Is Economic Policy Uncertainty Related to Suicide Rates? Evidence from the United States

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Abstract

While it has long been recognised that periods of economic uncertainty, characterised by increased unemployment and lower economic activity, are associated with increased suicide rates, no study has examined the direct impact of policy-related economic uncertainty on suicide mortality. The aim of this study is to provide the first systematic evidence of a relationship between economic policy uncertainty and suicide mortality in the United states over the period 1950–2013, while controlling for several other socioeconomic determinants of suicide mortality. The results of the analysis reveal that increased economic policy uncertainty is associated with increased suicide mortality of the youngest and the oldest segments of the male population in the United States, while the female population is found to be resilient to policy-related economic uncertainty.

Keywords: United States, Economic policy uncertainty, suicide

JEL codes: E60 I31; J11; C22;

1. Introduction

It has long been recognised that periods of economic uncertainty are associated with rises in suicide (Durkheim, 1897; Morselli, 1882; Swinscow, 1951). Durkheim hypothesised that key societal forces such as social integration can be disrupted by factors related to economic downturns which consequently have an impact on suicide rates. While a large amount of studies has examined the significance of such economic factors, such as unemployment (see,

e.g. Morrell et al., 1993; Platt et al., 1992; Inoue et al., 2007; Noh, 2009; Chang et al., 2010; Kuroki, 2010; Lundin et al., 2012; Garcy and Vger, 2012; Pellegrini and Rodriguez-Monguio, 2013; Nordt et al., 2015; Webb and Kapur, 2015; Fountoulakis et al., 2015; Dos Santos, 2015; Bonamore et al., 2015; Hsu et al., 2015; Fountoulakis et al., 2015; Goldman-Mellor, 2016), income and business cycles (see, e.g. Wasserman, 1984; Ruhm, 2000; Miller et al., 2009; Gonzalez and Quast, 2010; Stuckler et al., 2011; Suhrcke and Stuckler, 2012) and fiscal austerity (Antonakakis and Collins, 2014, 2015; Branas et al., 2015), among others[1], no study, according to our knowledge, has explored the impact of policy-related economic uncertainty per se on suicide mortality.

In this study, we fill in this gap in the literature by examining the direct impact of economic policy uncertainty on suicide mortality in the United States, the latter being an important indicator of a nation's overall life-satisfaction and well being, based on a recently developed measure of economic policy uncertainty by Baker et al. (2013). In particular, it's a constructed index based on three components. The first component quantifies newspaper coverage of policy-related economic uncertainty. The second component reflects the number of federal tax code provisions set to expire in future years. The third component uses disagreement among economic forecasters as a proxy for uncertainty. As increased economic policy uncertainty can lead to adverse domestic macroeconomic circumstances, such as intensifying recessions and weakening recoveries (Baker et al., 2013), depressing investments (Kang et al., 2014; Wang et al., 2014), industrial production (Baker et al., 2013) and stock prices (Pástor and Veronasi, 2012), and reducing employment (Baker et al., 2013; Ferrara and Gurin, 2015), it can cause abrupt changes in the socioeconomic position of certain groups, who, becoming conscious that what has been expected can no longer be achieved, may be led to commit suicide. Indeed, when economic policy uncertainty has sizable negative side-effects, leading to greater inequalities, impoverishment and social isolation or pessimistic expectations about life satisfaction in the future, suicide rates might increase namely through an emotional process associated with increased insecurity or shame of economic failure. We thus hypothesize that changes in economic policy uncertainty are associated with suicide mortality. Moreover, we control for several other commonly used socioeconomic variables in this literature so as to account for other factor that can lead to suicide and control for potential omitted variable bias.

Our empirical results for age standardised male and female suicide rates in the United States over the period 1950–2013 reveal gender- and age-specificities in the impact of economic policy uncertainty on suicide mortality in the United States. In particular, increases in economic policy uncertainty are associated with significant increased male suicide rates in the youngest (15-34 age group) and the oldest (65-84 age group) segments of the population, while the female population is resilient to changes in economic policy uncertainty. For the remaining socioeconomic factors of suicide mortality, the results are very much in line with the existing literature.

The rest of this paper is organised as follows. Section 2 describes the empirical methodology and the data used. Section 3 presents the empirical results and Section 4 summarises

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[1]For a comprehensive survey of socioeconomic determinants of suicides see Chen et al. (2012).

and offers some concluding remarks.

2. Data and Methodology

2.1. Data

Data on suicide mortality between 1950 and 2010 are collected from the WHO Mortality Database and extended up to 2013 based on the CDC online database, which contains annual observations for number of deaths by country, sex, age group and death cause. Suicide rates are measured as the number of reported deaths per 100,000 inhabitants, where population data are obtained from the WHO Mortality and CDC online databases. The economic policy uncertainty index, which is a news' based index of economic policy uncertainty based on the three components discussed above, comes from Baker et al. (2013). Figure 1 show the evolution of suicide rates and economic policy uncertainty (EPU) form 1950 to 2013 by gender and age group, indicating a positive correlation between the two series. In particular, EPU, as well as suicide for certain age groups among males and females, followed an increasing trend since the 1960s till the end of the 1980s. Then a declining trend is observed in both series until 2000 which was reversed since then. Further, male suicide rates are, on average, about 4 times higher than female suicide rates, which is in line with the typical observation in the sociological literature of suicide that males are more prone to committing suicide than females (Daly and Wilson, 2006; Helliwell, 2007; Chang et al., 2013). US suicide rates are also, in general, lower among younger individuals, in line with the theoretical predictions of Durkheim (1897) and the subsequent literature. Age groups 45-54, 65-74 and 75-84 years show the highest suicide mortality rates, for both men and women.

[Insert Figure 1 around here]

Finally, to control for other socioeconomic factors on suicide rates and to minimize errors arising from unobserved effects, we collect data for fertility rates from the World Bank World Development Indicators (WDI) database; alcohol consumption from OECD Health database and divorce rates from EUROSTAT. Definitions and descriptive statistics for all these variables are included in Table 1.

[Insert Table 1 around here]

2.2. Empirical Methodology

Our baseline equation to be estimated is as follows:

$$
\begin{aligned}
SR_{it} =\ & \alpha + \beta_1 EPU_t + \beta_2 Unemp_t + \beta_3 Growth_t + \beta_4 GDP + \beta_5 Div_t + \beta_6 Alc_t \\
& + \beta_7 Fert_t + \varepsilon_t
\end{aligned}
\tag{1}
$$

where SR_{it} is the natural logarithm of suicide rates per 100,000 of i population, where $i =$ overall, male, female, over time t, where $t = 1950, ..., 2013$. EPU_t is the natural logarithm of economic policy uncertainty index of Baker et al. (2013) and measures policy-related economic uncertainty in the United States. In particular, it's a constructed index based on three

components. The first component quantifies newspaper coverage of policy-related economic uncertainty. The second component reflects the number of federal tax code provisions set to expire in future years. The third component uses disagreement among economic forecasters as a proxy for uncertainty. $Unemp_t$ is the natural logarithm of unemployment rate; $Growth_t$ denotes per capita real GDP growth; GDP_t is the natural logarithm of real per capita GDP; $Divorce_t$ is the natural logarithm of divorce rate; Alc_t is the natural logarithm of litres of per capita alcohol consumption; $Fert_t$ is the natural logarithm of fertility rate and ε_t is the error term which is assumed to be independently and identically distributed (IID) with zero mean and variance σ^2 for all t.

3. Estimation results

The results of model (1) for the overall, male and female population across all ages, are presented in Table 2. According to these results, economic policy uncertainty is significantly associated with increased suicide rates in the US only for the male population across all ages, while the female population is relatively insulated to economic policy uncertainty. The fact that economic policy uncertainty may lead to worsened employment position, increased financial insecurity and greater fear of job loss can be expected to produce more psychological pressure on men than on women, given that men are on average the primary household-income providers. In particular a 1% increase in economic policy uncertainty is associated with a 18.52% in male suicide rates in the US. A similar pattern is observed for unemployment, which is statistical and positive significant only for the male population across all ages in the US. A 1% increase in unemployment corresponds to 9.65% increase in male suicide rates. Annual economic growth is predicted to significantly increase male suicide rates. At first this might seem contradictory, however, it is in line with the findings of Ruhm (2000), who shows that short-lasting economic expansions increase suicide mortality in the US. Higher GDP (income) is significantly associated with lower suicide rates among both sexes of all ages. The results related to divorce rates reveal opposing effects to suicide rates across the male and female population in the US. Specifically, divorce rates suggest suicide-increasing effects for the male population, while suicide reducing effects for the female population. This may seem plausible if marriage serves to over-regulate the lives of women. In that case, increasing divorce rates may be, among others, the result of financial independence for women, laws favouring women in financial settlements and women's search for identity and freedom. Therefore, divorce rates may be associated with lower female suicide rates (see, for instance, Neumayer, 2003; Koo and Cox, 2008; Antonakakis and Collins, 2014, among others). Fertility rates (a proxy for social inclusion) and alcohol consumption are also significant predictors of female suicides. In particular, increases in fertility rates have significant suicide-reducing effects, while increases in alcohol consumption significant suicide increasing effects in the female population in the US.

[Insert Table 2 around here]

To what extent there are differences in the impact of economic policy uncertainty on suicides across age groups? And to what extent these differences also apply to genders? To

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answer these questions we now turn, by re-estimating model (1) with disaggregated gender-suicide-data for seven age groups, namely 15-24, 25-34, 35-44, 45-54, 55-64, 65-74 and 75-84 years and across genders. These results are presented in Tables 3-5.

[Insert Table 3-5 around here]

Tables 3-5 suggest age-specific differences in the impact of economic policy uncertainty on suicidal behaviour. In particular, we observe that economic policy uncertainty is significantly associated with increased male suicide rates only for the younger segments (15-34) and the older segments (65-84) of the US male population, while the female population is found to be resilient to changes in economic policy uncertainty. The fact that only younger and older males are affected by economic policy uncertainty could be due to increased insecurity of young entrepreneurs entering the labour market and to uncertainty about pensions, respectively. Increased unemployment leads to significant increases in male suicide rates between the 35-64 age group and female suicide rates in the 45-64 age group (e.g. the middle aged, and those close to pension). Higher economic growth is significantly associated with higher male suicide rates between 25-34 and 65-84, while with lower male suicide rates between 45-54. Females seem to be resilient to variations in economic growth. Higher GDP is significantly associated with lower male suicide rates in the 25-34 and 55-84 age groups, while in the female population is significantly associated with suicide rates among all age groups. Higher divorce rates significantly increase male suicide rates for the younger segments (15-34) and the older segments (65-84) of the US population, while reduce suicide rates of the middle-aged (35-64) males and middle-aged (25-64) females. The effects of changes in alcohol consumption on changes in suicide rates differ by gender and age group, which demonstrates that focusing on the total population alone can mask divergent effects that can cancel each other out when subgroups are combined. In particular, increases in alcohol consumption are associated with increased male suicides rates in the 55-64 age group and increased female suicides rates in the 45-64 age group, while reduced male suicide rates in the 35-44 age group. Finally, higher fertility leads to lower suicide rates of males in the 35-44 age group and lower suicide rates of the most fertile female population (i.e. those in the 15-54 age-groups).

Given that the economic policy uncertainty variables might be correlated with the unemployment rate, economic growth and income (Jones and Olson, 2013; Colombo, 2013), which in turn could result in problems of multi-collinearity, we have re-estimated model (1) by: (i) including economic policy uncertainty uncertainty as the only explanatory:

$$SR_{it} = \alpha + \beta_1 EPU_t + \varepsilon_t \tag{2}$$

and (ii) including economic policy uncertainty uncertainty, along with the rest of the socio-demographic variables (i.e alcohol consumption, divorce rates and fertility rates), however with the rest of the economic variables excluded from the model as:

$$SR_{it} = \alpha + \beta_1 EPU_t + \beta_2 Div_t + \beta_3 Alc_t + \beta_4 Fert_t + \varepsilon_t \tag{3}$$

The results based on models (2) and (3), which are available from the authors upon request, suggest qualitatively very similar effects of economic policy uncertainty on suicide mortality compared to those obtained from model (1) and, as such, provide additional robustness to our main findings.

4. Summary and Concluding Remarks

While it has long been recognised that periods of economic uncertainty, characterised by increased unemployment and lower economic activity, are associated with increased suicide rates, no study has examined the direct impact of policy-related economic uncertainty on suicide mortality. In this study we examine whether policy-related economic uncertainty has a direct impact on suicide mortality in the United States over the period 1950–2013, while controlling for several other socioeconomic determinants of suicide mortality. The results of the analysis reveal that increased economic policy uncertainty is associated with increased suicide mortality of the youngest and the oldest segments of the male population in the United States, while the female population is found to be resilient to policy-related economic uncertainty.

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Figure 1: Suicide rates per 100,000 residents (%) and Economic policy uncertainty in the United States, 1950–2013
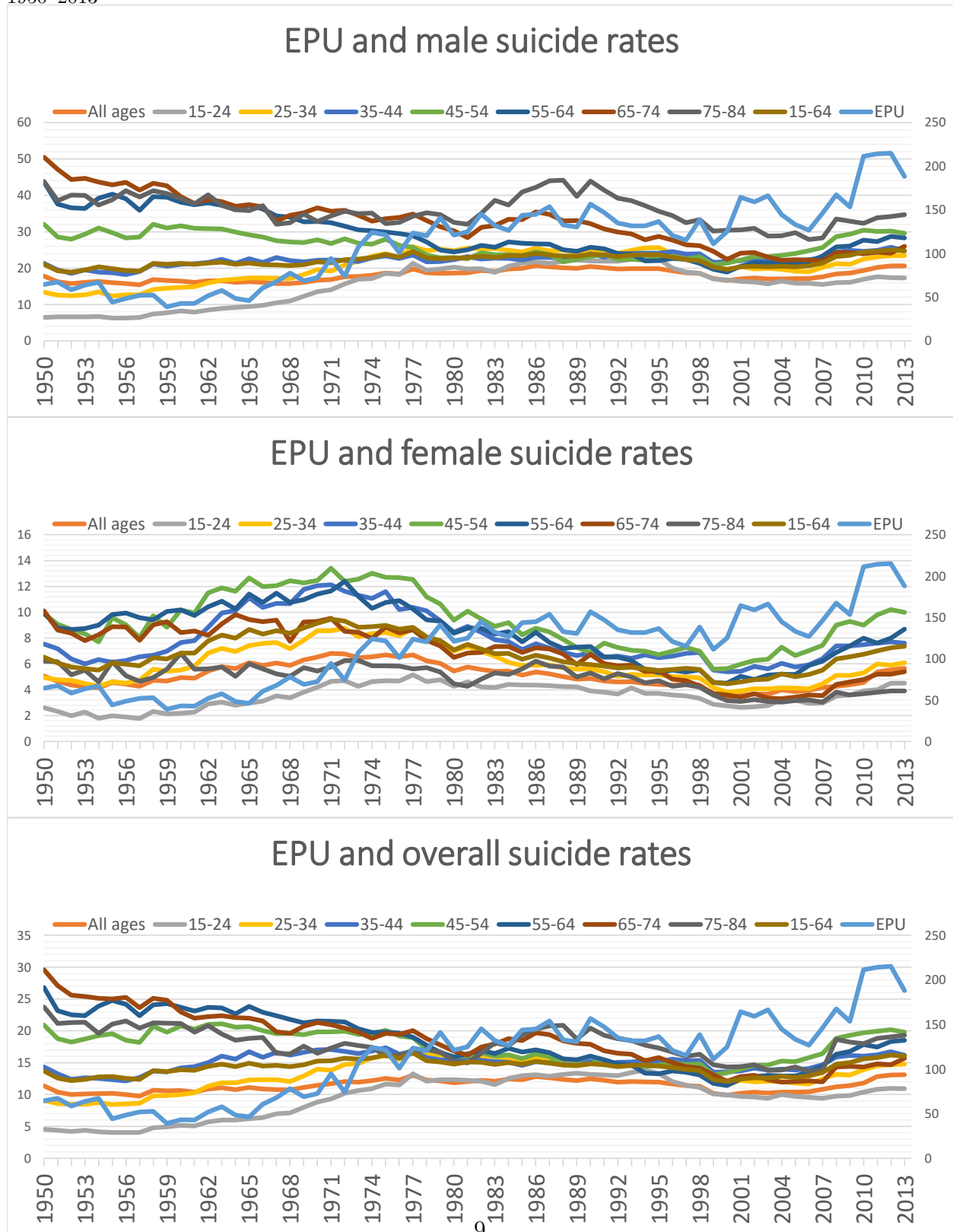
Note: Suicide rates (left axis); EPU (right axis).
Source: WHO, CDC and Baker et al. (2013).

Table 1: Variable definitions and descriptive statistics

Variable		Definition	Expected Signs	Availability	Obs.	Mean	Std.	Min.	Max.
Suicide rate	**Overall**	Overall suicide rates (deaths per 100,000 people)							
	All ages			1950-2013	64	11.39583	0.9394409	9.760564	13.13046
	15-64	-/-		1950-2013	64	14.2983	1.168958	12.0323	16.5395
	15-24	-/-		1950-2013	64	9.490627	3.15893	4.035516	13.78854
	25-34	-/-		1950-2013	64	13.16315	2.481288	8.409575	17.21876
	35-44	-/-		1950-2013	64	15.04194	1.323373	12.12502	17.35501
	45-54	-/-		1950-2013	64	17.61268	2.413739	13.09132	21.11691
	55-64	-/-		1950-2013	64	18.39565	4.120159	11.40695	26.81476
	65-74	-/-		1950-2013	64	18.62576	4.324647	11.92625	29.58034
	75-84	-/-		1950-2013	64	18.02337	2.383854	13.64309	23.71771
	Male	Male suicide rates (deaths per 100,000 people)							
	All ages			1950-2013	64	17.96482	1.606388	15.41786	20.70598
	15-64	-/-		1950-2013	64	22.03055	1.593001	18.89641	25.08
	15-24	-/-		1950-2013	64	15.36228	5.450115	6.255489	23.44746
	25-34	-/-		1950-2013	64	20.44419	4.37183	12.36734	25.86536
	35-44	-/-		1950-2013	64	22.32312	1.621569	18.21075	25.7
	45-54	-/-		1950-2013	64	26.24679	3.286976	20.93823	32.05233
	55-64	-/-		1950-2013	64	29.19588	6.457036	18.88306	43.62822
	65-74	-/-		1950-2013	64	32.69787	7.08174	21.94847	50.47467
	75-84	-/-		1950-2013	64	35.86978	4.193791	27.90842	44.14298
	Female	Female suicide rates (deaths per 100,000 people)							
	All ages			1950-2013	64	5.082131	0.9227098	3.474126	6.822641
	15-64	-/-		1950-2013	64	6.754747	1.362217	4.450997	9.456391
	15-24	-/-		1950-2013	64	3.50256	0.9110156	1.765607	5.158654
	25-34	-/-		1950-2013	64	5.952274	1.443787	3.811435	8.774343
	35-44	-/-		1950-2013	64	7.947333	1.955453	5.39207	12.13671
	45-54	-/-		1950-2013	64	9.313271	2.181941	5.589165	13.41113
	55-64	-/-		1950-2013	64	8.384417	2.153352	4.513304	12.38218
	65-74	-/-		1950-2013	64	6.882939	2.041012	3.308142	10.10148
	75-84	-/-		1950-2013	64	4.917183	1.004528	3.0378	6.81778
EPU		Economic Policy Uncertainty index of Baker et al. (2013)	+	1950-2013	64	112.4829	46.19861	39.00932	215.1006
GDP		per capita real GDP	-/+	1950-2013	64	7747.217	4256.94	2184	15583.3
Growth		Growth rate of per capita real GDP (%)	-/+	1951-2013	63	3.12381	2.24842	-2.8	7.8
Unemployment	Total	Unemployment rate (% of total labor force)	+	1950-2013	64	5.860937	1.646123	2.9	9.7
Fertility		Fertility rate (births per woman)	-	1960-2012	54	2.158602	0.4822895	1.738	3.654
Alcohol		Per capita alcohol consumption (litres, age 15+)	+/-	1960-2012	53	9.05283	0.8115994	7.8	10.4
Divorce		Divorce rates (per 1,000 people)	+/-	1950-2012	63	3.76127	1.051649	2.12	5.3

Table 2: Economic policy uncertainty and suicide rates (per 100,000 resident), by sex in the United States, 1950–2013

	(1)	(2)	(3)
Gender	Overall	Male	Female
Age	All	All	All
EPU	0.1574**	0.1852***	0.0710
	(0.0679)	(0.0639)	(0.1216)
Unemployment	0.0905**	0.0965***	0.0885
	(0.0408)	(0.0353)	(0.0751)
Growth	0.0050*	0.0066**	0.0010
	(0.0027)	(0.0026)	(0.0062)
GDP	-0.1581***	-0.0940**	-0.3906***
	(0.0397)	(0.0364)	(0.0865)
Divorce	0.0255	0.1974**	-0.4648**
	(0.0876)	(0.0742)	(0.2082)
Alcohol	-0.0863	-0.2710	0.5834*
	(0.1925)	(0.1839)	(0.3461)
Fertily	-0.1139	0.1085	-0.7788**
	(0.1634)	(0.1720)	(0.2930)
Constant	3.1804***	2.9193***	4.5603***
	(0.8117)	(0.8219)	(1.4902)
Observations	53	53	53
R^2	0.694	0.785	0.846
R^2 adjusted	0.647	0.752	0.822
F-statistic	15.84	38.50	23.78

Note: Heteroscedasticity and autocorrelation (HAC) adjusted standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 3: Economic policy uncertainty and overall suicide rates (per 100,000 resident), by sex and age-group in the United States, 1950–2013

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age	15-24	25-34	35-44	45-54	55-64	65-74	75-84
EPU	0.2510**	0.1451**	-0.0044	-0.0375	0.0856	0.1954*	0.3689**
	(0.1031)	(0.0711)	(0.0660)	(0.0944)	(0.1079)	(0.1087)	(0.1586)
Unemployment	-0.0357	0.0489	0.0386	0.2043***	0.1874***	0.0716	0.1253*
	(0.0703)	(0.0452)	(0.0390)	(0.0638)	(0.0663)	(0.0590)	(0.0736)
Growth	0.0069	0.0027	-0.0066*	-0.0084	-0.0001	0.0088	0.0137
	(0.0046)	(0.0037)	(0.0038)	(0.0052)	(0.0050)	(0.0063)	(0.0084)
GDP	-0.1399	-0.2367***	-0.1322**	-0.1177	-0.2949***	-0.4751***	-0.2707**
	(0.0839)	(0.0567)	(0.0555)	(0.0959)	(0.0867)	(0.0798)	(0.1014)
Divorce	0.7452***	0.1754**	-0.3077***	-0.7670***	-0.6776***	0.0018	0.1229
	(0.1609)	(0.0828)	(0.0972)	(0.2032)	(0.1881)	(0.1289)	(0.1588)
Alcohol	-0.5002	-0.2313	-0.0930	0.4049	0.7441***	0.0824	-0.2647
	(0.4148)	(0.2796)	(0.2287)	(0.2721)	(0.2715)	(0.3101)	(0.3547)
Fertily	-0.2711	-0.4393**	-0.5960***	-0.6104*	-0.2257	0.1562	0.5913
	(0.3148)	(0.1951)	(0.1690)	(0.3136)	(0.2871)	(0.2664)	(0.3664)
Constant	2.7082	4.5636***	4.9600***	4.3452***	4.1901***	5.7062***	3.2316*
	(1.7132)	(1.1458)	(0.9568)	(1.5775)	(1.3790)	(1.3537)	(1.6685)
Observations	53	53	53	53	53	53	53
R^2	0.937	0.862	0.541	0.806	0.897	0.892	0.467
R^2 adjusted	0.928	0.841	0.470	0.776	0.881	0.876	0.384
F-statistic	104.4	37.04	6.703	49.00	76.81	43.21	8.268

Note: Heteroscedasticity and autocorrelation (HAC) adjusted standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 4: Economic policy uncertainty and male suicide rates (per 100,000 resident), by sex and age-group in the United States, 1950–2013

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age	15-24	25-34	35-44	45-54	55-64	65-74	75-84
EPU	0.2687**	0.1838**	0.0523	-0.0238	0.1133	0.1922*	0.4022***
	(0.1086)	(0.0696)	(0.0464)	(0.0812)	(0.0921)	(0.0966)	(0.1490)
Unemployment	-0.0466	0.0540	0.0577**	0.2052***	0.1630***	0.0094	0.0342
	(0.0706)	(0.0436)	(0.0248)	(0.0499)	(0.0554)	(0.0473)	(0.0636)
Growth	0.0067	0.0052*	-0.0031	-0.0074*	0.0016	0.0105*	0.0174**
	(0.0048)	(0.0030)	(0.0023)	(0.0039)	(0.0043)	(0.0053)	(0.0074)
GDP	-0.1170	-0.1727***	-0.0506	-0.0358	-0.2873***	-0.4572***	-0.2761***
	(0.0910)	(0.0567)	(0.0363)	(0.0807)	(0.0742)	(0.0615)	(0.0801)
Divorce	0.8920***	0.3774***	-0.1055**	-0.6245***	-0.5772***	0.1780*	0.4320***
	(0.1880)	(0.0830)	(0.0511)	(0.1700)	(0.1569)	(0.1051)	(0.1492)
Alcohol	-0.6719	-0.4679	-0.3770**	0.1853	0.4551*	-0.0619	-0.1866
	(0.4202)	(0.2801)	(0.1641)	(0.2326)	(0.2456)	(0.2583)	(0.3151)
Fertily	-0.1857	-0.2769	-0.2834**	-0.3422	-0.1055	0.2623	0.2773
	(0.3507)	(0.2135)	(0.1280)	(0.2764)	(0.2487)	(0.2395)	(0.3594)
Constant	3.0318	4.3561***	4.4235***	4.0239***	4.8979***	6.2355***	3.1677**
	(1.8258)	(1.1946)	(0.7133)	(1.3704)	(1.2043)	(1.1514)	(1.4977)
Observations	53	53	53	53	53	53	53
R^2	0.944	0.905	0.561	0.800	0.906	0.904	0.544
R^2 adjusted	0.936	0.890	0.493	0.769	0.891	0.889	0.473
F-statistic	139.9	56.30	7.317	81.59	78.53	59.72	7.142

Note: Heteroscedasticity and autocorrelation (HAC) adjusted standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 5: Economic policy uncertainty and female suicide rates (per 100,000 resident), by sex and age-group in the United States, 1950–2013

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age	15-24	25-34	35-44	45-54	55-64	65-74	75-84
EPU	0.1693	0.0268	-0.1234	-0.0715	0.0224	0.2226	0.2578
	(0.1434)	(0.1430)	(0.1469)	(0.1413)	(0.1532)	(0.1719)	(0.1595)
Unemployment	0.0886	0.0827	0.0241	0.1976*	0.2074**	0.1362	0.0388
	(0.0939)	(0.0848)	(0.0925)	(0.0982)	(0.0918)	(0.1028)	(0.0880)
Growth	0.0058	-0.0062	-0.0138	-0.0094	-0.0024	0.0087	0.0133
	(0.0077)	(0.0087)	(0.0092)	(0.0087)	(0.0072)	(0.0093)	(0.0086)
GDP	-0.2576***	-0.5161***	-0.3956***	-0.3618***	-0.3778***	-0.7927***	-0.6844***
	(0.0925)	(0.1102)	(0.1305)	(0.1328)	(0.1122)	(0.1281)	(0.0961)
Divorce	-0.0887	-0.5398**	-0.8307***	-1.0878***	-0.8132***	-0.1755	0.2105
	(0.1653)	(0.2369)	(0.2639)	(0.2808)	(0.2494)	(0.2374)	(0.1783)
Alcohol	0.5896	0.5767	0.7115	1.0084**	1.6945***	0.4387	-0.5687
	(0.4939)	(0.4246)	(0.4816)	(0.4162)	(0.3519)	(0.5400)	(0.4370)
Fertily	-0.7406**	-1.0808***	-1.3607***	-1.2823***	-0.4830	-0.2257	-0.1569
	(0.3061)	(0.3579)	(0.4108)	(0.4250)	(0.3796)	(0.4264)	(0.3818)
Constant	2.0108	6.4322***	6.7879***	5.6877**	2.7195	7.0434***	7.4285***
	(1.8142)	(1.8871)	(2.1882)	(2.1753)	(1.7836)	(2.1988)	(1.8308)
Observations	53	53	53	53	53	53	53
R^2	0.791	0.863	0.833	0.856	0.899	0.897	0.807
R^2 adjusted	0.759	0.842	0.807	0.834	0.883	0.881	0.776
F-statistic	29.94	26.24	18.77	24.51	61.95	35.14	25.25

Note: Heteroscedasticity and autocorrelation (HAC) adjusted standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$