

Regression Estimation of Kelley Blue Book Car Price Data

Monica Hartmann and Steven Stern*

February 8, 2002

Variable	Mean	Std. Dev.	Notes
DLPrice	-0.133	0.077	$\log \text{Price}_t - \log \text{Price}_{t-1}$
Year	10.69	3.327	1986 = 1
$\log(\text{New Price})$	9.646	0.493	
Age	5.312	3.327	

Notes:

1. There are 7918 observations.

*Monica Hartmann is at St. Thomas University, and Steven Stern is at the University of Virginia.

Variables			Variables		
Constant	0.014 (0.027)	-0.012 (0.025)	Oldsmobile	0.033** (0.008)	0.033** (0.008)
Year/10	-0.040** (0.003)	-0.040** (0.003)	Pontiac	0.044** (0.008)	0.043** (0.008)
log (New Price)	-0.014** (0.003)	-0.012** (0.003)	Saturn	0.066** (0.011)	0.067** (0.011)
Age/10	-0.018** (0.003)		Lux American	0.023** (0.008)	0.022** (0.008)
Age = 1	-0.085** (0.003)	-0.072** (0.003)	Lux Japanese	0.064** (0.009)	0.063** (0.009)
Age = 2		0.023** (0.003)	Lux European	0.059** (0.008)	0.058** (0.008)
Age = 3		0.005* (0.003)	Honda	0.084** (0.008)	0.084** (0.008)
Age = 4		0.001 (0.003)	Mitsubishi	0.034** (0.009)	0.035** (0.009)
Age = 5		0.002 (0.003)	Mazda	0.058** (0.008)	0.059** (0.008)
Chrysler	0.033** (0.008)	0.032** (0.008)	Nissan	0.059** (0.008)	0.058** (0.008)
Dodge	0.037** (0.008)	0.037** (0.008)	Subaru	0.042** (0.009)	0.043** (0.009)
Plymouth	0.036** (0.008)	0.037** (0.008)	Toyota	0.071** (0.008)	0.071** (0.008)
Ford	0.042** (0.008)	0.042** (0.008)	Volkswagen	0.071** (0.010)	0.071** (0.010)
Mercury	0.030** (0.008)	0.030** (0.008)	Volvo	0.069** (0.009)	0.068** (0.009)
Buick	0.036** (0.008)	0.036** (0.008)	Geo	-0.009 (0.011)	-0.008 (0.011)
Chevrolet	0.043** (0.008)	0.043** (0.008)	Hyundai	-0.004 (0.010)	-0.003 (0.010)
R^2	0.177	0.182	$H_0 : \text{Brands } (\chi_{23})$	520.0**	521.6**

Notes:

1. Dependent variable is DLPrice.
2. There are 7918 observations.
3. Numbers in parentheses are standard errors.
4. Single starred items are significant at the 10% level, and double starred items are significant at the 5% level.

Table 3 Regression Results for Car Prices With Age Interactions				
Variables		Brand Variables	Dummy	Interaction with $\frac{Age}{10}$
Constant	0.030 (0.028)	Chrysler	-0.005 (0.015)	0.069** (0.024)
Year/10	-0.039** (0.003)	Dodge	0.031** (0.015)	0.010 (0.024)
log (New Price)	-0.014** (0.003)	Plymouth	0.032** (0.015)	0.008 (0.024)
Age/10	-0.033* (0.021)	Ford	0.021 (0.014)	0.040* (0.022)
Age = 1	-0.088** (0.003)	Mercury	0.016 (0.015)	0.026 (0.024)
		Buick	0.019 (0.015)	0.033 (0.023)
		Chevrolet	0.024* (0.014)	0.037* (0.023)
		Oldsmobile	0.006 (0.015)	0.049** (0.024)
		Pontiac	0.025* (0.014)	0.034 (0.023)
		Saturn	0.173** (0.021)	-0.321** (0.046)
		Lux American	-0.001 (0.015)	0.047** (0.023)
		Lux Japanese	0.081** (0.017)	-0.047 (0.031)
		Lux European	0.052** (0.015)	0.015 (0.022)
		Honda	0.108** (0.015)	-0.048** (0.024)

Table 3 (continued) Regression Results for Car Prices With Age Interactions		
Brand Variables	Dummy	Interaction with $\frac{Age}{10}$
Subaru	0.057** (0.016)	-0.025 (0.026)
Toyota	0.076** (0.014)	-0.007 (0.023)
Volkswagen	0.094** (0.018)	-0.044* (0.028)
Mitsubishi	0.044** (0.017)	-0.022 (0.027)
Mazda	0.068** (0.015)	-0.019 (0.024)
Nissan	0.055** (0.015)	0.007 (0.023)
Volvo	0.055** (0.016)	0.027 (0.026)
Geo	0.087** (0.021)	-0.206** (0.036)
Hyundai	0.020 (0.018)	-0.058* (0.031)
R^2		0.206
$H_0 : \text{Interactions } (\chi_{23})$		283.0**

Notes:

1. Dependent variable is DLPrice.
2. There are 7918 observations.
3. Numbers in parentheses are standard errors.
4. Single starred items are significant at the 10% level, and double starred items are significant at the 5% level.

Table 4 Regression Results for Car Prices With Age = 1 Interactions				
Variables		Brand Variables	Dummy	Interaction with Age = 1
Constant	0.007 (0.027)	Chrysler	0.046** (0.009)	-0.101** (0.025)
Year/10	-0.039** (0.003)	Dodge	0.045** (0.008)	-0.066** (0.024)
log (New Price)	-0.014** (0.003)	Plymouth	0.043** (0.009)	-0.055** (0.025)
Age/10	-0.019** (0.003)	Ford	0.055** (0.008)	-0.108** (0.023)
Age = 1	-0.016 (0.021)	Mercury	0.041** (0.009)	-0.088** (0.024)
		Buick	0.050** (0.008)	-0.111** (0.023)
		Chevrolet	0.055** (0.008)	-0.098** (0.023)
		Oldsmobile	0.047** (0.09)	-0.113** (0.025)
		Pontiac	0.053** (0.008)	-0.073** (0.023)
		Saturn	0.048** (0.011)	0.073** (0.029)

Table 4 (continued)		
Regression Results for Car Prices		
With Age = 1 Interactions		
Brand Variables	Dummy	Interaction with Age = 1
Lux American	0.040** (0.009)	-0.133** (0.024)
Lux Japanese	0.067** (0.010)	-0.038 (0.026)
Lux European	0.068** (0.009)	-0.072** (0.023)
Honda	0.088** (0.009)	-0.030 (0.023)
Mitsubishi	0.043** (0.009)	-0.068** (0.026)
Mazda	0.061** (0.009)	-0.026 (0.024)
Nissan	0.065** (0.008)	-0.052** (0.024)
Subaru	0.049** (0.009)	-0.051* (0.026)
Toyota	0.076** (0.008)	-0.035 (0.023)
Volkswagen	0.069** (0.010)	0.012 (0.029)
Volvo	0.077** (0.009)	-0.065** (0.026)
Geo	-0.016 (0.012)	0.046 (0.033)
Hyundai	0.001 (0.010)	-0.044* (0.028)
R^2		0.205
H_0 : Interactions (χ_{23})		269.6**

Notes:

1. Dependent variable is DLPrice.
2. There are 7918 observations.
3. Numbers in parentheses are standard errors.
4. Single starred items are significant at the 10% level, and double starred items are significant at the 5% level.