

**Incentives and unintended consequences:
spillover effects in food choice
Online Appendices – Not for Publication**

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Appendix A: Experimental instructions

We are going to play a choice game where you can win these fun prizes!

(Point to the prizes)

Each of you gets two cards. Keep your cards a secret. You cannot trade cards.

One of your cards will be a cookie card and one of them will be a grape card. The game is to play one of these cards face up (down) on the table.

If you play a cookie card, you get a cookie. If you play a grape card, you get some grapes.

(Point to grapes and cookies)

After you play your card, you will have 20 seconds to change your mind. You may look at what your neighbors played. After 20 seconds, you cannot change your choice!

Some of the grape cards might have gold tokens on them. If you get a card with a gold token on it and you play it, you get a prize with your grapes! Here are the prize choices.

(Point to prize board)

You get your prize at the end of the game.

Ok, let me ask everyone a few questions to make sure we all know how to play.

(Have children say out loud answers, and always correct at the end: either, “Yes, each person gets 2 cards” or “No, each person gets 2 cards” and “Yes, if you play a grape card you get grapes”)

- 1) How many cards does each person get? (answer is 2, one cookie one grape)
- 2) How many cards can each person play? (answer is 1 only)
- 3) How do you play a card? (answer is put it on the table)
- 4) What happens if you play a cookie card? (you get a cookie)
- 5) What happens if you play a grape card? (you get grapes)

- 6) What happens if you play a grape card with a token? (you get grapes plus a prize)

Good job! Let's play!

Here are your cards. Remember to keep them hidden.

(Wait 10 seconds)

Choose the card you are going to play now. Remember if you play a card you should put it on the table face UP (DOWN) like this (demonstrate).

(Wait for children to play their cards)

Ok is that your final choice? You can change your mind if you want to.

(Wait exactly 20 seconds)

Ok, the game is over, you can't change your choice now.

Everyone who played a card with a token on it will get a prize sheet, please fill it out to claim your prize.

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Appendix B: Heterogeneity by child and peer gender and age

This Appendix considers how the effects can differ along several dimensions: i) the type of switch - to grapes or to cookies, ii) gender and school grade, and iii) table size.

First, recall that the parameter ΔG is the difference between switching from cookie to grapes, SG , and from grapes to cookie, SC : $\Delta G = SG - SC$. To have a better understanding of how spillover effects work in our setting, Table B1 considers both the separate choices of switching from cookies to grapes and from grapes to cookies. We also examine how these effects vary across incentivized and non-incentivized children. The estimated marginal effects are consistent with the main results: the likelihood of switching to grapes increases with the proportion choosing grapes (i.e., $\hat{\beta}_1$ is positive) and decreases with the proportion choosing incentivized grapes (i.e., $\hat{\beta}_2$ is negative). The opposite is true for the likelihood of switching to cookies. The primary action is on the dimension of switching to grapes and not switching to cookies, as expected.

We also test whether the effects of incentives differ by gender and age, proxied by school grade, as has been found in different contexts, as we discuss below. While Table B2 shows that we do not detect any gender or age difference in the direct effect of incentives, Table B3 shows that spillover effects vary by gender. Specifically, the positive effects of seeing others choose grapes are stronger for girls, while the negative effects of seeing the incentivized choices of others are stronger for boys. When we pool the two effects we find that the overall spillover effect of incentives is statistically more negative (and grows faster) for boys than for girls. The magnitude of this difference is large, with the net effect for boys being at least twice as large (in absolute value) as the effect for girls. This gender differences in the response to incentives has been also found in other contexts (e.g., ????). However, this finding is not consistent in the literature (as, e.g., neither ? nor ? find evidence of gender differences in the effects of incentives for pro-social or healthful behavior).

In addition, Table B4 shows weak evidence that the spillover effects of incentives are stronger for younger children: the point estimates of the positive and negative spillover effects are closer to zero for children in above median grades than for younger children. However, the differences between these two groups are not statistically significant.

Lastly, a priori one might expect that the effects would differ across table size. For example, there may be less interaction at a larger table. We divide the sample into two - above and below median table size. We note that table size and proportion incentivized are uncorrelated (the correlation coefficient is 0.005). There is no systematic difference by table size (results available upon request).

Table B1—: Spillover effects of proportion of table incentivized on switching to grapes and cookies

Dependent variable:	SC or $SG = \beta_0 + \beta_1 TP_i + \beta_2 TP_i * P_i + \beta_3 I_i + \beta_4 P_i + \beta_5 I_i P_i + \beta_6 X_i + \epsilon_i$							
	Switching to grapes (SG)				Switching to cookies (SC)			
Children:	(1) All	(2) Incenti vized	(3) Non-incen tivized	(4) Equality of col. (2) & (3)	(5) All	(6) Incenti vized	(7) Non-incen tivized	(8) Equality of col. (6) & (7)
<i>Spillover effect of peers choosing grapes</i>								
Effect of table proportion incentivized (β_1)	0.073 [0.036]**	0.101 [0.044]**	0.034 [0.063]	p-value 0.365	-0.020 [0.041]	-0.080 [0.054]	0.061 [0.057]	p-value 0.065
<i>Spillover effect of peers choosing incent. grapes</i>								
Effect of table proportion incentivized*public (β_2)	-0.157 [0.056]**	-0.172 [0.069]**	-0.134 [0.090]	p-value 0.609	0.026 [0.062]	0.087 [0.093]	-0.057 [0.082]	p-value 0.207
<i>Total spillover effect</i>								
Effect of table proportion incentivized for public ($\beta_1 + \beta_2$)	-0.085 [0.039]**	-0.070 [0.051]	-0.100 [0.063]	p-value 0.878	0.006 [0.045]	0.007 [0.074]	0.005 [0.055]	p-value 0.851

***, **, * = significant at the 1,5,10% level. OLS estimates control for school-by-period strata, table size, grade, sex, race and lunch type. Standard errors are clustered by table.

Table B2—: Heterogeneity in the direct effects of incentives on initial grape choice, by gender and grade

	Initial grape choice	Initial grape choice
Incentive dummy	0.260 [0.040]***	0.284 [0.039]***
Incentive*male	0.005 [0.054]	
Incentive*above median grade		-0.045 [0.062]
Control group mean	0.495	0.495
Number of observations (children)	1631	1631

***,**, * = significant at the 1,5,10% level. OLS estimates control for school-by-period strata, table size, grade, sex, race and lunch type. Standard errors are clustered by table. Column (1) estimates also include a dummy for male and column (2) estimates include a dummy for grades above the median grade.

Table B3—: Heterogeneity in spillover effect of proportion of table incentivized on switching to grapes, by gender

$$\Delta G_i = \eta_0 + \eta_1 TP_i + \eta_2 TP_i P_i + \eta_3 TP_i male_i + \eta_4 TP_i P_i male_i + \eta_5 male_i + \eta_6 I_i + \eta_7 P_i + \eta_8 I_i P_i + \eta_9 X_i + \epsilon_i$$

	(1) All children	(2) % of incentivized children >0%	(3) % of incentivized children \geq 50%
<i>Spillover effect of peers choosing grapes</i>			
Effect of table proportion incentivized (η_1)	0.095 [0.056]*	0.176 [0.089]**	0.233 [0.121]*
Effect of table proportion incentivized* male (η_3)	0.003 [0.070]	-0.087 [0.096]	-0.162 [0.152]
<i>Spillover effect of peers choosing incentivized grapes</i>			
Effect of table proportion incentivized* public (η_2)	-0.140 [0.097]	-0.142 [0.139]	-0.310 [0.170]*
Effect of table proportion incentivized* public* male (η_4)	-0.080 [0.108]	-0.176 [0.145]	-0.206 [0.225]
<i>Total spillover effect</i>			
Effect of table proportion incentivized for public ($\eta_1 + \eta_2$)	-0.045 [0.076]	0.033 [0.105]	-0.077 [0.121]
Effect of table proportion incentivized for public male ($\eta_3 + \eta_4$)	-0.077 [0.084]	-0.263 [0.110]**	-0.368 [0.165]**
Average proportion table incentivized	0.505	0.668	0.802

***, **, * = significant at the 1,5,10% level. OLS estimates control for school-by-period strata, table size, grade, sex, race and lunch type. Standard errors are clustered by table.

Table B4—: Heterogeneity in spillover effect of proportion of table incentivized on switching to grapes, by grade

	(1) All children	(2) % of incentivized children >0%	(3) % of incentivized children \geq 50%
$\Delta G_i = \eta_0 + \eta_1 TP_i + \eta_2 TP_i P_i + \eta_3 TP_i g_i + \eta_4 TP_i P_i g_i + \eta_5 g_i + \eta_6 I_i + \eta_7 P_i + \eta_8 I_i P_i + \eta_9 X_i + \epsilon_i$			
<i>Spillover effect of peers choosing grapes</i>			
Effect of table proportion incentivized (η_1)	0.133 [0.065]**	0.158 [0.101]	0.142 [0.127]
Effect of table proportion incentivized*above median grade (η_3)	-0.059 [0.073]	-0.063 [0.119]	-0.023 [0.142]
<i>Spillover effect of peers choosing incentivized grapes</i>			
Effect of table proportion incentivized*public (η_2)	-0.219 [0.100]**	-0.348 [0.142]**	-0.465 [0.184]**
Effect of table proportion incentivized*public*above median grade (η_4)	0.071 [0.128]	0.285 [0.176]	0.065 [0.248]
<i>Total spillover effect</i>			
Effect of table proportion incentivized for public ($\eta_1 + \eta_2$)	-0.085 [0.070]	-0.190 [0.100]*	-0.323 [0.134]**
Effect of table proportion incentivized for public above median grade ($\eta_3 + \eta_4$)	0.012 [0.095]	0.222 [0.130]*	0.088 [0.194]
Average proportion of table incentivized	0.505	0.668	0.802

***, **, * = significant at the 1, 5, 10% level. g_i is a dummy variable equal to 1 if above median grade and 0 otherwise. OLS estimates control for school-by-period strata, table size, grade, sex, race and lunch type. Standard errors are clustered by table.