

Appendix: Variable Information and Replication Details for “How Does the Economy Shape Policy Preferences?”

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This appendix accompanies “How Does the Economy Shape Policy Preferences?” by Grant Ferguson, Paul M. Kellstedt, and Suzanna Linn 2013. The appendix serves a number of purposes. First we provide details on the measurement of the variables used in the analysis conducted in our article, focusing in particular on how and why they differ from those used in Durr’s 1993 analysis. Second, we present interim analysis that generates the economic expectations variable used as a key explanatory variable in the analysis of policy mood following Durr 1993. Third, we present supplemental analysis so that readers can assess the effects of differences in measurement of explanatory variables between our analysis and those used, in particular by Durr. We present graphs of the key variables as well.

Measurement

Along with Durr and Erikson, MacKuen and Stimson (EMS) 2002, we use Stimson’s policy mood measure as our dependent variable. Simplifying, the measure captures the liberalism of the mass public by comparing, at any two points in time, ratios of liberalism among multiple opinion indicators. For example, if in both year t and year $t+k$, two different indicators of mass public liberalism are both measured, then we can compare the ratios across those two indicators of how liberal the public was, and, if both indicators moved in the same (liberal or conservative) direction, that is evidence that public preferences moved in that direction, and also by how much. By this logic, Stimson developed an iterative algorithm that enabled the creation of a single time series composed of the scraps of material represented by many separate, incomplete indicators of Americans’ preferences for more or less government.¹

Policy mood is comprised of the net liberalism from thousands of survey marginals on a variety of policy issues, and has become a more reliable indicator of the liberalism of mass preferences over time as more survey data from the past have become available.

¹Details of the algorithm can be found in Stimson 1999 and Erikson, MacKuen, and Stimson 2002.

While this means mass policy liberalism is now more precisely measured than it used to be, it unfortunately also means that the policy mood time series (including Durr's period of interest, 1968 to 1988) is not the same in 2012 as it was for Durr or Erikson, MacKuen, and Stimson, and our results are not strictly comparable to theirs. Figure 1 presents policy mood 1968Q2-2010Q3 (from Jim Stimson, June 2012).

We have attempted to replicate Durr's policy outcomes variable. Conceptually the measure is designed to capture government intrusiveness in the lives of Americans. Durr measures policy outcomes as the average of four time series: the percentage of total federal outlays dedicated to human resources, 100% minus the percentage of total federal outlays dedicated to defense, the average income tax rate of all returns with adjusted gross income of one million or more 1986 dollars, and the percentage of total state and local revenues consisting of federal grants-in-aid (see Durr 1993:163). We obtained three of the four series that make up policy outcomes from the U.S. Government Printing Office². Durr does not identify his sources and if he did use the same source it is unclear if these series have been updated. More problematic, however, is the fourth series. According to the IRS³, adjusted gross income is measured in significantly different ways before and after 1987 and should not be compared between these two time periods. This means the marginals for the time series of Durr's average income tax rate measure—the basis for the fourth series in his policy outcomes measure—do not mean the same thing from 1968 to 1986 as they do from 1987 to the present, and we have no way of knowing how Durr accounted for this change.

We replace Durr's average income tax rate measure with a time series of top marginal tax rates for married persons filing joint returns.⁴ Our income tax measure is *better* than

²<http://www.gpo.gov/fdsys/pkg/BUDGET-2012-TAB/pdf/BUDGET-2012-TAB.pdf>

³See Historical Table 5 at <http://www.irs.gov/taxstats/indtaxstats/article/0,,id=96679,00.html>

⁴These data were obtained from the National Taxpayer's Union at: <http://www.ntu.org/tax-basics/history-of-federal-individual-1.html>

Durr's in the sense that it does not suffer from a change in its definition during the time period that Durr was concerned with (1968-1988) or that we are (1968-2010). Our time series of the top marginal tax rate for married persons filing jointly also captures the underlying concept of policy intrusiveness in taxes that Durr (and we) wish to measure. Our measure is then an index that averages the following four time series: the percentage of total federal outlays dedicated to human resources, 100% minus the percentage of total federal outlays dedicated to defense, the percentage of total state and local revenues consisting of federal grants-in-aid, and the top marginal tax rate for married persons filing jointly.

In addition to the issue of measurement of policy outcomes, Durr argues that policy outcomes should have no effect before 1975 to account for Americans' delayed ideological reactions to Great Society policies and the inflation that followed in the early 1970s. Durr also states that policy outcomes should have no effect from 1968 to quarter 1 of 1975 because model fit is improved with this treatment of policy outcomes. He writes that "my primary motivation here is to improve the estimation of the relationship between economic expectations and policy sentiment. Such a relationship is not strengthened by the inclusion of the policy measure" (1993:168). We find these explanations for this coding to be unconvincing and unclear and allow the policy outcomes variable to take its index value as explained above for the full time period. We do, however, present analysis coding the policy outcomes variable to reflect Durr's argument later in the appendix.⁵

For our measure of the economic expectations of the mass public, we follow Durr and take advantage of one indicator from the University of Michigan's Index of Consumer Sentiment. That indicator asks respondents: "Looking ahead, which would you say is more likely – that in the country as a whole we'll have continuous good times during the next 5 years or so, or that we'll have periods of widespread unemployment or depression, or what?"

⁵The policy outcomes variable is in this case coded as a 0 prior to the first quarter of 1975.

As Durr notes (1993:161), this question provides an excellent measure of subjective consumer expectations about the long-term future of the economy. This time series of relative long-term business expectations⁶ is regressed on inflation, unemployment, and the Conference Board's Index of Coincidental Indicators (CEI) from the next quarter. Durr included the Conference Board's Leading Economic Indicator Index (LEI) as an explanatory variable as well, but we do not. One of the components of the LEI is the Index of Consumer Expectations, which includes the dependent variable in our analysis as a component indicator.⁷

In Table 1 we present the regressions estimating economic expectations. The predicted values from this regression become independent variables in our estimation of public policy mood. They represent the economic component of long-term business expectations, purged of the impact of politics. Figure 2 presents this series while Figure 3 presents the residuals, which we might think of as the political component of economic expectations, along with any other *errors* in economic expectations. Economic expectations are predicted by inflation and unemployment as we expect, both driving expectations downward. The CEI does not significantly affect expectations in either the shorter or longer time period. In both time periods about two thirds of the variation in expectations is accounted for by the model. Americans' expectations of the long term future of the economy are quite accurate in the sense that they anticipate future economic conditions.

Following Durr, we include an explanatory variable capturing the impact of the Vietnam War on policy mood. This Vietnam pulse variable takes a value of 1 from quarter 2 of 1968 through quarter 1 of 1976, and a value of 0 for all quarters thereafter. Durr captured the effect of the Vietnam War on policy mood by including an intervention variable that

⁶Available at <http://www.sca.isr.umich.edu/main.php>.

⁷The LEI and CEI were obtained from The Conference Board (copyright 2012). For information on how to obtain these data, visit <http://www.conference-board.org/data/bci.cfm>. The CEI indicators is comprised of four components: payroll employment, personal income, manufacturing and trade sales, and the index of industrial production. For a full description of the indices of leading and coincidental indicators, see <http://www.investopedia.com/university/conferenceboard/conferenceboard2.asp>.

grew exponentially from 0 in quarter 2 of 1968 (the start of the time series) to 1 in quarter 2 of 1970 and then took a value of 1 for the rest of the series. Clearly, the effect of the war has not persisted to the present. We chose a simple pulse intervention to capture the effect of the war. We present specifications of our model using Durr’s Vietnam intervention variable in Table 2 and Table 3 to compare the effects of this change in coding.

In order to test Erikson, MacKuen, and Stimson’s hypotheses, we need measures of inflation and unemployment. Our quarterly inflation rate is measured as the annual percent change (the percent change from the same quarter one year ago) in the consumer price index. This data was retrieved from the Federal Reserve Bank of Cleveland’s website.⁸ The seasonally-adjusted, quarterly unemployment rate variable was retrieved from the Bureau of Labor Statistics.⁹

Supplemental Analysis

Replicating Durr

We estimate a set of models similar to Durr’s original 1993 Table 2 analysis. His results are reported in Table 2, Column 1. Our results inform readers how measurement differences—both those necessitated by the available data and those for which we made a theoretical decision to change the measure—play a role in the results presented in Ferguson, Kellstedt, and Linn 2013. These results can be compared to those in Table 1, Columns 1 and 2 of the article.

Table 2, Column 2 presents our replication of Durr’s model for his time period (1968Q2–1988Q1) using his measure of economic expectations. We follow his measurement strategy in creating the economic expectations measure, the Vietnam War intervention, and while

⁸<http://www.clevelandfed.org/Research/data/US-Inflation/cpi.cfm?DCS.nav=Local>.

⁹<http://www.bls.gov/data/>.

we use our policy outcomes index, we set its value to zero until 1975 quarter 2 as Durr did. Even in this “best” replication effort the inferences from our results are quite different from his. Mood is “stickier”—a theme in our published results—and the effect of economic expectations is considerably weakened *but still significant*, unlike in our published results. Policy outcomes has an effect orders of magnitude smaller, but recall that our index is different from Durr’s and not directly comparable.

Before comparing the results in Column 2 to our published findings, we draw comparisons between these results and some additional specifications. Column 3 presents Durr’s specification as in Column 2 but using the measure of economic expectations created excluding the LEI. This has essentially no effect on the results. Moving to Column 4 we use the pulse intervention so that the Vietnam War can have no effect on policy mood after 1975. This, too, has effects only at the margins. The signs and significance of the variables do not, and have not, changed as we move across Columns 2-4. The effect of policy outcomes drops about one third with this treatment of the Vietnam War, but the remainder of the results are unchanged.

To this point the results in Table 2 share a common pattern. This pattern does not, however, match our published findings. Specifically, the effect of economic expectations is estimated to be much smaller and its standard error much larger such that the effect is not significant in our published results. While the results in the appendix support Durr’s conclusion that when the economic future looks bright Americans are more likely to favor expansive social policies, this is at odds with the findings in Ferguson, Kellstedt and Linn 2013. The key difference between our published results and across all the results in Table 2 is the treatment of the policy outcomes variable and we remain firmly convinced that our treatment is better and that Durr’s treatment is unjustified. Further, the effect of the policy outcomes variable is larger in our published model and the model fit is not significantly better

using Durr's measure of policy outcomes, therefore refuting one of his two justifications for the measurement choice.

As a final comparison, still using Durr's policy outcome variable treatment we estimate the model in Column 4 for the full period of our analysis (1968Q1–2010Q3). Over this longer period, the estimated effect of economic expectations has dropped dramatically to 0.017, almost equal to that in our Table 1, Column 2 of our article, 0.019. In neither case does it approach statistical significance. So when we consider the full course of history available for analysis the question of how to treat policy outcomes in the period 1968-1975 is moot for our assessment of what we referred to as Durr's macro politics version of Maslow's hierarchy of needs model. There is no evidence that Americans' expectations about the economic future affect their preferences for a more or less active government. However, as when comparing the results in Column 4 with the results in Table 1, Column 2 of our article, the effects of policy outcomes are larger when we allow it to have an effect over the full time period rather than restrict its effect to the post 1975Q1 time period.

EMS Extensions

We examine the effects of adopting Durr's policy outcome measure that assumes no effect for the variable prior to the first quarter of 1975 and a step intervention for the Vietnam War on the inferences in our article with regard to the EMS specification as well. The results are presented in Table 3. In this case there are some important differences between our published results and those presented here as well, but only over the shorter time period. In particular, adopting Durr's policy outcome measure results in its significance while unemployment no longer has a long run effect. This result is more similar to that published in EMS Erikson, MacKuen and Stimson (2002). Once again, however, the result depends on the assumption that policy outcomes should have no effect in the time period from 1968–1975Q1. In

the longer time period policy outcomes is significant regardless of the treatment of policy outcomes, suggesting that its importance after 1988 is particularly strong. The estimated effect is, in fact (and interestingly), larger when we use the full policy outcomes measure. None of the measurement decisions affect estimates of the error correction coefficient. Policy mood is about twice as “sticky” when examined over the longer time period than the shorter time period. Likewise the effects of inflation drop, although only slightly in the long run, regardless of the measurement of policy outcomes or the Vietnam War.

Conclusion

The results of the supplemental analysis presented here support the main conclusions in Ferguson, Kellstedt and Linn 2013. Specifically, the inertia in policy mood, the estimated effects of inflation, and generally the estimated effects of policy outcomes have the same signs and significance and are of similar magnitude. However, if one adopts Durr’s argument that policy outcomes should not affect policy mood in the first 7 years of the analysis, the estimated effect of economic expectations becomes significant in Durr’s time period. This is the central finding in Durr’s analysis. That the results turn on this decision is troubling. And, as we argued, his explanation for this measurement decision seems to us ad hoc and post hoc. The distinction disappears when we extend the analysis to the longer historical record.

References

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Figure 1: Quarterly U.S. Policy Mood, 1968 - 2010

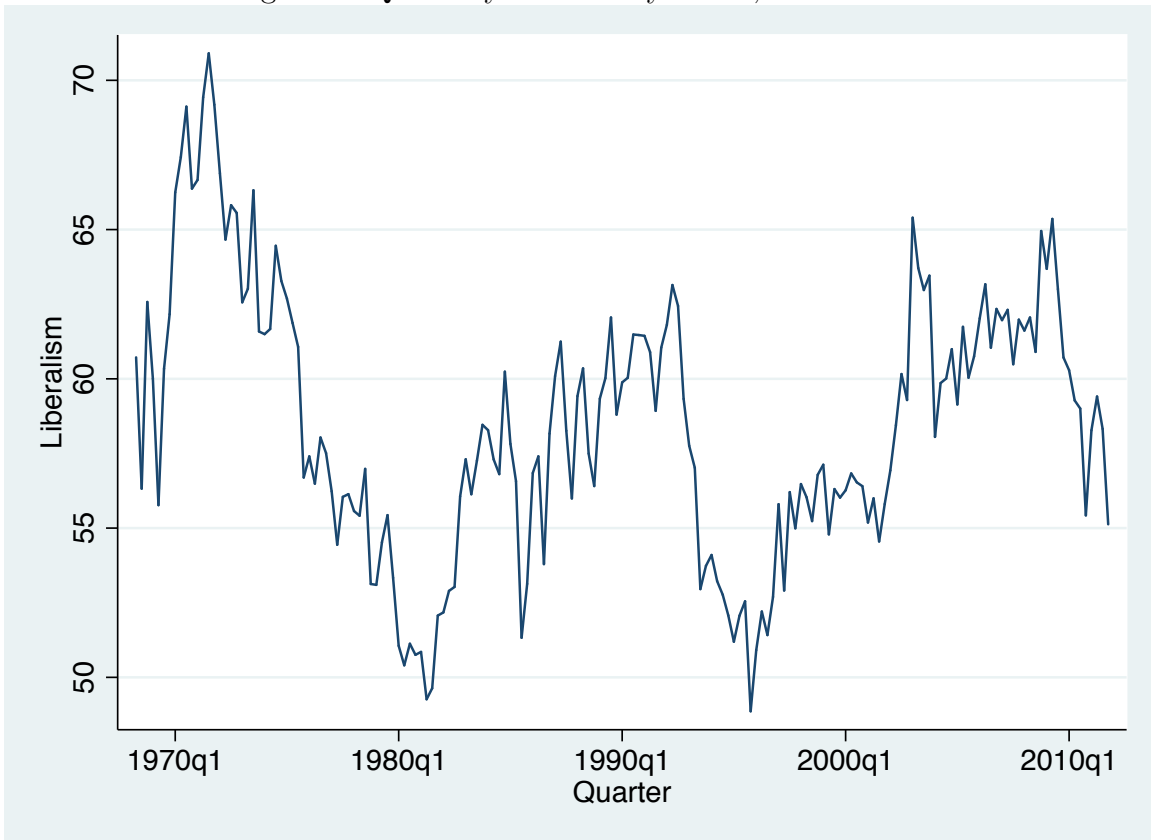


Figure 2: Our Economic Expectations Series

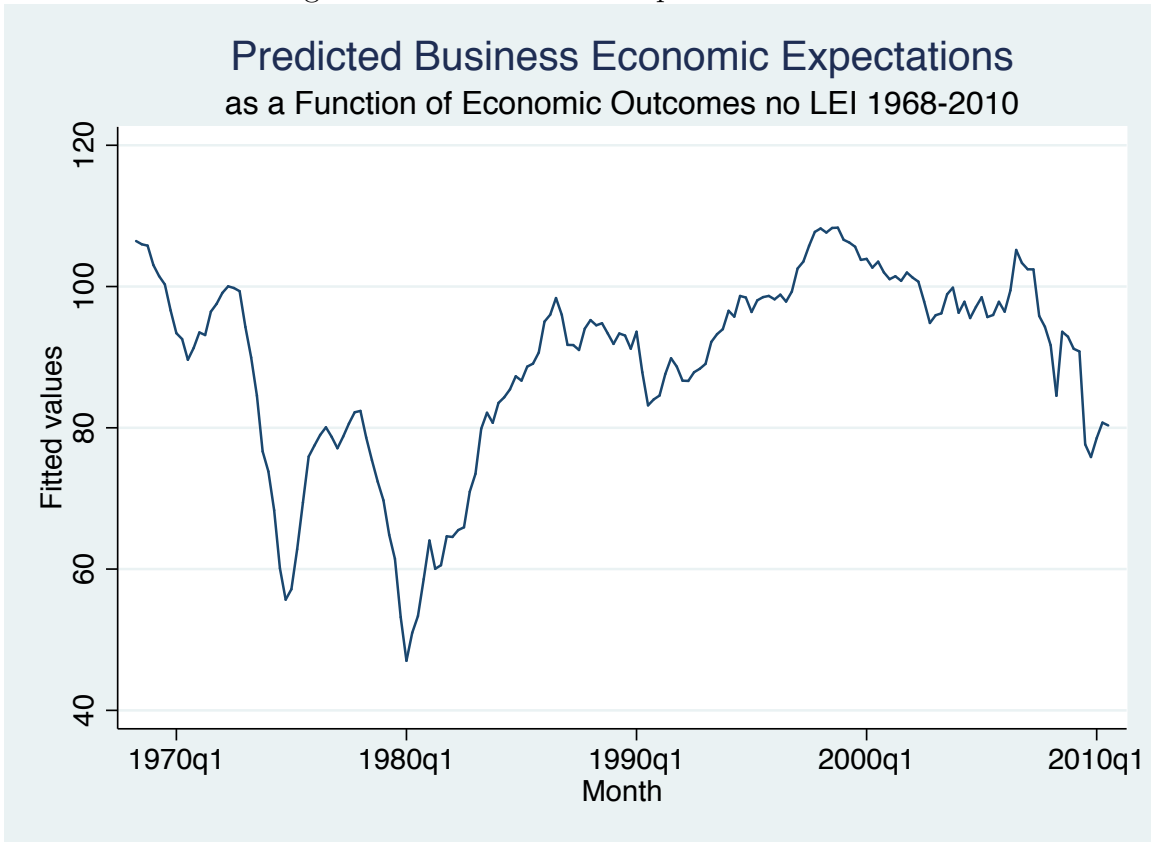


Table 1: Models of Economic Expectations

	1968Q2–1988Q1	1968Q2–2010Q3
Inflation _{t+1}	-4.152* (0.392)	-3.738* (0.397)
Unemployment _{t+1}	-3.096* (0.840)	-5.432* (0.605)
Coincidental Indicators _{t+1}	0.127 (0.175)	-0.085 (0.059)
Constant	122.635* (9.697)	145.862* (7.260)
RMSE	11.058	12.313
\bar{R}	.621	.550
N	80	170

* $p < .05$, + $p < .10$.

Figure 3: The Residuals of Our Economic Expectations Series

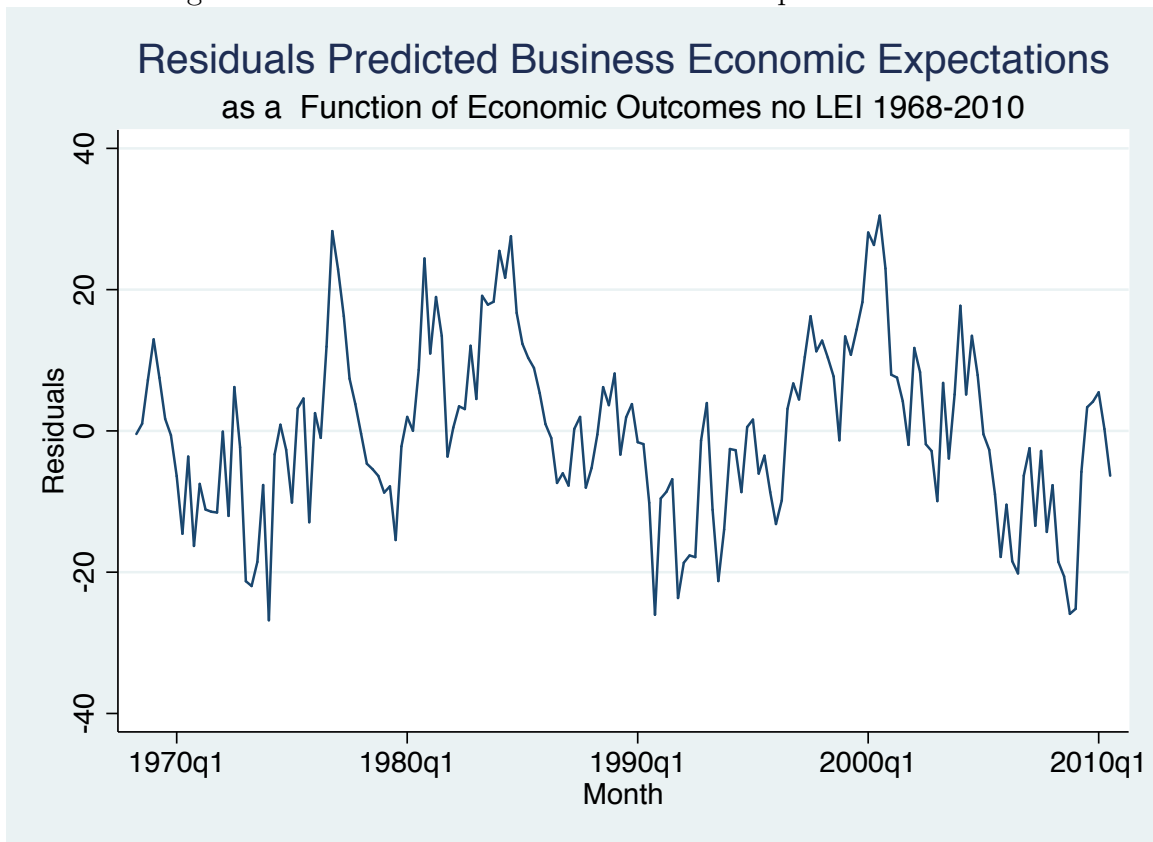


Table 2: Durr's Error Correction Specification of Domestic Policy Mood: Durr's Original 1993 Results and Supplemental Analysis

Durr Table 2					
	LEI	LEI	No LEI	No LEI	No LEI
Policy Sentiment _{t-1}	-0.67* (0.11)	-0.432* (0.089)	-0.444* (0.090)	-0.486* (0.101)	-0.184* (0.044)
Economic Expectations _{t-1}	0.26* (0.04)	0.050* (0.019)	0.050* (0.019)	0.061* (0.022)	0.017 (0.012)
Δ Economic Expectations _t	0.16* (0.07)	0.038 (0.069)	0.058 (0.069)	0.041 (0.069)	0.036 (0.052)
Policy Outcomes _{t-1}	-13.05* (2.86)	-0.078* (0.020)	-0.081* (0.020)	-0.055* (0.017)	-0.041* (0.015)
Δ Policy Outcomes _t	-14.34* (5.80)	0.058 (0.041)	0.057 (0.041)	0.035 (0.040)	0.017 (0.038)
Vietnam War _{t-1} Exponential	5.77* (2.10)	1.779 (1.338)	1.726 (1.331)		
Vietnam War _{t-1} Pulse				1.765 (1.116)	-0.596 (0.818)
Constant	40.55* (7.95)	22.297* (4.897)	23.092* (4.907)	24.845* (5.203)	11.061* (2.769)
Long Run Multipliers					
Economic Expectations	NA	0.101* (0.048)	0.098* (0.046)	0.124* (0.040)	0.093 (0.069)
Policy Outcomes	NA	-0.186* (0.030)	-0.188* (0.029)	-0.084* (0.034)	-0.154* (0.080)
RMSE	2.81	2.026	2.022	2.011	1.954
\bar{R}	.41	.225	.228	.237	.098
N	78	78	78	78	168

* $p < .05$, + $p < .10$.

Models in Columns 1-4 are estimated on Durr's original period of analysis: 1968Q2-1988Q1. The model in Column 5 is estimated over the full period of analysis 1968Q2-2010Q3.

In all models Policy Outcomes is coded 0 from 1968Q2-1975Q1 and takes the index value from 1975Q2 until the end of the analysis period.

Table 3: Erikson, MacKuen, and Stimson's Error Correction Specification of Domestic Policy Mood: Supplemental Analysis

	1968Q2 - 1988Q1	1968Q2 - 1988Q1	1968Q2 - 2010Q3	1968Q2 - 2010Q3
Policy Mood _{t-1}	-0.442*	-0.499*	-0.221*	-0.219*
	(0.094)	(0.104)	(0.047)	(0.048)
Inflation _{t-1}	-0.228*	-0.323*	-0.140*	-0.136*
	(0.099)	(0.122)	(0.059)	(0.064)
Δ Inflation _t	-0.372	-0.243	-0.221	-0.227
	(0.349)	(0.329)	(0.204)	(0.205)
Unemployment _{t-1}	-0.086	-0.104	-0.048	-0.046
	(0.273)	(0.256)	(0.110)	(0.110)
Δ Unemployment _t	0.089	0.558	0.835 ⁺	0.811
	(0.792)	(0.798)	(0.480)	(0.491)
Policy Outcomes _{t-1}	-0.079*	-0.050*	-0.037*	-0.040*
	(0.023)	(0.025)	(0.013)	(0.015)
Δ Policy Outcomes _t	0.054	0.030	0.007	0.010
	(0.042)	(0.041)	(0.036)	(0.038)
Vietnam War _{t-1} Exponential	1.585		-.147	
	(1.512)		(1.135)	
Vietnam War _{t-1} Pulse		1.972		-0.184
		(1.235)		(0.839)
Constant	29.186*	33.082*	15.556*	15.433*
	(5.913)	(6.698)	(3.012)	(3.076)
Long Run Multipliers				
Inflation	-0.502 ⁺	-0.683*	-0.595*	-0.651*
	(0.254)	(0.218)	(0.245)	(0.258)
Unemployment	-0.153	-0.138	-0.195	-0.153
	(0.717)	(0.534)	(0.504)	(0.510)
Policy Outcomes	-0.182*	-0.073	-0.180*	-0.131*
	(0.039)	(0.049)	(0.043)	(0.064)
RMSE	2.042	2.022	1.933	1.932
\bar{R}	.213	.229	.117	.117
N	78	78	168	168

* $p < .05$, + $p < .10$.

In all models Policy Outcomes is coded 0 from 1968Q2-1975Q1 and takes the index value from 1975Q2 until the end of the analysis period.