

Financial Incentives to Increase Utilization of Reproductive, Maternal, and Child Health Services in Low- and Middle-Income Countries

A Systematic Review and Meta-Analysis

Sven Neelsen
Damien de Walque
Jed Friedman
Adam Wagstaff



WORLD BANK GROUP

Development Economics
Development Research Group
October 2021

Abstract

Financial incentives for health providers and households are increasingly used to improve reproductive, maternal, and child health service coverage in low- and middle-income countries. This study provides a quantitative synthesis of their effectiveness. A systematic review was conducted of the effects of performance-based financing, voucher, and conditional cash transfer programs on six reproductive, maternal, and child health service indicators, with eligible evidence coming from randomized controlled trials and studies using double-difference, instrumental variables, and regression discontinuity designs. Four literature searches were conducted between September 2016 and March 2021 using seven academic databases, Google Scholar, development agency and think tank websites, and previous systematic reviews. Random effects meta-analysis was used to obtain mean effect sizes. From 58 eligible references 212 impact estimates were extracted, which were synthesized into 130 program-specific effect sizes. Financial incentives increase coverage of all considered reproductive, maternal,

and child health indicators, but mean effects sizes are of modest magnitude. Effect size heterogeneity is typically low to moderate, and there is no indication that study bias risk, baseline indicator levels, or a combination of provider- and household-level incentives impact effect sizes. There is, however, weak evidence that mean effect sizes are somewhat smaller for performance-based financing than for voucher and conditional cash transfer programs, and that the increase in income, rather than the incentive itself, drives coverage improvements. Financial incentives improve reproductive, maternal, and child health service coverage. If future research confirms the preliminary finding that performance-based financing has smaller effects, voucher and conditional cash transfer programs are the preferred policy option among incentive interventions to achieve higher reproductive, maternal, and child health service coverage. The relative effectiveness and efficiency of incentives compared with unconditional increases of provider and household incomes, however, need to be studied further.

This paper is a product of the Development Research Group, Development Economics. It is part of a larger effort by the World Bank to provide open access to its research and make a contribution to development policy discussions around the world. Policy Research Working Papers are also posted on the Web at <http://www.worldbank.org/prwp>. The authors may be contacted at sneelsen@worldbank.org; ddewalque@worldbank.org; and jfriedman@worldbank.org.

The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

Financial Incentives to Increase Utilization of Reproductive, Maternal, and Child Health Services in Low- and Middle-Income Countries: A Systematic Review and Meta-Analysis

Sven Neelsen^a, Damien de Walque^b, Jed Friedman^b, Adam Wagstaff^b

^aHealth, Nutrition, and Population Unit, The World Bank, Washington DC, USA

^bDevelopment Research Group, The World Bank, Washington DC, USA

sneelsen@worldbank.org; ddewalque@worldbank.org; jfriedman@worldbank.org

JEL Codes: I15, I12, I11

Keywords: Financial Incentives; Performance-Based Financing; Conditional Cash Transfers; Vouchers; Reproductive, Maternal and Child Health, Systematic Review; Meta-Analysis

Acknowledgments

This research was funded through the Health Results Innovation Trust Fund (HRITF) and the Knowledge for Change Program (KCP). We are grateful to Amanda Kerr, Peijing Li, Paula Mian, Jie Ren Gesabel Villar, and Shabab Wahid for providing outstanding research assistance. The funding sources had no involvement in the conduct of the research and the preparation of the manuscript. We also thank participants in the Fourth Global Symposium on Health Systems Research in Vancouver 2016, the iHEA World Congress 2017 in Boston, the Joep Lange Institute Mini-Symposium on Combining Expertise to Improve Healthcare 2017, the iHEA World Congress 2019 in Basel, and several internal seminars at the World Bank for their valuable comments. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

Introduction

Aiming to increase the coverage and quality of health care services, many health systems are shifting their health financing strategy away from exclusively low-powered incentives such as salaries and budgets towards higher-powered incentives involving a mix of salaries/budgets and bonuses linked to performance. This push toward performance-based financing (PBF) or performance-related pay (P4P) has proceeded apace despite a relative lack of generalized evidence on its impacts, especially in low- and middle-income countries (LMICs). There is also a growing use of health service vouchers, which introduce incentives on both the demand and supply sides by entitling users to free or highly subsidized care while guaranteeing providers reimbursement for services rendered, and of conditional cash transfers (CCTs), which focus on the demand side and financially reward households for compliance with health and other service utilization requirements. These disparate financing approaches, categorized in Figure 1, have the common aim to increase health service uptake by lowering the price, relative to income, of accessing or providing care.

A burgeoning evaluative literature has explored the effectiveness of individual financial incentive interventions on health service coverage, and an increasing number of reviews are available that synthesize this growing evidence base. For PBF, the most recent comprehensive such review, for which literature searches were conducted in 2018, finds the evidence on reproductive, maternal and child health (RMCH) service coverage to be inconsistent and of low overall certainty.¹ By comparison, the latest reviews of voucher and CCT programs – for which literature searches date back five years or longer – find more consistent positive impacts, in particular on family planning (vouchers) and maternity care, whereas effects on childhood vaccination were inconclusive.²⁻⁵ With the exception of a small number of reviews of CCT programs,⁶⁻⁹ which form a literature that emerged earlier than that on PBF, and one review of voucher impacts on family planning,¹⁰ the existing reviews are narrative in nature. Due to this absence of quantitative syntheses, the average magnitude and heterogeneity of effect sizes of financial incentive interventions, which form important parameters for policy decisions, remain unknown to date. Harnessing a substantial number of new studies – for instance, there is now evidence from PBF interventions in five countries which were not yet included in the previous most recent systematic review – we attempt to address this knowledge gap. Specifically, we

provide the first meta-analysis of financial incentive impacts on RMCH service coverage across PBF, voucher, and CCT programs, and estimate mean effect sizes for each intervention type separately. Moreover, while subgroup comparisons remain challenging given statistical power limitations, we also undertake a first quantitative analysis of possible sources of effect size heterogeneity, investigating, for instance, the role of baseline service coverage levels as well as whether programs that combine supply- with demand-side incentives are associated with larger effects on RMCH service coverage.

Methods

Search strategy and selection criteria

We conduct a systematic review and meta-analysis of the impacts of health financing interventions on RMCH service utilization in low- and middle-income countries (LMICs). A study protocol was published on the PROSPERO website in November 2016 (https://www.crd.york.ac.uk/PROSPERO/display_record.php?RecordID=49272).

We use the following criteria to identify relevant studies. In terms of *publication format*, we include studies in English that were published either in peer-reviewed scientific journals, as part of a working papers series, in books (with ISBN numbers), as doctoral dissertations, or official research or project reports. This excludes unofficial draft reports, conference abstracts, comments, op-eds, media briefings, and bachelor's or master's theses.

Regarding *interventions*, we include those taking place in countries classified as low- or middle-income by the World Bank in at least one year in the 1987-2019 period and falling into one of three categories of financial incentivization: PBF of providers of primary or secondary care that reward RMCH service provision, vouchers which give beneficiaries free or subsidized access to RMCH services for which providers are reimbursed on a fee-for-service basis, and CCTs designed to financially reward enrollees for compliance with RMCH service use conditions. Because they are based on a different theory of change, this review will not consider interventions which affect the monetary price of providing or using MCH services only indirectly or implicitly. On the supply-side, omitted interventions include health worker training, provider performance tournaments, and the introduction of mobile health units or health worker home visits. On the demand side, we exclude interventions like information campaigns,

unconditional cash transfers and conditional cash transfer schemes which do not condition on MCH service use or employ soft conditions or co-responsibilities.

In terms of *outcomes*, this review focuses on six indicators that either represent the official and supplemental RMCH indicators of the Millennium Development Goals (MDGs)¹¹ or are intermediate indicators critical to their achievement, namely the shares of (1) women of fertile age who use modern contraceptives, (2) pregnancies with four or more antenatal care checks, (3) pregnant women receiving tetanus vaccination, (4) births occurring in health facilities, (5) births with postnatal care, and (6) children receiving the full course of vaccinations recommended for the first year of life. Importantly, we only include impact estimates of outcomes whose provision is financially incentivized by the interventions under study. This incentivization may be direct, e.g. a fee the health facility receives for each birth taking place in it, or it may be indirect – e.g. maternal tetanus vaccination being incentivized in a CCT which rewards pregnant women for antenatal care visits during which maternal tetanus vaccinations are carried out. By contrast, we exclude impact estimates of outcomes without financial incentivization, e.g. those measuring an intervention’s unintended consequences. Finally, we only include impact estimates from samples representing the entire population of program beneficiaries – for instance, impacts on antenatal care content are included if based on a sample of all pregnancies and excluded if they come from the subsample of antenatal care users.

Methodologically, we only include evidence from household survey data because of sample selectivity and reporting bias concerns in health facility and administrative data sets from LMICs.¹²⁻¹⁵ Regarding study design, we include randomized controlled trials (RCTs) as well as evaluations of non-randomized interventions which identify impacts using regression discontinuity (RD), instrumental variables (IV), or double difference (DD) and triple difference (DDD) models. The parameter of interest in this review is a program’s intention-to-treat (ITT) effect – the impact on its full target population which consists of both compliers and non-compliers. We thus exclude effects estimated only for compliers, e.g. for enrollees of a CCT scheme, as opposed to its entire target group. As a requirement for meta-analysis, we only include impact estimates if they are presented with a measure of statistical uncertainty.

To identify relevant references, in September 2016, we searched the Cinhal, Cochrane Library, Econlit, Embase, Medline, Popline, and Scopus databases as well as Google Scholar for

references in English published from January 1, 1987. Appendix 2 provides our Medline search strings as an example. We also searched think tank and development agency websites, and previous systematic reviews identified in our scientific database searches or via the Cochrane Library, the EPPI-center, and the 3ie systematic review repository. Finally, we posted calls for relevant references on social media and in blogs. We repeated our search using the same sources in August 2017, September 2018, October 2019, and March 2021.

SN carried out the electronic database searches and SN and a graduate research assistant (RA) both independently searched websites and previous reviews. All identified references were subsequently title-abstract screened in a mutually blinded process by SN and the RA, and screening decision conflicts were resolved by DDW, JF, and AW. All studies deemed eligible in the title-abstract screening were then full-text scanned by two RAs – again mutually blinded – for compliance with the review’s inclusion criteria. Full-text scanning conflicts were resolved by SN.

After reviewing all references deemed eligible after the full-text scan, we applied an additional selection criterion not stipulated in the PROSPERO protocol by excluding evidence from a few reports which use continuous treatment variables (e.g. the population share of program beneficiaries). Impact estimates from such reports are not comparable to those from binary treatment variables which are used by a great majority of the studies we identified.

Data analysis

Data extraction

For data extraction, as for eligibility screening, we used an independent, mutually blinded process with two reviewers and subsequent resolution of coding conflicts by a third reviewer. Qualitative data on program features and context were extracted by two RAs. Quantitative data – impact estimates, measures of statistical uncertainty, sample size, and the type of econometric model – were extracted by SN and an RA. When multiple impact estimates for the same indicator were available for a program, we took the following approach: (1) In the case of multiple impact estimates in the same report (e.g. across different statistical models or model specifications) we extracted authors’ *preferred* impact estimates if these were identified by the authors explicitly or through mention in the abstract. If no preferred estimates were identified,

we extracted all available impact estimates; (2) In the case of multiple impact estimates across different versions of a report (e.g. a working paper and a journal article), we extracted the impact estimates from the latest version; (3) In the case of multiple impact estimates across different reports of the same program, we extracted the impact estimates from each available report.

Effect size standardization and aggregation

Because this review shows effect sizes in percentage points, we convert impact estimates reported in other units – log odds ratios, odds ratios or risk ratios – to percentage points using formulas¹⁶ we provide in Appendix 3. The appendix also describes how we obtain 95% confidence intervals and standard errors from other reported measures of statistical uncertainty. After obtaining percentage point effect sizes for all impact estimates, we aggregate to a single effect size per indicator and program if needed – like in the case of the multiple estimates of the impact of Rwanda’s P4P scheme on facility delivery. Following Borenstein et al.,¹⁷ the aggregation method depends on the overlap of the samples from which the impact estimates were obtained: If they come from independent, non-overlapping samples, we aggregate using random effects meta-analysis; If there is partial or full sample overlap, we aggregate by forming the unweighted means of the impact estimates and standard errors. Additional details of the aggregation method are provided in Appendix 4.

Mean effect size computation

The financial incentive interventions in this review do not only take one of three forms, but also differ by implementation context, e.g. country and start year, by design features like their scope (pilot vs at-scale), the intensity of incentives relative to baseline financing, whether they include a complementary supply or demand side component, as well as by the methods they were evaluated with (Tables 1 and 2). Because of this heterogeneity, we estimate overall financial incentive and PBF, voucher and CCT mean effect sizes and confidence intervals using random effects models which take into account the possibility that differences between impact estimates across financial incentive interventions may not only result from sampling error but also genuine difference in program effectiveness.¹⁷

The usefulness of such mean effect sizes computation depends not on the number of included studies but on the degree of heterogeneity in outcome and intervention designs between them –

in fact, if outcomes and interventions are similar enough, meta-analysis is feasible as soon as two studies are available.^{18,16,19} As we discuss further below, while outcome variable definitions are very similar across the studies in our review, differences in intervention design and contexts can be substantial even within the three intervention types. While cognizant of this limitation, we deem a quantitative synthesis of individual studies useful and timely, as financial incentive interventions as a whole, and each of our three intervention groups individually, have well defined common characteristics (Figure 1). Because of these commonalities, policy discussions often feature ‘financial incentives in health’, PBF, vouchers, and CCT programs as intervention groups. Obtaining mean effect sizes through meta-analysis of all available evidence is therefore preferable over the ad-hoc, implicit aggregation of often selective study results, which is frequently undertaken in its absence.

Effect size heterogeneity

To assess the degree of ‘true’ effect size heterogeneity across financial incentive interventions and within intervention groups, we report I^2 -statistics and their p -values. The I^2 -statistic represents the share of the variation around mean effect size that is explained by genuine differences in program-specific effect sizes (‘between-study variance’), as opposed to mere sampling error (‘within-study variance’).¹⁷ Following Cochrane collaboration guidelines, we consider I^2 -statistics of 0-40, 40-60, and 60+ percent to indicate low, moderate, and substantial heterogeneity, respectively.¹⁷ To further investigate the distribution of effect sizes around their meta-analytical mean, our forest plots include their prediction intervals as horizontal lines on both sides of the *diamonds* that show the mean effect size confidence intervals. Prediction intervals form an important policy parameter, as they show the estimated range that 95 percent of program effect sizes – and therefore future interventions’ impacts – fall into.²⁰ They are distinct from the confidence intervals which, by contrast, show the estimated 95 percent range of the effect size means.

Subgroup analysis

Our analysis includes estimating differences between the mean effect sizes of different subgroups of financial incentive interventions. The most important such subgroup analysis investigates mean effect size differences between the PBF, voucher, and CCT intervention groups. The intervention-group-specific mean effect size point estimates in our forest plots

inform about the relative effectiveness of PBF, voucher and CCT programs. Comparisons of the statistical significance of mean effect sizes across groups should, however, be avoided, as variation in the number of underlying program specific effect sizes (and, in turn, the number of observations underlying them) can make such comparisons highly misleading. Instead, we obtain the statistical significance of mean effect size differences between subgroups from bivariate, random effects meta-regressions, assuming similar between-study variances across subgroups.¹⁶

Aside from differences across intervention types, we use this approach to test for differences between interventions introducing supply and demand side incentives simultaneously as opposed to intervening only on the facility or care user side, between interventions using control groups which receive an unconditional income increase equal to the average incentive payout in the treatment group as opposed to those where the control group maintains the pre-intervention health financing status quo, between interventions with varying levels of baseline service coverage, and, to examine the role of publication and methodological bias, between interventions for which effect sizes are based on studies with high as opposed to low or moderate bias risk. Because we carry out this relatively large number of meta-regression subgroup analyses, there is a risk of Type I error (false positives) from multiple hypotheses testing. Following Borenstein et al.,¹⁷ we address this risk by using the 99 instead of the 95 percent threshold to determine statistical significance.

For all our outcomes, the number of effect sizes in each of the subgroups we analyze meets or exceeds the minimum thresholds of four for categorical and ten for continuous grouping variables that have been suggested for subgroup analysis based on studies with moderate or large sample size like those in our review.²¹ Our analysis, however, remains insufficiently powered to precisely estimate a mean effect size difference of a small magnitude, so that the risk of Type II error (false negatives) must be kept in mind when interpreting the statistical significance of our meta-regression results. A simple, ex-post power calculation using our estimated mean effect sizes and standard errors, however, suggests that all but four of our meta-regressions are powered to estimate differences in the 3-9 percentage point range at the 1 percent significance level – a range narrow enough to ensure our analysis detects most differences of economically significant magnitude.

Our meta-regression, like all other quantitative analyses in this review, are conducted with Stata version 16.0, primarily relying on the metan and metareg commands.

Risk of bias assessment

We grade studies as having low, medium and high risk of bias with a tool developed for reviews in social science²² based on suggestions by the Cochrane Effective Practice Organisation of Care,²³ the Coalition for Evidence-Based Policy,²⁴ and the Cochrane Handbook for Systematic Reviews of Interventions¹⁶ which classifies studies into high, medium or low bias risk groups. The tool is presented in Appendix 5, and the bias assessment results for each included study is shown in Table 1, alongside information on the studies' evaluation design.

Results

Search and data extraction results

The PRISMA chart shown in Figure 2 depicts the results of our search and eligibility screening process. In the initial 2016 search round, we extracted a total of 6,289 references. After de-duplication, title-abstract screening identified 470 potentially eligible references, of which 30 proved compliant with our inclusion criteria after full-text screening. Reasons for exclusion varied across interventions but methodological grounds such as the use of non-compliant identification strategies or the lack of statistical uncertainty estimates were common across all. In repeated searches in 2017, 2018, and 2019, and 2021, we found 28 additional references meeting our inclusion criteria, bringing the total number of included references to 58, with 24 reporting on PBF programs, one on vouchers and PBF, eight on vouchers alone, and 25 on CCT programs alone. From the 58 references, we extracted a total of 212 impact estimates across our six outcomes of interest. When aggregating to the program level, there are 130 program-specific effect sizes, with 75 effect sizes from 22 PBF programs, 31 effect sizes from ten voucher programs, and 34 from 20 CCT programs (for studies with multiple treatment arms we consider as separate programs treatment arms which differ in terms of having status quo as opposed to income equalized control groups, or in terms of introducing complementary demand- or supply-side financial incentives). Appendix 6 provides a breakdown of references, impact estimates, and program-specific effect sizes per outcome.

Study characteristics

Tables 1 and 2 summarize key characteristics of the 52 programs and their evaluations in our review. Study designs, program characteristics, and implementation contexts vary both across and within the three intervention groups. About 55 percent of the studies in our review have randomized designs, which are most common for CCT programs, and only three studies rely on IV and RDD models to identify program impacts. Due to our strict methodological inclusion criteria, the share of studies with high bias risk is only 19 percent, while we classify 53 percent of studies as low bias risk.

In terms of implementation context, 82 percent of PBF programs in our review are in Sub-Saharan Africa, compared to 40 percent of voucher and 35 percent of CCT programs. The distribution is more balanced regarding country income groups, where 55 percent of PBF, 70 percent of voucher, and 50 percent of CCT programs are in low-income countries. With a median first implementation year of 2011, PBF programs are somewhat younger than vouchers and CCT schemes where the median year is 2009.

Regarding program characteristics, most programs were in various stages of piloting during evaluation, with only two PBF programs (Burundi's PBF and Rwanda's P4P scheme) and four CCT programs (India's JSY, Mexico's Progresa, Peru's Juntos and Turkey's Social Risk Mitigation programs) having nationwide or near nationwide scope. A small number of programs (India's JSY, Kenya's M-SIMU CCT pilot, and the Suraj and Chakwal vouchers in Pakistan) incentivize only a single health service, while the other programs typically target a broad range of family planning and maternal and child health indicators. Information on the magnitude of incentives relative to baseline facility, health worker, or household incomes is often lacking or difficult to compare across programs, but where available indicates substantial variation. In the Tajik PBF pilot, for instance, incentive payments amount to 70 percent of base health worker salaries – more than twice the rate as in the Afghanistan PBF pilot. Three PBF, five CCT, and, by definition, all ten voucher programs combine demand and supply side financial incentives instead of incentivizing either the supply or demand side alone. Finally, in five PBF schemes and one CCT, control observations, instead of remaining untreated, received lump sum payments equivalent to the average size of the treatment group incentive. For these programs, the estimated effect sizes identify the impact of the incentive alone, instead of the combined impact of incentives and increased financial means, as is the case for all other effect sizes in this review.

We use relatively narrow service coverage variable definitions to identify effect sizes eligible for our review in order to minimize the risk of outcome variable heterogeneity as a confounding factor. Nevertheless, variation in – and uncertainty about – coverage variable definitions remains (Table 3). For instance, reports estimating impacts on modern family planning sometimes do not list the specific contraceptive types they include, and among studies with explicit reporting of contraceptive types, some differences, e.g. whether condoms are included, can exist. However, examining the robustness of overall and subgroup specific mean effect sizes to the omission of studies with diverging indicator definitions in Appendix 7, we do not find meaningful differences from the main estimates reported.

Mean effect sizes

Modern family planning

The forest plot for modern family planning in Figure 3 shows a statistically significant mean effect size of 3.7 percentage points and a moderate level of effect size heterogeneity ($I^2 = 48.2$ percent) across 16 financial incentive interventions. The PBF mean effect size amounts to a statistically significant 2.4 percentage points, with low heterogeneity across underlying program specific effect sizes. Consequently, the prediction interval indicates that at least 95 percent of PBF programs will yield positive impacts on modern family planning. For the four voucher programs, the mean effect size is 6.2 percentage points, but it is statistically indistinguishable from zero and unevenly distributed across underlying programs with an I^2 -statistic of 77 percent indicating substantial effect size heterogeneity. The difference in mean effect sizes between PBF and voucher schemes we obtain through random effects meta-regression is sizable, but its p -value lies above the 1 percent significance threshold we use in order to account for Type I error (Table 4). Moreover, the large discrepancy in effect size heterogeneity between PBF and voucher programs limits the reliability of comparisons of effect sizes across the two intervention types.

Four or more antenatal care checks

We estimate a small but statistically significant mean effect size of financial incentives on pregnant women completing four or more antenatal care checks of 1.4 percentage points (Figure 4). Breaking programs down by intervention type, the mean effect size for PBF is close to zero,

with low heterogeneity across PBF schemes. The voucher mean effect size amounts to a non-significant 2.7 percentage points and the CCT effect size is a significant 4.4 percentage points. Like for PBF programs, the degree of heterogeneity in underlying effect sizes is low for both intervention types. Using meta-regression, we find the difference between the relatively large CCT and near zero PBF mean effect sizes to be statistically significant (Table 4). Neither for all interventions combined, nor for a specific intervention type does the prediction interval exclude zero.

Maternal tetanus vaccination

The overall mean effect size of financial incentives on maternal tetanus vaccination is a significant 2.7 percentage points, with a moderate-to-substantial degree of heterogeneity in underlying program specific effect sizes (Figure 5). For PBF programs, the mean effect size is 3 percentage points, with a *p*-value just above the 5 percent level and moderate heterogeneity. For CCTs, the mean effect size is similar, at 2.4 percentage points, but there is substantial heterogeneity that is driven by significant negative impact of Indonesia's *Program Keluarga Harapan* which contrasts with the positive effect sizes of the four other CCT programs. The small difference in mean effect size magnitude between PBF and CCT programs is not statistically significant (Table 4).

Facility delivery

For facility deliveries, the overall mean effect size of financial incentive interventions is a statistically significant 5.3 percentage points, with moderate heterogeneity across programs (Figure 6). All intervention-group specific mean effect sizes are statistically significant as well, with the PBF mean effect size being smallest, at 4.4 percentage points, followed by the voucher mean effect size of 6.4 percentage points, and the CCT mean effect size that amounts to 7.3 percentage points. Unlike for PBF and CCT programs, which show moderate heterogeneity levels, heterogeneity for the voucher mean effect size is low, and its prediction interval is the only one in the significantly positive range. The mean effect size differences across intervention types, while somewhat substantive in magnitude, are not statistically significant (Table 4).

Postnatal care checks

The mean effect size across all financial incentives interventions for postnatal care checks is a modest but statistically significant 2.7 percentage points (Figure 7). A low degree effect size heterogeneity across programs is mirrored in intervention type specific mean effect sizes of similar magnitude – a non-significant 2.2 percentage points for PBF, 3.2 percentage points – and significant – for vouchers, and 3.1 percentage points and not significant for CCTs. None of the small differences in effect size magnitudes are statistically significant (Table 4). Intervention-group specific effect size heterogeneity is low for PBF and vouchers and moderate for CCTs.

Full childhood vaccination

The overall mean effects size across financial incentive interventions amounts to a statistically significant 4.4 percentage points, with a low-to-moderate degree of underlying effect size heterogeneity (Figure 8). For PBF schemes, the mean effect size is a significant 3.9 percentage points, with low effect size heterogeneity, and for CCTs it is a significant 5 percentage points with low heterogeneity and a prediction interval above zero. The small difference in mean effect size between PBF and CCT schemes is not statistically significant (Table 4).

Subgroup analysis

Combining supply and demand side incentives

To test the hypothesis that complementarities exist between demand- and supply-side interventions, we examine if effect sizes of schemes which combine supply- and demand-side financial incentives are larger than those of schemes which only incentivize either the demand- or the supply-side. The meta-regression results in column 1 of Table 5 provide little evidence for such systematic complementarities. In no case do we find statistically significant differences between combined and single-side interventions, and meaningful differences in effect size magnitudes arise for just two service coverage outcomes: Modern family planning is the only indicator where the mean effect size of the four voucher and one PBF scheme which incentivize both the supply- and demand-side is substantively larger, at 4.3 percentage points, than for single-side interventions. By contrast, for maternal tetanus vaccination, the mean effect size across single-side interventions is, somewhat counterintuitively, 6.6 percentage points larger than that across the combined supply- and demand-side interventions.

Control groups with budget equalization

Column 2 of Table 5 tests whether interventions where the control group receives an income increase equivalent to the mean incentive payout in the treatment group – i.e. an unconditional cash transfer in case of demand-side programs and a block grant in case of supply-side programs – have smaller effects than interventions where the control group continues to operate under the financial status quo. Meaningfully smaller mean effect sizes among programs with control group income equalization would indicate that the provision of additional funds, perhaps more so than the incentive itself, contributes to the positive impacts of financial incentive interventions on maternal and child health service coverage. Only one of the mean effect size differences we estimate is significant at the 1 percent level, but for five of the six outcomes, the relationship is negative, and for four, the differences are larger than minus two percentage points, which is substantive compared to the modest mean effect sizes we find above.

Baseline outcome values

Table 5 column 3 shows the association of effect sizes with baseline outcome values, as a measure for pre-intervention health system effectiveness in reaching mothers and children with health services – a possible proxy for country income levels and overall implementation context. Contrasting hypotheses for this regressor predict differing impacts. A negative relationship would result if, for instance, low baseline outcome levels indicated low capacity to successfully implement financial incentives. A positive relationship would, by contrast, arise, if, for example, a low baseline outcome level indicated larger populations within reach of marginal changes in financial incentives. Our meta-regressions, however, find no meaningful relationships between baseline outcome levels and program effect sizes, indicating that neither effect is relevant or that the two hypothesized effects cancel each other out: None of the coefficients are statistically significant and the largest – estimated for 4+ antenatal care checks – indicates that a ten percentage point difference in baseline outcomes is associated with a mere 0.7 percentage point higher financial incentive effect.

Risk of bias

To investigate possible impacts of study bias on our results, we regress program effect sizes on a dummy variable indicating if we classified the underlying evidence as having high, as opposed to medium or low, bias risk. Results in column 4 of Table 5 indicate no systematic relationship of study bias risk with the magnitude of effect sizes, as none of the estimated coefficients is

remotely statistically significant, and the largest point estimate is a two percentage point higher mean effect size among high bias risk studies for maternal tetanus vaccination.

Discussion

Before reviewing and contextualizing the main findings, we discuss several limitations. Our methodological inclusion criteria are demanding, which we believe to be a strength of our analysis. The exclusion of studies with less rigorous empirical methods, however, lowers our statistical power, which, despite a growing evidence base, remains insufficient to carry out a more fine-grained analysis of the role of intervention design features and implementation contexts. This limitation applies to the comparisons of PBF, vouchers, and CCT effect sizes – given the inability to control for all confounding factors related to program design and setting, the differences we estimate across program types are strictly interpreted as associational rather than causal. To enable more detailed subgroup analysis, future studies of financial incentive interventions should use rigorous impact evaluation methods, minimize avoidable heterogeneity by using standard outcome variable definitions, and provide detailed accounts of program design features.

We also restrict our systematic review and meta-analysis to financial incentives designed with explicit conditions on MCH provision or use. On the demand side, this leads us to not consider the broad spectrum of unconditional cash transfers as well as cash transfers with soft conditions or co-responsibilities. On the one hand, we acknowledge that this narrows the scope of our comparisons, but, on the other hand, it allows a more direct comparison of financial incentives, on the supply and the demand sides, relying on a conditionality mechanism. We nevertheless analyze the role of conditionality when we differentiate between effects of financial incentives when they are compared with a pure control group vs. with a control group with equalized budgets (see results in column 2 of table 5).

A further limitation is that the scope of indicators targeted by financial incentive interventions typically goes beyond the narrow set of outcomes in our review. Most interventions incentivize additional health coverage indicators in and outside the maternal and child health domain. For instance, CCT programs often also include education and job training conditionalities and, like vouchers, can have additional effects on household consumption and welfare. In a similar sense, incentives to improve the quality of facility equipment and cleanliness, as well as of

administrative processes, are almost always built into PBF programs, whose impacts on transparency, provider accountability, and data usage are often hoped to have a transformational effect on health systems as a whole.^{25,26} For these reasons, the evidence in this review warrants conclusions only about the effects of financial incentives on the six included indicators, and not about the overall (cost-) effectiveness of specific programs or entire intervention types.

With these caveats in mind, a number of insights emerge from our analysis. While on average, financial incentives increase coverage of all included maternal and child health service indicators, mean effect sizes are of modest magnitude, with the largest for facility delivery and full childhood vaccination where they amount to about five percentage points. We find effect size heterogeneity across financial incentive programs to be low to moderate for all indicators except maternal tetanus vaccination. Despite this finding, due to the still limited evidence base, mean effect size prediction intervals indicate less than 95 percent certainty for a positive impact of future programs for all indicators other than postnatal care – policy makers hence still face substantial uncertainty in deciding on interventions to improve service coverage.

The low to moderate levels of effect size heterogeneity across financial incentive interventions is mirrored in typically small differences in mean effect sizes across PBF, voucher, and CCT programs. Our analysis is not sufficiently powered to precisely determine the magnitude of these differences, but the totality of our results suggests that PBF is slightly less effective in improving maternal and child health coverage than voucher and CCT schemes. The one exception where the PBF mean effect point estimate is larger than that of vouchers and CCTs is maternal tetanus vaccination, a plausible result, as indicators with a strong content-of-care dimension like maternal tetanus vaccination are under more direct control of providers incentivized with PBF. In contrast, the five other coverage indicators are likely more easily influenced with demand-side incentivization, as they mainly depend on patient care-seeking decisions.

Testing for other possible drivers of effect size heterogeneity across financial incentive programs, we neither find systematic evidence for complementarities between supply- and demand-side incentives, nor for an influence of baseline indicator levels. However, there is some indication that income equalization in the control group substantively diminishes the impact of financial incentives schemes, suggesting that unconditional increases in health care provider and household incomes can lead to similar health service coverage increases as incentive

interventions – a finding in line with the conclusions of a recent narrative review by Diaconu et al.¹ This conclusion, similar to the result of smaller mean service coverage effects of PBF than of voucher and CCT programs, requires confirmation through future, better-powered meta-analysis.

Tables

Table 1: Characteristics of included reports

Country	Intervention name	Start year	Reference	Years post-treatment data collected	Indicators with impact estimates						Randomized	Statistical model	Risk of bias
					Modern family planning	4+ ANC checks	Maternal tetanus vaccination	Facility delivery	1+ PNC checks	Full child vaccination			
Performance-Based Financing													
Afghanistan	System Enhancement for Health Action in Transition	2010	Engineer et al ²⁷	2010-2012	X					X	Yes	SD	Medium
Burkina Faso	Reproductive Health Project I	2013	De Allegri et al ²⁸	2015-2017	X	X	X	X	X	X	No	DID	High
Burkina Faso	Reproductive Health Project II	2013	De Allegri et al ²⁸	2015-2017	X	X	X	X	X	X	No	DID	High
Burundi	PBF Scheme	2006	Bonfrer et al ²⁹	2007-2010	X		X	X			No	DID	High
			Bonfrer et al ³⁰	2006-2011			X	X		X	No	DID	Medium
			Gage and Bauhoff ³¹	2006-2017		X		X			No	DID	Medium
			Rudasingwa et al ³²	2007-2008			X	X			No	DID	High
			Van de Poel et al ³³	2004-2010				X		X	No	DID	Medium
Cambodia	Contracting-in	2004	Van de Poel et al ³³	2004-2010				X		X	No	DID	Medium
Cambodia	Government Scheme	2004	Van de Poel et al ³³	2004-2010				X		X	No	DID	Medium
Cameroon	Health Sector Support Investment Project I	2012	de Walque et al ³⁴	2013-2015	X		X			X	Yes	DID	Low
Cameroon	Health Sector Support Investment Project II	2012	de Walque et al ³⁴	2013-2015	X		X			X	Yes	DID	Low
Congo, Dem. Rep.	Health Sector Rehabilitation and Support Project	2010	Huillery and Seban ³⁵	2011-2012				X			Yes	SD	Medium
Congo, Rep.	Health Sector Services Development Project	2012	Zeng et al ³⁶	2012-2014	X			X	X		No	DID	Medium
Gambia, The	Maternal and Child Nutrition and Health Results Project	2014	Ferguson et al ³⁷	2014-2016				X			Yes	DID	Medium
Lesotho	Health System Performance Enhancement Project	2016	Gage and Bauhoff ³¹	2016-2018		X					No	DID	Medium
Nigeria	State Health Investment Project I	2014	Kandpal et al ³⁸	2015-2017	X	X		X		X	No	DID	Medium
Nigeria	State Health Investment Project II	2014	Kandpal et al ³⁸	2015-2017	X	X		X		X	No	DID	Medium
Rwanda	P4P scheme	2006	Basingwa et al ³⁹	2006-2008		X		X		X	No	DID	Medium
			Gertler and Vermeersch ⁴⁰	2006-2008	X	X					No	DID	Medium
			Lannes et al ⁴¹	2006-2008	X	X					No	DID	Medium
			Okeke and Chari ⁴²	2000-2008		X		X			No	DID	Medium
			Priedeman Skiles et al ⁴³	2006-2008	X	X		X			No	DID	Medium
			Sherry et al ⁴⁴	2006-2008	X	X	X	X			X	No	DID
Rwanda	Community Living Standards Grant	2009	Shapira et al ⁴⁵	2010-2014		X		X			Yes	SD	Low
Senegal	Health and Nutrition Financing Project	2012	Gage and Bauhoff ³¹	2012-2017		X		X			No	DID	Medium
Tajikistan	Health Services Improvement Project	2015	Ahmed et al ⁴⁶	2015-2018	X	X				X	Yes	DID	Medium
Tanzania	Pwani Pilot	2011	Binyaruka et al ⁴⁷	2012-2013		X		X	X		No	DID	Medium
Zambia	Zambia Health Services Improvement Project I	2012	Gage and Bauhoff ³¹ a	2012-2018		X		X			Yes	DID	Low
			World Bank ⁴⁸	2012-2015		X	X	X	X	X	Yes	DID	Low
			Zeng et al ⁴⁹	2012-2015				X	X		Yes	DID	Low
Zambia	Zambia Health Services Improvement Project II	2012	World Bank ⁴⁸	2012-2015		X	X	X	X	X	Yes	DID	Low
			Zeng et al ⁴⁹	2012-2015				X	X		Yes	DID	Low
Zimbabwe	Health Sector Development Support Project	2011	Gage and Bauhoff ³¹	2012-2015		X		X			No	DID	Medium
			World Bank ⁵⁰	2012-2014	X		X	X	X	X	No	DID	Medium
Vouchers													
Cambodia	Reproductive Health Voucher	2010	Bajracharya et al ⁵¹	2012-2013	X						No	DID	Medium
Cambodia	Targeted Maternal and Child Health Voucher	2007	Van de Poel et al ⁵²	2007-2010				X	X		No	DID	Medium
Cambodia	Universal Maternal and Child Health Voucher	2008	Van de Poel et al ⁵²	2008-2010				X	X		No	DID	Medium
Kenya	Reproductive Health Voucher	2006	Dennis et al ⁵³	2010-2013		X		X	X		No	DID	Medium
Kenya	Maternal Voucher Experiment	2013	Grépin et al ⁵⁴	2013		X		X			Yes	SD	Low
Pakistan	Jhang Maternal Health Voucher	2010	Agha ⁵⁵	2010-2011				X	X		No	DID	High
Pakistan	Marie Stopes Chakwal Voucher	2012	Ali et al ⁵⁶	2015	X						Yes	DID	Medium
Pakistan	Suraj	2008	Azmat et al ⁵⁷	2013	X						No	DID	High
Tanzania	Helping Poor Pregnant Women Access Better Health Care	2010	Kuwawenaruwa et al ⁵⁸	2013-2014	X	X		X	X		No	DID	Medium
Uganda	HealthyBaby	2008	Obare et al ⁵⁹	2010-2011		X		X	X		No	DID	High
Conditional Cash Transfers													

Country	Intervention name	Start year	Reference	Years post-treatment data collected	Indicators with impact estimates						Randomized	Statistical model	Risk of bias	
					Modern family planning	4+ ANC checks	Maternal tetanus vaccination	Facility delivery	1+ PNC checks	Full child vaccination				
Afghanistan	Ministry of Public Health Scheme	2016	Edmond et al ⁶⁰	2016-2017				X			Yes	DID	High	
Bangladesh	Demand-Side Financing Program	2004	Keya et al ⁶¹	2011-2012				X			No	DID	High	
			Nguyen et al ⁶²	2008-2009			X				No	DID	High	
China	CHIMACA	2007	Hemminki et al ⁶³	2007-2009					X		Yes	SD	High	
Honduras	Bono 10,000	2010	Benedetti et al ⁶⁴	2012-2013			X		X	X	Yes	SD	Low	
Honduras	Programa de Asignación Familiar (PRAF II)	2000	Morris et al ⁶⁵	2001-2002			X		X		Yes	DID	Low	
India	Indira Gandhi Motherhood Support Scheme	2011	von Haaren and Klöner ⁶⁶	2012-2016					X	X	No	DID	Medium	
India	Jananni Surkshya Yojana	2005	Debnath ⁶⁷	2005-2008				X			No	DID	Medium	
			Powell-Jackson et al ⁶⁸	2005-2008			X				No	DID	High	
Indonesia	Program Keluarga Harapan	2007-2008	Alatas ⁶⁹	2008-2009		X		X		X	No	IV	High	
			Cahyadi et al ⁷⁰	2007-2013			X				Yes	IV	Medium	
			Kusuma et al ⁷¹	2008-2009		X		X			Yes	DID	Medium	
			Kusuma et al ⁷²	2009						X		Yes	DID	Low
			Triyana ⁷³	2008-2009			X	X			Yes	DID	Low	
Kenya	M-SIMU RCT	2013	Gibson et al ⁷⁴	2014-2015						X	Yes	SD	Medium	
Kenya	Maternal Conditional Cash Transfer Experiment I	2013	Grépin et al ⁸⁴	2013		X		X			Yes	SD	Low	
Kenya	Maternal Conditional Cash Transfer Experiment II	2013	Grépin et al ⁸⁴	2013				X			Yes	SD	Low	
Kenya	Maternal Conditional Cash Transfer and Voucher Experiment	2013	Grépin et al ⁸⁴	2013				X			Yes	SD	Low	
Mali	Cash for Nutritional Awareness	2014	Adubra et al ⁷⁵	2014-2016				X	X	X	Yes	DID	Low	
Mexico	Progresa	1997	Barber and Gertler ⁷⁶	1998-2003			X				Yes	SD	Low	
Nicaragua	Red de Protección Social	2001	Barham and Maluccio ⁷⁷	2001							X	Yes	DID	Low
			Handa and Maluccio ⁷⁸	2001							X	Yes	SD	Medium
Nigeria	Maternal Cash Transfer Experiment	2017	Okeke et al ⁷⁹	2017-2018				X			Yes	SD	Medium	
Peru	Juntos	2005	Díaz and Saldarriaga ⁸⁰	2006-2014		X		X	X		No	DDD	Medium	
			Díaz et al ⁸¹	2001-2011			X				No	DID	Medium	
Philippines	Pantawid Pamilya	2008	Kandpal et al ⁸²	2008-2011		X		X	X		Yes	SD	Low	
Turkey	Social Risk Mitigation Project	2004	Ahmed et al ⁸³	2005-2006						X	No	RD	High	
Zimbabwe	Manicaland HIV/STD Project	2010	Robertson et al ⁸⁴	2011						X	Yes	SD	Medium	

Notes: Statistical model: IV = instrumental variables, SD = single difference, DID = double different, DDD = triple difference.

Table 2: Characteristics of included programs

Country	Intervention name	World Bank income group at time of intervention	Scope			Donor (co-) financing	Impact estimate available and service incentivized							Financial incentive			Incentive formula
			Geographic extent	Rural	Urban		Modern Family Planning	4+ ANC checks	Maternal tetanus vaccination	Facility delivery	1+ PNC checks	Full child vaccination	Supply side	Demand side	Control group income equalization		
Performance-Based Financing																	
Afghanistan	System Enhancement for Health Action in Transition	Low	11 of 34 provinces	Yes	Yes	World Bank							Yes	No	No	Quarterly incentive payments directly to healthcare workers on a case-basis and annual payments according to equity of service delivery, facility quality scorecards and uptake of contraceptives in the catchment area. Salary bonuses component amounts to 6-28% of base salaries.	
Burkina Faso	Reproductive Health Project I	Low	15 of 351 departments	Yes	Yes	World Bank							Yes	No	No	Monthly incentive payments on a case-basis and additional quarterly quality payments if facility achieves quality score of at least 50% of maximum score. Facilities with full autonomy regarding use of bonuses.	
Burkina Faso	Reproductive Health Project II	Low	15 of 351 departments	Yes	Yes	World Bank							Yes	Yes	No	Monthly incentive payments on a case-basis and additional quarterly quality payments if facility achieves quality score of at least 50% of maximum score. Facilities with full autonomy regarding use of bonuses. Three type of demand-side co-interventions, namely user fee waivers for the poor, user fee waivers and additional financial incentives for healthcare workers to provide care to them, and community-based health insurance with waived premiums for the poor.	
Burundi	PBF Scheme	Low	Nationwide	Yes	Yes	Cordaid							Yes	No	No	Nationwide scheme. Quarterly incentive payments on a case-basis which are multiplied by a factor between 1 and 1.25 according to results of check of facility conditions and process quality. Incentive can amount to up to 40% of base budgets. 50% of incentive payment can be used for salary bonuses	
Cambodia	Contracting-in	Low	11 of 81 districts	Yes	Yes	Yes, but specific donor information not available							Yes	No	No	NGO contracted to design and manage performance incentive payments in government facilities, but without autonomy over staffing and procurement decisions. Nature of incentive payments at discretion of NGO, leading to heterogeneity.	
Cambodia	Government scheme	Low	8 of 81 districts	Yes	Yes	Belgian Technical Cooperation							Yes	No	No	Government operated scheme supported by NGO. Case-based payments and bonuses for reaching quantitative targets and for abstention from illegitimate practices.	
Cameroon	Health Sector Support Investment Project I	Lower middle	26 of 189 health districts	Yes	Yes	World Bank							Yes	No	No	Monthly incentive payments on a case-basis subject to 25% reduction if excessive reporting errors detected during monthly verification. Case-based payments are increased by a factor between 1 and 1.3 according to results of check of facility conditions and process quality. Additional adjustments for facilities with large structural deficiencies. Facility management committee determines use of funds. Control group without budget equalization.	
Cameroon	Health Sector Support Investment Project II	Lower middle	26 of 189 health districts	Yes	Yes	World Bank							Yes	No	Yes	Monthly incentive payments on a case-basis subject to 25% reduction if excessive reporting errors detected during monthly verification. Case-based payments are increased by a factor between 1 and 1.3 according to results of check of facility conditions and process quality. Additional adjustments for facilities with large structural deficiencies. Facility management committee determines use of funds. Control group with budget equalization.	
Congo, Dem. Rep.	Health Sector Rehabilitation and Support Project	Low	1 of 26 districts	Yes	Yes	World Bank							Yes	No	Yes	Monthly incentive payments on a case-basis subject to reduction if reporting errors detected during monthly verification. No adjustment for quality. Facility with autonomy on how to use funds. Control group with budget equalization.	
Congo, Rep.	Health Sector Services Development Project	Lower middle	2 of 12 departments, home to 30% of population	Yes	Yes	World Bank							Yes	No	No	Quarterly incentive payments on a case-basis which are multiplied by a factor between 1 and 1.5 according to results of check of facility conditions and process quality and user satisfaction. Additional bonuses for facilities situated in remote areas, those with very poor catchment area populations, and those of very poor structural quality. Quality bonus not paid out if at least 10% of reported services cannot be verified. Facility determines what share of incentive payment is used for salary bonus.	
Gambia, The	Maternal and Child Nutrition and Health Results Project	Low	3 of 5 regions, home to one third of the population	Yes	Yes	World Bank							Yes	Yes	No	Quarterly incentive payments on a case-basis which are multiplied by a factor between 1 and 2 according to results of check of facility conditions. 40% of incentive payment can be used for salary bonuses. As co-intervention, women invited to enroll in CCT scheme rewarding timeliness of first and completion of 4 ANC visits.	
Lesotho	Health System Performance Enhancement Project	Lower middle	6 of 10 districts	Yes	Yes	World Bank							Yes	No	No	Quarterly incentive payments on a case-basis which are multiplied by a factor between 1 and 1.25 according to results of check of facility conditions and process quality. 50% of incentive payment can be used for salary bonuses.	

Country	Intervention name	World Bank income group at time of intervention	Scope			Donor (co-) financing	Impact estimate available and service incentivized							Financial incentive			
			Geographic extent	Rural	Urban		Modern Family Planning	4+ ANC checks	Maternal tetanus vaccination	Facility delivery	1+ PNC checks	Full child vaccination	Supply side	Demand side	Control group income equalization	Incentive formula	
																	Not available or not incentivized
Nigeria	State Health Investment Project I	Lower middle	5 of 36 states covering about 400,000 pregnant women and 1.8 million children	Yes	Yes	World Bank								Yes	No	No	Quarterly incentive payments on a case-basis which are multiplied by a factor between 1 and 1.25 according to results of check of facility conditions and process quality. 50% of incentive payment can be used for salary bonuses. Control groups with and without budget equalization.
Nigeria	State Health Investment Project II	Lower middle	5 of 36 states covering about 400,000 pregnant women and 1.8 million children	Yes	Yes	World Bank								Yes	No	Yes	Quarterly incentive payments on a case-basis which are multiplied by a factor between 1 and 1.25 according to results of check of facility conditions and process quality. 50% of incentive payment can be used for salary bonuses. Control groups with and with budget equalization.
Rwanda	Community Living Standards Grant	Low	50 of 416 sectors in districts covered by Rwanda P4P	Yes	No	World Bank								Yes	No	Yes	Quarterly incentive payments to community health workers who provide promotional and referral services according to service utilization in the community, namely growth monitoring of children 6–59 months old, antenatal care provided to women in the first 4 months of their pregnancy, in-facility deliveries, and family planning consultations. No direct incentivization of achieving 4+ ANC visits beyond the incentive for commencing ANC early. 70% of performance bonus invested into the community health worker cooperatives' income-generating activities, rest is salary bonus. Control group with budget equalization.
Rwanda	P4P Scheme	Low	All rural districts	Yes	No	Several, incl. Belgian Technical Cooperation, PEPFAR, and World Bank								Yes	No	Yes	Quarterly incentive payments on a case-basis which are multiplied by a factor between 0 and 1 according to results of check of facility conditions and process quality. Facility autonomy in use of funds, on average 77% used for salary bonuses, resulting in 38% salary increase. Similar use of additional funds in control group which receives budget equalization.
Senegal	Health and Nutrition Financing Project	Lower middle	6 of 14 regions	Yes	Yes	World Bank								Yes	Yes	No	Quarterly incentive payments on a case-basis which are multiplied by a factor between 1 and 1.25 according to results of check of facility conditions and process quality. 75% of incentive payment can be used for salary bonuses. As co-intervention, pregnant women receive vouchers for 4 ANC visits and skilled delivery.
Tajikistan	Health Services Improvement Project	Low	7 of 58 districts	Yes	No	World Bank								Yes	No	No	Quarterly incentive payments on a case-basis which are multiplied by a factor between 1 and 2 according to results of check of facility conditions and process quality. Facilities with a quality score of less than 55% of the maximum receive no quality bonus. 70% of incentive payment can be used for salary bonuses
Tanzania	Pwani pilot	Low	1 of 30 states	Yes	No	Gov't of Norway								Yes	No	No	Half-yearly incentive payments based on achievement of at least 75% of service delivery targets. Minimum of 75% of bonus payments are distributed among health workers, which amounts to up to 10% of base salaries. Direct incentivization of malaria and HIV treatment during pregnancy but no direct incentivization of antenatal care visits.
Zambia	Health Services Improvement Project I	Lower middle	11 of 117 districts	Yes	No	World Bank								Yes	No	No	Quarterly incentive payments on a case-basis which are multiplied by a factor between 1 and 1.5 according to results of check of facility conditions and process quality. Facilities with a quality score of less than 61% of the maximum receive no quality bonus. Up to 60% of incentive payments can be used for salary bonuses. Control group without budget equalization.
Zambia	Health Services Improvement Project II	Lower middle	11 of 117 districts	Yes	No	World Bank								Yes	No	Yes	Quarterly incentive payments on a case-basis which are multiplied by a factor between 1 and 1.5 according to results of check of facility conditions and process quality. Facilities with a quality score of less than 61% of the maximum receive no quality bonus. Up to 60% of incentive payments can be used for salary bonuses. Control group with budget equalization.

Country	Intervention name	World Bank income group at time of intervention	Scope			Donor (co-) financing	Impact estimate available and service incentivized							Financial incentive			
			Geographic extent	Rural	Urban		Modern Family Planning	4+ ANC checks	Maternal tetanus vaccination	Facility delivery	1+ PNC checks	Full child vaccination	Supply side	Demand side	Control group income equalization	Incentive formula	
				Yes	No		Yes	No	Yes	No	Yes	No	Yes	No	Yes		No
Zimbabwe	Health Sector Development Support Project	Low	16 of 62 districts, home to about 3.5 million people	Yes	No	World Bank								Yes	No	No	Quarterly incentive payments on a case-basis which are multiplied by a factor between 1 and 1.3 according to facility remoteness and by a factor between 1 and 1.25 according to results of check of facility conditions and process quality. Facilities with a quality score of less than 51% of the maximum receive no quality bonus. Up to 25% of incentive payments can be used for salary bonuses.
Vouchers																	
Cambodia	Reproductive Health Voucher	Low	9 of 77 health districts	Yes	Yes	KfW								Yes	Yes	No	Household poverty targeting. Vouchers cover family planning and maternal and child health services, incl. transportation. Vouchers distributed free of charge.
Cambodia	Targeted Maternal and Child Health Voucher	Low	8 of 77 health districts	Yes	Yes	Unknown								Yes	Yes	No	Household poverty targeting. Vouchers cover maternal and child health services, incl. transport. Vouchers distributed free of charge.
Cambodia	Universal Maternal and Child Health Voucher	Low	14 of 77 health districts	Yes	Yes	Unknown								Yes	Yes	No	No poverty targeting. Vouchers cover maternal and child health services, incl. transport. Vouchers distributed free of charge.
Kenya	Maternal Voucher Experiment	Low	1 of 47 counties	Yes	No	Georgetown University and Grand Challenges Canada								Yes	Yes	No	Vouchers cover antenatal care visits, delivery, and postnatal care visits, plus a small premium to compensate facilities for the administrative burden of adopting the system and recording utilization. One group of women received a voucher fully covering all services, and another group of women received a voucher covering free care antenatal and postnatal services, but required a 100 KSh (about \$1.20 at the time) copayment for facility delivery, which represented about 10 percent of the median reported price for a normal delivery paid by the control group.
Kenya	Reproductive Health Voucher	Low	4 of 47 counties, about 100,000 vouchers sold	Yes	Yes	KfW								Yes	Yes	No	Household poverty targeting. Voucher covers family planning and maternal and child health services including 4 antenatal care visits, facility delivery and postnatal care. Maternal and child health voucher sold for \$US2.50 and family planning voucher for \$US1.25.
Pakistan	Jhang Maternal Health Voucher	Lower-middle	1 of 150 districts, about 4,000 vouchers sold	Yes	No	Unknown								Yes	Yes	No	Household poverty targeting. Voucher covers family planning visit, 3 antenatal care visits, facility delivery and a postnatal care visits, as well as transportation. Vouchers sold for \$US1.25.
Pakistan	Marie Stopes Chakwal Voucher	Lower-middle	1 of 150 districts, about 7,000 vouchers distributed	Yes	Yes	Marie Stopes								Yes	Yes	No	Household poverty targeting. Voucher covers family planning services. Vouchers are free of charge.
Pakistan	Suraj	Lower-middle	3 of 150 districts	Yes	Yes	Marie Stopes								Yes	Yes	No	Household poverty targeting. Voucher covers family planning services. Vouchers are free of charge.
Tanzania	Helping Poor Pregnant Women Access Better Health Care	Low	2 of 31 regions, about 120,000 women	Yes	Yes	KfW								Yes	Yes	No	First household poverty targeting, later regional. Nominally an insurance scheme but effectively and planned as a voucher that covers maternal and child health services. Vouchers are free of charge.
Uganda	HealthyBaby	Low	20 of 130 districts	Yes	Yes	KfW								Yes	Yes	No	Household poverty targeting. Voucher covers maternal and child health services. Voucher sold for \$US1.5.
Conditional Cash Transfers																	

Country	Intervention name	World Bank income group at time of intervention	Scope			Donor (co-) financing	Impact estimate available and service incentivized							Financial incentive			
			Geographic extent	Rural	Urban		Modern Family Planning	4+ ANC checks	Maternal tetanus vaccination	Facility delivery	1+ PNC checks	Full child vaccination	Supply side	Demand side	Control group income equalization	Incentive formula	
				Yes	No		Yes	No	Yes	No	Yes	No	Yes	No	Yes		No
Afghanistan	Ministry of Public Health Scheme	Low	6 of 399 districts	Yes	No	UNICEF								Yes	Yes	No	No poverty targeting. Conditions on facility delivery with women delivering in facility receive 1,000 Afghani (13\$US) and community health workers 300 Afghani (4\$US) for bringing them to facility. No incentivization of postnatal care.
Bangladesh	Demand-Side Financing Program	Low	46 of 492 sub-districts	Yes	No	Yes, pooled donor funding								Yes	Yes	No	Regional and household poverty targeting. Freely available vouchers cover family planning and maternity service costs, women can receive routine and emergency transport reimbursement of 500 Taka (7.5\$US) and conditional on use of skilled birth attendance women receive in kind (worth 500 Taka/7.5\$US) and cash (2,000 Taka/30\$US) benefit for skilled birth attendance. Facilities reimbursed if they deliver package of services covered by voucher.
China	CHIMACA	Lower middle	3 of 1,355 counties	Yes	No	No							No	Yes	No	Regional poverty targeting. Conditions on use of antenatal and postnatal care. Maximum transfer of 20 RMB (3\$US) per pregnancy.	
Honduras	Bono 10,000	Lower middle	666 of about 3,7000 villages	Yes	No	World Bank, Inter-American Development Bank, Central American Bank for Economic Integration							No	Yes	No	Regional poverty targeting. Health conditions include registration with health clinic, and presentation for antenatal and postnatal care, and growth monitoring visits. Maternal tetanus vaccination and childhood vaccinations not directly incentivized but part of incentivized antenatal care and growth monitoring visits. Problems with enforcement of conditionalities reported. Health component is 500\$US per household per year in three installments.	
Honduras	Programa de Asignación Familiar (PRAF II)	Lower middle	6 of 298 municipalities	Yes	No	Inter-American Development Bank							No	Yes	No	Regional poverty targeting. Health conditions include antenatal and postnatal care as well as growth monitoring visits. No direct incentivization of maternal tetanus vaccination but part of incentivized antenatal care visits. Problems with enforcement of conditionalities reported. Health component is 40\$US per child or pregnant woman per year.	
India	Indira Gandhi Motherhood Support Scheme/Pradhan Mantri Matritva Vandana Yojana	Lower middle	52 of 640 districts	Yes	Yes	No							Yes	Yes	No	No poverty targeting. Conditions on using any antenatal care, maternal tetanus vaccination, postnatal care, child vaccinations, collection of nutritional supplements, and completion of growth checks and counseling sessions. Total payout to women was initially 4,000 Rp. (65\$US), later raised to 6,000 Rp (98\$US). Health workers in primary care centers receive incentive of between 100 and 200 Rp (1.6-3.2\$US) per completed case.	
India	Janani Surkshya Yojana	Low	Gradual nationwide rollout, estimated to cover 36% of pregnancies in the country in 2009/10	Yes	Yes	No							Yes	Yes	No	Regional and household level poverty targeting depending on state. Conditions on public or accredited private facility delivery. Cash transfer varies by state between 11\$US and 31\$US. Social health workers are offered a cash payment of between \$4 and \$13 for each delivery.	
Indonesia	Program Keluarga Harapan	Lower middle	362 of about 75,000 sub-districts	Yes	Yes	World Bank							No	Yes	No	Household poverty targeting. Conditions on maternal and child health service use and school attendance. Indirect incentivization of maternal tetanus vaccination through conditioning on antenatal care use. Quarterly cash transfers vary by household composition between US\$60 and US\$220.	
Kenya	M-SIMU RCT	Low	2 of 70 districts, 1,062 caregivers of young children	Yes	No	Bill and Melinda Gates Foundation							No	Yes	No	No household poverty targeting. Conditions on timely vaccinations visits. Cash transfer per timely vaccination varies by treatment arm between \$US 0.88 and \$US2.35.	
Kenya	Maternal Conditional Cash Transfer Experiment I	Low	1 of 47 counties	Yes	No	Georgetown University and Grand Challenges Canada							No	Yes	No	No household poverty targeting. The CCT was paid for up to four ANC visits, a facility delivery, and up to three PNC visits. An eligible woman received a transfer of 250 KSh (about \$3 USD) for each eligible ANC and PNC visit and a 500 KSh (\$6 USD) transfer for her delivery.	

Country	Intervention name	World Bank income group at time of intervention	Scope			Donor (co-) financing	Impact estimate available and service incentivized							Financial incentive			
			Geographic extent	Rural	Urban		Modern Family Planning	4+ ANC checks	Maternal tetanus vaccination	Facility delivery	1+ PNC checks	Full child vaccination	Supply side	Demand side	Control group income equalization	Incentive formula	
																	Not available or not incentivized
Kenya	Maternal Conditional Cash Transfer Experiment II	Low	1 of 47 counties	Yes	No	Georgetown University and Grand Challenges Canada								No	Yes	Yes	No household poverty targeting. The CCT was paid for up to four ANC visits, a facility delivery, and up to three PNC visits. An eligible woman received a transfer of 250 KSh (about \$3 USD) for each eligible ANC and PNC visit and a 500 KSh (\$6 USD) transfer for her delivery. Control group receives unconditional cash transfer.
Kenya	Maternal Conditional Cash Transfer and Voucher Experiment	Low	1 of 47 counties	Yes	No	Georgetown University and Grand Challenges Canada								Yes	Yes	No	No household poverty targeting. The CCT was paid for up to four ANC visits, a facility delivery, and up to three PNC visits. An eligible woman received a transfer of 250 KSh (about \$3 USD) for each eligible ANC and PNC visit and a 500 KSh (\$6 USD) transfer for her delivery. Women in addition receive vouchers which cover antenatal care visits, delivery, and postnatal care visits, plus a small premium to compensate facilities for the administrative burden of adopting the system and recording utilization. One group of women received a voucher fully covering all services, and another group of women received a voucher covering free care antenatal and postnatal services, but required a 100 KSh (about \$1.20 at the time) copayment for facility delivery, which represented about 10 percent of the median reported price for a normal delivery paid by the control group.
Mali	Cash for Nutritional Awareness	Low	3 of 59 districts	Yes	No	World Food Programme, UNICEF								No	Yes	No	No household poverty targeting. Conditions on maternal and child health service use. Cash transfers paid during antenatal care visits, delivery, vaccination and growth monitoring visits until age two with full compliance leading to payout of \$US75.
Mexico	Progres/Oportunidades	Upper middle	Initially only poor rural areas, later extended to urban areas with 5 million households by 2005	Yes	Yes	World Bank								No	Yes	No	Conditions of use of antenatal and postnatal care as well as growth monitoring visits, among other health services and school attendance. Only indirect incentivization of maternal tetanus vaccination through antenatal care attendance condition. Typically, households receive the equivalent of \$32.5 to \$41.3 per month, constituting 19-24% of mean household consumption.
Nicaragua	Red de Protección Social	Low	Pilot with 55,000 households, later scaled to all rural areas	Yes	No	Inter-American Development Bank, Central American Bank for Economic Integration								No	Yes	No	Regional poverty targeting. Conditions on growth monitoring and vaccination visits and school attendance. Health component amounts to US\$224 per household per year.
Nigeria	Maternal Cash Transfer Experiment	Lower middle	180 primary health facility areas covering about 1.2 million people	Yes	No	Unknown								No	Yes	No	Regional poverty targeting. Cash payments of 5,000 Naira (approximately US\$14), conditional on the use of antenatal care (3+ visits), delivery, and postnatal care by eligible pregnant women in the household.
Peru	Juntos	Lower middle	Gradual scale-up to national level scheme, 1011/~1,800 districts by 2012	Yes	Few	Inter-American Development Bank								No	Yes	No	Regional and household poverty targeting. Conditions on maternal and child health service use, namely antenatal and postnatal care as well as growth monitoring visits, and school attendance. Only indirect incentivization of maternal tetanus vaccination through antenatal care attendance condition. Monthly transfer is ~US\$35 per household per month.

Country	Intervention name	World Bank income group at time of intervention	Scope			Donor (co-) financing	Impact estimate available and service incentivized						Financial incentive			
			Geographic extent	Rural	Urban		Modern Family Planning	4+ ANC checks	Maternal tetanus vaccination	Facility delivery	1+ PNC checks	Full child vaccination	Supply side	Demand side	Control group income equalization	Incentive formula
				Yes	No		Yes	No	Yes	No	Yes	No	Yes	No	Yes	
Philippines	Pantawid Pamilya	Lower-middle	576,000 households in study period, scaled-up to roughly 3 million in 2012	Yes	No	World Bank							No	Yes	No	Regional and household poverty targeting. Health conditions include antenatal and postnatal care, skilled birth attendance, and growth monitoring. Facility delivery indirectly incentivized through skilled delivery condition. Health component is ~US\$10.80 per household per month, equivalent to about 8% of household income.
Turkey	Social Risk Mitigation Project	Upper-middle	Nationwide scheme, 6% poorest households	Yes	Yes	No							No	Yes	No	Household poverty targeting. Health conditions include namely antenatal and postnatal care, facility delivery and regular growth check attendance. Indirect incentivization of childhood vaccination through conditioning on growth check visits during which vaccines administered. Bimonthly payments of US\$23 per pregnant women and child and US\$74 for facility delivery.
Zimbabwe	Manicaland HIV/STD Project	Low	1 of 10 provinces, 1,319 households	Yes	No	Wellcome Trust, World Bank, UNICEF							No	Yes	No	Poor and vulnerable households targeted. Conditions on use of maternal and child health services (growth monitoring and up-to-date vaccinations) and school enrollment. Bimonthly transfers of US\$18 per household plus \$4 per child.

Table 3: Health Service Coverage Indicators

Indicator	Main definition	Divergences from main definition	# of original impact estimates	# of program-specific effect sizes
Modern family planning	Women of fertile age currently using modern contraceptives	Studies often do not list the contraceptives included in their definition of modern contraceptives. Where specified, they typically include condoms, diaphragms, foams and jellies, intrauterine devices, injectables, implants, and female and male sterilization. In five cases, the specified lists exclude condoms, and male and female sterilization. In one case, instead of <i>currently</i> , the recall period for the indicator is <i>ever</i> , and in one case it is the <i>last twelve months</i> .	21	16
4+ antenatal care checks	Woman received at least four antenatal care checks during her last pregnancy	None	31	22
Maternal tetanus vaccination	Woman received at least one tetanus vaccination during her last pregnancy	In most cases, the requirement is that the woman received one tetanus vaccination during pregnancy. In six cases, it the indicator requires two tetanus vaccinations and in another three cases, it requires that the woman received <i>all appropriate</i> tetanus vaccinations.	21	14
Facility delivery	Women giving birth at formal health facility	In six cases, only public facilities are included and in another five cases, the indicator is explicitly limited to deliveries in health facilities where a skilled provider was present.	63	35
1+ postnatal care checks	Mother received at least one postnatal care check	The timing of the postnatal care checks is typically unspecified, as is the type of healthcare workers carrying out the check and whether or not the check takes place in a facility or the mother's home. The timing is specified in 16 cases – in eight of them it is 14 days or less, and in eight it is 42 days or more. In six cases, the indicator is explicitly limited to postnatal care provided by skilled health workers, and in ten cases it is explicitly limited to postnatal care provided in health facilities.	35	21
Full childhood vaccination	Children received BCG, Polio3, DTP3/ Pentavalent3, and measles vaccinations	In three cases fewer vaccinations that in the main definition are included and in 16 cases the indicator includes additional country-specific vaccinations like yellow-fever or HBV. Sampled children are typically age 12-23 months of age, but in 13 cases, children older than one are included. In six cases, the indicator is based on information from vaccination cards only.	41	22

Table 4: Comparison of mean effect sizes between performance-based financing, voucher and conditional cash transfer programs

	(1) PBF vs vouchers	(2) PBF vs CCT	(3) Vouchers vs CCT
Modern family planning	-5.41 (0.022)	-	-
N	16		
4+ antenatal care checks	-2.84 (0.162)	-4.61 (0.000)	-1.76 (0.443)
N	18	18	8
Maternal tetanus vaccination	-	0.73 (0.797)	-
N		14	
Facility delivery	-2.40 (0.258)	-2.67 (0.199)	-0.05 (0.983)
N	25	28	17
1+ postnatal care checks	-0.97 (0.657)	-0.61 (0.779)	0.23 (0.907)
N	14	15	13
Full child vaccination	-	-1.42 (0.478)	-
N		22	

Notes: Table shows results from bivariate random effects meta-regressions. Coefficients are the percentage point differences in mean effect sizes between the first and second-mentioned group in the column title. *p-values* of the differences shown in parentheses.

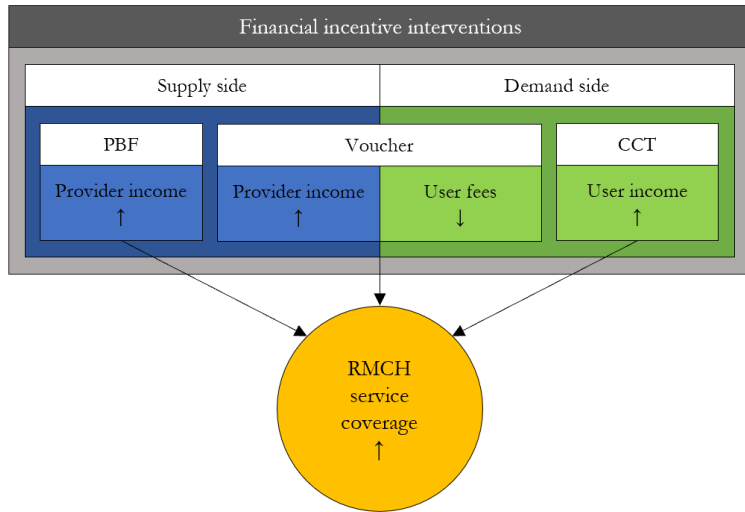
Table 5: Possible explanators of effect sizes differences from meta-regressions

	(1)	(2)	(3)	(4)	
	Combination of supply and demand side financial incentives	Control group with budget equalization	Baseline outcome value	High bias risk study	N [†]
Modern family planning	4.27 (0.068)	-2.29 (0.505)	-0.01 (0.900)	-1.21 (0.663)	16
4+ antenatal care checks	1.15 (0.592)	-2.35 (0.033)	0.07 (0.090)	0.98 (0.590)	22
Maternal tetanus vaccination	-6.55 (0.593)	0.88 (0.797)	0.01 (0.907)	2.00 (0.583)	14
Facility delivery	-0.30 (0.853)	-0.48 (0.810)	-0.03 (0.344)	1.79 (0.352)	35
1+ postnatal care checks	-1.42 (0.333)	-5.87 (0.242)	0.04 (0.395)	-1.11 (0.574)	21
Full child vaccination	0.09 (0.976)	-3.33 (0.275)	-0.03 (0.565)	0.33 (0.885)	22

Notes: Table shows results from bivariate random effects meta-regressions. Coefficients in columns 1, 2 and 4 are the percentage point differences in mean effect sizes between the group described in the column title and the respective reference group, *p*-values of the differences shown in parentheses. For column 1 reference group are interventions with either supply or demand side financial incentives, for column 2 it is interventions where the control group receives no treatment, and for column (4) it is interventions where the bias risk is classified as low or medium. Column 3 gives the percentage point change associated with a one percentage point increase in the baseline outcome value. [†]Because no baseline outcome values are available for two facility delivery and two postnatal care check effect sizes, the number of observations underlying the results in column 3 are 33 and 19, respectively, instead of 35 and 21 for the meta-regressions.

Figures

Figure 1: Typology and theory of change of included financial incentive interventions

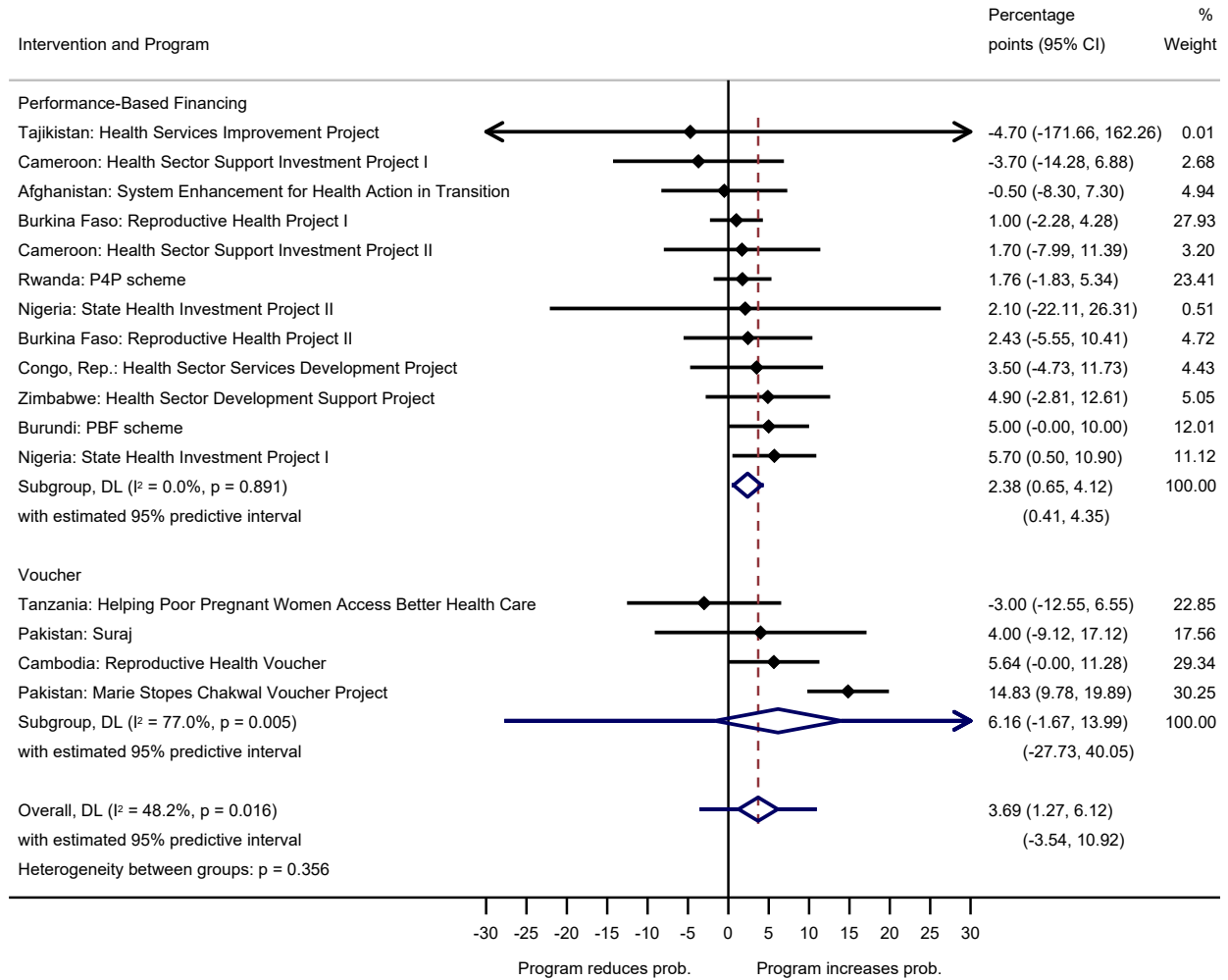


Notes: PBF = Performance-based financing, CCT = Conditional cash transfers, RMCH = Reproductive, maternal and child health.

Figure 2: PRISMA chart

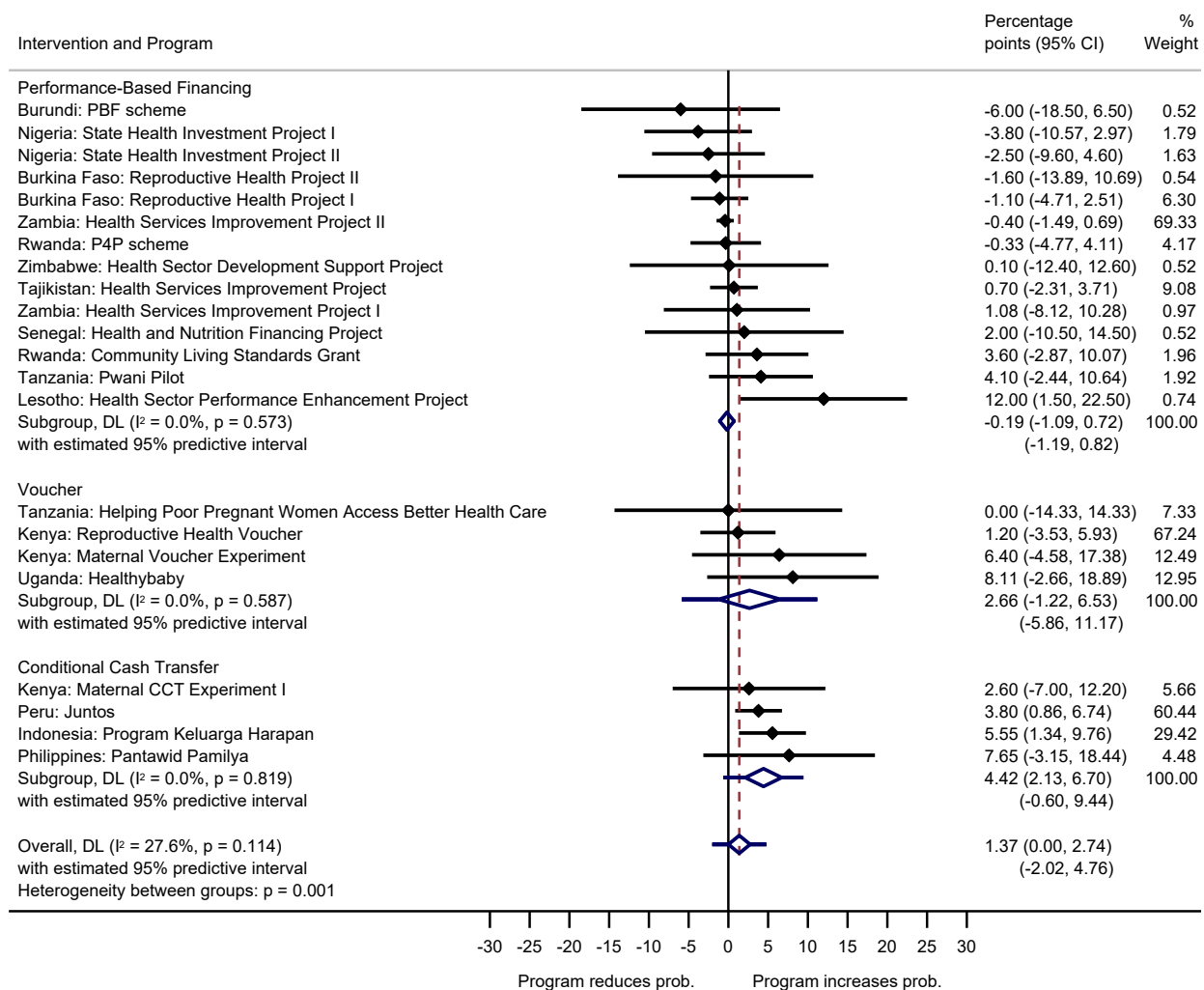
		PBF	Vouchers	GCT	TOTAL
2016	References identified	2,267	1,583	2,439	6,289
	Academic databases	825	334	964	2,123
	Google Scholar	944	898	800	2,642
	Literature reviews	484	345	649	1,478
	Other intervention searches	9	4	13	26
	Think tank & donor websites	1	1	6	8
	Happenstance discovery	1	0	4	5
	Social media calls	2	1	1	4
	Search for latest official version	1	0	2	3
	Duplicates removed	624	474	967	2,065
	Title-abstract screened	1,643	1,109	1,472	4,224
	Non-compliers	1,505	1,038	1,211	3,754
	Full-text screened	138	71	261	470
	Excluded	128	66	246	440
	Missing full text	8	5	4	17
	Duplicates	6	3	22	31
	Publication format	13	7	34	54
	No impact evaluation	30	10	23	63
	Not low- or middle-income country	3	0	0	3
	Intervention	18	13	45	76
	Outcome	7	1	56	61
	Method	34	20	37	91
	Identification	20	13	24	57
	Standard errors	6	5	0	11
	Population level estimates	8	2	3	13
	Dummy treatment variable	0	0	6	6
	Intention-to-treat	0	0	4	4
No official version available	6	1	10	17	
Later official versions available	3	4	15	22	
Duplicates across interventions	0	2	0	2	
Compliers	10	5	15	30	
2017-2021	Search update compliers	14	4	11	28
2016-2021	Total included references	24	9	26	58
	Impact estimates	129	23	60	212
	Program-specific effect sizes	75	21	34	130

Figure 3: Impacts of financial incentives on modern contraceptive use of women of fertile age



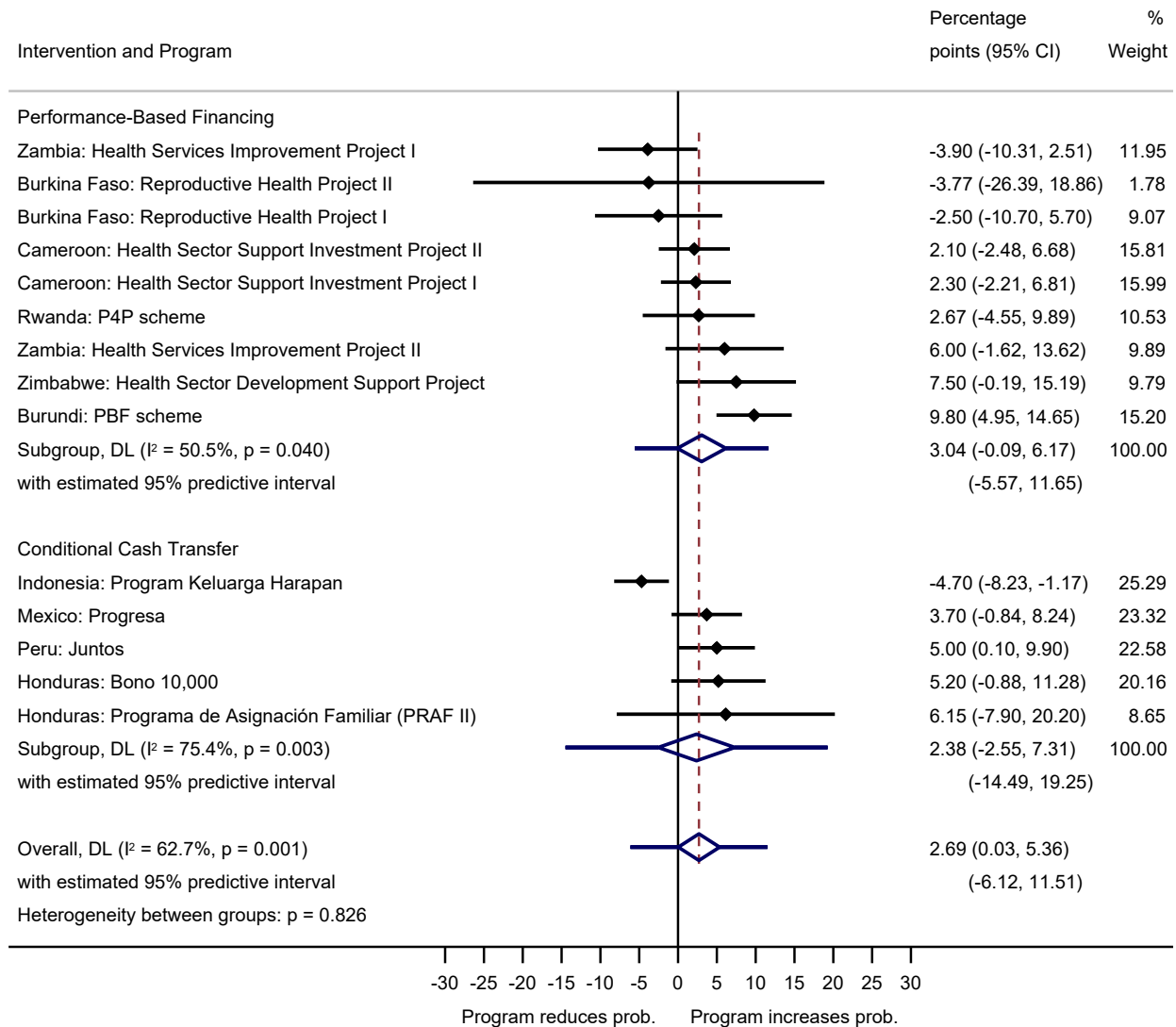
NOTE: Weights and between-subgroup heterogeneity test are from random-effects model

Figure 4: Impacts of financial incentives on pregnant women having four or more antenatal care visits



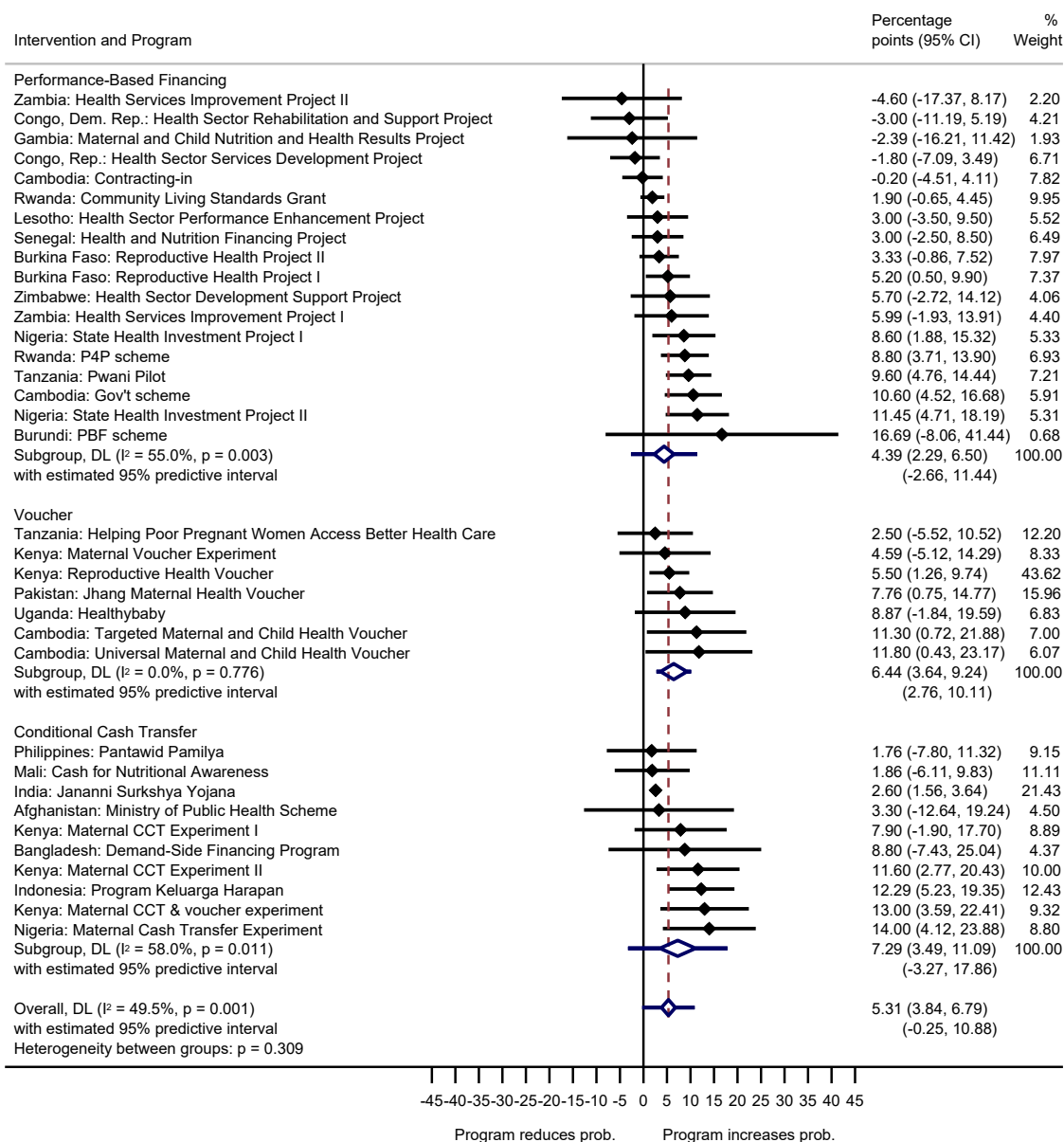
NOTE: Weights and between-subgroup heterogeneity test are from random-effects model

Figure 5: Impacts of financial incentives on pregnant women being vaccinated against tetanus



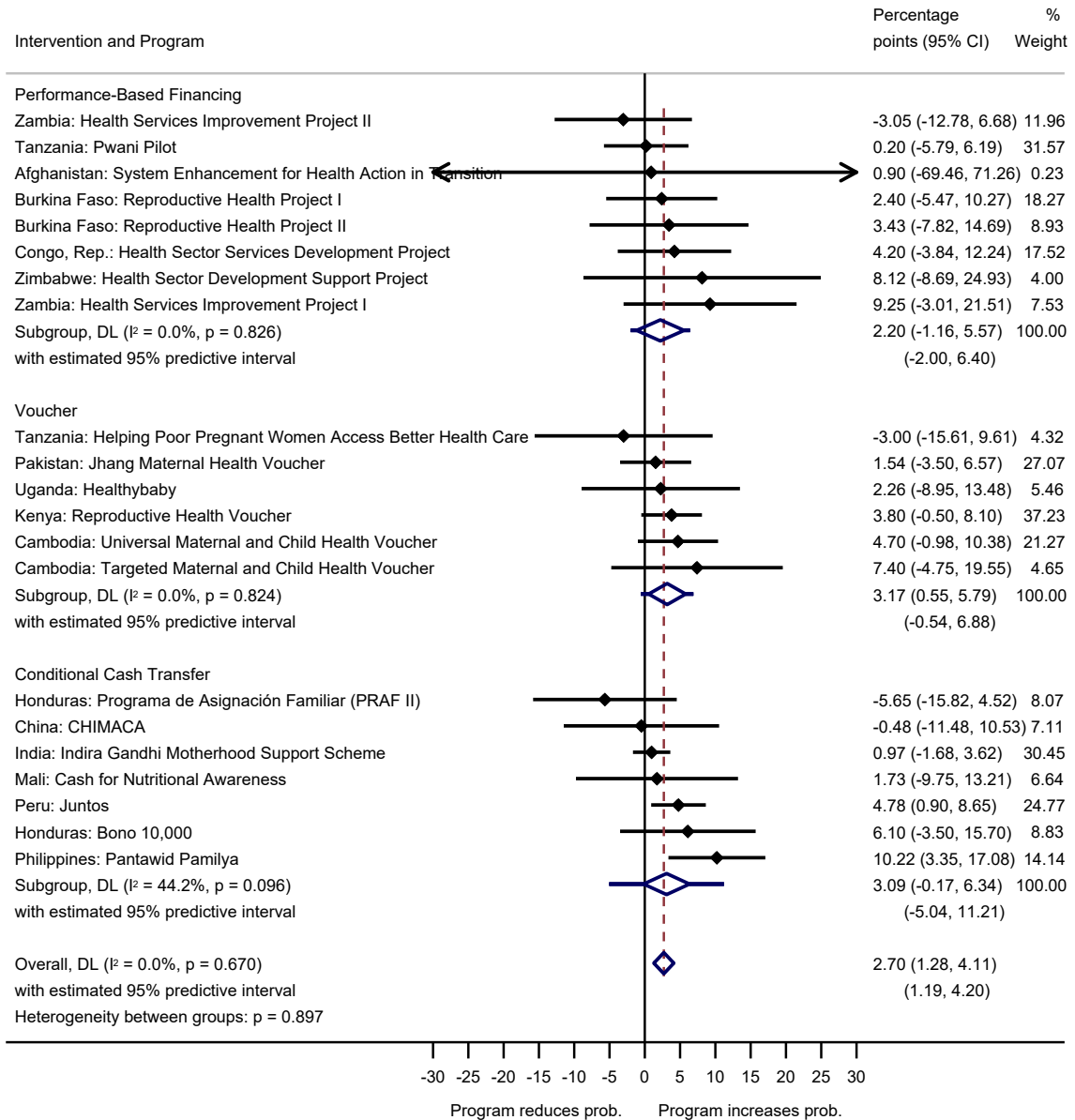
NOTE: Weights and between-subgroup heterogeneity test are from random-effects model

Figure 6: Impacts of financial incentives on delivery in a health facility



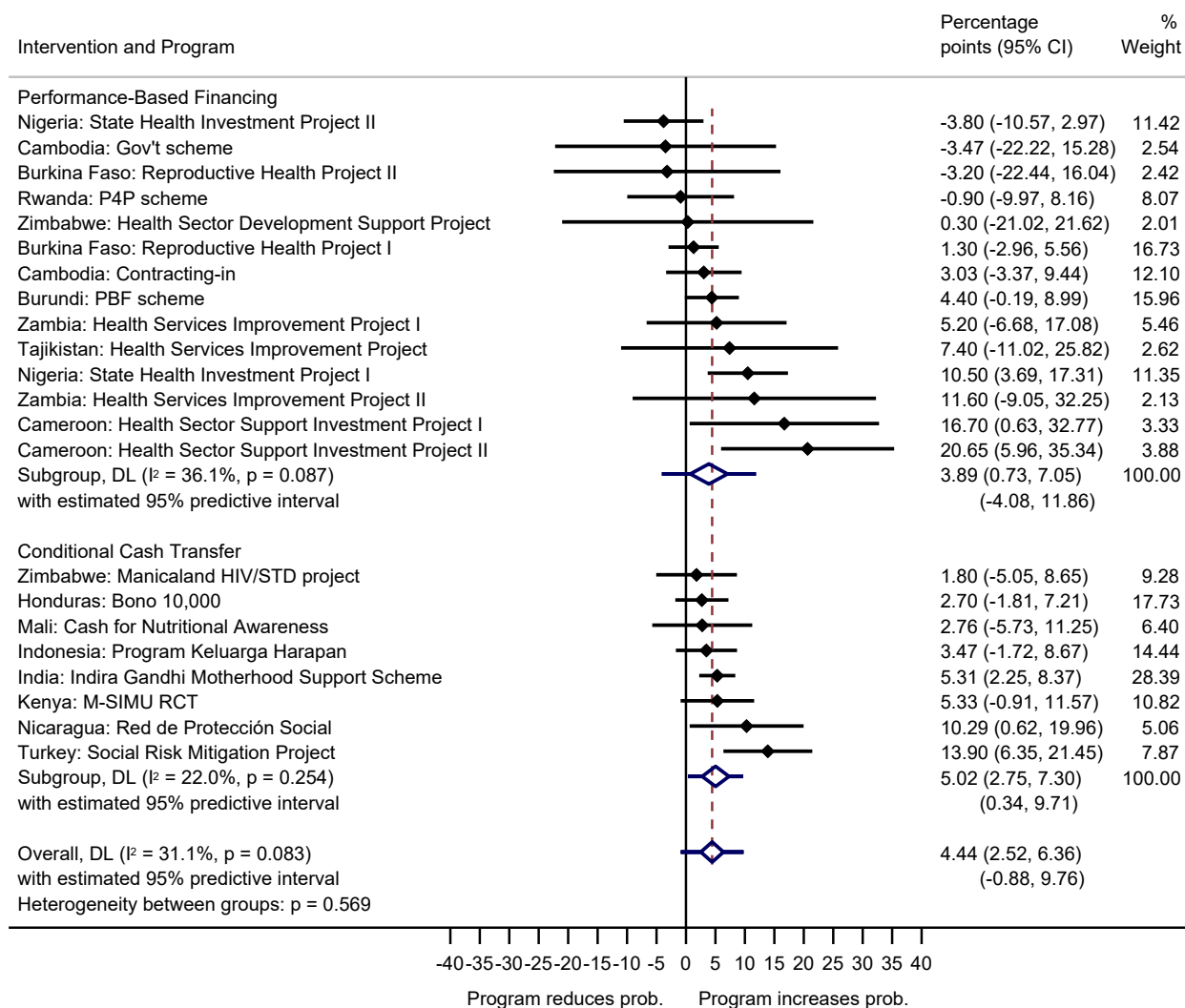
NOTE: Weights and between-subgroup heterogeneity test are from random-effects model

Figure 7: Impacts of financial incentives on receiving postnatal care



NOTE: Weights and between-subgroup heterogeneity test are from random-effects model

Figure 8: Impacts of financial incentives on full child vaccination



NOTE: Weights and between-subgroup heterogeneity test are from random-effects model

References

1. Diaconu K, Falconer J, Verbel A, Fretheim A, Witter S. Paying for performance to improve the delivery of health interventions in low- and middle-income countries. *Cochrane Database Syst Rev* 2021; (5).
2. Bellows B, Bulaya C, Inambwae S, Lissner CL, Ali M, Bajracharya A. Family Planning Vouchers in Low and Middle Income Countries: A Systematic Review. *Studies in Family Planning* 2016; **47**(4): 357-70.
3. Cruz RCDS, Moura LBAD, Soares Neto JJ. Conditional cash transfers and the creation of equal opportunities of health for children in low and middle-income countries: A literature review. *Int J Equity Health* 2017; **16**(1).
4. Hunter B, Harrison S, Portela A, Bick D. The effects of cash transfers and vouchers on the use and quality of maternity care services: A systematic review: journals.plos.org; 2017.
5. Taaffe J, Longosz A, Wilson D. The impact of cash transfers on livelihoods, education, health and HIV—what's the evidence? *Dev Policy Rev* 2017.
6. Gaarder MM, Glassman A, Todd JE. Conditional cash transfers and health: unpacking the causal chain. *J Dev Effect* 2010; **2**(1): 6-50.
7. Bassani DG, Arora P, Wazny K, Gaffey MF, Lenters L, Bhutta ZA. Financial incentives and coverage of child health interventions: a systematic review and meta-analysis. *BMC Public Health* 2013; **13**(3): 1-13.
8. Glassman A, Duran D, Fleisher L, et al. Impact of conditional cash transfers on maternal and newborn health. *J Health Popul Nutr* 2013; **31**(4 Suppl 2): 48-66.
9. Oyo-Ita A, Wiysonge CS, Oringanje C, Nwachukwu CE, Oduwole O, Meremikwu MM. Interventions for improving coverage of childhood immunisation in low- and middle-income countries. *Cochrane Database Syst Rev* 2016; **2016**(7).
10. Belaid L, Dumont A, Chaillet N, Zertal A, De Brouwere V. Effectiveness of demand generation interventions on use of modern contraceptives in low-and middle-income countries. *Trop Med Int Health* 2016; **21**(10): 1240-54.
11. Wagstaff A, Claeson M. Rising to the challenges: the millennium development goals for health. Washington, DC: World Bank; 2004.
12. Chiba Y, Oguttu MA, Nakayama T. Quantitative and qualitative verification of data quality in the childbirth registers of two rural district hospitals in Western Kenya. *Midwifery* 2012; **28**(3): 329-39.
13. Hahn D, Wanjala P, Marx M. Where is information quality lost at clinical level? A mixed-method study on information systems and data quality in three urban Kenyan ANC clinics. *Glob Health Action* 2013; **6**(1): 21424.
14. Sharma A, Rana SK, Prinja S, Kumar R. Quality of Health Management Information System for Maternal & Child Health Care in Haryana State, India. *PLoS One* 2016; **11**(2): e0148449-e.
15. O'Hagan R, Marx MA, Finnegan KE, et al. National assessment of data quality and associated systems-level factors in Malawi. *Glob Hea Sci Pra* 2017; **5**(3): 367-81.
16. Higgins J, Green S, editors. Cochrane handbook for systematic reviews of interventions version 5.1.0 [updated March 2011]: The Cochrane Collaboration; 2011.
17. Borenstein M, Hedges L, Higgins J. Introduction to meta-analysis. Chichester, UK: John Wiley & Sons, Ltd.; 2009.
18. Valentine JC, Pigott TD, Rothstein HR. How Many Studies Do You Need?: A Primer on Statistical Power for Meta-Analysis. *Journal of Educational and Behavioral Statistics* 2010; **35**(2): 215-47.
19. Ryan R. Cochrane Consumers and Communication Review Group. 'Cochrane Consumers and Communication Group: meta-analysis'. 2016.
20. Int'Hout J, Ioannidis JPA, Rovers MM, Goeman JJ. Plea for routinely presenting prediction intervals in meta-analysis. *BMJ Open* 2016; **6**(7): e010247.
21. Fu R, Gartlehner G, Grant M, et al. Conducting quantitative synthesis when comparing medical interventions: AHRQ and the Effective Health Care Program. *J Clin Epidemiol* 2011; **64**(11): 1187-97.
22. Vaessen J, Rivas A, Duvendack M, et al. The effects of microcredit on women's control over household spending in developing countries: A systematic review and meta-analysis. *Campbell Sys Rev* 2014; **10**(1): 1-205.
23. Cochrane Effective Practice Organisation of Care. Suggested risk of bias criteria for EPOC reviews. 2017. <https://epoc.cochrane.org/resources/epoc-resources-review-authors> (accessed 10/30 2020).
24. Coalition for Evidence-Based Policy. Checklist For Reviewing a Randomized Controlled Trial of a Social Program or Project, To Assess Whether It Produced Valid Evidence, 2010.
25. Friedman J, Scheffler R. Pay for performance in health systems: theory, evidence and case studies. World Scientific Handbook of Global Health Economics and Public Policy: Volume 3: Health System Characteristics and Performance 2016: 295-332.
26. Ma-Nitu SM, Tembey L, Bigirimana E, et al. Towards constructive rethinking of PBF: perspectives of implementers in sub-Saharan Africa. *BMJ Glob Health* 2018; **3**(5): e001036.

27. Engineer CY, Dale E, Agarwal A, et al. Effectiveness of a pay-for-performance intervention to improve maternal and child health services in Afghanistan: a cluster-randomized trial. *Int J Epidemiol* 2016; **45**(2): 451-9.
28. De Allegri M, Lohmann J, Hillebrecht M. Results-based financing for health impact evaluation in Burkina Faso: Results report. Institute of Public Health, Heidelberg University; 2018.
29. Bonfrer I, Soeters R, Van de Poel E, et al. Introduction Of Performance-Based Financing In Burundi Was Associated With Improvements In Care And Quality. *Health Aff (Millwood)* 2014; **33**(12): 2179-87.
30. Bonfrer I, Van de Poel E, Van Doorslaer E. The effects of performance incentives on the utilization and quality of maternal and child care in Burundi. *Soc Sci Med* 2014; **123**: 96-104.
31. Gage A, Bauhoff S. The effects of performance-based financing on neonatal health outcomes in Burundi, Lesotho, Senegal, Zambia and Zimbabwe. *Health Policy Plan* 2021.
32. Rudasingwa M, Soeters R, Basenya O. The effect of performance-based financing on maternal healthcare use in Burundi: a two-wave pooled cross-sectional analysis. *Glob Health Action* 2017; **10**(1): 1327241.
33. Van de Poel E, Flores G, Ir P, O'Donnell O. Impact of Performance-Based Financing in a Low-Resource Setting: A Decade of Experience in Cambodia. *Health Econ* 2016; **25**(6): 688-705.
34. de Walque D, Robyn PJ, Saidou H, Sorgho G, Steenland M. Looking into the Performance-Based Financing Black Box: Evidence from an Impact Evaluation in the Health Sector in Cameroon. Policy Research Working Paper No 8162. Washington, DC: The World Bank; 2017.
35. Huillery E, Seban J. Money for Nothing? The Effect of Financial Incentives on Motivation and Performances in the Health Sector. 2017.
36. Zeng W, Shepard DS, Rusatira JdD, Blaakman AP, Nsitou BM. Evaluation of Results-Based Financing in the Republic of the Congo: A Comparison Group Pre-post Study. *Health Policy Plan* 2018; **33**(3): 392-400.
37. Ferguson L, Hasan R, Boudreaux C, Thomas H, Jallow M, Fink G. Results-based financing to increase uptake of skilled delivery services in The Gambia: using the 'three delays' model to interpret midline evaluation findings. *BMC Pregnancy Childbirth* 2020; **20**(1): 712.
38. Kandpal E, Loevinsohn BP, Vermeersch CM, et al. Impact evaluation of Nigeria State Health Investment Project. Washington, DC: The World Bank; 2018.
39. Basinga P, Gertler PJ, Binagwaho A, Soucat AL, Sturdy J, Vermeersch CM. Effect on maternal and child health services in Rwanda of payment to primary health-care providers for performance: An impact evaluation. *Lancet* 2011; **377**(9775): 1421-8.
40. Gertler P, Vermeersch C. Using Performance Incentives to Improve Medical Care Productivity and Health Outcomes. National Bureau of Economic Research, Inc, NBER Working Papers: 19046; 2013.
41. Lannes L, Meessen B, Soucat A, Basinga P. Can performance-based financing help reaching the poor with maternal and child health services? The experience of rural Rwanda. *International Journal of Health Planning and Management* 2016; **31**(3): 309-48.
42. Okeke EN, Chari AV. Can institutional deliveries reduce newborn mortality? Evidence from Rwanda. Santa Monica, CA: RAND Corporation; 2015.
43. Priedeman Skiles M, Curtis SL, Basinga P, Angeles G. An equity analysis of performance-based financing in Rwanda: Are services reaching the poorest women? *Health Policy Plan* 2013; **28**(8): 825-37.
44. Sherry TB, Bauhoff S, Mohanan M. Multitasking and Heterogeneous Treatment Effects in Pay-for-Performance in Health Care: Evidence from Rwanda. *Am J Health Econ* 2017.
45. Shapira G, Kalisa I, Condo J, et al. Going beyond incentivizing formal health providers: Evidence from the Rwanda Community Performance-Based Financing program. *Health Econ* 2018; **27**(12): 2087-106.
46. Ahmed T, Arur A, de Walque D, Shapira G. Incentivizing Quantity and Quality of Care: Evidence from an Impact Evaluation of Performance-Based Financing in the Health Sector in Tajikistan. Policy Research Working Paper No 8951. Washington, DC: The World Bank; 2019.
47. Binyaruka P, Patouillard E, Powell-Jackson T, Greco G, Maestad O, Borghi J. Effect of paying for performance on utilisation, quality, and user costs of health services in Tanzania: A controlled before and after study. *PLoS One* 2015; **10**(8).
48. World Bank. Impact Evaluation of Zambia's Health Results Based Financing Pilot Project. Washington, DC: The World Bank, 2016.
49. Zeng W, Shepard DS, Nguyen H, et al. Cost-effectiveness of results-based financing, Zambia: a cluster randomized trial. *Bull World Health Organ* 2018; **96**(11): 760-71.
50. World Bank. Rewarding Provider Performance to Improve Quality and Coverage of Maternal and Child Health Outcomes. Washington, DC: The World Bank, 2016.
51. Bajracharya A, Veasnakiry L, Rathavy T, Bellows B. Increasing Uptake of Long-Acting Reversible Contraceptives in Cambodia Through a Voucher Program: Evidence From a Difference-in-Differences Analysis. *Glob Hea Sci Pru* 2016; **4 Suppl 2**: S109-21.

52. Van de Poel E, Flores G, Ir P, O'Donnell O, Van Doorslaer E. Can vouchers deliver? An evaluation of subsidies for maternal health care in Cambodia. *Bull World Health Organ* 2014; **92**(5): 331-9.
53. Dennis ML, Abuya T, Campbell OMR, et al. Evaluating the impact of a maternal health voucher programme on service use before and after the introduction of free maternity services in Kenya: A quasi-experimental study. *BMJ Glob Health* 2018; **3**(2).
54. Grépin KA, Habyarimana J, Jack W. Cash on delivery: Results of a randomized experiment to promote maternal health care in Kenya. *J Health Econ* 2019; **65**: 15-30.
55. Agha S. Changes in the proportion of facility-based deliveries and related maternal health services among the poor in rural Jhang, Pakistan: Results from a demand-side financing intervention. *Int J Equity Health* 2011; **10**.
56. Ali M, Azmat SK, Hamza HB, Rahman MM, Hameed W. Are family planning vouchers effective in increasing use, improving equity and reaching the underserved? An evaluation of a voucher program in Pakistan. *BMC Health Serv Res* 2019; **19**(1): N.PAG-N.PAG.
57. Azmat SK, Hameed W, Hamza HB, et al. Engaging with community-based public and private mid-level providers for promoting the use of modern contraceptive methods in rural Pakistan: results from two innovative birth spacing interventions. *Reprod Health* 2016; **13**: 25.
58. Kuwawenaruwa A, Ramsey K, Binyaruka P, Baraka J, Manzi F, Borghi J. Implementation and effectiveness of free health insurance for the poor pregnant women in Tanzania: A mixed methods evaluation. *Soc Sci Med* 2019; **225**: 17-25.
59. Obare F, Okwero P, Villegas L, Mills S, Bellows B. Increased coverage of maternal health services among the poor in western Uganda in an output-based aid voucher scheme. Policy Research Working Paper 7709. Washington, DC: The World Bank; 2016.
60. Edmond KM, Foshanji AI, Naziri M, et al. Conditional cash transfers to improve use of health facilities by mothers and newborns in conflict affected countries, a prospective population based intervention study from Afghanistan. *BMC Pregnancy Childbirth* 2019; **19**(1).
61. Keya KT, Bellows B, Rob U, Warren C. Improving Access to Delivery Care and Reducing the Equity Gap Through Voucher Program in Bangladesh: Evidence From Difference-in-Differences Analysis. *Int Q Community Health Educ* 2018; **38**(2): 137-45.
62. Nguyen HTH, Hatt L, Islam M, et al. Encouraging maternal health service utilization: An evaluation of the Bangladesh voucher program. *Soc Sci Med* 2012; **74**(7): 989-96.
63. Hemminki E, Long Q, Zhang W-H, et al. Impact of financial and educational interventions on maternity care: results of cluster randomized trials in rural China, CHIMACA. *Matern Child Health J* 2013; **17**(2): 208-21.
64. Benedetti F, Ibarrarán P, McEwan PJ. Do education and health conditions matter in a large cash transfer? Evidence from a honduran experiment. *Econ Devel Cult Change* 2016; **64**(4): 759-93.
65. Morris SS, Flores R, Olinto P, Medina JM. Monetary incentives in primary health care and effects on use and coverage of preventive health care interventions in rural Honduras: cluster randomised trial. *Lancet* 2004; **364**(9450): 2030-7.
66. von Haaren P, Klöner S. Maternal cash for better child health? The impacts of India's IGMSY/PMMVY maternity benefit scheme. 2020.
67. Debnath S. Improving Maternal Health with Incentives to Mothers vs. Health Workers: Evidence from India: University of Virginia; 2013.
68. Powell-Jackson T, Mazumdar S, Mills A. Financial Incentives in Health: New Evidence from India's Janani Suraksha Yojana. *J Health Econ* 2015; **43**: 154-69.
69. Alatas V. Program Keluarga Harapan: Impact Evaluation of Indonesia's Pilot Household Conditional Cash Transfer Program. Washington, DC: The World Bank; 2011.
70. Cahyadi N, Hanna R, Olken BA, Prima RA, Satriawan E, Syamsulhakim E. Cumulative Impacts of Conditional Cash Transfer Programs: Experimental Evidence from Indonesia. National Bureau of Economic Research, Inc, NBER Working Papers: 24670; 2018.
71. Kusuma D, Cohen J, McConnell M, Berman P. Can cash transfers improve determinants of maternal mortality? Evidence from the household and community programs in Indonesia. *Soc Sci Med* 2016; **163**: 10-20.
72. Kusuma D, Thabrany H, Hidayat B, McConnell M, Berman P, Cohen J. New Evidence on the Impact of Large-Scale Conditional Cash Transfers on Child Vaccination Rates: The Case of a Clustered-Randomized Trial in Indonesia. *World Devel* 2017; **98**: 497-505.
73. Triyana M. The effects of household and community-based interventions: Evidence from Indonesia. Chicago, IL: The University of Chicago; 2013.
74. Gibson DG, Ochieng B, Kagucia EW, et al. Mobile phone-delivered reminders and incentives to improve childhood immunisation coverage and timeliness in Kenya (M-SIMU): a cluster randomised controlled trial. *Lancet Glob Health* 2017; **5**(4): e428-e38.

75. Adubra L, Le Port A, Kameli Y, et al. Conditional cash transfer and/or lipid-based nutrient supplement targeting the first 1000 d of life increased attendance at preventive care services but did not improve linear growth in young children in rural Mali: results of a cluster-randomized controlled trial. *Am J Clin Nutr* 2019; **110**(6): 1476-90.
76. Barber SL, Gertler PJ. Empowering women: how Mexico's conditional cash transfer programme raised prenatal care quality and birth weight. *J Dev Effect* 2010; **2**(1): 51-73.
77. Barham T, Maluccio JA. Eradicating Diseases: The Effect of Conditional Cash Transfers on Vaccination Coverage in Rural Nicaragua. *J Health Econ* 2009; **28**(3): 611-21.
78. Handa S, Maluccio JA. Matching the Gold Standard: Comparing Experimental and Nonexperimental Evaluation Techniques for a Geographically Targeted Program. *Econ Devel Cult Change* 2010; **58**(3): 415-47.
79. Okeke EN, Wagner Z, Abubakar IS. Maternal Cash Transfers Led To Increases In Facility Deliveries And Improved Quality Of Delivery Care In Nigeria. *Health Aff (Millwood)* 2020; **39**(6): 1051-9.
80. Díaz J, Saldarriaga V. Promoting prenatal health care in poor rural areas through conditional cash transfers: evidence from JUNTOS in Peru. *Avances de Investigación* 25. Lima, Peru: GRADE; 2017.
81. Díaz JJ, Saldarriaga V, Díaz J-J. Encouraging use of prenatal care through conditional cash transfers: Evidence from JUNTOS in Peru. *Health Econ* 2019; **28**(9): 1099-113.
82. Kandpal E, Alderman H, Friedman J, Filmer D, Onishi J, Avalos J. A Conditional Cash Transfer Program in the Philippines Reduces Severe Stunting. *The Journal of nutrition* 2016; **149**(9): 1793-800.
83. Ahmed A, Gilligan D, Kudat A, Colasan R, Tatlidil H, Ozbilgin B. Interim impact evaluation of the conditional cash transfer program in Turkey: A quantitative assessment. Washington, DC: International Food Policy Research Institute; 2006.
84. Robertson L, Mushati P, Eaton JW, et al. Effects of unconditional and conditional cash transfers on child health and development in Zimbabwe: a cluster-randomised trial. *Lancet* 2013; **381**(9874): 1283-92.

Appendix 1 – Previous systematic reviews

Table A1.1: Previous systematic reviews of financial incentives and family planning

Reference	Search year	Intervention			Meta-analysis
		PBF	Vouchers	CCT	
Meyer et al (2011) ¹	2010			+	
Bellows et al (2011) ²	2010		+		
Witter and Somanathan (2012) ³	2010		+	-	
Bellows et al (2013) ⁴	2012		+		
Brody et al (2013) ⁵	2010		+		
Eva et al (2015) ⁶	2013		+		
Belaïd et al (2016) ⁷	2015		+		✓
Bellows et al (2016) ⁸	2016		+		
Blacklock et al (2016) ⁹	2016	-			
Khan et al (2016) ¹⁰	2016			-	
Diaconu et al (2021) ¹¹	2018	-			

Notes: (+) indicates improvement and (-) no improvement or inconclusive evidence.

Table A1.2: Previous systematic reviews of financial incentives and maternal care

Reference	Search year	Intervention			Meta-analysis
		PBF	Vouchers	CCT	
Gaarder et al (2010) ¹²	N/A			+	✓
Meyer et al (2011) ¹	2010			+	
Morgan et al (2011) ¹³	N/A	+	+	+	
Ranganathan and Lagarde (2012) ¹⁴	N/A			+	
Witter et al (2012) ¹⁵	2009	+			
Witter and Somanathan (2012) ³	2010		+	+	
Bellows et al (2013) ⁴	2012		+		
Brody et al (2013) ⁵	2010		+		
Eichler et al (2013) ¹⁶	2012	+			
Glassman et al (2013) ¹⁷	N/A			+	✓
Gopalan et al (2014) ¹⁸	2012			+	
Murray et al (2014) ¹⁹	2012		+	+	
Owusu-Addo and Cross (2014) ²⁰	2013			+	
Eva et al (2015) ⁶	2013		+		
Bastagli et al (2016) ²¹	2015			+	
Das et al (2016) ²²	2014	-			
Tanner et al (2016) ²³	2013			+	
Taaffe et al (2017) ²⁴	N/A			+	
Hunter et al (2017) ²⁵	2015		+	+	
Garcia-Prado (2019) ²⁶	N/A		+	+	
James et al (2020) ²⁷	2019	-			
Diaconu et al (2021) ¹¹	2018	+			

Notes: (+) indicates improvement and (-) no improvement or inconclusive evidence.

Table A1.3: Previous systematic reviews of financial incentives and childhood vaccination

Reference	Search year	Intervention			Meta-analysis
		PBF	Vouchers	CCT	
Gaarder et al (2010) ¹²	N/A			-	✓
Ranganathan and Lagarde (2012) ¹⁴	N/A			-	
Bassani et al (2013) ²⁸	2012		-	-	✓
Owusu-Addo and Cross (2014) ²⁰	2013			+	
Oyo-Ita et al (2016) ²⁹	2016			-	✓
Taaffe et al (2017) ²⁴	N/A			-	
Cruz et al (2017) ³⁰	2016			+	
James et al (2020) ²⁷	2019	-			
Diaconu et al (2021) ¹¹	2018	-			

Notes: (+) indicates improvement and (-) no improvement or inconclusive evidence.

References

1. Meyer C, Bellows N, Campbell M, Potts M. The Impact of Vouchers on the Use and Quality of Health Goods and Services in Developing Countries. *A Systematic Review* 2011.
2. Bellows NM, Bellows BW, Warren C. Systematic Review: The Use of Vouchers for Reproductive Health Services in Developing Countries: Systematic Review. *Trop Med Int Health* 2011; **16**(1): 84-96.
3. Witter S, Somanathan A. Demand-Side Financing for Sexual and Reproductive Health Services in Low and Middle-Income Countries: A Review of the Evidence: The World Bank; 2012.
4. Bellows BW, Conlon CM, Higgs ES, et al. A Taxonomy and Results from a Comprehensive Review of 28 Maternal Health Voucher Programmes. *J Health Popul Nutr* 2013; **31**(4 Suppl 2): S106-S28.
5. Brody CM, Bellows N, Campbell M, Potts M. The Impact of Vouchers on the Use and Quality of Health Care in Developing Countries: A Systematic Review. *Global public health* 2013; **8**(4): 363-88.
6. Eva G, Quinn A, Ngo TD. Vouchers for Family Planning and Sexual and Reproductive Health Services: A Review of Voucher Programs Involving Marie Stopes International among 11 Asian and African Countries. *International Journal of Gynecology and Obstetrics* 2015; **130**: E15-E20.
7. Belaid L, Dumont A, Chaillet N, Zertal A, De Brouwere V. Effectiveness of Demand Generation Interventions on Use of Modern Contraceptives in Low-and Middle-Income Countries. *Trop Med Int Health* 2016; **21**(10): 1240-54.
8. Bellows B, Bulaya C, Inambwae S, Lissner CL, Ali M, Bajracharya A. Family Planning Vouchers in Low and Middle Income Countries: A Systematic Review. *Studies in Family Planning* 2016; **47**(4): 357-70.
9. Blacklock C, MacPepple E, Kunutsor S, Witter S. Paying for Performance to Improve the Delivery and Uptake of Family Planning in Low and Middle Income Countries: A Systematic Review. *Studies in Family Planning* 2016; **47**(4): 309-24.
10. Khan ME, Hazra A, Kant A, Ali M. Conditional and Unconditional Cash Transfers to Improve Use of Contraception in Low and Middle Income Countries: A Systematic Review. *Studies in Family Planning* 2016; **47**(4): 371-83.
11. Diaconu K, Falconer J, Verbel A, Fretheim A, Witter S. Paying for Performance to Improve the Delivery of Health Interventions in Low- and Middle-Income Countries. *Cochrane Database Syst Rev* 2021; (5).
12. Gaarder MM, Glassman A, Todd JE. Conditional Cash Transfers and Health: Unpacking the Causal Chain. *J Dev Effect* 2010; **2**(1): 6-50.
13. Morgan L, Beith A, Eichler R. Performance-Based Incentives for Maternal Health: Taking Stock of Current Programs and Future Potentials. Health Systems 20/20 project. Bethesda, MD: Abt Associates; 2011.
14. Ranganathan M, Lagarde M. Promoting Healthy Behaviours and Improving Health Outcomes in Low and Middle Income Countries: A Review of the Impact of Conditional Cash Transfer Programmes. *Prev Med* 2012; **55** Suppl: S95-S105.
15. Witter S, Fretheim A, Kessy FL, Lindahl AK. Paying for Performance to Improve the Delivery of Health Interventions in Low- and Middle-Income Countries. *Cochrane Database Syst Rev* 2012; **2**: CD007899.
16. Eichler R, Agarwal K, Askew I, Iriarte E, Morgan L, Watson J. Performance-Based Incentives to Improve Health Status of Mothers and Newborns: What Does the Evidence Show? *J Health Popul Nutr* 2013; **31**(4 Suppl 2): S36-S47.
17. Glassman A, Duran D, Fleisher L, et al. Impact of Conditional Cash Transfers on Maternal and Newborn Health. *J Health Popul Nutr* 2013; **31**(4 Suppl 2): 48-66.
18. Gopalan SS, Mutasa R, Friedman J, Das A. Health Sector Demand-Side Financial Incentives in Low- and Middle-Income Countries: A Systematic Review on Demand- and Supply-Side Effects. *Soc Sci Med* 2014; **100**: 72-83.
19. Murray SF, Hunter BM, Bisht R, Ensor T, Bick D. Effects of Demand-Side Financing on Utilisation, Experiences and Outcomes of Maternity Care in Low-and Middle-Income Countries: A Systematic Review. *BMC Pregnancy Childbirth* 2014; **14**(1): 30.
20. Owusu-Addo E, Cross R. The Impact of Conditional Cash Transfers on Child Health in Low-and Middle-Income Countries: A Systematic Review. *Int J Public Health* 2014; **59**(4): 609-18.
21. Bastagli F, Hagen-Zanker J, Harman L, et al. Cash Transfers: What Does the Evidence Say. A rigorous review of programme impact and the role of design and implementation features London, UK: Overseas Development Institute; 2016.
22. Das A, Gopalan SS, Chandramohan D. Effect of Pay for Performance to Improve Quality of Maternal and Child Care in Low- and Middle-Income Countries: A Systematic Review. *BMC Public Health* 2016; **16**: 321.
23. Tanner J, Aguilar Rivera AM, Candland TL, et al. Delivering the Millennium Development Goals to Reduce Maternal and Child Mortality: A Systematic Review of Impact Evaluation Evidence: The World Bank, 2016.
24. Taaffe J, Longosz A, Wilson D. The Impact of Cash Transfers on Livelihoods, Education, Health and Hiv–What's the Evidence? *Dev Policy Rev* 2017.
25. Hunter B, Harrison S, Portela A, Bick D. The Effects of Cash Transfers and Vouchers on the Use and Quality of Maternity Care Services: A Systematic Review: journals.plos.org; 2017.

26. Garcia-Prado A. Changing Behavioral Patterns Related to Maternity and Childbirth in Rural and Poor Populations: A Critical Review. *World Bank Res Observer* 2019; **34**(1): 95-118.
27. James N, Lawson K, Acharya Y. Evidence on Result-Based Financing in Maternal and Child Health in Low- and Middle-Income Countries: A Systematic Review. *Global Health Research and Policy* 2020; **5**(1): 31.
28. Bassani DG, Arora P, Wazny K, Gaffey MF, Lenters L, Bhutta ZA. Financial Incentives and Coverage of Child Health Interventions: A Systematic Review and Meta-Analysis. *BMC Public Health* 2013; **13**(3): 1-13.
29. Oyo-Ita A, Wiysonge CS, Oringanje C, Nwachukwu CE, Oduwole O, Meremikwu MM. Interventions for Improving Coverage of Childhood Immunisation in Low- and Middle-Income Countries. *Cochrane Database Syst Rev* 2016; **2016**(7).
30. Cruz RCDS, Moura LBAD, Soares Neto JJ. Conditional Cash Transfers and the Creation of Equal Opportunities of Health for Children in Low and Middle-Income Countries: A Literature Review. *Int J Equity Health* 2017; **16**(1).

Appendix 2 – Example search strings for Medline search

1. PERFORMANCE-BASED FINANCING

((supply OR provider* OR clinic* OR center* OR centre* OR facility OR facilities OR hospital* OR post OR posts OR worker* OR personnel OR staff OR doctor* OR physician* OR nurse* OR midwi*) ADJ5 incentiv*) OR ((perform* OR quality) ADJ5 (purchas* OR reimburs* OR pay OR paying OR payment* OR financing OR incentiv* OR bonus* OR reward* OR contracts OR contract OR contracting OR budget*)) OR ("value based" ADJ5 (purchas* OR reimburs* OR pay OR paying OR payment* OR financing OR incentiv* OR bonus* OR reward* OR contracts OR contract OR contracting OR budget*)) OR ("output based" ADJ5 (purchas* OR reimburs* OR pay OR paying OR payment* OR financing OR incentiv* OR bonus* OR reward* OR contracts OR contract OR contracting OR budget*)) OR ("out put based" ADJ5 (purchas* OR reimburs* OR pay OR paying OR payment* OR financing OR incentiv* OR bonus* OR reward* OR contracts OR contract OR contracting OR budget*)) OR ("results based" ADJ5 (purchas* OR reimburs* OR pay OR paying OR payment* OR financing OR incentiv* OR bonus* OR reward* OR contracts OR contract OR contracting OR budget*)) OR ("result based" ADJ5 (purchas* OR reimburs* OR pay OR paying OR payment* OR financing OR incentiv* OR bonus* OR reward* OR contracts OR contract OR contracting OR budget*))).ab,ti.

AND

("controlled trial" OR randomization OR randomisation OR randomized OR randomised OR (random* ADJ4 (treat* OR intervention* OR allocat* OR assign*)) OR "nonrandomised controlled" OR "nonrandomized controlled" OR "rct" OR experiment OR experiments OR experimental OR quasiexperiment* OR (instrument* ADJ4 variable*) OR "stepped wedge" OR "regression discontinuity" OR discontinuous OR discontinuity OR "difference in difference" OR "differences in differences" OR "difference in differences" OR "double difference" OR "double differences" OR "triple difference" OR "triple differences" OR "controlled before after" OR "controlled before and after" OR ((stagger* OR gradual*) ADJ4 (implement* OR roll*)) OR exogen* OR "fixed effect" OR "fixed effects" OR ((longitudinal OR panel) ADJ5 (model* OR technique* OR method* OR estimator* OR approach))).ab,ti.

AND

((("third world" OR "developing world" OR LMIC OR "third world" OR ("less developed" ADJ1 countr*) OR ("least developed" ADJ1 countr*) OR ("low income" ADJ1 countr*) OR ("lower income" ADJ1 countr*) OR ("middle income" ADJ1 countr*) OR ((developing OR underdeveloped OR poor) ADJ1 countr*) OR Afghan* OR Albani* OR Algeri* OR Samoa* OR Angola* OR Antigua OR Barbuda OR Argentin* OR Armeni* OR Arub* OR Azerbai* OR Bahrain* OR Bangladesh* OR Barbad* OR Belarus* OR Beliz* OR Benin* OR Bhutan* OR Bolivia* OR Bosnia* OR Botswan* OR Brazil* OR Bulgaria* OR Burkin* OR Burundi* OR Verdian OR "Cape Verde" OR "Cabo Verde" OR Cambodia* OR Cameroon* OR "Central African Republic" OR Chad* OR Chile* OR Chinese OR China OR Colombia* OR Comoros OR Comoran* OR Comorian* OR Congo* OR "Costa Rica" OR "Costa Rican" OR (Cote ADJ1 Ivoire) OR "Ivory Coast" OR Ivorian OR Croatia* OR Cuba* OR Cypr* OR Czech* OR Djibout* OR Dominica* OR Ecuador* OR Egypt* OR Salvador* OR Eritrea* OR Estonia* OR Ethiopia* OR Fiji* OR Gabon* OR Gambia* OR Georgia* OR Ghan* OR Gibralt* OR Greece OR Greek* OR Grenada* OR Guam OR Guatemal* OR Guinea* OR Guyana* OR Haiti* OR Hondur* OR Hungar* OR India OR Indian OR Indonesia* OR Iran* OR Iraq* OR Jamaica* OR Jordan OR Kazakh* OR Kenya* OR Kiribati* OR Korea* OR Kosovo* OR Kyrgyz* OR Lao* OR Latvia* OR Leban* OR Lesoth* OR Liberia* OR Libya* OR Lithuania* OR Macao* OR Macedonia* OR Madagascar* OR Malawi* OR Malaysia* OR Maldiv* OR Mali OR Malian OR Malta* OR "Marshall Islands" OR "Marshall Islanders" OR Mauritania* OR Mauriti* OR Mexic* OR Micronesia* OR Moldov* OR Mongolia* OR Montenegr* OR Morocc* OR Mozambi* OR Myanmar* OR Burmese OR Burma OR Namibia* OR Nepal* OR Caledonia* OR Nicaragua* OR Niger* OR "Mariana Islands" OR "Mariana Islanders" OR Oman OR Omani OR Pakistan* OR Palau* OR Panam* OR Paraguay* OR Peru* OR Philippin* OR Poland OR Polish OR Portug* OR "Puerto Rico" OR "Puerto Rican" OR Rican* OR Romania* OR Russia* OR Soviet OR USSR OR Rwanda* OR Samoa* OR "Sao Tome" OR "Saudi Arabia" OR "Saudi Arabian" OR Senegal* OR Serb* OR Seychelles OR "Sierra Leone" OR "Sierra Leonean" OR Slovakia* OR Slovenia* OR "Solomon Islands" OR "Solomon Islanders" OR Somalia* OR "South Africa" OR "South African" OR "Sri Lanka" OR Lankan OR Kitts OR Lucia* OR Vincent OR Sudan* OR Suriname* OR Swaziland* OR Syria* OR Tajik* OR Tanzania* OR Thai* OR Timor OR Togo* OR Tonga* OR Trinidad* OR Tunisia* OR Turkey OR Turkish OR Turkmeni* OR Tuval* OR Uganda* OR Ukrain* OR Uruguay* OR Uzbek* OR Vanuatu* OR Venezuel* OR Vietnam* OR Palestin* OR Yemen* OR Zambia* OR Zimbabwe* OR Mayott* OR Antilles OR Yugoslavia* OR Gaza OR "West Bank"))).ab,ti.

2. VOUCHER

((voucher* OR coupon*)).ab,ti.

AND

("controlled trial" OR randomization OR randomisation OR randomized OR randomised OR (random* ADJ4 (treat* OR intervention* OR allocat* OR assign*)) OR "nonrandomised controlled" OR "nonrandomized controlled" OR "rct" OR experiment OR experiments OR experimental OR quasiexperiment* OR (instrument* ADJ4 variable*) OR "stepped wedge" OR "regression discontinuity" OR discontinuous OR discontinuity OR "difference in difference" OR "differences in differences" OR "difference in differences" OR "double difference" OR "double differences" OR "triple difference" OR "triple differences" OR "controlled before after" OR "controlled before and after" OR ((stagger* OR gradual*) ADJ4 (implement* OR roll*)) OR exogen* OR "fixed effect" OR "fixed effects" OR ((longitudinal OR panel) ADJ5 (model* OR technique* OR method* OR estimator* OR approach))).ab,ti.

AND

((("third world" OR "developing world" OR LMIC OR "third world" OR ("less developed" ADJ1 countr*) OR ("least developed" ADJ1 countr*) OR ("low income" ADJ1 countr*) OR ("lower income" ADJ1 countr*) OR ("middle income" ADJ1 countr*) OR ((developing OR underdeveloped OR poor) ADJ1 countr*) OR Afghan* OR Albani* OR Algeri* OR Samoa* OR Angola* OR Antigua OR Barbuda OR Argentin* OR Armeni* OR Arub* OR Azerbai* OR Bahrain* OR Bangladesh* OR Barbad* OR Belarus* OR Beliz* OR Benin* OR Bhutan* OR Bolivia* OR Bosnia* OR Botswan* OR Brazil* OR Bulgaria* OR Burkin* OR Burundi* OR Verdian OR "Cape Verde" OR "Cabo Verde" OR Cambodia* OR Cameroon* OR "Central African Republic" OR Chad* OR Chile* OR Chinese OR China OR Colombia* OR Comoros OR Comoran* OR Comorian* OR Congo* OR "Costa Rica" OR "Costa Rican" OR (Cote ADJ1 Ivoire) OR "Ivory Coast" OR Ivorian OR Croatia* OR Cuba* OR Cypr* OR Czech* OR Djibout* OR Dominica* OR Ecuador* OR Egypt* OR Salvador* OR Eritrea* OR Estonia* OR Ethiopia* OR Fiji* OR Gabon* OR Gambia* OR Georgia* OR Ghan* OR Gibralta* OR Greece OR Greek* OR Grenada* OR Guam OR Guatemal* OR Guinea* OR Guyana* OR Haiti* OR Hondur* OR Hungar* OR India OR Indian OR Indonesia* OR Iran* OR Iraq* OR Jamaica* OR Jordan OR Kazakh* OR Kenya* OR Kiribati* OR Korea* OR Kosovo* OR Kyrgyz* OR Lao* OR Latvia* OR Leban* OR Lesoth* OR Liberia* OR Libya* OR Lithuania* OR Macao* OR Macedonia* OR Madagascar* OR Malawi* OR Malaysia* OR Maldiv* OR Mali OR Malian OR Malta* OR "Marshall Islands" OR "Marshall Islanders" OR Mauritania* OR Mauriti* OR Mexic* OR Micronesia* OR Moldov* OR Mongolia* OR Montenegr* OR Morocc* OR Mozambi* OR Myanmar* OR Burmese OR Burma OR Namibia* OR Nepal* OR Caledonia* OR Nicaragua* OR Niger* OR "Mariana Islands" OR "Mariana Islanders" OR Oman OR Omani OR Pakistan* OR Palau* OR Panam* OR Paraguay* OR Peru* OR Philippin* OR Poland OR Polish OR Portug* OR "Puerto Rico" OR "Puerto Rican" OR Rican* OR Romania* OR Russia* OR Soviet OR USSR OR Rwanda* OR Samoa* OR "Sao Tome" OR "Saudi Arabia" OR "Saudi Arabian" OR Senegal* OR Serb* OR Seychelles OR "Sierra Leone" OR "Sierra Leonean" OR Slovakia* OR Slovenia* OR "Solomon Islands" OR "Solomon Islanders" OR Somalia* OR "South Africa" OR "South African" OR "Sri Lanka" OR Lankan OR Kitts OR Lucia* OR Vincent OR Sudan* OR Suriname* OR Swaziland* OR Syria* OR Tajik* OR Tanzania* OR Thai* OR Timor OR Togo* OR Tonga* OR Trinidad* OR Tunisia* OR Turkey OR Turkish OR Turkmeni* OR Tuval* OR Uganda* OR Ukrain* OR Uruguay* OR Uzbek* OR Vanuatu* OR Venezuel* OR Vietnam* OR Palestin* OR Yemen* OR Zambia* OR Zimbabwe* OR Mayott* OR Antilles OR Yugoslavia* OR Gaza OR "West Bank")).ab,ti.

3. CONDITIONAL CASH TRANSFER

((contingen* OR condition*) ADJ5 (pay* OR transfer* OR cash)) OR ("demand side" OR mone* OR pecun* OR financ* OR cash OR target*) ADJ5 incentiv*) OR (targeted ADJ5 subsid*).ab,ti.

AND

("controlled trial" OR randomization OR randomisation OR randomized OR randomised OR (random* ADJ4 (treat* OR intervention* OR allocat* OR assign*)) OR "nonrandomised controlled" OR "nonrandomized controlled" OR "rct" OR experiment OR experiments OR experimental OR quasiexperiment* OR (instrument* ADJ4 variable*) OR "stepped wedge" OR "regression discontinuity" OR discontinuous OR discontinuity OR "difference in difference" OR "differences in differences" OR "difference in differences" OR "double difference" OR "double differences" OR "triple difference" OR "triple differences" OR "controlled before after" OR "controlled before and after" OR ((stagger* OR gradual*) ADJ4 (implement* OR roll*)) OR exogen* OR "fixed effect" OR "fixed effects" OR ((longitudinal OR panel) ADJ5 (model* OR technique* OR method* OR estimator* OR approach))).ab,ti.

AND

((("third world" OR "developing world" OR LMIC OR "third world" OR ("less developed" ADJ1 countr*) OR ("least developed" ADJ1 countr*) OR ("low income" ADJ1 countr*) OR ("lower income" ADJ1 countr*) OR ("middle income" ADJ1 countr*) OR ((developing OR underdeveloped OR poor) ADJ1 countr*) OR Afghan* OR Albani* OR Algeri* OR Samoa* OR Angola* OR Antigua OR Barbuda OR Argentin* OR Armeni* OR Arub* OR Azerbai* OR Bahrain* OR Bangladesh* OR Barbad* OR Belarus* OR Beliz* OR Benin* OR Bhutan* OR Bolivia* OR Bosnia* OR Botswan* OR Brazil* OR Bulgaria* OR Burkin* OR Burundi* OR Verdian OR "Cape Verde" OR "Cabo Verde" OR Cambodia* OR Cameroon* OR "Central African Republic" OR Chad* OR Chile* OR Chinese OR China OR Colombia* OR Comoros OR Comoran* OR Comorian* OR Congo* OR "Costa Rica" OR "Costa Rican" OR (Cote ADJ1 Ivoire) OR "Ivory Coast" OR Ivorian OR Croatia* OR Cuba* OR Cypr* OR Czech* OR Djibout* OR Dominica* OR Ecuador* OR Egypt* OR Salvador* OR Eritrea* OR Estonia* OR Ethiopia* OR Fiji* OR Gabon* OR Gambia* OR Georgia* OR Ghan* OR Gibralt* OR Greece OR Greek* OR Grenada* OR Guam OR Guatemal* OR Guinea* OR Guyana* OR Haiti* OR Hondur* OR Hungar* OR India OR Indian OR Indonesia* OR Iran* OR Iraq* OR Jamaica* OR Jordan OR Kazakh* OR Kenya* OR Kiribati* OR Korea* OR Kosovo* OR Kyrgyz* OR Lao* OR Latvia* OR Leban* OR Lesoth* OR Liberia* OR Libya* OR Lithuania* OR Macao* OR Macedonia* OR Madagascar* OR Malawi* OR Malaysia* OR Maldiv* OR Mali OR Malian OR Malta* OR "Marshall Islands" OR "Marshall Islanders" OR Mauritania* OR Mauriti* OR Mexic* OR Micronesia* OR Moldov* OR Mongolia* OR Montenegr* OR Morocc* OR Mozambi* OR Myanmar* OR Burmese OR Burma OR Namibia* OR Nepal* OR Caledonia* OR Nicaragua* OR Niger* OR "Mariana Islands" OR "Mariana Islanders" OR Oman OR Omani OR Pakistan* OR Palau* OR Panam* OR Paraguay* OR Peru* OR Philippin* OR Poland OR Polish OR Portug* OR "Puerto Rico" OR "Puerto Rican" OR Rican* OR Romania* OR Russia* OR Soviet OR USSR OR Rwanda* OR Samoa* OR "Sao Tome" OR "Saudi Arabia" OR "Saudi Arabian" OR Senegal* OR Serb* OR Seychelles OR "Sierra Leone" OR "Sierra Leonean" OR Slovakia* OR Slovenia* OR "Solomon Islands" OR "Solomon Islanders" OR Somalia* OR "South Africa" OR "South African" OR "Sri Lanka" OR Lankan OR Kitts OR Lucia* OR Vincent OR Sudan* OR Suriname* OR Swaziland* OR Syria* OR Tajik* OR Tanzania* OR Thai* OR Timor OR Togo* OR Tonga* OR Trinidad* OR Tunisia* OR Turkey OR Turkish OR Turkmeni* OR Tuval* OR Uganda* OR Ukrain* OR Urugua* OR Uzbek* OR Vanuatu* OR Venezuel* OR Vietnam* OR Palestin* OR Yemen* OR Zambia* OR Zimbabwe* OR Mayott* OR Antilles OR Yugoslavia* OR Gaza OR "West Bank").ab,ti.

Appendix 3: Mathematical formulas to convert reported impact estimates into percentage point ES and to convert measures of statistical uncertainty to t-values

To obtain *standardized* effect sizes and corresponding standard errors for meta-analysis, we take the following steps:

(1) For impact estimates for which no t-values are available, we obtain them from whichever measure of statistical uncertainty is available for using the following set of formulas derived from the Cochrane Handbook for Systematic Reviews of Interventions¹, version 5.1.0., chapters [7.7.7.2](#) and [7.7.7.3](#):

Reported statistic	Formula
Standard error (SE)	$t_{MA} = \frac{\beta}{SE}$ <p>For odds ratios and risk ratios, the formula is</p> $t_{MA} = \frac{\ln(\beta)}{\ln(SE)}$ <p>If $\beta = 0$ we use $\beta = 0.001$ instead.</p>
p-value	<p>Using that for degrees of freedom > 30, the t-distribution can be approximated by the inverse normal distribution, we obtain values of the two-tailed t distribution using</p> $t_{MA} = invnormal\left(\frac{p_{value}}{2}\right).$ <p>For p-values reported as 0.000 we assume $p_{value} = 0.0001$</p>
Confidence Interval (CI)	<p>All reported CIs are at 95% level, hence</p> $t_{MA} = \frac{\beta \times 3.92}{CI_{upper} - CI_{lower}}.$ <p>For ORs and RRs the corresponding formula is</p> $t_{MA} = \frac{\ln(\beta) \times 3.92}{\ln(CI_{upper}) - \ln(CI_{lower})}.$
P-value thresholds	<p>We first approximate the p-value by</p> $p_{value_app} = p_{value_LT} + \frac{p_{value_UT} - p_{value_LT}}{2},$ <p>where p_{value_LT} and p_{value_UT} are the reported lower and upper p-value thresholds, e.g. $0.01 < p_{value} \leq 0.05$. If no upper threshold is specified (e.g. $p_{value} > 0.1$) we assume $p_{value_UT} = 1$ and if no lower threshold is specified (e.g. $p_{value} < 0.01$) we assume $p_{value_LT} = \frac{p_{value}}{10}$.</p> <p>Once we have obtained p_{value_app} we compute the t-statistic using the formula for p-values described above.</p>

(2) We subsequently convert impact estimates for binary indicator variables that are expressed in odds ratios, log odds ratios, and risk ratios into percentage point effect sizes using the following set of formulas:

Reported impact estimate	Formula to obtain percentage point effect size (PPES)
Odds Ratio and Log Odds Ratio	<p>The odds ratio (OR) is defined as</p> $OR = \frac{p_1 \times (1 - p_0)}{p_0 \times (1 - p_1)}$

	<p>where p_1 is the probability of an event under treatment and p_0 the probability of an event without treatment. Isolating p_1 leads to</p> $p_1 = \frac{OR \times p_0}{1 - p_0(1 - OR)} .$ <p>Then, obtain p_1 by plugging in the reported OR and the reference mean (baseline treatment group mean for DiD-models, control group mean in other models) for p_0.</p> <p>The PPES β_{MA} is computed as the differences between the probability of an event under treatment and no treatment</p> $\beta_{MA} = p_1 - p_0 .$ <p>If reported impact estimate is log odds ratio, replace OR with $\exp(OR)$ in above formulas.</p>
Risk Ratio	<p>The risk ratio (RR) is defined as</p> $RR = \frac{p_1}{p_0} .$ <p>Isolating p_1 leads to</p> $p_1 = RR \times p_0 .$ <p>The PPES β_{MA} is computed as the differences between the probability of an event under treatment and no treatment</p> $\beta_{MA} = p_1 - p_0 .$

Impact estimates that are already expressed in terms of percentage points enter our meta-analysis without prior conversion.

(3) Finally, we obtain meta-analysis standard errors SE_{MA} by

$$SE_{MA} = \left| \frac{\beta_{MA}}{t_{MA}} \right| .$$

References

1. Higgins J, Green S, editors. Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0 [Updated March 2011]: The Cochrane Collaboration; 2011.

Appendix 4: Mathematical formulas to aggregate multiple effect sizes for one program

When there are multiple impact estimates for one program, we aggregate the impact estimates and their standard errors using the following formulas:

(1) If the impact estimates come *from the same sample or from overlapping samples*, we aggregate them to a *synthetic* impact estimate by taking the simple average across the $i = 1, \dots, n$ impact estimates (Borenstein et al (2009)¹, formula 24.1):

$$\beta_{MA_syn} = \frac{1}{n} \sum_{i=1}^n \beta_{MA_i}$$

The corresponding synthetic standard error is generated by (Borenstein et al (2009)¹, formula 24.2):

$$SE_{MA_syn} = \frac{1}{n} \left(\sum_{i=1}^n SE_{MA_i}^2 + \sum_{i \neq j}^n (r_{ij} \times SE_{MA_i} \times SE_{MA_j}) \right)^{0.5},$$

where r_{ij} is the correlation coefficient between the impact estimates. In the absence of data on r_{ij} we conservatively assume $r_{ij} = 1$ so that the above formula reduces to:

$$SE_{MA_syn} = \frac{1}{n} \sum_{i=1}^n SE_{MA_i}.$$

(2) If the impact estimates come from different samples, we use the random effects model to obtain an aggregate, synthetic effect size and its standard error (Borenstein et al (2009)¹, chapter 13).

References

1. Borenstein M, Hedges L, Higgins J. Introduction to Meta-Analysis. Chichester, UK: John Wiley & Sons, Ltd.; 2009.

Appendix 5: Risk of bias assessment tool

We consider a study to have low bias risk if it is a randomized controlled trial which does not score “no” for any of the below criteria listed below and does not score “unclear” for more than one criterion.

We consider a study to have medium bias risk if

- it is a randomized controlled trial which does not score “no” for more than one criterion listed below and does not score “unclear” for more than two criteria.
- treatment is assigned non-randomly and if the study does not score “no” for any criterion listed below and does not score “unclear” for more than one criterion.

We consider a study to have high bias risk if

- it is a randomized controlled trial which does scores “no” for more than one criterion listed below or scores “unclear” for more than two criteria.
- treatment is assigned non-randomly and if the study scores “no” for any criterion listed below or scores “unclear” for more than one criterion.

1. Selection Bias and Confounding

1.1. Randomized Controlled Trial (RCT) Designs

Criteria: *code 1 if study complies with criterion, score 2 if it does not, code 3 if compliance is unclear*

1. A random component in the sequence generation process is described (e.g. referring to a random number table)¹;
2. The unit of allocation was at group level (geographical/ social/ institutional unit) and allocation was performed on all units at the start of the study; **OR** the unit of allocation was by beneficiary or group and there was some form of centralized allocation mechanism such as an on-site computer system or sealed opaque envelopes were used;
3. The unit of allocation is based on a sufficiently large sample size to equate groups on average;
4. The baseline characteristics of the study and control/comparisons are reported and overall similar based on t-test or ANOVA for equality of means across groups;

IF compliance with above points 1, 2 or 3 of this section is unclear or violated or if above point 4 is violated – i.e. when the randomization process was compromised or if there are large differences in baseline group means – **AND IF** the study addresses these issues using DID or IV methods, fill in the corresponding selection bias and confounding sections in the coding sheet. Afterwards continue with point 5 of this section.

5. The attrition rates (losses to follow up) are sufficiently low (<15%) and similar in treatment and control **OR** the study assesses that loss to follow up units are random draws from the sample (e.g. by examining correlation with determinants of indicators, in both treatment and comparison groups);
6. Problems with cross-overs and dropouts are dealt with using intention-to-treat analysis;
7. **IF** treatment is assigned by cluster, authors appropriately control for external cluster-level factors that might confound the impact of the program (e.g. weather, infrastructure, community fixed effects, etc.) through multivariate analysis (code -99 if treatment assignment is not by cluster).

1.2. Regression Discontinuity (RD) Designs

Criteria: *code 1 if study complies with criterion, score 2 if it does not, code 3 if compliance is unclear*

¹ If a quasi-randomized assignment approach is used (e.g. alphabetical order), you must be sure that the process truly generates groupings equivalent to random assignment, to score “Yes” on this criterion. In order to assess the validity of the quasi-randomization process, the most important aspect is whether the assignment process might generate a correlation between participation status and other factors (e.g. gender, socio-economic status) determining indicators; you may consider covariate balance in determining this (see point 4).

1. Allocation is made based on a pre-determined discontinuity on a continuous variable (regression discontinuity design) and blinded to participants; **OR** it is not blinded but participants reasonably cannot affect the assignment variable in response to knowledge of the participation decision rule;
2. The sample size immediately at both sides of the cut-off point is sufficiently large to equate groups on average;
3. The interval for selection of treatment and control group is reasonably small; **OR** authors have weighted the matches on their distance to the cut-off point;
4. The mean of the covariates of the individuals immediately at both sides of the cut-off point (selected sample of participants and non-participants) are reported and overall similar based on t-test or ANOVA for equality of means; **IF** compliance with above points 1, 2 or 3 of this section is unclear or violated or if above point 4 is violated – i.e. when the randomization process was compromised or if there are large differences in group means – **AND IF** the study addresses these issues using DID or IV methods, fill in the corresponding selection bias and confounding sections in the coding sheet. Afterwards continue with point 5 of this section.
5. **IF** treatment is assigned by cluster, authors appropriately control for external cluster-level factors that might confound the impact of the program (e.g. weather, infrastructure, community fixed effects, etc.) through multivariate analysis (code -99 if treatment assignment is not by cluster).

1.3. Difference-in-Difference (DID) designs (with non-random treatment assignment)

Criteria: *code 1 if study complies with criterion, score 2 if it does not, code 3 if compliance is unclear*

1. A comprehensive set of time-variant characteristics affecting participation and indicators are accounted for through covariate adjustment or by showing through statistical testing that mean characteristics are equal across groups; **OR** Treatment and comparisons are matched² based on a comprehensive set of baseline characteristics explaining participation and indicators;
2. The attrition rate is sufficiently low (<15%) and similar in treatment and control; **OR** the study assesses that drop-outs are random draws from the sample (e.g. by examining correlation with determinants of indicators, in both treatment and comparison groups);

1.4. Instrumental Variable (IV) designs

Criteria: *code 1 if study complies with criterion, score 2 if it does not, code 3 if compliance is unclear*

1. The study convincingly assesses qualitatively why the instrument is exogenous (both externally as well as why the variable should not enter by itself in the indicator equation), i.e. that it only affects the indicator via participation such as in a ‘natural experiment’ or random allocation³.
2. The instrumenting equation is significant at the level of $F \geq 10$ (or if an F test is not reported, the authors report and assess whether the R-squared (goodness of fit) of the participation equation is sufficient for appropriate identification);
3. The identifying instruments are individually significant ($p \leq 0.01$); **OR** if a Heckman model is used, the identifiers are reported and significant ($p \leq 0.05$);
4. For generalized IV estimation, **IF** at least two instruments are used, the authors report on an over-identifying test and the test is significant ($p \leq 0.05$ is required to reject the null hypothesis) (code -99 if only 1 instrument is used);
5. The study includes relevant controls for confounding, and none of the controls is likely affected by participation.

² The matching procedure is appropriate if (1) matching is either on baseline characteristics, time-invariant characteristics, or time-variant characteristics which cannot be affected by participation in the program; (2) the variables used to match are relevant (e.g. demographic and socio-economic factors) to explain both participation and the indicator (so that there can be no evident differences across groups in variables that might explain indicators); (3) with the exception of Kernel matching, the means of the individual covariates are equated for treatment and comparison groups after matching.

³ If the instrument is the random assignment of the treatment, the reviewer should also assess the quality and success of the randomization procedure.

6. **IF** treatment is assigned by cluster, authors appropriately control for external cluster-level factors that might confound the impact of the program (e.g. weather, infrastructure, community fixed effects, etc.) through multivariate analysis (code -99 if treatment assignment is not by cluster).

2. Hawthorne and John Henry effects: was the process of being observed causing motivation bias?

Criteria: *code 1 if study complies with criterion, score 2 if it does not, code 3 if compliance is unclear*

- 1a. For data collected in the context of a particular intervention trial (randomized or non-randomized assignment), the authors state explicitly that the process of monitoring the intervention and indicator measurement is blinded, or argue convincingly why it is not likely that being monitored in ways that could affect the performance of participants in treatment and comparison groups in different ways;

OR if

- 1b. The study is based on data collected in the context of a survey, and not associated with a particular intervention trial, or data are collected in the context of a retrospective (ex post) evaluation.

3. Spill-overs and contamination: was the study adequately protected from spillover and contamination?

Criteria: *code 1 if study complies with criterion, score 2 if it does not, code 3 if compliance is unclear*

1. The intervention is unlikely to spill-over to comparisons (e.g. participants and non-participants are geographically and/or socially separated from one another and general equilibrium effects are unlikely)

AND

2. Treatment and comparisons are isolated from other interventions which might explain changes in indicators.

4. Selective indicator reporting: was the study free from indicator reporting bias?

Criteria: *code 1 if study complies with criterion, score 2 if it does not, code 3 if compliance is unclear*

Score "1 - YES" if there is no evidence that indicators were selectively reported (e.g. all relevant indicators in the methods section are reported in the results section).

Score "2 - NO" if some important indicators are subsequently omitted from the results or the significance and magnitude of important indicators was not assessed.

Score "3 - UNCLEAR" otherwise

5. Selective analysis reporting: was the study free from analysis reporting bias?

Criteria: *code 1 if study complies with criterion, score 2 if it does not, code 3 if compliance is unclear*

Score "1 - YES" if authors use 'common' methods⁴ of estimation and the study does not suggest the existence of biased exploratory research methods⁵, for instance:

- For DID with PSM, score "yes" if (a) for failure to match over 10% of participants, sensitivity analysis is used to re-estimate results using different matching methods (kernel matching techniques); (b) for matching with replacement, there is not any observation in the control group that is matched with a large number of observations in the treatment group; (c) authors report the results of Rosenbaum test for hidden bias which suggest that the results are not sensitive to the existence of hidden bias.

⁴ 'Common methods' refers to the use of the most credible method of analysis to address attribution given the data available.

⁵ A comprehensive assessment of the existence of 'data mining' is not feasible particularly in quasi-experimental designs where most studies do not have protocols and replication seems the only possible mechanism to examine rigorously the existence of data mining.

- For IV models, score “yes” if (a) the author tests and reports the results of a Hausman test for exogeneity ($p \leq 0.05$ is required to reject the null hypothesis of exogeneity); (c) the value of the selectivity correction term (ρ) is significantly different from 0 ($p < 0.05$) (Heckman only).
- For multivariate regression models, authors conduct appropriate specification tests (e.g. testing robustness of results to the inclusion of additional variables, etc.).

Score “3 - UNCLEAR” if it is unclear if there might be selective analysis reporting.

Score “2 - NO” if authors use uncommon or less rigorous estimation methods such as failure to conduct multivariate analysis

6. Other: was the study free from other sources of bias?

Criteria: *code 1 if study complies with criterion, score 2 if it does not*

There are no other important concerns for bias, including about the blinding of indicator assessors or data analysts; courtesy bias from indicators collected through self-reporting; in terms of the coherence of results; baseline data being collected retrospectively; the reporting of results; data collection instruments, etc.

Appendix 6 – Number of references, impact estimates and program-level effect sizes by outcome and intervention type

Outcome	Intervention	References	Impact estimates	Program effect sizes
Modern family planning	Performance-based financing	12	17	12
	Vouchers	4	4	4
	Conditional cash transfers	0	0	0
	Total	16	21	16
4+ ANC checks	Performance-based financing	13	22	14
	Vouchers	4	4	4
	Conditional cash transfers	5	5	4
	Total	21	31	22
Maternal tetanus vaccination	Performance-based financing	9	15	9
	Vouchers	0	0	0
	Conditional cash transfers	5	6	5
	Total	14	21	14
Facility delivery	Performance-based financing	21	35	18
	Vouchers	6	9	7
	Conditional cash transfers	12	19	10
	Total	38	63	35
1+ PNC checks	Performance-based financing	7	17	8
	Vouchers	5	6	6
	Conditional cash transfers	7	12	7
	Total	19	35	21
Full child vaccination	Performance-based financing	10	23	14
	Vouchers	0	0	0
	Conditional cash transfers	10	18	8
	Total	20	41	22
<i>All outcomes</i>	<i>Performance-based financing</i>	<i>24</i>	<i>129</i>	<i>75</i>
	<i>Vouchers</i>	<i>9</i>	<i>23</i>	<i>21</i>
	<i>Conditional cash transfers</i>	<i>26</i>	<i>60</i>	<i>34</i>
	<i>Total</i>	<i>58</i>	<i>212</i>	<i>130</i>

Appendix 7: Variation in outcome variable definitions and their impacts on mean effect sizes

For modern family planning, the definitory differences described Table 3, and, in detail, in Table A7.1 do not drive the observed differences in mean effect sizes between PBF and voucher programs shown in Figure 3. Omission of effect sizes from five reports which exclude condoms and female and male sterilization and of the effect sizes from two reports which use a different reference period for the use of modern contraceptives than ‘current’ leaves the magnitude and significance of the results in Figure 3 unchanged (Appendix Figures A7.1 and A7.2).

For maternal tetanus vaccination, the overall and subgroup results in Figure 4 appear not to be driven by differences in the definition of maternal tetanus vaccination (Appendix Table A7.2), as omission of effects sizes from reports where tetanus vaccination is defined as having received two or the required number of doses – as opposed to one dose – does not lead to substantives absolute changes in mean effect sizes (Appendix Figure A7.3).

For facility deliveries, omission of effect sizes from reports with somewhat diverging definitions of facility deliveries (Appendix Table A7.3), namely limitation to deliveries in public health facilities (Appendix Figure A7.4) and to facility deliveries where a skilled health worker is present (Appendix Figure A7.5), has only minimal effects on the magnitudes and statistical significance of the overall and subgroup specific mean effect sizes in Figure 6.

For postnatal care checks, the overall and subgroup results in Figure 7 are unlikely to be driven by differences in definitions of postnatal care utilization (Appendix Table A7.4), as the omission of effect sizes from reports which use reference periods for postnatal care which are 42 or longer (Appendix Figure A7.6) and effect sizes which require presence of skilled providers (Appendix Figure A7.7) have only small effects on mean effect size estimates, and lead to only a small, and expected, loss in precision.

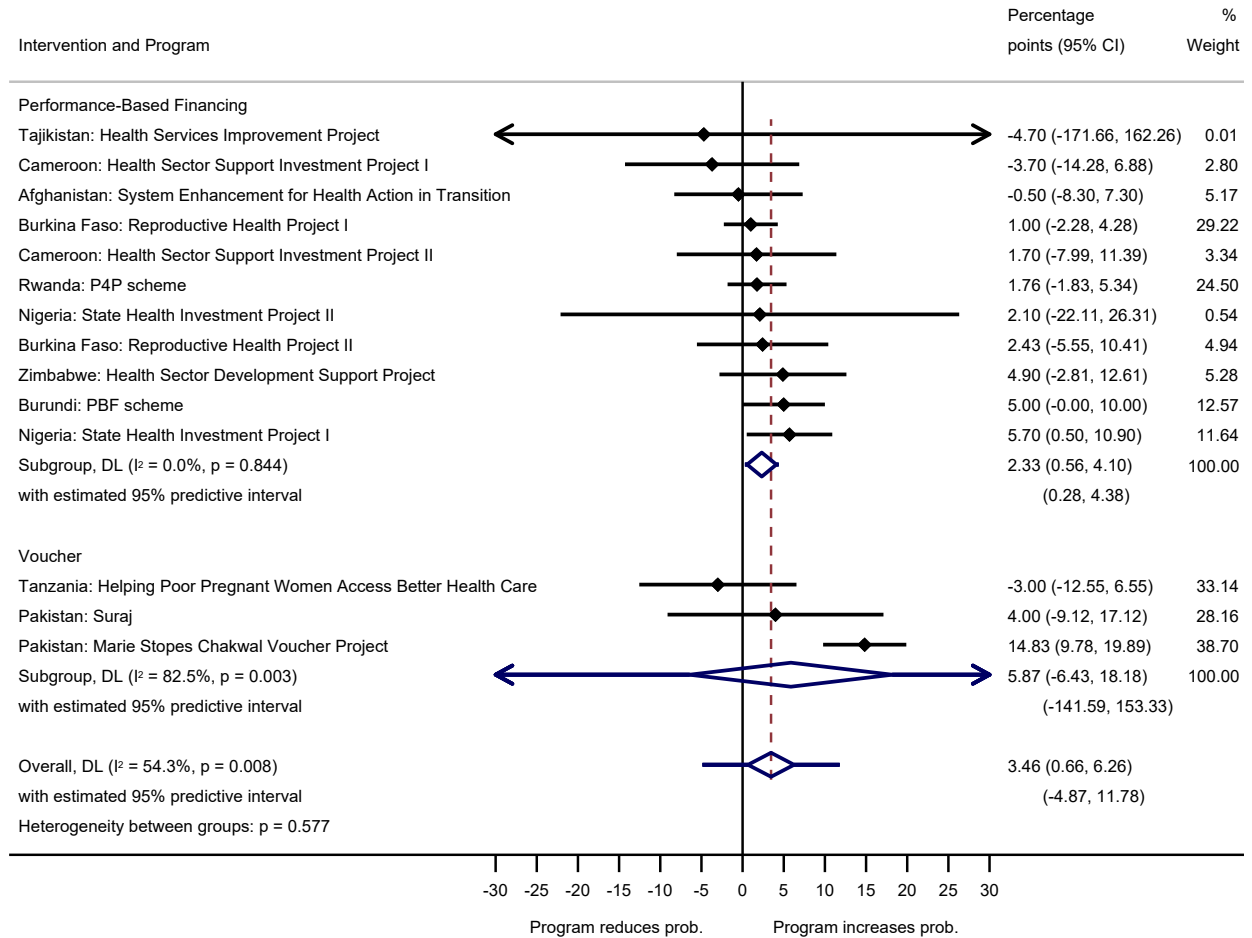
Full childhood vaccination

Variations in the definition of childhood vaccinations (Appendix Table A7.5) appear not to drive these results shown in Figure 8. Meta-regressions on indicators of the vaccination definition requiring vaccination data to come from a vaccination card (coefficient 0.07 percentage points, p -value 0.980), of vaccinations beyond BCG, Polio3, DTP3 and measles being required (coefficient -0.9 percentage points, p -value 0.669), or of children older than two years being included (coefficient 1.3 percentage points, p -value 0.505) indicate no significant role of these definitory variations. Because the majority of reports on CCTs – and none on PBF programs – uses definitions that include children older than two, we also investigate the robustness of our main results to the exclusion of effect sizes from reports whose childhood vaccination definitions include older children. While this leads to a loss of statistical significance of the CCT effect, the mean effect size remains largely unchanged (Appendix Figure A7.8).

Table A7.1: Variation of outcome definitions for modern family planning

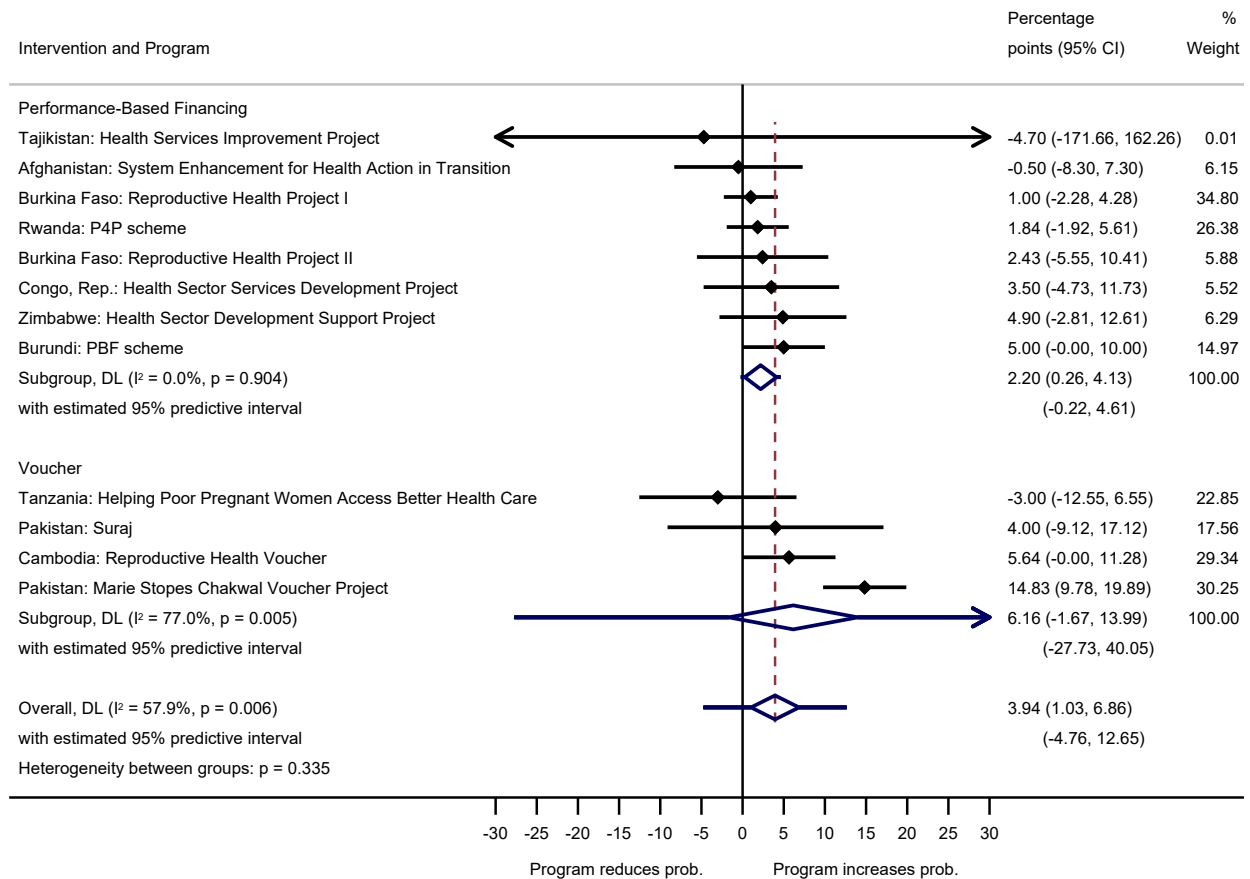
Intervention		Outcome definition		# of impact estimates
Type	Name	Reference period	Contraceptive types	
PBF	Afghanistan: System Enhancement for Health Action in Transition	Current	Unspecified	1
PBF	Burkina Faso: Reproductive Health Project I	Current	Condom, pill, intrauterine device, implant, injection, diaphragm, foam, jelly, male or female sterilization	2
PBF	Burkina Faso: Reproductive Health Project II	Current	Condom, pill, intrauterine device, implant, injection, diaphragm, foam, jelly, male or female sterilization	2
PBF	Burundi: PBF scheme	Current	Unspecified	1
PBF	Cameroon: Health Sector Support Investment Project I	Current	Pills, intrauterine devices, implant, injectable	1
PBF	Cameroon: Health Sector Support Investment Project II	Current	Pills, intrauterine devices, implant, injectable	1
PBF	Congo, Rep.: Health Sector Services Development Project	Ever	Unspecified	1
PBF	Nigeria: State Health Investment Project I	Current	Pills, intrauterine devices, implant, injectable	1
PBF	Nigeria: State Health Investment Project II	Current	Pills, intrauterine devices, implant, injectable	1
PBF	Rwanda: P4P scheme	Current	Pills, intrauterine devices, implant, injectable	1
PBF	Rwanda: P4P scheme	Current	Unspecified	2
PBF	Rwanda: P4P scheme	Current	Condom, pill, intrauterine device, injection, implant, diaphragm, male or female sterilization, foam, jelly, lactational amenorrhea	1
PBF	Tajikistan: Health Services Improvement Project	Current	Condom, pill, intrauterine device, injection, implant, diaphragm, male or female sterilization	1
PBF	Zimbabwe: Health Sector Development Support Project	Current	Condom, intrauterine device, implant, injectable, male or female sterilization, diaphragm, cervical caps, jellies, spermicides, emergency contraception	1
Voucher	Cambodia: Reproductive Health Voucher	Last 12 months	Condom, pill, intrauterine device, injectable, implant, male or female sterilization	1
Voucher	Pakistan: Marie Stopes Chakwal Voucher Project	Current	Unspecified	1
Voucher	Pakistan: Suraj	Current	Condom, pill, intrauterine device, injectable, implant, male or female sterilization	1
Voucher	Tanzania: Helping Poor Pregnant Women Access Better Health Care	Current	Unspecified	1

Figure A7.1: Impacts of financial incentives on modern family planning, omitting impact estimates where reference period of indicator definition is not ‘current’



NOTE: Weights and between-subgroup heterogeneity test are from random-effects model

Figure A7.2: Impacts of financial incentives on modern family planning, omitting impact estimates where indicator definition is specified and does not include condoms and male or female sterilization

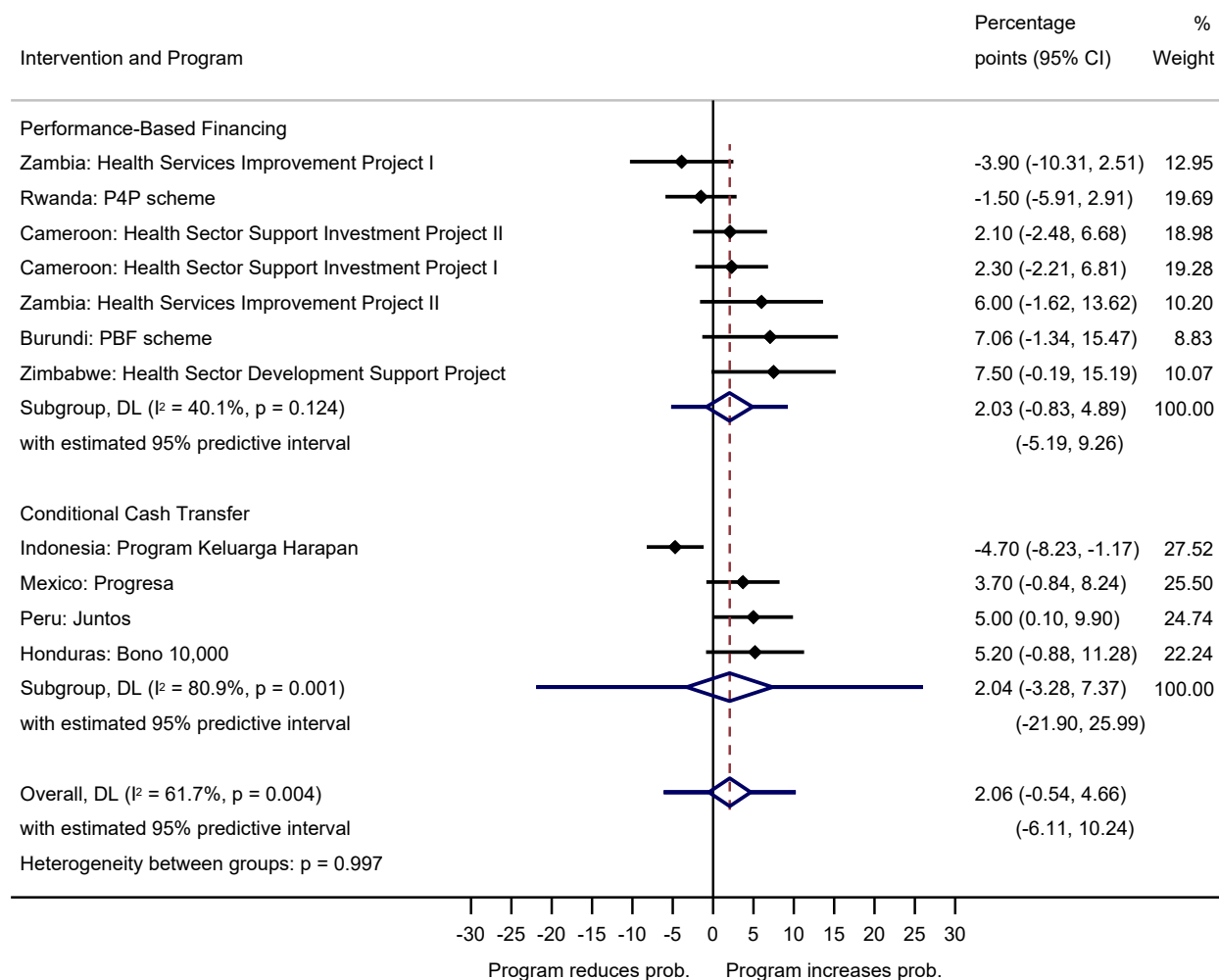


NOTE: Weights and between-subgroup heterogeneity test are from random-effects model

Table A7.2: Variation of outcome definitions for maternal tetanus vaccination

Intervention		Outcome definition		# of impact estimates
Type	Name	Minimum doses	Comment	
PBF	Burkina Faso: Reproductive Health Project I	2		2
PBF	Burkina Faso: Reproductive Health Project II	2		2
PBF	Burundi: PBF scheme	1		1
PBF	Burundi: PBF scheme	All required	Not specified	1
PBF	Burundi: PBF scheme	2		1
PBF	Burundi: PBF scheme	1		1
PBF	Cameroon: Health Sector Support Investment Project I	1		1
PBF	Cameroon: Health Sector Support Investment Project II	1		1
PBF	Rwanda: P4P scheme	1		1
PBF	Rwanda: P4P scheme	2		1
PBF	Zambia: Health Services Improvement Project I	1		1
PBF	Zambia: Health Services Improvement Project II	1		1
PBF	Zimbabwe: Health Sector Development Support Project	1		1
CCT	Honduras: Bono 10,000	1		1
CCT	Honduras: Programa de Asignación Familiar (PRAF II)	All required	A woman is considered to have received all required vaccinations if (1) two doses of tetanus toxoid were given during the last pregnancy, (2) one dose was given during the last pregnancy plus at least two during previous pregnancies, or (3) the woman had previously received a total of five or more doses.	2
CCT	Indonesia: Program Keluarga Harapan	1		1
CCT	Mexico: Progresa	1		1
CCT	Peru: Juntos	1		1

Figure A7.3: Impacts of financial incentives on maternal tetanus vaccination, omitting effect sizes from reports where indicator definition requires two or ‘appropriate’ numbers of doses

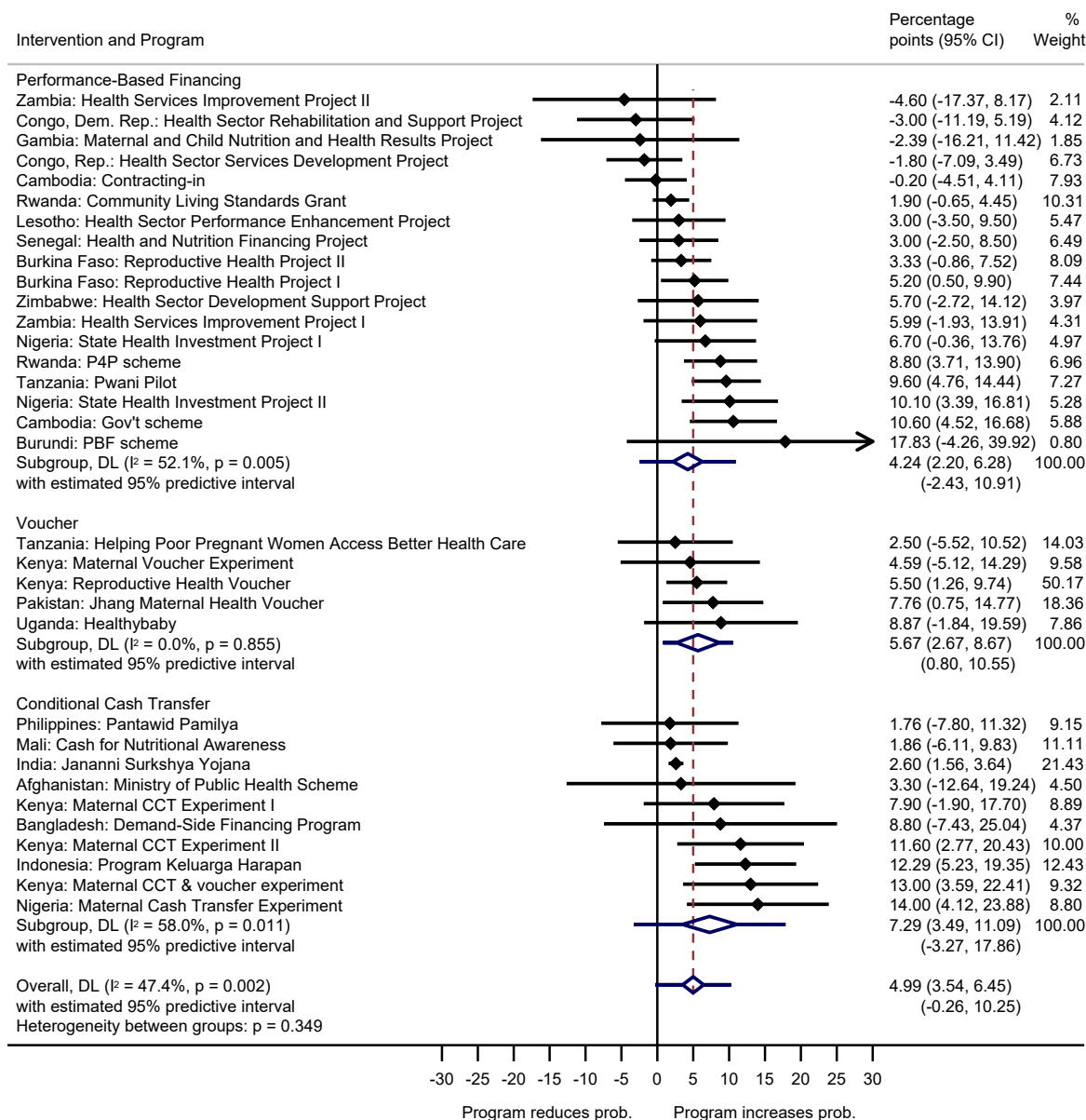


NOTE: Weights and between-subgroup heterogeneity test are from random-effects model

Table A7.3: Variation of outcome definitions for facility delivery

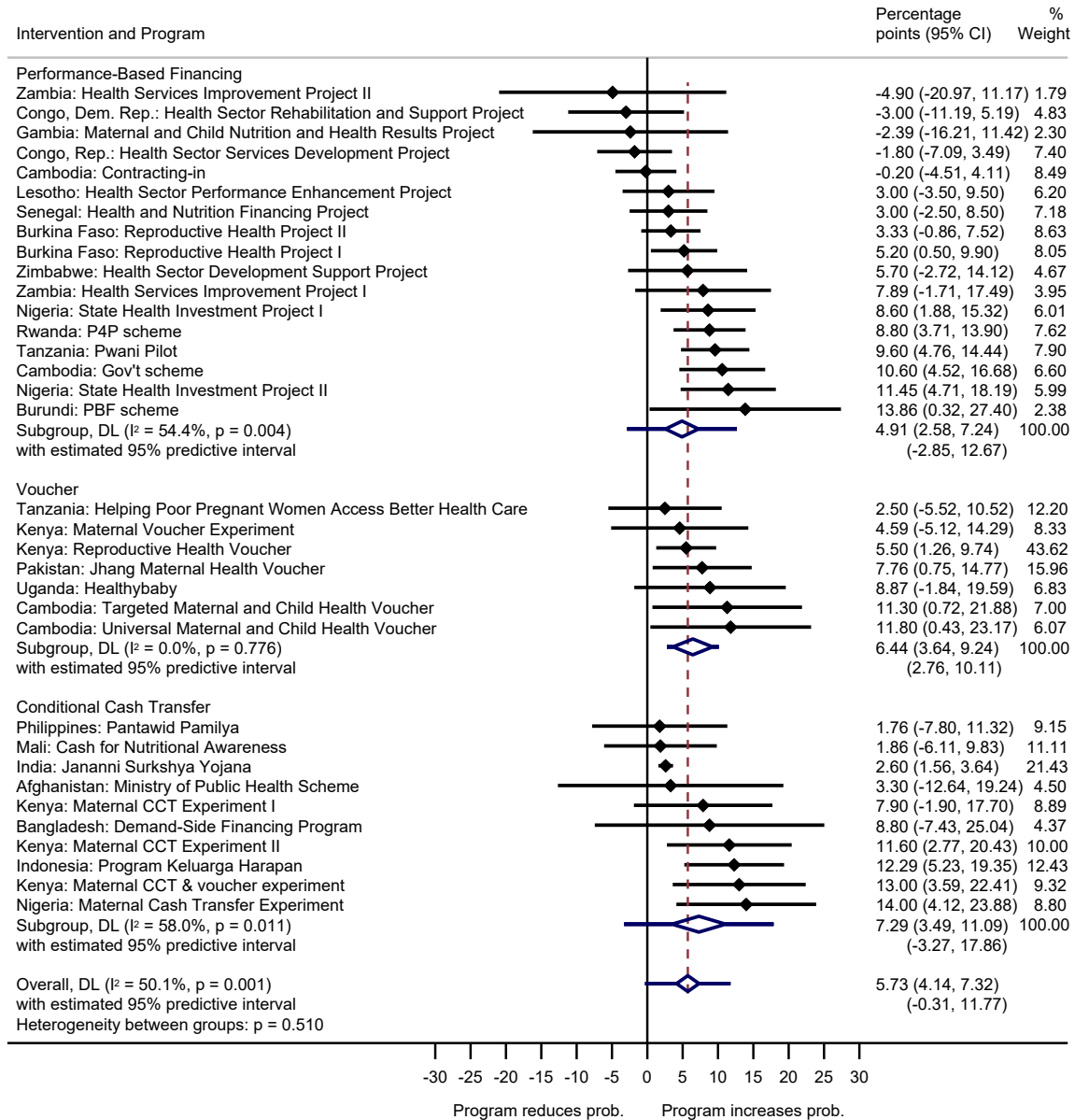
Intervention		Outcome definition		# of impact estimates
Type	Name	Public only	Skilled health worker only	
PBF	Burkina Faso: Reproductive Health Project I	No	Unspecified	2
PBF	Burkina Faso: Reproductive Health Project II	No	Unspecified	2
PBF	Burundi: PBF scheme	No	Unspecified	2
PBF	Burundi: PBF scheme	No	Yes	1
PBF	Burundi: PBF scheme	Yes	Yes	1
PBF	Cambodia: Contracting-in scale-up	No	Unspecified	1
PBF	Cambodia: Gov't scheme	No	Unspecified	1
PBF	Congo, Dem. Rep.: Health Sector Rehabilitation and Support Project	No	Unspecified	1
PBF	Congo, Rep.: Health Sector Services Development Project	No	Unspecified	1
PBF	Gambia, The: Maternal and Child Nutrition and Health Results Project	No	Unspecified	2
PBF	Lesotho: Health Sector Performance Enhancement Project	No	Unspecified	1
PBF	Nigeria: State Health Investment Project I	No	Unspecified	1
PBF	Nigeria: State Health Investment Project I	Yes	Unspecified	1
PBF	Nigeria: State Health Investment Project II	No	Unspecified	1
PBF	Nigeria: State Health Investment Project II	Yes	Unspecified	1
PBF	Rwanda: Community Living Standards Grant	No	Yes	1
PBF	Rwanda: P4P scheme	No	Unspecified	6
PBF	Senegal: Health and Nutrition Financing Project	No	Unspecified	1
PBF	Tanzania: Pwani Pilot	No	Unspecified	1
PBF	Zambia: Health Services Improvement Project I	No	Unspecified	2
PBF	Zambia: Health Services Improvement Project I	No	Yes	1
PBF	Zambia: Health Services Improvement Project II	No	Unspecified	1
PBF	Zambia: Health Services Improvement Project II	No	Yes	1
PBF	Zimbabwe: Health Sector Development Support Project	No	Unspecified	2
Voucher	Cambodia: Targeted Maternal and Child Health Voucher	Yes	Unspecified	1
Voucher	Cambodia: Universal Maternal and Child Health Voucher	Yes	Unspecified	1
Voucher	Kenya: Maternal Voucher Experiment	No	Unspecified	2
Voucher	Kenya: Reproductive Health Voucher	No	Unspecified	1
Voucher	Pakistan: Jhang Maternal Health Voucher	No	Unspecified	1
Voucher	Tanzania: Helping Poor Pregnant Women Access Better Health Care	No	Unspecified	1
Voucher	Tanzania: Helping Poor Pregnant Women Access Better Health Care	Yes	Unspecified	1
Voucher	Uganda: HealthyBaby	No	Unspecified	1
CCT	Afghanistan: Ministry of Public Health Scheme	No	Unspecified	1
CCT	Bangladesh: Demand-Side Financing Program	No	Unspecified	2
CCT	India: Janani Surkshya Yojana	No	Unspecified	2
CCT	Indonesia: Program Keluarga Harapan	No	Unspecified	6
CCT	Kenya: Maternal CCT & voucher experiment	No	Unspecified	2
CCT	Kenya: Maternal CCT Experiment I	No	Unspecified	1
CCT	Kenya: Maternal CCT Experiment II	No	Unspecified	1
CCT	Mali: Cash for Nutritional Awareness	No	Unspecified	2
CCT	Nigeria: Maternal Cash Transfer Experiment	No	Unspecified	1
CCT	Philippines: Pantawid Pamilya	No	Unspecified	1

Figure A7.4: Impacts of financial incentives on facility delivery, omitting impact estimates where indicator definition is limited to public facilities



NOTE: Weights and between-subgroup heterogeneity test are from random-effects model

Figure A7.5: Impacts of financial incentives on facility delivery, omitting impact estimates where indicator definition is explicitly limited to attendance by skilled health workers

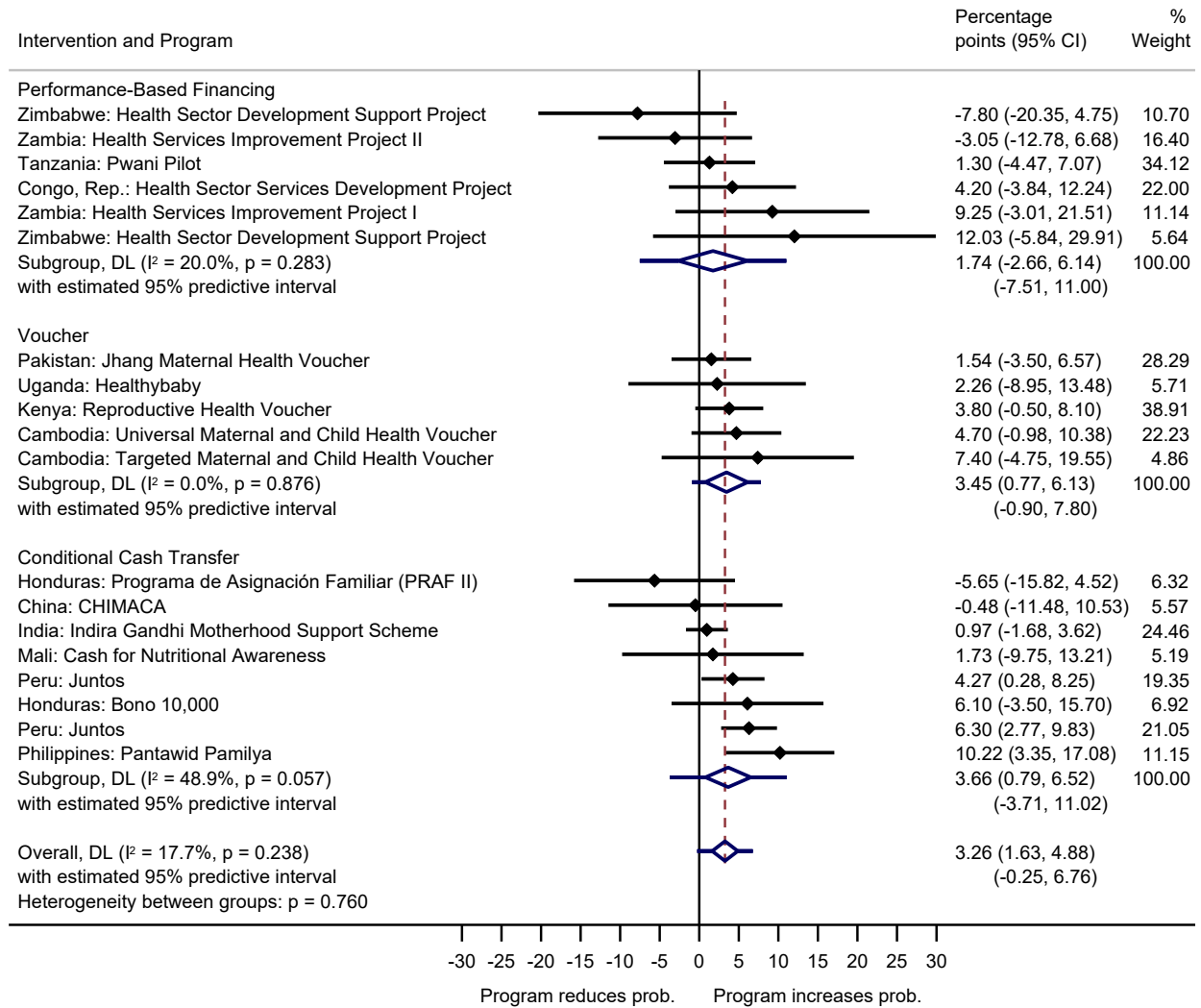


NOTE: Weights and between-subgroup heterogeneity test are from random-effects model

Table A7.4: Variation of outcome definitions for postnatal care

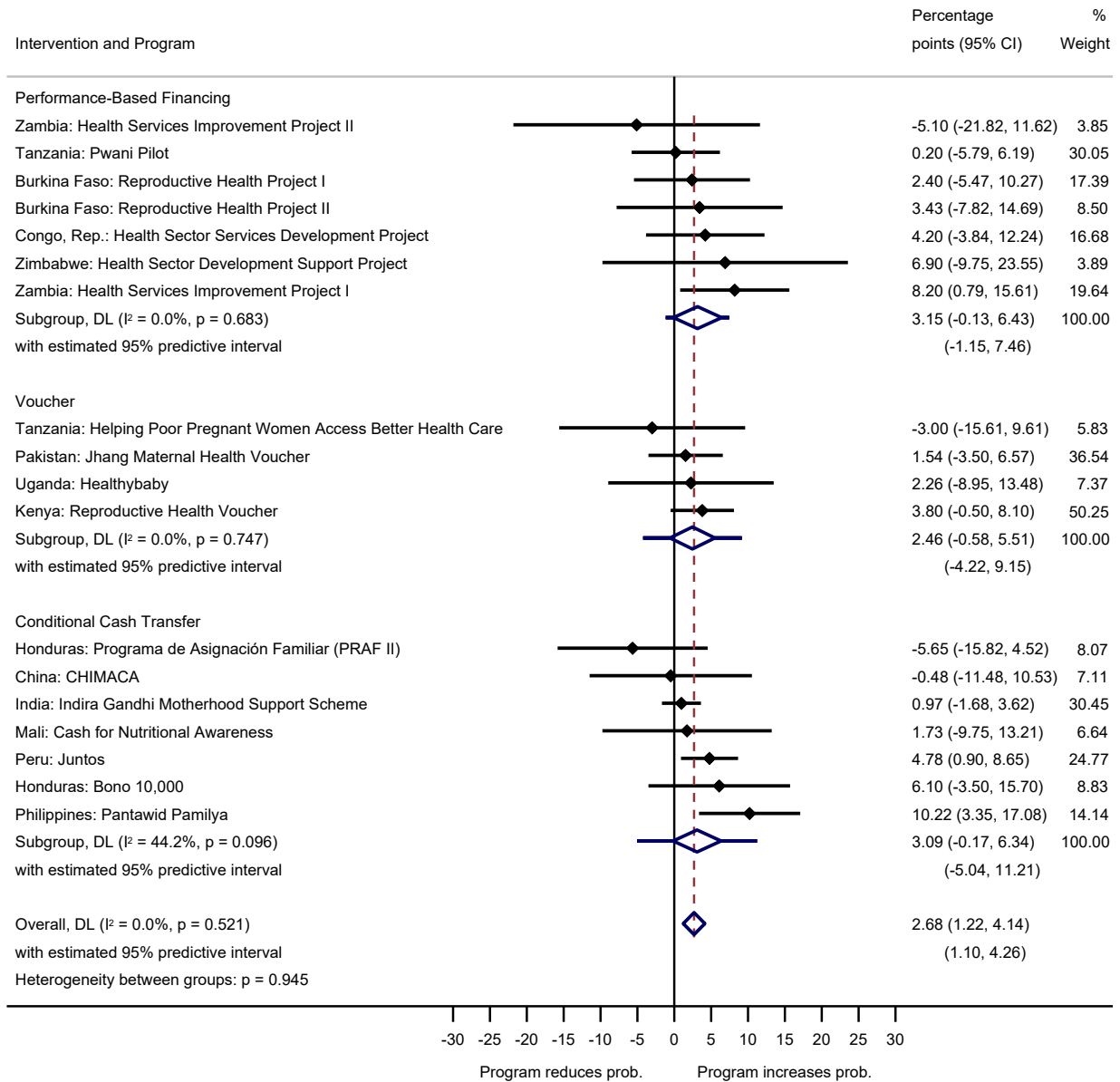
Intervention		Outcome definition		# of impact estimates
Type	Intervention name	Days after birth threshold	Skilled only	
PBF	Afghanistan: System Enhancement for Health Action in Transition	42	Yes	1
PBF	Burkina Faso: Reproductive Health Project I	42	Unspecified/no	2
PBF	Burkina Faso: Reproductive Health Project II	42	Unspecified/no	2
PBF	Tanzania: Pwani Pilot	61	Unspecified/no	1
PBF	Tanzania: Pwani Pilot	7	Unspecified/no	1
PBF	Zambia: Health Services Improvement Project I	Unspecified	Unspecified/no	1
PBF	Zambia: Health Services Improvement Project I	Unspecified	Yes	1
PBF	Zambia: Health Services Improvement Project II	Unspecified	Unspecified/no	1
PBF	Zambia: Health Services Improvement Project II	Unspecified	Yes	1
PBF	Zimbabwe: Health Sector Development Support Project	Unspecified	Unspecified/no	1
PBF	Zimbabwe: Health Sector Development Support Project	Unspecified	Yes	1
PBF	Zimbabwe: Health Sector Development Support Project	Unspecified	Unspecified/no	1
PBF	Zimbabwe: Health Sector Development Support Project	2	Unspecified/no	1
PBF	Zimbabwe: Health Sector Development Support Project	61	Unspecified/no	1
Voucher	Cambodia: Targeted Maternal and Child Health Voucher	Unspecified	Yes	1
Voucher	Cambodia: Universal Maternal and Child Health Voucher	Unspecified	Yes	1
Voucher	Kenya: Reproductive Health Voucher	Unspecified	Unspecified/no	1
Voucher	Pakistan: Jhang Maternal Health Voucher	Unspecified	Unspecified/no	1
Voucher	Tanzania: Helping Poor Pregnant Women Access Better Health Care	61	Unspecified/no	1
Voucher	Uganda: HealthyBaby	Unspecified	Unspecified/no	1
CCT	China: CHIMACA	Unspecified	Unspecified/no	1
CCT	Honduras: Bono 10,000	10	Unspecified/no	1
CCT	Honduras: Programa de Asignación Familiar (PRAF II)	10	Unspecified/no	2
CCT	India: Indira Gandhi Motherhood Support Scheme	Unspecified	Unspecified/no	1
CCT	Mali: Cash for Nutritional Awareness	Unspecified	Unspecified/no	2
CCT	Peru: Juntos	Unspecified	Unspecified/no	1
CCT	Peru: Juntos	7	Unspecified/no	1
CCT	Peru: Juntos	1	Unspecified/no	1
CCT	Peru: Juntos	2	Unspecified/no	1
CCT	Philippines: Pantawid Pamilya	1	Unspecified/no	1

Figure A7.6: Impacts of financial incentives on receiving postnatal care, omitting impact estimates where reference period is specified and longer than two weeks



NOTE: Weights and between-subgroup heterogeneity test are from random-effects model

Figure A7.7: Impacts of financial incentives on receiving postnatal care, omitting effect sizes from reports where definition is limited to postnatal care received from skilled providers

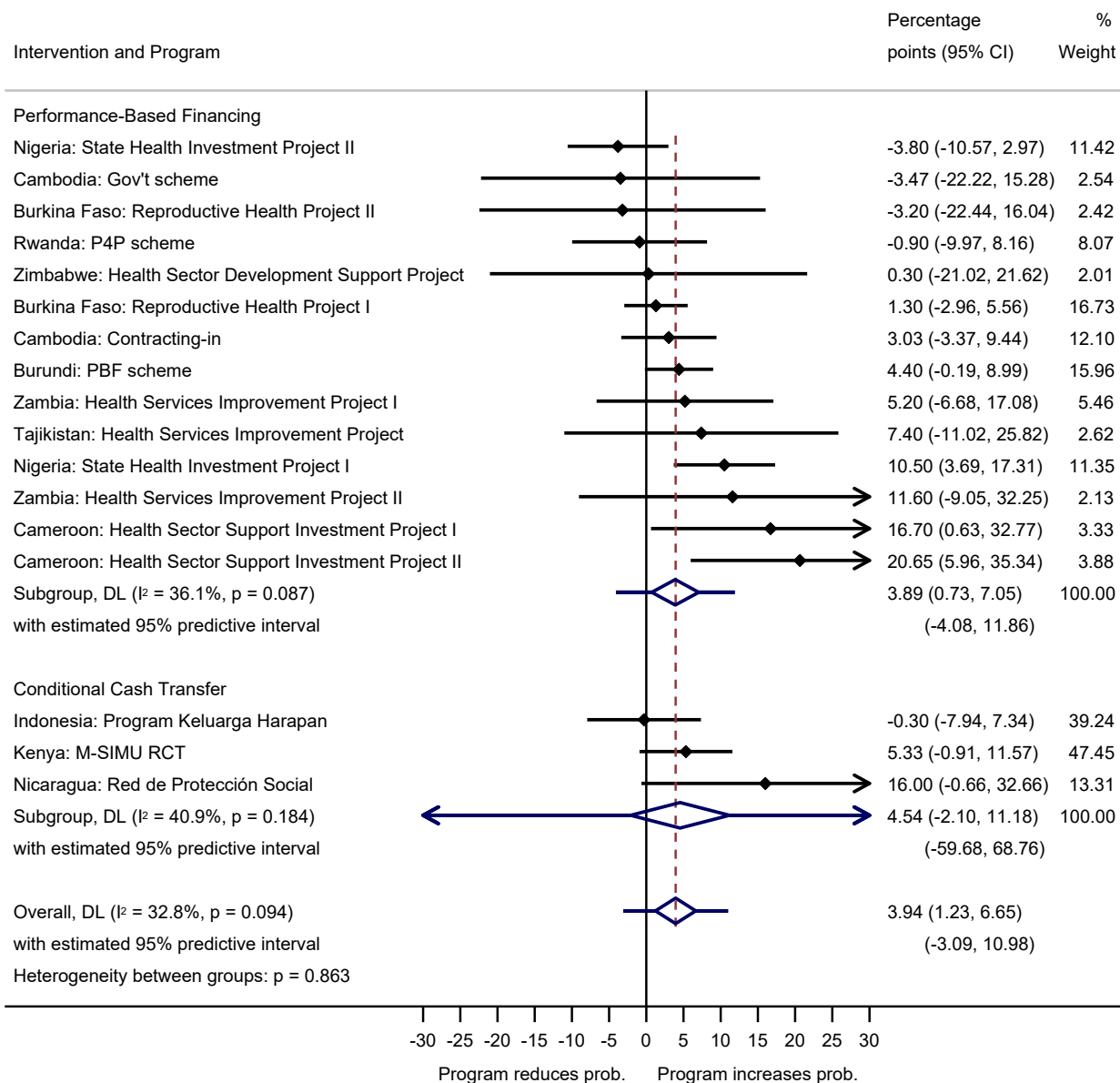


NOTE: Weights and between-subgroup heterogeneity test are from random-effects model

Table A7.5: Variation of outcome definitions for full childhood vaccination

Intervention		Outcome definition			# of impact estimates
Type	Name	Child age in months	Vaccines	Vaccination card only	
PBF	Burkina Faso: Reproductive Health Project I	12-23	BCG, Polio3, DPT3, measles, yellow fever	No	2
PBF	Burkina Faso: Reproductive Health Project II	12-23	BCG, Polio3, DPT3, measles, yellow fever	No	2
PBF	Burundi: PBF scheme	12-23	BCG, Polio3, DPT3, measles	Yes	1
PBF	Cambodia: Contracting-in scale-up	12-24	BCG, Polio3, DPT3, measles	No	3
PBF	Cambodia: Gov't scheme	12-24	BCG, Polio3, DPT3, measles	No	3
PBF	Cameroon: Health Sector Support Investment Project I	12-23	BCG, Polio3, DPT3, measles, yellow fever	No	1
PBF	Cameroon: Health Sector Support Investment Project I	12-23	BCG, Polio3, DPT3, measles, yellow fever	Yes	1
PBF	Cameroon: Health Sector Support Investment Project II	12-23	BCG, Polio3, DPT3, measles, yellow fever	No	1
PBF	Cameroon: Health Sector Support Investment Project II	12-23	BCG, Polio3, DPT3, measles, yellow fever	Yes	1
PBF	Nigeria: State Health Investment Project I	12-23	BCG, Polio3, DPT3, measles, yellow fever	No	1
PBF	Nigeria: State Health Investment Project II	12-23	BCG, Polio3, DPT3, measles, yellow fever	No	1
PBF	Rwanda: P4P scheme	12-23	BCG, Polio3, Pentavalent3, measles	Yes	1
PBF	Rwanda: P4P scheme	12-23	BCG, Polio3, DPT3, measles	No	1
PBF	Tajikistan: Health Services Improvement Project	12-23	BCG, Polio3, DPT3, measles	No	1
PBF	Zambia: Health Services Improvement Project I	12-23	BCG, DTP3, Hib	No	1
PBF	Zambia: Health Services Improvement Project II	12-23	BCG, DTP3, Hib	No	1
PBF	Zimbabwe: Health Sector Development Support Project	12-23	BCG, Polio3, DPT3, measles	No	1
CCT	Honduras: Bono 10,000	12-59	BCG, Polio3, measles	No	1
CCT	India: Indira Gandhi Motherhood Support Scheme	0-59	BCG, Polio3, DPT3, measles	No	1
CCT	Indonesia: Program Keluarga Harapan	36-47	BCG, Polio3, DPT3, HBV3, measles	No	1
CCT	Indonesia: Program Keluarga Harapan	12-23	BCG, Polio3, DPT3, HBV3, measles	No	1
CCT	Indonesia: Program Keluarga Harapan	24-35	BCG, Polio3, DPT3, HBV3, measles	No	1
CCT	Indonesia: Program Keluarga Harapan	0-47	BCG, Polio3, DPT3, HBV3, measles	No	1
CCT	Kenya: M-SIMU RCT	12	BCG, OPV3, DPT3, measles	No	2
CCT	Mali: Cash for Nutritional Awareness	12-42	BCG, Polio3, DPT3, measles, Hib, yellow fever	Yes	2
CCT	Nicaragua: Red de Protección Social	24-35	BCG, Polio3, DTP3, measles	No	2
CCT	Nicaragua: Red de Protección Social	12-23	BCG, Polio3, DTP3, measles	No	2
CCT	Nicaragua: Red de Protección Social	12-36	Unspecified	No	1
CCT	Turkey: Social Risk Mitigation Project	0-59	BCG, Polio3, DTP3, measles	No	2
CCT	Zimbabwe: Manicaland HIV/STD project	0-59	BCG, Polio3, DTP3, measles	No	1

Figure A7.8: Impacts of financial incentives on full childhood vaccination, omitting impact estimates where indicator definition includes children older than two years



NOTE: Weights and between-subgroup heterogeneity test are from random-effects model