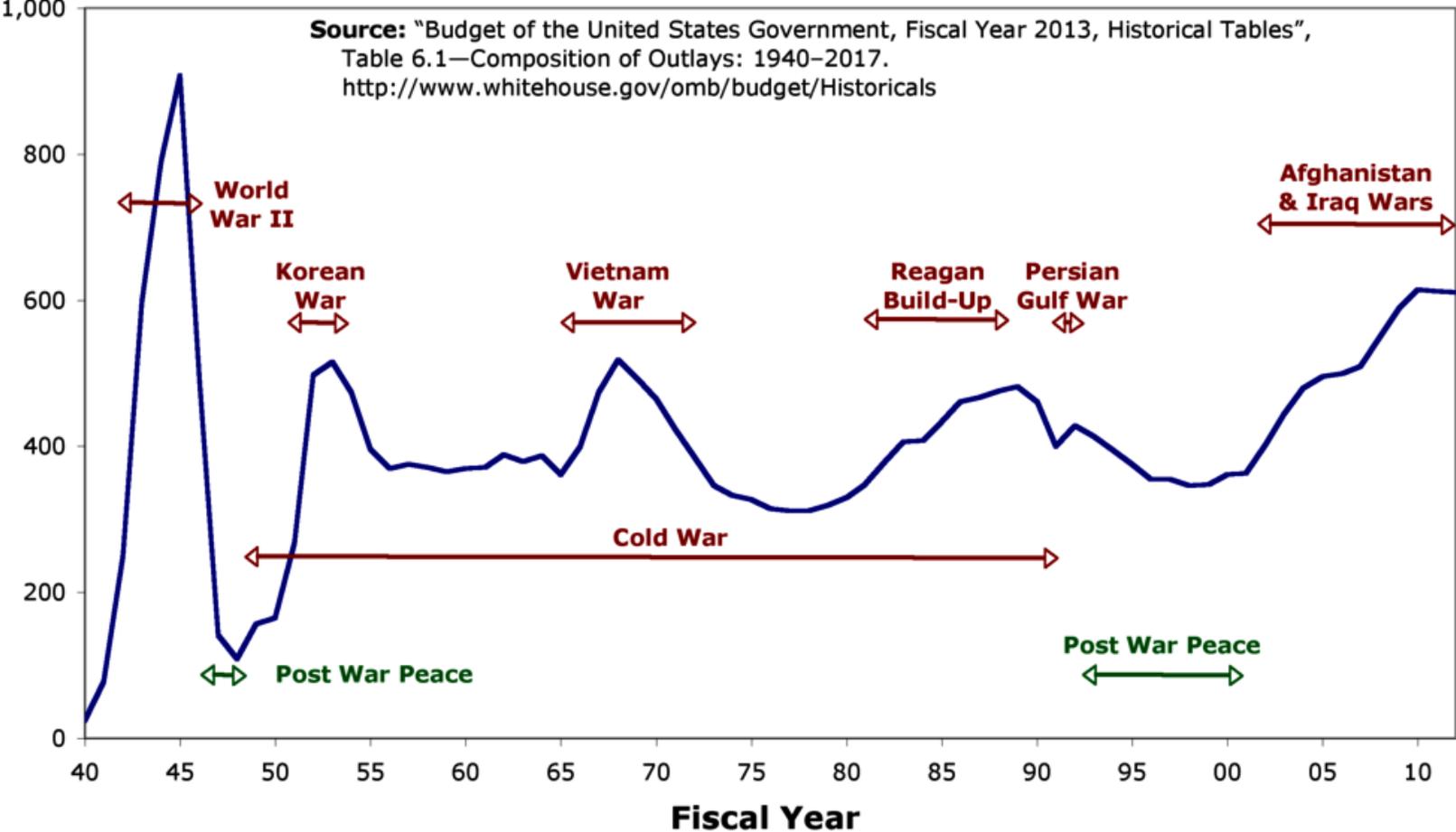


# Determinants of military spending

- External threats (perceived or not)
- Arms races (India/Pakistan)
- Spending of friends (free riding?)
- Wealth
- Internal instabilities
- Defense Industrial Base
- End of conscription
- Military involvement in politics/ role of the Armed Forces

# Effect of wars on military spending

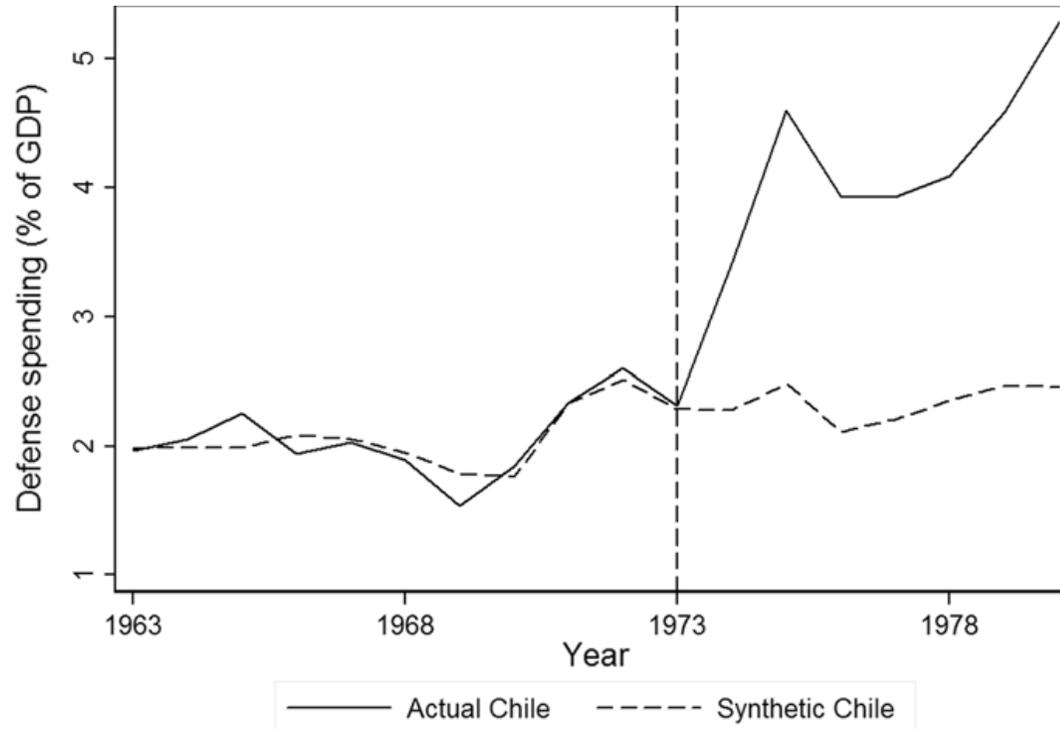
## U.S. Military Outlays Adjusted for Inflation (billions of FY2005 dollars)



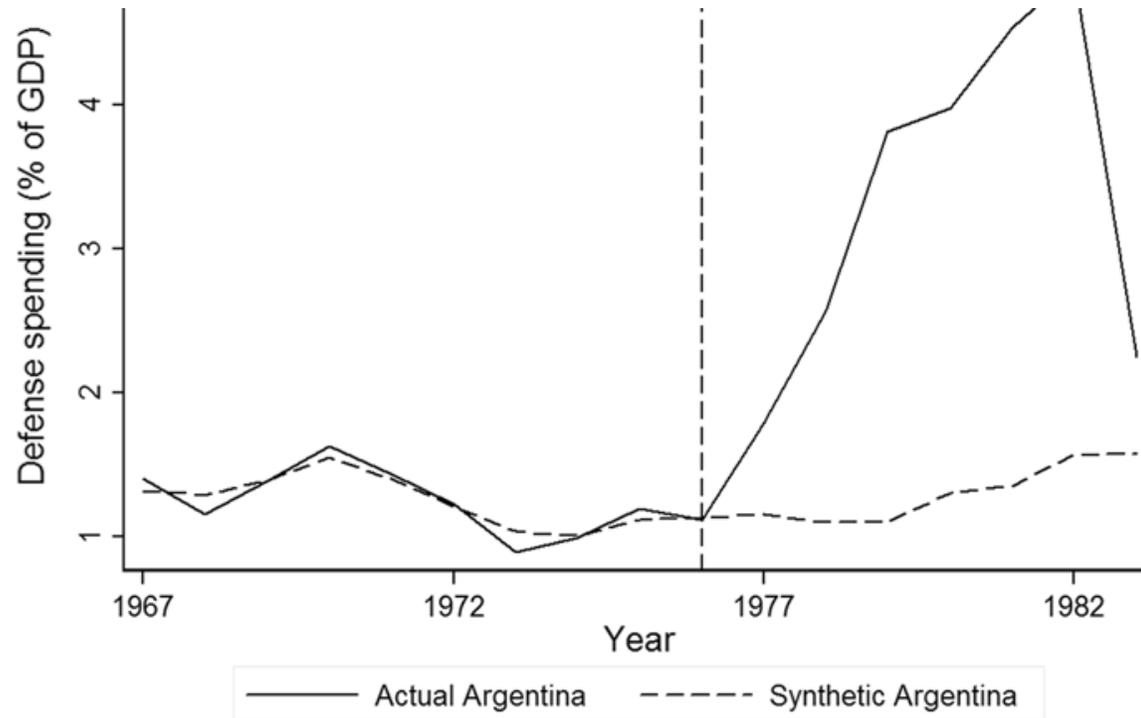
# Global aerospace, defense, security, and advanced technology companies

1. Lockheed Martin (USA) - 78
2. BAE Systems (UK) – 95
3. Boeing (USA) – 49
4. Northrop Grumman (USA) – 81
5. General Dynamics (USA) – 74
6. Raytheon (USA) – 91
7. BAE Systems Inc. (BAE Systems, UK) – 100
8. EADS Trans-European – 27
9. Finmeccanica (Italy) – 58
10. L-3 Communications (USA) - 83

# Coups d'état: Argentina



# Coups d'état: Chile



(3)

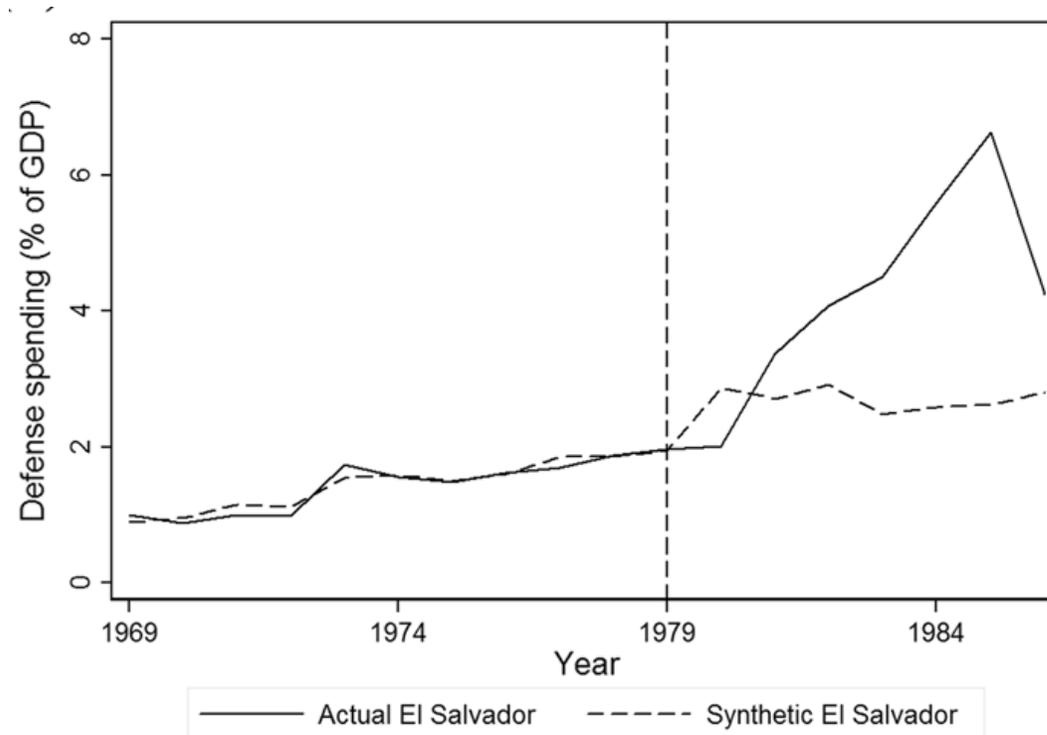
# Synthetic control Method

**Table 1** Covariates means and RMSPE: Chile 1973

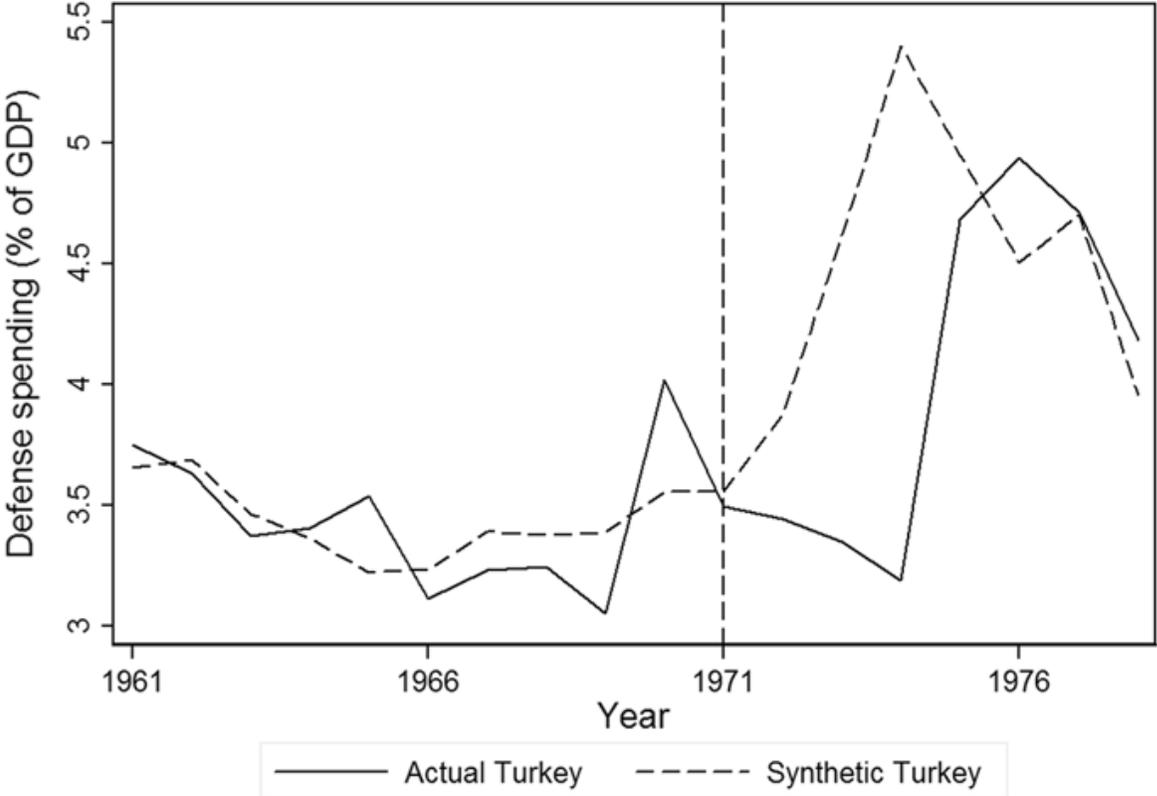
Variable	Treated Chile	Synthetic Chile
Pre-coup defense burden	2.070	2.068
Log GDP per capita	7.962	7.993
Log population	9.108	9.300
Log trade openness	3.319	3.896
Polity2 index	5.900	4.100
War	0.000	0.116
Natural resources	9.053	5.909
RMSPE		0.128

The table reports the mean values of the covariates used in the algorithm. The value of each predictor is averaged over the pre-treatment period. RMSPE stands for Root Mean Squared Prediction Error. The countries (with the relative weights) included in the synthetic control are: Canada (0.275), Egypt (0.005), Gabon (0.105), Malaysia (0.233), Nicaragua (0.006), Spain (0.159), Sri Lanka (0.217). Other potential controls are: Australia, Austria, Belgium, Cameroon, China, Colombia, Costa Rica, Cote d'Ivoire, Denmark, Finland, France, India, Ireland, Israel, Italy, Japan, Kenya, Korea Rep., Madagascar, Mexico, Morocco, Nepal, Netherlands, New Zealand, Norway, Philippines, Senegal, South Africa, Sweden, Switzerland, Trinidad and Tobago, Tunisia, United Kingdom, United States, Venezuela

# Coups d'état: El Salvador



# Coups d'état: Portugal



# Enough to forecast future trends?

$$\begin{aligned} \text{Military Spending (ln)} &= \alpha \text{Peace Years} + \beta \text{Democracy} \\ &+ \gamma \text{Trade / GDP} \\ &+ \delta \text{Contiguity} + \eta \text{Allies} \\ &+ \theta \text{GDP / World GDP} \\ &+ \kappa \text{Number of States in System} \\ &+ \rho \text{GDP (ln)} + \varpi \text{Spending Foes (ln)} \\ &+ \nu \text{Spending Friends (ln)} \\ &+ \mu \text{Lagged Dependent Variable} + \epsilon \end{aligned}$$

# Enough to forecast future trends?



**Figure 2.** Median levels of military spending: predicted (dashed line) and actual (solid line) values.

# Economic effects of military spending: the channels

- Support a Defence Industrial Base
- Support jobs, provide salaries
- Capital Technology
- Divert resources (Crowding out)
- Debt
- External relations (arms race, conflict)
- Civil wars?
- Simple arguments of economic benefits are misleading
- Whether or not the overall impact of military spending on development is positive or negative depends upon the relative magnitudes and signs of these channels

# Empirical works

- Need to be specific about the questions to be addressed and the way in which they are to be analysed.
- There are choices to be made many of which will be conditioned on the theoretical perspective adopted and the data availability
- Empirical results are sensitive to
  - a) the measurement and definition of the variables
  - b) the specification of the estimated equations (especially the other variables included)
  - c) the type of data used
  - d) the estimation method

# Empirical works

- Benoit (1973, 1978) shows that military expenditure and development went hand in hand.
- There were two responses: 1) call for more detailed individual country case studies and 2) argue that Benoit's empirical work was flawed
- Ram (1995) who reviewed 29 studies: little evidence of a positive effect of defence outlays on growth, but no evidence to support a negative effect.
- Dunne (1996) covering 54 studies concluded that military spending had at best no effect on growth and was likely to have a negative effect. Certainly no evidence of positive effects
- Smaldone (2006): negative effects tend to be wider and deeper in Africa and severe in countries experiencing legitimacy/security crisis and economic/budgetary constraints.

# Empirical works

- Dunne and Uye (2009): survey of 103 studies: most common finding is that military burden has either no significant effect, or a negative effect on economic growth for developing countries.
- Reducing military spending need not be costly and can contribute to, or at the very least provide the opportunity for, improved economic performance in developing countries.
- An interesting observation: while the evidence from military expenditure to growth is weak (even if the link is negative), the opposite link is very strong: The best way to improve security may actually be through economic development.

# The arms trade

It is useful to categorize the commodities of the arms trade in decreasing lethality or proximity to lethality:

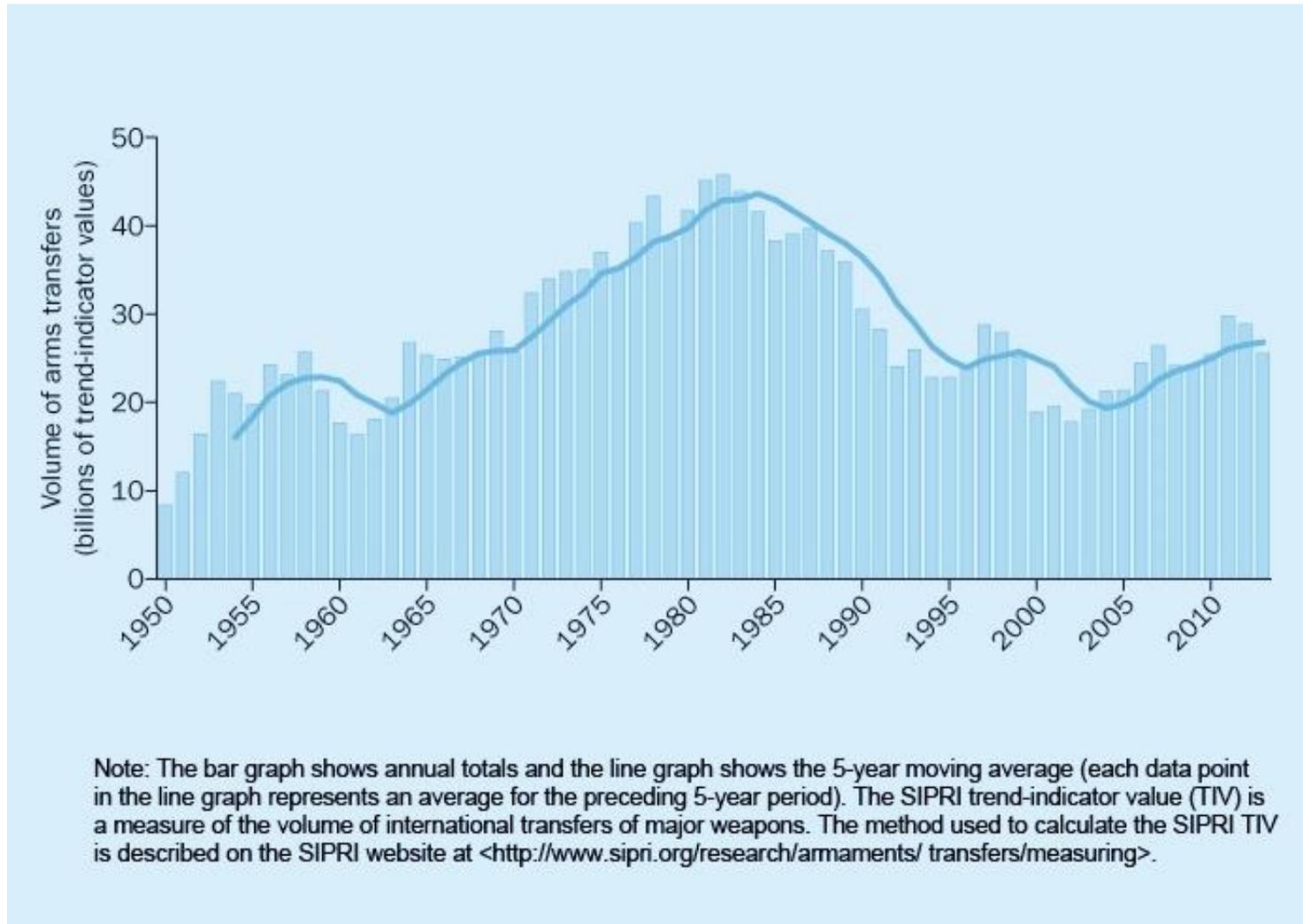
- i. Weapons of mass destruction (nuclear, chemical, biological weapons and long-range missiles)
- ii. Major conventional weapons (ships, aircraft, missiles, tanks etc.)
- iii. Small arms (guns, ammunition, grenades etc.)
- iv. Dual use equipment (electronic and communications equipment, computers, transport vehicles etc.)
- v. Spare parts, weapon training and maintenance
- vi. Security, interrogation and anti-insurgency equipment
- vii. Technology, chemicals and other raw materials and components used to manufacture weapons

All have different levels of national and international control

# The arms trade

- Arms trade is a controversial issue with many economic and strategic implications
- Volume grew by 17% between 2003-07 and 2008-12 (Import: Africa + 52% , Asia + 34%, America + 10%, ME + 3% and Europe -25%).
- Major suppliers: big NATO members, Russia, China, Ukraine, Israel
- Top recipients are Asian rising powers, Algeria, UAE yet no states are self-sufficient and production complemented by imports
- Clear divide between the eastern and western blocs pre-1989, then globalisation

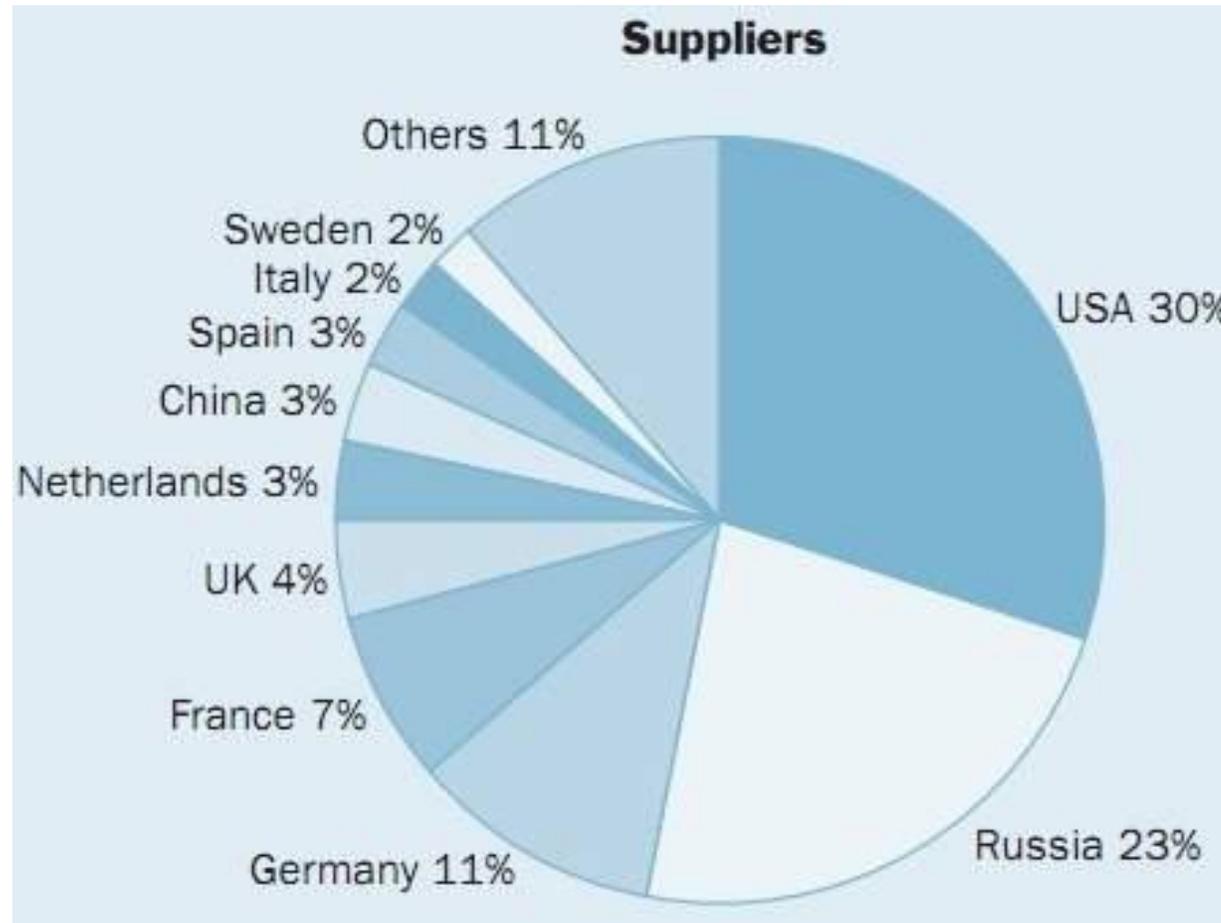
# The international transfer of weapons



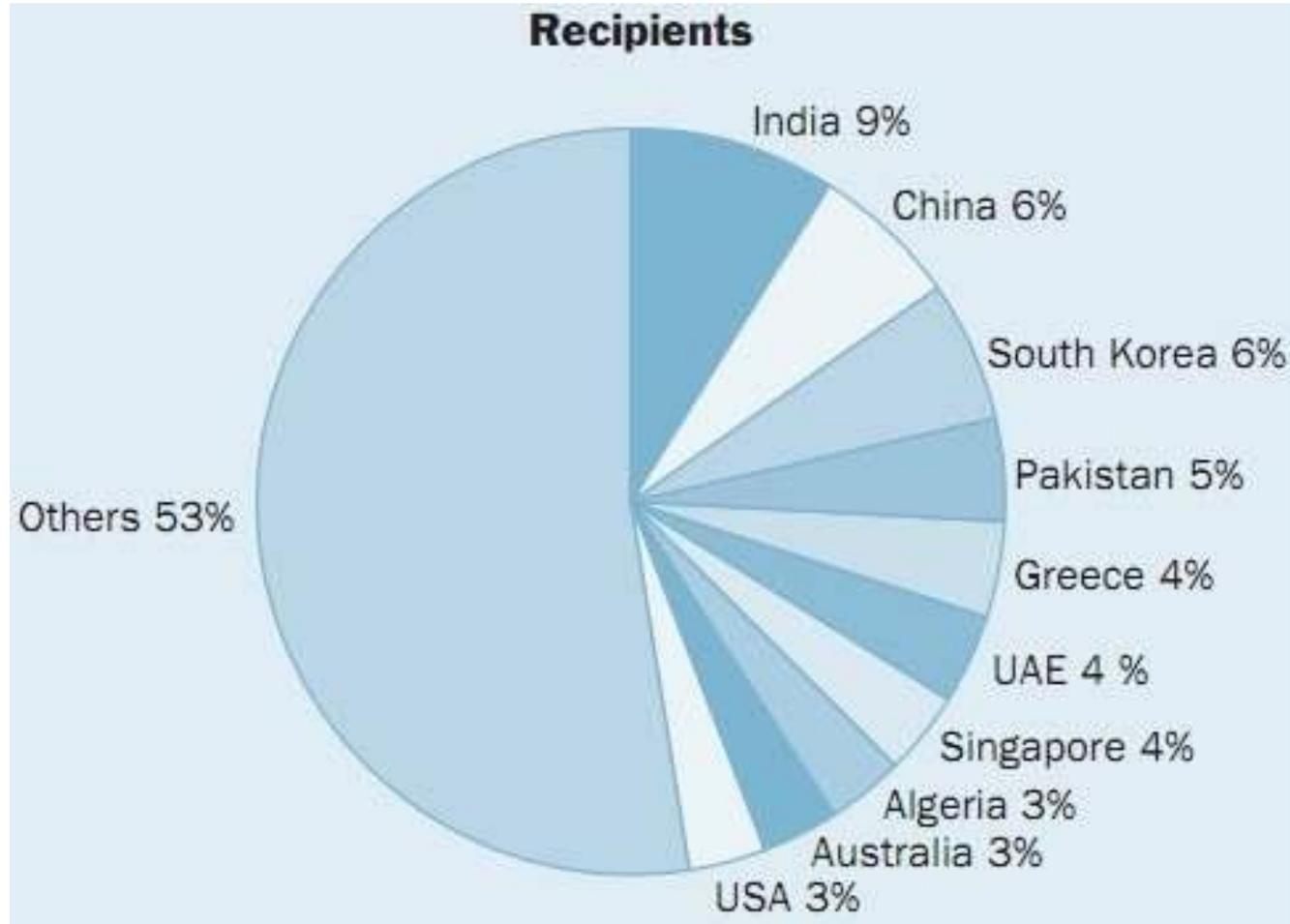
# International arms trade

- Not that important relative to total trade
- Important for foreign policy and politics
- Important for certain industries
- Secrecy and definitional difficulties make analysis difficult
- General trade theories do not help very much as market distorted by non economic concerns

# Who are the sellers?



# Who are the buyers?



## Demand Side

- Countries import weapons for reasons of national security
- Combination of prices, income and political relations affect the bundle domestic production-import
- Although sometimes inefficient, still maintain economic viability of DIB

## Supply Side

- Defence industries strategic in terms of R&D, spin-offs, unit costs etc
- Improve the capabilities of recipients states, sometimes arms transferred free to allies
- Negative externalities when importing nation becomes future threat
- Supply: in a seminal study in 1971, researchers at SIPRI identify among the purposes of arms supply an hegemonic end: use arms transfers to “support a particular group in power, or to prevent the emergence of an alternative group”







Thank you for your attention

