

Recto Verso

Carryover effects of financial incentives in health: evidence from a randomized controlled experiment

Matteo M Galizzi¹



Financial incentives have been increasingly used to induce change in health behaviors, such as smoking cessation (Volpp et al., 2009), dieting (Volpp et al., 2008; John et al. 2011; John, Loewenstein & Volpp, 2012; Kullgren et al. 2013), exercising (Charness & Gneezy, 2009), and the consumption of fruit and vegetables (Cooke et al., 2011). These randomized controlled experiments have typically found that, at least in the short run, monetary incentives are able to induce significant changes in health behavior (Marteau, Ashcroft & Oliver, 2009; Loewenstein, Brennan & Volpp, 2007; Galizzi, 2014).

From a policy perspective, however, a key consideration is that typically financial incentives cannot remain in place forever. This naturally leads to the question of what is likely to happen to the same health behaviors when financial incentives are no longer in place. Is the effect of financial incentives going to ‘carryover’ when they are removed?

Surprisingly, very few randomized controlled experiments have directly explored this key question. In particular, no experimental study existed that compared head-to-head the ‘carryover’ effects of monetary incentives ‘to act’ or ‘to abstain from acting’. The recent applications of incentives to health, in fact, are some times framed as cash transfers conditional on ‘doing something healthy’ (exercising, eating vegetables) and some other times as conditional on ‘avoiding doing something unhealthy’ (quit smoking, stop snacking).

Introduction

Together with my colleague Paul Dolan at the LSE, and with Daniel Navarro-Martinez, now at Universitat Pompeu Fabra, we thus decided to have a direct look at this key aspect. Our interest was motivated by the broader work program on ‘carryover’ and ‘spillover’ effects of incentives in health that we were developing at Centre for the Study of Incentives

in Health (CSIH) (Dolan & Galizzi, 2014, 2015). CSIH was an inter-disciplinary multi-university research centre, funded by the Wellcome Trust Biomedical Ethics Programme (086031/Z/08/Z), and bringing together behavioural and health economists from the LSE, psychologists from King’s College London, and experts in bioethics from Queen Mary London.

Data and method

We thus conducted the first randomized controlled experiment to test head-to-head the ‘carryover’ effects of monetary incentives to act and to abstain from acting. We focused on eating behavior, which is an issue of significant health policy relevance, and which has already received attention in previous studies of incentives (Jeffery et al., 1993; Cooke et al., 2011; Grubli-

¹London School of Economics; LSE Behavioural Research Lab, LSE Health, and Department of Social Policy. Paris School of Economics; Hospinnomics. Email: m.m.galizzi@lse.ac.uk. The full paper is available online at: <http://www.sciencedirect.com/science/article/pii/S0277953615002221> - Dolan, P., Galizzi, M.M., Navarro-Martinez, D. (2015). Paying people to eat or not to eat? Carryover effects of monetary incentives on eating behaviour. *Social Science & Medicine*, 133, 153-158.

auskiene, Verhoeven & Dewitte, 2012; Remington et al., 2012; Wen-green et al., 2013). In particular, we looked at sweets eating because it is an ambivalent, stylized health behavior: while eating sweets is a pleasurable, tempting activity, it may be potentially harmful, and even unwanted at a deeper level. Many other risky health behaviors, such as alcohol drinking and unsafe sex, share this same ambivalent nature. Incentives for sweets eating, however, can be readily manipulated in the lab.

The experiment was conducted at the LSE Behavioural Research Lab (BRL). Participants ($n = 353$ LSE students) had bowls of sweets next to them while they were asked to watch different videos over two experimental sessions that were two days apart. Sweets eating was monitored after each video, and monetary incentives to eat or not to eat were introduced during one of the videos for participants randomly allocated to these conditions.

Results

Not too surprisingly, both types of incentives were effective in changing sweets-eating behavior when they were in place: in partic-

ular, when participants were given a monetary incentive to avoid eating sweets, they were successful in reducing their intake. Interestingly however, this effect of reduced sweet intake carried over to future video watching: even two days after the incentive was removed, participants consumed significantly fewer sweets relative to the control group which never received an incentive. Moreover, we found no significant ‘carryover’ effect for the incentives to eat sweets. Overall, therefore, our experiment suggests that the effects of incentives ‘to abstain from eating’ are more likely to ‘carryover’ when incentives are removed.

One interpretation of these findings is that paying people not to eat helped them to exert their self-control, or simply primed them with the notion that not eating sweets is something good, which influenced subsequent behavior, while incentives to eat failed to successfully prime people with the idea that eating sweets is good. This is consistent with the well documented ‘bad is stronger than good’ effect, which is the notion that negative messages are more salient and easier to retain than positive ones (Baumeister et al., 2001). Similar effects have also

been documented in the context of nutritional food labelling, where people seem to react more strongly to negative health messages than to positive ones (Fox, Haynes & Shogren, 2002).

A split-sample analysis reassuringly confirmed that incentives not to eat primarily had a lasting effect on the subjects who, in the first video, ate sweets above the median level, that is, on the subjects who are the most likely target of an incentive policy intervention.

Conclusion

Of course our results pertain to a stylised short-run behavior and a specific pool of students subjects in a lab setting. Results, therefore, should not be unnecessarily extrapolated or generalized. Our exploratory evidence, however, suggests that incentives to abstain from acting are likely to have more long-lasting effects on behavior, at least in circumstances that have similar features to our set-up: ambivalent health situations where people can choose to behave in a way that is pleasurable and tempting, but potentially harmful or unwanted at a deeper level².

²Some other references: Baumeister, R., Bratslavsky, E., Finkenauer, C., & Vohs, K.D. (2001). Bad is stronger than good. *Review of General Psychology*, 5(4), 323-370.
Charness, G., & Gneezy, U. (2009). Incentives to exercise. *Econometrica*, 77, 3, 909-931.
Cooke, L., Chambers, L.C., Anez, E.V., Croker, H.A., Boniface, D., Yeomans, M.R., & Wardle, J. (2011). Eating for pleasure or profit: The effect of incentives on children’s enjoyment of vegetables. *Psychological Science*, 22, 190-196.
Dolan, P., & Galizzi, M.M. (2014). Because I’m worth it. A lab-field experiment on the spillover effects of incentives in health. LSE CEP Discussion Paper CEPDP1286, London School of Economics.
Dolan, P., & Galizzi, M.M. (2015). Like ripples on a pond: Behavioral spillovers and their implications for research and policy. *Journal of Economic Psychology*, 47, 1-16.
Fox, J., Hayes, D., & Shogren, J. (2002). Consumer preferences for food irradiation: How favourable and unfavourable descriptions affect preferences for irradiated pork in experimental auctions. *Journal of Risk and Uncertainty*, 24, 75-95.
Galizzi, M.M. (2014). What is really ‘behavioural’ in behavioural health policies? And does it work? *Applied Economic Perspective and Policy*, 36(1), 25-60.
Gneezy, U., Meier, S., & Rey-Biel, P. (2011). When and why incentives (don’t) work to modify behavior. *Journal of Economic Perspectives*, 25, 191-209.
Grubliauskiene, A, Verhoeven, M., & Dewitte, S. (2012). The joint effect of tangible and non-tangible rewards on healthy food choices in children. *Appetite*, 59, 403-408.
Jeffery, R.W., Wing, R.R., Thorson, C., Burton, L.R., Reather, C., Harvey, J., & Mullen, M. (1993). Strengthening behavioral interventions for weight-loss - a randomized trial of food provision and monetary incentives. *Journal of Consulting and Clinical Psychology*, 61, 1038-1045.
John, L., Loewenstein, G., Troxel, A., Norton, L., Fassbender, J., & Volpp, K. (2011). Financial incentives for extended weight loss: a randomized, controlled trial. *Journal of General Internal Medicine*, 26(6), 621-626.
John, L., Loewenstein, G., & Volpp, K.G. (2012). Empirical observations on longer-term use of incentives for weight loss. *Preventive Medicine*, 55(1), 68-74.
Kullgren, J.T., Troxel, A.B., Loewenstein, G., Asch, D.A., Norton, L.A., Wesby, L., Tao, Y., Zhu, J., & Volpp, K.G. (2013). Individuals vs. group-based incentives for weight loss: a randomized, controlled trial. *Annals of Internal Medicine*, 158(7), 505-514.
Loewenstein, G., Brennan, T., & Volpp, K.G. (2007). Asymmetric paternalism to improve health behaviors. *JAMA*, 298, 2415-2417.