

PEAT Time-Line of Pivotal Documents and Influential Publications

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Year	Document(s)	Individual(s)	Organization(s)	Significance	Critics/Opponents (if any)	Influence and Effect
1945	Science: The Endless Frontier	Vanevar Bush		Foundational Doctrine of Post-war university based scientific research.	Unknown	Widely Accepted as basis for post-war basic research.
1957	The Demand and Supply of Scientific Personnel	David Blank and George Stigler			In his autobiography, Stigler alleges that the report was censored by interested parties within the engineering establishment due to its potential political impact on federal funding and technical labor.	
1959	Dynamic Shortages and Price Rises: The Engineer-Scientist Case	Kenneth Arrow and William Capron				
1975	Letter To Rep. Joshua Eilberg	John Oswald, President	Association of American Universities	Thanks Representative Eilberg as chairman of the Immigration Subcommittee of the House Judiciary Committee for his help getting colleges and universities exempted from the standard labor certification requirements.	Action goes by all but unnoticed. Opposed by some representatives on the basis that the changes are being pushed through congress at the end of term without opportunity for debate, examination or ammendment.	Exemption passes successfully.
1983	A Nation At Risk: The Imperative for Educational Reform	David P. Gardner, Chairman	National Commission on Excellence in Education			
	American Professors: A	Howard R. Bowen and				

1986	National Resource Imperiled	Jack H. Shuster				
1986	The Pipeline For Scientific and Technical Personnel: Past Lessons Applied to Future Changes of Interest to Policy-Makers and Human Resource Specialists.	[No Author Attribution on Paper]	National Science Foundation: Policy, Research, and Analysis Division	Indicates that NSF understood as early as 1986 that science and engineering 'shortages' are intrinsically economic in nature and not purely demographic phenomena. Suggests that rising wages can be depressed by disallowing the free market to function. Suggested mechanisms to depress U.S. science and engineering wages include using visas to pay foreign nationals to enter U.S. graduate programs and using government fellowships as 'lures' to enter graduate studies.	The study is internal and was not apparently released to outsiders for fear of critical response.	At a minimum, market intervention suggestions appears to anticipate the NSF sponsored legislative and funding developments which follow.
1987-1990	Future Scarcities of Scientists and Engineers: Problems and Solutions (Various Titles, pg. 990-1087 of Wolpe Hearing Proceedings)		National Science Foundation: Policy, Research, and Analysis Division	Used by NSF director Erich Bloch to create a climate of concern over scientist and engineering 'shortages' beginning in the 1990's.	Rep. Howard Wolpe as well as Alan Fechter, Robert White, Michael Teitelbaum and other analysts.	Effective in increasing NSF funding and in adding strong shortage alleviation provisions into the Immigration Act of 1990
1987	Workforce 2000: Work and Workers in the Twenty-First Century	William Johnston and Arnold Packer	Hudson Institute			
	Prospects for					

1989	Faculty in the Arts and Sciences: A Study of Factors Affecting Demand and Supply, 1987 to 2012	Bowen, W.G., Sosa, J.				
1989	Testimony on the Immigration Act of 1990	William Kirwan, President	University of Maryland at College Park, Representing the Association of American Universities	Argued that based on shortage projections coupled to the singular nature of the Eilberg exemption of 1976, that U.S. universities should therefore be entitled to a unique privilege of unfettered access to foreign nationals (both to maintain excellence and avert crippling labor shortages).	Analysts like Michael Teitelbaum, Lawrence Mishel, Malcolm Lovell, Vernon Briggs and others reject the notion of a looming labor shortage.	Immigration Act of 1990 passes with strong shortage alleviation provisions as well as exemptions for 'outstanding professors'.
1990	Congressional Testimony on immigration and shortages of scientists and engineers in the 1990s.	Phillip Griffiths, Provost	Duke University	Contributes to panic over shortages of scientists and engineers		1990 Immigration act passes with shortage alleviation exemptions for universities and scientific employers.
1990	Supply and Demand for Scientists and Engineers: A National Crisis in the Making [Excerpts From Speech]	Richard Atkinson, President	American Association for the Advancement of Science	Fuels panic over looming shortage of science and engineering Ph.D.s.		Contributes to the passage of legislation meant to alleviate this problem.
1990	Statement to Senate hearing on the "Shortage of Engineers and Scientists" (pg. 690 of Wolpe Hearing	Erich Bloch, Director	National Science Foundation	Fuels panic over looming shortage of science and engineering Ph.D.s.	Analysts like Michael Teitelbaum, Lawrence Mishel, Malcolm Lovell, Vernon Briggs and others reject the notion of a looming labor	Contributes to the passage of legislation meant to alleviate this problem.

	Proceedings)				shortage.	
1990	Heading Off A PhD Shortage	Robert Rosenzweig (President) and John Vaughn (Director of Federal Relations)	Association of American Universities	Adds to panic over looming shortage of science and engineering Ph.D.s.		Contributes to the passage of legislation meant to alleviate this problem.
1990	Science, Engineering, and the Sorcerer's Apprentice (pg. 445 of Wolpe Hearing Proceedings)	Robert M. White, President	National Academy of Engineering	Openly questions the basis for panic over looming shortage of science and engineering Ph.D.s.		Contributes impetus culminating in Wolpe Hearing in 1992.
1990	Engineering Shortages and Shortfalls: Myths and Realities (pg. 464 of Wolpe Hearing Proceedings)	Alan Fechter, Executive Director	Office of Scientific and Engineering Personnel, National Research Council	Openly questions the basis for panic over looming shortage of science and engineering Ph.D.s.		Contributes impetus culminating in Wolpe Hearing in 1992.
1991	Senate Bill 44.	Daniel Moynihan, Senator	United States Senate	Responding to Richard Atkinson and Dorothy Zinberg, introduces a bill to alleviate scientist labor shortages by automatically granting a green card to any individual possessing a Ph.D., masters or bachelors degree in any field of natural science or engineering.	Unknown	Bill fails.
1992	Projecting Science and Engineering Personnel Requirements for the 1990s: How Good are the Numbers?	Howard Wolpe, Chairman	Investigations and Oversight Committee, House Committee on Science, Space, Technology	Extensive hearing which gave evidence of a pattern of deception by the National Science Foundation and others (see for example the statement of Joel Barries on pg. 404).	Eric Bloch, Peter House, James Duderstadt	Successfully, if temporarily, ended the panic over shortages and led to questions about deliberate supersaturation of the science and engineering labor markets.

1995	Reshaping the Graduate Education of Scientists and Engineers	Phillip Griffiths, Chairman	COSEPUP, NAS		Daniel Greenberg, David Goodstein, Eric Weinstein as well as a later NAS/NRC report on "Trends in the Early Careers of Life Scientists"	
1995	The production and utilization of science and engineering doctorates in the United States	William F. Massy and Charles A. Goldman	Stanford and Rand Corp.		Charlotte Kuh	
1997	Help Wanted	Harris Miller, Stuart Anderson	ITAA		General Accounting Office, Norman Matloff, Robert Lerman	
1998	America's New Deficit: The Shortage of Information Technology Workers		Department of Commerce		General Accounting Office, Norman Matloff, Robert Lerman	
1998	Critique of: America's New Deficit: The Shortage of Information Technology Workers		General Accounting Office		Harris Miller	Temporarily Frustrated passage of Bill seeking to expand the number of h1-b guestworker visas.
1998	Debunking the Myth of a Desperate Software Labor Shortage	Norman Matloff, Professor	Department of Computer Science, University of California at Davis	Raised questions about the existence of the shortage of IT professionals.	T.J. Rogers, Harris Miller, Stuart Anderson, Spencer Abraham	Temporarily Frustrated passage of Bill seeking to expand the number of h1-b guestworker visas.