

Growing Cities are Happier than Shrinking Cities

Adam Okulicz-Kozaryn*

Rutgers - Camden

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CP to results and conclusion:

This is only second study on the topic after Delken (2008), such gap in the literature is remarkable.

A remarkable result is strength of the relationship –population correlates higher than crime and income– Remarkably about 50 percent more—and hold in regressions controlling for person level and county level predictors of SWB. so Relative effects are very large as compared to other county level predictors even as important as crime or income level, but absolute effects as those other ecological vars, are small, 10 percent increase in population size leads to little additional happiness about .1 or .2 increase on 1-5 SWB scale (check if 1-5)

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Urbanization is rampant: according to UN, urban population exploded from 30% in 1950 to 50% in 2005, and is projected to grow to 70% in 2050. Yet, many cities shrink. There is much research on urbanization and swb as recently summarized by Okulicz-Kozaryn and Valente (2021). But we know very little about the effect of population growth/decline of a place on swb, hence, the present study.

The US is a land of inequalities, not just income, but also population growth and shrinkage. Take for instance two counties, where one of the authors of this study inhabited: Collin county TX, a northern suburb of Dallas– it mushroomed sevenfold over just 4 decades, from 150k in 1980 to 1m in 2019. Or take my current county, Camden County NJ, which over the same period stayed flat, and the county seat, city of Camden shrank about 40% over several decades, from its height of 125k in 1950 to 72k in 2020. These two counties, Collin TX and Camden NJ tell a story similar to many other counties: sunny, spacious and affordable South aka “Sunbelt” grows often at mind boggling pace, and gritty crowded and expensive North East aka “Rustbelt” stays flat or shrinks.

Many counties in the US shrink, and desperate to regain population, even offering \$15,000 to move in (Block 2021).

Largest American cities are not growing or even shrinking recently (THOMPSON 2019).

There is much research on population size and SWB as recently summarized in Okulicz-Kozaryn and Valente (2021), but there is very little research on population change and SWB. Google scholar queries such as “population change and happiness” “city growth and happiness” “population growth and happiness” “population decline and happiness” do not yield relevant literature except shrinking city and happiness.

A study definitely closest to ours and hence most relevant is master thesis written under the direction of the “happiness grandfather,” Ruut Veenhoven (Delken 2008). The thesis offers a different similar conclusion: “Overall satisfaction with life appears not to be lower in shrinking cities and satisfaction with several domains of life even higher. This is not because inhabitants are unaware of the situation of their city, since they appear to be more concerned about job-chances and crime.” We agree that job-chances and crime are critical for happiness, possibly the most important ecological variables when it comes to place growth or shrinkage. Delken (2008) assumes three scenarios for cities: *growing* $\geq 3\%$, $-3\% < \text{stable} > 3\%$, $3\% < \text{shrinking}$.

An advantage of Delken (2008) over our study is domain satisfaction—we only have global life satisfaction. But we have multiple advantages. A notable structural reason is that Delken (2008) is about Germany, and our study is about the US—US is more dynamic country in terms of population dynamics than Germany.

*EMAIL: adam.okulicz.kozaryn@gmail.com

I thank XXX. All mistakes are mine.

The bottomline: sizeable literature on shrinkage eg Hollander (2011) and Hartt (2019), but only Delken (2008) looks at swb. Hence, the gap in the literature is remarkable.

Hartt (2019) makes a similar point to Delken (2008)– people can live happily in shrinking cities, but Hartt (2019) does not use swb measure and uses instead other proxies.

Per shrinking cities Hollander is perhaps the most prolific scholar in this area. Hollander (2011) argues similarly: cities can shrink successfully, even uses term “smart decline”: decline in quality of life and shrinkage are not always the case.

Hence, the bottomline is that there is some related research to the population growth-swb nexus, but only one study Delken (2008) uses SWB measure.

One other study uses SWB measure–Glaeser et al. (2016) similarly to our study uses brfss data and finds positive effect of population growth on SWB. There are, however, multiple problems with Glaeser et al. (2016): Glaeser et al. (2016) analyses US counties, but retains only cities and drops all other areas. In addition, the analysis is saturated with many controls, and by adding state-fixed effects, which correlates with population size and change, the relationship flips from a negative to a positive correlation with urbanicity. We consider modeling in Glaeser et al. (2016) to be deeply flawed, and hence consider Delken (2008) to be the only study in the area that employs appropriate methods.

0.1 Other Studies

maybe merge with previous sec

Then there are other studies that are somewhat related:

Goetzke and Islam (2017) and Barreira et al. (2019) flip the relationship to argue that unhappiness predicts population decline or happiness predicts population growth. Such approach is clearly disjoint from the present study.

Park et al. (2021) offers a novel approach using Twitter data, but the research is conducted for one city only, but we would like to note that data from social media holds much promise for the future research.

Finally, Chen et al. (2019) finds that shrinking or as they term “hollowing” rural areas are not less happy, however, –it’s disjoint from present research–China is different culture with unique migration patterns.

1 Theory

per there not really much regarding shrinking or growing itself: none of the 5 major happiness theories:

- genes/set point (eg Schnitker 2008)
- adaptation/adjustment; hedonic treadmill (Brickman et al. 1978)
- needs/livability (Veenhoven and Ehrhardt 1995)
- comparison/discrepancies (Michalos 1985)
- happiness just a motivator (Carver and Scheier 1990) (rather momentary affective happiness than global cognitive life satisfaction)

if anything signballing, it’s visually explained with so called tunnel effect–humans think that whatever happens to others, whether things get better or worse, will eventually happen to them, too. Hence, if a place grows, there are positive connotations; if it shrinks, it’s negative. This is so-called ‘tunnel effect’:

Suppose that I drive through a two-lane tunnel, both lanes going in the same direction, and run into a serious traffic jam.

No car moves in either lane as far as I can see (which is not very far). I am in the left lane and feel dejected. After a while

the cars in the right lane begin to move. Naturally my spirits lift considerably, for I know the jam has been broken and that my lane's turn to move will surely come at any moment now. Even though I still sit still, I feel much better off than before because of the expectation that I shall soon be on the move. (Hirschman, quoted in Ravallion and Lokshin 2000, p. 88)

so in a sense tunnel effect is related to MDT—if by comparison the area is doing well (growing as opposed to shrinking), then a person is happier. Although there can also be negative effects of others doing better, *shadenfreude*, neighbors as negatives *luttmer* for that adjust that be together with rich among poor.

notably opportunity and jobs—hence important to control for that—we get income and unemployment at person level; and ecological level we got low employment per capita personal income

2 Data and Method

boilerplate from joanie paper

do keep in mind that only have like 10% of us counties compared from ipynb here

Table 1: Variable definitions.

name				description			
person-level variables:							
income				"Is your annual household income from all sources:"			
married or member of an un-married couple				"marital status; Are you:"			
unemployed				"Are you currently: Out of work"			
age				age			
White				White			
education level				"What is the highest grade or year of school you completed?"			
soc/emo support				"How often do you get the social and emotional support you need? " BRFSS			
county-level variables:							
crime rate index				"Index crime rate (per 100,000 persons), 2004"			
persistent poverty				"20 percent or more of residents were poor as measured by each of the last 4 censuses, 1970, 1980, 1990, and 2000"			
% Black				"percent Black, 2005"			
low education				"25 percent or more of residents 25-64 years old had neither a high school diploma nor GED in 2000."			
housing stress				"30 percent or more of households had one or more of these housing conditions in 2000: lacked complete plumbing, lacked complete kitchen, paid 30 percent or more of income for owner costs or rent, or had more than 1 person per room."			
low employment				"Less than 65 percent of residents 21-64 years old were employed in 2000."			
population loss				"Number of residents declined both between the 1980 and 1990 censuses and between the 1990 and 2000 censuses."			
pers. inc. (USD 1,000)/cap				"per capita personal income (USD 1,000), 2005"			
population	percent	change		from county characteristics ICPSR file			
2000-2005							
population	percent	change		popGro00	$10=100*((\text{census2010pop}-\text{pop00})/\text{pop00});$	var	census2010pop
2000-2010				from	https://www2.census.gov/programs-surveys/popest/datasets/2000-2010/intercensal/county/co-est00int-tot.csv		
population	percent	change		popGro90	$00=100*((\text{pop00}-\text{apr1 1990Pop})/\text{apr1 1990Pop});$	var	apr1 1990Pop
1990-2000				from	https://www2.census.gov/programs-surveys/popest/datasets/1980-1990/counties/totals/comp8090.zip		
population				"census 2000 total resident population"			

3 Results

1

2

Auxiliary descriptive statistics is available online at several grew by 30% or more https://colab.research.google.com/drive/1fFzDc73LbGAC-G6_I58FV1fH691NAs7_?usp=sharing. Over just 5 years from 2000 to 2005 several counties shrank by about 5% and several grew by about 10%. Over 10 years 1990-2000 or 2000-2010 several counties shrank by 30% or more and several grew by more than 50%.

in 2 we see that cp from ipynb Nb. obs. : 376

Table 2: Cross-correlation table. All correlations bigger than .1 are also statistically significant at .05.

Variables	population percent change 2000-2005	crime rate index	% Black	housing stress	low employment	population loss	pers. inc. (USD 1,000)/cap	swb
population percent change 2000-2005	1.00							
crime rate index	-0.17	1.00						
% Black	-0.21	0.48	1.00					
housing stress	0.04	0.20	0.10	1.00				
low employment	0.09	0.04	0.03	0.18	1.00			
population loss	-0.27	0.18	0.27	-0.01	0.05	1.00		
pers. inc. (USD 1,000)/cap	-0.18	-0.17	0.00	0.05	-0.27	-0.04	1.00	
swb	0.39	-0.25	-0.24	-0.13	-0.18	-0.29	0.22	1.00

ya so as per hollander delken and haart: shhirkage does not alsway mean poor qol, and so we find outliers: enumerate them

	a0	a1	a2	a3	a4
population percent change 2000-2005	0.04***	0.02***	0.02***	0.02***	0.02***
income		0.09***	0.09***	0.09***	0.09***
married or member of an unmarried couple		0.11***	0.11***	0.11***	0.11***
unemployed		-0.06***	-0.06***	-0.06***	-0.06***
age		-0.20***	-0.21***	-0.21***	-0.21***
age squared		0.29***	0.30***	0.30***	0.30***
White		-0.04***	-0.04***	-0.04***	-0.04***
education level		-0.01+	-0.02*	-0.02*	-0.02*
soc/emo support		0.32***	0.31***	0.31***	0.31***
general health		0.23***	0.23***	0.23***	0.23***
crime rate index			0.02**	0.02**	0.01*
persistent poverty			0.00	0.00	0.00
% Black			-0.02**	-0.01*	-0.01
low education				0.01	0.02
housing stress				-0.01	-0.00
low employment				-0.01	-0.01
population loss				-0.00	-0.00
pers. inc. (USD 1,000)/cap				0.01	0.02**
population density per sq mile, 05-09 * 1,000,000					-0.02**
population					-0.01
N	163656	138453	132677	131657	131657
+ 0.10 * 0.05 ** 0.01 *** 0.001					

Table 3: OLS beta (fully standardized) regressions of SWB: population percent change 2000-2005

effect sizes large, of course smaller than say person level unemployment but about as large as or larger than county level crime level

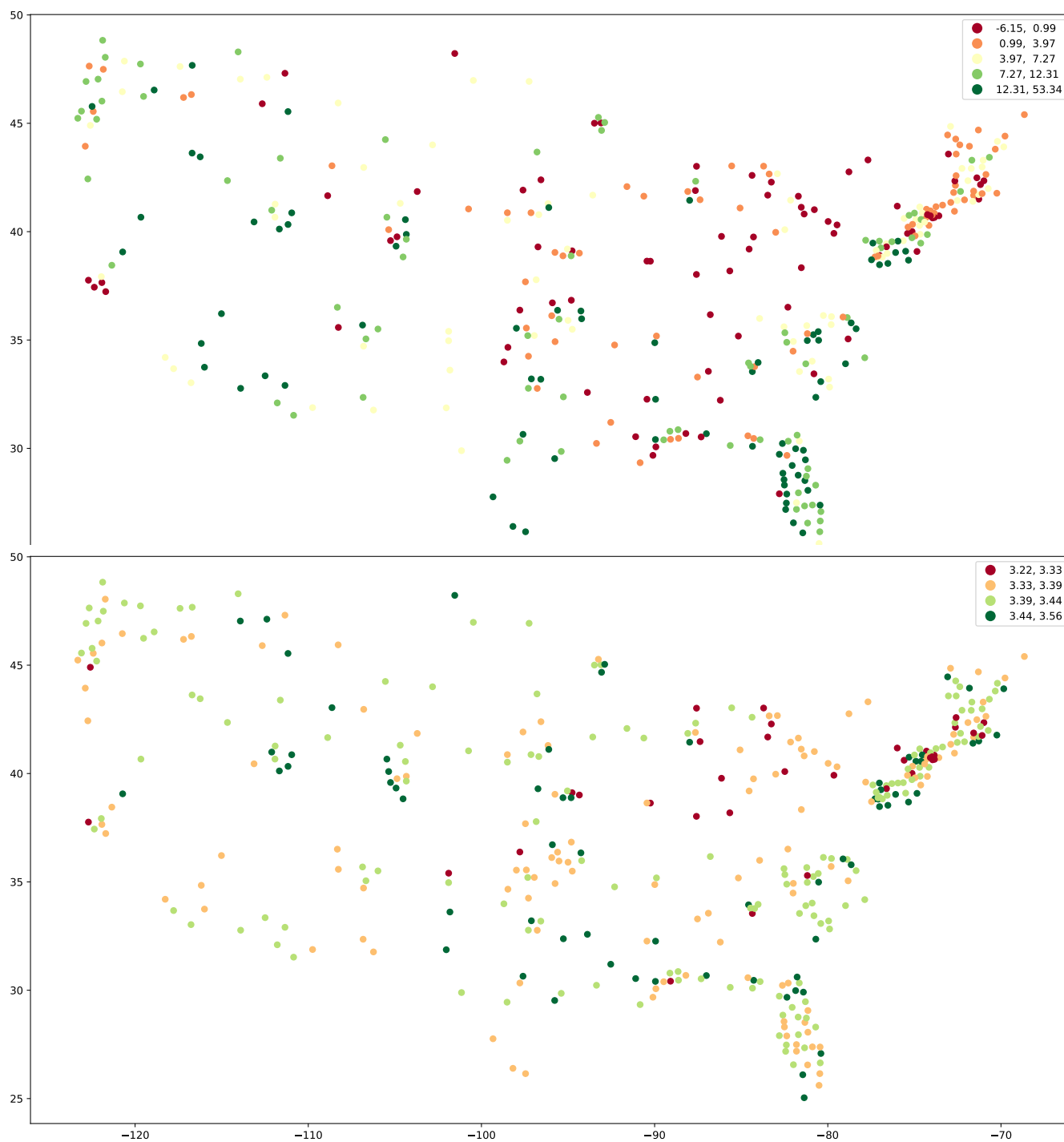
3

¹for descriptive statistics at county level we take means by county and over 2005-2010

²for regression analyses we only use data for 2005; all regressions use brfss-smart county weight variable “_cntywt”

³note that standardization does not sure robust cluster options—the beta fully standardized coefficients are useful for comparison, but their standard errors do not account for heteroscedascity and clustering at county level –however, the differences are negligible –see SOM for models with clustered standard errors (and without beta option).

Figure 2: Thematic maps across counties of population percent change 2000–2005 in 1st panel (quantiles) and SWB (natural breaks) in 2nd panel. X and Y axes are labelled with longitude and latitude. Points are labelled in figure ??, and all counties along with values on key variables are set in Supplementary Online Material (SOM).



Discussion and future research

LATER there is like pop change back to 80s alsoredy in these data

yes as per lit delken hollander hart, shhirkage does not mean low QOL, and so we find many outliers...

TODO: have separate som-r.tex as opposed to having it below; and in paper say see supplementary material as opposed to see appendix!

ONLINE APPENDIX

[note: this section will NOT be a part of the final version of the manuscript, but will be available online instead]

The whole section is available at https://colab.research.google.com/drive/1fFzDc73LbGAC-G6_I58FV1fH691NAs7_?usp=sharing

4 Robustness Checks: Additional Regression Models

	a0rc	a1rc	a2rc	a3rc	a4rc
population percent change 2000-2005	0.004***	0.002***	0.002***	0.002***	0.002***
income		0.025***	0.026***	0.026***	0.025***
married or member of an unmarried couple		0.139***	0.140***	0.140***	0.140***
unemployed		-0.168***	-0.167***	-0.167***	-0.166***
age		-0.008***	-0.008***	-0.008***	-0.008***
age squared		0.000***	0.000***	0.000***	0.000***
White		-0.056***	-0.056***	-0.055***	-0.056***
education level		-0.008	-0.011*	-0.011*	-0.011*
soc/emo support		0.185***	0.184***	0.184***	0.184***
general health		0.134***	0.136***	0.135***	0.135***
crime rate index			0.000*	0.000*	0.000*
persistent poverty			0.012	0.025	0.018
% Black			-0.001*	-0.001	-0.000
low education				0.023*	0.041
housing stress				-0.008	-0.002
low employment				-0.028	-0.024
population loss				-0.006	-0.006
pers. inc. (USD 1,000)/cap				0.000	0.001**
population density per sq mile, 05-09 * 1,000,000					-1.436**
population					-0.000
constant	3.352***	2.057***	2.056***	2.037***	2.019***
N	163656	138453	132677	131657	131657
+ 0.10 * 0.05 ** 0.01 *** 0.001; clustered robust std err					

Table 4: OLS (robust cluster) regressions of SWB: population percent change 2000–2005

	b0	b1	b2	b3	b4
population percent change 2000-2010	0.041***	0.022***	0.019***	0.023***	0.023***
income		0.087***	0.088***	0.087***	0.086***
married or member of an unmarried couple		0.106***	0.107***	0.107***	0.107***
unemployed		-0.058***	-0.058***	-0.058***	-0.057***
age		-0.200***	-0.209***	-0.209***	-0.209***
age squared		0.290***	0.300***	0.300***	0.300***
White		-0.044***	-0.043***	-0.042***	-0.043***
education level		-0.015+	-0.020*	-0.020*	-0.019*
soc/emo support		0.316***	0.315***	0.315***	0.315***
general health		0.226***	0.229***	0.229***	0.228***
crime rate index			0.014*	0.014*	0.010+
persistent poverty			0.003	0.005	0.004
% Black			-0.017**	-0.011+	-0.004
low education				0.015	0.021
housing stress				-0.005	-0.000
low employment				-0.015	-0.011
population loss				-0.002	-0.003
pers. inc. (USD 1,000)/cap				0.006	0.016*
population density per sq mile, 05-09 * 1,000,000					-0.021**
population					-0.005
constant	***	***	***	***	***
N	163656	138453	132677	131657	131657
+ 0.10 * 0.05 ** 0.01 *** 0.001					

Table 5: OLS beta (fully standardized) regressions of SWB: population percent change 2000–2010

	b0rc	b1rc	b2rc	b3rc	b4rc
population percent change 2000-2010	0.002***	0.001***	0.001***	0.001***	0.001***
income		0.026***	0.026***	0.026***	0.025***
married or member of an unmarried couple		0.139***	0.140***	0.140***	0.140***
unemployed		-0.168***	-0.167***	-0.167***	-0.166***
age		-0.008***	-0.008***	-0.008***	-0.008***
age squared		0.000***	0.000***	0.000***	0.000***
White		-0.057***	-0.057***	-0.055***	-0.056***
education level		-0.008+	-0.011*	-0.011*	-0.011*
soc/emo support		0.185***	0.184***	0.184***	0.184***
general health		0.134***	0.136***	0.135***	0.135***
crime rate index			0.000+	0.000+	0.000
persistent poverty			0.017	0.031	0.026
% Black			-0.001+	-0.001	-0.000
low education				0.027*	0.038
housing stress				-0.006	-0.000
low employment				-0.038+	-0.028
population loss				-0.005	-0.007
pers. inc. (USD 1,000)/cap				0.000	0.001*
population density per sq mile, 05-09 * 1,000,000					-1.399*
population					-0.000
constant	3.350***	2.058***	2.061***	2.043***	2.025***
N	163656	138453	132677	131657	131657

+ 0.10 * 0.05 ** 0.01 *** 0.001; clustered robust std err

Table 6: OLS (robust cluster) regressions of SWB: population percent change 2000–2010

	c0	c1	c2	c3	c4
population percent change 1990-2000	0.033***	0.017***	0.012*	0.013**	0.013**
income		0.086***	0.087***	0.087***	0.086***
married or member of an unmarried couple		0.107***	0.108***	0.108***	0.108***
unemployed		-0.059***	-0.058***	-0.058***	-0.058***
age		-0.193***	-0.202***	-0.202***	-0.202***
age squared		0.283***	0.292***	0.293***	0.292***
White		-0.042***	-0.043***	-0.042***	-0.042***
education level		-0.015*	-0.020*	-0.020*	-0.020*
soc/emo support		0.317***	0.316***	0.316***	0.316***
general health		0.226***	0.229***	0.228***	0.228***
crime rate index			0.016**	0.014*	0.012*
persistent poverty			0.002	0.006	0.004
% Black			-0.021***	-0.012*	-0.007
low education				0.010	0.017
housing stress				-0.004	0.000
low employment				-0.017+	-0.012
population loss				-0.006	-0.006
pers. inc. (USD 1,000)/cap				0.002	0.011+
population density per sq mile, 05-09 * 1,000,000					-0.019*
population					-0.006
constant	***	***	***	***	***
N	162958	137885	132109	131089	131089

+ 0.10 * 0.05 ** 0.01 *** 0.001

Table 7: OLS beta (fully standardized) regressions of SWB: population percent change 1990–2000

	c0rc	c1rc	c2rc	c3rc	c4rc
population percent change 1990-2000	0.001**	0.001**	0.000*	0.001*	0.000*
income		0.025***	0.026***	0.026***	0.025***
married or member of an unmarried couple		0.140***	0.141***	0.141***	0.141***
unemployed		-0.169***	-0.168***	-0.168***	-0.167***
age		-0.007***	-0.008***	-0.008***	-0.008***
age squared		0.000***	0.000***	0.000***	0.000***
White		-0.055***	-0.056***	-0.055***	-0.056***
education level		-0.009+	-0.011*	-0.011*	-0.011*
soc/emo support		0.186***	0.185***	0.185***	0.185***
general health		0.134***	0.136***	0.135***	0.135***
crime rate index			0.000*	0.000+	0.000+
persistent poverty			0.012	0.031	0.022
% Black			-0.001*	-0.001	-0.000
low education				0.019+	0.033
housing stress				-0.005	0.000
low employment				-0.048*	-0.036
population loss				-0.013	-0.014
pers. inc. (USD 1,000)/cap				0.000	0.001
population density per sq mile, 05-09 * 1,000,000					-1.231+
population					-0.000
constant	3.351***	2.051***	2.053***	2.050***	2.032***
N	162958	137885	132109	131089	131089

+ 0.10 * 0.05 ** 0.01 *** 0.001; clustered robust std err

Table 8: OLS (robust cluster) regressions of SWB: population percent change 1990–2000

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