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SCIENCE & TECHNOLOGY PRACTICE & POLICY

Agricultural Science Funding

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Food & Fuel: The Implications for Agricultural Research Policy

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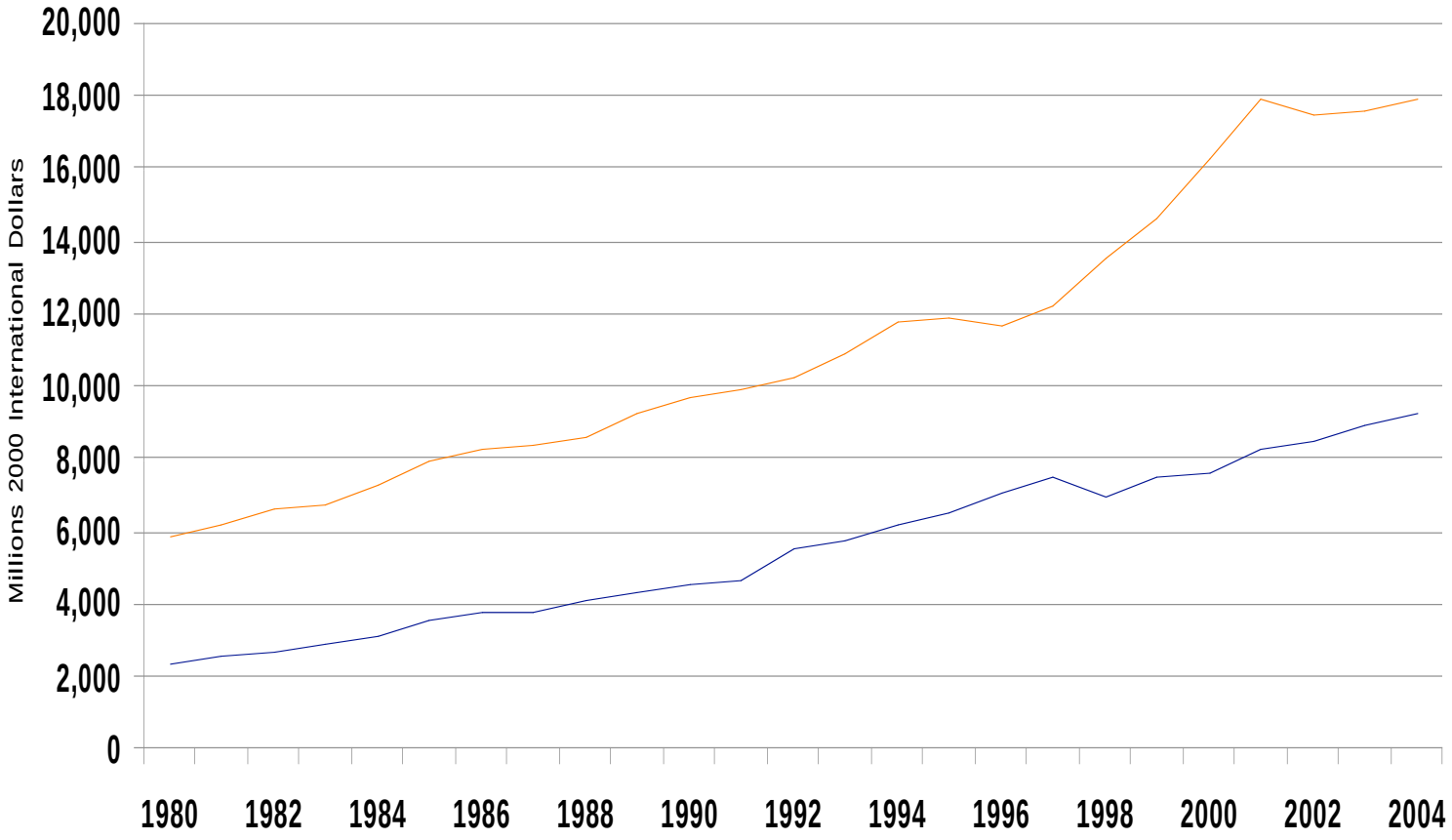
Department of
APPLIED
ECONOMICS
UNIVERSITY OF MINNESOTA

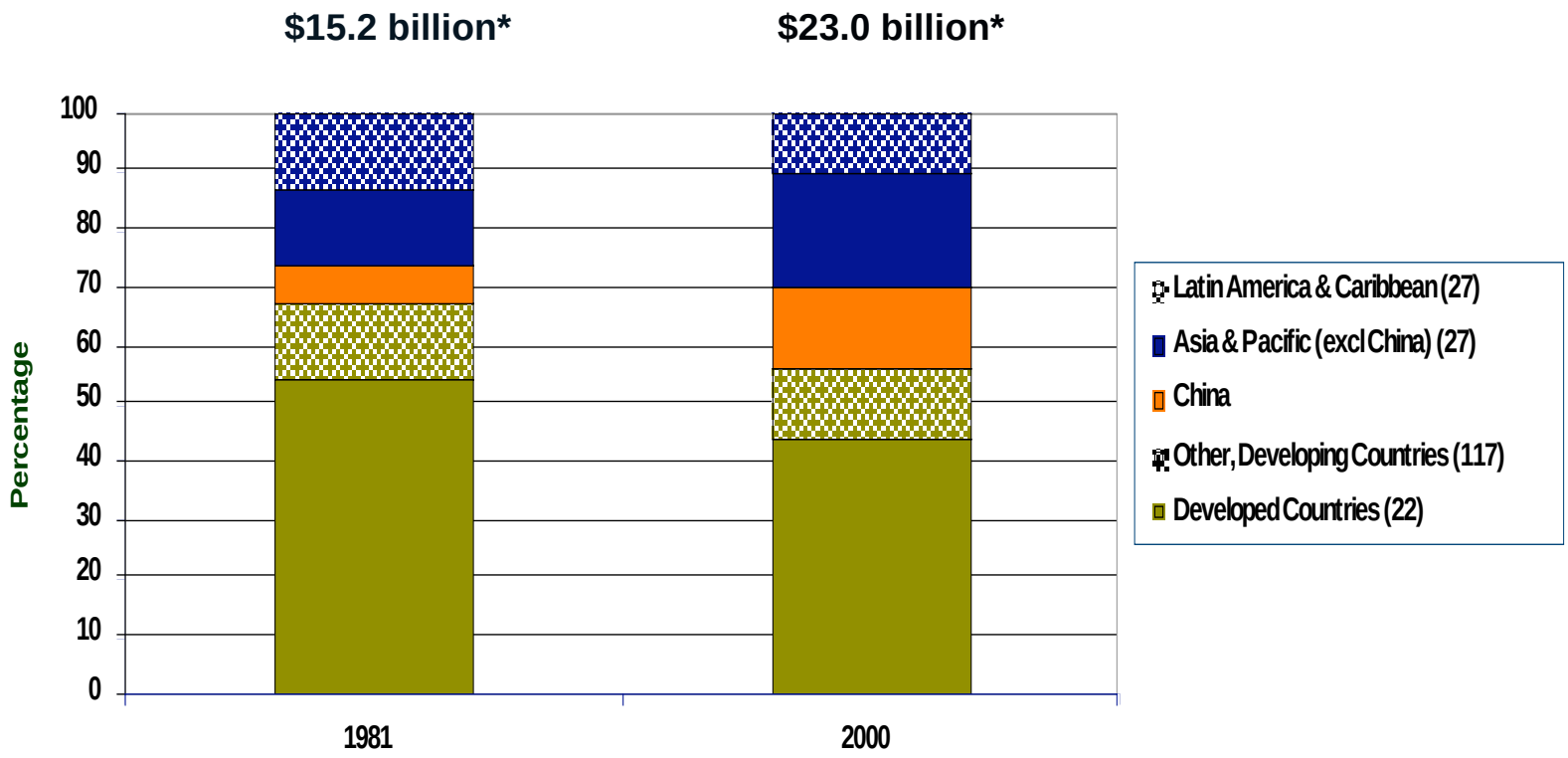
Gross Expenditures on R&D (GERD)

	Total Expenditures	Shares in Global Total	
	2000	1995	2000
	(billions 2000 intl dollars)	*(percentages)*	
Asia & Pacific (26)	95.0	9.3	13.0
China	48.2	3.5	6.6
Latin America and Caribbean (32)	21.2	3.1	2.9
Subtotal, Developing Countries (141)	157.0	17.8	21.5
Australia	7.6	1.2	1.0
Canada	16.3	2.1	2.2
Japan	99.5	16.0	13.6
United States	263.0	34.9	35.9
Subtotal, High Income Countries (28)	574.7	82.2	78.5
Total (169)	731.7	100.0	100.0

Gross Expenditure on R&D (GERD)

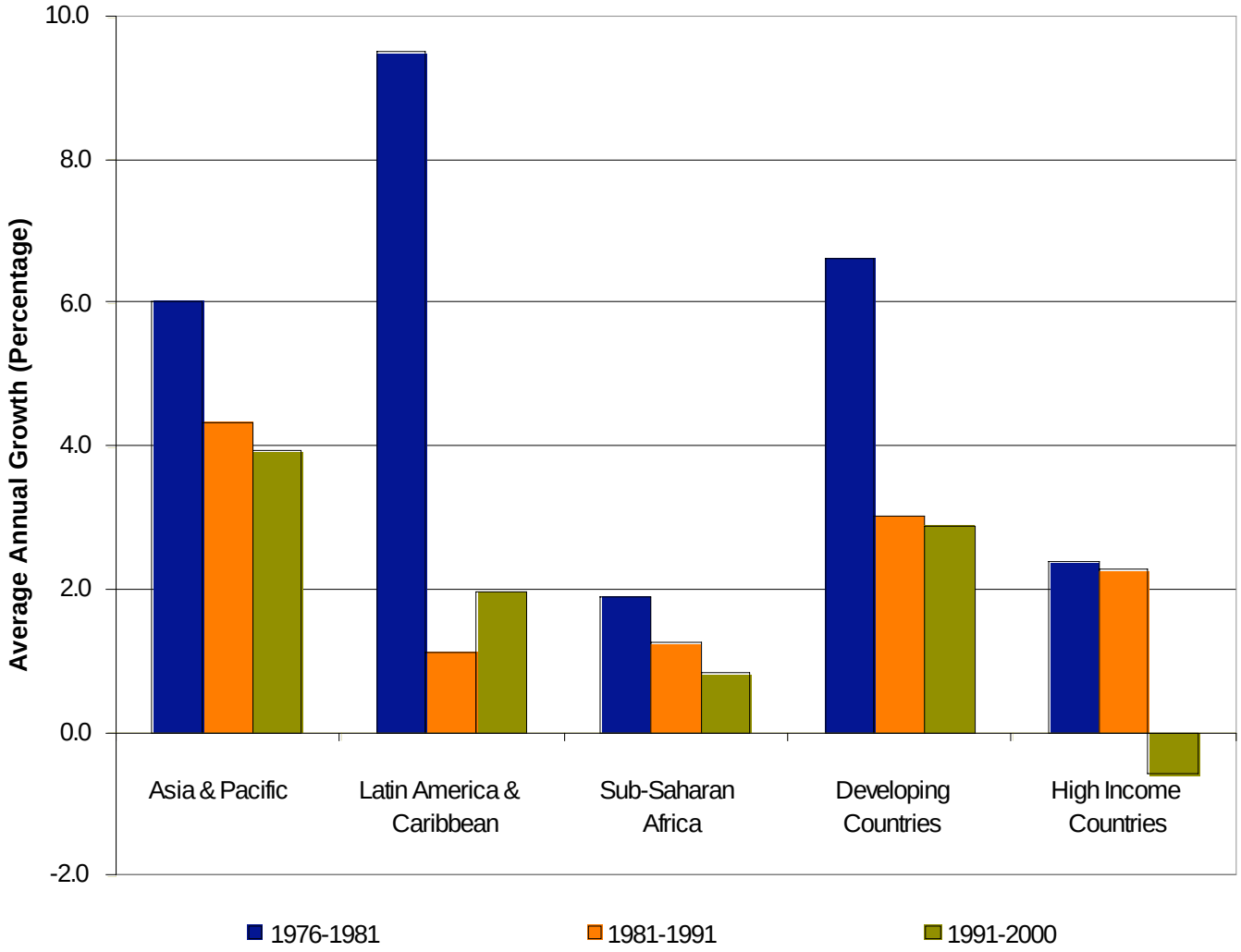


Global Public Agricultural R&D Spending



* International dollars (2000 prices)

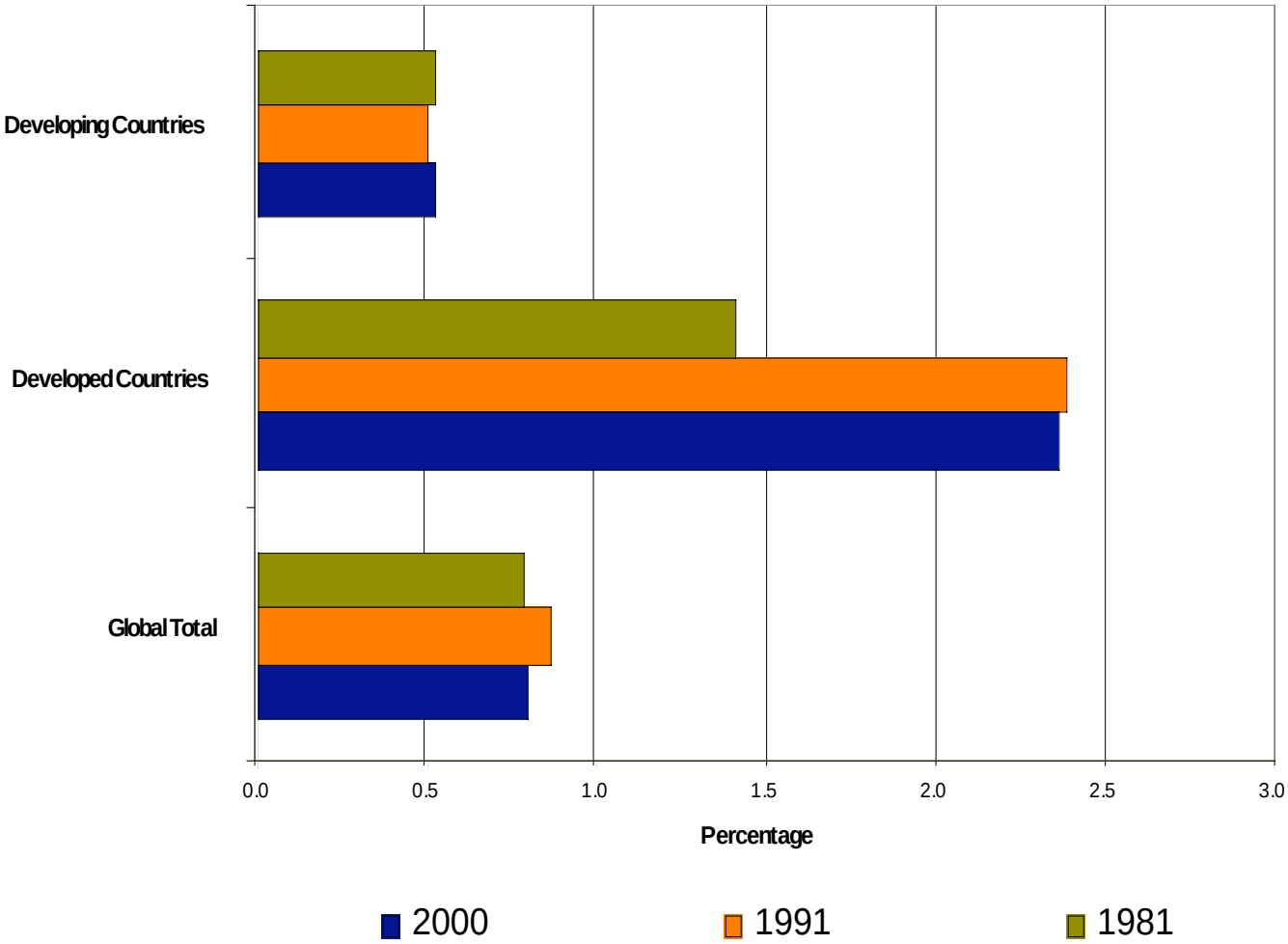
Growth in Public Agricultural R&D Spending



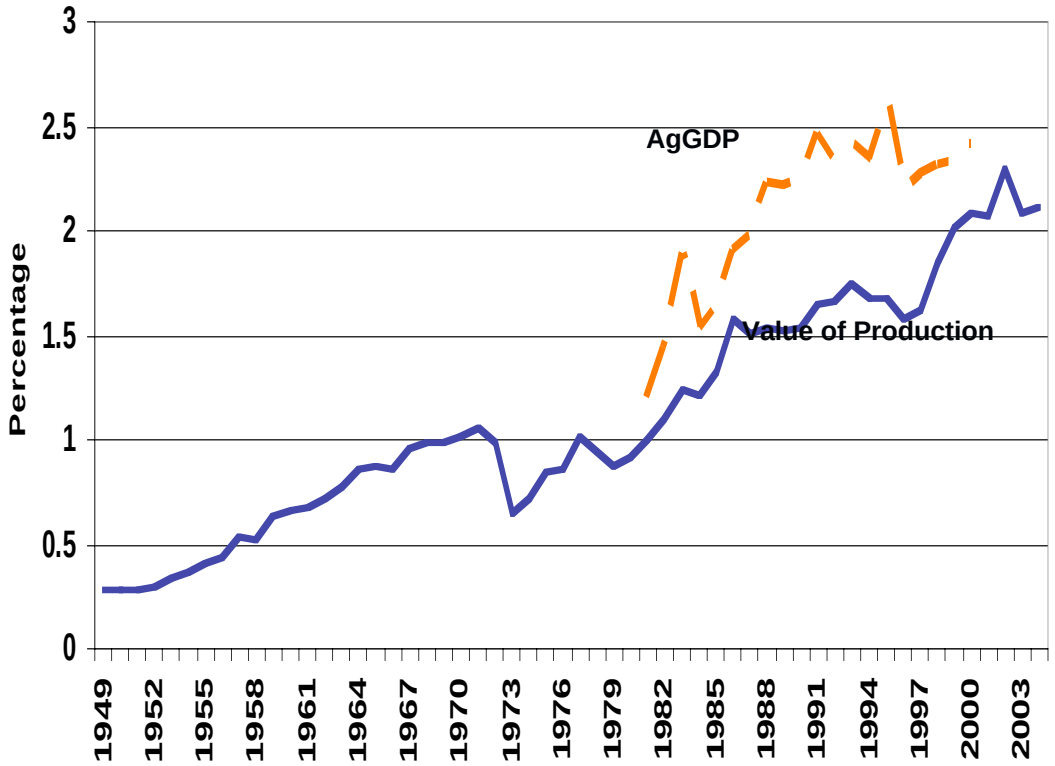
Concentration of Public Agricultural R&D Spending, 1995 and 2000

			2000	
	1995	2000	GDP	Population
		(percentages)		
Top 5	49.5	51.3	48.9	47.6
Top 10	64.6	66.3	57.5	51.9
Bottom 80	8.9	9.50	6.6	12.6

Intensity of Public Agricultural R&D

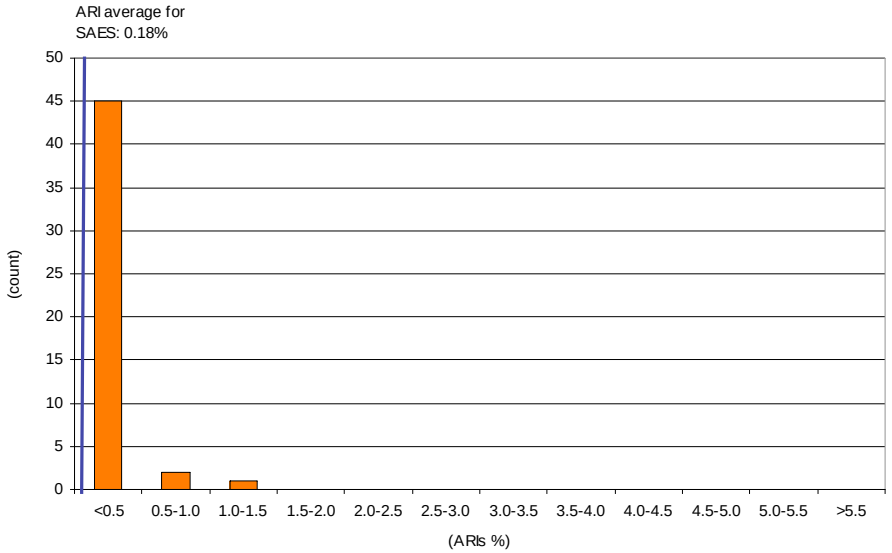


U.S Agricultural Research Intensities

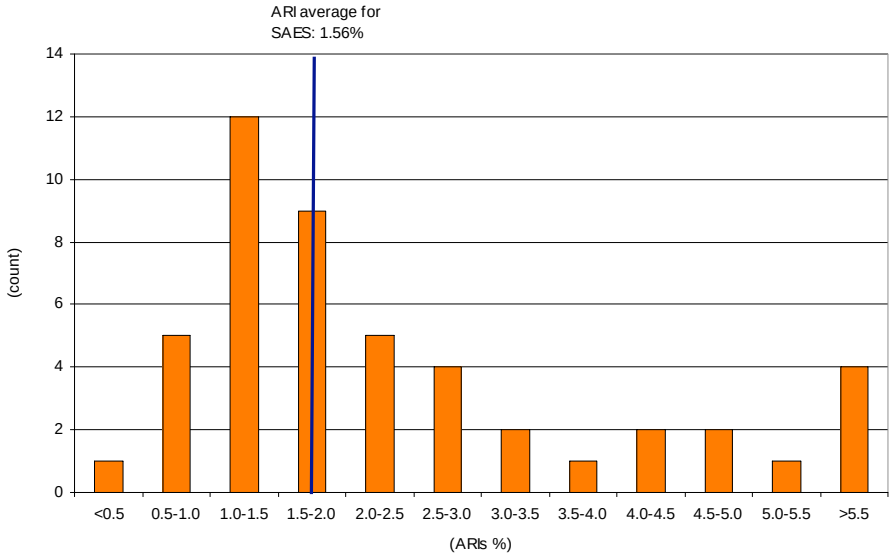


Agricultural Research Intensities among U.S. States

1950



2004



Global Public & Private Agricultural R&D, 2000

	Public	Private	Total	Public Share of Total
	(millions 2000 international dollars)			(percentage)
Developing, Subtotal	12,819	862	13,682	93.7
Latin American & Caribbean	2,454	124	2,578	95.2
Asia & Pacific	7,523	663	8,186	91.9
China	3,150	131	3,281	96
Developed Countries	10,191	12,086	22,277	45.7
United States	3,828	4,061	7,889	48.5
Canada	468	241	709	66
Australia	578	191	769	75.2

Public, Private, and Total Agricultural R&D Intensities, circa 2000

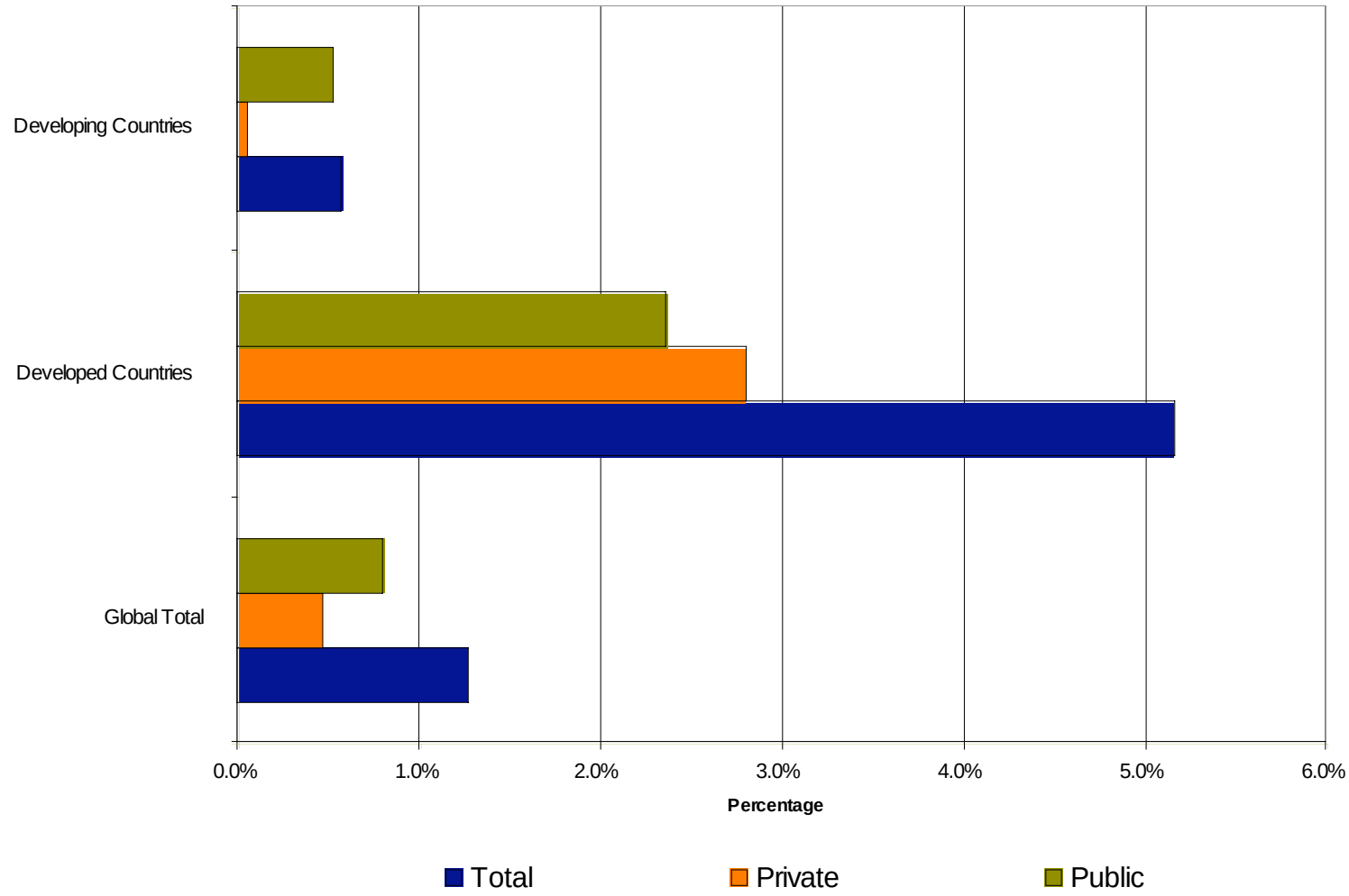
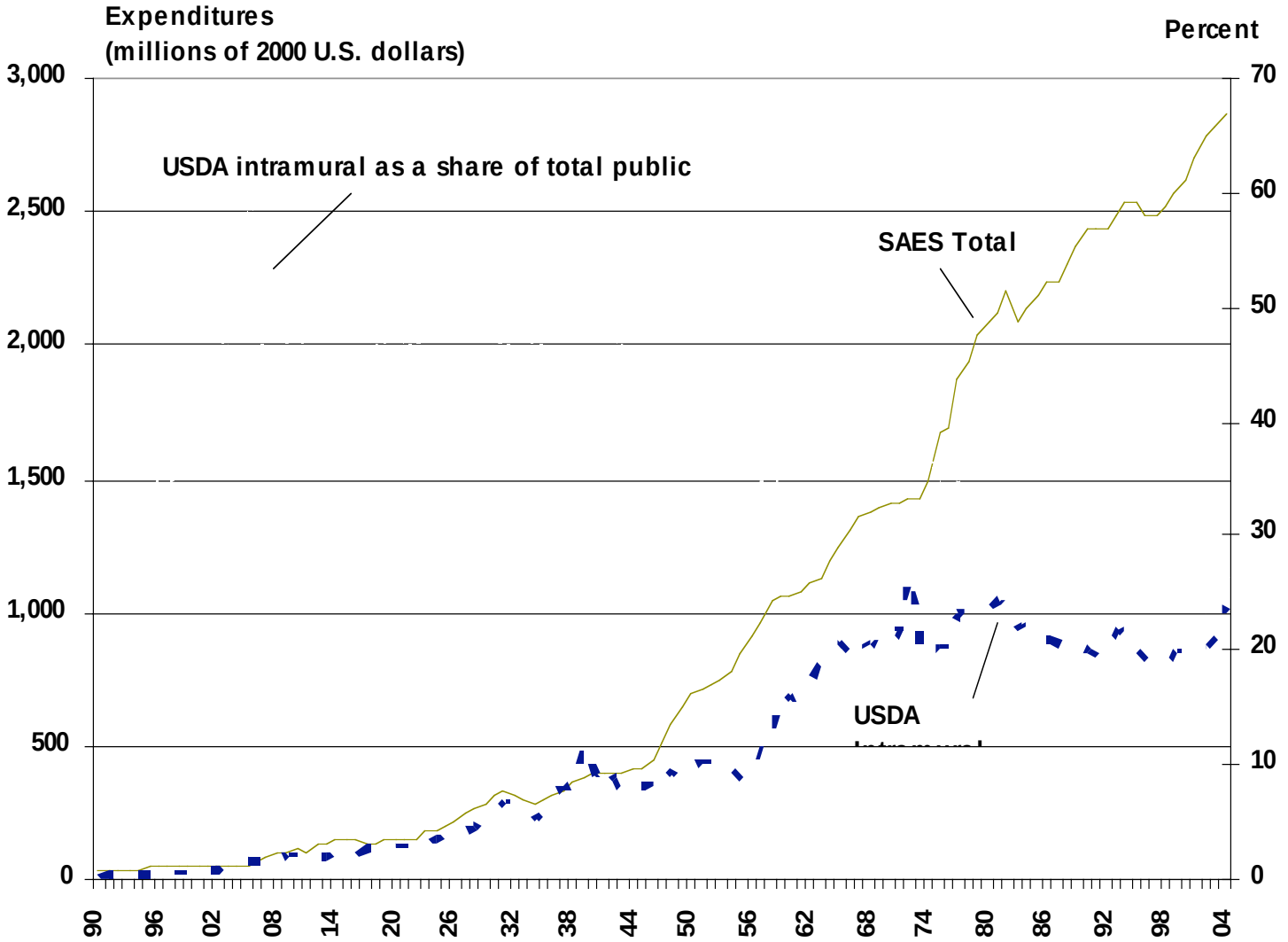


Figure 1

U.S. Public Sector Agricultural R&D Spending by Performing Sector



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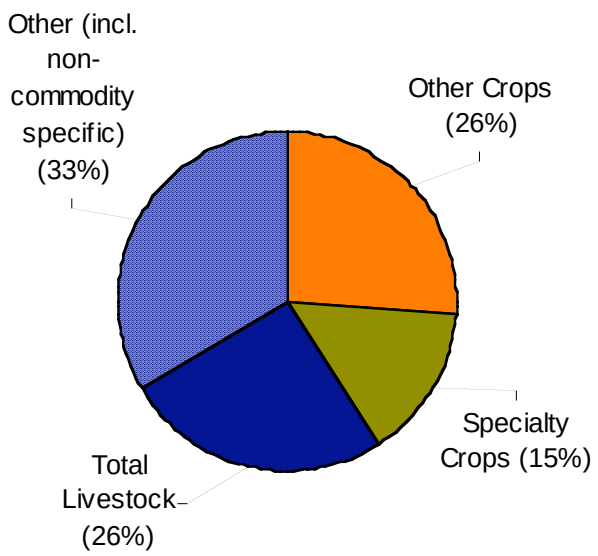
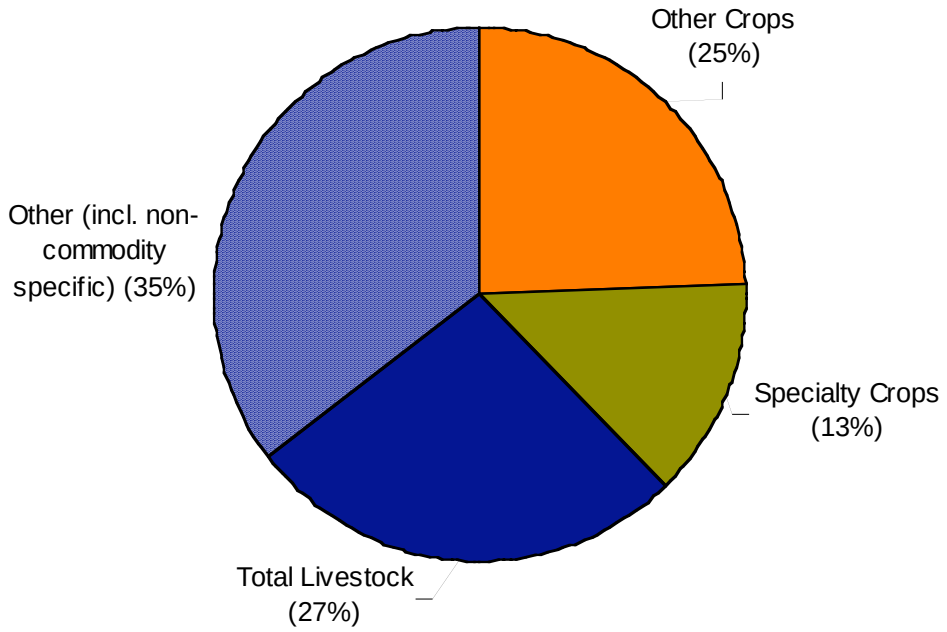
Allocation of US Public Agricultural Research Expenditures, 1975 and 2004

1975



Total: $2.29 billion, 2000 prices

2004

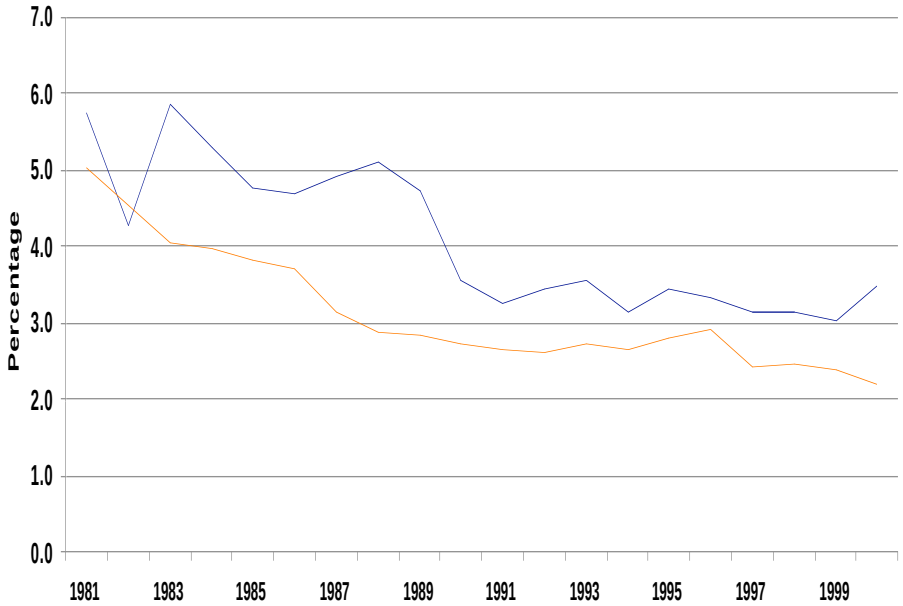


Total: $3.47 billion, 2000 prices

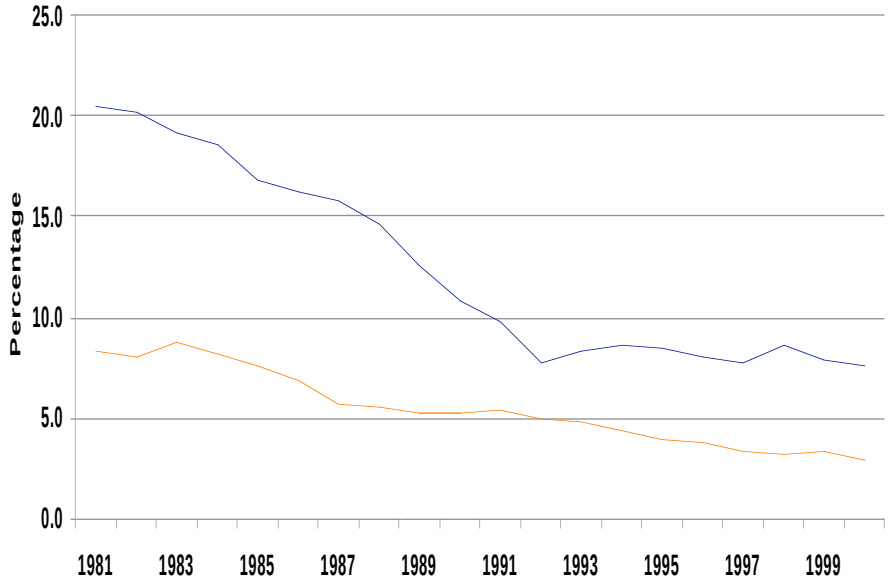
Note: Excludes forestry, fisheries and aquaculture research

Agricultural Research and Output Shares

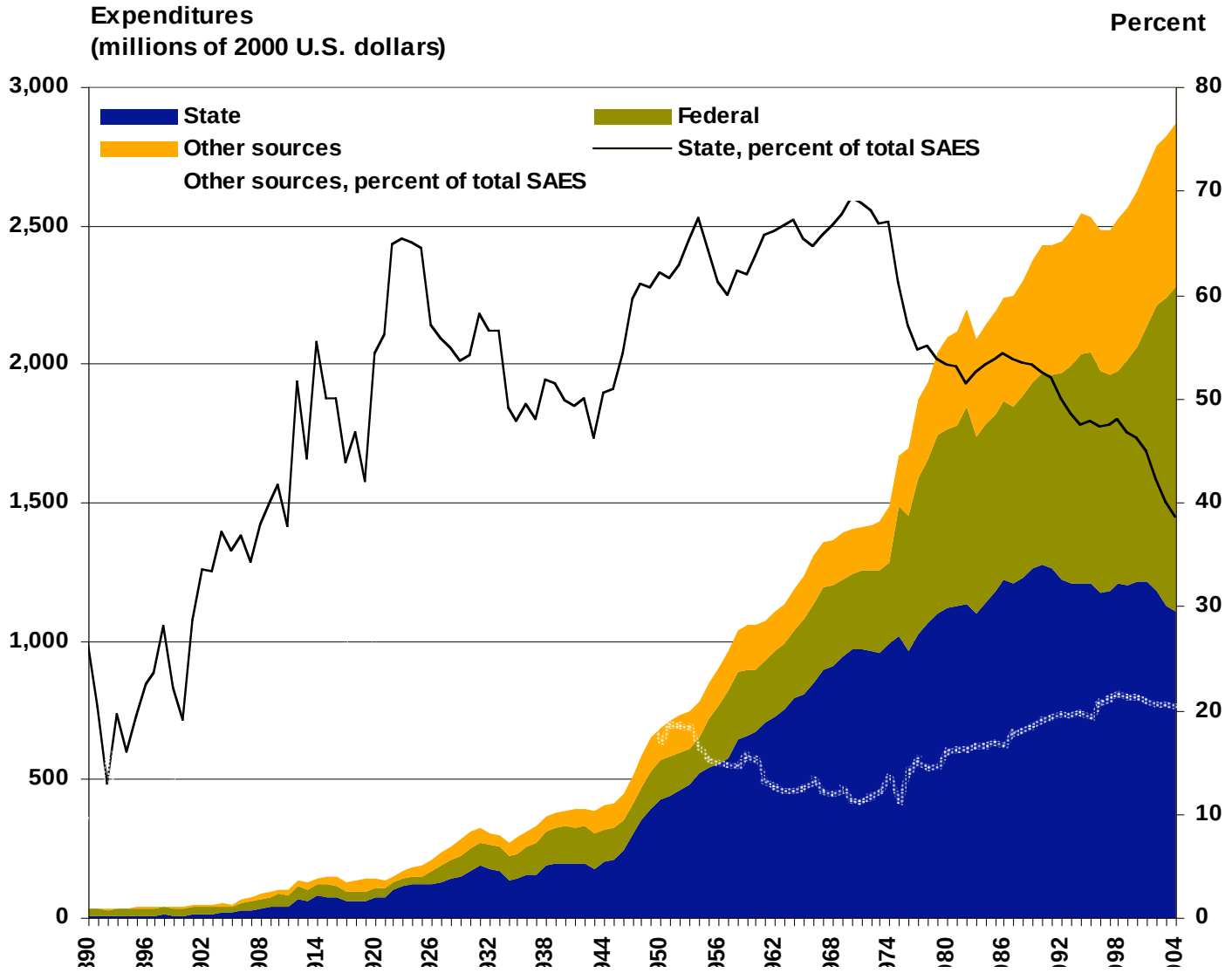
AgGDP as a Share of Total GDP



Public Ag R&D as a Share of GERD

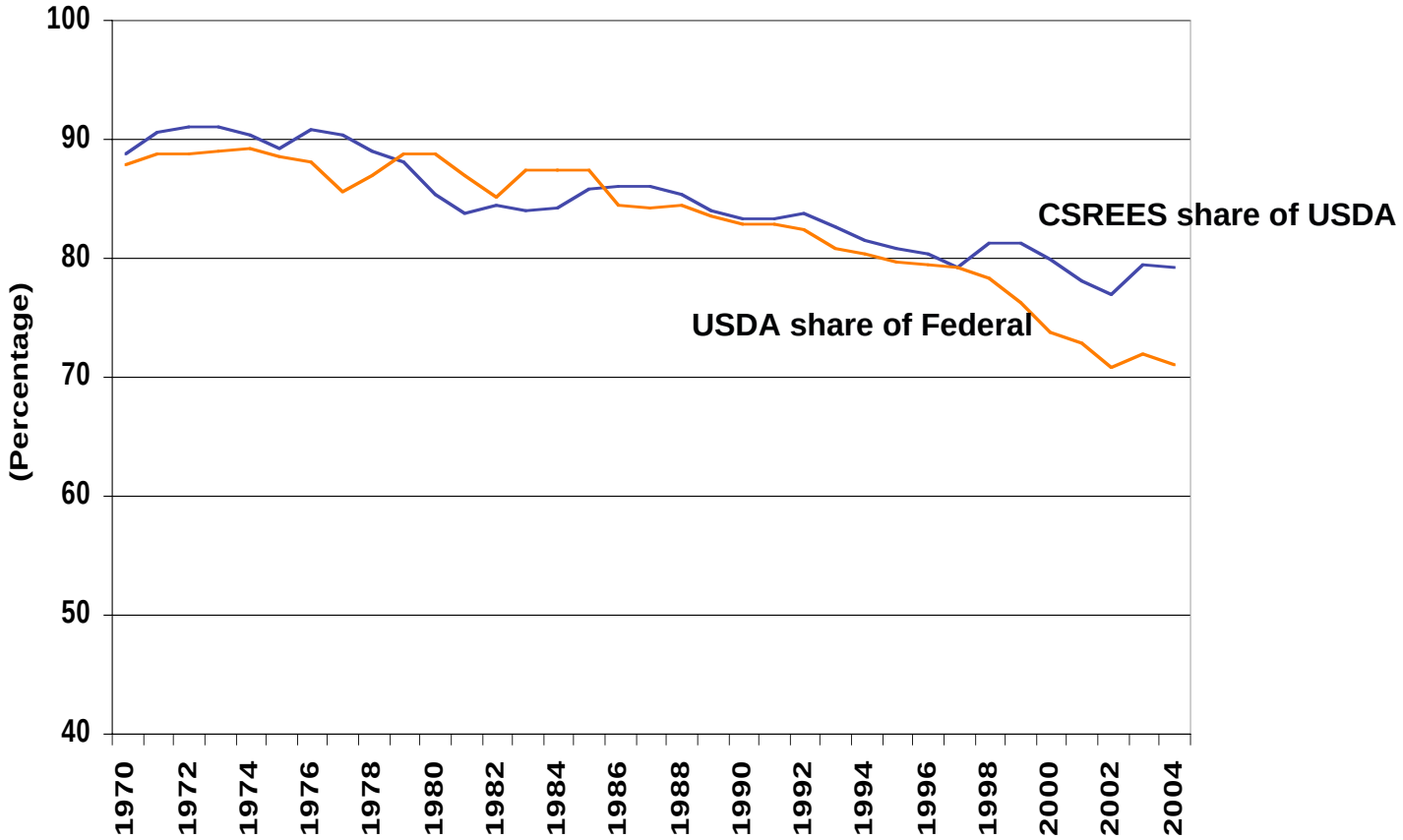


SAES Research Expenditures by Source of Funds

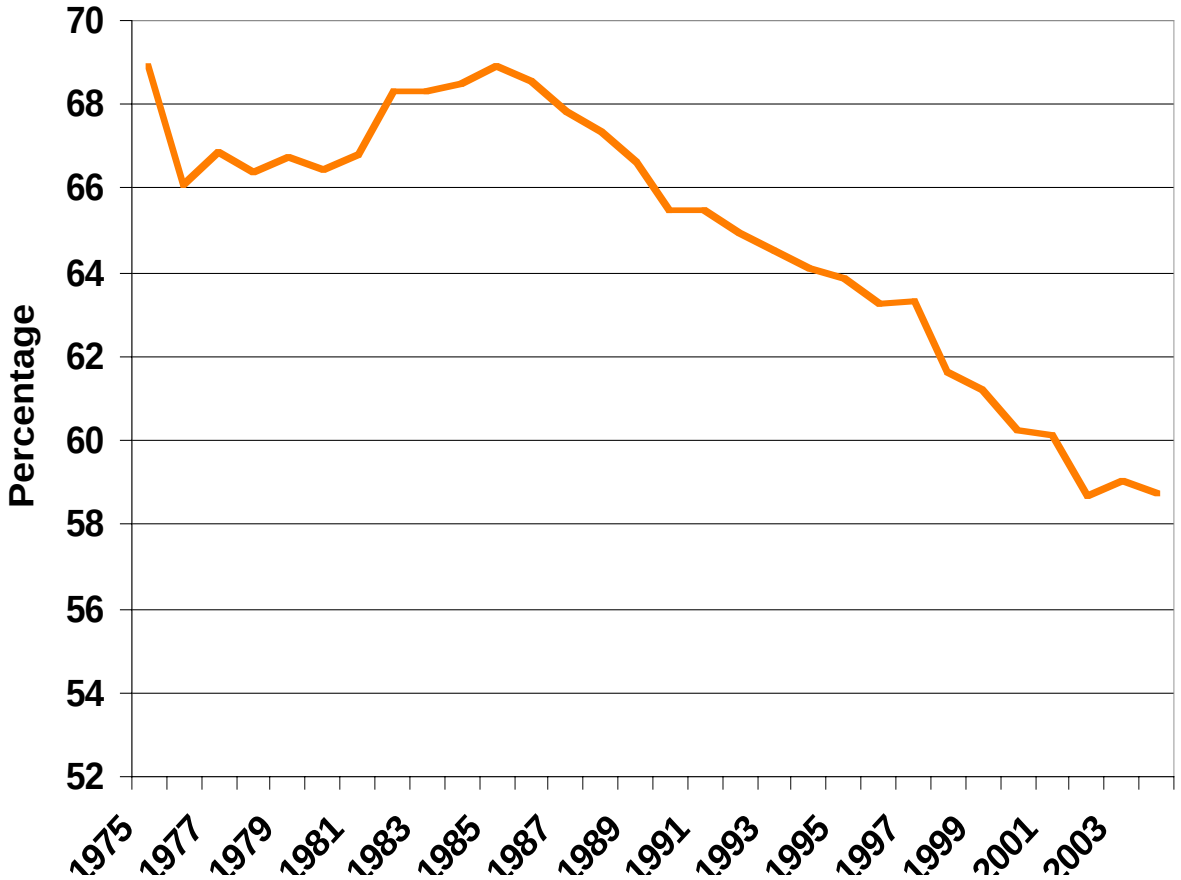


	1970	2004
	(percent)	
USDA	20.6	20.2
Other Fed.	8.8	20.7
State Appr.	56.4	38.7
Industry	4.5	7.7
Other state	9.7	12.7

Shifting Pattern of Federal Support for SAES Research



SAES Farm Productivity Research



Summing Up

- **Major structural shifts in the funding of agricultural R&D worldwide**
  - **During the 1990s, a slowing in growth generally, especially in rich countries**
  - **Reorientation of rich-country agricultural R&D away from maintaining and enhancing farm productivity (at least in the U.S.)**
  - **Substantial and increasing spatial concentration in the conduct of agricultural R&D**
- **Limited (agricultural) R&D capacity in many parts of the developing world**
- **Raises real questions about the prospects for rich to poor country R&D spillovers, which fueled the last Green Revolution**

Thank You