TAKE-UP OF PREVENTATIVE HEALTH PRODUCTS

USING BEHAVIOURAL ADD-ONS IN CASH TRANSFER PROGRAMMES

BY ENRICO GUIZZARDI & WINNIE MUGHOGHO

Adherence to preventive health measures (e.g. hand-washing) can help slow transmission of infectious diseases. These require both purchases of preventive health products and adherence to preventive health behaviours. There can be at least two barriers to take-up of products and behaviours. This document reviews evidence on whether small monetary costs can reduce take-up of preventive health behaviours, the role of non-monetary hassle costs, and whether messaging can encourage taking up interventions despite monetary or hassle costs.

KEY TAKEAWAYS

• Take-up of preventive health products is highly influenced by price, with seemingly small increases in price resulting in large decreases in take-up. Keeping the price of products, such as chlorine or soap, as close to zero as possible is necessary to ensure widespread diffusion.

• Measures to reduce monetary costs or non-monetary factors may increase take-up of preventative health products. A review of existing evidence finds:

— Subsidisation of products (through free distribution or vouchers) is likely to be effective in increasing take-up of preventative health products. Evidence comes both from evaluations of subsidy programmes, but also from findings that increasing access to cash, savings, and credit are all successful in terms of increasing demand for these products.

— Non-monetary factors, such as time and hassle costs, play a significant role in limiting take-up, even when products are free. Reducing such costs can increase take-up of preventative health products (e.g. more hand-washing stations in public).

• Messaging can encourage the use of interventions despite monetary and hassle costs. Effective messaging strategies include encouraging visualisation of the future; concrete help with planning; or drawing on trusted individuals in the community.

THE IMPACT OF COVID-19

Much of public health guidance issued by governments to stem the spread of COVID-19 is to practice behaviours that have monetary or hassle costs, such as hand-washing, social distancing,

and the use of masks when in public. [1] [2]

These costs are often steeper for Low- and middle-income countries (LMICs), either because of lack of infrastructure and/or because of lower incomes. For example, access to basic hand-washing facilities at home is still a struggle for 3 billion people.[3] The United Nations also reports that only 15 percent of the population in Sub-Saharan African countries had access to soap and water in 2015,[4] 16 percent of healthcare facilities do not have hygiene services, and over one-third of schools worldwide and half of schools in the least-developed countries have no place for children to wash their hands at all.[5] Understanding current evidence on hand-washing and other preventative health behaviours in LMICs can therefore help inform policy decisions in response to the pandemic.

WHAT CAN WE LEARN FROM EXISTING EVIDENCE?

1. The cost of health products in LMICs is one of the most substantial barriers to take-up

A review of the existing evidence by Dupas and Miguel (2016) shows that take-up of preventive health products in LMICs is strongly affected by the price people face, with seemingly small increases in price resulting in large decreases in take-up. The authors report results from multiple field experiments in LMICs where researchers randomly varied the price faced by study participants if they wished to buy a certain preventive health care product. Despite substantial differences in product and context, a clear trend emerges: when prices are very close (or equal to) zero, a substantial fraction of the study participants are compelled to acquire the product. However, minor increases in price result in very steep drops in take-up, showing how sensitive to price changes is the demand for these products. For example:

- Ashraf et al. (2010) found that purchase of chlorine disinfectant in Zambia fell from 76 percent to 43 percent when prices increased from US$0.09 to US$0.25.

- In Kenya, Cohen and Dupas (2010) found that take-up of insecticide-treated bednets among pregnant women fell by 60 percentage points, from 99 percent to 39 percent, when the price charged in antenatal care clinics increased from zero to $0.60.

- Again in Kenya, Kremer and Miguel (2007) uncover similar patterns in the context of deworming tablets for children: when the price was changed from 0 to an average of $0.30 per child, take-up fell from 75 percent to 18 percent.

It is important to note that none of the prices faced by study participants was above the cost of production, which means that there was always a degree of subsidy involved, albeit insufficient in

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[1] Feng et a. (2020)

[2] BBC, 30 April 2020 "Coronavirus: should the public wear face masks?"

[3] World Health Organisation, June 2019. "1 in 3 people globally do not have access to safe drinking water – UNICEF, WHO."

[4] UNICEF, 15 October 2018. "Infographic: get the facts on handwashing."

[5] UNICEF, 25 March 2020. "UN launches global humanitarian response plan to COVID-19 pandemic."

terms of stimulating demand.[6] Therefore, keeping the price of products, such as chlorine or soap, as close to zero as possible is an important step to ensure their widespread diffusion.

2. Measures to reduce monetary costs or non-monetary factors may increase take-up of preventative health products

A review of existing evidence sheds light on alternatives to free provision that may increase the use of preventative health products, such as subsidisation, interventions that provide access to cash, savings or credit and reducing non-monetary costs.

A. Subsidisation of products can be effective in product take-up

Table 1 below shows there is evidence that subsidising products can sometimes increase usage when compared to not subsidising products. In the context of water chlorination, Dupas et al. (2017) find a 20.5 percentage points (control mean = 12.4%) difference in the share of households whose waters tested positive for chlorine between a treatment group who received monthly vouchers for bottled chlorine solution and a control group. On the other hand, Ashraf et al. (2010) find that a reduction in the size of the subsidy is associated with an increase in the probability of using chlorine, with an increase of 100Kw in the offer price increasing usage by 3 to 4 percentage points, i.e. 6 to 7% of mean usage. During an epidemic situation, when there are very high benefits to increasing preventive health behaviours, it may be worthwhile to subsidise products, despite the conflicting evidence.

There is also research about the cost-effectiveness of subsidy programmes. A common concern is that recipients may not use the product as it is intended. For example, people may take free chlorine intended to improve the quality of drinking water but use it to clean their houses. At the same time, we have seen that charging a price may lead to over-exclusion, i.e. to screen out poor people that would otherwise need and use the product. We provide an overview of a few research trials that tackle these issues in Table 1, focusing mainly on long-lasting insecticide-treated bed nets (LL-ITN) that allow for protection against malaria-carrying mosquitos and chlorine solutions for purifying water.

Findings differ across contexts -- some papers find vouchers or cost sharing reduce wastage but do not affect usage; others find such designs reduce usage and exclude some households who might use free products. Our overall suggestion is that, given the critical situation, it may be appropriate to err on the side of over-inclusion and potentially incur in some wastage costs, knowing that efficiency of distribution could also be improved over time. We expand on this conclusion below.

On the one hand, some papers find that providing discount vouchers strikes a good balance between over-exclusion and over-inclusion. We refer to ‘take-up’ as households taking an offered product (e.g. taking a free bottle of chlorine), while ‘usage’ is actually using the product (e.g. the household’s water tests showing that chlorine is in the water). Dupas et al. (2017) find that, when comparing a group of households who received monthly vouchers for free purchase of chlorine bottles at local stores to a group that received free delivery of the product, the voucher group had remarkably close usage rates (32.9% of waters in voucher-group households tested positive for chlorine, versus 33.9% in the free delivery group), showing that free delivery was not increasing

[6] In Cohen and Dupas (2010), for example, the $0.60 price still represented a 92 percent subsidy of the USD 7 market price.

actual usage. Vouchers also may have prevented some wastage: there was substantially lower take-up among voucher households (39.8% of vouchers redeemed per household, almost universal take-up of free delivery products). Similarly, Dupas (2009) and Cohen and Dupas (2010) find that the price faced by participants does not affect the actual usage, neither in the case of LL-ITNs nor in the case of chlorine solutions.

On the other hand, Ashraf et al. (2010) find that smaller subsidies (and thus higher offer prices) reduce take-up, but increase usage. This supports the idea that price can act as a "screening" tool, allowing people that actually have the highest chance of using the product to buy it and reducing wastage. However, the researchers note how their results hinge on strong assumptions, and caution against their generalisation. In addition, Dupas et al. (2017) show how non monetary costs — like the redemption of a voucher at a local store — can achieve similar results without crowding out people who cannot afford to pay for the product.

Table 1. Research Trials Testing Subsidies and Vouchers

Study	Country	Intervention Type	Outcome
Dupas (2009) on LL-ITN subsidization	Kenya	RCT; participants assigned to a randomly drawn subsidy level (between 40% - 100%), plus one of three "marketing" groups (health framing, financial framing, no framing), one of two "commitment" groups (verbal commitment to buy, no commitment) and one of three "targeting" groups (marketing targeted to female head, male head or both jointly)	Price faced by participants did not impact actual usage
Cohen and Dupas (2010) on LL-ITN bed nets	Kenya	RCT; prenatal clinics divided in 5 treatment arms: 1 control group and four treatment groups, with four different price levels at which bed nets could be sold to pregnant women, ranging from 0 (free distribution) to 40 Ksh ($0.60 USD)	• No evidence that cost-sharing reduces wastage on those who will not use the product (i.e. women who received the net for free were not less likely to use it than those who paid). • No evidence that cost-sharing induces selection of women who need the net more • Share of prenatal clients in cost-sharing group who acquired ITN is 58 percentage points lower than in free distribution group (which has share = 99%)
Ashraf, Berry and Shapiro (2010) on chlorine	Zambia	RCT; participants were offered a randomly-drawn offer price on a bottle of chlorine. If they accepted, they were given a coupon with a one-time discount, randomly chosen for amounts greater or equal to 100 Kw.	• An increase of 100Kw in the offer price results in decrease of purchases of about 7 percentage points (11% of sample mean) • An increase of 100Kw in the offer price leads to an increase in use of chlorine of 3 to 4 percentage points, i.e. 6 to 7% of mean usage

Study	Country	Intervention Type	Outcome
Dupas et al. (2017) on chlorine	Kenya	RCT; 3 treatment arms: cost-sharing (participants offered one-time 50% discount on up to 5 bottles of chlorine solution); vouchers (participants given 12 vouchers, each of which to be redeemed on a bottle in a specific month); free delivery (two deliveries spaced 3-5 months apart)	• Take-up was almost universal for free delivery group • 85.3% of households in vouchers group redeemed at least one voucher (39.8% of vouchers redeemed per household) • 51.9% of households in cost-sharing group purchased at least a bottle (13.4% of total bottles offered were purchased) • Water treatment: 33.9% of waters in households in free delivery group tested positive for chlorine residuals; 32.9% of waters in households in voucher group tested positive; 12.4% of waters in households in cost-sharing group tested positive

B. Interventions aimed at increasing access to cash (via cash transfers, credit, or savings) are all successful in increasing demand for preventative health products

Existing social protection measures - such as cash transfers - can go a long way towards achieving increases in health products take-up. Although the evidence base is still growing, existing studies in LMICs point to cash transfers having a positive impact on the take-up of preventive health products. Similar results have also been achieved through other interventions that increase access to credit or savings, although the evidence on those remains more mixed. Table 2 provides a list of randomised control trials on access to cash and product take-up.

Table 2. Research Trials on Access to Cash and Product Take-Up

Study	Country	Intervention Type	Outcome
Hoffman et al. (2008) on LL-ITNs	Uganda	RCT; 3 treatment arms: control group, and 2 treatment groups (one received cash transfer, the other was given ITNs for free)	Price faced by participants did not impact actual usage
Meredith et al. (2013) on kids' shoes as preventive product against worms' infection	Kenya	RCT; 4 treatments, cross-randomized: 1) offer of coupon with randomised discount on shoes, ranging from 5 to 65 Ksh (market price of shoes 85 Ksh); 2) information script on worms' infections; 3) randomly varied small cash payment (about 4% of weekly income); 4) selection of who receives the treatment (female or male head)	Every additional 100 Ksh in cash payout increases the probability of purchase by 22 percentage points. (The results presented in the paper do not allow us to show the percentage change in comparison to the control mean).

Study	Country	Intervention Type	Outcome
Dupas and Robinson (2013)	Kenya	RCT; ROSCAs assigned to 5 treatments arms: 1 control group and 4 treatment groups (all 4 primed to save towards a health goal, and given different saving devices to help achieve their goal)	*Safe box* treatment increased investment in preventive health care by 66-75% of control mean over following 12 months; *Health Pot* treatment increased investment by 128-138% of control mean. *HSA* treatment (savings in an account for emergency use only) did not affect investment. *Lockbox* treatment (low liquidity savings instrument) did not affect investment.
Tarozzi et al. (2014) on ITNs	India	RCT; 3 treatment arms: *microfinance* (nets offered for sale on credit); *free* (free distribution); *control*	38% of households in the *free* group reported sleeping under the net the night before the endline survey, in contrast with 27% of households in the *microfinance* group, and 18% of the *control group*. 52% of households in the *microfinance* group bought at least a net, despite the high, unsubsidised price.
Devoto et al. (2012) on piped water adoption	Morocco	RCT; 2 treatment arms: control group and treatment group (information and marketing intervention, aimed at facilitating application to program that allows household to buy water connection on credit)	69% of treatment group purchased a home connection, against 11% of control group

C. Reducing non-monetary costs (like time and hassle costs) may increase take-up

While access to cash, credit and savings can have a significant positive impact, it is important to note that monetary concerns do not represent the sole constraint to the adoption of preventive health products. Indeed, in Dupas and Miguel (2016)'s review, a substantial portion of the study participants (up to 40% in the case of chlorine in Kenya (Kremer et al., 2011)) would not acquire preventive health products even if they were free. Non-monetary costs, like time and hassle costs, can contribute to lack of take-up. For example:

- In rural Malawi, a field experiment conducted randomised the distance that individuals had to travel in order to obtain results of an HIV test, as well as whether they received a financial incentive to seek their results (Thornton 2008). The study found that absent any incentives, those living within 1.5 kilometers from the centre where results could be picked up were 6.4 percentage points more likely to seek their HIV results than those living more than 1.5 kilometres away.

- In Udaipur in India, Banerjee et al. (2011) ran an experiment to test whether the lack of reliability of supply of supply of free services could be a potential culprit for low take-up. In the context of free immunisation campaigns that require multiple shots, villages who were randomly assigned to host a reliable, well-advertised "immunisation camp" saw

immunisation rates move from 6% to 18%.[7]

- In a randomised control trial in Zambia, Ashraf, Field and Lee (2014) distributed vouchers that granted appointments for family planning services that were already routinely provided at government clinics and (theoretically) available to everyone, but with the addition of a guarantee that waiting time would be less than an hour, and that the modern contraceptive method of their choice would be available. Take-up of the vouchers was high (47%), showing that the lack of reliability was a constraint in this context.

While there is no direct causal evidence on message-based interventions in reducing hassle costs, research in economics and psychology points to considering the use of reminders as a strategy to reduce such costs, thereby potentially increasing take-up rates.[8]

3. Messaging or behavioural interventions can be an alternative way of encouraging people to do something that costs time or money

A review of existing literature within the themes of self-efficacy, planning, and visualisation can offer a complementary approach to improve preventative health take up rates.

A. Self-efficacy motivates positive behaviour change

Interventions that increase individual self-efficacy can motivate positive behaviour change for behaviours that cost time and money. Self-efficacy gives individuals the sense that they have control over their lives and a belief that their present behaviours do have an effect on their future outcomes. Self-efficacy may be a precursor to undertaking preventative health behaviours such as hand-washing with soap. For economically deprived households, extended periods of deprivation can foster negative attitudes in individuals.[9] If people do not believe that their current investment in preventative health (e.g. hand-washing with soap) is effective in creating a healthier future, they will not do it. For example, Vaughan and Tinker (2009) find that an individual's interpretation and willingness to act on health risk communications, particularly on the influenza virus, depends on whether the individual believes that they are in control of their health outcomes amongst other social factors.

In a study by Haushofer et al. (2019), visualisation and planning activities acted as a channel through which participants learnt how to take on activities they would otherwise struggle to carry out. The build-up of self-efficacy from these interventions resulted in increased chlorination of drinking water.

B. Planning messaging can improve preventative health outcomes

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[7] This makes particular sense in light of evidence collected by Banerjee, Deaton and Duflo (2004): public facilities tasked with providing free immunisation were characterised by high absenteeism, with spot checks conducted over a year showing that, on a given workday, around 45% of staff were absent, typically leading to the post to close. In light of the unpredictable nature of these absences, receiving all five shots in the immunisation package in a control village could have required twice as many visits to the facility.

[8] Follow link here for brief on how to effectively use reminders in COVID-19 response strategies.

[9] For instance deprivation may lower their self-efficacy, demonstrated in their lack of belief to do anything about their current situation, thereby creating a barrier to initiating or continuing precautionary practices (Vaughan and Tinker, 2009).

Interventions to increase individual planning behaviours for an outcome they hope to achieve, for instance good health, can significantly increase the likelihood of attainment. For example, the study by Haushofer et al. (2019) aided individuals to build their planning skills by teaching them how to structure and breakdown tasks into manageable steps. This motivated positive behavioural change in rural households in Kenya.[10]

Individuals who make specific plans have an accountability measure to their intentions. These plans or implementation intentions ought to detail when, where and how the person should act for their goal to be realisable (Perry et al., 2015; Neter et al., 2014; Milkman 2013; Stadler et al, 2009; Gollwitzer and Sheeran, 2006). This can be applied to behaviours that range from exercising to getting vaccinated. In a study by Milkman at al., (2011), employees who received a prompt to specify in writing when and at what time they would get vaccinated, had a 4.2 percentage point higher and significant vaccination rate than the control group that made no specifications. [11]Nickerson and Rogers (2010) use a similar approach to increase voter turnout by asking individuals what time they would vote, where they would be coming from and what they would be doing prior to voting.

Research in psychology suggests a plan of the form "When situation x arises, I will implement response y," (Milkman et al., 2011). In light of the COVID-19 pandemic, this form of messaging could aid in encouraging people to plan hand-washing behaviours at important times of the day. For instance people can be encouraged to respond by washing their hands after going out in the public, grocery shopping, visiting markets or going to the bathroom. This messaging can also serve as a reminder for people to carry out these behaviours, as highlighted in this policy brief. These nudges come at minimal expense without interfering with the individual's autonomy and could prove more effective than the general call to "wash hands often".

C. Visualisation interventions can improve positive health behaviours

Messaging that incorporates visualisation interventions increases adherence to preventive health behaviours. Message recipients are prompted to visualise alternate future realities as a consequence of their current behaviour. Encompassed in the literature of visualisation of the future is a concept of "possible selves" by Markus and Nurius (1986). This involves a representation of self in the future, reflecting on hopes and fears that motivate a pursuit or avoidance of any behaviours that would hinder the realisation of this self.

The desired future must be elaborated on, for instance a healthier future, and obstacles to the attainment of this future identified (Sheeran et al., 2013; Johanessen, Oettingen & Mayer, 2012; Duckworth). Obstacles to a healthier future with the current pandemic would include a lack of hand-washing with soap and social distancing. This approach attempts to aid individuals to not only articulate a goal, but to develop the behaviours that will help them overcome these obstacles to achieve it (Vasquez & Buehler, 2007).

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[10] In the visualisation and planning groups relative to the pure control group, there are significant increases of 27 and 18 percent (6 and 4 percentage points), respectively, in the share of households whose drinking water contains chlorine twelve weeks after the interventions. visualisation reduces diarrhea by 37 - 39 percent (9 percentage points) relative to both the pure control group, and Planning by 21 - 30 percent (5{7 percentage points), respectively.

[11] The following is the message received by the employees, "Many people find it helpful to make a plan for getting their shot. You can write yours here:" Fields to fill in [day of the week], [month] [day] at [time]".

Application of this concept has been broad. As part of their visualisation interventions, Haushofer et al. (2019) used both a visual and emotional approach. They asked participants to imagine their future in graphic detail allowing their imagination to explore how they would feel and 'talk' to them. Going beyond preventive health behaviour, Hershfield et al. (2011) found that participants who were exposed to a visual representation of their future selves exhibited lower discounting of future rewards and higher retirement savings. Mental imagery techniques have proven to be both low-cost and time-efficient interventions (Loft & Cameron, 2013).

D. Providing messages through a trusted community member increases the likelihood of individuals adhering to preventative health behaviours

Social factors play a role in inducing preventative health behaviour. An important lesson from the Ebola crisis in West Africa, is the need to transmit messaging through trusted individuals of great repute within the target community (Dada et al., 2019; Kinsman et al., 2017). This increases the likelihood of individuals adhering to preventative health behaviour messaging. Religious leaders and other prominent community leaders tend to have a greater reach than external health experts, organisations and governments. In their study in rural Kenya, Kremer et al. (2011) found that paying a community member to serve as a local promoter advocating for treatment of drinking water and hand-washing with soap, led to significant positive behaviour changes.

Communities tend to perceive local lay health educators as more concerned with their wellbeing than official health care providers and other institutions. Aside from this, these local educators also have greater ability to communicate preventative health messages in a culturally and linguistically appropriate manner within their social networks (Cuaresma et al., 2018). A more positive first impression is formed by target communities when they share cultural and social norms, appearance, language and terminology with those sharing the information (Dada et al., 2019). Lay health educators have been instrumental in increasing colorectal cancer screening behaviour among different ethnic groups (Cuaresma et al., 2018; Tong et al., 2017). Similarly, a study by Nies et al., (2004) reveals that their Hispanic sample was more likely to seek out assistance for their health care needs from family, community social and religious networks than they would from official institutions.

The evidence above highlights the importance of leveraging the influence of peer networks to achieve desired behaviour change. With the coronavirus continuing to spread, community promoters can be instrumental in spreading messages on important preventative behaviours such as hand-washing with soap.

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