

Appendix

Table A1
Adaptation Strategy Attributes and Levels Used in the Choice Experiment

Attributes	Levels
Additional Years of Protection	16, 24, 32, 38 (years)
Percent Change in Flood Insurance Premium	+2%, +5%, +8%
Additional Monthly Stormwater Utility Fees	+\$4, +\$8, +\$12, +\$16 (per month)

Table A2
 One Choice Experiment Profile Presented to Respondents

	Additional Beach Nourishment	Additional Seawalls	Additional Pumps	Status Quo
Additional Years of Protection	16	32	24	8
Percent Change in Flood Insurance Premium	+2%	+8%	+5%	+15%
Additional Monthly Stromwater Utility Fees	+\$16	+\$8	+\$4	\$0

Table A3
 Regression Results with Three Error Components

Variable	MIXL		MIXL+3ECs		G-MNL		G-MNL +3ECs	
	Mean Estimate	St. Dev Estimate	Mean Estimate	St. Dev Estimate	Mean Estimate	St. Dev Estimate	Mean Estimate	St. Dev Estimate
Seawall	1.205*** (0.260)	1.657*** (0.138)	1.906*** (0.362)	1.647*** (0.146)	18.372*** (2.212)	12.864*** (1.074)	22.505*** (3.337)	11.531*** (1.132)
Beach	1.145*** (0.248)	1.050*** (0.151)	1.754*** (0.354)	0.269 (0.188)	16.046*** (1.909)	2.053 (2.165)	21.157*** (3.358)	6.875*** (1.193)
Pump	0.817*** (0.251)	1.085*** (0.155)	1.437*** (0.359)	1.021*** (0.138)	10.928*** (2.178)	10.948*** (1.089)	18.154*** (3.479)	8.040*** (1.009)
Protection (Years)	0.054*** (0.007)	0.086*** (0.007)	0.054*** (0.007)	0.086*** (0.008)	0.554*** (0.060)	0.519*** (0.058)	0.476*** (0.057)	0.582*** (0.064)
Insurance	-0.132*** (0.019)	0.215*** (0.019)	-0.147*** (0.018)	0.162*** (0.019)	-1.450*** (0.187)	1.217*** (0.146)	-1.339*** (0.159)	1.187*** (0.161)
Fees	-0.108*** (0.008)		-0.107*** (0.008)		1.0 Fixed	0.0 Fixed	1.0 Fixed	0.0 Fixed
EC (Hard-structure)			0.0 Fixed	0.168 (0.226)			0.0 Fixed	3.945*** (1.244)
EC (Soft-structure)			0.0 Fixed	0.879*** (0.149)			0.0 Fixed	1.526 (1.428)
EC (Status quo)			0.0 Fixed	3.424*** (0.311)			0.0 Fixed	19.956*** (2.455)
Sigma								
Sample mean (Sample standard deviation)					2.053** (0.904)		6.875*** (0.046)	
Log-likelihood	-2642.18		-2614.54		-2578.17		-2551.96	
Information criterion	5306.4		5257.1		5180.3		5133.9	

Pseudo- R^2	0.286	0.294	0.303	0.311
Sample size	267	267	267	267

Standard errors in parentheses except for Sigma

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A4
 Regression Results with One Error Component with Random ASCs

Variable	MIXL		MIXL+1EC		G-MNL		G-MNL +1EC	
	Mean Estimate	St. Dev Estimate	Mean Estimate	St. Dev Estimate	Mean Estimate	St. Dev Estimate	Mean Estimate	St. Dev Estimate
Seawall	1.205*** (0.260)	1.657*** (0.138)	1.950*** (0.380)	1.533*** (0.144)	18.372*** (2.212)	12.864*** (1.074)	18.207*** (3.180)	11.662*** (1.230)
Beach	1.145*** (0.248)	1.050*** (0.151)	1.847*** (0.367)	0.914*** (0.165)	16.046*** (1.909)	2.053 (2.165)	17.231*** (3.239)	6.343*** (1.043)
Pump	0.817*** (0.251)	1.085*** (0.155)	1.553*** (0.366)	1.075*** (0.161)	10.928*** (2.178)	10.948*** (1.089)	13.429*** (3.398)	8.421*** (0.966)
Protection (Years)	0.054*** (0.007)	0.086*** (0.007)	0.056*** (0.007)	0.083*** (0.007)	0.554*** (0.060)	0.519*** (0.058)	0.537*** (0.061)	0.576*** (0.063)
Insurance	-0.132*** (0.019)	0.215*** (0.019)	-0.141*** (0.018)	0.162*** (0.022)	-1.450*** (0.187)	1.217*** (0.146)	-1.238*** (0.144)	1.093*** (0.128)
Fees	-0.108*** (0.008)		-0.105*** (0.008)		1.0 Fixed	0.0 Fixed	1.0 Fixed	0.0 Fixed
EC (Status quo)			0.0 Fixed	3.106*** (0.386)			0.0 Fixed	28.135*** (2.787)
Sigma								
Sample mean (Sample standard deviation)					2.053** (0.904)		6.343*** (0.020)	
Log-likelihood	-2642.18		-2621.87		-2578.17		-2553.00	
Information criterion	5306.4		5267.7		5180.3		5132.0	
Pseudo-R ²	0.286		0.292		0.303		0.310	
Sample size	267		267		267		267	

Standard errors in parentheses except for Sigma

*** p<0.01, ** p<0.05, * p<0.1

Figure A1

Scripts, definitions of attributes and example question in the survey

Next you will be presented with several hypothetical scenarios. In each of the scenarios, **four options** are presented to adapt to sea level rise in Miami-Dade County. You are asked to choose **one option that** you prefer the most.

The **four options are:**

1) More Beach Nourishment

2) More Seawalls

3) More Stormwater Pumps

4) Status Quo: This option implies that you are satisfied with the current strategies implemented in the Miami-Dade County, such as those in the City of Miami Beach. Under this option, the expected years of protection are about **7 to 10 years**. Your stormwater utility fee remains **unchanged**. However, you may face a **15 percent** increase in the flood insurance premium when you choose to renew or enroll in the flood insurance program, as flood risks are expected to increase with rising sea levels.

The **four options** differ in the following attributes.

Years of Protection: The number of years of protection against the threat of sea level rise.

Increase in Flood Insurance Premium: The one-time increase in the flood insurance premium when you enroll or renew your flood insurance.

Additional Monthly Stormwater Utility Fee: The one-time increase of your monthly stormwater utility fee.

For options 1), 2), and 3), in addition to the advantages and disadvantages described above, they are usually associated with **longer** expected years of protection, **less** increase in flood insurance premium, but **higher** stormwater utility fees. An example question is provided below.

	1) More Beach Nourishment	2) More Seawalls	3) More Pumps	4) Status Quo
Years of Protection	16	16	8	8
Increase in Flood Insurance Premium	+2%	+8%	+2%	+15%
Additional Monthly Stormwater Utility Fee	+\$12	+\$8	+\$8	\$0


This option provides **16** years of protection.

This option increases the flood insurance premium by **8%**.

This option needs additional **\$8** monthly stormwater utility fee.

After evaluating the information in the table, which option would you choose?

- More Beach Nourishment**
- More Seawalls**
- More Stormwater Pumps**
- Status Quo**



If you do not want 1), 2), or 3),
select Status Quo

Figure A2

Example of choice experiment question used in the survey

Next you will evaluate a total of **10** choice scenarios. Each scenario presents a new set of options.

Please make sure your choice matches your preference in real life, since your opinions help identify the appropriate adaption strategies.

For research purpose, please make sure that your choice in one scenario does not depend on your choices in other scenarios. In other words, consider each choice scenario independently, imagining that the options are the only ones available to choose from. You will not be able to return to previous choices.

Which option would you choose?

	More Beach Nourishment	More Seawalls	More Pumps	Status Quo
Years of Protection	24	38	16	8
Increase in Flood Insurance Premium	+8%	+5%	+2%	+15%
Additional Monthly Stormwater Utility Fee	+\$8	+\$8	+\$12	\$0