**Policy Memorandum**

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Re: Strengthening Pub.L. 97-219 The Small Business Innovation Act of 1982

**Introduction**

This memorandum details a strategy for successfully effectuating changes to the policy design of United States Public Law 97-219 The Small Business Innovation Act of 1982 (Pub.L. 97-219). In developing the strategy outlined below, I used the Advocacy Coalition Framework (ACF), multiple streams and policy windows model, and the Narrative Policy Framework (NPF) to guide the analysis.

This policy falls within the domain of technology transfer policy, which focuses on promoting the transfer of technologies derived from federally-funded research to the private sector to benefit the public interest. It is redistributive and regulatory in nature. Pub.L. 97-219 requires federal agencies with extramural research and development (R&D) budgets in excess of $100 million and $10 billion established a set-aside of a percentage specifically dedicated to making R&D awards to small businesses under the Small Business Innovation Research (SBIR) program. It must be reauthorized periodically.

The issue was and remains of particular importance for a number of reasons. Technology transfer in general has been a concern of presidential administrations since the end of the Second World War, when President Franklin Delano Roosevelt commissioned Vannevar Bush to prepare a report analyzing federal R&D policy and making policy recommendations. President Roosevelt recognized the important role that scientific advancement and technological innovation played in securing military success. Moreover, he wanted to identify ways to leverage the nation’s technological infrastructure to advance the public interest during peace time (Bush, 1945). As such, the interest in technology transfer is driven in large part by the link between national economic prosperity and technological innovation. Solow (1957) estimated that roughly 88 percent of the total increase in real Gross National Product (GNP) was attributable to technological progress.

Pub.L. 97-219 was also important in the context of efficient use of public funds given the economic strains of the times. In 1982, when the law was enacted total U.S. R&D expenditures were $87.1 billion (American Association for the Advancement of Science [AAAS], 2018). This was more than U.S. expenditures in 1980 for law courts ($1.8 billion), transportation ($20.6 billion), food and nutrition assistance ($15.6 billion), and community development ($8.3 billion) combined and represented an amount equal to 68 percent of the federal deficit ($128 billion) at the time (U.S. Spending, n.d.). It was also more than the gross domestic product (GDP) of at least 21 countries at the time (World Development Indicators, n.d.).

The issue of technology transfer and the participation of small businesses in federal R&D remains an important topic of interest to political leaders to this day. Many political leaders and interest groups remain dissatisfied with the amount and rate of transfer of technologies derived from federally-funded R&D to the private sector to benefit the public interest. Specifically, they argue that technology transfer is slow and requires too much effort and resources (i.e., efficiency issues). It remains the case that only a very small percentage of technologies derived from federally-funded R&D are transferred to the private sector to benefit the public interest (i.e., effectiveness issues). Moreover, the share of federal R&D funding awarded to small businesses remains low. Improving technology transfer outcomes has been a stated priority for the presidential administrations of Donald J. Trump, Barrack H. Obama Administration, and George W. Bush (Office of Management and Budget [OMB], 2002; Daily Comp. Pres. Doc., 2011, October 28; OMB, 2018).

**Legislative History**

Pub.L. 97-219 was framed as a way to help address two key problems the United States was facing at the time. In the early 1980s, the United States economy was in recession (CBO, 1982). Many political leaders argued that the nation’s global competitiveness was eroding. They believed that technological innovation was the remedy for both problems. Academic research suggested that independent innovators and small businesses were responsible for a disproportionate share of “significant” innovations but received no more than 4 percent of all federal funding for research and development. Many political leaders were dissatisfied with the participation rate of small businesses in federal R&D and identified it as a significant contributing factor in the trends of economic recession and eroding global competitiveness. They argued that small businesses were an under-utilized resource that could generate the technological innovation needed to reverse economic trends and restore the global competitiveness of the United States. The legislation action that resulted in Pub.L. 97-219 was first introduced in the Senate and then taken up by the House of Representatives:

* S.881 - Small Business Innovation Development Act of 1981 - 97th Congress (1981-1982)
* H.R.4326 - Small Business Innovation Development Act of 1982 - 97th Congress (1981-1982)

The policy had four stated objectives:

* To stimulate technological innovation;
* To use small business to meet Federal research and development needs;
* To foster and encourage participation by minority and disadvantaged persons in technological innovation; and
* To increase private sector commercialization of innovations derived from Federal research and development.

This analysis highlights key policy provisions primarily related to the first two stated objectives. Most of the debate seemed to focus on the role of small business in technological innovation and how the country could benefit.

The original policy design established a gradually increasing set-aside that would reach 1.25% of extramural R&D budgets in excess of $100 million. This set-aside was dedicated for making R&D awards to small businesses. The schedule for increasing the set-aside was as follows:

* 0.2% in fiscal year 1983
* 0.6% in fiscal year 1984
* 1.0% in fiscal year 1985
* 1.25% thereafter

The legislation also established a gradually increasing set-aside that would reach 1.25% of extramural R&D budgets in excess of $10 billion for R&D awards to small businesses. The schedule for increasing the set-aside in this provision of the legislation was as follows:

* 0.1% in fiscal year 1983
* 0.3% in fiscal year 1984
* 0.5% in fiscal year 1985
* 1.0% in fiscal year 1986
* 1.25% thereafter

The original policy design was also structured so that the legislation would have to be reauthorized after a period of 10 years.

Currently, the policy seems to be firmly established. It has been in place for nearly 40 years. There have been no significant modifications to the basic design of the policy since its original enactment. The legislation has been amended to increase the set-aside to its current level of 3.2% of extramural research and development budgets in excess of $100 million and set maximum award amounts. The policy has been reauthorized four times under the following legislations:

* Public Law 102-564 - Small Business Research and Development Enhancement Act of 1992 - 102nd Congress
* Public Law 106-554 - Small Business Innovation Research Program Reauthorization Act of 2000 - 106th Congress
* Public Law 112-81 - 2012 National Defense Reauthorization Act - 112th Congress (2011-2012)
* Public Law 114-328 - 2017 National Defense Authorization Act - 114th Congress (2015-2016)

There have also been the following unsuccessful attempts to modify the policy:

* H.R.448 - SBIR Enhancement Act of 2011 - 112th Congress (2011-2012)
  + Increase minimum set-aside for SBIR from 2.5% to 5% of extramural research and development budgets in excess of $100 million
  + Increase minimum set-aside from 0.3% to 0.6% of extramural research and development budgets in excess of $1 billion.
  + Increases maximum award amounts from $100,000 to $200,000 for Phase 1 grants and from $750,000 to $1.5 million for Phase 2 grants.
* H.R.2772 - SBIR and STTR Enhancement Act - 111th Congress (2009-2010)
  + Increase award levels.
  + Provide authority for agencies to award sequential Phase 2 grants.
  + Provide authority for agencies to award Phase 2 grants to applicants that have not been awarded Phase 1 grants.
  + Require agencies to issue solicitations at least twice per year.
  + Establish reporting requirements.
* H.R.4213 - Amend the SBIR program to increase award amounts - 110th Congress (2007-2008)
  + Allow agencies to increase award amounts.
  + Require agencies to adjust award amounts every five years to reflect economic adjustments and programmatic considerations.
* H.R.4684 - Amend the SBIR program to increase award amounts - 109th Congress (2005-2006)
  + Allow agencies to increase award amounts.
  + Require agencies to adjust award amounts every five years to reflect economic adjustments and programmatic considerations.

**Policy Problem**

While Pub.L. 97-219 has been public policy for nearly 40 years and is generally considered a successfully program by various stakeholders and policymakers, there are still several problems with it. I propose that efforts to effect changes to the policy should define the problem in terms of equity for small businesses. The data and facts of the situation lend themselves to such a definition. A problem definition focused on equity for small businesses is also very much aligned with the stated objectives of the policy. Moreover, small business is a favored group that is typically perceived positively by the general public, which tends to believe that small businesses often get the short end of the stick when it comes to public policy. This perception was reinforced by the events of the Great Recession of 2008, which occurred recently enough that it probably remains sufficiently relevant in the public psyche.

Progress in achieving the goal of increasing small business participation in federally-funded R&D has been stymied. During the House hearings about the policy in 1981, Senator Warren Rudman stated that from 1977 to 1980 small businesses received only an estimated 3 to 4 percent of federal funding for research performed by industry (Statement of Sen. Warren Rudman, 1981). As it turned out, this overestimated the actual percent participation by at least an order of magnitude. As shown in Figure 1, from 1983, the first year the policy was effective, through 1997, the percent of federal funds for R&D awarded to small businesses increased from 0.2 percent to about 3.5 percent. However, since 1997 the percent has risen for a while only to trend downward back towards the minimum set-aside level.

It seems that the minimum set-aside acts as an anchor holding down small business participation in federally-funded research and development. In the absence of any guidance, it seems that the federal agencies are using the minimum set-aside as a guide to determine the appropriate amount of their extramural R&D budgets to direct to small businesses. The situation is akin to asking someone to balance the weight of a quantity of two different types of materials (e.g., silver and gold) but the balance pointer is obscured and the only direction provided is that one side has to be a minimum amount.

As a result of this situation, the development of valuable innovations by small businesses is still being systematically impeded. The percentage of federal funds for R&D received by small businesses is essentially no different than the original estimate stated by Sen. Rudman nearly 40 years ago. Consequently, the United States is only realizing about 45 percent of the innovative potential of small businesses as shown in Figure 2.

Almost 40 years after the implementation of Pub.L. 97-219, small businesses still are not receiving their fair share of federal funds for R&D performed by industry. As Figure 3 shows, an analysis of the number of proposals submitted to the National Science Foundation (NSF) and the National Institutes of Health (NIH) by industry performers estimates the fair share for small businesses is around 10 to 12 percent. This suggests that small business participation in federally-funded R&D is 6 to 8 percentage points below what it could and should be. Each percentage point of the funding gap amounts to roughly $732 million in additional funding that should be going to small businesses, which is an amount equal to roughly two (2) Boeing &&&F airliners. The total gap between the current amount of funding that should be going to small businesses and the actual amount is about $4.4 and $5.8 billion, which is more than the gross domestic product (GDP) of several countries including South Sudan, Sierra Leone, Montenegro, Barbados, Liberia, and the British Virgin Islands (United Nations, 2017).

**Issue Importance**

I believe that efforts to effectuate policy changes to correct these problems that frame the issue in terms of the social welfare and security of the United States will have a reasonably high chance of success. Proponents of the policy during its consideration in 1981 were successful in originally framing the debate in terms of social welfare and national security. The economic recession and indicators of weakening global dominance created the circumstances for making such framing very effective. The current environment is still very conducive to such framing but for different reasons.

**Managing the Politics**

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**Stakeholders**

There were several key stakeholders that were focused on the issue at the time the original policy was being debated. Proponents of the legislation seemed to far outnumber opponents. By the time of the first hearing on S.881 by the Senate Subcommittee on Innovation and Technology, the bill had more than 50 co-sponsors. Upon final passage by voice vote, the Senate bill had 84 co-sponsors. Proponents of the legislation included Roland Tibbetts, the senior program officer at the National Science Foundation (NSF) who championed the NSF initial pilot SBIR program; several influential U.S. Senators including Senator Paul Tsongas (D-MA) and Senator Edward “Ted” M. Kennedy (D-MA); leaders of small business advocacy groups; leaders of economic and community development organizations, and senior executives of several large businesses.

The legislation was not without opposition. Opponents included senior leaders, tenured and tenure-track faculty, and research faculty at research universities; senior leaders and researchers at research laboratories that compete for federal funding; senior executives at research hospitals and medical colleges; and the leadership of the Association of American Medical Colleges.

**The Framing Arguments of Key Stakeholders**

Stakeholders in the debate about Pub.L. 97-219 used various approaches to frame their arguments. Proponents linked the policy to urgent issues the nation was facing at the time, namely the economic stagnation that began in the late 1970s. In doing so, they made the issue thematic rather than episodic and leveraged the “Mob at the Gates” morality tale essentially arguing that America’s enemies would use that nation’s weakened economic position and flagging technological advantages to threaten the American way of life. Proponents argued that the system led contract administrators to distribute R&D funding in a way that was efficient but discriminated against small businesses. In addition to alluding to the “Rot at the Top” morality tale, this argument was also a prelude to the concept of administrative evil described by future policy researchers. According to proponents of Pub.L. 97-219, technological innovation was the solution to America’s economic troubles and would restore its global dominance. However, since most significant technological innovations were developed by independent innovators and small businesses, the only way to leverage technological innovation to solve the nation’s problems was to remove the barriers that impeded their participation in federal research and development.

Opponents of the legislation primarily framed their arguments around their fundamental opposition to using set-asides as a method for distributing federal R&D funding. They argued that the policy fundamentally violated the principle of equal treatment for all, which is suggestive of the “Benevolent Community” morality tale. According to opponents of the policy, it changed the selection criteria for distributing R&D funding from research excellence to membership in a privileged class, which would result in the funding of sub-par research and development. They also argued the policy unfairly reduced funding opportunities for other worthy individuals in the R&D community and would reduce basic research, which is the foundation of future technological innovation.

Proponents of Pub.L. 97-219 appeared to take advantage of source amnesia regarding the roles that the basic business cycle and monetary policy play in economic growth and inflation. Opponents did not take advantage of context to frame their arguments.

The facts relevant to the issue fit the argument framing used by proponents of the policy very well. Research demonstrating that independent innovators and small businesses produced most of the “significant” technological innovations that drove America’s rise to power in the late 19th and early 20th century coupled with analyses indicating that small businesses consistently received less than 4 percent of federal R&D funding provided credibility to the arguments that proponents were advancing in support of the legislation. However, they never placed these numbers in a social context to provide additional meaning to those stakeholders whom they hoped to influence. Opponents of the policy did not assemble any compelling statistics to support their arguments.

Proponents of the Pub.L. 97-19 made effective use of messengers in advocating for the policy. Key messengers included prominent U.S. Senators who seemed to be viewed as being above the fray and primarily concerned with the well-being of the nation rather than any particular interest group. Additionally, leaders of large businesses who would not directly benefit from the policy were also effective messengers of the arguments in support of the legislation. Opponents did not assemble any messengers who could effectively deliver their arguments against the legislation without coming across as self-serving.

The legislation exemplified the branch approach to policymaking. It was initially piloted in the NSF before being expanded to all federal agencies with extramural R&D budgets. Moreover, the policy did not radically change the process and mechanisms for distributing the majority of R&D funding. Additionally, the set-aside itself was a very small percentage of agency R&D budgets.

**Conclusions**

This memorandum has provided an analysis of issue framing in the policy debate about   
Pub.L. 97-219 The Small Business Innovation Act of 1982. The analysis included details about the problem the policy was intended to address, the importance of the problem, legislative history of the policy, the various stakeholders who were focused on the issues being addressed, and the framing arguments used by the various stakeholders to advance their positions. Proponents of the policy were able to more effectively assemble the elements of policy framing than opponents. However, opponents of the legislation may have still come out ahead despite losing the policy debate. The set-aside that the policy enacted seems to have become a *de facto* cap on federal R&D spending with small businesses even though the language clearly states it is a minimum percentage. Moreover, even at the current level of 3.2 percent the set-aside is still below the 4 percent that proponents of the policy quoted as the rate of small business participation during the initial debates and upon which the policy was supposed to improve.

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