

Online Supplement

This section presents a selection of the robustness checks we did in addition to those reported in the paper. The details provided here are not essential for the main paper and are provided only as background.

The first robustness check addresses the possible interference between the serial position variable and the total number of recommendations in an assessment. We normalize the serial position of the recommendation within the assessment so that the mean value is 1. For instance, in an assessment with five recommendations the serial positions will be recorded as 1, 2, 3, 4, and 5 in the original version, while it will be recorded as $1/3$, $2/3$, $1,4/3$, and $5/3$ in the second version. We then redo the probit and instrumental variables probit analyses related to Table 4. The results of these analyses are in Table I. We observe that the normalized serial position variable is negative and significant at $p < 0.001$ in all models. This further supports the finding that the sequence of recommendations is significant in explaining the adoption rates and indicates the presence of an earlier-is-better bias.

In the second robustness check we grouped recommendations with the same total number of recommendations and repeated the probit instrumental variables analysis (of models 4a and 4b) within each group. Table II includes the results of these analyses. We observe that the serial position variable is negative and significant at $p < 0.001$. This provides further support for our finding on the sequence effect.

Our third robustness check investigates the presence of recency effects. To address this we examine for end of sequence effects by adding indicator variables for the last few (up to three) recommendations in an assessment, as shown in Table III. The coefficients are not positive and significant in any model in Table V and hence we do not find any evidence for the presence of recency effects.

The fourth robustness check examines the impact of profitability and cash availability on the results. We could not include firm-level profits and cash availability in our analysis, as the identity of the firms in the IAC database is confidential. We use the four-digit SIC code for each firm in the IAC data base, to identify the average industry level profitability and operating cash availability for the year in which the assessment was done. Next, we use these as controls in our models and redo our analyses. These results are provided in Tables IV and V. We examine the coefficients of serial position, number of recommendations and observe that our results do not change in the presence of these additional controls.

Table I: Instrumental Variables Probit Estimates of Adoption of Recommendations with Normalized Serial Position

Dependent Variable : Adopted (equals 1 if implemented, 0 otherwise)				
	Payback Models		Cost-Benefit Models	
	Probit	IV Probit	Probit	IV Probit
ln(Payback)	-0.1476 *** (0.006)	-0.0321 * (0.014)		
ln(Payback)^2	-0.0167 *** (0.002)	-0.0090 *** (0.002)		
ln(Cost)			-0.1640 *** (0.007)	-0.1170 *** (0.009)
ln(Cost)^2			-0.0097 *** (0.001)	-0.0063 *** (0.001)
ln(Saving)			0.0787 *** (0.008)	-0.0394 ** (0.014)
ln(Saving)^2			-0.0008 (0.002)	0.0055 *** (0.002)
Serial Position (Normalized)	-0.1123 *** (0.009)	-1.5870 *** (0.103)	-0.1443 *** (0.010)	-1.2225 *** (0.093)
Number of Recommendations	-0.0370 (0.024)	-0.0448 ** (0.017)	-0.0411 + (0.024)	-0.0557 ** (0.021)
Variance of Payback	-0.0798 *** (0.008)	-0.1506 *** (0.008)	-0.0661 *** (0.007)	-0.0807 *** (0.007)
Sales	-0.0023 (0.014)	0.0014 (0.010)	0.0068 (0.014)	0.0360 ** (0.012)
Energy Costs	-0.0078 (0.005)	0.0010 (0.004)	0.0024 (0.005)	0.0234 *** (0.006)
Employees	0.0000 (0.000)	0.0000 (0.000)	0.0000 (0.000)	0.0001 * (0.000)
Assessment in 1st Quarter	0.0385 + (0.021)	0.0359 * (0.015)	0.0385 + (0.021)	0.0381 * (0.019)
Assessment in 2nd Quarter	0.0214 (0.020)	0.0232 (0.015)	0.0218 (0.021)	0.0261 (0.018)
Assessment in 3rd Quarter	0.0152 (0.022)	0.0228 (0.015)	0.0164 (0.022)	0.0247 (0.019)
Constant	0.3596 (0.311)	2.1104 *** (0.271)	-0.7550 (0.459)	0.4315 (0.432)
Other Controls				
Recommendation Type (No. significant at p<0.05 out of 25 recommendation types)	5	10	21	17
IAC Centers (No. significant at p<0.05 out of 45 IAC centers)	38	30	38	30
Years (No. significant at p<0.05 out of 26 Years)	0	0	0	0
SIC Code (No. significant at p<0.05 of 20)	0	0	0	0
Observations	76070	76070	76070	76070
Firms (Assessments)	12236	12236	12236	12236
Log-PseudoLikelihood	-49729 ***	-101315 ***	-49647.4 ***	-97691.8 ***
Exogeneity Wald Statistic	-	69.36	-	87.87

+ p< 0.1, * p<0.05, ** p<0.01, *** p<0.001 ; standard errors are in parantheses

Notes: Data pertains to recommendations made by IAC centers from 1981-2006. Estimation method is Maximum Likelihood. Standard errors are clustered at the assessment level and reported using robust clustered variance covariance matrix. 1 IAC center and its 12 related recommendations were dropped from the full sample as all the recommendations were not adopted. 13,187 recommendations were dropped as they have payback equal to zero and the logarithmic form for payback is not defined. Including these recommendations in a model without logarithmic transformation does not change the inferences we derive from this model. The IV Probit models use instrumental variables to instrument the serial position of a recommendation (using sequence generated based on the ARC manual and the propensity with which each IAC makes recommendations).

Table II: Instrumental Variables Probit Estimates of Adoption of Recommendations – Grouped by Total Number of Recommendations

Dependent Variable : Adopted (equals 1 if recommendation is implemented, 0 otherwise)				
IV Probit (for groups by total number of recommendations)				
	5	7	9	11
ln(Cost)	-0.082 *** (0.0240)	-0.089 *** (0.0220)	-0.092 *** (0.0270)	-0.139 *** (0.0280)
ln(Cost)^2	-0.003 (0.0040)	-0.007 * (0.0030)	-0.005 (0.0030)	-0.007 ** (0.0040)
ln(Saving)	-0.036 (0.0280)	-0.066 * (0.0270)	-0.091 *** (0.0330)	-0.054 (0.0360)
ln(Saving)^2	0.007 (0.0050)	0.009 * (0.0040)	0.007 (0.0040)	0.014 * (0.0070)
Serial Position	-0.459 *** (0.0420)	-0.379 *** (0.0390)	-0.299 *** (0.0330)	-0.247 *** (0.0370)
Variance of Payback	-0.118 *** (0.0210)	-0.096 *** (0.0170)	-0.074 *** (0.0170)	-0.05 * (0.0250)
Sales	0.006 (0.0110)	-0.002 *** 0.0000	-0.003 (0.0190)	0.031 (0.0240)
Energy Cost	0.007 (0.0080)	0.001 (0.0020)	0.031 (0.0110)	0.039 (0.0190)
Employees	0.000 (0.0001)	0.001 *** (0.0001)	0.052 * (0.0240)	0.000 (0.0004)
Assessment in 1st Quarter	0.120 * (0.0540)	0.007 (0.0410)	-0.086 (0.0500)	0.081 (0.0700)
Assessment in 2nd Quarter	0.049 (0.0520)	-0.026 (0.0410)	-0.063 (0.0480)	0.101 (0.0660)
Assessment in 3rd Quarter	0.063 (0.0530)	0.013 (0.0400)	-0.085 (0.0520)	0.132 (0.0710)
Constant	1.524 (0.8319)	-3.085 -	-8.485 -	0.767 (0.7451)
Controls				
Recommendation Type	Yes	Yes	Yes	Yes
IAC Centers	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
2 Digit SIC Code	Yes	Yes	Yes	Yes
Observations	7356	12171	9444	5183
Firms (Assessments)	1733	2040	1231	551
Log-PseudoLikelihood	-17290 ***	-32720 ***	-27371.1	-15821.2
Exogeneity Wald Statistic	56.9	34.2	30.7	17.1

* p<0.05, ** p<0.01, *** p<0.001; standard errors are in parantheses

Notes: Data pertains to recommendations made by IAC centers from 1981-2006. Estimation method is Maximum Likelihood. Standard errors are clustered at the assessment level and reported using robust clustered variance covariance matrix. The models use instrumental variables to instrument the serial position of a recommendation (using sequence generated based on the ARC manual and the propensity with which each IAC makes recommendations).

Table III: Probit Estimates of Adoption of Recommendations to Examine Impact of Last Three Recommendations in an Assessment

Dependent Variable : Adopted (equals 1 if recommendation is implemented, 0 otherwise)						
	Payback Models			Cost-Benefit Models		
	(1)	(2)	(3)	(4)	(5)	(6)
ln(Payback)	-0.1483 *** (0.006)	-0.1482 *** (0.006)	-0.1482 *** (0.006)			
ln(Payback)^2	-0.0167 *** (0.002)	-0.0167 *** (0.002)	-0.0167 *** (0.002)			
ln(Cost)				-0.1644 *** (0.007)	-0.1644 *** (0.007)	-0.1644 *** (0.007)
ln(Cost)^2				-0.0097 *** (0.001)	-0.0097 *** (0.001)	-0.0097 *** (0.001)
ln(Saving)				0.0795 *** (0.008)	0.0796 *** (0.008)	0.0797 *** (0.008)
ln(Saving)^2				-0.0009 (0.002)	-0.0009 (0.002)	-0.0009 (0.002)
Serial Position	-0.0211 *** (0.002)	-0.0193 *** (0.002)	-0.0176 *** (0.003)	-0.0275 *** (0.002)	-0.0260 *** (0.003)	-0.0242 *** (0.003)
Number	0.0497 + (0.026)	0.0384 (0.027)	0.0264 (0.029)	0.0730 ** (0.026)	0.0628 * (0.027)	0.0506 + (0.029)
Variance of Payback	-0.0791 *** (0.008)	-0.0790 *** (0.008)	-0.0790 *** (0.008)	-0.0657 *** (0.007)	-0.0656 *** (0.007)	-0.0656 *** (0.007)
Sales	-0.0023 (0.014)	-0.0024 (0.014)	-0.0025 (0.014)	0.0066 (0.014)	0.0065 (0.014)	0.0065 (0.014)
Energy Cost	-0.0077 (0.005)	-0.0076 (0.005)	-0.0076 (0.005)	0.0025 (0.005)	0.0025 (0.005)	0.0025 (0.005)
Employees	0.0000 (0.000)	0.0000 (0.000)	0.0000 (0.000)	0.0000 (0.000)	0.0000 (0.000)	0.0000 (0.000)
Assessment in 1st Quarter	0.0386 + (0.021)	0.0385 + (0.021)	0.0385 + (0.021)	0.0385 + (0.021)	0.0385 + (0.021)	0.0384 + (0.021)
Assessment in 2nd Quarter	0.0213 (0.020)	0.0213 (0.020)	0.0214 (0.020)	0.0217 (0.020)	0.0217 (0.020)	0.0218 (0.020)
Assessment in 3rd Quarter	0.0153 (0.022)	0.0153 (0.022)	0.0154 (0.022)	0.0166 (0.022)	0.0166 (0.022)	0.0167 (0.022)
1st From Bottom	0.0054 (0.015)	-0.0058 (0.017)	-0.0177 (0.020)	0.0124 (0.015)	0.0023 (0.017)	-0.0100 (0.020)
2nd From Bottom		-0.0242 (0.015)	-0.0344 * (0.017)		-0.0219 (0.015)	-0.0323 + (0.018)
3rd From Bottom			-0.0205 (0.015)			-0.0210 (0.016)
Constant	0.2493 (0.311)	0.2609 (0.311)	0.2733 (0.311)	-0.8865 + (0.457)	-0.8767 + (0.457)	-0.8656 + (0.458)
Controls						
Recommendation Type	Yes	Yes	Yes	Yes	Yes	Yes
IAC Centers	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
SIC Code	Yes	Yes	Yes	Yes	Yes	Yes
Observations	76070	76070	76070	76070	76070	76070
Firms (Assessments)	12236	12236	12236	12236	12236	12236
Log-PseudoLikelihood	-49737.2 ***	-49736.1 ***	-49735.4 ***	-49658.4 ***	-49657.5 ***	-49656.7 ***

+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001 ; standard errors are in parantheses

Notes: Data pertains to recommendations made by IAC centers from 1981-2006. Estimation method is Maximum Likelihood. Standard errors are clustered at the assessment level and reported using robust clustered variance covariance matrix. The variables 1st From Bottom, 2nd From Bottom, and 3rd From Bottom are indicator variables which represent the position of a recommendation from the bottom of an assessment.

Table IV: Instrumental Variables Probit Estimates of Adoption of Recommendations with Average SIC Income Incorporated

Dependent Variable : Adopted (equals 1 if recommendation is implemented, 0 otherwise)				
	Payback Models		Cost-Benefit Models	
	Probit	IV Probit	Probit	IV Probit
ln(Payback)	-0.1448 *** (0.006)	-0.0975 *** (0.016)		
ln(Payback)^2	-0.0167 *** (0.002)	-0.0142 *** (0.002)		
ln(Cost)			-0.1581 *** (0.007)	-0.1374 *** (0.009)
ln(Cost)^2			-0.0090 *** (0.001)	-0.0075 *** (0.001)
ln(Saving)			0.0721 *** (0.008)	0.0061 (0.015)
ln(Saving)^2			-0.0015 (0.002)	0.0018 (0.002)
Serial Position	-0.0214 *** (0.002)	-0.1796 *** (0.038)	-0.0278 *** (0.002)	-0.1546 *** (0.024)
Number	0.0771 ** (0.026)	0.7152 *** (0.153)	0.0991 *** (0.026)	0.6076 *** (0.096)
Variance of Payback	-0.0776 *** (0.008)	-0.1224 *** (0.012)	-0.0637 *** (0.008)	-0.0748 *** (0.008)
Sales	-0.0077 (0.014)	-0.0044 (0.013)	0.0024 (0.014)	0.0217 (0.014)
Energy Cost	-0.0063 (0.005)	-0.0012 (0.005)	0.0038 (0.005)	0.0167 ** (0.006)
Employees	0.0000 (0.000)	0.0000 (0.000)	0.0000 (0.000)	0.0001 (0.000)
Assessment in 1st Quarter	0.0390 + (0.022)	0.0426 * (0.021)	0.0386 + (0.022)	0.0404 * (0.021)
Assessment in 2nd Quarter	0.0112 (0.022)	0.0137 (0.020)	0.0113 (0.022)	0.0135 (0.021)
Assessment in 3rd Quarter	0.0144 (0.023)	0.0220 (0.021)	0.0156 (0.023)	0.0222 (0.022)
Average SIC Income	-0.00003 (0.00003)	-0.00003 (0.00003)	-0.00003 (0.00003)	-0.00003 (0.00003)
Constant	0.6558 (0.520)	0.8647 + (0.509)	-0.9428 (0.666)	-0.8421 (0.661)
Controls				
Recommendation Type (No. significant at p<0.05 out of 25 recommendation types)	6	3	24	24
IAC Centers (No. significant at p<0.05 out of 45 IAC centers)	36	31	36	31
Years (No. significant at p<0.05 out of 26)	0	0	0	0
SIC Code (No. significant at p<0.05 of 20 groupings of 2 digit SIC Codes)	0	0	0	0
Observations	67742	67742	67742	67742
Firms (Assessments)	10861	10861	10861	10861
Log-PseudoLikelihood	-44300 ***	-199986 ***	-44228.1 ***	-196837.3 ***
Exogeneity Wald Statistic	-	13.74	-	25.07

+ p< 0.1, * p<0.05, ** p<0.01, *** p<0.001 ; standard errors are in parantheses

Notes: Data pertains to recommendations made by IAC centers from 1981-2006. Estimation method is Maximum Likelihood. Standard errors are clustered at the assessment level and reported using robust clustered variance covariance matrix. 1 IAC center and its 12 related recommendations were dropped from the full sample as all the recommendations were not adopted. 13,187 recommendations were dropped as they have payback equal to zero and the logarithmic form for payback is not defined. Including these recommendations in a model without logarithmic transformation does not change the inferences we derive from this model. Additionally 8,328 recommendations were not included in the analysis as the average income for firms with these SIC codes was not available in the Compustat database for the relevant years. The IV Probit models use instrumental variables to instrument the serial position of a recommendation (using sequence generated based on the ARC manual and the propensity with which each IAC makes recommendations).

Table V: Instrumental Variables Probit Estimates of Adoption of Recommendations with Average SIC Operating Cash Flows Incorporated

Dependent Variable : Adopted (equals 1 if recommendation is implemented, 0 otherwise)

	Payback Models		Cost-Benefit Models	
	Probit	IV Probit	Probit	IV Probit
ln(Payback)	-0.1434 *** (0.007)	-0.1053 *** (0.015)		
ln(Payback)^2	-0.0166 *** (0.002)	-0.0145 *** (0.002)		
ln(Cost)			-0.1522 *** (0.008)	-0.1360 *** (0.009)
ln(Cost)^2			-0.0082 *** (0.001)	-0.0071 *** (0.001)
ln(Saving)			0.0681 *** (0.008)	0.0105 (0.015)
ln(Saving)^2			-0.0019 (0.002)	0.0015 (0.002)
Serial Position	-0.0225 *** (0.002)	-0.1544 *** (0.039)	-0.0293 *** (0.002)	-0.1416 *** (0.024)
Number	0.1150 *** (0.028)	0.6448 *** (0.155)	0.1380 *** (0.029)	0.5865 *** (0.098)
Variance of Payback	-0.0729 *** (0.008)	-0.1115 *** (0.013)	-0.0598 *** (0.008)	-0.0690 *** (0.008)
Sales	-0.0071 (0.015)	-0.0044 (0.014)	0.0030 (0.015)	0.0203 (0.015)
Energy Cost	-0.0064 (0.005)	-0.0020 (0.005)	0.0034 (0.005)	0.0150 * (0.006)
Employees	-0.0001 (0.000)	0.0000 (0.000)	0.0000 (0.000)	0.0080 (0.012)
Assessment in 1st Quarter	0.0365 (0.023)	0.0412 + (0.022)	0.0363 (0.023)	0.0391 + (0.023)
Assessment in 2nd Quarter	0.0115 (0.023)	0.0145 (0.022)	0.0121 (0.023)	0.0145 (0.022)
Assessment in 3rd Quarter	0.0208 (0.024)	0.0268 (0.023)	0.0224 (0.024)	0.0275 (0.023)
Average SIC Operating Cash Availability	-0.00004 (0.00003)	-0.00004 (0.00003)	-0.00004 + (0.00003)	-0.00004 + (0.00003)
Constant	1.1953 *** (0.190)	0.9520 ** (0.344)	-0.3970 (0.461)	1.4014 ** (0.517)
Controls				
Recommendation Type (No. significant at p<0.05 out of 25 recommendation types)	6	2	24	12
IAC Centers (No. significant at p<0.05 out of 45 IAC centers)	35	31	35	29
Years (No. significant at p<0.05 out of 26 Years)	20	6	20	6
SIC Code (No. significant at p<0.05 of 20 groupings of 2 digit SIC Codes)	1	1	1	0
Observations	60422	60422	60422	9489
Firms (Assessments)	9489	9489	9489	60422
Log-PseudoLikelihood	-39634 ***	-178204 ***	-39573 ***	-175216.4
Exogeneity Wald Statistic	-	10.07	-	19.68

+ p< 0.1, * p<0.05, ** p<0.01, *** p<0.001 ; standard errors are in parantheses

Notes: Data pertains to recommendations made by IAC centers from 1981-2006. Estimation method is Maximum Likelihood. Standard errors are clustered at the assessment level and reported using robust clustered variance covariance matrix. 1 IAC center and its 12 related recommendations were dropped from the full sample as all the recommendations were not adopted. 13,187 recommendations were dropped as they have payback equal to zero and the logarithmic form for payback is not defined. Including these recommendations in a model without logarithmic transformation does not change the inferences we derive from this model. Additionally 15,648 recommendations were not included in the analysis as the average income for firms with these SIC codes was not available in the Compustat database for the relevant years. The IV Probit models use instrumental variables to instrument the serial position of a recommendation (using sequence generated based on the ARC manual and the propensity with which each IAC makes recommendations).