Supplemental Materials for Bruce W. Hamilton and Molly K. Macauley, "Heredity or Environment: Why Is Automobile Longevity Increasing?" *The Journal of Industrial Economics* 47 (3), September 1999, pp. 251-261

Table A1
Regression Results with Year and Vin Dummies
For All Years

α	3.180	(.0489)
β	6.476	(.0508)
γ_0	.6285	(.1048)
R^2	.8916	

	VIN EFFECT		YEAR EFFECT	
YEAR	Coefficient	Std Error	Coefficient	Std Error
1938-39	.0221	(.2362)	--	--
1940-41	.0895	(.2255)	--	--
1946-47	.0188	(.0774)	.0952	(.1571)
1948-49	.0233	(.0561)	.1024	(.0943)
1950-51	.0242	(.0302)	.1567	(.0189)
1952-53	.0904	(.0537)	.1317	(.0320)
1954-55	.0061	(.0445)	-.0239	(.0424)
1956-57	-.0373	(.0157)	-.0912	(.0471)
1958-59	-.0614	(.0001)	-.0031	(.0367)
1960-61	(omitted)		(omitted)	
1962-63	.0502	(.0012)	-.0074	(.0373)
1964-65	.0294	(.0312)	-.0173	(.0188)
1966-67	-.0091	(.0163)	-.0067	(.0282)
1968-69	-.0709	(.0349)	-.1022	(.0328)
1970-71	-.1238	(.0159)	-.0797	(.0276)
1972-73	-.1791	(.0238)	-.0632	(.0564)
1974-75	-.2120	(.0296)	.0317	(.0545)
1976-77	-.2048	(.0468)	.0697	(.0151)
1978-79	-.2081	(.0299)	.1223	(.0405)
1980-81	-.2803	(.0239)	.2359	(.0390)
1982-83	-.3186	(.0211)	.3118	(.0357)
1984-85	-.3598	(.0207)	.3378	(.0269)
1986-87	--		.3464	(.0280)
1988-89	--		.3685	(.0398)
1990-91	--		.4039	(.0461)

Table A1 is analogous to Table 1 in the published article, except that we include separate year and vin dummies before 1950-51. Since estimation of a year dummy requires several prior vins, we never attempted pre-war year effects. For an analogous reason we did not attempt vin dummies after 1984-85. Note the progressively poorer standard errors for the earlier years and vintages. After the mid-1950s, all year and vin coefficients are identical as between the two regressions.

Table A2
Regression Results for Chevrolets and Buicks

	Coefficients			Contribution to Life Expectancy (years)		
	FLEET	BUICK	CHEVY	FLEET	BUICK	CHEVY
α	3.76 (.095)	3.39 (.092)	3.76 (.95)			
β	7.18 (.132)	7.32 (.142)	7.18 (.132)			
γ_0	3.67 (1.37)	-2.54 (1.58)	3.67 (1.37)			
HHI_{year}	-.909 (.152)	-.524 (.166)	-.909 (.152)	-1.7	-0.8	-1.4
HHI_{vin}	-.146 (.165)	-.036 (.174)	-.146 (.165)	-0.2	0.0	0.0
Vin	-.0021 (.0027)	.001 (.00001)	-.005 (.002)	-0.6	0.8	-1.5
Unemp	-.0054 (.0027)	-.0061 (.003)	-.002 (.004)	-0.2	-0.4	-0.1
D_{68}	-.053 (.013)	-.035 (.012)	-.053 (.013)	-0.4	-0.4	-1.0
D_{73}	-.001 (.005)	.030 (.010)	-.006 (.014)	0.0	0.4	0.0
D_{80}	.103 (.011)	.102 (.011)	.103 (.011)	1.1	1.1	1.4
R^2	.924	.931	.900			

The regressions underlying Table A2 use the same data and estimation technique as were used in Table 1. The first column is for the entire domestic fleet; the second for all Buicks and the third for Chevrolets. We chose these makes because Buicks tended to be significantly larger, less fuel efficient, and more costly than Chevys up until the mid-1970s (see Table A3 below). We wanted to see whether these features influenced mortality. (Standard errors in parentheses.)

Table A3
Comparison of Characteristics, Chevrolet vs. Buick

Make	Horsepower	Wheelbase (inches)	Price (dollars)	Weight (pounds)
Chevy*	80-170	110-119	1800-2450	2250-3500
Buick	155-325	112-126	2475-3450	2700-4319

*excludes Corvette
Data for 1962 models (minimum and maximum) from Kelley Blue Book.

In these regressions, rather than a complete set of year and vin dummies, we included a list of economic regressors:
- HHI_{year} is the current-year Hirschman-Herfindahl index, based on new car sales.
- HHI_{vin} is the Hirschman-Herfindahl index for the year that the car was manufactured.
- *Vin* is a linear trend in vintage.
- *Unemp* is the current unemployment rate.
- D_{68} is a dummy variable = 1 for year > 1968 *and* vin < 1968.[1]
- D_{73} is analogous to D_{68}, for 1973.
- D_{80} is again analogous to D_{68}, for 1980.

The three columns on the right-hand side of Table A2 give estimated contributions of the regressors to life expectancy, calculated in the manner described in the published article. For example, the HHI_{year} coefficient for the fleet (-.909) implies that life expectancy falls by 1.7 years as HHI varies from its sample minimum to its maximum (respectively approximately 2000 and 3700). Differences between makes are modest. Note that these results are consistent with the central finding of the paper: There is essentially no evidence of an embodied effect (HHI_{vin}), but there is evidence of a strong disembodied effect (HHI_{year}).

[1] We were looking for a specific disembodied effect wherein all cars built prior to 1968 had a changed mortality history after 1968.