

What I am not going to talk about

“Science and Inequality”

Barry Bozeman

Paul Hirsch



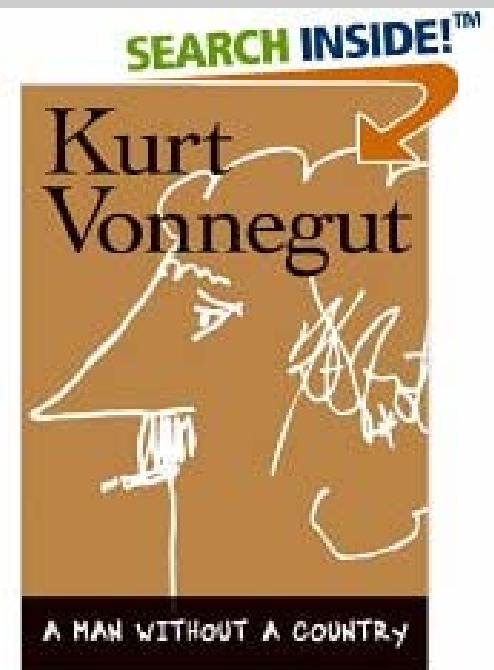
Instead:

“Science and Inequality Re-Examined:
Some Problems that Still Give me a
Headache After Four Years of Working
on this Topic (Or ‘What’s So Bad About
Inequality Anyway?’)”

By

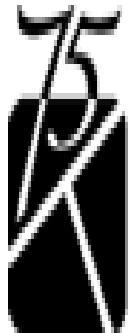
Barry Bozeman (but not so much Paul
Hirsch)

THE YEAR WAS 2081, and everybody was finally equal. They weren't only equal before God and the law. They were equal every which way. Nobody was smarter than anybody else. Nobody was better looking than anybody else. Nobody was stronger or quicker than anybody else. All this equality was due to the 211th, 212th, and 213th Amendments to the Constitution, and to the unceasing vigilance of agents of the United States Handicapper General. ***--Kurt Vonnegut, Jr., Harrison Bergeron, 1961, p. 1.***





Social Equity and Distributional Impacts of Science and Technology



W.K. KELLOGG FOUNDATION
FROM VISION TO INNOVATIVE IMPACT

http://www.rvm.gatech.edu/research_kellogg.htm



Statement of Purpose

The purpose of the research is to develop useful knowledge about the factors affecting the distributional impacts of S&T. The focus is on factors internal to science and technology knowledge production processes rather than the social factors that mitigate distributional impacts

(e.g., income inequities; lack of universal health care).



Categories of Activities

- Conference: “Science and Inequality”

[http://www.cspo.org/outreach/events/inequityworkshopmainpage.
htm](http://www.cspo.org/outreach/events/inequityworkshopmainpage.htm)

- Conceptual/Theory papers
- Case studies
- Survey research on science and values
- Experiment on laypersons’ participation in science

Conceptual/Theoretical Approaches

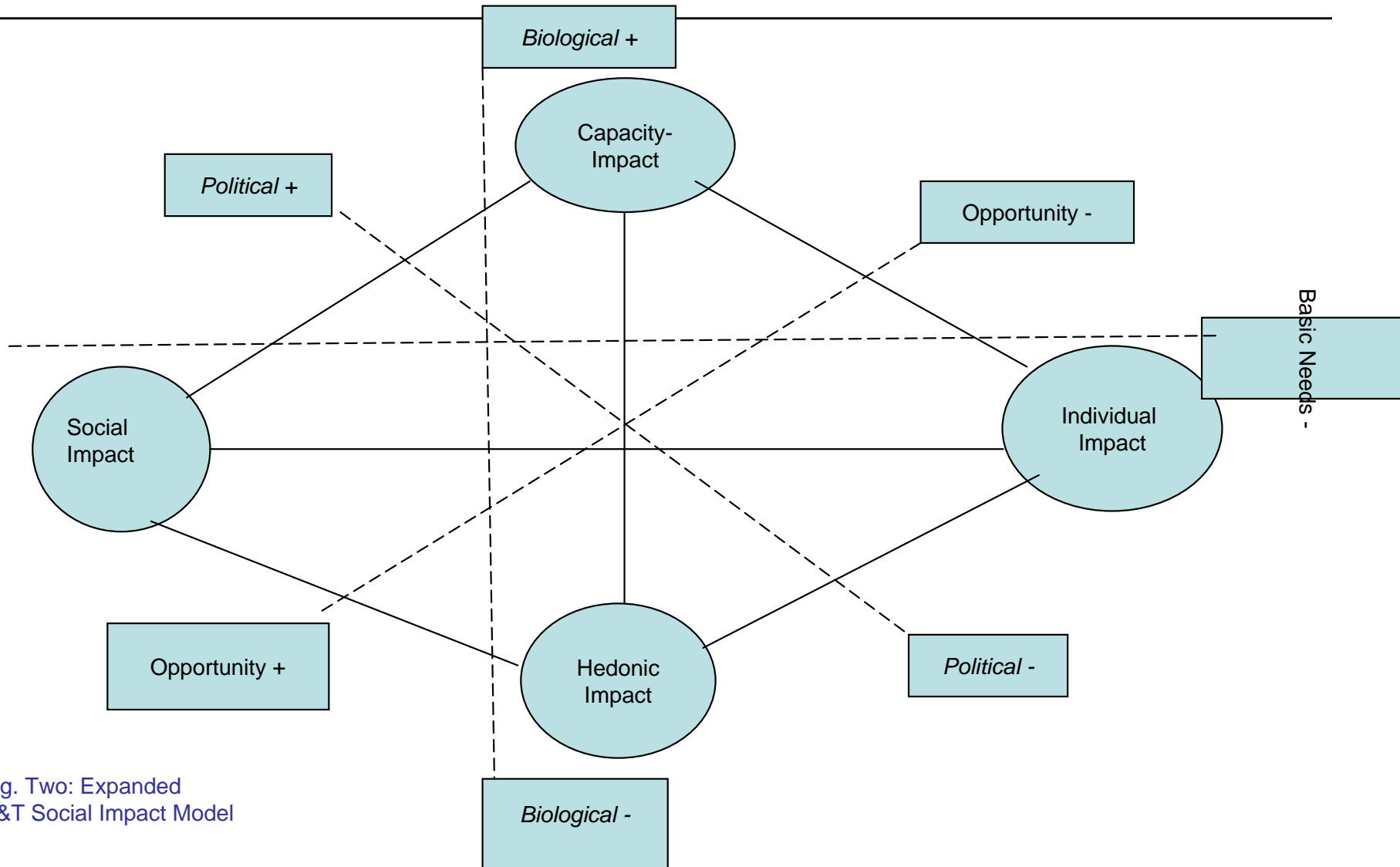


Fig. Two: Expanded
S&T Social Impact Model

Case Studies

- Feeney, Mary Kathleen and Barry Bozeman, 2006. Public Values and Public Failure: Implications of the 2004-2005 Flu Vaccine Case. *Public Integrity*.
- Mary Feeney and Olga Sosinksa, “The Yellowstone Diversa Case”
- Barry Bozeman and Paul Hirsch, “Science Ethics as a Bureaucratic Problems: IRBs and Institutionalized Science,” *Policy Sciences*, 2006.

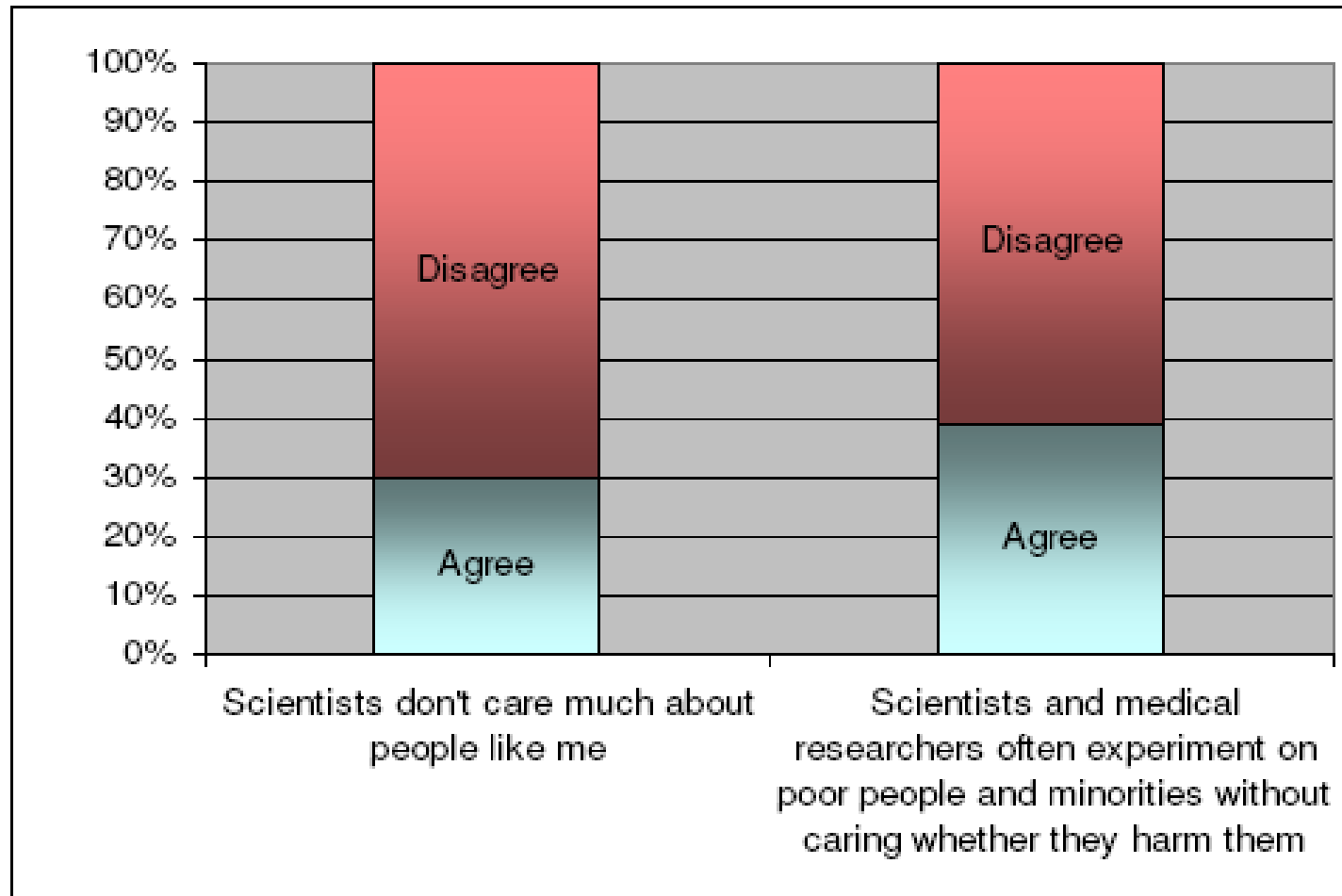
Authors: Mary Feeney and Olga Sosinska

Application of the Public Value Failure Model to the Yellowstone-Diversa Case

Yellowstone-Diversa CRADA	
Inadequate articulation and aggregation of public values	<ul style="list-style-type: none"> - Meetings to discuss benefit-sharing were closed to the public and not announced in the Federal Register - Failure to carry out NEPA mandates: <ul style="list-style-type: none"> (1) No participation with the Federal Advisory Committee (2) No environmental assessment - Inability to determine whether public interest is <ul style="list-style-type: none"> (1) Park conservation and preservation or (2) Research and development of park resources.
Imperfect monopoly	<ul style="list-style-type: none"> - A single private company is given exclusive access to public resources - The NPS granted property rights for a living organism, opening the door to the commodification and monopolization of natural resources.
Over-reliance on substitutability of resources	<p>The CRADA substitutes:</p> <ul style="list-style-type: none"> (1) Yellowstone as a federal laboratory and (2) Natural resources as research infrastructure, facilities, and equipment
Benefit hoarding	<ul style="list-style-type: none"> - Exclusive access to the Park enables Diversa to hoard the research benefits of the microbes and potential applications and commercialization of knowledge acquired through the CRADA - The gene bank which Diversa will establish excludes industry researchers, general public, and academic researchers in universities and federal laboratories
Short time horizon	<ul style="list-style-type: none"> - The CRADA fails to prepare for the long term application of research, ownership, and commercialization of natural resources within public parks. - The passage of the NPOMA (1998) and the NPS Director's Order 12 and Handbook (2001) after the lawsuit was brought against the NPS, reflect the need to address these issues.
Scarcity of providers	<p>There is a limited number of providers for</p> <ol style="list-style-type: none"> 1. National park land in the US 2. Microbes from thermal pools

Survey Research

Shows some optimism about science and research



But ambivalent: 90% have hope for sciences' impact on the Future, but 57% think scientific research benefits outweigh harmful results

Survey Item	Agree	Disagree
→ We depend too much on science and not enough on faith	57%	43%
Science and technology are making our lives healthier, easier and more comfortable	87%	13%
Thanks to science and technology, there will be greater opportunity for future generations	90%	10%
The benefits of scientific research outweigh any harmful results	43%	57%
Science makes our way of life change too fast	42%	58%
Scientific research has created as many problems for society as it has solutions	52%	48%
Scientific research these days doesn't pay enough attention to the moral values of society	64%	36%

The Experiment: Assess Differences between Professional And Laypersons Values and Ethical Decisions for Research



DECISION THEATER

ARIZONA STATE UNIVERSITY

The Experiment: Assess Differences between Professional And Laypersons Values and Ethical Decisions for Research

Experimental Design

	Stage I	Stage II		Stage III	Stage IV	Exit Interview
Task	Complete written survey	1. Read research proposal.	75 subjects →	1. Read research proposal. 2. Complete decision form	Complete written post-experiment survey	Personal interview
		2. Complete decision form.	75 subjects →	1. Watch research proposal video 2. Complete decision form		1 of 8 subjects complete exit interview
Instrument	Pre-experiment survey	A. Asthma proposal B. Light rail proposal C. West Nile proposal		-Written pesticide proposal -Script for pesticide video	Post-experiment survey	Exit interview protocol

Some Perplexing Issues about Science and Inequality

What's so bad about inequality?



Sometimes we don't care

- What if farmers benefit more from agricultural technology?
- What if young people benefit more from computer dating technology?
- What if persons of African descent benefit more from sickle cell treatment?



Sometimes it is less obvious

- ❑ Do we care that men benefit more from Viagra?
- ❑ Do we care that low income persons (in U.S.) have near parity with many consumer electronics and significant disparity with computers?
- ❑ What are the implications of research investments in treating type 2 diabetes? What about equality? What about for personal responsibility? What does it mean for people to have health problems because of a 6,000 calorie daily diet?

Consider Breast Cancer

- Is it a good thing that “Healthy People 2010” targets Black women in research agendas for breast cancer, given the following:
 - Most likely to have breast cancer?
 - White women
 - Most likely to die from lack of treatment?
 - Black women
 - Most likely to die if contract breast cancer and treat it?
 - Men



Consider Further

- Most minority/disadvantaged goals from previous plans have not been met
- NIH goals do not translate into vast changes in research trajectories
- Is Science Policy and Inequality the same or different from Science and Inequality?

Regarding allocation of Medical Resources:

- ❑ Poor people in the U.S. are disadvantaged
- ❑ Women in U.S. are in many respects disadvantaged (clinical trials)
- ❑ Children in U.S. are disadvantaged
- ❑ But these groups' relative disadvantage pale in comparison to most persons living in many developing countries



If we retreat from perfect equality...

- (1) Can we avoid direct valuation of human beings?
- (2) Do we privilege certain types of inequality (material, biological, political, opportunity, “basic needs”)?
- (3) Do we “punish” some to redress past inequities (i.e. die old white guy, die!)?
- (4) What role, if any, for individual responsibility?