



Implementation of BTOP funding for public computing centers: Goal consensus and project performance



Eun-A Park ^{a,*}, Krishna Jayakar ^b

^a University of New Haven, United States

^b Penn State University, United States

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ABSTRACT

This paper seeks to perform an assessment of the current state of implementation of BTOP-funded public computing center projects based on insights from principal–agent theory. Using newly available data on BTOP-funded PCC projects and correlating them with socioeconomic and geographic data derived from the US census and the FCC, we seek to assess whether program funds were targeted at unserved/underserved areas as required by program objectives, as well as the progress towards completion of PCC projects by type of grantee and funding amount. On the distribution of funds, we find that the PCCs supported were located in areas of high broadband availability as well as high demand: while this is contrary to the BTOP's stated purpose, we argue that it is actually more cost-effective to also target areas of high demand. It was also found that whereas a majority of PCC grants went to governmental agencies, who also received larger grants than non-governmental recipients, they were no more likely to generate a significantly higher percentage of matching funds or to move toward project completion sooner. We speculate that the intense competition for grants might have narrowed the performance gap between these categories of applicants.

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1. Introduction

The National Telecommunications and Information Administration (NTIA) in September 2010 completed the award of the Broadband Technology Opportunities Program (BTOP) grants, a multi-billion dollar stimulus program for broadband expansion (NTIA, 2010). Mandated by the American Recovery and Reinvestment Act (ARRA), the BTOP makes available “grants for deploying broadband infrastructure in unserved and underserved areas in the United States, enhancing broadband capabilities at public computer centers, and promoting sustainable broadband adoption projects” (quoted in FCC, 2010, p. 139). Specifically, the BTOP's goals are “to extend broadband access to unserved areas, improve access to underserved areas, and expand broadband access to a wide range of institutions and individuals, including vulnerable populations” (Department of Commerce, 2009, p. 33107). The BTOP funds projects under three categories: broadband infrastructures; public computing centers (PCCs); and sustainable broadband adoption. ARRA also mandates funding for telecommunications infrastructures through the Broadband Initiatives Program (BIP) that “extend[s] loans, grants and loan/grant combinations to facilitate broadband deployment in rural areas” (quoted in FCC, 2010, p. 139).

Funding for PCCs constitutes only a small portion of overall BTOP funding: of the \$3.94 billion awarded under the program, only \$201 million went to PCCs (NTIA, 2010). However, the initiative

is significant in a few respects. First, compared to funding under the other two categories, PCC grants were typically smaller in size and were made to a larger number of entities.¹ Second, these grants were made to a wide variety of local agencies including library consortia, state and county governments, state agencies, non-profits and municipalities. Both these factors increase the complexity of the management and monitoring process. Third, funding local community and middle mile institutions itself is a relatively new development in U.S. universal service policy, which has typically channeled assistance either to service providers or to consumers.² Finally, PCC funding has made available services such as digital literacy training and job search assistance in many communities lacking access to quality broadband services (American Library Association [ALA], 2013). These factors make the PCC component worthy of further study.

¹ Of the \$3.94 billion (233 projects) funded by BTOP, \$3.48 billion (123 projects, average \$28.3 million) went to infrastructure projects, \$250.7 million (44 projects, average \$5.7 million) to sustainable broadband adoption, and \$201 million (66 projects, average \$3 million) to PCCs (NTIA, 2010).

² Some programs have previously funded PCCs, such as the Department of Commerce's Technology Opportunities Program (TOP) (originally the Telecommunications and Information Infrastructure Assistance Program, TIAP) (Williams, 2007) and the Department of Education's Community Technology Centers program. But both projects saw funding cuts in the early 2000s, and were terminated in 2004. The E-Rate program administered by the Universal Service Administration Company (USAC) provided \$2.25 billion annually to improve telecommunications and Internet access in schools, school districts and libraries (USAC, 2009). However, only a small fraction (3.7%) of this funding went to PCCs operated by libraries (USAC, 2009, p. 13); most funding went to schools and school districts which until recently could only provide internet access in-house for educational needs.

* Corresponding author.

E-mail addresses: epark@newhaven.edu (E.-A. Park), kpj1@psu.edu (K. Jayakar).

Due to the relative newness of the BTOP, few analyses of the program have appeared as yet in the policy literature (Government Accountability Office [GAO], 2010, 2011; Jayakar & Park, 2010). But due to the factors cited above, the BTOP's PCC initiative presents an interesting object for research attention. From a public policy perspective, program oversight and management present significant challenges. As the GAO (2011) argued, the NTIA faces special challenges due to the large number of award recipients, the sheer size of the program in terms of financing, and the resultant oversight issues. The diversity of the grant recipients in terms of organizational structure (standalone entities, consortia, public–private partnerships, state agencies), field of operations (municipal, state, multi-state), and organizational goals (for-profit agencies, non-profits, government departments) etc. raise interesting theoretical questions in terms of principal–agent dynamics and incentive structures. In this respect, the experience with the PCC component of the BTOP will provide insight into the design and implementation of any future competitive grant programs. Though the type of stimulus funding underlying the BTOP was a response to a generational economic crisis unlikely to be repeated soon, its lessons can be applied to any programs in which a federal or state agency (the principal) distributes funds to a variety of implementing entities (the agents) in order to achieve the principal's social or policy goals.

In this context, this paper seeks to perform an assessment of the state of implementation of BTOP-funded public computing center projects. Recipients of PCC grants are mandated to periodically report to the NTIA about the number of new and improved PCCs, the number of new and upgraded workstations available to the public, hours of operation, average connection speed, primary uses of the PCCs, average users per day, and training provided with BTOP funds.³ By using these data from the recipients' NTIA reports, we will analyze both the patterns in distribution in terms of targeting unserved/underserved areas, and progress towards completion by type of recipient and funding amount.

To contextualize the BTOP, we first begin with a review of intergovernmental grant programs, including previous research on US telecommunications grants programs such as the Department of Commerce's Technology Opportunities Program (Williams, 2007) and the Rural Utilities Services' Broadband Grant and Loan programs (Kruger, 2007). Then, to provide a framework for the analysis of grantor–grantee relations in government grant programs, we review the theoretical literature on collaborative public management, network administration, principal–agent interactions and incentive compatibility. We then turn to an analysis of the newly available data from the BTOP's PCC grants, first presenting summary statistics and then more in-depth analysis on the patterns of distribution and progress towards completion. We finally present our conclusions and policy recommendations.

2. An outline of federal grant programs

Grants defined as “a form of federal assistance consisting of payments in cash or in kind for a specified purpose” (Government Accountability Office [GAO], 2012, p. 1) have historically been a major part of federal government expenditures, intended to promote national objectives in a variety of policy areas. Recipients of federal grants could be state or local governments (intergovernmental grants) or private parties such as non-profit organizations or businesses. Whereas intergovernmental grants are generally used to support ongoing governmental policy priorities in areas such as poverty alleviation, health care, infrastructure deployment, and education, the federal government has increasingly used grants to private firms “to promote projects with high returns to society but too little private returns to be

beneficial for private investors” (Kleer, 2010, p. 1361), such as green energy or nanotechnology.

Depending on the terms of the grant, specifically the degree of spending flexibility afforded the grantee, intergovernmental grants have been classified as categorical grants, where funds have to be used for a narrowly defined purpose, block grants made available for broader categories of uses, and general purpose grants that generally allow wide discretion in spending (GAO, 2012). Grants also differ in terms of the mechanism used to choose recipients and allocate funds: formula grants distribute funds based on a formula prescribed by law or administrative ruling, while project grants are awarded through open competition to applicants who meet certain eligibility criteria (GAO, 2012).

In financial year 2012, the U.S. federal government allocated a total of \$535 billion (17% of total federal spending) under various grant programs to more than 57,000 total recipients, including state and local governments, school districts, non-profit organizations and businesses, as reported by the website *USAspending.gov*. The federal Department of Health and Human Services accounted for the largest share of grant distributions (\$344 billion, 64% of total) for a variety of medical assistance, family welfare, and children's programs. Other major grant distributors included the departments of Transportation, Education, Agriculture, Housing and Urban Development, Labor, and Homeland Security, the Agency for International Development, the National Science Foundation and the Environmental Protection Agency.

Since grants account for a significant share of total federal spending, they have come in for a fair amount of scrutiny in terms of their efficiency and effectiveness in achieving policy goals. The Government Accountability Office [GAO] (2012) in a recent report identified the most significant problems with intergovernmental grants as follows: the lack of accurate data and appropriate performance measures; proliferation of federal grant programs targeting different issue areas and the lack of coordination between them; lack of collaboration between grant recipients impeding knowledge sharing; weak internal controls at grant-making agencies and lack of resources to oversee grant recipients; and poor institutional capacity due to lack of managerial, financial and human resources at agencies and grant recipients.

Academic researchers too have investigated different aspects of the federal grant-making process and made recommendations for its improvement (Doan & McFarlane, 2012; Hall & Handley, 2011; Hall & Jennings, 2011; Kleer, 2010). Hall and Jennings (2011) reviewed accountability and transparency measures in federal grants in the ARRA, and concluded that it did not bring about dramatic changes in accountability measures, because the Act's proposals essentially repackaged existing control mechanisms. Kleer (2010) studied the potential market distorting effects of government research grants to private firms, and found that a government subsidy when accompanied by a quality signal (if the grant is seen as an acknowledgment from experts of the benefits of the project) can enable private funding agencies to make better investment decisions. In their study of federal grants for abstinence-only sex education, Doan and McFarlane (2012) point to the importance of goal congruence between grant maker and recipient: where agreement on goals does not exist, some eligible recipients may refuse to accept grants, or delay or disrupt implementation. Hall and Handley (2011) identified “goal congruence” as a significant predictor of grant recipients' compliance and satisfaction with performance monitoring guidelines.

Though the BTOP/BIP (and the ARRA stimulus funding of which they were a part), were responses to an unprecedented financial crisis and such funding in support of broadband is unlikely to continue, this analysis of BTOP funding belongs in the field of literature discussed above. The present analysis is therefore likely to have implications for federal grant programs even beyond the lifetime of the BTOP program. In turn, previous analyses of the efficiency

³ Quarterly and annual reports from all PCC grant recipients are available at the NTIA's *Broadband USA: Connecting America's Communities* website at <http://www2.ntia.doc.gov/computercenters>

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