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# **SUCCESSSES AND FAILURES OF HEALTH POLICY IN EUROPE**

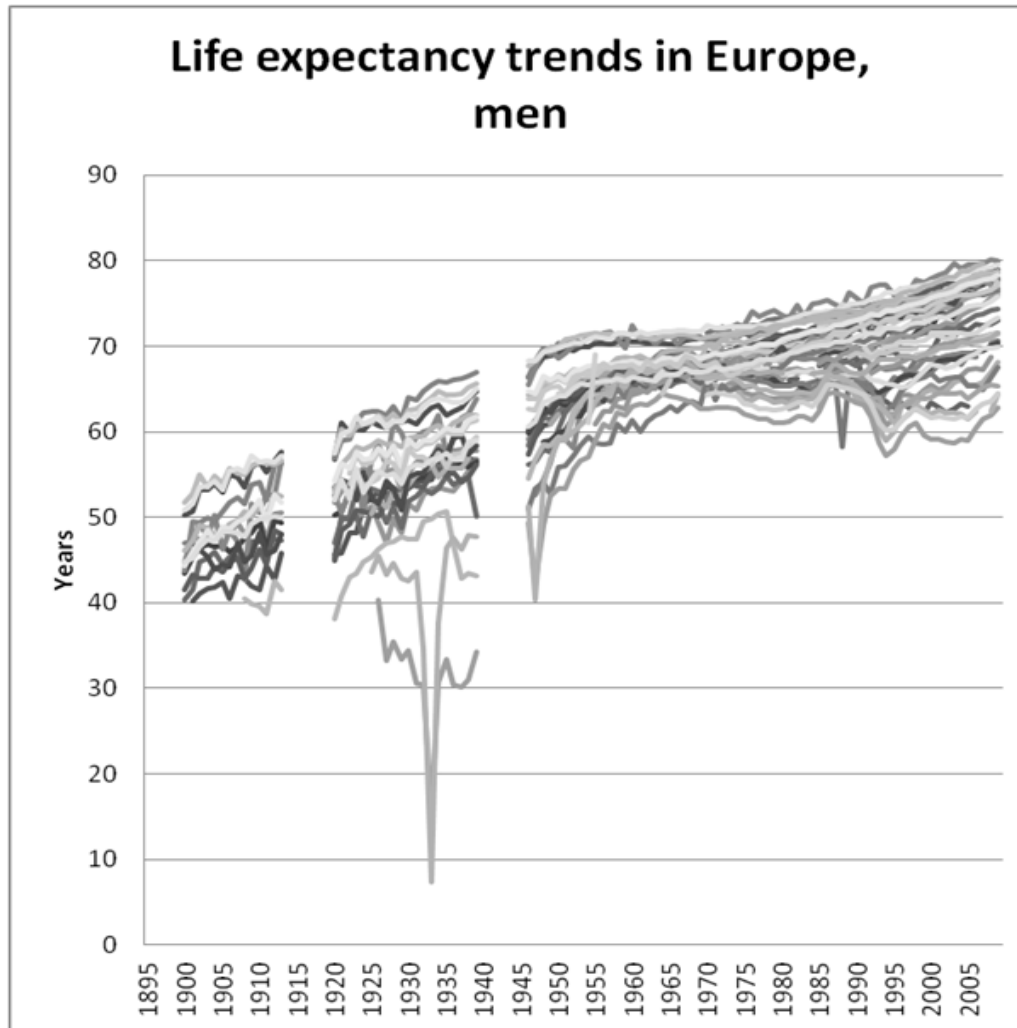
# WHY?

- Europe is an underutilized 'natural laboratory' for policy evaluation
- Over the past 40 years, there were enormous variations in population health trends
- While health care and social policies have often been studied, health policy has not

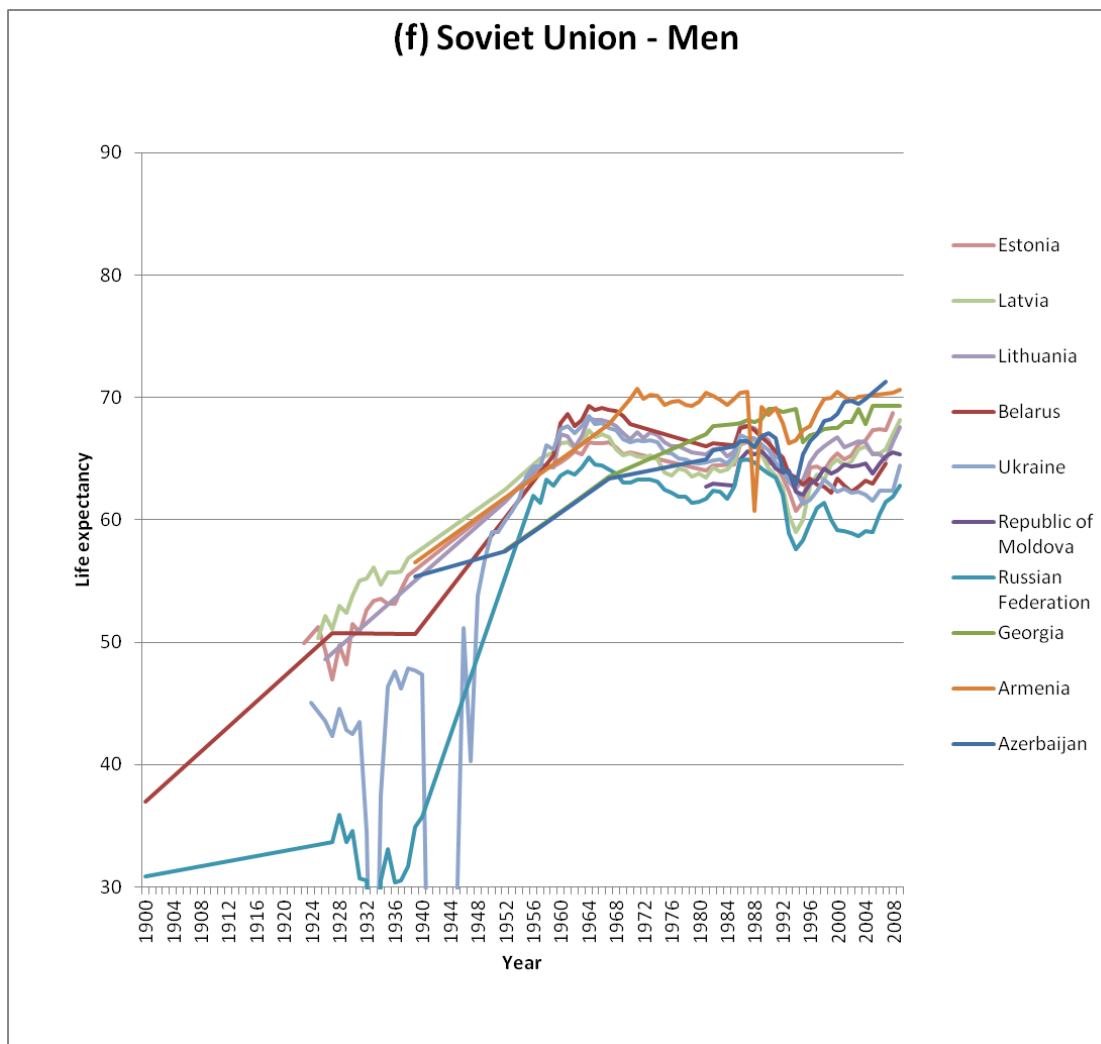
# OUTLINE

- Context: recent divergence of life expectancy in Europe, possible explanations
- Successes and failures of health policy in Europe: performance indicators
- Determinants of health policy performance: economic, social, political

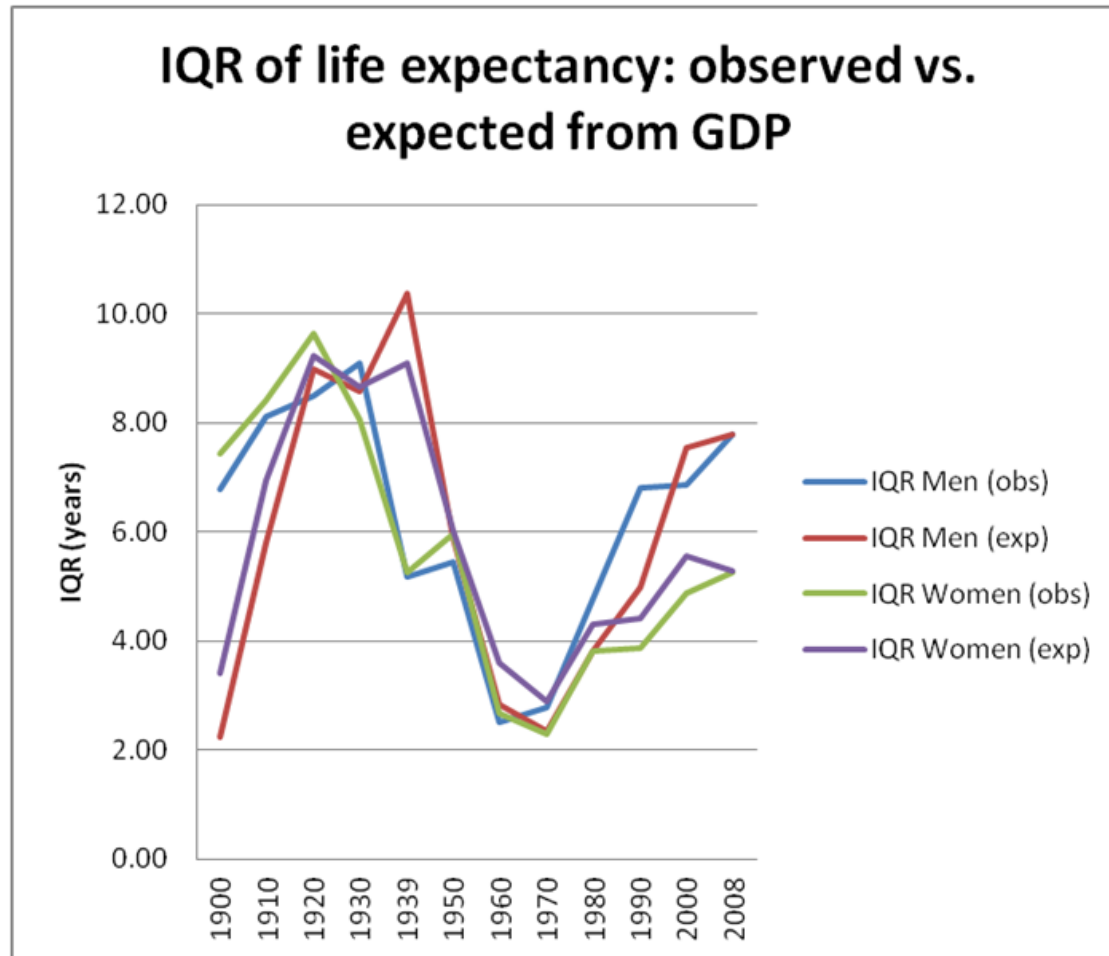
# WIDENING, NARROWING, WIDENING OF GAP IN $E_0$



# LIFE EXPECTANCY AT BIRTH IN THE FORMER SOVIET UNION

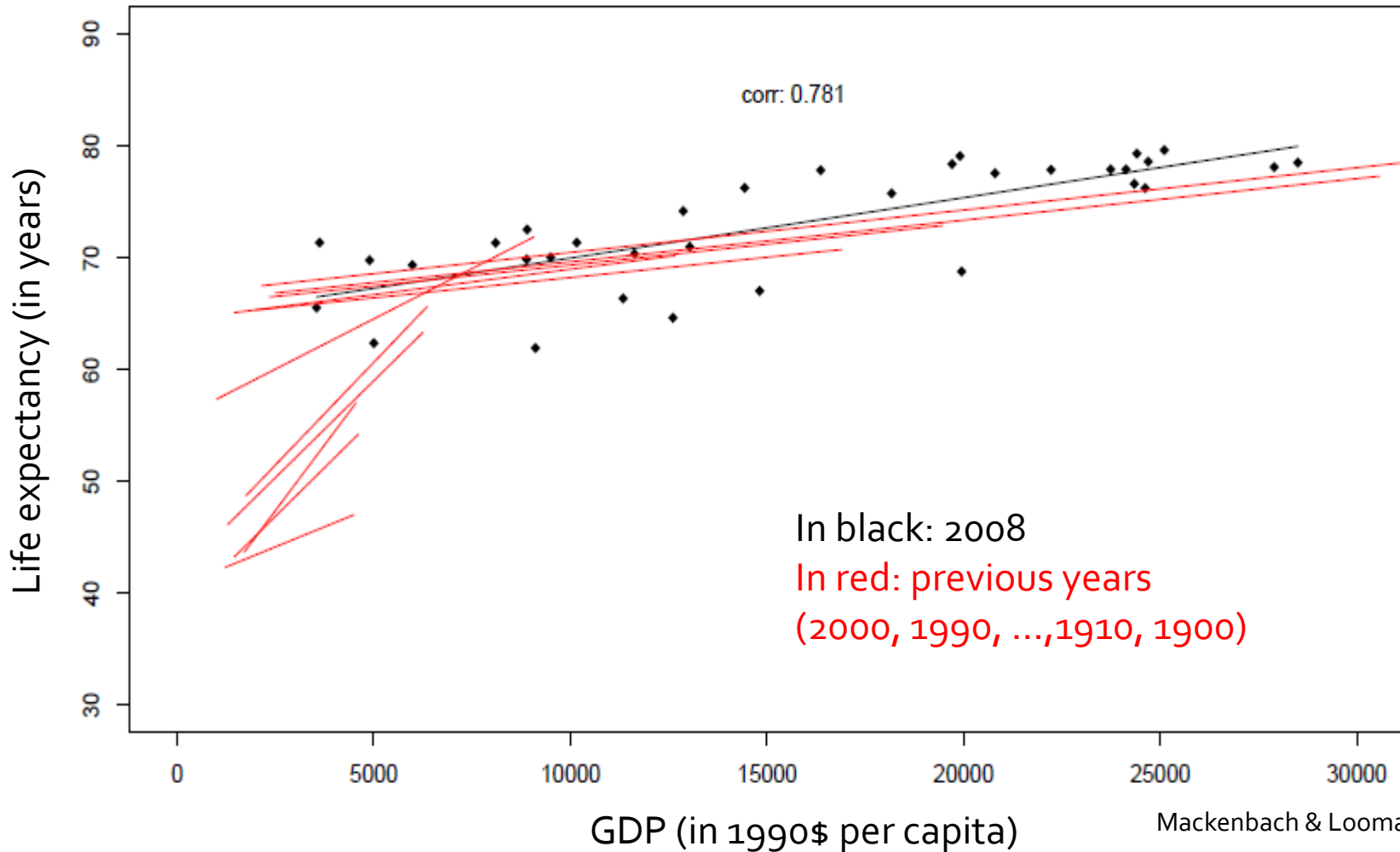


# GAP IN $E_0$ FOLLOWS GAP IN NATIONAL INCOME



# RECENT WIDENING REFLECTS WIDENING INCOME GAP

ca. 2008 Men



# EUROPE'S DIVISIVE POLITICAL HISTORY



Yalta 1945



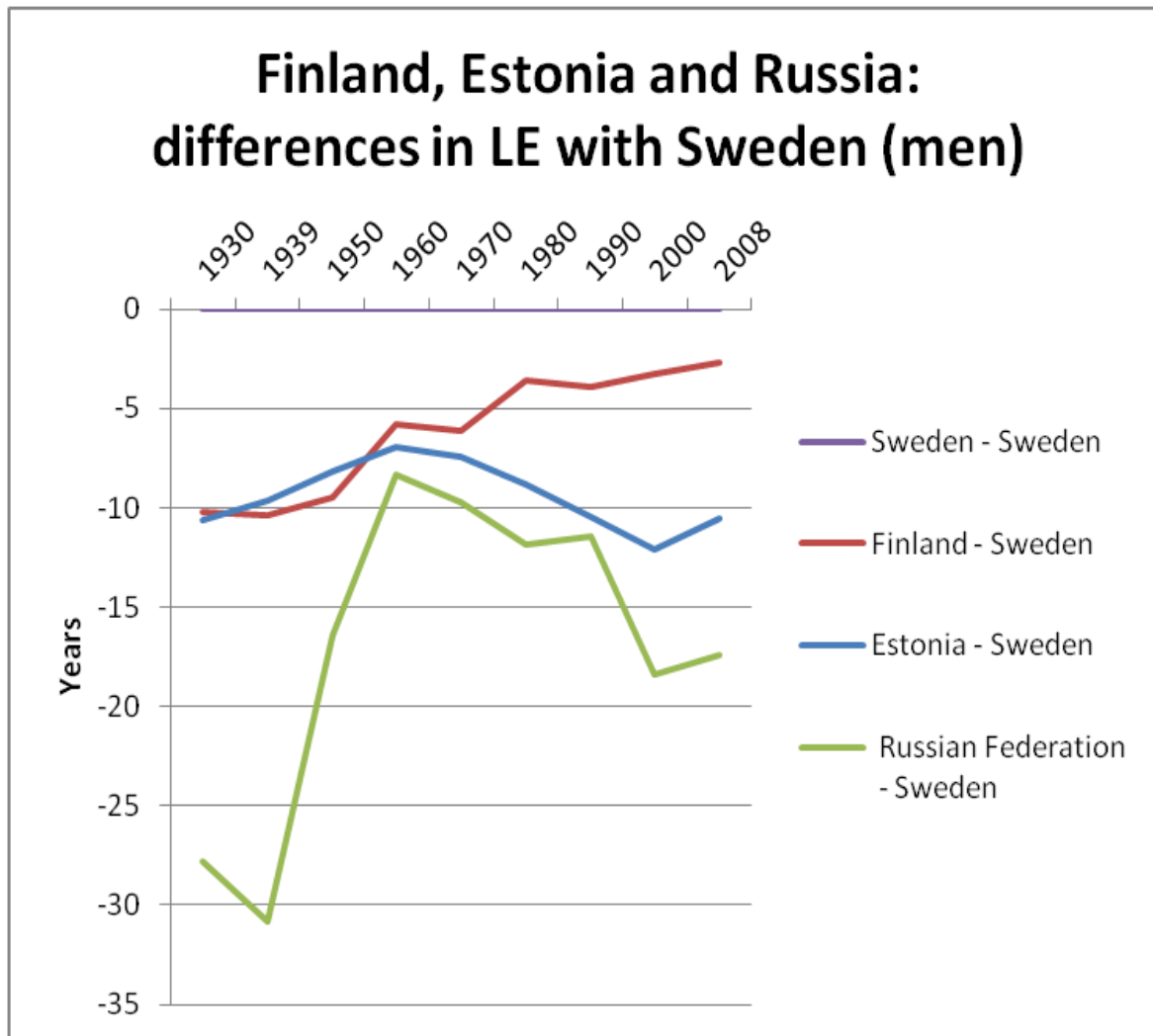
Budapest 1956

Moscow 1992



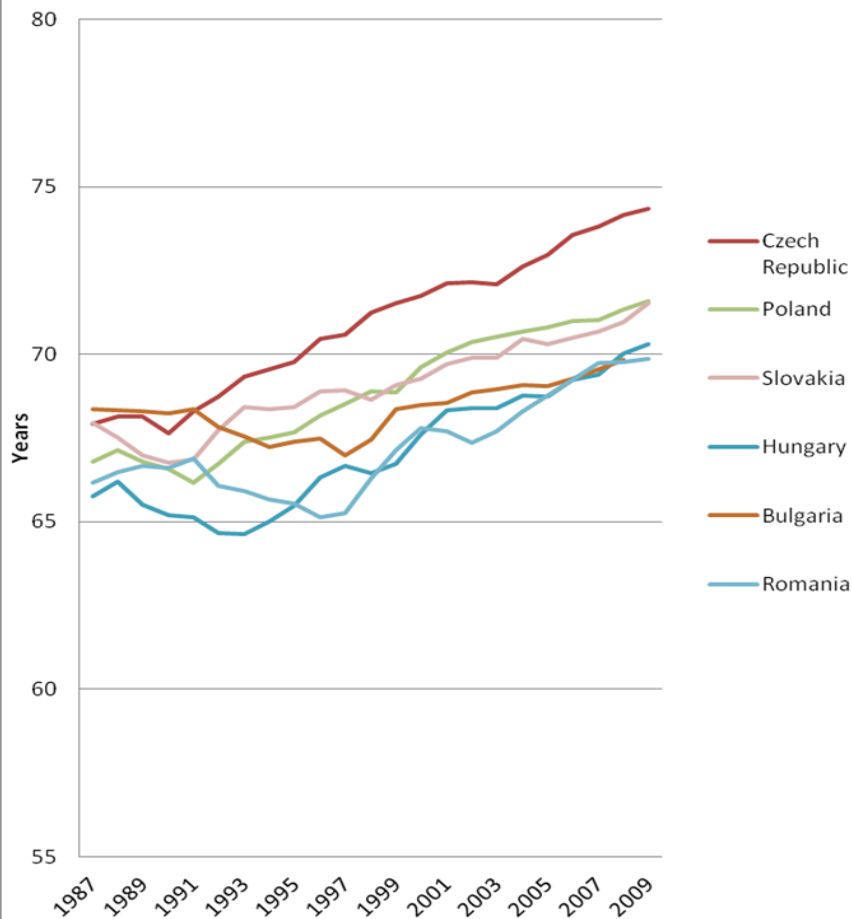


# TRENDS IN $E_0$ ULTIMATELY DETERMINED BY POLITICAL CONDITIONS?

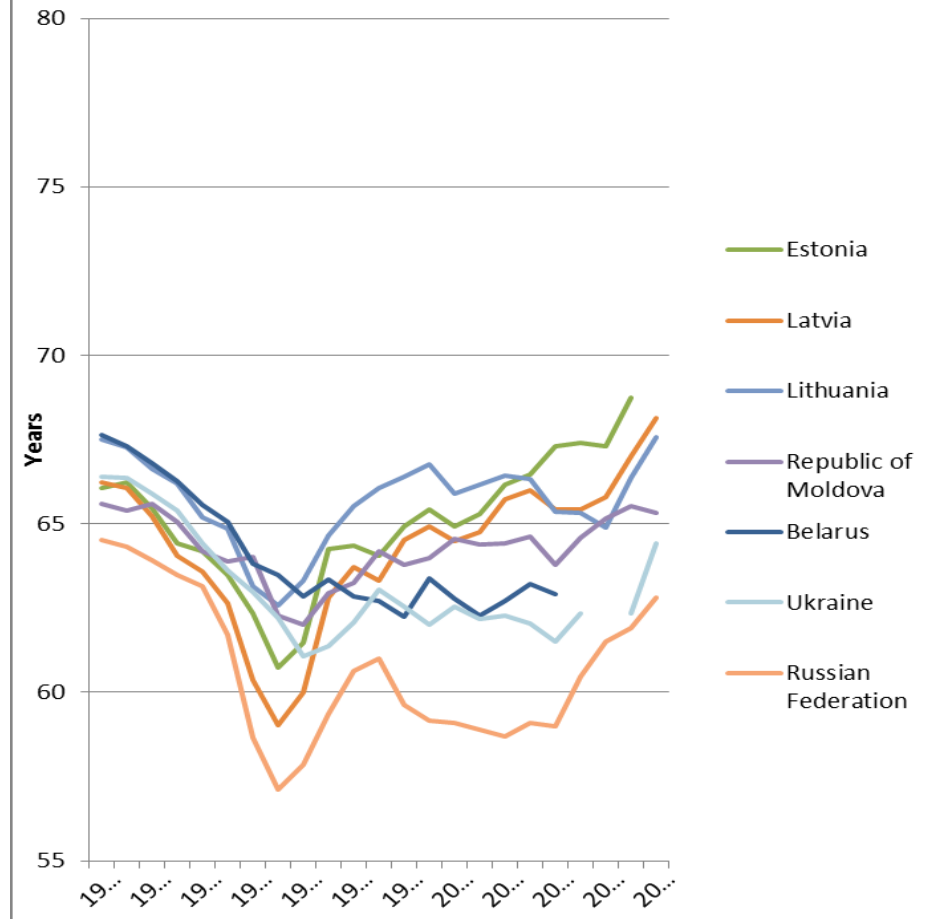


# TRENDS IN $E_0$ ULTIMATELY DETERMINED BY POLITICAL CONDITIONS?

## Male life expectancy, Central and Eastern Europe



## Male life expectancy, former Soviet Union



# DEMOCRACY VS. LIFE EXPECTANCY: RESULTS OF REGRESSION ANALYSES

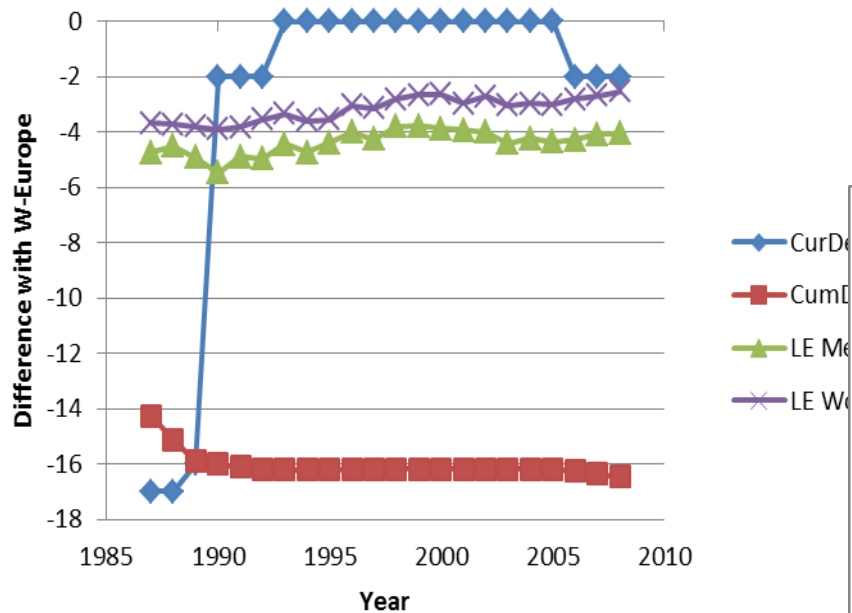
Current and cumulative democracy vs. mortality, 1987-2008: results of fixed effects regression models

Cumulative years with full democracy since 1970. Controlling for GDP, GDP<sup>2</sup>, education, independence, war, economic liberalization, time, and country

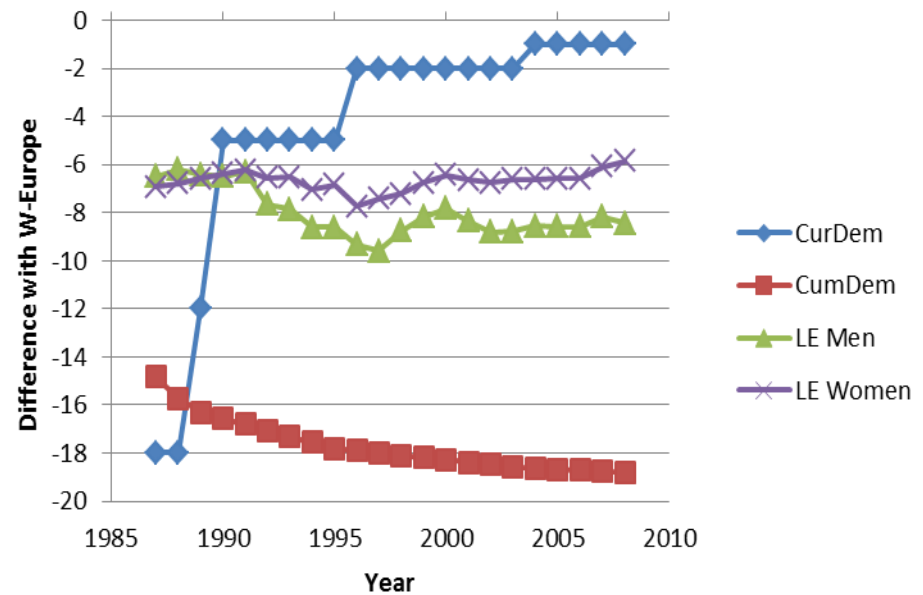
Outcome (Men)	Current	Cumulative
Life expectancy	-0.0761**	0.674**
All causes	3.491	-59.99***
All circulatory diseases	0.467	-43.40***
Ischemic heart disease	-0.198	-24.26**
Cerebrovascular disease	0.410	-9.725*
All cancers	0.724**	-3.179
Cancer of lung	0.254	-0.123
Cancer of breast		
All infectious diseases	-0.184	-1.085
Chronic liver disease and cirrhosis	0.595	-2.293
All external causes	1.950**	-12.64***
Motor vehicle accidents	0.395***	-1.116
Suicide	0.191	-0.295

# DEMOCRACY VS. LIFE EXPECTANCY: CZECH REPUBLIC VS. ROMANIA

## Czech Republic



## Romania



# 11 AREAS OF HEALTH POLICY

- Tobacco control
- Alcohol control
- Food and nutrition
- Fertility, pregnancy, childbirth
- Child health
- Infectious disease
- Hypertension
- Cancer screening
- Mental health
- Road traffic injury
- Air pollution

# APPROACH

- Literature reviews to identify effective interventions
- Relate implementation to intermediate and final health outcomes
- Select performance indicators and create summary score
- Rank countries, identify determinants of health policy performance

# MAIN SUCCESSES

- Tobacco control
- Alcohol control
- Food and nutrition
- Fertility, pregnancy, childbirth
- Child health
- Infectious disease
- Hypertension
- Cancer screening
- Mental health
- Road traffic injury
- Air pollution

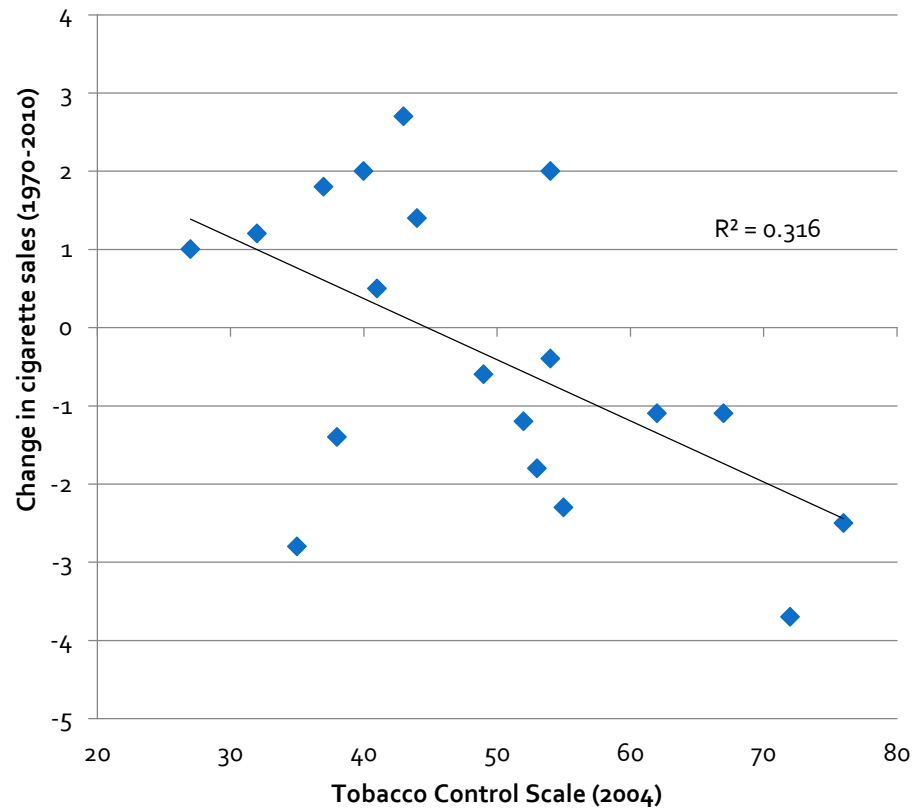
# MAIN FAILURES

- Tobacco control
- Alcohol control
- Food and nutrition
- Fertility, pregnancy, childbirth
- Child health
- Infectious disease
- Hypertension
- Cancer screening
- Mental health
- Road traffic injury
- Air pollution



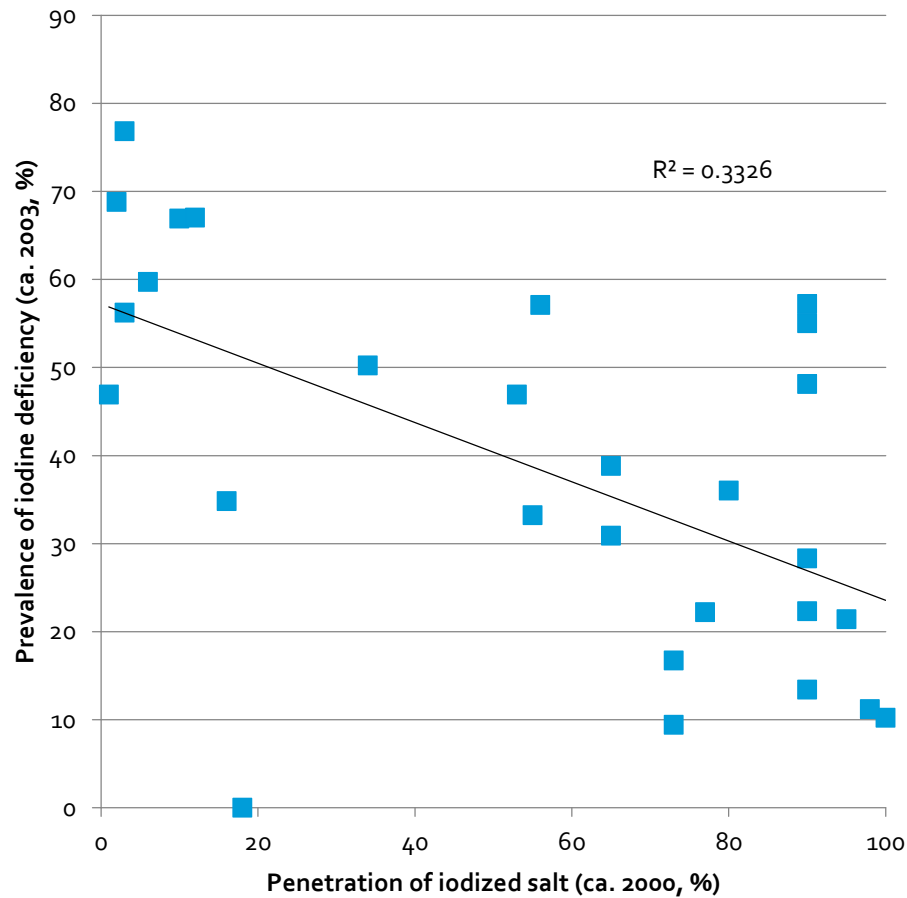
# LESS SMOKING WITH MORE TOBACCO CONTROL

Tobacco control  
vs. change in cigarette sales



# LESS IODINE DEFICIENCY WITH MORE SALT IODIZATION

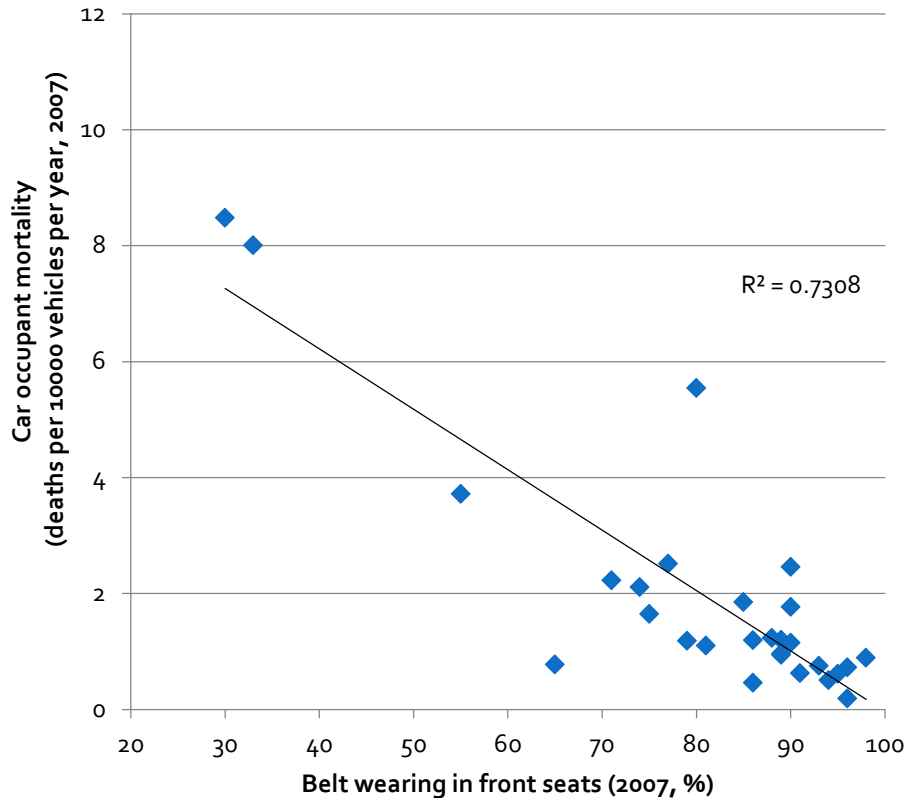
Salt iodization vs. iodine deficiency





# LESS CAR OCCUPANT DEATHS WITH MORE SEAT BELT WEARING

Seat belt wearing vs.  
car occupant mortality

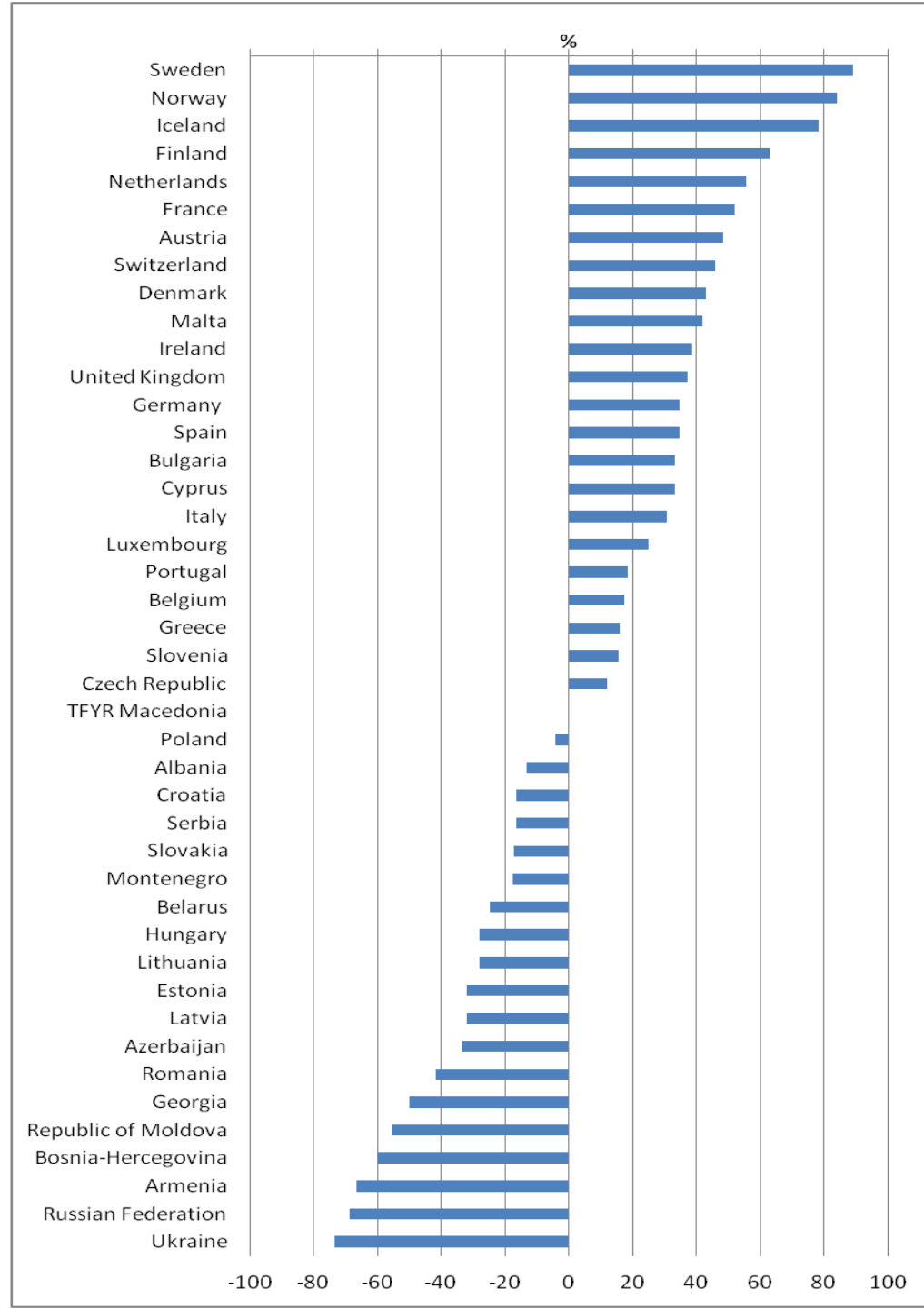


# HEALTH POLICY PERFORMANCE INDICATORS

Health policy performance		Tobacco		Alcohol		Food		Fertility, pregnancy and child health					Infectious diseases				Hypertension		Cancer screening		Road traffic safety			Air pollution					
Nordic	TCS 2010	Malesmok	Malelung	BTG 2005	Alc cons 2l	Male liver	Iodine def	Fat%	Energy	Fruit&veg	Teenage p	Neonatal r	Maternal r	Measles in	Safety sco	Postneona	AIDS incidi	SA%MRSA	Infl vacc c	SBP men 2	Stroke mo	Breast scr	Cerv ca m	Seat belt	Occup mo	Ped mort/	SO2/mio	Urban Ozo	
Finland	52	26	44,73	31,5	12,27	29,39	28,3	36,04	172	2,20	2,02	3,92	99,0	38,5	0,63	0,55	0,4	47	135,3	39,64	2	1,5	89	0,94	0,17	11,12	1689		
Sweden	51	13	28,49	35,5	8,85	7,83	30,0	35,59	205	1,64	1,61	4,24	98,3	42,5	0,88	0,68	0,3	55	131,7	38,83	2	2,3	96	0,72	0,13	3,22	2013		
Norway	62	21	44,74	35	8,30	4,79	47,1	35,33	220	2,44	2,14	4,47	94,0		1,04	0,38	0,0		134,5	37,08	2	3,0	93	0,75	0,11	3,26	879		
Iceland	61	21	47,85		7,93	3,23	19,0	39,08	222	3,38	0,99	0,00	98,0	48,5	0,80	0,63	0,0		129,6	34,58	2	0,0	88	1,23	0,14				
Denmark	46	28	63,24	17	12,86		48,1	35,83	209	1,49	2,68	7,75	89,0		0,72	0,73	0,0	53	129,7		1	3,1				2,68	2446		
<b>Britain &amp; Ireland</b>																													
United Kingdom	77	22	51,68	24,5	12,52	15,39	68,8	37,74	218	6,15	3,18	7,59	92,1	39,5	1,47	1,19	5,7	73	131,2	45,44	2	2,6	91	0,63	0,24	6,45	1123		
Ireland	69	31	52,56	25,5	12,87	9,04	56,2	34,63	219	2,99	2,28	3,18	93,0	31,0	0,96	0,63	2,5		134,9	38,74	1	4,7	86	1,19	0,39	7,35	1197		
<b>Continental</b>																													
Netherlands	46	32	67,58	16	9,73	5,71	30,9	37,34	239	1,43	2,86	4,72	96,8	45,5	0,99	1,48	2,6	61	131,2	33,57	2	2,4	94	0,50	0,13	2,31	1360		
Belgium	50	25	78,73	12	12,00		66,9	39,96	201	2,76	2,61		99,0	30,0	1,37	1,08	2,1		128,5		1	3,5	79	1,18	0,20	7,11	2787		
Luxembourg	33	28	63,66	5,5	12,76	16,82	32,7	38,88	276	1,79	1,42		99,1		0,71	1,43	18,2	82	130,9	39,57	2						6,31		
Germany	37	37	53,72	5,5	10,87		38,8	36,54	182	2,27	2,58	5,15		39,0	1,25	0,59	0,2	63	132,9		1	2,9	95	0,62	0,15	5,47	3130		
Switzerland	48	23	43,96	13,5	12,76	9,23	36,0	40,26	169	0,91	3,07	5,00			0,86	1,92		51	130,6	26,91	1	1,2	86	0,46	0,20	1,68	4701		
Austria	32	27	46,58	5,5	13,00	21,57	21,4	39,36	251	3,34	2,50	3,04	82,5	40,5	1,28	0,78	1,7	65	131,4	31,97	1	2,9	89	0,96	0,25	2,46	5097		
<b>Mediterranean</b>																													
France	55		61,92	13,5	12,70	15,80	33,2	41,79	214	1,96	2,39	7,19	98,0	40,0	1,13	1,61	0,2		131,0	23,74	2	2,3	98	0,89	0,18	4,85	3859		
Spain	46	32	64,56	7,5	13,07	13,30	34,8	42,08	243	2,91	2,14	3,39	96,9	29,0	1,21	2,96	1,1		130,4	33,80	2	2,6	89	1,20	0,29	9,39	5207		
Portugal	43	31	42,98	9	13,43	17,19	46,9	35,41	287	4,37	3,44	5,25	96,8	27,5	1,63	5,11	17,3	67	134,6	69,90	1	4,8	90	1,15	0,34	7,17	3268		
Italy	47	29	60,09	9,5	9,59	12,64	50,2	39,00	295	1,35	2,47	2,18		30,0	1,03	1,63	13,2	67	130,9	42,76	1	2,0	65	0,77	0,21	3,84	6196		
Malta	52	26	44,43	7	8,01	9,13		28,91	318	6,78	5,72	7,94	71,5		2,38	2,18	0,0	50	131,8	51,19	0	2,4	96	0,19	0,19	18,00			
Greece	32		69,22	4	10,55	8,28	0,0	36,72	404	2,81	2,02		99,2	27,0	1,13	0,85	3,2	66	128,5	83,15	1	2,2	75	1,64	0,53	37,95	8084		
Cyprus	40	39	30,96	5	9,53	8,73	41,3	39,04	269	1,84	1,87		97,0	31,5	1,35	1,51	5,9		131,2	40,70	2	1,7	81	1,10	0,39	21,47			
<b>Western Balkans</b>																													
Slovenia	44	22	73,31	9,5	15,31	39,95	23,5	33,79	197	1,32	1,57	9,95	97,0	40,5	0,83	0,54	2,2		136,4	53,17	1	3,5	85	1,85	0,32	5,67	4959		
Croatia			85,15		12,76	39,25	22,3	33,11	193	3,68	4,28	11,55	96,1		0,99	0,34			135,5	104,76	0	5,5		2,07	0,83				
Bosnia-Herzegovina							22,2			10,47	10,53	19,18			4,08			28				0	5,0		4,55	1,77			
Serbia		31	82,78			16,79	9,4	39,52	211	6,50	4,91	13,91	95,0		2,09	0,52			136,9	140,27		12,5	55		3,71	1,59			
Montenegro		37	79,08		13,02		16,7	25,75	234	5,74	4,05		95,0		1,74	0,48			135,4	78,24		8,5			5,15	1,40			
TFYR Macedonia					6,84		10,2	36,23	256	6,48	8,56		95,3		3,24	0,44			134,0			13,4			2,59	2,14			
Albania							57,1	28,75	299	4,98	2,51	17,05	99,0		5,28	0,75			133,8			0	4,2	30	8,48	7,49			
<b>Centre &amp; East</b>																													
Poland	43		91,45	15,5	13,60	26,89	55,0	29,73	180	4,91	4,01	3,11	99,0		1,56	0,42	3,0		135,0	64,09	1	7,8	74	2,11	1,45	22,59	3112		
Czech Rep	34	30	71,26	5	16,61	24,98	13,4	35,89	144	3,05	1,64	3,67		42,0	1,24	0,28	1,2		133,7	70,77	2	5,2	90	1,77	0,57	16,57	4288		
Slovakia	41		68,74	8,5	14,59	39,92	15,0	34,22	154	6,56	3,07	4,97	99,0		2,58	0,02		9	135,7	82,13	0	6,5			2,76	1,88	11,84	8051	
Hungary	34		105,84	13,5	14,15	69,80	57,2	39,22	195	6,09	3,39	14,67	99,9	36,5	1,74	0,23	1,1		136,1	75,69	1	7,8	71	2,22	0,93	7,95	6809		
Romania	45	32	66,82	8	16,30	61,19	46,9	27,87	209	11,79	5,47	21,66			4,33	1,04		29	133,4	154,45	0	16,2	80	5,54	0,80	21,39	4420		
Bulgaria	40		62,10	7	11,45	32,49	11,2	30,91	132	12,66	5,01	7,94	95,3		3,59	0,38	4,7	33	133,3	162,64	0	9,1		3,32	1,34	86,50	3265		
<b>(f) Soviet Union</b>																													
Estonia	43	39	86,40	15,5	14,05	38,03	67,0	25,40	174	5,42	3,18		95,0	35,0	1,81	4,55	13,5		138,6	62,88	2	7,9	90	2,46	0,71	40,89	1675		
Latvia	44	45	76,39	14	24,98	76,8	35,85	168	7,03	5,03	28,15	97,3	34,0	2,72	4,55	5,3			136,8	122,78	1	9,9	77	2,51	1,86	1,80	1260		
Lithuania	41	39	78,69	13	13,02	56,33	59,7	27,24	187	5,59	2,84	4,91	95,8	32,5	2,10	1,61	12,5		137,3	110,40	1	11,5		2,57	1,53	10,77	2304		
Belarus		53	69,49				14,0	33,47	205	6,43	3,07	5,62	97,2		3,83	3,97			136,6		0	6,6		3,06	2,58				
Ukraine		50	60,48				56,2	26,24	153	8,68	5,57	20,18	90,5		4,06	2,40			137,2	140,67	0	8,3							
Republic of Moldova		51	50,28			105,80	27,0	21,11	108	9,88	7,77	26,39	96,0		4,31	2,55			133,8	183,63	0	10,4			9,88	5,91			
Russian Federation			74,21				58,1	25,06	184	13,81	6,36	21,69	97,7		4,67				132,3	209,69	0	8,1	33	8,01	4,64				
Georgia			31,80			28,71	4,4	20,78	102	14,04	11,82	28,63	92,1		3,09	5,29					0	6,3				4,32			
Armenia		55	84,81				6,3	24,87	394	9,09	8,07	29,19	89,0		3,72	2,57					0	12,3			8,73	5,71			
Azerbaijan		38	16,95				13,3	15,50	222	14,34	6,01	28,50	95,0																

# HEALTH POLICY PERFORMANCE SUMMARY SCORE

Mackenbach & McKee 2013



# EXAMPLE: LITHUANIA

Policy area	Indicator	Lithuania	Europe
Tobacco	Tobacco Control Scale	41	46
	Daily smokers	39	32
	Lung cancer mortality	79	62
Alcohol	Alcohol Control index	13	14
	Alcohol consumption	13	12
	Liver cirrhosis mortality	56	26
Nutrition	Iodine deficiency	60	35
	Fat consumption	27	33
	Fruit and vegetables	187	217
Pregnancy	Teenage pregnancy	5.6	5.4
	Neonatal mortality	2.8	3.9
	Maternal mortality	4.9	11.0
Child	Measles immunization	96	95
	Child Safety Score	33	36
	Postneonatal mortality	2.1	2.1

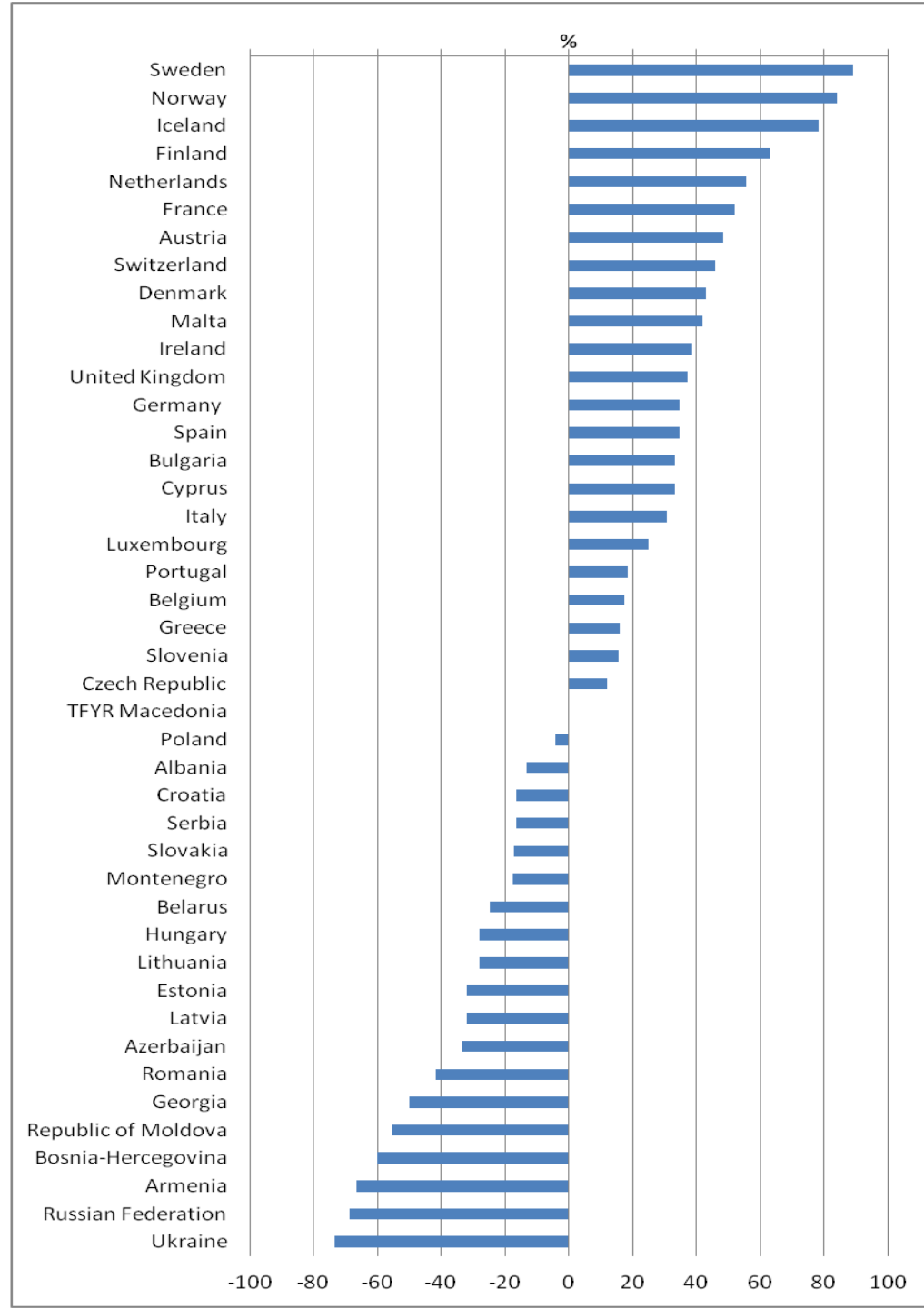
# EXAMPLE: LITHUANIA

Policy area	Indicator	Lithuania	Europe
Infections	AIDS incidence	1.6	1.5
	MRSA infections	12.5	4.4
	Influenza vaccination	n.a.	53
Hypertension	Blood pressure	137	133
	Cerebrovascular mort.	110	77
Cancer screening	Breast cancer screening	1	n.a.
	Cervical ca. mortality	11.5	5.8
Road safety	Safety belt use	n.a.	81
	Car occupant mortality	2.6	2.8
	Pedestrian mortality	1.5	1.5
Air pollution	SO <sup>2</sup> emissions	10.8	13.4
	Urban ozone	2304	3584
Summary score	% high minus % low	-28	5



# HEALTH POLICY PERFORMANCE SUMMARY SCORE

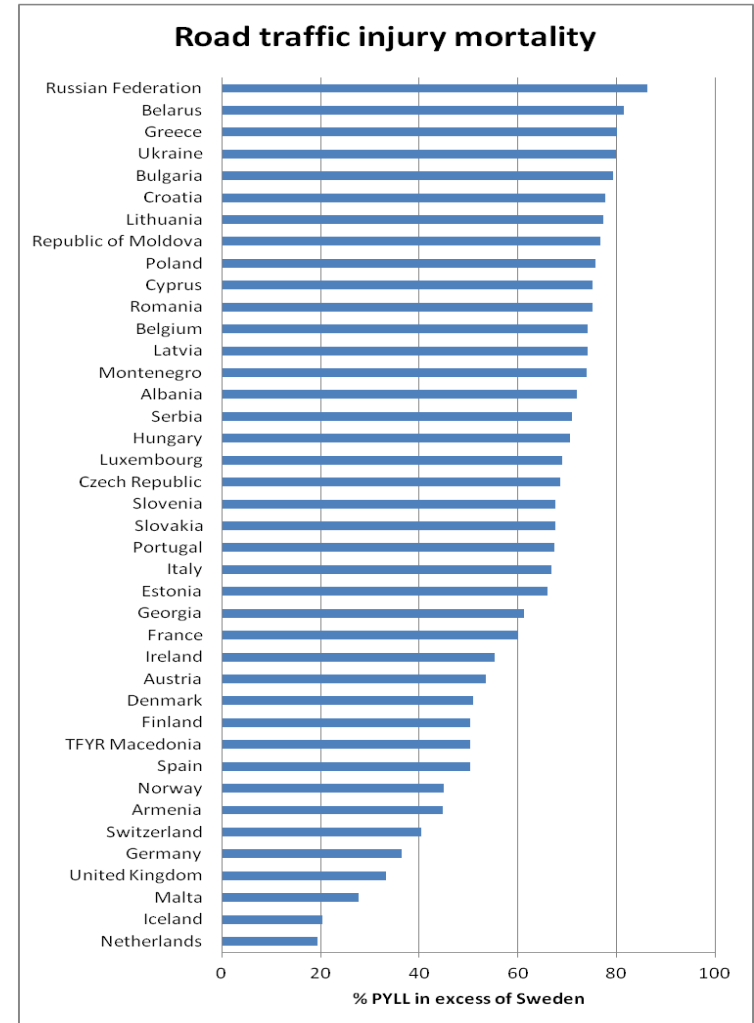
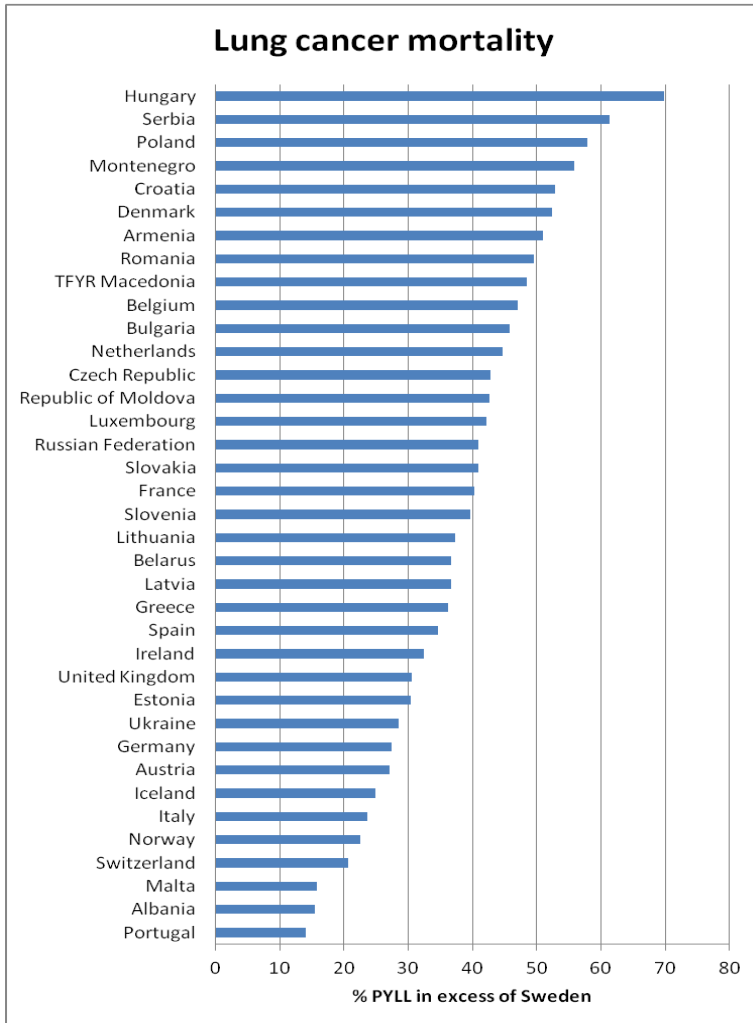
Mackenbach & McKee 2013



# UNFINISHED BUSINESS

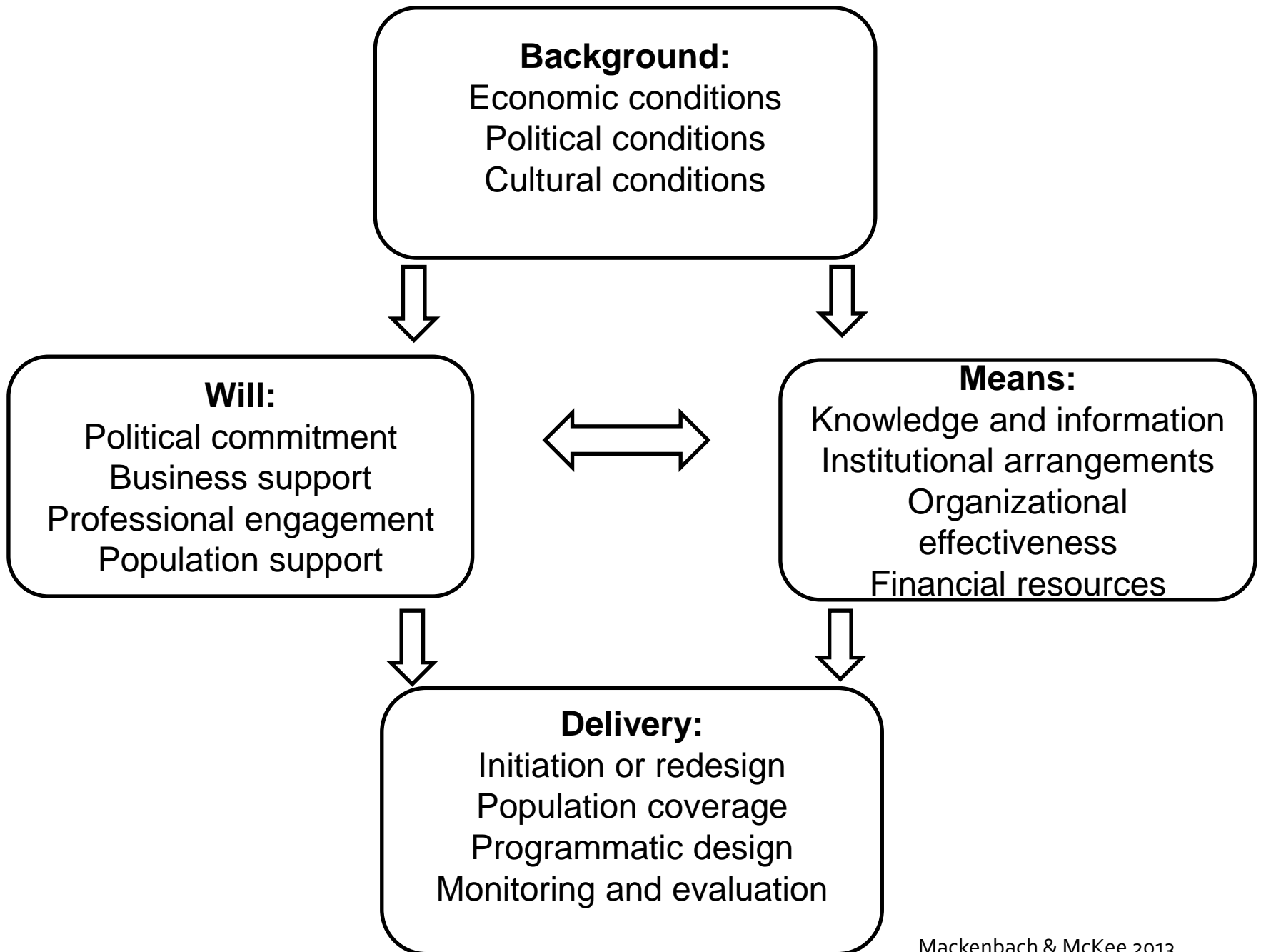
- Enormous gaps in implementation of effective health policies in Europe, particularly in Central and Eastern Europe
- Even in Western Europe, countries could typically reduce years of life lost by 30-50% by adopting policies in countries with best practices
- Remaining gaps in all areas: tobacco and alcohol control, iodine deficiency, immunisation, child safety, cancer screening, road safety, air pollution, ...

# EXCESS MORTALITY AS COMPARED TO SWEDEN, 2008



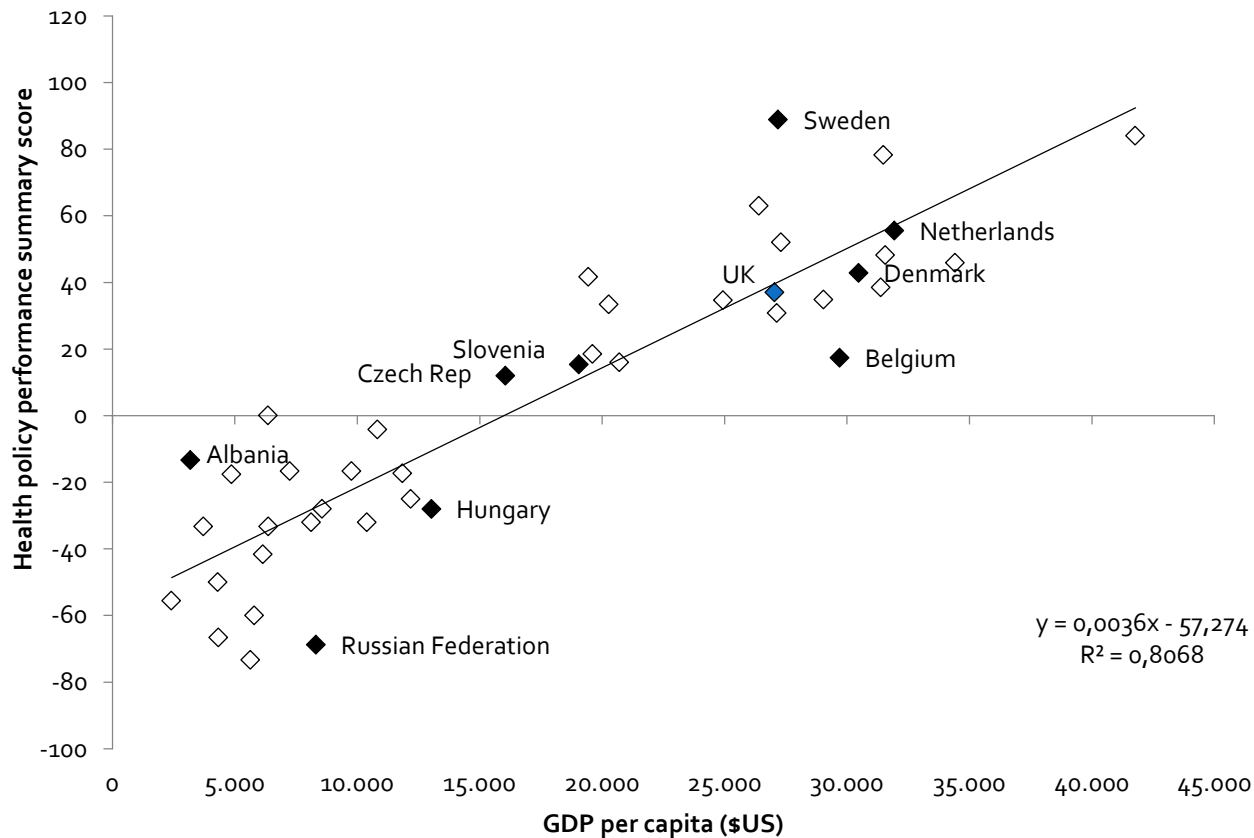
# EXCESS DEATHS IN EUROPE AS COMPARED TO BEST PERFORMER (SWEDEN)

Condition	Excess deaths	Condition	Excess deaths
Lung cancer	151,000	Injuries (1-19)	7,000
Liver cirrhosis	119,000	Infectious dis.	51,000
Other alcohol	14,000	Stroke	584,000
Ischemic heart	937,000	Cervical ca.	11,000
Infant mort.	26,000	Breast ca.	24,000
Maternal mort.	<1,000	Road transport	57,000



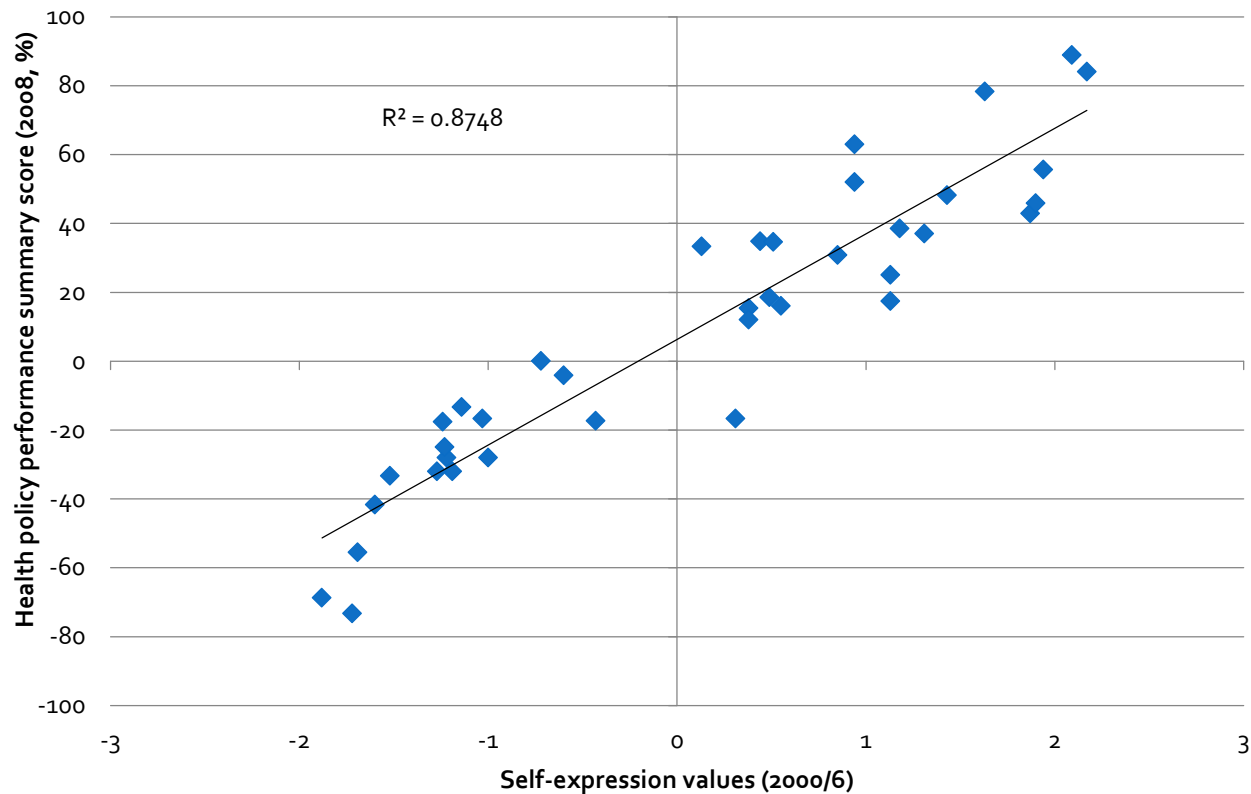
# WHAT DETERMINES HEALTH POLICY PERFORMANCE? A COUNTRY'S MEANS?

National income vs.  
health policy performance

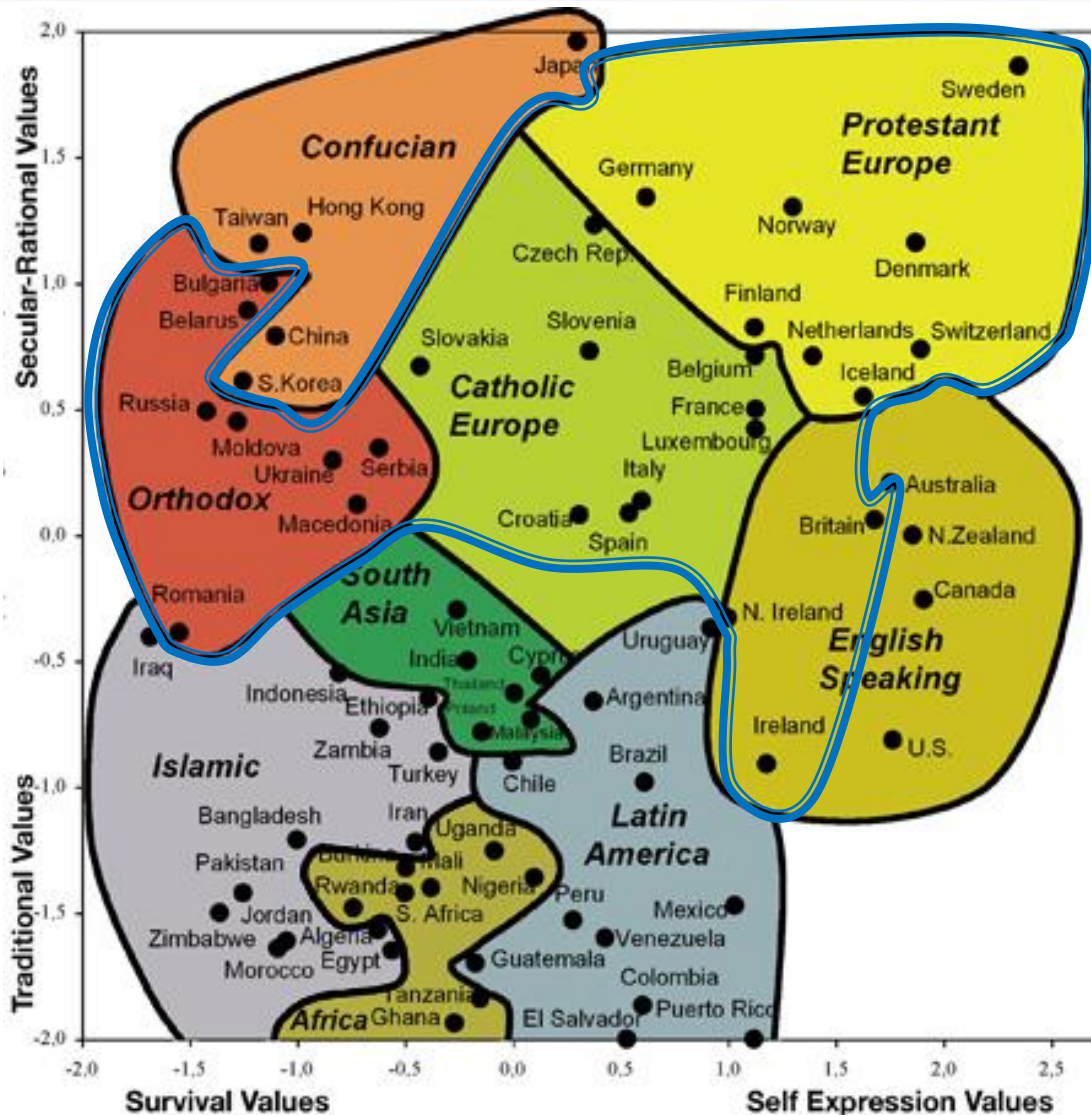


# WHAT DETERMINES HEALTH POLICY? OR A COUNTRY'S WILL?

Value orientation vs.  
health policy performance



# WORLD VALUES SURVEY



## Traditional values emphasize:

- God is very important
- Obedience and religious faith more important than independence
- Abortion never justified
- Strong sense of national pride
- Respect for authority

## Survival values emphasize:

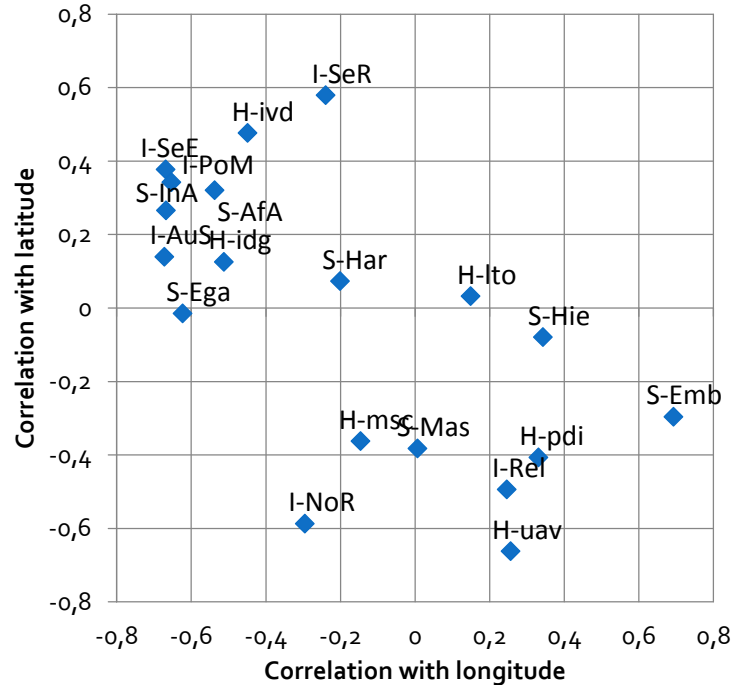
- Economic & physical security more important than self-expression and quality of life
- Would not sign a petition
- Have to be careful about trusting people



# VARIATION OF CULTURAL VALUES IN EUROPE

North: more  
 "secular-rational"  
 (Inglehart)

West: more  
 "self-expression"  
 (Inglehart),  
 "indulgence"  
 (Hofstede),  
 "egalitarianism"  
 (Schwartz)



East: more  
 "embeddedness"  
 (Schwartz)

South: more  
 "uncertainty avoidance"  
 (Hofstede)

# CULTURAL VALUES VS. HEALTH BEHAVIOURS IN EUROPE, 2011

	Self-expression (Inglehart)	Secular-rational (Inglehart)	Power distance (Hofstede)	Uncertainty avoidance (Hofstede)	Embedd- edness (Schwartz)	Egalitar- ianism (Schwartz)
Behav- iours	30	30	30	30	30	30
Better	15	5	0	0	2	4
Worse	1	0	4	6	4	2

Multivariate regression analysis of 30 individual and collective health-related behaviours on cultural values, controlling for GDP and urbanization.

"Better" and "worse":  $p < .05$ .

Mackenbach, submitted

# SPECIFIC POLICY INDICATORS VS. POLICY DETERMINANTS

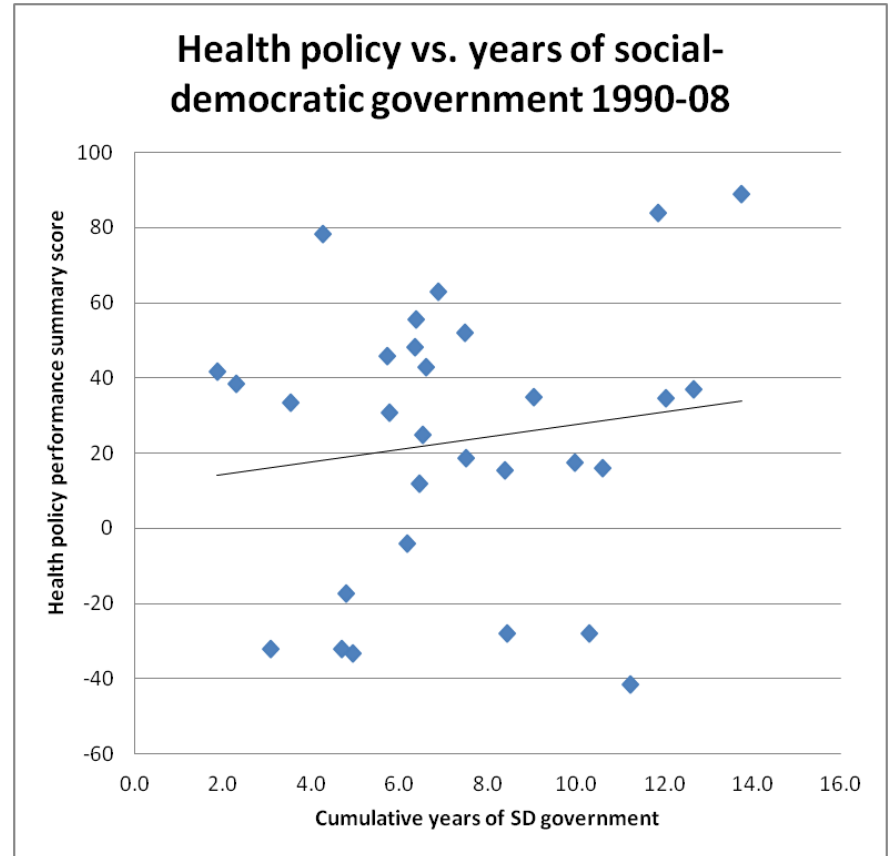
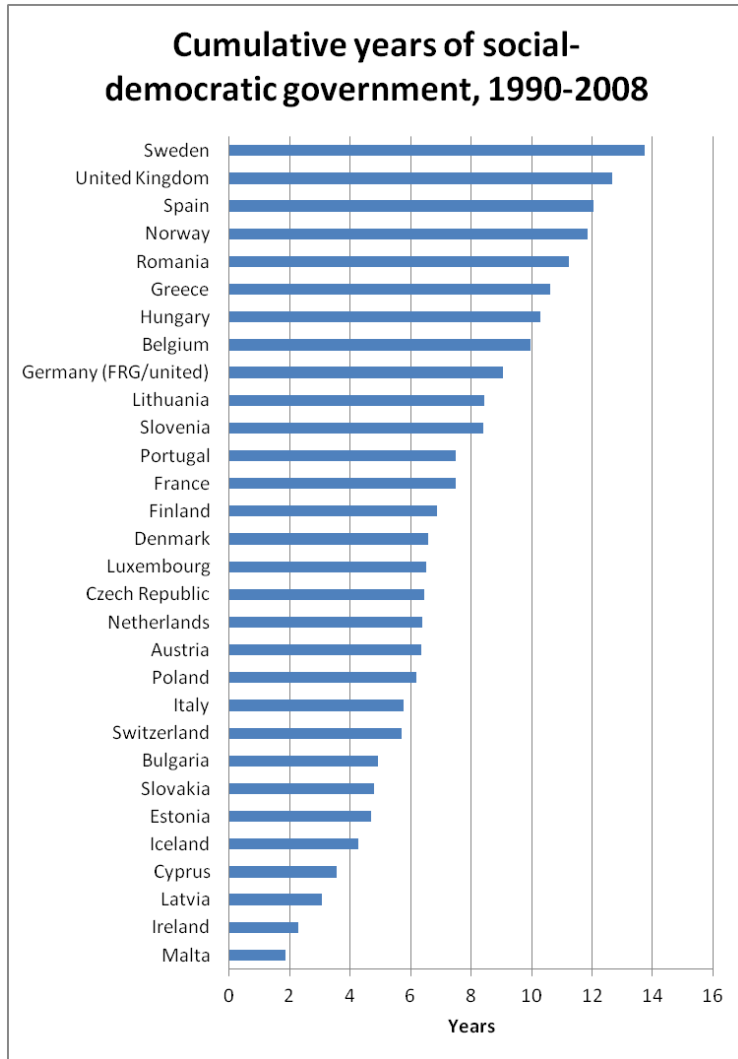
Policy area	National income	Survival values	Democracy	Left parties	Govt. effectiveness	Ethnic fractional.
Tobacco control score		■				
Male smoking		■		■		
Male lung cancer		■				
Alcohol policy score					■	
Alcohol consumption		■				
Male liver cirrhosis		■		■		
Iodine deficiency						
Fat as % of energy	■					
Fruit & veg. cons.	■				■	
Teenage pregnancy	■		■			
Neonatal mortality			■			
Maternal mortality			■			
Measles immunisation						
Child safety score					■	
Postneonatal mortality	■		■			
AIDS incidence						
MRSA rate						
Influenza vaccination	■					
Male blood pressure		■				
Female stroke mort.	■					
Cervical cancer mort.	■					
Seat belt wearing					■	
Occupant mortality	■					
Pedestrian mortality	■					
SO2 emissions					■	
Ozone concentrations						
Summary score		■				■

# ROLE OF PARTY POLITICS?

- Political science literature: social-democratic government reduces income inequality
- We find no effect of recent, and some effect of long-term social-democratic government on health policy performance

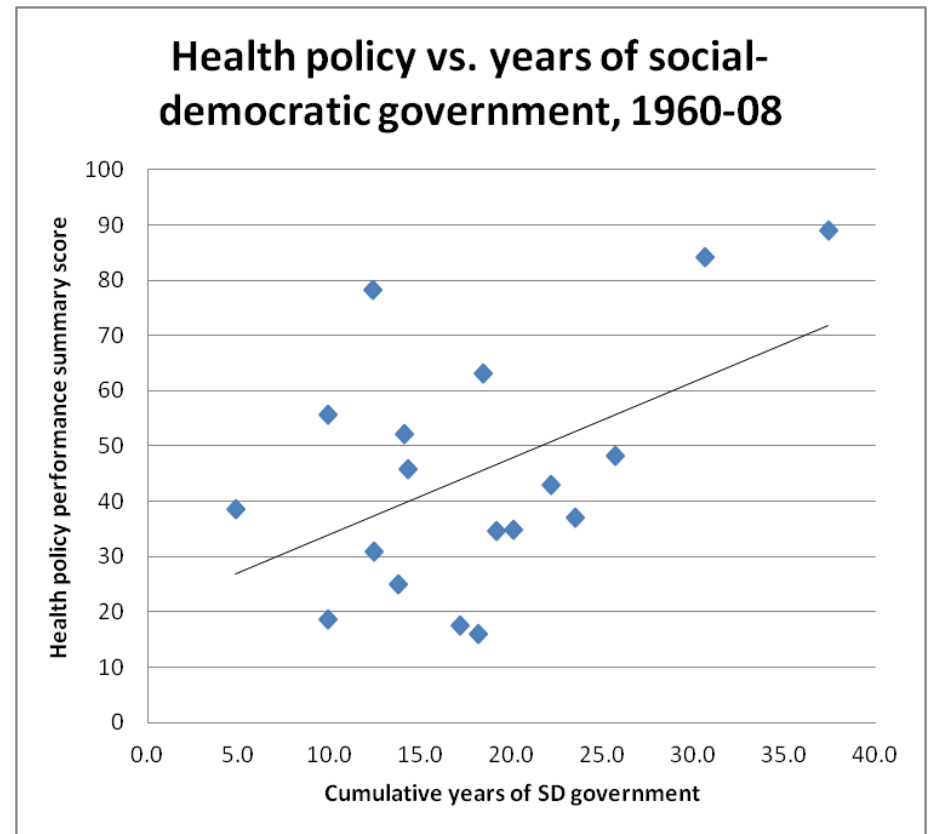
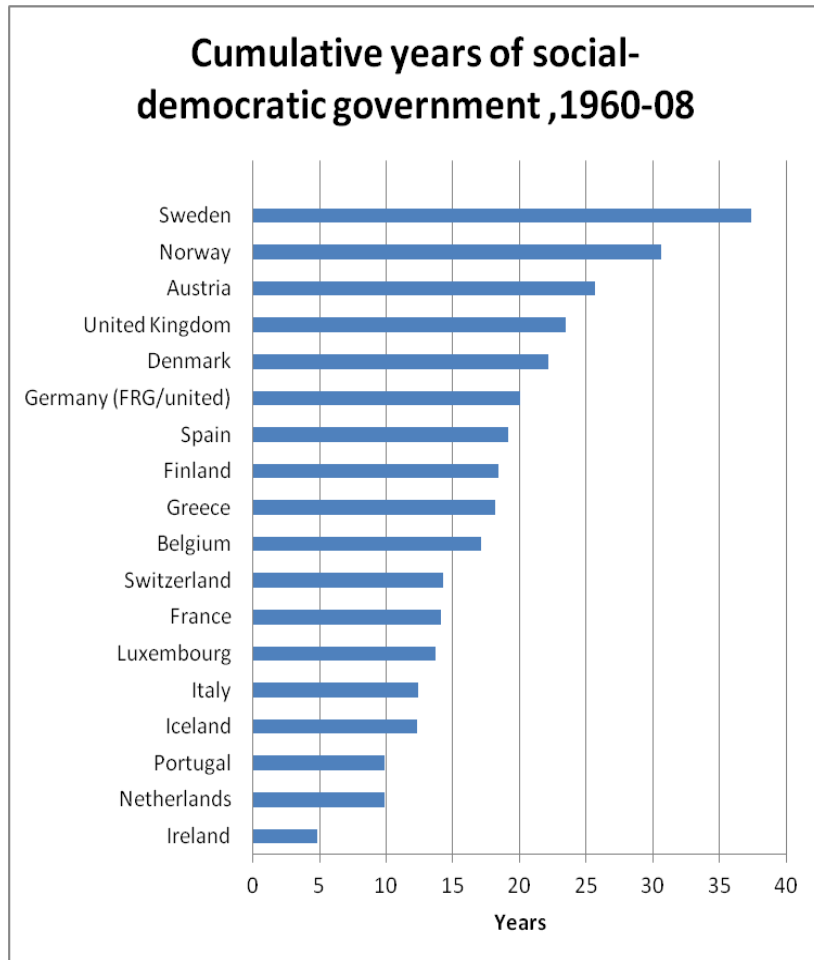


# NO EFFECT OF RECENT LEFT GOVERNMENT



Univariate beta=1.671 (n.s.), multivariate beta = -0.103 (n.s.)

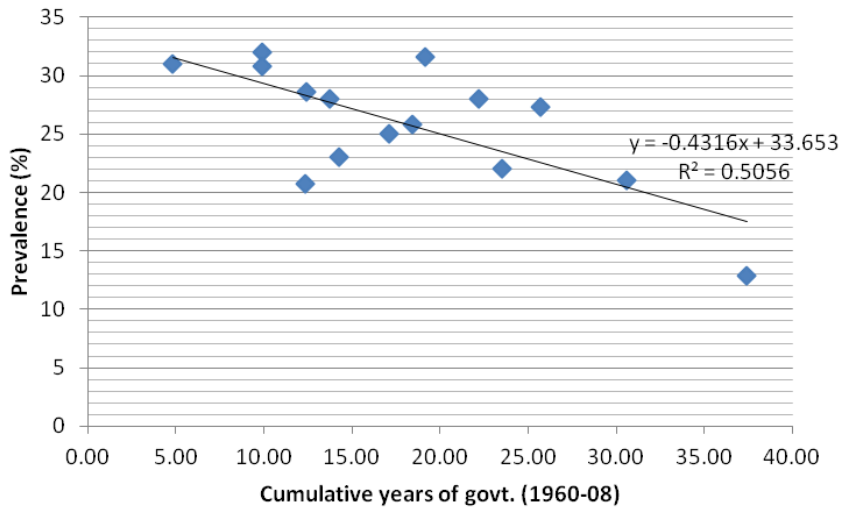
# SOME EFFECT OF LONG-TERM LEFT GOVERNMENT?



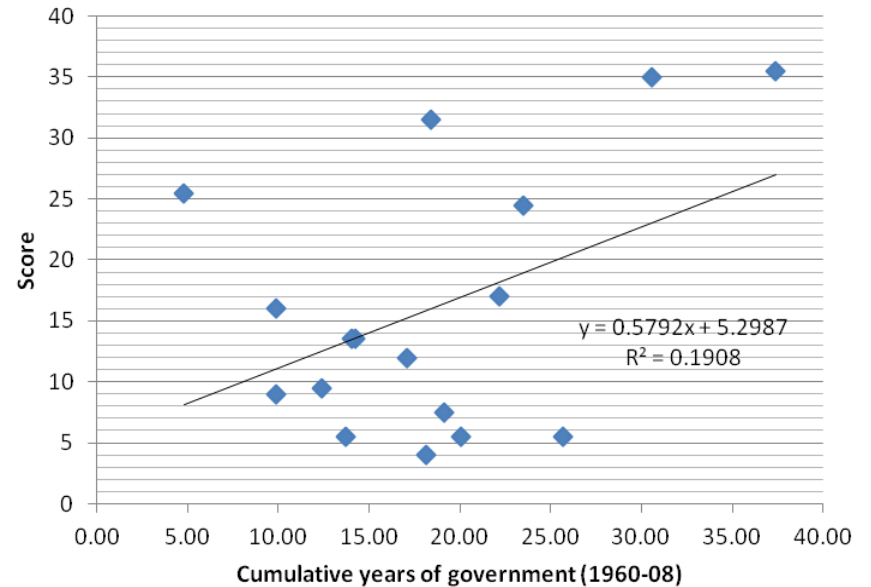
Univariate beta=1.381 (p=0.04), multivariate beta = 0.812 (n.s.)

# TOBACCO AND ALCOHOL

Male smoking vs.  
years of SD government



BtG alcohol policy score vs.  
years of SD government



# IN CONCLUSION

- The diverging health trends in Europe are a testimony to both the successes and failures of health policy in Europe in the past decades
- Economic, cultural and political conditions have been the main drivers of this divergence, but they were partly mediated by specific health policies
- Europe's diversity offers great opportunities for mutual learning, in which public health and health policy research have an important role to play



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