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# Improving the Bureaucracy: What Leads Government Officials to Use Evidence-Based Reports?

Nicholas Moffitt

## Introduction to General Problem Area

“Suppose you were an idiot. [Now] suppose you were a member of Congress, but I repeat myself” (Twain 1907). Although many people think negatively of politicians and governments in general, both the public and private sector are taking actions to improve the quality of programs produced by governments and, hopefully, improve people’s lives and their perceptions of the government. To improve the quality of government programs, scholars have produced many assessments that precisely measure the impacts of public policies, but government officials typically do not use these evidence-based reports (EBRs) in designing policy (Head 2016). More rigorous policy evaluation started in the 1970s, but these policy evaluations only truly gained momentum in the 1990s (Head 2016, p. 472).

Much of the impetus of the EBR movement stemmed from economists pushing randomized control trials (RCTs) in public policy (Head 2016, p. 474). In government-sponsored RCTs, various subsections of a population, which ideally reflect each other and the entire population, each take part in unique public policies. After these RCTs run for a sufficient time, data scientists analyze the results of the experiment and compare the two groups. If the experimental groups share equal traits, the researchers can then infer that the interventions in the public policies caused the different results (Banerjee and Duflo 2009, p. 152). RCTs, therefore, more precisely measure policy outcomes than simple observational data on the program, because they control for other influencing factors through the experimental design. In the mid-1990s, when economists were beginning to lay much of the groundwork for experiments on public policies, they found that governments and developmentally oriented NGOs were spending thousands of dollars on programs that resulted in little real improvement.

For example, after running initial RCTs on educational programs in Africa, prominent economists found that policies geared at increasing years of education ranged in cost effectiveness from \$3.25 to \$6,000 per year of increased education (Banerjee and Duflo 2009, p. 153).

The results of these studies clearly showed that many governments were not effectively using their resources or measuring the results of their policies; they needed to apply serious analysis to their programs to evaluate which ones produced the best results for the least time and money invested. In turn, by using RCTs and then reporting those results in EBRs, government officials can better evaluate which policies produce the best results, and they can pinpoint the cost for each outcome produced. Unfortunately, despite the rising prevalence of EBRs in the 1990s, their use increased almost exclusively in the private sector and only slowly started influencing policies in the public sector. Clear examples of this varied implementation of EBRs comes from the health industry, where medical professionals started heavily using RCTs and EBRs in the 1990s, yet public policy regarding health hardly took notice of them (Black 2001). Other sources that birth public policies include ideology, partisan lines, and corruption. Because implementation of EBRs by government officials runs scarce in the developing world, this project will identify which characteristics of government officials and which types of hiring and monitoring processes of bureaucrats lead officials to have the most proficiency in, interest in, and intent in using EBRs. Because people elect members of parliament and other legislators rather than hire them, the term “officials” refers to bureaucratic employees hired through a merit-based application process.

The efficacy of any government relies heavily on the abilities of unelected officials, yet citizens often have no direct say in which unelected officials are hired. While well-educated, thoroughly trained, and closely evaluated officials perform the best work, many governments suffer from poorly prepared officials (Rajkumar and Swaroop 2008). Government officials often appeal to ideology, emotion, intuition, and unique personal experiences when making policy decisions (Banks 2010). However, governments should instead improve their effectiveness by precisely measuring the results of specific policies using evidence-based reports. Methods of using such EBRs have shown to increase program effectiveness in various fields including medicine, education, agriculture, technology, and others (Slavin 2008).

Unfortunately, a huge gap still exists between the academic world, with its evidence-based reports, and government policymaking. In fact, in a recent global survey of more than 3,000 scholars, 90 percent of them said, “There should be a larger number of links between academic and policy communities,” and 76 percent of them said the gap between academia and policymaking has not improved in the last twenty to thirty years (Maliniak et al. 2012, pp. 67–69). Similarly, heads of governmental agencies in the past, such as Secretary of Defense Robert Gates, have said that governments should more frequently use the “untapped resources outside of government—resources

like those our universities can offer” (Gates 2008). In fact, a 2014 survey of policymakers showed that only 4.7 percent of government officials thought academics should not be involved in the policymaking process (Avey and Desch 2014).

## Implications

If the usage of evidence-based reports increases in the public policymaking process, then the effectiveness of public policies will also increase (Banks 2009). Higher usage of EBRs in policymaking will improve policy results for several reasons. First, governments can easily identify which projects are and are not producing the outcomes they hoped for when they initiated the policies. Next, governments can empirically measure the exact impact of each policy and thus create a precise cost-benefit analysis of each program enacted. Finally, governments can perpetuate the cycle of successful policymaking by hiring officials who express more interest in EBRs and use them more frequently. If governments can pinpoint the officials most likely to use evidence-based reports, then they can focus their efforts on including those officials in policymaking. By hiring more officials who frequently use EBRs, governments can enact the most statistically successful and result-oriented public policy options (Avey and Desch 2014).

By measuring officials’ knowledge and abilities, governments can identify which characteristics correspond with officials possessing sufficient knowledge and willingness to implement successful, result-driven policies. However, little research has been published on the topic of which characteristics cause individual officials to use EBRs more often. Therefore, by using survey data from three hundred government officials in developing countries on three continents, this investigation offers a unique insight into the effects that specific characteristics of officials have on an individual’s interest in and reported use of EBRs, such as years of education, university major, gender, age, and income. With the knowledge about which officials are most likely to use EBRs, governments can further train those officials on such reports and put them in policymaking positions, thus increasing the number of policies based on reliable program evaluations.

Aside from personal characteristics, the survey also explores the effects of more structural procedures imposed by the government itself. The first structural procedure included in the analysis deals with the hiring/screening processes. To quantify the effects of governmental screening processes, the survey asked respondents if they completed a civil service exam to get their current job, a common method many governments use to evaluate the competency of candidates before hiring them. The second structural measure assessed in the survey involved the monitoring process, or the degree to which management promoted the use of EBRs. Two other important structural characteristics that could influence officials’ use of or interest in EBRs include years worked in the government and workplace autonomy.

Overall, I found that female gender, higher income, post-graduate education, greater workplace autonomy, receiving a technical science degree, and completing a civil service exam lead to increased reported use of or interest in EBRs. Additionally, I

found that more years worked in the government and holding traditional family and religious values lead to decreased reported use of or interest in EBRs. Age had a quadratic relationship with reported use of EBRs: the youngest and oldest people reported using more EBRs the most, while middle-aged people reported using them the least. Management emphasis on EBRs appeared to increase employee interest, yet it did nothing to increase their use.

## **Theoretical Framework**

### *Structural Characteristics and Procedures*

#### CIVIL SERVICE EXAM

Both screening and monitoring methods exist to better control agents' or acting government officials' behavior and align their final policy outcomes with the outcomes desired by the principals (the people to whom the agents are accountable). Screening methods involve pre-hiring interviews, evaluations, and selection processes designed to ensure hiring the most qualified applicants. On the other hand, monitoring mechanisms focus on repeated evaluation, auditing, or supervision of agents after the hiring process to ensure they keep performing efficiently and are complying with what the principals desire. Kauppi and Raaj examine the effectiveness between the two mechanisms of controlling agent behavior and find that the pre-hiring controls of training and screening much more effectively reduced noncompliance in agents than the post-hiring mechanism of monitoring (2014). If civil service exams successfully screen employees and determine the most competent individuals for policymaking positions, and if all the most competent candidates understand how EBRs can improve policy outcomes, then I would expect to find that government employees who took civil service exams before being hired report higher interest in and use of EBRs.

#### MANAGEMENT EMPHASIS ON EVIDENCE-BASED REPORTS

Improper delegation to agents who lack proper knowledge in public policymaking leads to poor policy outcomes (Lupia 2000), but principals can and should attempt to prevent unknowledgeable agents from entering the policymaking arena through controls, such as screening before hiring them (Ibid. 2003). On the other hand, the post-hiring control of monitoring government workers' performance also provides a valuable tool for aligning the interests of the principals and the agents. In their study regarding public sector monitoring techniques, Sanders, Wright, and Horn show that teacher scores on performance assessments in Tennessee significantly predict student performance (1997). Just as teacher performance assessments can reliably predict student performance, governmental statistical evaluations in the form of EBRs can reliably predict policy outcomes.

Although the studies in Tennessee provide valuable insights into screening and monitoring processes, they also reveal some limitations in those procedures. First, although screening and monitoring of teachers can lead to hiring more effective employees, governments need to evaluate the effectiveness of their screening and monitoring

methods to find which assessments effectively hire teachers who will produce the best outcomes (Buddin and Zamarro 2009). Second, if school directors understand the basics of EBRs, they can use them to find additional effective methods of improving student performance by finding better teacher screening policies or classroom instruction programs (Sanders et al. 1997), while ignoring ineffective and costly methods of improving student performance, such as reducing classroom size (Hoxby 2000). To achieve the best policy results, programs must stem from previously implemented and tested policies proven to promote success. As shown from panel data in Latin America from 1974 to 2003, simply increasing government spending and creating extra government programs will not increase the welfare of the people (Lizardo and Mollick 2013). Increasing the quantity of evidence-backed policies will.

Officials still do not use EBRs often enough: “Although most practitioners claim to support the use of evidence relevant to their roles, their use of the best available evidence is patchy” (Head 2016, p. 471). Head goes as far as suggesting mandating the use of evidence-based research by governments, asserting that “the key task is to institutionalize rigorous processes for appraisal and evaluation [of policies in the public arena]” (2016, p. 476). To test the institutionalization of, or at least the emphasis of, management on using academic studies in public policymaking, our survey included a question asking the respondent: “What sources do you think your superiors want you to use in decision-making?” The respondents then chose from seven options, including the use of EBRs, and ordered them from most important to least important. Interestingly, 38.64 percent of respondents said their bosses would have ranked EBRs as most important on the list of seven decision-making factors, and 69.32 percent of them said their bosses would have put EBRs in the top three. In the end, if public servants listen to and follow their superiors, then I would expect to find higher reported use of and interest in EBRs by those who have workplaces where management promotes EBRs.

#### AUTONOMY IN THE WORKPLACE

To successfully match the interests of principals with the outcomes produced by agents, Fukuyama suggests “low-income countries [should] reduce bureaucratic autonomy while high-income ones [should] seek to increase it” (2013, p. 347). Low-income countries should rely on highly systematic bureaucracies instead of those with high autonomy, because fewer people obtain higher education in poorer countries, so those few with more education can mandate more effective policy processes such as requiring the use of EBRs to lower-level bureaucrats (Ibid.). According to the World Bank, Peru classifies as an upper-middle-income economy, having a GDP per capita of \$6,046 US. India classifies as a lower-middle-income economy with a GDP per capita of \$1,709 US, and Tanzania classifies as a low-income economy with a GDP per capita of \$879 US (World Bank 2016). Therefore, based on Fukuyama’s theory, if people from all three countries in the survey earn relatively low levels of income countrywide, which they do in India and Tanzania, then governments could create more effective policies through less autonomy in public servants. If part of hav-

ing less autonomy includes mandating EBR use, which would be the case if higher-ranked officials know the importance of EBRs in successful policymaking, I would expect to find that employees with lower levels of autonomy would use EBRs more often and would report higher levels of proficiency with them.

#### *Personal Characteristics*

##### EDUCATION (DEGREE AND LEVEL OF SCHOOLING COMPLETED)

Overall, policymakers believe that academic reports specifically from the disciplines of history, area studies, and economics help them the most in their policymaking processes. However, as the level of the agent's education starts to increase, they believe these studies will help policymaking less, especially in the fields of economics and political science. Additionally, policymakers overall gauge "sophisticated social science methods such as formal models, operations research, theoretical analysis, and quantitative analysis to be 'not very useful' or 'not useful at all'" (Avey and Desch 2014). However, policymakers did report that they highly value quantitative analysis of public opinion. Therefore, one policy implication to improve principal-agent compatibility could incorporate the implementation of frequent public opinion polls on public policy issues. The media frequently report on public opinion, but it usually does so in informal ways, so government-sponsored opinion polls on especially salient issues could increase agent accountability.

##### GENDER

In the scientific research field, some studies have shown that female researchers publish two less articles per five years than male researchers, controlling for all else (Prpic 2002). Structural factors in the scientific research field, such as position within their organization or network size, also appear to interact with women's success in publication, decreasing their success in relation to their male counterparts. However, other studies show that women's general level of lower productivity in the research field comes from a trend in women to specialize less than men do, rather than from institutional norms (Leahey 2006). Additionally, less women working exacerbate possible institutional problems that inhibit women from entering the research and innovation field and majoring in science, technology, engineering, and math (STEM). Although women constitute almost half of the work force and more than half of college graduates today, men still hold more than 75 percent of all STEM-related jobs (Beede et al. 2011). Therefore, if experience in the STEM field leads to more interest in EBRs and women on average go into STEM degrees and careers less often, I would expect women overall to express less interest in EBRs than men.

Because women major in STEM fields much less often than men do and STEM degrees use empirical evidence more often than other degrees, women might be less likely to use and show interest in EBRs. On the other hand, women already in the STEM field may show more interest in EBRs than men in STEM. Indeed, women tend to trust others more and look out for the common good more than



men do (Dollar and Gatti 2001). Additionally, governments with higher percentages of women in lawmaking bodies house less corruption (Dollar and Gatti 2001). Because corruption acts as an alternative source for policies, if a woman is making a policy decision, she is less likely to use corruption as an alternative to EBR findings. Therefore, if EBRs help to highlight corrupt public policies by showing their ineffectiveness and if women are more trustworthy and engage in corruption less than men, then women will be more likely to report use of and interest in EBRs than men.

#### AGE AND INCOME

Income works as a powerful motivating tool as well as a reliable reward system for diligence in the workplace. In the first half of careers, studies show that wage increases accurately reflect productivity gains by employees (Cardoso et al. 2011). Although worker productivity tends to decline or slow down as age increases, pay increases also slow down at an even faster rate. Therefore, I expect to see a positive relationship between income and reported use of and interest in evidence-based reports if more experienced officials know more about EBRs and if more experienced officials also receive higher wages.

As people grow older, they increase their work productivity and develop greater capacities to effectively fulfill their duties at work. However, at a certain point in their careers, their productivity begins to level off or even decline (Ibid. 2011). Their productivity may decline as their learning capacities decrease with old age or they cannot finish tasks as quickly. Interestingly, despite job performance decreasing later in life regarding new skills and intensive problem solving, evidence shows that older employees still maintain high productivity working where they have had extensive experience (Skirbekk 2004). Because governmental use of EBRs involving thorough statistical analysis has only recently received much attention, and this new skillset requires somewhat in-depth training, I hypothesize to see a quadratic relation with age and reported use of EBRs as described in Cardoso's analysis (2011). As people gain experience at the beginning of their careers, their likelihood of using such reports will increase. If the oldest people did not receive training on EBRs earlier in their careers and have smaller desires and capacities to learn innovative methods of research, such as those required to understand EBRs, and the youngest officials have yet to develop those skills, then I would expect to see the most use of and interest in EBRs among middle-aged government officials.

#### TRADITIONAL FAMILY AND RELIGIOUS VALUES

People perform their jobs with more productivity when they meet their physical, emotional, and even spiritual needs. In some cases, companies around the world are attempting to create workplace cultures that more openly accept spirituality and promote spiritual discussions. Empirical evidence from studies of these companies shows that increased spirituality in the workplace correlates with increased happiness and increased performance (Garcia-Zamor and Jean-Claude 2003, pp. 361–62). However, I do not specu-



late that holding more traditional values equates to both increased happiness and performance nor that increased job performance necessarily means increased use of EBRs.

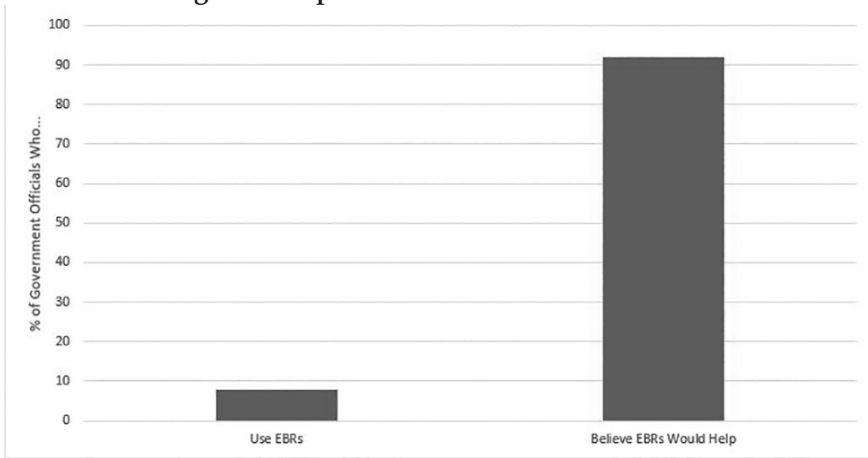
Indeed, other studies have also shown that an increase in economic development on a macro-scale connects to an overall decrease in religiosity and an increase in more reason-based values instead (Inglehart and Baker 2000, p. 19). Interestingly, on a more individual level, national survey data shows this reflection of a stronger adherence to reason-based values and scientific knowledge among the less religious; people with weaker religious beliefs tend to support investment in groundbreaking medical technology more than people with stronger religious beliefs (Brossard et al. 2008). Therefore, if people with weaker religious beliefs tend to support reason and the quest for hard evidence over personal beliefs, and if the use of EBRs stems from the desire to believe in reason and hard evidence in place of personal beliefs, I hypothesize that people with less traditional or religious convictions will express more interest in and report more use of EBRs.

## **Methods**

To evaluate the knowledge and skills of government officials in developing countries, a large team of three BYU faculty, nineteen BYU students, and nineteen local researchers administered a survey in Peru, India, and Tanzania. We posed dozens of questions about governance and demographics with multiple queries about officials' experience with and interest in evidence-based reports. The research team also trained more than six hundred government officials to use EBRs through a web site we developed, which contains more than four hundred such reports; each report graphs key findings from public policies on health, education, infrastructure, etc.

An initial summary of our survey data revealed that 20 percent of officials had never used reports in their policymaking decisions, and an additional 34 percent of all officials surveyed had not used EBRs in their policymaking processes during the last six months. Furthermore, despite only 8 percent of them saying they use EBRs in every policy decision they make, 92 percent of them said they believed that using EBRs would improve the quality of their work. This simple evidence from the survey confirms the literature that few government officials use EBRs despite the proven positive impact of using such studies and the acknowledgment that they would improve policymaking decisions (Slavin 2008). These initial findings highlight the importance of identifying the common characteristics of the few officials who do use EBRs so that governments can find more employees like them and focus their efforts on involving them in the policy making process.

After gathering and cleaning the survey data, robust statistical analysis revealed the final statistical relations stated in the introduction. However, some of the relations found from the survey differed from the original hypotheses and the literature as stated above in the theoretical framework section. For example, the literature suggested that females might use EBRs less than males, but in the survey, they reported to use more EBRs than males. The literature on autonomy suggested that lower autonomy for employees in poor

**Figure 1: Importance of EBRs in Government**

or developing countries might lead to better productivity and outcomes. Yet, in the survey, officials with higher autonomy reported more use of EBRs than employees with low autonomy did. Previous surveys of government officials showed that those with more education expressed less interest in academic studies of public policy, but our survey showed the exact opposite: officials with post-graduate degrees were more likely to report using EBRs than those without post-graduate degrees would. Additionally, age and years worked in the government seemed to have reversed relationships with interest in and reported use of EBRs from those suggested by literature about workplace experience and proficiency.

The independent variables discussed above in the theory section all come from survey responses. Equally, the dependent variables come directly from the survey: eleven of them are exact survey questions and four others are separate indexes of different combinations of those questions. The dependent variables about EBRs include questions such as the following: How often do you consult academic reports when making policy decisions? When was the last time you used an academic report in a policy decision? How interested are you in them? Do you think they help you make better policy decisions? (To reference all the questions used as dependent variables, please reference survey questions 17–27 in the Appendix. All questions in the Appendix remain precisely as posed in the survey given to the individual officials.)

By creating several indexes through the combination of up to ten survey questions in some cases, these indexes should more accurately evaluate the relations of specific independent variables with the use of and interest in EBRs. Factor analysis showed significant correlations between multiple survey questions that theoretically have a common theme and justified the creation of an index; the exact results from the factor analysis are in the Appendix at the end of the paper. To create each of the indexes, the responses to each survey question included in a specific index were transformed

into standard deviations so that each question would have equal weight in the index. After all the questions were transformed into standard deviations, they were combined into the indexes and collapsed to a smaller scale so that, once again, the indexes themselves would be in the form of standard deviations. Standardizing the indexes allows for analogous comparisons across indexes and simple magnitude tests for each independent variable because the independent variables' impacts on reported use of or interest in EBRs is given in terms of standard deviations.

In the results presented in this paper and elaborated on in the Appendix, 95 percent confidence determines statistical significance, meaning an individual characteristic or monitoring / screening process has a meaningful relationship with the official's likelihood of using EBRs. The tables attached below show all variables with their coefficients and standard deviations, but only the variables with 95 percent significance are considered to have a compelling relation with official interest in or reported use of EBRs. For each of the indexes, higher scores mean higher reported use of or interest in EBRs while lower scores mean lower reported use of or interest in EBRs. The compilations of the various indexes are as follows:

- 1) Master Index: The questions used to compile the master index pertain to interest in and reported use of EBRs. The theoretical reasoning for creating a master index comes from the idea that, although the statistical results from one individual dependent variable may not show strong enough evidence to result in statistical significance, many questions combined into an index gauging a person's interest and use may. Factor analysis of multiple variables with high correlations between each other also reveals an underlying common factor that an index can capture but a written survey question cannot. The index includes questions 17–25. Mean: 0.00; Range: -2.59 to 1.07; Standard deviation: 0.60.
- 2) Importance index: The questions used to compile the importance index reveal relevance of EBRs in the workplace. The theoretical reasoning behind an importance index stems from the idea that certain factors, such as a younger staff or a civil service exam requirement, may help to improve the overall perception of using new research methods, such as EBRs. In comparison to the other indexes that center more on the individual employee, the importance index takes a more general focus on the workplace attitude toward EBRs. The importance index includes questions 17 and 25–27, which ask about survey participants' personal attitudes toward EBRs and their perceptions of their co-workers' and bosses' views as well. Mean: 0.03; Range: -1.86 to .97; Standard deviation: 0.79.
- 3) Interest Index: The questions used to compile the interest index include only those regarding interest in and perceived importance of EBRs. The interest index provides a slightly different focus than the previously mentioned importance index, focusing on the perception of the individual rather than the entire workplace. Although the general workplace feeling toward EBRs as measured in the importance index gauges valuable overall views on EBRs, an individual's perception of

EBRs likely holds more influence in whether that individual will use them. Also, focusing on the individual, more exclusively in the interest and use indexes, more accurately measures the relations between characteristics specific to the individual and the official's interest in and use of EBRs. The interest index consists of questions 21, 23, and 24, which ask about overall interest in and perceived usefulness of EBRs. Mean: 0.00; Range: -3.83 to 0.66; Standard deviation: 0.86.

- 4) Use Index: The questions used to compile the use index include only those regarding reported use of EBRs. The use index provides a unique standpoint from the other indexes in that it focuses only on questions regarding frequency of physically using EBRs rather than simply believing in their importance or usefulness. In the end, academics make EBRs with the goal of affecting public policy, and those reports cannot influence policy unless officials use them. Therefore, the use index is a crucial indicator of which personal and systemic factors can lead to better public policy. The use index includes questions 18–20, which ask about the frequency the officials' report using EBRs. Therefore, although the measurement of EBR use relies on survey questions asking for reported use, many other high standard surveys use similar methods for measuring behaviors. This measurement of use does introduce some limitations because of systematically high reporting of socially desirable behaviors like using EBRs, but more accurate behavior measures would have significantly increased the survey's time and cost parameters. Mean: 0.00; Range: -1.59 to 1.62; Standard deviation: 0.83.

Aside from the indexes, each survey question acts as a dependent variable by itself. For survey questions with a mostly continuous set of responses, I simply used ordinary least squares regressions, checking for both interaction terms and quadratic relationships with other variables, including age and years worked in the government. Some academics suggest that questions with ordinal responses require more in-depth models, such as the ordered probit model. However, a simple use of OLS regressions can still create accurate predictions of significance for ordinal variables, especially when those variables have more than five possible ordered responses or are indexes created through the compilation of multiple survey questions. In fact, some scholars consider using ordinal variables as continuous variables a more powerful statistical approach, and in many cases, such an approach can reveal important relationships not shown in a model that keeps those variables as categorical (Pasta 2009).

Additionally, linear OLS models do not require perfectly even spacing between ordinal variables. Usually one-unit changes in continuous variables do not equal exact linear changes in another variable, because relationships are never perfectly linear, most "results are remarkably insensitive to the spacing of an ordinal variable, except in the most extreme cases" (Ibid.). Therefore, the final model for each dependent variable involves OLS regressions using country fixed effects, clustering the standard deviations by country as well.

The final model of the master index includes eighteen independent variables, and various other models also appear in the Appendix, some having fewer control variables and some having more interaction and quadratic effects included as well. Recall that to form the different indexes, survey responses were measured first in terms of standard deviations so that a compilation of questions with differing scales would not skew the indexes. Then the results from the different questions were added to the index with equal weight for each question, and the final number divided by the number of questions in each index. Therefore, each coefficient in the master index, as well as the other three indexes reported, is in terms of how many standard deviations the index moves with a one-unit change in the independent variable.

**Results**

*Structural Characteristics and Procedures*

Appraising which government employees express the most interest in and report the most use of EBRs becomes more important as the chain of delegation grows longer. As the consumers of public policies and programs, citizens often do not vote directly on what types of policies they want implemented or for the bureaucrats who enact those policies. Instead, citizens vote for political candidates who then choose the bureaucrats

**Table 1**

<b>Independent Variables</b>	<b>Master Index</b>	<b>Use Index</b>	<b>Interest Index</b>
Female	Pos	Pos	
Age	Parabolic	Parabolic	
Years in Government		Neg	
Post Graduate	Pos		
Civil Service Civil Service Exam	Pos	Pos	
Traditional Values (1-4)	Neg	Neg	
Autonomy (1-4)	Pos		Pos
Perceived Importance		Pos	
Witness of Corruption (1-4) Witness	Pos	Pos	Pos
Importance of Studies to Boss	Pos		Pos
Number Ministries Worked In	Pos	Pos	
Income (1-6)	Pos	Pos	Pos
Business Degree			
Technical Science Degree	Pos	Pos	
Stats/Math Degree		Neg	
Humanities Degree			
Other Degree (Mostly Communications)			
Peru (Countries Compared to India)	Pos	Neg	Pos
Tanzania			Pos
*Only recorded if significant at 95% level			

Showing positive and negative relations between the IV and DV. Only relations with at least 95 percent significance after incorporating all the control variables shown below are reported.

Table 2

VARIABLES	(1) Master Index	(2) Interest Index	(3) Use Index
Female	0.128** (0.0646)	0.172* (0.0998)	0.243** (0.0970)
Age	-0.0445** (0.0205)	-0.00230 (0.00595)	-0.0713** (0.0308)
Age Squared	0.000464** (0.000220)		0.000787** (0.000330)
Years Worked in Govt.	-0.00313 (0.00434)	0.00392 (0.00667)	-0.0160** (0.00651)
Post Graduate	0.177** (0.0834)	0.102 (0.128)	0.208* (0.125)
Civil Service Exam	0.152** (0.0607)	0.0499 (0.0939)	0.272*** (0.0911)
Importance to Boss	0.0686*** (0.0148)	0.0676*** (0.0229)	-0.000810 (0.0222)
Traditional Values	-0.0848** (0.0394)	-0.0490 (0.0604)	-0.144** (0.0591)
Autonomy	0.145*** (0.0377)	0.138** (0.0582)	0.172*** (0.0565)
Perceived Importance	0.00673 (0.0118)	0.0141 (0.0183)	-0.00148 (0.0177)
Witness of Corruption	0.0937*** (0.0303)	0.100** (0.0468)	0.126*** (0.0454)
# of Ministries Worked in	0.0372** (0.0159)	0.0225 (0.0245)	0.0679*** (0.0239)
Income	0.108*** (0.0263)	0.171*** (0.0404)	0.0959** (0.0394)
Business Degree	-0.0994 (0.0910)	-0.0810 (0.141)	-0.105 (0.137)
(Compared to Poli Sci)			
Tech. Science Degree	0.221*** (0.0676)	0.138 (0.104)	0.277*** (0.102)
Stats/Math Degree	-0.234* (0.131)	-0.156 (0.202)	-0.512*** (0.197)
Humanities Degree	-0.212 (0.155)	-0.225 (0.239)	-0.172 (0.232)
Other Degree	-0.247* (0.143)	-0.386* (0.222)	-0.208 (0.215)
Constant	-0.556 (0.465)	-1.913*** (0.406)	0.489 (0.698)
Observations	280	280	280
R-squared	0.493	0.412	0.296

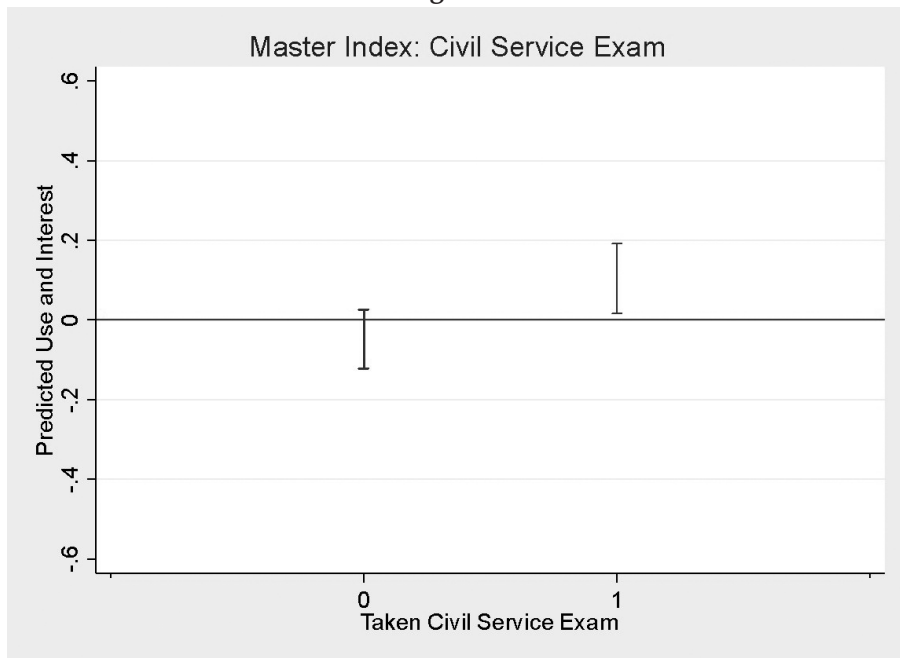
Pictured above are the final fixed effects models clustering by country for each of the three main indexes with all controls included. Alternate models for each individual dependent variable are available in a separate excel spreadsheet. Remember that all the coefficients are in terms of standard deviations.

that realize policy decisions. In this way, the general population of the country acts as a principal in telling the agents what they want out of a public policy. However, as agents delegate policymaking power to more people down the chain of command—officials more enveloped in the bureaucracy—they become less accountable to the people. Therefore, screening and monitoring processes allow governments to evaluate which employees are most likely to enact efficient policies closely aligned with the constituents’ interests and thus help reduce waste and misuse of power in the government (Lupia 2003). Table 1 shows a color-coded grid highlighting which independent variables, such as personal characteristics or screening/monitoring processes, have a statistically significant relation with the master index, use index, and interest index. After using a fixed-effects-model regression analysis using all the control variables shown in Table 2 (on previous page), the final models run for each of the dependent variables, each one clustering by country-fixed effects.

CIVIL SERVICE EXAMS (QUESTION 7)

In the master index that combines ten survey questions regarding interest in and use of EBRs, individuals who took a civil service exam prior to hiring are statistically .31 standard deviations higher in the master index than government officials who did not take the civil service exam. This result, along with all other results reported in the paper, exhib-

Figure 2



Civil service exam takers report more use of and express more interest in EBRs than non-civil service exam takers.



its significance at the 95 percent confidence level. The use index also shows a positive relation with a coefficient equal to 0.32 standard deviations, as do four other individual dependent variables in the survey, reinforcing its significance in leading to higher interest in and reported use of EBRs. These results show the importance of implementing screening practices in hiring; governments should use screening processes to more effectively eliminate less knowledgeable officials and should promote more effective policymaking by having people who will use evidence-based research with higher frequency.

#### MANAGEMENT EMPHASIS ON EVIDENCE-BASED REPORTS (QUESTION 27)

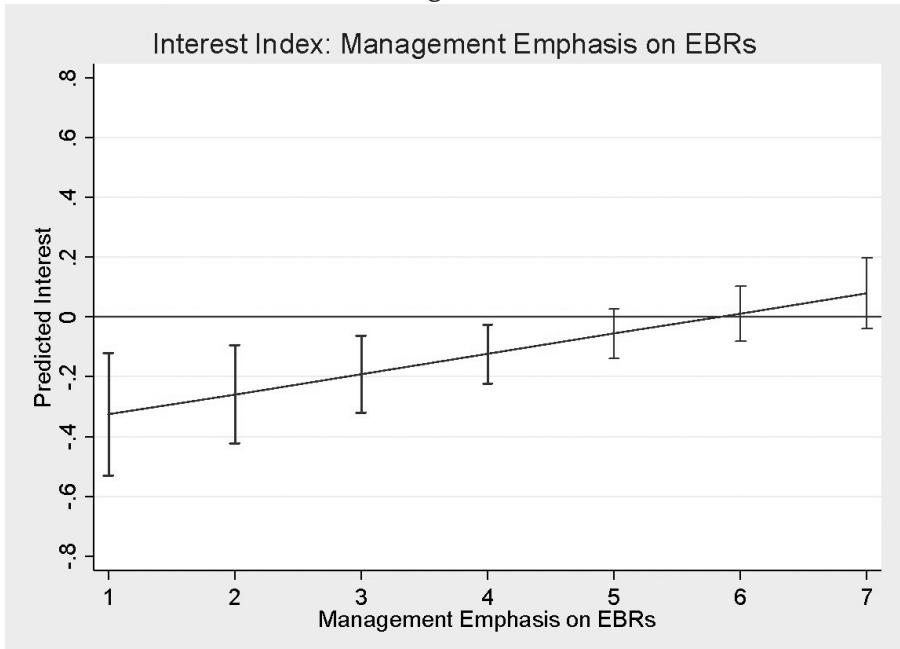
I focus on the use index and the interest index to measure the effectiveness of superiors placing emphasis on EBRs in the workplace, because the two indexes show different outcomes. The importance that superiors place on using evidence-based reports makes a notable difference in the interest of their employees in using EBRs. If superiors place more emphasis on such reports, then their employees report greater interest in them, think they are useful, and believe they will help them work better. In fact, an employee who says their superior rates evidence-based reports as number 1/7 of important factors in public policy decision making ranks 0.47 standard deviations higher on the interest index than someone who says their superior rates EBRs as 7/7 in importance. According to these results, repeated focus of bosses on using evidence-based reports positively influences the employees' views on using such reports. Aside from the interest index, management stress of EBRs also positively correlated with six other dependent variables. Regrettably, the survey results here do not necessarily mean causation because perhaps people who show greater interest in EBRs simply assume their superiors want them to value EBRs as well.

Unfortunately, that same positive impact of a superiors' influence on interest does not translate to increased use or knowledge in any of the four knowledge and use questions, and no significant relation appears in the use index either. These results suggest two important considerations for implementing future monitoring policy. First, superiors exert considerable power over what methods their employees identify as most effective in helping them to do their jobs. However, it also highlights the flaws in some monitoring techniques. Although government officials acknowledge greater importance in using EBRs as their superiors stress their value, officials still do not use them more often. Therefore, governments should research more effective monitoring techniques or oversight procedures besides simple management emphasis to ensure that governments use EBRs with greater frequency. Perhaps mandated use of EBRs for policy decisions, such as Head suggests, could lead to more frequent use (2016, p. 476). Additionally, this odd relationship between management emphasis on EBRs and increased interest without impacting use suggests the need for further research on how to ensure that government officials keep their actions more in line with their superiors' priorities.

#### NUMBER OF YEARS WORKED IN THE GOVERNMENT (QUESTION 12)

One concerning find was that, as bureaucrats work more years in the govern-

Figure 3

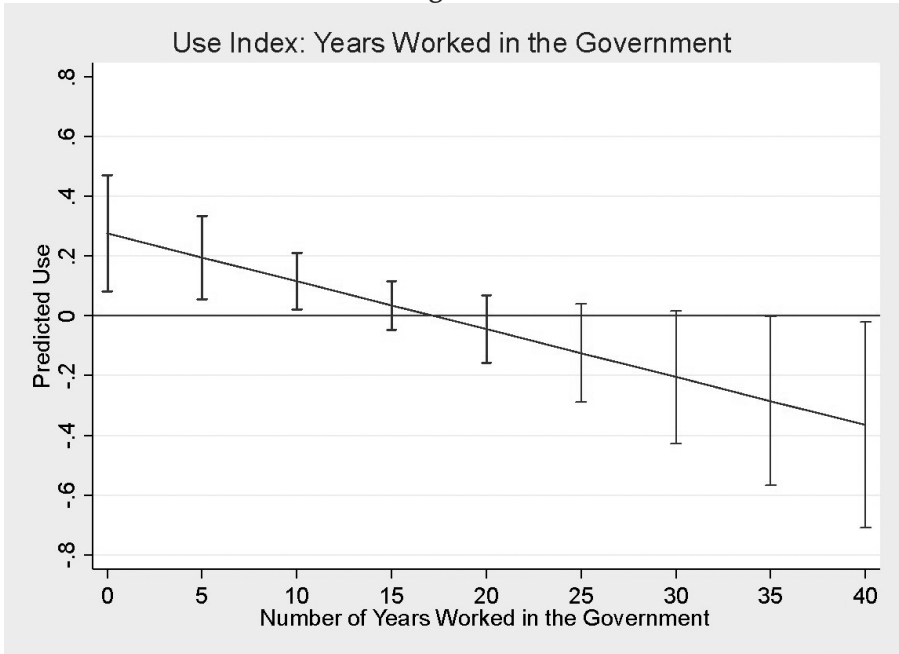


As bosses rank EBRs as more important, employees show more interest in using them. Note that the ranking goes from 1 being least important to 7 being most important.

ment, their interest in and reported use of EBRs decrease; three survey questions regarding interest and use, as well as the overall use index, confirm this relationship. Every ten years spent working in the government results in a 0.19 standard deviation decrease in the use index. That decrease in use may not seem significant initially. However, when considering the average number of years worked in a lifetime, usually somewhere around forty (Brandon 2014), the effect of years worked in the government on the likelihood of using EBRs becomes quickly apparent.

The negative relation revealed between years worked in the government and use of EBRs highlights the importance of government monitoring as discussed earlier. Not only did the post-hiring tool of management emphasis on EBRs show no effect in increasing EBR use, but even the years spent working in the government may decrease their use. These combined results accentuate the prevalent problem of continually monitoring and improving agent efficacy. Unfortunately, it appears that sufficient post-hiring methods do not exist in developing countries, at least using the post-hiring proxy measures of management emphasis on EBRs and years worked in the government, once again confirming what Kauppi and Raaj stated in their article about the lack of successful post-hiring mechanisms in governments (2014). If such mechanisms did exist and successfully increased productivity and innovation, then the survey should show that more years worked in the government leads to an increase in knowledge of, interest in, and use of EBRs. Policy

Figure 4



Officials who have worked more years in the government report to use EBRs less than newly employed officials.

implications to improve the use of EBRs as officials stay in the government longer include EBR training and possible bonuses or promotions for those using them with greater frequency in policymaking decisions.

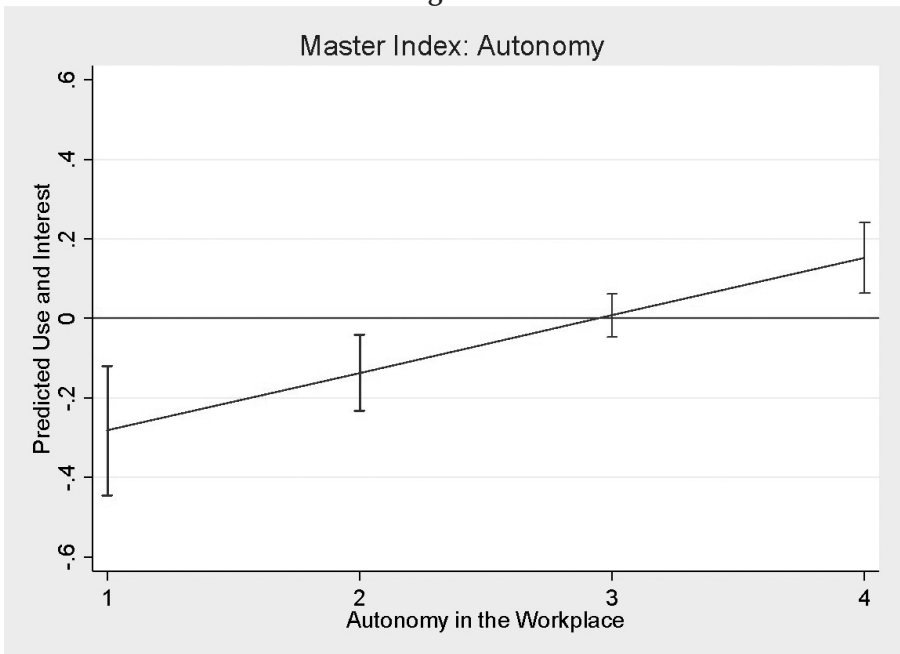
#### AUTONOMY IN THE WORKPLACE (QUESTION 15)

In Fukuyama's earlier stated theory, he predicted that lower autonomy in government officials would lead to more effective bureaucracies and policies in less-developed countries. Using the evidence from earlier in the paper that higher EBR use leads to more effective policy outcomes, the survey data contradicts Fukuyama's theory, revealing that autonomy has a statistically significant positive relation at the 95 percent level with reported use of and interest in EBRs. Six individual dependent variables along with the interest index and the master index confirm this positive relation. A move from completely subservient to almost completely autonomous on the autonomy scale results in a positive shift of .45 standard deviations in the master index and a positive shift of .48 in the interest index.

These results could signify two patterns. First, perhaps there could be reverse causation. In fact, people most educated in and interested in using EBRs also rank higher up in the governmental hierarchy and, therefore, have more autonomy. Second, more workplace autonomy leads to trying new and different methods of research for public policies. As agents receive more freedom to devise their own public policy plans, they expand

their vision and use newer sources of information, such as EBRs. The idea of bureaucratic entrepreneurship and innovation when given more freedom receives direct support from evidence in the private sector of the same innovative principle, but just as in the private sector, bureaucratic entrepreneurship does not come immediately after receiving greater autonomy (Ibid., p. 34). For bureaucratic entrepreneurship to take place, agents must have high levels of autonomy for longer stretches of time. Additionally, agents must first develop a trusted capacity before receiving bureaucratic autonomy. Otherwise, with little knowledge and drive, the newly granted autonomy could lead to decreased productivity (Carpenter 2001, p. 14). Therefore, greater autonomy in agents may not lead to greater innovation and improved policy outcomes immediately, but improvements based on increased autonomy come from long-term investments in human capital leading to improved agent experience and abilities.

**Figure 5**



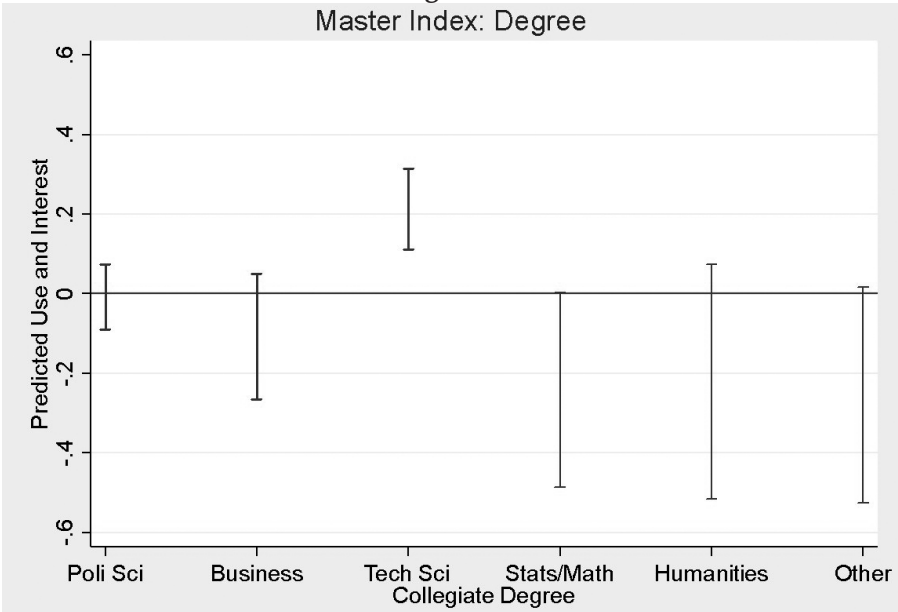
Officials with more autonomy report more use of and interest in EBRs. Note that on the autonomy scale, 1 means less autonomy and 4 means more autonomy.

### *Personal Characteristics*

#### EDUCATION: DEGREE AND LEVEL OF SCHOOLING COMPLETED (QUESTIONS 3 AND 4)

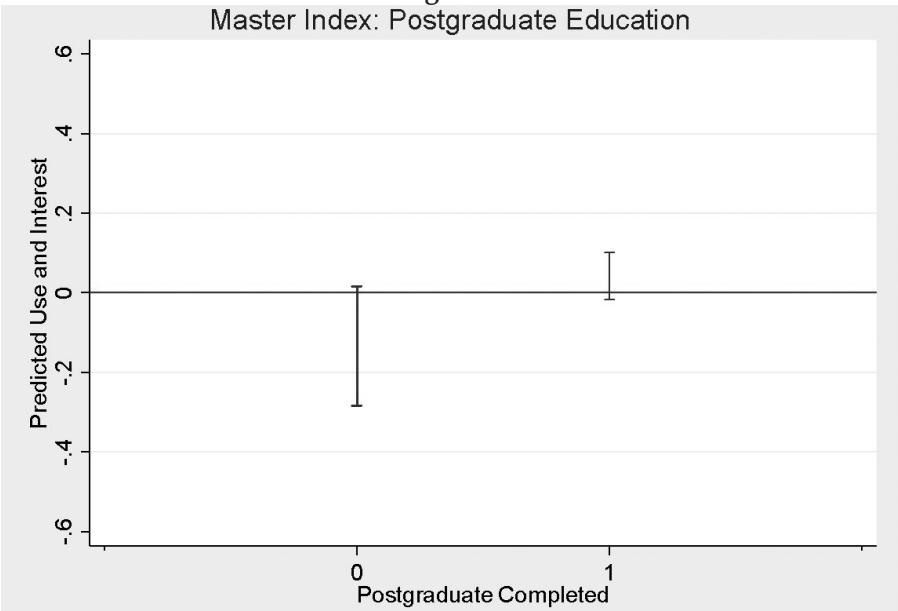
In the survey data, the relations between collegiate discipline and interest/use of EBRs are compared to the political science discipline. Most degrees show no difference of interest in or use of evidence-based reports. However, officials with technical science

Figure 6



Officials who obtain technical science degrees report the most use of and interest in EBRs compared to all other degrees measured.

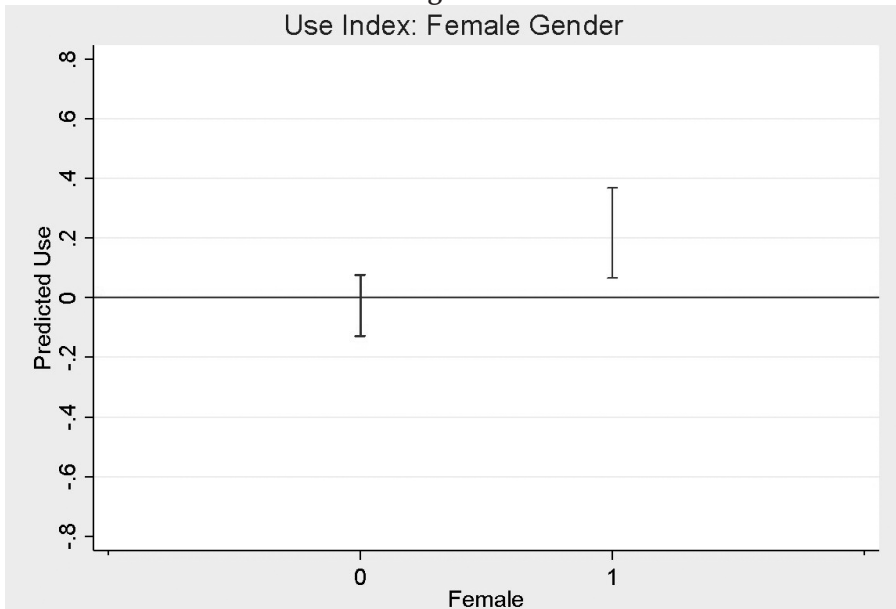
Figure 7



Postgraduates report more use of and interest in EBRs than non-postgraduates.

degrees do register higher on the use index, importance index, and master index with an increase in standard deviations of .33, .26, and .34, respectively. Because technical sciences use more hard evidence than other disciplines do, technical science graduates demonstrate more interest in reports based on empirical evidence. On the other hand, the master index shows that post-graduate education in general also shares a significant positive relation with interest in and reported use of EBRs, with an increase of .41 standard devia-

**Figure 8**



Females report higher usage of EBRs than males do.

tions compared to no post-graduate education. Officials with post-graduate degrees also report more interest in or use of EBRs as shown in four other dependent variables.

**GENDER (QUESTION 1)**

Contrary to what some background research suggested, survey data shows females are more likely to report seeing and using EBRs than their male counterparts. The use index shows an increase of .29 standard deviations in usage for females over males, and the master index shows an increase of .28 standard deviations for females over males.

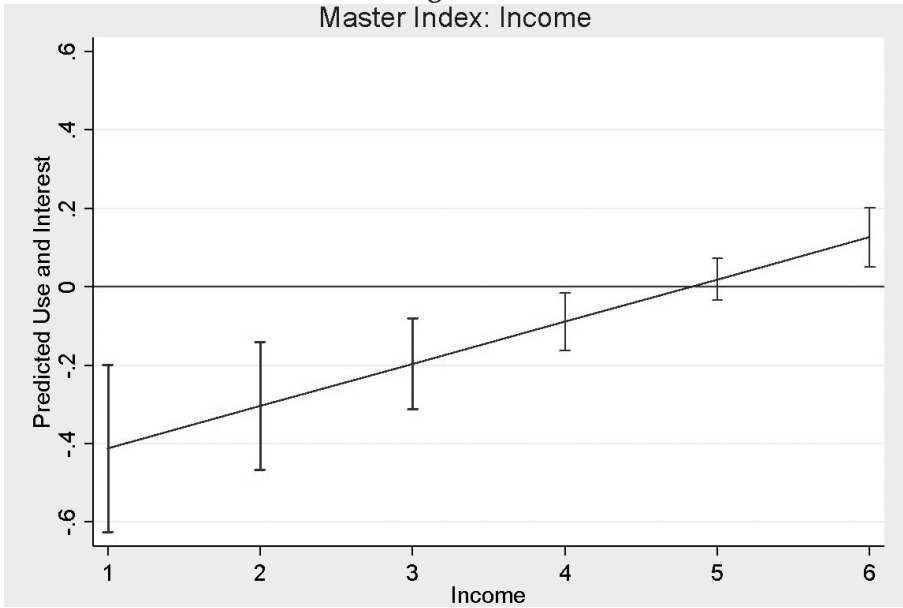
**INCOME (QUESTION 5)**

Income by far appears to most strongly predict reported use of and interest in EBRs. The survey divides income levels into six categories. An official in the highest income bracket compared to an official in the lowest income bracket is .75 standard deviations higher in the master index and 1.0 standard deviation higher in the interest index. Income also has a significant positive relation in six other dependent variables.

**AGE (QUESTION 2)**

**Figure 9**

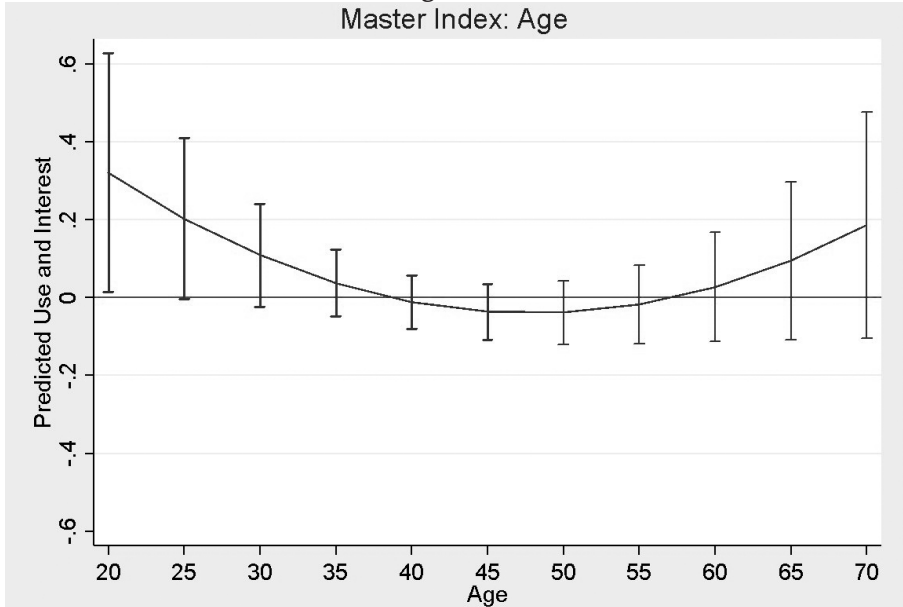
Master Index: Income



Officials with higher income levels report more interest in and use of EBRs.

**Figure 10**

Master Index: Age



The youngest and oldest officials report higher interest in and use of EBRs while middle-aged officials report lower interest in and use of EBRs.

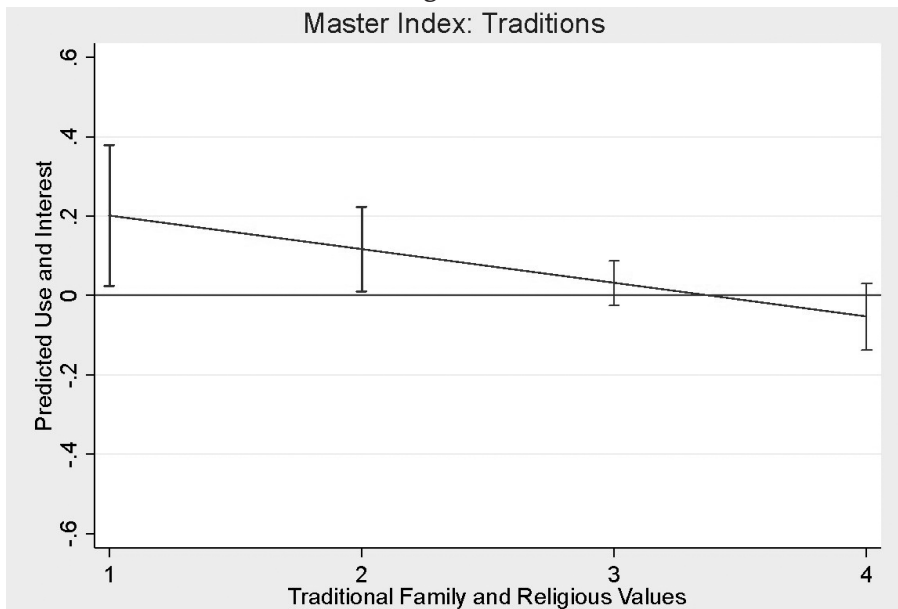


The survey results confirmed previous studies done by Cardoso that age maintains a quadratic relationship with productivity and learning (2011), yet the survey shows the opposite quadratic relation from that predicted by Cardoso. As officials grow older, they report using EBRs less and less. However, usually around the age of 45–50, they start using reports more often again. As shown in Figure 10 (on previous page), middle-aged officials report the least use of EBRs of any age group, and three other dependent variables confirm the same parabolic relation between age and reported use of EBRs.

TRADITIONAL FAMILY AND RELIGIOUS VALUES (QUESTION 6)

Just as the research suggests, higher levels of traditional religious values lead to lower levels of emphasis in logical, evidence-based research (Inglehart and Baker 2000, p. 19). In the survey, those who say they hold more traditional religious and family values report to use less and have less interest in EBRs. A person reporting to have the strongest traditional religious and family values compared to someone with the weakest values is is

**Figure 11**  
Master Index: Traditions



Officials who place more importance on traditional family and religious values report less interest in and use of EBRs. Note that on the traditions scale, 1 means less traditional and 4 means more traditional.

on average .55 standard deviations lower on the master index and .52 standard deviations lower on the use index. Overall, more traditional people also report lower use of / interest in EBRs in four other individual dependent variables.

**Limitations, Case Selection, and Further Research**

The survey used as the main evidence has several limitations. First, the survey gath-

ers quantitative data in a non-experimental manner. Therefore, all the statistically significant relations found do not necessarily mean causation. However, as stated in the theories section pulling from academic literature earlier, causal relations theoretically do exist even if not proven by the method of data collection. On the other hand, use of survey data adds a high level of external validity, or applicability across governments, especially in developing countries, because the survey responses come from government officials in three developing countries on three continents. Other contributing factors to high external validity include the completely randomized assignment of enumerators to administer the surveys and the wide distribution of demographics among those surveyed. Few studies of such magnitude have been conducted involving government officials from developing countries in the past, so even a sample size of three hundred provides significant new findings on what influences an individual official's interest in and use of EBRs.

More limitations to the study include any vagueness in the survey questions or dishonest responses that could skew the results and decrease the internal validity. Additionally, some of the questions in the survey asking about interest in EBRs use repetitive wording and may condition the participants to choose what they think the researchers want them to choose, once again skewing the results. Limitations from over-reporting a socially desirable behavior could skew the results of the survey if those who dishonestly answered as more likely to use EBRs all had shared characteristics that differed from those who reported being less likely to use EBRs (Zeglovits 2014, p. 225). Additionally, even if respondents did not lie to conceal a less socially desirable history of not using EBRs, they could simply misremember the proper frequency with which they used them and misreport due to memory recall problems (Krosnick 2002, p. 93). To possibly eliminate these reporting errors, we could have included a "don't know" option for all these questions on the survey, but because many studies have shown that such response options do not significantly increase reliability and will decrease sample size and, therefore, statistical strength (Ibid., p. 91), we decided to exclude a "don't know" option on the survey.

The responses to the survey may also have some selection bias. Because enumerators administered the survey only to government officials who had already accepted a visit to learn more about how they could use EBRs in policy making, the survey may include a disproportionate number of government officials who already use EBRs while ignoring those who have no interest. Despite the survey's limitations in internal validity, the high external validity of quantitative analysis justifies the use of statistical analysis. Because 280 officials completed the survey on three continents, the results of the survey should more accurately reflect the dispositions of government officials overall than if only several officials had received a more in-depth, qualitative interview. In the end, despite strong theories and robust statistical analysis, it is hard to infer causation, because observational data was extracted from surveys rather than from a randomized control trial.

## **Conclusions**

Overall, I found that female gender, post-graduate education, receiving a technical science degree, higher income, greater workplace autonomy, and completing

a civil service exam increase reported use of or interest in EBRs. Additionally, I found that the number of years worked in the government and greater regard for traditional family and religious values decrease reported use of or interest in EBRs. Age had a quadratic relationship with use of EBRs: Middle-aged people reported using fewer EBRs to a certain extent, but the youngest and oldest people reported using more. Management emphasis on EBRs appeared to increase employee interest, yet it did nothing to increase employee use.

The survey evidence used in this report plainly outlines which personal and structural characteristics correlate with increased use of EBRs in developing countries today. Increased use of EBRs, according to both policymakers and academics, will objectively improve the outcomes of public policies. Governments are always trying to improve the effectiveness of their programs to better help their constituents. Because increased use of EBRs translates to improved policy outcomes and improved well-being of the impacted population, governments should use them with greater frequency and thereby improve their public policy decisions. Finally, by knowing which personal and structural characteristics correspond with higher use of EBRs, governments can design better hiring, monitoring, and training processes to ensure the inclusion of the officials most likely to use EBRs in their policy decisions.

**APPENDIX**

**Regression tables**

**Table 3**

**Use Index**

Variable	Factor 1	Uniqueness
Question 19	0.7335	0.4619
Question 20	0.6596	0.565
Question 18	0.6844	0.5317

**Interest Index**

Variable	Factor 1	Uniqueness
Question 21	0.7019	0.5074
Question 23	0.7549	0.4302
Question 24	0.7725	0.4033

**Importance Index**

Variable	Factor 1	Uniqueness
Question 27	0.7233	0.4731
Question 26	0.6091	0.6198
Question 25	0.7537	0.4271
Question 17	0.7399	0.4568

**Master Index**

Variable	Factor 1	Uniqueness
Question 22	0.6227	0.5334
Question 19	0.5258	0.4432
Question 20	0.5754	0.5188
Question 18	0.4418	0.5212
Question 21	0.7268	0.4095
Question 23	0.7044	0.399
Question 24	0.6819	0.4228
Question 25	0.4349	0.5424
Question 17	0.4961	0.4045

For regression tables of alternate models, please request an extended excel file.

*Factor Analysis***Survey Questions***Impact Evidence Survey*

This research study is being conducted by Darren Hawkins, professor, Brigham Young University to determine how to best provide high-quality impact evidence to policy makers. You have been invited to participate because you are a government official in one of our focus countries. The study consists of 27 questions and will take approximately 10 minutes to complete. There are minimal risks for participation in this study. You may feel some discomfort in answering some of the sensitive questions on our survey. You may feel badly about not scoring better. Poor scores will never be revealed to others. The benefits of participating are learning more about what works in policy and what does not, which could be useful in your job and to recipients of government services. Involvement in this research project is voluntary. You may withdraw at any time without penalty or refuse to participate entirely. We will only report anonymous results from this study so you will not be identified in our research findings in any way. If you have questions regarding this study you may contact Darren Hawkins at (801) 422-5526 or dhawkins@byu.edu. If you have questions regarding your rights as a participant in research projects, you may contact: IRB Administrator, A-285 ASB, Brigham Young University, Provo, UT 84602, (801) 422-1461, irb@byu.edu. By advancing in this survey, you consent to participate.

Thank you for taking this survey! Your participation is completely anonymous and will help us learn more about how to provide helpful information to government officials.

Please enter the code provided by the research assistant

1. What is your gender?

Male

Female

2. What is your age?

3. What is the highest level of education you have completed?

- Primary school
  - High school
  - Vocational school
  - College
  - Graduate degree
4. What did you study for your highest degree?
- Social Sciences (Economics, Political Science, Sociology, Policy, Development, etc)
  - Business
  - Technical Science (Engineering, Agriculture, Chemistry, Biology, Physics, etc)
  - Statistics or Math
  - Humanities (Literature, Languages, Arts, Design, etc)
  - Other: \_\_\_\_\_
5. Is your monthly income:
- 20,000 Rupees or below
  - Between 20,000 and 40,000 Rupees
  - Between 40,000 and 60,000 Rupees
  - Between 60,000 and 80,000 Rupees
  - Between 80,000 and 100,000 Rupees
  - Over 100,000 Rupees
6. To what extent do you agree with the following statement? "Tradition--customs handed down by one's religion or family--is important to me."
- Strongly Agree
  - Somewhat Agree
  - Somewhat Disagree
  - Strongly Disagree
7. Did you take a civil service exam to get your current job?
- Yes
  - No
8. Which factors help someone get the job that you have? Please count how many of these things matter in getting a job and tell us the number of relevant factors.
- a. Civil service exam score
  - b. Political party
  - c. Personal connections
  - d. Corruption
  - e. Prior experience and performance in other jobs
  - f. Physical appearance
  - g. Gender
- \_\_\_\_\_ How many of the above apply? (Provide just a count of the number that apply)
9. Have you ever seen evidence of corruption in the work you do?
- Yes, all the time
  - Yes, sometimes

- 
- Yes, but rarely  
No, never
10. Have you ever seen evidence of corruption in work others do in government jobs?  
Yes, all the time  
Yes, sometimes  
Yes, but rarely  
No, never
11. Please check all of the following that apply to your current position:  
Policy or program formulation and design  
Policy or program monitoring and evaluation  
Policy or program implementation  
Policy or program administration  
Compliance  
Accounting and budget  
Human resources  
Archives  
Legal services  
Equipment and facilities  
Technical services  
Other \_\_\_\_\_
12. How many years have you been employed by the government?
13. What sectors of the government have you worked in during the past 10 years?  
Please choose all that apply  
Agriculture  
Commerce and Trade  
Culture  
Defense  
Education  
Energy  
Environment and Natural Resources  
Finance, Credit, Banking  
Foreign Ministry  
Gender and Family  
Health  
Housing  
Industry  
Justice  
Labor  
Macroeconomic Management

- Public Safety
  - Social Welfare and Development
  - Sports
  - Transportation
  - Other \_\_\_\_\_
14. How many people do you believe your policies influence?
15. How much autonomy do you have in your job?
- Almost full autonomy
  - Some autonomy
  - Little autonomy
  - No autonomy
16. What kind of decision-making process is used in your office?
- One person makes the decision without the counsel of others
  - One person makes the decision, but takes counsel from others
  - A committee makes the decisions
  - Everyone has to agree with the decisions
  - Other \_\_\_\_\_
17. What source is most useful to you when making your policy decisions? Please order the following with 1 being the most useful and 7 being the least useful
- \_\_\_\_\_ My intuition
  - \_\_\_\_\_ My experience
  - \_\_\_\_\_ My formal education
  - \_\_\_\_\_ Job-related conferences
  - \_\_\_\_\_ My coworkers
  - \_\_\_\_\_ Public opinion
  - \_\_\_\_\_ Reports, studies and other written material
18. International organizations and governments, often in partnership with academic researchers, are performing rigorous impact assessments of government programs and publishing reports with their findings. Have you seen such academic reports?
- Yes, many
  - Yes, some
  - No, none
19. How often do you consult such academic reports when you make policy decisions?
- Every time
  - Most times
  - Sometimes
  - Never
20. How recently have you used academic reports to make a policy decision?
- In the past month
  - In the past six months



- 
- In the past year  
In the past five years
- More than five years  
Never
21. How interested are you in learning from academic research?  
Very interested  
Somewhat interested  
Indifferent  
Somewhat disinterested  
Not interested at all
22. How well do you feel you understand academic research?  
Very well  
Somewhat well  
Not very well  
Not well at all
23. How helpful is academic research is in making policy?  
Very useful  
Somewhat useful  
Not very useful  
Not useful at all
24. Do you think using academic research makes your work better?  
Yes, definitely  
Yes, somewhat  
No, not really  
No, definitely not
25. What sources do you think are the most important for policy makers to use in decision-making? Please order the following with 1 being the most useful and 7 being the least useful
- \_\_\_\_\_ Their intuition
  - \_\_\_\_\_ Their experience
  - \_\_\_\_\_ Their formal education
  - \_\_\_\_\_ Job-related conferences
  - \_\_\_\_\_ Their coworkers
  - \_\_\_\_\_ Public opinion
  - \_\_\_\_\_ Reports, studies and other written material
26. What sources do you think your coworkers use in decision-making? Please order the following with 1 being the most useful and 7 being the least useful
- \_\_\_\_\_ Their intuition
  - \_\_\_\_\_ Their experience
  - \_\_\_\_\_ Their formal education
  - \_\_\_\_\_ Job-related conferences

- \_\_\_\_\_ Their coworkers
- \_\_\_\_\_ Public opinion
- \_\_\_\_\_ Reports, studies and other written material

27. What sources do you think your superiors want you to use in decision-making?

Please order the following with 1 being the most useful and 7 being the least useful

- \_\_\_\_\_ My intuition
- \_\_\_\_\_ My experience
- \_\_\_\_\_ My formal education
- \_\_\_\_\_ Job-related conferences
- \_\_\_\_\_ My coworkers
- \_\_\_\_\_ Public opinion
- \_\_\_\_\_ Reports, studies and other written material

**Survey Responses**

The following list includes the different dependent variables in the survey used to measure government official proficiency in, interest in, and intent in using evidence-based reports. The definitions show the question as presented in the survey along with the possible answers officials could select. The percentages along the side of each answer show a tabulation of what percent of survey takers chose each response.

18. Seen Studies (1–3)

International organizations and governments, often in partnership with academic researchers, are performing rigorous impact assessments of government programs and publishing reports with their findings. Have you seen such academic reports?

- Yes, many 20.34%
- Yes, some 59.31%
- No, none 20.34%

19. Use Studies (1–4)

How often do you consult such academic reports when you make policy decisions?

- Every time 8.35%
- Most times 24.08%
- Sometimes 52.58%
- Never 14.99%

20. Recent Studies (1–6)

How recently have you used academic reports to make a policy decision?

- In the past month 23.89%
- In the past six months 22.17%
- In the past year 22.91%
- In the past five years 7.14%
- More than five years 3.94%
- Never 19.95%

21. Interest Studies (1–5)

How interested are you in learning from academic research?

Very interested	61.58%
Somewhat interested	28.82%
Indifferent	4.93%
Somewhat disinterested	2.46%
Not interested at all	2.22%

## 22. Know Studies (1–4)

How well do you feel you understand academic research?

Very well	41.38%
Somewhat well	47.04%
Not very well	9.61%
Not well at all	1.97%

## 23. Useful Studies (1–5)

How helpful is academic research is in making policy?

Very useful	62.22%
Somewhat useful	29.14%
Not very useful	7.16%
Not useful at all	1.48%

## 24. Work Better (1–4)

Do you think using academic research makes your work better?

Yes, definitely	65.10%
Yes, somewhat	27.23%
No, not really	6.93%
No, definitely not	0.74%

The following rankings of 1–7 were later reversed in the indexes to make 1 least important and 7 most important:

## 17. What source is most useful to you when making your policy decisions (Rank of evidence-based reports, 1–7)?

- 1) 38.69%
- 2) 16.83%
- 3) 14.32%
- 4) 6.53%
- 5) 5.78%
- 6) 6.03%
- 7) 11.81%

## 25. What sources do you think are the most important for policy makers to use in decision-making (Rank of evidence-based reports, 1–7)?

- 1) 40.40%
- 2) 18.94%
- 3) 10.10%
- 4) 5.56%

- 5) 7.58%
- 6) 6.06%
- 7) 11.36%

26. What sources do you think your coworkers use in decision-making (Rank of evidence-based reports, 1–7)?

- 1) 25.59%
- 2) 14.12%
- 3) 12.65%
- 4) 10.88%
- 5) 9.41%
- 6) 9.12%
- 7) 18.24%

27. What sources do you think your superiors want you to use in decision-making (Rank of evidence-based reports, 1–7)?

- 1) 38.64%
- 2) 15.93%
- 3) 14.75%
- 4) 8.26%
- 5) 5.60%
- 6) 7.37%
- 7) 9.44%

## REFERENCES

- Avey, Paul C. and Michael C. Desch. 2014. "What Do Policymakers Want from Us? Results of a Survey of Current and Former Senior National Security Decision Makers." *International Studies Quarterly* 58, no. 2 (June): 227–46.
- Banerjee, Abhijit V. and Esther Duflo. 2009. "The Experimental Approach to Developmental Economics." *Annual Review of Economics* 1 (September): 151–78.
- Banks, Gary. 2009. "Evidence-Based Policy Making: What is It? How Do We Get It?" ANU Public Lecture Series, Australian Government Productivity Commission, Canberra, February 4.
- Beede, David N., Tiffany A. Julian, David Langdon, George McKittrick, Beethika Khan, and Mark E. Doms. 2011. "Women in STEM: A Gender Gap to Innovation." Economics and Statistics Administration, Issue Brief #04–11 (August). Accessed March 7, 2018. [www.esa.doc.gov/sites/default/files/womeninstemagaptoinnovation8311.pdf](http://www.esa.doc.gov/sites/default/files/womeninstemagaptoinnovation8311.pdf).
- Black, Nick. 2001. "Evidence Based Policy: Proceed with Care." *British Medical Journal* 323 (August): 275–79.
- Brandon, Emily. 2014. "The Ideal Retirement Age—And Why You Won't Retire Then." *U.S. News & World Report*, May 12. Accessed November 15, 2017. <https://money.usnews.com/money/retirement/articles/2014/05/12/the-ideal-retirement-age-and-why-you-wont-retire-then>.
- Brossard, Dominique, Dietram A. Scheufele, Eunkyung Kim, and Bruce V. Lewenstein. 2008. "Religiosity as a Perceptual Filter: Examining Processes of Opinion Formation about Nanotechnology." *Public Understanding of Science* 18, no. 5 (September): 546–58.
- Buddin, Richard and Gema Zamarro. 2009. "Teacher Qualification and Student Achievement in Urban Elementary Schools." *Journal of Urban Economics* 66, no. 2 (September): 103–15.
- Cardoso, Ana Rute, Paulo Guimarães, and José Varejão. 2011. "Are Older Workers Worthy of Their

- Pay? An Empirical Investigation of Age-Productivity and Age-Wage Nexuses." *De Economist* 159, no. 95 (June).
- Carpenter, Daniel P. 2001. *The Forging of Bureaucratic Autonomy: Reputations, Networks, and Policy Innovation in Executive Agencies, 1862–1928*. Princeton: Princeton University Press.
- Dollar, David and Roberta Gatti. 2001. "Are Women Really the 'Fairer' Sex? Corruption and Women in Government." *Journal of Economic Behavior and Organization* 46, no. 4 (December): 423–29.
- Fukuyama, Francis. 2013. "What is Governance?" *Governance: An International Journal of Policy, Administration and Institutions* 26, no. 3 (July): 347–68.
- Garcia-Zamor, Jean-Claude. 2003. "Workplace Spirituality and Organizational Performance." *Public Administration Review* 63, no. 3 (May): 355–63.
- Gates, Robert M. 2008. Address to the Association of American Universities. Washington, DC, April 18. Accessed November 15, 2017. <http://archive.defense.gov/Speeches/Speech.aspx?SpeechID=1228>.
- Head, Brian W. 2016. "Toward More 'Evidence-Informed' Policy Making?" *Public Administration Review* 76, no. 3 (May/June): 472–84.
- Hoxby, Caroline M. 2000. "The Effects of Class Size on Student Achievement: New Evidence from Population Variation." *Quarterly Journal of Economics* 115, no. 4 (November): 1, 239–85.
- Inglehart, Ronald and Wayne E. Baker. 2000. "Modernization, Cultural Change, and the Persistence of Traditional Values." *American Sociological Review* 65, no. 1 (February): 19–51.
- Kauppi, Katri and Erik M. van Raaij. 2014. "Opportunism and Honest Incompetence - Seeking Explanations for Noncompliance in Public Procurement." *Journal of Public Administration Research and Theory* 25, no. 3 (July): 953–79.
- Krosnick, J.A. 2002. "The Causes of No-Opinion Responses to Attitude Measures in Surveys: They Rarely are What They Appear to Be." In *Survey Nonresponse*, edited by Robert M. Groves, Don A. Dillman, John L. Eltinge, and Roderick J.A. Little, 87–100. New York: Wiley.
- Leahey, Erin. 2006. "Gender Differences in Productivity: Research Specialization as a Missing Link." *Gender & Society* 20, no. 6 (December): 754–780.
- Lizardo, Radhames and Andre V. Mollick. 2013. "Can Latin America Prosper by Reducing the Size of Government?" *Cato Journal* 29, no 2 (May): 247–66.
- Lupia, Arthur. 2003. "Delegation and its Perils." In *Delegation and Accountability in Parliamentary Democracies*, edited by Kaare Strom, Wolfgang C. Muller, and Torbjorn Bergman, 33–54. Oxford: Oxford University Press.
- Lupia, Arthur and Mathew D McCubbins. 2000. "Representation of Abdication? How Citizens Use Institutions to Help Delegation Succeed." *European Journal of Political Research* 37, no. 3 (May): 291–307.
- Maliniak, Daniel, Susan Peterson, and Michael J. Tierney. 2012. "TRIP around the World: Teaching, Research, and Policy Views of International Relations Faculty in 20 Countries." Williamsburg, VA: Teaching, Research, and International Policy Project.
- Pasta, David J. 2009. "Learning When to Be Discrete: Continuous vs. Categorical Predictors." SAS Global Forum, Paper 248.
- Prpić, Katrina. 2002. "Gender and Productivity Differentials in Science." *Scientometrics* 55, no. 1: 27–58.
- Rajkumar, Andre Sunil and Vinaya Swaroop. 2008. "Public Spending and Outcomes: Does Governance Matter?" *Journal of Development and Economics* 86, no. 1 (April): 96–111.
- Sanders, William L., S. Paul Wright, and Sandra P. Horn. 1997. "Teacher and Classroom Context Effects on Student Achievement: Implications for Teacher Evaluation." *Journal of Personnel Evaluation in Education* 11, no. 1 (April): 57–67.
- Skirbekk, Vegard. 2004. "Age and Individual Productivity: A Literature Survey." *Vienna Yearbook of Population Research* 2: 133–53.

- Slavin, Robert E. 2008. "Cooperative Learning, Success for All, and Evidence-Based Reform in Education." *Education Didactique* 2, no. 2 (September): 149–57.
- The World Bank. 2016. Data. GDP per capita (current US\$). Accessed October 22, 2017. <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD>.
- Twain, Mark. 1907. In *Mark Twain: A Biography* by Albert Bigelow Paine. The University of Adelaide Library. Accessed November 14, 2017. <https://ebooks.adelaide.edu.au/t/twain/mark/paine/>.
- Zeglovits, Eva and Sylvia Kritzinger. 2014. "New Attempts to Reduce Overreporting of Voter Turnout and Their Effects." *International Journal of Public Opinion Research* 26, no. 2 (June): 224–34.