

Assessment Report for the Hewlett Foundation's Strategy to Apply Behavioral Economics (BE) to  
Improve Family Planning and Reproductive Health (FP/RH) Service Delivery

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## Executive Summary

This report presents evaluation findings related to the William and Flora Hewlett Foundation's strategy to apply behavioral economics (BE) in the fields of family planning and reproductive health. Using insights from cognitive psychology, behavioral economics adapts the standard economic model of human behavior to incorporate evidence regarding the fallibility of human judgment and choice. Applied to the fields of family planning and reproductive health (FP/RH), behavioral economics represents a new and increasingly relevant lens and approach to address long-standing issues related to high fertility, low uptake of FP/RH services, and high rates of contraceptive discontinuation. The evaluation, conducted by the Tulane University School of Public Health and Tropical Medicine over the period 2015 to 2018, examines in particular the work of two behavioral economics organizations funded by the Hewlett Foundation - ideas42 and the Behavioral Economics in Reproductive Health Initiative (BERI) at the Center for Effective Global Action (CEGA) – who partnered with local FP/RH organizations to test out BE interventions in seven countries.

A mixed methods approach was utilized to examine to the following evaluation questions: (1) how relevant BE is for the larger fields of FP/RH? (2) how can awareness of BE concepts and tools be diffused? and (3) how can BE-informed interventions be scaled up? Data for the evaluation came from in-depth interviews (IDIs) with ideas42, BERI, implementing partners, and experts in the fields of BE, FP/RH and behavior change communication (BCC); case studies of programs implementing Hewlett-funded BE interventions; meetings of experts, grantees, partners and donors; assessments of study protocols; and reviews of literature and related partner and grantee background documents (e.g., white papers).

Highlights from the evaluation include:

1. **Value-added from BE:** Evaluation questions in this area focused on whether or not there is justification to believe that applying a BE lens identifies new theories, methods or solutions to difficult FP/RH problems and behavioral decisions. These questions were addressed at both a macro level (e.g., the intersection of the fields of BE and FP/RH) and at a micro level (e.g., the seven partnerships implemented by BERI and ideas42).

Overall, we found that the application of behavioral economics in the Hewlett Foundation's investment in BE produced significant contributions to the fields of FP/RH at four levels:

- a. Theoretical application of BE concepts and approaches: It was found that the seven Hewlett-supported studies addressed a wide range of BE issues in FP/RH (e.g., procrastination, over-confidence, present bias, cognitive overload) and utilized a gamut of BE tools provision of micro-incentives, simplification of intervention tools, harnessing of social influences to encourage desirable behaviors. While the review of the FP/RH evaluation literature indicated that each of the Hewlett-funded interventions had been previously applied in some form in FP/RH, it was nonetheless clear that the interventions designed and implemented by ideas42, BERI and their implementing partners represented novel approaches informed by BE, justifying the piloting of those interventions. In the IDIs, however, participants noted varying interpretations of the value of BE for the field. Some felt that BE was uniformly delivering new insights and value to the field, emphasizing the value of targeting the intention-action gap and the

- potential for delivering impacts in FP/RH. Others raised questions around how it was different from other theories of behavior and behavior change. Overwhelmingly, IDI participants acknowledged that BE was unlikely to be a panacea for the FP/RH field; rather BE was viewed as another “tool in the toolbox.”
- b. **Intervention design and implementation:** While formative research has long been involved in the design and implementation of FP/RH interventions, the ideas42 define-diagnose-design-test (DDDT) process for developing BE-informed interventions, which uses a specific diagnostic tool to identify behavioral biases and bottlenecks, represents a novel approach to intervention design. In the IDIs assessing BE relevance, partner organizations widely acknowledged the added value of BE to their work. This took two forms: – (1) the support from the grantees (ideas42 and BERI) in the application of BE to assist with program design of interventions using BE principles and (2) the specific interventions that BE has generated.
  - c. **Evaluation using rigorous RCT and quasi-experimental designs in Hewlett-supported programs:** The literature review of BE interventions in FP/RH revealed that many of the previous interventions had not been rigorously evaluated, particularly using randomized controlled trials (RCTs) or quasi-experimental study designs. This was true in particular for the health worker job aids, telephone hotlines (with behaviorally informed vouchers), integrated FP/RH services, and social influences such as ANC bracelets. As a result, the seven studies represent valuable empirical contributions to FP/RH.
  - d. **Interventions that can be scaled or diffused:** IDIs indicated support from implementing partners for both the DDDT process and the prospects for the BE-informed interventions to augment the effectiveness of existing FP/RH efforts. While the impacts were not expected to be large, most participants expressed optimism that the Hewlett-supported interventions would be successful.
2. **Study Outcomes and Scalability:** Uptake of BE in the field (i.e., scale-up) is likely to require not just a new framework but new and strong evidence of success. The seven studies are at varying levels of completion; to date four have generated outcome results. Each of these has provided support for the use of BE. In Nepal, provider performance comparison posters – intended as a form of social influence - increased uptake of LARC among post-abortion clients by 7.0 percentage points [95% CI: 1.3 to 12.7, p-value < 0.05]. In Uganda, amongst those calling a sexual and reproductive health (SRH) hotline directly for assistance and advice for themselves, there was an increase from 33.3% to 36.4% (p=.10) in redemption of vouchers / e-coupons with BE-informed SMS text reminders in treatment relative to control callers; stronger effects were observed for men. No effects were observed in the full sample. However, in Kenya, women who received conditional cash transfers (CCTs) with both labeling and pre-commitment planned earlier for delivery location, were 18 percentage points more likely to deliver in a facility and 14 percentage points more likely to deliver in their preferred facility. To date, however, there is limited evidence of scale-up of interventions with proven effectiveness, largely because most are only recently completed. Moving forward, several key factors are likely to affect successful scale-up, including accounting for context, cost, and buy-in and involvement of stakeholders.
  3. **Spread of BE concepts and interventions:** Throughout this evaluation, there emerged increasing evidence of the diffusion of BE within implementing organizations as well as within the field of FP/RH. This included greater awareness of BE concepts and tools within FP/RH organizations, new projects evolving through the partnerships, additional projects

outside of the Hewlett initiative, and examples of other donors such as USAID and the Gates Foundation allocating funding to support BE in FP/RH. For example, the Gates Foundation in early 2017 funded two programs by Pathfinder International to apply a BE approach to expanding access to contraceptives for women and young girls in Africa and Asia (Philanthropy News Digest 2017). The Gates Foundation also supported a program by the Johns Hopkins Center for Communication Programs (JHU/CCP) (Jacoby et al. 2017) that applies behavioral defaults to increase post-partum FP in Indonesia. USAID is also supporting other programs by JHU/CCP that promote family health, including longer birth spacing, healthy pregnancy, etc. using framing in Egypt and commitment devices in Tanzania.

Nonetheless, at the micro level, evidence of BE capacity transfer (e.g., diffusion of skills in BE problem definition and diagnosis) from grantees to implementing partners, a seeming requisite for more extensive utilization of BE tools, at this stage is limited. ideas42 has taken this concern very seriously and has put an increased emphasis on capacity transfer. As an example, ideas42's has recently partnered with IntraHealth in a USAID-funded project in Uganda to increase the understanding of and ability to use behavioral science to address behavioral barriers. The focus is on increasing uptake of quality health services (including FP/RH) by IntraHealth's US-based and in-country staff. This is done through a series of multi-stage, long-term trainings by ideas42 to create a cohort of behavioral design specialists within IntraHealth, thereby promoting capacity building and diffusion of BE concepts and methodologies. Additional explorations of capacity building in partner organizations are needed to further assess the BE diffusion and spread. Furthermore, a deeper assessment of organizational contexts where diffusion and uptake can occur is required to understand what roles will be played by BE experts (versus service delivery providers) in future interventions. Stakeholder engagement and buy-in, perhaps supported by additional projects and funding, was cited in IDIs as critical.

In sum, the results of this evaluation indicate a positive and receptive audience for BE ideas, methods, and interventions across multiple actors and donors in the FP/RH field, as well as promising empirical evidence that BE-infused interventions can improve the uptake of FP/RH services.

## 1. Introduction

Many countries around the world continue to experience rapid population growth, in spite of modern contraceptive technologies that could limit this growth. Much of this momentum in population growth reflects persistently high desired fertility – for example, desired family size averages five children per woman in SSA, nearly twice the levels of Asia and Latin America (Bongaarts, 2011). It also reflects the high unmet need for modern family planning. In SSA, an estimated 53 million women want to avoid pregnancy but are not currently using a contraceptive method (Darroch and Singh, 2013). Opposition to contraceptive use and fear of side effects or other health concerns often contribute to this unmet need (Chowdhury et al., 2013), while method discontinuation accounts for an additional 38% of the total (Jain et al., 2013). Low use of FP has other consequences: high parity and improper birth spacing can increase the risk of maternal and infant mortality (Chowdhury, 2013); and unintended pregnancies increase the risk that women will have unsafe abortions. Approximately 5 million abortions are performed every year in Africa, the majority among young women (Brookman-Amissah and Moyo, 2004).

In recent years, behavioral economics has emerged as a potentially innovative approach to address major issues in health and development (Datta and Mullainathan 2012, Ashton et al. 2015). Behavioral economics adapts research on the cognitive psychology of human behavior and the nature of decision-making to refine neoclassical economic models of choice and long-held beliefs about economic rationality. Behavioral economics focuses on violations of neoclassical economic theory related to judgment – the processes people use to estimate probabilities, and choice – the processes people use to select among actions (Camerer and Loewenstein, 2002). The standard neoclassical economic model of behavior assumes that people are rational and have well-defined preferences, that they maximize their own well-being and are infallible processors of information, that they have unlimited self-control and consistent time preferences and that, while they occasionally behave altruistically, are primarily motivated by self-interest (Thaler and Mullainathan 2016).

Over the past several decades, the field of behavioral economics has challenged these assumptions (Thaler and Sunstein 2008, Kahneman 2011), often demonstrating through experiments that actual human behavior can deviate from the standard economic model in significant ways. To deal with complex situations, humans have evolved heuristics or shortcuts in thinking that, while efficient in general for decision-making, can under certain circumstances lead people to outcomes that may be suboptimal for them. For example, when faced with a complex decision involving many options, people may become overwhelmed, unable to process all of the information needed to identify their best possible option. As a result, they may simply choose the default option or no option at all. People also struggle with decisions that involve outcomes occurring at different points in time, frequently exhibiting present bias, choosing an immediate outcome or payoff even if their long-term well-being would be maximized by making a different present choice. Smoking, failing to exercise, and following nutritionally poor diets are all evidence of this phenomenon. Further, humans are innately social beings. Rather than focus solely on maximizing one's own well-being, people have been shown to be influenced by the opinions and actions of others. Emotional decision-making, limitations of self-control, misperceptions of risk, and inconsistent time preferences have been demonstrated to produce “suboptimal choices” about investments in schooling, adoption of fertilizers, and more (Camerer and Loewenstein, 2002).

The relevance of behavioral economics for the fields of family planning and reproductive health depends upon the extent to which these biases and heuristics in decision-making can also be found in behaviors related to high fertility, low uptake of FP/RH services, and high rates of contraceptive discontinuation, and the extent to which these biases play a role in decision-making, compared to systemic and contextual factors. Examples of potential suboptimal choices abound. Adolescents may misperceive the risks of sexual encounters, engage in wishful thinking about the likelihood of becoming pregnant, or overly discount the future by making choices under the assumption that love is eternal. They may also procrastinate in accessing FP/RH services, be unduly influenced by peers, and base decisions on imperfect information (e.g., of side effects, of disease and pregnancy risks). When presented with a menu of contraceptive options, women and couples may struggle to evaluate which option is best, finally eschewing any method or turning to the method that they have always used, even if it might not be the most appropriate one for their circumstances. Health workers too may become overwhelmed with large numbers of tasks, and as a result, perform sub-optimally on all of them.

Behavioral economics offers a variety of tools to help overcome these biases and barriers, including interventions such as commitment devices, cash transfers, vouchers, skills training, information sessions, simplification, social influences and reframing choice architecture. These can “nudge” people toward more optimal outcomes. For example, the Zomba Malawi Cash Transfer program provided teen girls with approximately \$10 per month conditional upon school attendance—an attempt to overcome “present bias” and encourage girls to invest in schooling; it increased school attendance and led to declines in early marriage, teenage pregnancy, and self-reported sexual activity (Baird et al., 2009). A more recent study attempted to overcome behavioral bottlenecks on both the supply and demand sides (e.g., status quo bias, cognitive overload) through a provider counseling app that prioritized the discussion of methods that are most suitable for clients based on their fertility needs (Ozler 2017).

### *Evaluation Background*

In 2014, Tulane University was contracted by the William and Flora Hewlett Foundation to examine the application of behavioral economics (BE) in the field of family planning and reproductive health (FP/RH) and to explore the potential for behavioral economics to address the challenges of FP/RH behavior change. The principal goal of the evaluation was to assess the impact of the Foundation’s BE strategies aimed at improving FP/RH service delivery in sub-Saharan Africa and elsewhere, with a primary focus being to examine the work of two behavioral economics grantees funded by the Hewlett Foundation - ideas42 and the Behavioral Economics in Reproductive Health Initiative (BERI) at the Center for Effective Global Action (CEGA). Both organizations, through the Hewlett initiative, partnered with local FP/RH organizations to test out BE interventions.

Seven partnerships that identified FP/RH problems and addressed them using BE (Appendix Table 1) were funded under the Hewlett Foundation’s [International Reproductive Health strategy](#) to apply new tools and approaches to improve family planning and reproductive health services and outcomes. These covered a wide range of BE issues that affect choices and judgment - present bias, influenced by social norms, limited cognitive capacity or limited attention, and framing. For example, several studies focused on shifting the timing of service provision so that it is more salient to women – providing FP counseling either right after an abortion or during immunization visits to health care providers. Other studies addressed problems of procrastination or status quo bias by utilizing micro-incentives, commitment devices, and life skills training to encourage women to



deliver in health facilities or to delay pregnancies. Still, other studies harnessed the power of social norms via visible colored bracelets that imbue status to women who complete the recommended number of prenatal visits. One of the major contributions of these studies is also their rigor; all of the studies have utilized either an experimental or quasi-experimental design, an important advance since many of these interventions have not previously been subjected to rigorous testing.

The Tulane evaluation of the Hewlett initiative has focused on several components, spanning both the micro questions related to the interventions developed by ideas42, BERI and their in-country counterparts and the macro questions related to the relevance and application of BE within the FP/RH fields:

1. **The value added from applying BE concepts to the field of FP/RH:** This involves multiple areas of focus, including comparisons of BE with behavior change theories and applications in related fields (e.g., behavior change communication and social marketing); a review of literature associated with the interventions of the grantees and their partners; the diffusion of BE within the field and of new concepts and interventions in general; and expert interviews to determine the relevance of BE and value of the piloted interventions.
2. **The BE study outcomes and scalability.** This part, which has not been finalized because not all of the RCTs have concluded, focuses on the RCT study results, and includes an assessment of adherence to appropriate RCT methods (Appendix 6); consideration of alternatives to the RCT study designs; secondary analysis of study findings and relevance of the results for scalability and replication.
3. **The diffusion of BE concepts and interventions:** in this part, we looked for evidence of BE's diffusion within implementing organizations and within the field of FP/RH. This was done primarily through in-depth interviews with implementing organizations and representatives of donors that often fund work in FP/RH globally.

## 2. Methods

To provide a clearer picture around the principal foci listed above, the Tulane evaluation involved several data collection tools, described more fully below. These include:

- (1) Document review of study materials, memos, reports, and protocols (applying an RCT evaluation checklist),
- (2) In-depth interviews (IDIs) with grantees, implementing partners, applicants/organizations exposed to ideas42 and BERI's activities, and experts in BE, social marketing, behavior change communication (BCC), FP/RH and related fields,
- (3) Visits to implementing partner sites to observe BE problem definition and intervention design practices and to interview project staff,
- (4) Expert panel reviews of BE interventions, evaluation questions, and study results,
- (5) Literature review of BE and its intersection with FP/RH, and
- (6) Literature review related to the spread and scaling of innovations in FP/RH.

This data collection has occurred in several phases, dating back to 2015.

## *Document Review*

As part of the evaluation, Tulane conducted a thorough review of materials prepared by ideas42 and BERI. This included all documents submitted to Institutional Review Boards (e.g., consent forms, materials, research protocols, interventions, and data), problem definition memos (ideas42), research proposals, and reports, such as the white papers produced by the two organizations.

Study protocols were evaluated using an RCT checklist culled from multiple sources (i.e., Anglemeyer et al. 2014, Coalition for Evidence-Based Policy 2010) that describe key issues measuring adherence to rigorous scientific methods in a randomized controlled trial. The overall goals of the reviews of the RCTs implemented by ideas42 and BERI were: (1) to assess the quality of the RCTs and the soundness of the conclusions coming from each study, (2) to show or suggest cases in which alternative study designs might be appropriate (e.g., designs using causal inference techniques, such as instrumental variables, marginal structural models, discrete choice experiments or propensity scores), and (3) to examine issues related to generalizability (i.e., external validity) for other contexts and programs that will allow Hewlett to make recommendations in their future BE work.

## *In-depth Interviews*

In-depth Interviews (IDIs) were an integral component of the evaluation, with a focus on gathering information and perceptions about the application of BE to FP/RH from a wide set of actors in the field. Interviewees were purposefully selected based on their area of expertise – BE, FP/RH, or a combination of both, and their relationship to the Hewlett funded project. First, a roster of potential participants was developed based on the following classifications: Hewlett grantee, implementing partner of grantee (i.e., headquarters staff, in-country program staff, M&E and research staff), personnel at organizations who applied to the Hewlett project through ideas42 matchmaking but not funded, FP/RH experts, and BE experts. Potential participants were identified through referrals directly from Hewlett and grantee organizations, through internet searches, and through local and international contacts. Participants were also recruited at relevant conferences (2016 International Conference on Family Planning, 2016 Social and Behavior Change Conference and Behavioral Exchange). Referrals from participants themselves were also used to recruit participants with the pertinent area of expertise.

A total of 83 IDIs were conducted. The content and direction of these interviews were iterative and evolving; early IDIs led to changing of interview scripts as consensus was reached in some areas and as new issues emerged (Appendix 7). To interpret the qualitative data, a codebook was developed *a priori* based on the three focus areas and findings up to the date of the first Expert Panel (April 2016). This was then amended based on comments on Tulane's Midterm report (June 2016). To craft the codebook, two Tulane researchers applied codes to a selection of three interviews to compare inter-coder reliability (i.e., that codes are applied to text in the same conceptual manner by both coders). Results indicated agreement between the two coders was very high - more than 90% for the vast majority of the codes. The remaining interviews were then coded independently. Coded segments of text relating to each focus area were reviewed and summarized by three team members.

## *Literature Reviews*

The focus of the literature reviews was on examining the expansion and uptake, if any, of BE activities in the FP/RH field and the relevance of the piloted interventions for generating potential advances in the field. Search terms included: behavioral economics, family planning, reproductive health, job aids, hotlines, vouchers, peer education/educators, social influence, conditional and unconditional cash transfers, appointment reminders/e-reminders/SMS texts, integration of family planning / reproductive health services, livelihoods/life skills training, and meta-analysis. Databases searched for the review include Google Scholar, PubMed, and the Tulane University online journal search database. The following websites were also searched for relevant publications: worldbank.org, who.int, ideas42.com, and www.beri-research.org. Documents were also identified through the review of reference sections of included documents, through recommendations from expert panelists and IDI participants, and through previous work from the Tulane team. A variety of different documents were included in the review (e.g., commentaries, reports, and research studies). The majority of documents included were from studies published in peer-reviewed journals.

## *Panels and Meetings*

A key mechanism for reviewing and interpreting findings was the Panel of Experts (POE). The POE met for the first time in April 2016 and then again in June 2017. The first POE was held at Tulane University and included 16 participants, while the second was held in Washington, DC and expanded to include partners and donors. These panels of experts included Tulane faculty; representatives from the Hewlett Foundation, ideas42, and CEGA/BERI; social psychologists; faculty with expertise in BE or FP/RH from other institutions; representatives of FP/RH organizations; and individuals from donor organizations.

## *Site Visits*

Visits were made to four of the seven sites implementing studies of BE interventions, including two to each of the grantees' studies. These site visits included Nepal (ideas42, August 2016), Senegal (ideas42, November 2016), Tanzania (CEGA/BERI, March 2017), and Sierra Leone (CEGA/BERI, April 2017). The purpose of the site visits was to provide a more in-depth view of the processes utilized by the grantees (e.g., problem definition, intervention design, implementation of RCTs) and to conduct IDIs with personnel at the front lines of study implementation.

## *Evaluation limitations and challenges*

Several challenges of this evaluation are worth mentioning. First, this was an evaluation of an “in process” investment, meaning that all activities were underway as the evaluation was taking place. During the evaluation, grantees and implementing partners were going through the BE process and learning from it. Consequently, the evaluation was dynamic, adaptive and iterative. While it allowed room for creativity and flexibility, it required continuous review of the evaluation process itself, revising evaluation priorities and questions. Because of the prospective nature of the evaluation, our findings are less “final” but more “what we know to date.”

The scale of the Hewlett portfolio of projects that included projects in multiple countries with different grantees and partners means that there were many moving pieces to study. Coordination presented a challenge at the beginning, and substantial effort was necessary to understand the work

of the partners and the organizational dynamics and to gain buy-in from partners. Several implementing partners also experienced high turnover rates during the course of the evaluation, which put some limits on the consistency of reporting, data collection, and quality. Finally, while the evaluation was interdisciplinary, there was a risk that methodologies and terminologies were used and understood differently across partners. While this issue may have been resolved over time by working closely with partners, there could still be lingering effects in the interpretation of the results.

### 3. Results and Findings

Numerous findings emerged related to the value-added of behavioral economics, and to the diffusion of behavioral economics principles and findings. Within each area, we integrated findings from across multiple evaluation activities (i.e., the review of the literature and grantees' background documents, the Panels of Experts, case studies, and IDIs).

#### *Value Added of Behavioral Economics*

*Key Findings:*

- The application of behavioral economics in these studies made contributions in the followings: (1) theoretical approach, (2) intervention design, (3) and intervention evaluation.
- Reviews of the FP/RH literature indicate that most of the interventions being implemented in the seven studies have previous incarnations in the fields of FP/RH.
- While there has been some disagreement regarding the novelty of BE within the larger field of social and behavior change, the majority of people interviewed reported optimism that BE could provide a fresh take on old problems in the FP/RH field.
- Most people from ideas42's implementing organizations felt that the DDDT process utilized a novel formative research process, which generated innovative tweaks to existing interventions.
- Overall, all seven studies augmented existing interventions by adding "tweaks" or "nudges" informed by behavioral economics.
- Until these current studies, very few of the BE interventions in FP/RH have been subjected to rigorous evaluation, which is one of the main contributions of the Hewlett-funded evaluation.

Evidence is rapidly amassing that BE can address biases and flaws in judgment and decision-making in other development fields, including agriculture, micro-finance, and education. Nonetheless, for BE to make significant contributions to FP/RH, a clear case must be made that behavioral economics leads to new tools – or revamped tools – that are more effective (or more cost-effective) than standard practice in FP/RH. This is challenging. Practitioners have been implementing and tweaking FP/RH programs for decades. Most of these programs have been implicitly or explicitly tied to underlying theories of behavior change (Warriner 2012), often informed by some of the same

social psychological principles embedded in BE. Hence, many of the BE nudges resemble intervention approaches already used in the FP/RH field.

*The first strand* of investigation was therefore assessing on a theoretical level the novelty of BE for the field of FP/RH and how BE could be used to address problems in FP/RH. As part of this investigation, Tulane, following the lead of both BERI and ideas42, set out to assess where BE concepts had relevance for FP/RH problems and whether or not BE had tools that could remedy or solve those problems. As noted in the introduction, the relevance of behavioral economics for the fields FP/RH depends upon the extent to which biases and heuristics in decision-making are problematic for choices related to fertility and parity, uptake of FP/RH services, and contraceptive discontinuation, among the many other fertility and family planning decisions. Numerous examples could be cited: magical thinking about pregnancy risks for unmarried adolescents, overwhelmed cognitive capacity when women are presented with family planning options and provider bias in presenting those options (Appendix Table 2). Further, we assessed, again borrowing from the work of ideas42 and particularly BERI, how different BE tools (e.g., defaults, framing, commitment devices) were exemplified or could be exemplified by current or hypothetical interventions (Appendix Table 3). Again, examples abounded on a theoretical level: text message reminders for FP refills or appointments, FP health worker incentives, youth cash or commitment devices to remain in school, word order and word simplification on outreach materials.

When the question of the novelty of BE for the fields of FP/RH was posed to IDI participants, there was no consensus. Many respondents felt that BE was simply a repackaging of old concepts (i.e., “old wine in new bottles”). Developers of behavior change communication (BCC) programs, for example, noted how BCC has long worked to harness and shift social norms surrounding fertility and family planning to reduce unmet need, to increase the acceptability of modern FP methods, and to reduce family size norms (Piotrow et al. 1997). In fact, discerning distinctions between behavioral economics and other behavior change approaches, such as social and behavior change communication became a major theme in the IDIs. It was evident from the discussions that people perceived many commonalities between BE and BCC, but there was little consensus regarding how they differ. As one BE expert stated, “Where BCC is more about telling people what they should do, we are more agnostic and want to focus on the people that want to make a change but can’t for some reason.” As noted by another BE expert, BCC and BE can be viewed as complements:

“Both recognize that human behavior occurs in a complex socio-ecological context and there are many different factors within this context that influence behavior. [BCC] primarily seeks to change behaviors by positively influencing knowledge, attitudes and social norms through multi-faceted communication approaches....BE complements these tools by designing solutions for other factors influencing behavior, such as, but not limited to, changing the sequence, timing or format of information, eliminating process hassles, or strengthening pathways to action (Guichon 2016).

In spite of the lack of absolute agreement on the BCC/BE distinction, it was generally agreed that BE added a new theoretical lens to formative research to understand barriers to desired behaviors, outside of common approaches that have been employed in SBCC. At the program level, there was an overall consensus expressed across the various participants that using a BE approach has the potential to add value to program design for FP/RH interventions and that this value could help achieve important goals in the field – even if not addressing the “biggest challenges.” As noted by several respondents, organizations like ideas42 and BERI have brought a fresh lens to old problems,

particularly through the diagnostic tool utilized by ideas42, allowing for solutions that may not have been developed through “old” formative research. Nonetheless, people expressed reservations: “I think human beings love silver bullets. We want to believe that [BE] will work- that is another thing that is happening right now. You can also tell that we have a healthy amount of skepticism about that.” Some organizations were even spurred to highlight, rightly or wrongly, their behavioral economics roots, claiming that they have been using “behavioral economics (BE) concepts over the past decades to influence how and why people make choices that affect their own health and well-being and that of their families and communities” (Jacoby et al. 2017).

Regardless of the novelty of BE, the vast majority the implementing partners, across ideas42 and BERI projects, were excited to be implementing interventions informed by BE, were optimistic about the results of the project even if the expected effect magnitudes were small, and expressed a desire to use a BE approach in future work. Even SBCC experts noted that using a BE lens to understand problems and map to interventions might be a new way to achieve established goals of BCC/SBCC. In most cases, participants considered BE to be “another tool in the toolbox” and believed that the value would be demonstrated from the results of the Hewlett-funded interventions.

*A second strand* of investigation was to ascertain what aspect of BE, if any, was new for the field of FP/RH. This was the principal focus of the first set of IDIs conducted before the first expert panel meeting in April 2016. At the time, many IDI participants felt that BE represented a novel process to conduct formative research and map findings of that research to interventions. Most of the implementing partners were impressed with the define-diagnose-design-test DDDT process of ideas42, even though many of them highlighted how they used their own formative research processes to inform program design. Participants working with ideas42 heralded their structured, detailed process as a unique and valuable part of their work. In the later IDIs, a related theme that emerged was how the conceptualization of behavior in the DDDT process differed from those often used in standard formative research. In the DDDT process, behavior was described more like a continuous variable – meaning the steps along the path to a behavior are identified, and decisions at each point in the pathway are analyzed to discern barriers that are linked to interventions.

On the ideas42 side, problems were identified and then examined using an ideas42-developed diagnostic tool, to ascertain whether there was a particular behavioral bias involved and, if so, whether or not corresponding nudges, tested and refined, could then be used to address those biases. These processes yielded BE-informed SMS text messages and appointment reminders, FP/RH health worker job aids, and telephone hotlines with vouchers/e-coupons (Appendix Table 1). In contrast, the diagnostic and formative research process used for the design of BERI interventions was less well-defined. Known problems, such as norms for high parity families, at-home deliveries or early adolescent pregnancies jeopardizing schooling and future prospects, were addressed with BE-tweaked conventional approaches (e.g., commitment devices, conditional and unconditional cash transfers, and bracelets as a social influence on behavior). In short, while both grantees ended up with BE-informed interventions, the DDDT process of ideas42 appeared to be a more novel way of approaching formative research in the design of interventions.

*A third strand* of investigation was to review the evidence base for the interventions developed by the BE organizations and their partners to determine whether, from an evidence perspective, there was already sufficient existing empirical support that would obviate the need for the Hewlett-supported work. The FP/RH BE interventions being implemented by BERI and ideas42 address behavioral issues across a spectrum of behavioral biases: lack of self-control, procrastination, present

bias, status quo bias, overconfidence, magical thinking, overgeneralization from personal experiences, framing, limited attention, and limited cognitive capacity. In order to ascertain whether these interventions were contributing something new to the field of FP/RH, a detailed review of studies of the use and effectiveness of these tools in the field was conducted, focusing on: (1) conditional (CCTs) and unconditional cash transfers (UCTs) (for present and status quo bias), (2) health worker job aids (for limited cognitive capacity); (3) appointment reminders/e-reminders/SMS texts (for framing and limited cognitive capacity), (4) telephone hotlines and vouchers (for salience), (5) peer educators and social influences (for harnessing social norms), (6) integration of family planning services with other services (for salience), and (7) livelihoods training (for present bias) (Appendix Table 4). It is important to point out that even if these tools have all been used before, it is possible that the addition of behaviorally informed “nudges” may increase their effectiveness. In fact, it was recognized by BERI and ideas42 that the interventions themselves may not represent novel ideas but rather that the behavioral tweaks represented an attempt to make these interventions more effective.

For the most part, there was limited definitive evidence in the existing literature to support the effectiveness of these interventions – with the exceptions of cash transfers, vouchers and SMS text message reminders (Appendix Table 4). This was largely because few rigorous evaluations of these interventions exist. For example, while many studies document the use of job aids for FP/RH, few, if any, studies have employed RCTs to evaluate their effectiveness. In the case of a mobile job aid in Tanzania, it was found that the mobile job aid was “a highly acceptable FP support tool,” that CHWs believed that the job aid improved service quality and led to “timelier and more convenient care; better quality of information; increased method choice; and improved privacy, confidentiality and trust with clients” (Braun et al 2016). No RCT was employed, and no link with contraceptive discontinuation or method uptake was made relative to a control group.

Vouchers, on the other hand, are more easily subjected to rigorous RCT designs because their distribution can be explicitly controlled by the researcher. However, a systematic review of thirteen voucher programs found that rigorous evaluation designs (randomized controlled trials, non-randomized cluster controlled trials, controlled before and after studies, interrupted time series) were employed in only five of the evaluations. A study in Bangladesh (Hatt et al. 2010) found statistically significant increases in qualified attended deliveries, antenatal care, and postnatal care compared to controls. (Bellows et al. 2011). A study of sex workers in Nicaragua (McKay et al. 2006) found that distribution of vouchers was associated with a significant decrease in STI prevalence among the workers, while a separate study in Uganda (Bellows 2009) found a significant reduction in syphilis prevalence among the voucher treatment group relative to controls.

The effects of CCTs on fertility outcomes remain mixed. Most studies have been observational, and few RCTs have been conducted to date. The Zomba, Malawi Cash Transfer program (of BERI) provided teen girls with about \$10 per month conditional upon school attendance—an attempt to overcome “present bias” and encourage girls to invest in schooling; it increased school attendance and led to declines in early marriage, teenage pregnancy, and self-reported sexual activity (Baird et al., 2009). A World Bank study of the ethics of financial incentives for family planning found that CCTs and vouchers increased knowledge and use of FP but had lesser effects on fertility (Chowdhury et al., 2013). Todd et al. (2012) found that a CCT program in Nicaragua was associated with better birth spacing, but several studies have actually found that CCTs were associated with higher fertility (Stecklov et al. 2007, Arenas et al. 2015), most likely through incentives that encouraged couples to have additional children. In terms of wider reproductive health outcomes, a

review of eight CCT studies on maternal and newborn health (Glassman et al. 2013) concluded that CCTs increased antenatal visits, skilled attendance at birth, delivery at a health facility, and tetanus toxoid vaccination for mothers and reduced the incidence of low birthweight. However, the programs did not have any documented effects on fertility or maternal or neonatal mortality.

In short, while all interventions implemented by the grantees/partners have histories in the field of FP/RH, the tweaks including a behavioral nudge make them novel approaches. This was truer for the nudges designed by ideas42, perhaps because of their in-depth DDDT process, but was also pertinent for BERI. Because the evidence base from the existing literature for most of these interventions (with the exceptions of conditional and unconditional cash transfers) was weak, the use of RCTs to assess their merit was one of the main contributions of the Hewlett effort. This took varied forms. In some cases, an effect was seen when comparing BE-informed interventions with standard BCC intervention. For example, in Kenya, the studies compare a “primed” conditional cash transfer with a standard CCT. In other cases, the studies compare a tweaked, BE-informed intervention with standard service delivery. For example, in Sierra Leone, women with BE-informed social-signaling bracelets were compared with women engaged in prenatal care absent any behavioral messaging.

### *Study Outcomes/Scalability*

#### *Key Findings:*

- The seven studies are at varying levels of completion; to date four have generated outcome results. These results provide encouraging support for the application of BE within the fields of FP/RH.
- There is limited evidence of scale-up of effective interventions, largely because most are only recently completed.
- Several key factors are likely to affect successful scale-up, including accounting for context, cost, and buy-in and involvement of stakeholders.

To date, four of the seven studies have yielded results (Appendix Table 5) (Lorenzana et al. 2017a and 2017b, Karim et al. 2018, Cohen et al. 2017, Shah 2016, Karing and Baker 2017). For example, in Nepal, provider performance comparison posters were associated with a 7.0 percentage points [95% CI: 1.3 to 12.7, p-value < 0.05] increase in post-abortion LARC-uptake (Lorenzana et al. 2017a). In Uganda, callers interested in information or SRH services for themselves were 3 percentage points (36.4% versus 33.3%, p=.10) more likely to redeem vouchers/e-coupons with BE-informed SMS text reminders (Lorenzana et al. 2017b). In Kenya, women who received CCTs with both labeling and pre-commitment planned earlier for delivery location were 18 percentage points more likely to deliver in a facility and were 14 percentage points more likely to deliver in their preferred facility. Women in both “Primed” Cash Transfers (PCTs) and Conditional Cash Transfers (CCTs) also reported higher quality maternity care (Cohen et al. 2017). In Ethiopia, the Client Care Checklist (job aid) increased the recall of side effects from 1.4 to 1.7 (p<.01), while the Appointment Card and Client Care Checklist decreased the 12-month cumulative contraceptive discontinuation rate from 53% in control areas to 42% in treatment areas (p<.05) (Karim et al. 2018).



Even for studies that were not yet complete, valuable lessons were being learned. In Senegal, for example, 96% of women seeking child immunizations were given BE-inspired referral cards for FP services. Of these, 60% opted for same-day birth-spacing conversations, 37% agreed to come back on another day for birth-spacing conversations, and 3% said that they had already participated in such conversations. Important process lessons were also learned. In Uganda, for example, it was noted that “it is very important for implementers to work together at every step of the process to learn to effectively apply the BE approach, but especially for the diagnosis phase.” For the remaining studies, study participants indicated that the expectations of the impact from the interventions may be small, but they were optimistic about the potential for delivering a broader impact through replication. In fact, there was a strong sense that many of these interventions are easily scalable, assuming that they show positive results, because they involved minor tweaks to existing interventions and because they did not require extensive capacity building. This was particularly likely for smaller nudges (e.g., social signaling through bracelets), which appeared to be poised for scale-up within partners’ organizations. Some of the key factors affecting the likelihood of scale-up include:

- The interventions have been designed with context taken into account.
- The interventions cost little and are straightforward to implement.
- There is varying buy-in, involvement, and ownership by stakeholders related to their level of integration throughout design and implementation.

Contexts, where the majority of FP services are provided through the public sector (government and NGOs/INGOs), may provide the greatest opportunity for scalability since they are likely to have wider networks of providers. It was critical in these settings that there was ongoing involvement with the government (e.g., Sierra Leone, Senegal) at all stages of implementation and replication. Alternatively, organizations such as BRAC, a highly networked organization across sub-Saharan Africa, provide opportunities for expansion and scale-up beyond the original countries where the studies have been implemented. Further engagement with a wider network of FP/RH providers (government and NGOs/INGOs) offers multiple benefits such as:

- 1) Priming the environment for diffusion, replication, and scale-up;
- 2) Generating interest and excitement about BE and its applications;
- 3) Identifying and mitigating external threats to intervention and study design.

Laying the groundwork for scale-up is an ongoing process. As noted by one researcher, “Things should be designed with scale-up in mind from the beginning.” However, stakeholder engagement requires substantial additional labor, and a policy- (diplomacy) oriented skill set. This additional responsibility would likely require additional funding and planning and might be best carried out by a person on the ground (from within the implementing organization or an embedded fellow).

### *Key Findings*

- There are clear and natural roles for increasing the likelihood of BE spread among the various actors in this evaluation: Hewlett (innovation), ideas42/BERI (diffusion) and implementing partners and champions (dissemination and scale-up).
- In the area of diffusion of BE skills, there has been limited evidence of the transfer of BE capacity to FP/RH implementing partners in problem definition, diagnosis, and intervention design.
- Many factors are likely to affect diffusion, including stakeholder involvement, capacity transfer, local context, and cost. Stakeholder engagement, in particular, is time- and labor-intensive and may require additional funding and planning to achieve, ideally with a person on the ground (from within the implementing organization or an embedded fellow).
- Both within organizations and the larger FP/RH field, the role of BE champions appears to be critical for ongoing diffusion, either of BE concepts or the results of successful studies.

It is important to distinguish between the development of effective BE-informed interventions, which could be replicated and scaled-up in a variety of settings, and the diffusion of BE concepts, principles, results and diagnostic tools, which form a larger framework for analyzing and solving potentially intractable problems in FP/RH. We examined diffusion within the framework of innovation spread developed by Greenhalgh et al. (2014) at the macro level (i.e., the field of FP/RH) and the micro level (i.e., within implementing partners). In this context, we distinguish between three forms of spread: (1) promoting ongoing innovation within the intersection of the BE and FP/RH fields. (2) diffusion of BE concepts, ideas, and methodologies (e.g., DDDT process, courses on BE), and (3) dissemination of BE results and scaling of implementation of proven interventions. Each of these forms falls naturally within the scope of each of the actors in this field: Hewlett can work to promote a fertile environment for innovation involving BE, ideas42/BERI can work to diffuse BE concepts, methodologies, and skills and implementing partners and champions can work to disseminate results and findings and to scale up successful interventions.

The evidence on diffusion to date depends upon which aspect of spread one examines. At the macro level, there is emerging evidence of increased knowledge and awareness of BE concepts within the field of FP/RH. Additional projects have evolved both within the existing partnerships and outside of the Hewlett portfolio, including the recent USAID-funded Breakthrough Action and Breakthrough Research projects, ideas42's partnership with Pathfinder International in the Gates-funded Resolve project, Pathfinder International's Beyond Bias project, and JSI's partnership with JHU/CCP in the MyChoice project in Indonesia, both also funded by the Gates Foundation. Further, it is apparent that the Hewlett BE initiative has gained traction and notice within the field of FP/RH. As noted by one FP/RH researcher, "key people at USAID pay attention to what organizations like Hewlett and Gates are doing."

Both within organizations and in the wider FP/RH field, the presence of BE "champions" is likely to help facilitate the spread of BE concepts and interventions. This was apparent in several of the IDIs. As noted by one implementing partner,

*I am in [xxxx] to bring new thinking. BE may have been here a while, but it takes someone like me inside to get people onboard. This is needed for organizations like [xxxx]. Someone has to be interested for an idea to get picked up... I went to the summit so I have become the point person inside [xxxx], but others are interested as well.*

An on-the-ground researcher stated...

*...I think having other global champions [would help]. So, for example, the Minister of Health in [xxxx] is saying that our integration of these two services worked really well or really took off after the intervention, certainly people will say oh what is that? If there are global champions in the form of ministers or renowned experts in family planning or other oversight bodies, that would probably help the uptake of BE.*

Developing BE/FP champions would require funding and commitment but might be achieved by embedding key stakeholders within BE organizations or BE personnel within FP/RH implementing organizations or BCC programs.

However, at the micro level, a potential impediment to extensive diffusion of BE is the supply of BE experts both from a theoretical and a design perspective. At this stage, there appears to have been varying degrees of transfer of BE capacity from grantees to implementing partners. This was particularly evident for BE processes (DDDT) and skills that would allow the application of the approach in the design of new interventions absent the direct involvement of BE organizations. Though, it should be noted that the transfer of capacity to use BE theory in the design of public programs was not a stated objective in the initial framing of grantee partnerships with implementing partners. In one country, it was noted that “the determination of the BE approach was an ideas42 internal process, leaving an implementation gap for [the implementing partner].” Similarly, in another country participating in a BERI-led project, the design process largely occurred at a distance, and the local research team expressed that they did not feel a part of the design process. So far both BE and ideas42 have seemed to rely on short-term on-the-ground technical assistance in the design and implementation of BE interventions, which limited the transfer of skills to the in-country researchers to use BE in the design of future interventions.

ideas42 is keenly aware of this concern and has taken it very seriously by recently offering short courses to FP/RH practitioners and working to embed ideas42 personnel within partner organizations or partner personnel within ideas42. Additional exploration of capacity building in partner organizations is needed to further assess the diffusion of BE. Furthermore, a deeper assessment of organizational contexts where diffusion and uptake can occur is required to understand what roles will be played by BE experts (versus service delivery providers) in future interventions. Stakeholder engagement and buy-in, perhaps supported by additional projects and funding, was cited in IDIs as critical. Some possibilities for increasing skills transfer might also include:

- Increasing the size of program design budgets with an emphasis on applying behavioral science to enable organizations to have the time and space to build BE components into interventions.
- Funding technical experts to train organizations via masterclasses, online courses, and embedding technical experts (like the approach adopted by ideas42) inside of a health service provider.

Related to this last point, in other contexts (Sierra Leone), a consistent long-term residence of the Principal Investigator before and during the study had multiple long-term benefits, such as aiding in building stakeholder relationships and ensuring adherence to the RCT, as well as contributing to the development of a study Technical Working Group with the service provider (MoHS), and with reporting to larger ministry structure (Technical Coordinating Committee) to coordinate across health projects and areas. Different from other projects, the study in Sierra Leone supported an early career academic completing a doctoral degree. At this stage of professional development, the project lead had the ability to become a central actor across stakeholder groups in-country, while also maintaining the technical rigor to apply BE concepts and evaluate the project with support from BERI. This project stands-out from the suite of interventions, where the transfer of BE is higher and positive results are more likely to be scaled-up. Therefore, another mechanism to support diffusion might be funding applied researchers in early stages of professional careers (pre-docs, post-docs, fellowships) and other stakeholders to attend BE workshops and courses.

## 4. Conclusions

This evaluation utilized a multi-methods approach to assess important questions about the relevance of behavioral economics for the fields of FP/RH and to review existing BE efforts within the fields, particularly those supported by the Hewlett Foundation, managed by ideas42 and BERI, and implemented by a host of FP/RH organizations. Overall, this evaluation represents an important step in the assessment of the role of BE for the design, implementation, and evaluation of FP/RH interventions. Amongst the many results, we highlight several key findings which were developed from the evaluation:

1. The Hewlett Initiative was successful in generating BE-informed interventions, and both the ideas42 and BERI partnership models supported in most cases the successful implementation and testing of interventions. In several cases, external factors affected the timelines for completion.
2. The value of BE to the fields of FP/RH exists on four levels:
  - a. Theoretically – demonstrating through a review of BE background documents that the interventions, while not completely new, re-package existing interventions with BE-informed tweaks.
  - b. Design - utilizing new formative research methods and the application of the ideas42 DDDT methodology.
  - c. Evaluation - applying RCTs and quasi-experimental designs to improve the evidence base for FP/RH interventions and the value of BE where evidence to date has been weak.
  - d. Interventions - developing new and (cost-)effective interventions that can be shared across implementers and scaled-up within organizations or public sectors.
3. The application of BE in interventions could achieve important goals in the field even if not addressing the biggest challenges. Overall change is likely to require addressing consumer behavioral barriers, provider behaviors, and even structural barriers. Nudges for the first two, combined with structural interventions (e.g., policies, pricing), might yield the greatest benefits.
4. By applying rigorous research designs (i.e., experimental/quasi-experimental), the seven studies examined contribute significantly to the evidence base for FP/RH interventions and

design where previous studies have not. Different strategies may be needed for scaling and for diffusion depending upon the actor: donor, BE organization (e.g., ideas42, BERI), BE champion (within implementing organizations and large donors).

5. In cases where there was more time invested in building partnerships, longer-term payoffs were observed including additional funding opportunities, mitigation of study complications, and a greater sense of ownership on all sides. Greater physical presence “on-the-ground” by BE grantees was associated with numerous additional benefits, including greater government buy-in, anticipation of and adaptation to unforeseen challenges, and more productive partner relations.
6. Carrying forward BE concepts, methods and ideas will require stakeholder engagement and commitment. In studies where stakeholders were actively involved, problems were resolved more quickly, and all stakeholders exhibited greater buy-in to the process and the study results.

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## Appendices

Appendix 1. Table 1. BE Studies Implemented by ideas42 and BERI and their Partners

Study	BE Bias Addressed	BE Intervention	Organizations
Impact of pre-commitment to Delivery Facilities on the Quality of Maternal and Neonatal Care in Kenya (J. Cohen, G. Golub, M. Kruk, K. Lofgren, M. McConnell, G. Omondi, C. Rothschild )	Lack of self-control / procrastinating / present bias / status quo bias	<b>Micro-incentive:</b> Primed or conditional cash transfers if women follow through on plans	BERI, Harvard, Moi, Jacaranda Health, IPA
Delaying pregnancy among youth in Tanzania; using empowerment and livelihoods for adolescent clubs to affect school attendance, attitudes & use of contraceptives (BERI) (M. Shah)	Lack of self-control / procrastinating / present bias / status quo bias	<b>Micro-incentive:</b> ELA for adolescents; goal setting & small material incentives	BERI, BRAC, Ministry of Health, Marie Stopes Tanzania
Social incentives to increase demand for skilled care during pregnancy & childbirth in Sierra Leone: (BERI) (A. Karing)	Social norms	<b>Social persuasion:</b> bracelet colored to indicate number of ANC visits completed	BERI, Innovations for Poverty Action (IPA), MoHS
Integrated family planning services with routine immunization services provided by health workers in Senegal	Limited attention/ Limited cognitive capacity	<b>Salience:</b> Integration of services	Ideas42, Intrahealth
Reducing provider cognitive overload and client forgetfulness to reduce the rate of discontinuation of modern method contraceptives among women of reproductive age in Ethiopia	Limited attention/ Limited cognitive capacity	<b>Simplification:</b> Job aids, reminder cards	Ideas42, John Snow International, The Last Ten Kilometers Project
Increase uptake and use of SRH services referred through MSU's call center hotline in Uganda	Framing/Limited attention/ Limited cognitive capacity	<b>Micro-incentives, reminders:</b> Vouchers, SMS text messages	Ideas42, Marie Stopes - Uganda
Post-abortion counseling for Long Acting Reversible Contraception (LARC) in Nepal	Framing/Limited attention/ Limited cognitive capacity	<b>Social persuasion:</b> Peer comparison poster of LARC uptake at health facilities	Ideas42, Marie Stopes - Nepal

Appendix 2. Table 2. Where and How does Behavioral Economics have relevance for FP/RH?

<b>Standard Economic Model</b>	<b>Behavioral Economics Twist</b>	<b>Relevance for FP/RH? Examples?</b>
People are rational and maximize their own well-being	People do not always exhibit self-control and act in ways that adversely affect their long-term wellbeing	Having sex now versus waiting -> early age at sex, early age at marriage v. staying in school; Unintended pregnancies leading to unsafe abortions
	People are influenced by others; conform to social norms	Fertility desires are influenced by family members, social norms regarding gender preference and family size
	People engage in actions that appear to violate self-interest (reciprocity, altruism, inequity aversion, fairness)	
People's preferences are time-consistent	People procrastinate	Unmet need; delays in getting methods; Delays when switching methods leading to breaks in use
	People exhibit a bias for fulfilling present needs and desires	Similar to self-control
People perfectly process information and assess risks	People often make decisions based on emotion	Having sex now versus waiting; love is forever -> early age at sex, early age at marriage v. staying in school; Unintended pregnancies leading to unsafe abortions
	People are often overconfident in their abilities; subjective confidence exceeds objective performance	Under-estimating the likelihood of pregnancy; Underestimating maternal and infant mortality risks
	People engage in "magical thinking"; overestimating the likelihood of good events and dismissing bad ones	Adolescents do not believe they can become pregnant or get an STI

<b>Standard Economic Model</b>	<b>Behavioral Economics Twist</b>	<b>Relevance for FP/RH? Examples?</b>
	People extrapolate from their own experiences to make conclusions about larger trends and experiences	Perceptions that maternal mortality risks are non-existent
	People make decisions based on how choices are framed (gains v. losses),	Ordering / descriptions of FP methods (95% effective v. 5% chance of pregnancy?)
	People have limited attention & forget to do things	Post-partum, post-abortion, & other missed opportunities to provide FP counseling; Integrating FP in other services
	People have limited cognitive capacity	Women are overwhelmed by complex method choices; too much information or too complex FP info
	People exhibit status quo bias and a preference for the familiar	Couples stick with methods (e.g., pill, traditional) that are familiar to them

(Adapted from Camerer and Loewenstein 2002 and Ashton et al. 2015)

Appendix 3. Table 3. BE Prescribed Tools for Different BE Biases and examples for FP/RH

Tool	Description	Selected Examples
Defaults	The option an individual receives if he/she does not make an active choice. Overcomes procrastination, complex & confusing choices, social pressures or cognitive costs of decision-making	<ul style="list-style-type: none"> <li>Offering every woman contraception immediately following childbirth, an abortion or first menses</li> </ul>
Reminders	Can help decrease the cognitive burden required to sequence or complete a task	<ul style="list-style-type: none"> <li>Text message reminders for contraceptive refills or antenatal care appointments</li> </ul>
Framing	Language used to describe a set of choices, which can shape people’s decision-making. Can help when people mis-perceive risks, by making certain outcomes seem more salient than others	<ul style="list-style-type: none"> <li>Varying education or counseling to present antenatal check-ups as a gain versus avoided loss</li> </ul>
Commitment Devices	Pre-committing to a particular decision can help people align their actions with their preferences. Helps with procrastination, social pressures & present bias	<ul style="list-style-type: none"> <li>“locked” savings programs that tie money to specific school or health outcomes</li> </ul>
Labeling	Exploiting a person’s “mental accounting” to encourage spending on investment goods that benefit his / her own welfare	<ul style="list-style-type: none"> <li>Cash transfers or voluntary savings labeled for health or education expenditures</li> </ul>
Micro-incentives	Token rewards, particularly those creating social recognition or salience, can be more motivating than the monetary value of the reward	<ul style="list-style-type: none"> <li>Vouchers or in-kind gifts to reward health worker performance or patient compliance</li> </ul>
Social Influences	Harnessing social norms or pressures to encourage beneficial decision-making can be used to overcome biases in decision-making	<ul style="list-style-type: none"> <li>Commitments made in public (e.g., for health savings or education)</li> <li>Social accountability for health service providers (e.g., public report cards)</li> </ul>
Timing & Salience of Information	People may process complex information more effectively if the information is presented in a targeted way, at a specific time, or through a particular agent	<ul style="list-style-type: none"> <li>Provision of information through trusted sources</li> <li>Word order on outreach materials</li> </ul>
Identity	Increasing the saliency of a person’s gender, race, or role can be used to make certain choices (& their consequences) more salient	<ul style="list-style-type: none"> <li>Appealing to women as mothers, rather than as wives</li> <li>Appealing to men as providers, rather than boyfriends</li> </ul>

## Simplification

Making the terms/consequences of a decision more clearly understood, at the correct moment in time, can reduce cognitive costs of decision-making

- Minimizing paperwork at clinic visits
- Streamlining counseling materials or creating heuristics for clinicians

(Source: Ashton et al. 2015)

Appendix 4. Table 4. Interventions and their Evidence Base

	<b>Conditional &amp; Unconditional Cash Transfers</b>	<b>Job Aids</b>	<b>Appointment card reminders/SMS text messages</b>	<b>Hotlines / Vouchers</b>	<b>Peer educators &amp; Social Incentives</b>	<b>Integration of Family Planning services</b>	<b>Life Skills and Livelihoods Training</b>
Problem	Adolescents start bearing children at young ages, often accidentally, affecting educational opportunities and limiting their future income	Health workers may provide incorrect information; are over-loaded with tasks; fail to follow-up on FP clients	FPRH clients may forget appointments, leading to contraceptive discontinuation and under-utilized RH services	Sexual and Reproductive Health Services are under-utilized by adolescents and adults; adolescents often have misinformation about SRH	Adolescents start bearing children at young ages, often accidentally; Women under-utilize essential RMNH services, often because of structural or cultural barriers.	Maternal health services are segregated from child health services so that FP counseling opportunities are missed	Adolescents start bearing children at young ages, often accidentally, affecting educational opportunities and limiting their future income
BE issues & relevance	Impulsiveness; Misperceptions of risk (of pregnancy), Present bias/Overly discounting the future	Forgetfulness, Cognitive Overload, Limited Attention, Status quo bias	Procrastination, Forgetfulness, Cognitive Overload, Limited Attention, Status quo bias	Timing & Salience, Procrastination	Impulsiveness; Misperceptions of risk (of pregnancy), Present bias/Overly discounting the future	Limited attention, limit on working memory, no moment of choice, hassle factors, the framing of visit	Impulsiveness; Misperceptions of risk (of pregnancy), Present bias/Overly discounting the future
BE tools	Micro-incentives	Timing & Salience of Information; Simplification	Reminders, Timing & Salience of Information; Simplification	Micro-incentives	Social influences	Timing & Salience, Reminders	Commitment devices; identity priming; Social influences
RCTs	Yes	Few, mostly qualitative research	Increasing but none of BE informed interventions	Vouchers: Yes Hotlines: Selection issues	Few	Limited, some operations research or quasi-experiments	Few
Evidence to Date	Moderate to Strong	Weak	Promising. No direct evidence for FPRH	Weak for hotlines; strong for vouchers	Weak	Weak	Weak

Appendix 5. Table 5. Study Results and Timelines

Study	Intervention	Findings / Lessons
<p>Impact of pre-commitment to Delivery Facilities on the Quality of Maternal and Neonatal Care in Kenya  <b>BERI/Jacaranda Health/IPA</b>  <b>Design: RCT</b></p>	<p>Micro-incentive: “Primed” Cash Transfers &amp; Conditional Cash Transfers</p>	<p>Women who received CCT with both labeling and precommitment planned earlier for delivery location were 18 percentage points more likely to deliver in a facility and 14 percentage points more likely to deliver in their preferred facility. Women in both PCT and CCT groups reported higher quality maternity care.</p>
<p>Delaying pregnancy among youth in Tanzania; using empowerment and livelihoods for adolescent clubs to affect school attendance, attitudes &amp; use of contraceptives  <b>BERI, BRAC, MOH, MST</b>  <b>Design: RCT</b></p>	<p>Micro-incentive: ELA for adolescents; goal setting &amp; small material incentives</p>	<p>RCT incomplete due to lengthy ethics approval process and expansion of data collection activities. Using networked structure of BRAC, project indicates promise for diffusion of behavioral interventions in other countries.</p>
<p>Social incentives to increase demand for skilled care during pregnancy &amp; childbirth in Sierra Leone:  <b>BERI, IPA, MoHS</b>  <b>Design: RCT</b></p>	<p>Social persuasion: bracelet colored to indicate number of ANC visits completed</p>	<p>RCT incomplete; At 2-4 weeks post clinic visit, 92% of women were still wearing bracelets. All women remembered part of messages given by nurses; 40% remembered all components of the message. Longstanding relationship between the PI, research implementation organization (IPA), and the MoHS as service provider fostered the evolution of the intervention idea over time – from 2010-present; Close relations with Government provided the opportunity to elicit feedback and be responsive to stakeholder input fostering a sense of ownership and excitement about the study, potential results, and next steps. As a result, there is a high likelihood of scale-up.</p>

Study	Intervention	Findings / Lessons
<p>Integrated family planning services with routine immunization services provided by health workers in Senegal  <b>ideas42, Intrahealth</b>  <b>Design:</b> Quasi-experimental</p>	<p><b>Saliency:</b> Integrated services, Referral cards as reminders for health workers to encourage clients to seek services; IVR</p>	<p>RCT incomplete  Diagnosis phase completed; now in design and prototyping phase; BE is viewed as new and useful, focused on identification of new information, at a new level of detail, and based on interactions with people. The designed intervention has been developed out of an evidence-based process; Government is key for scale-up.</p>
<p>Reducing provider cognitive overload and client forgetfulness to reduce the rate of discontinuation of modern method contraceptives among women of reproductive age in Ethiopia  <b>ideas42, JSI</b>  <b>Design:</b> Matched-pair cluster-RCT</p>	<p><b>Simplification:</b> Job aids for Health Extension Workers (HEWs), appointment reminder cards for clients; Planning calendar for HEWs</p>	<p>Diagnosis phase identified injectable discontinuation as a major issue, due to memory failure, side effects, limited time to track clients; Client Care Checklist (job aid) increased the recall of side effects from 1.4 to 1.7 (<math>p &lt; .01</math>). The Appointment Card and Client Care Checklist decreased the 12-month cumulative contraceptive discontinuation rate from 53% in controls to 42% in treatment individuals (<math>p &lt; .05</math>)</p>
<p>Increase uptake and use of SRH services referred through MSU's call center hotline in Uganda  <b>Ideas42, Marie Stopes</b>  <b>Int'l/Uganda</b>  <b>Design:</b> RCT</p>	<p><b>Micro-incentives:</b> E-coupons (worth up to \$2.75) redeemable for services; SMS text message reminders, call center</p>	<p>RCT Completed.  1,122 coupons redeemed. Overall no significant differences in coupon redemption rates between treatment and control groups. Sample divided into those calling for others and those calling as potential direct clients. Only a 3 pp effect size (<math>p = .10</math>) on uptake among those calling on their behalf.</p>
<p>Post-abortion counseling for Long Acting Reversible Contraception (LARC) in Nepal  <b>Ideas42, Marie Stopes / Int'l / Nepal</b></p>	<p><b>Social persuasion:</b> Peer comparison poster of LARC uptake</p>	<p>RCT Completed;  Enrolled ~21,000 safe abortion clients and ~14,000 PAFP clients;</p>



Study	Intervention	Findings / Lessons
<p><b>Design:</b> Stepped wedge RCT randomizing health facilities</p>		<p>The intervention increased uptake of LARC among post-abortion clients by 6.96 percentage points [95% CI: 1.3 to 12.7, p-value &lt; 0.05], an overall 32% increase from baseline. The increase shifted clients to long-acting from short-acting methods.</p>