Additional file 1 for the article: Stagnation, deterioration and disparities on adulthood survival in Mexican states, 1990-2015.

José Manuel Aburto[1], Tim Riffe[2], and Vladimir Canudas-Romo[1]

[1]Department of Public Health & Max Planck Odense Center on the Biodemography of Aging at University of Southern Denmark
[2]Max Planck Institute for Demographic Research

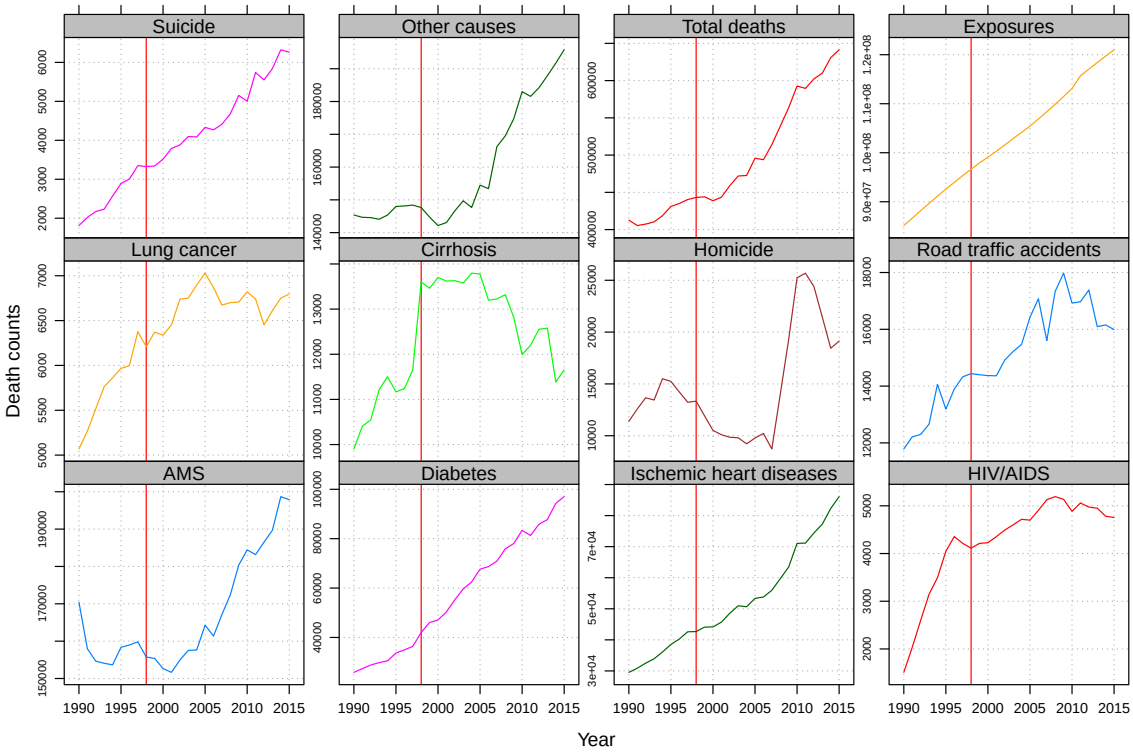
March 29, 2017

Supplemental material

Appendix Table 1. Definitions of cause-of-death categories using the 9th and 10th revision of the International Classification of Diseases.

Category	ICD-10	ICD-9
I. Amenable to medical service		
I.A. AM-Infectious & respiratory diseases : intestinal infections, tuberculosis, zoonotic bacterial diseases, other bacterial diseases, septicemia, poliomyelitis, measles, rubella, infectious hepatitis, ornithosis, rickettsioses/ arthropod-borne, syphilis (all forms), yaws, respiratory diseases, influenza & pneumonia, chronic lower respiratory diseases	A00-A09, A16-A19, B90, A20-A26, A28, A32, A33, A35, A36, A37, A40-A41, A80, B05-B06, B15-B19, A70, A68, A75, A77, A50-A64, A66, J00-J08, J20-J39, J60-J99, J09-J18, J40-J47	001-009, 010-018, 32, 33, 37, 137, 020-027, 38, 45, 55-56, 70, 73, 080-082, 087, 090-099, 102, 460-479, 500-519, 480-488, 490-496
I.B. AM-Cancers: malignant neoplasm of colon, skin, breast, cervix, prostate, testis, bladder, kidney-Wilm's tumor only, eye, thyroid carcinoma, Hodgkins disease, leukemia	C16,C18-C21, C43-C44, C50, C53, C61, C62, C67, C64, C69, C73, C81, C91-C95	153-154, 172-173, 174, 180, 185, 186, 188-189, 190, 193, 201, 204-208
I.C. AM-Circulatory: active/acute rheumatic fever, chronic rheumatic heart disease, hypertensive disease, cerebrovascular disease	I00-I02, I05-I09, I10-I13, I15, I60-I69	390-392, 393-398, 401-405, 430-438
I.D. AM-Birth: maternal deaths (all), congenital cardiovascular anomalies, perinatal deaths (excluding stillbirths)	O00-O99, Q20-Q28, P00-P96	630-676, 745-747, 760-779
I.E. AM-Other: disease of thyroid, epilepsy, peptic ulcer, appendicitis, abdominal hernia, cholelithiasis & cholecystitis, nephritis, benign prostatic hyperplasia, misadventures to patients during surgical or medical care, cisticerchosis	E00-E07, 40-G41, K25-K27, K35-K38, K40-K46, K80-K81, N00-N07, N17-N19, N25-N27, N40, Y60-Y69, Y83-Y84, B69	240-246, 345, 531-533, 540-543, 550-553, 574-575.1, 580-589, 600, E870-E876, E878-E879
II. Diabetes	E10-E14	250
III. Ischemic Heart Diseases (IHD)	I20-I25	410-414, 429.2
IV. HIV/AIDS	B20-B24	279.1, 042-044
V. Lung cancer	C33-C34	162
VI. Cirrhosis	K70	571.1-571.3
VII. Homicides	X85-Y09	E960-E969
VIII. Road traffic accidents	V01-V99	E810-E819
IX. Suicide and self-inflicted injuries	U03, X60-X84, Y87.0	E950-E959
X. Residual Causes : other cancers and other heart diseases	C00-D48, I00-I99 if not listed above, R00-R99	140-239, 390-459 if not listed above, 780-799

Figure 1: Cause-specific mortality counts, 1990-2010.



Note: AMS "amenable to medical service". The red line indicates the change from ICD 9 to ICD 10.

Temporary Life Expectancy

Temporary life expectancy between ages x_1 and x_2, for $x_1 < x_2$, is defined as the average years of life lived between these ages according to a given set of mortality rates (Arriaga 1984). We denote this quantity as ${}_{(x_2-x_1)}e_{x_1}$, and its benchmark from the minimum deaths rates for every age and cause of death among the Mexican states for each year as ${}_{(x_2-x_1)}e^{\star}_{x_1}$. Defined in terms of lifetable survivorship, $\ell(x)$:

$$ {}_{(x_2-x_1)}e_{x_1} = \frac{\int_{x_1}^{x_2} \ell(x)\, \mathrm{d}x}{\ell(x_1)} \tag{1} $$

If full survival is achieved, the life expectancy is $x_2 - x_1$. For example, if we set $x_1 = 0$ and $x_2 = 14$, and no person dies between the ages 0 and 14, on average the population lives 14 full years.

References

Arriaga, E. E. (1984). Measuring and explaining the change in life expectancies. *Demography*, 21(1):83–96.

Figure 2: Inequality in life expectancy by age group measured by the Gini coefficient, 1990-2015.

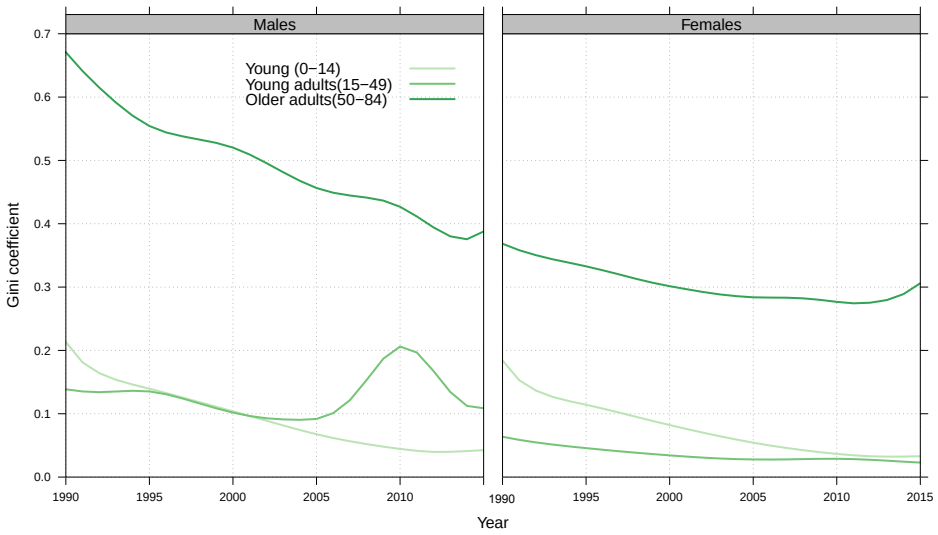
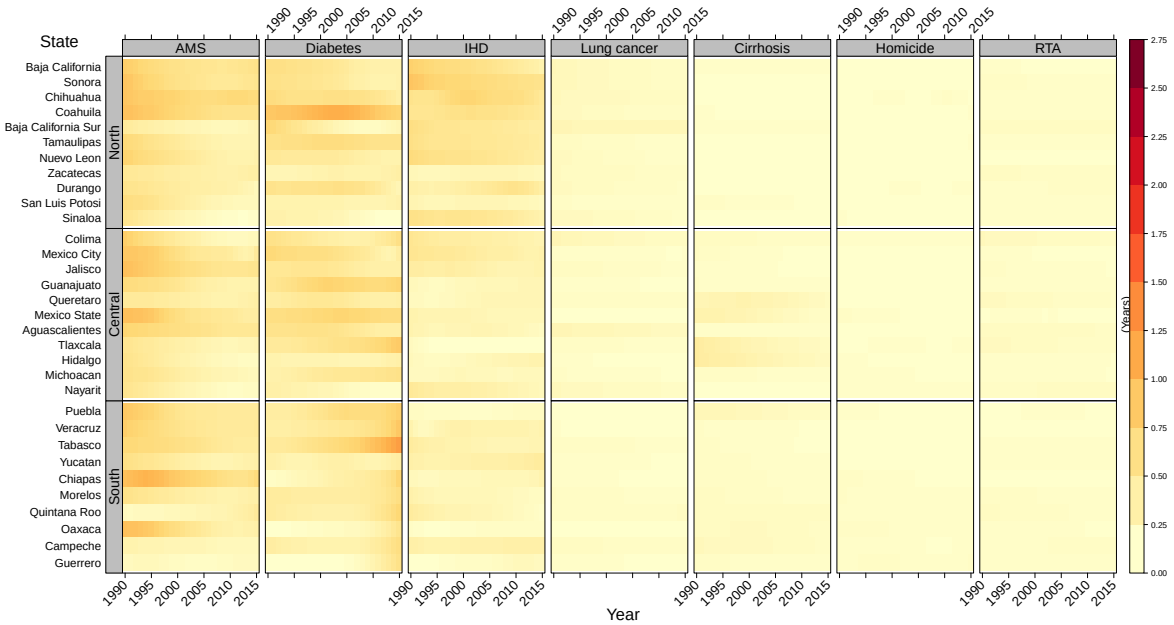
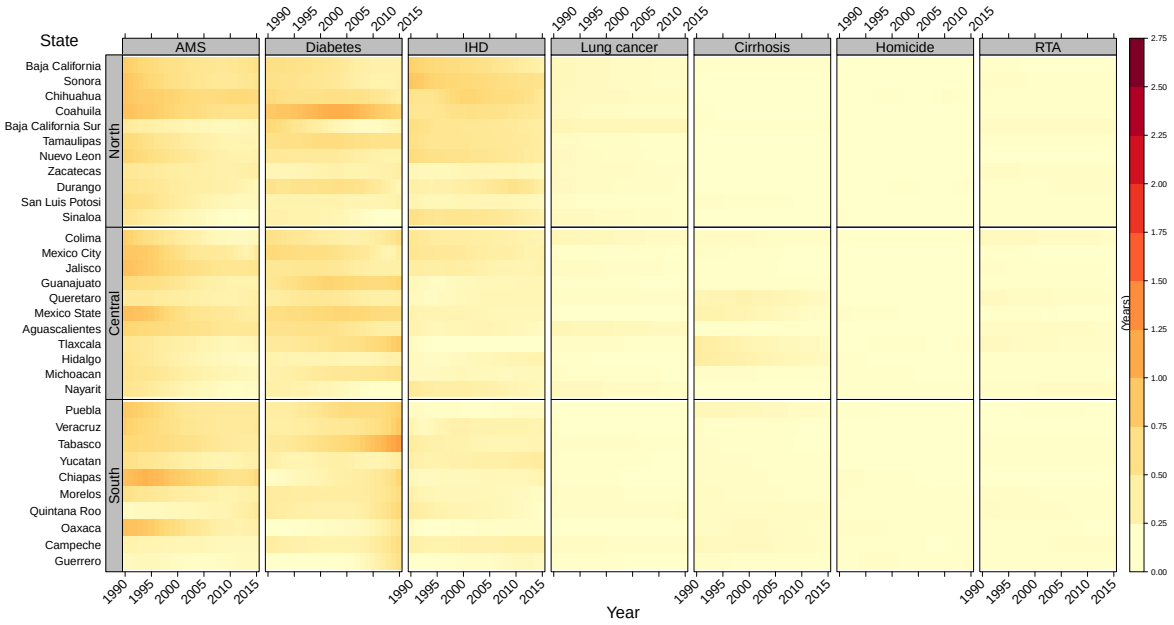


Figure 3: Cause-specific contributions to state differences from low mortality benchmark for older male adults (ages 50-84), 1990-2015. States grouped into three regions. The scale in the color was rescaled to make them comparable over age groups in the supplemental material, the maximum value observed was 2.6 years caused by homicides in Chihuahua in 2010.



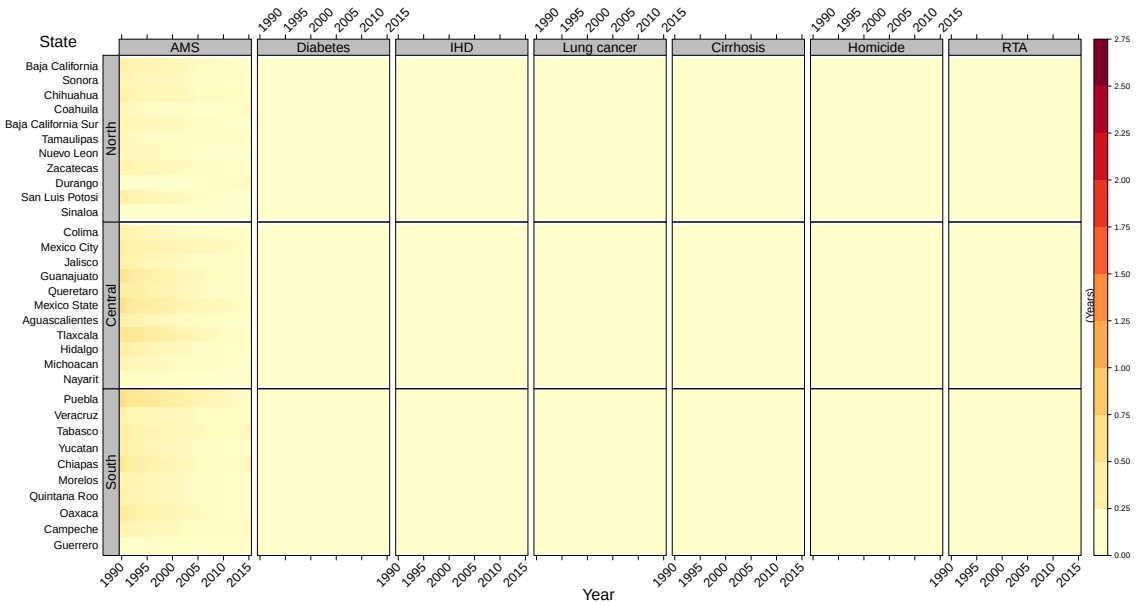
Note: AMS is "amenable to medical service", IHD is "isquemic heart diseases", and RTA is "road traffic accidents". Source: own calculations.

Figure 4: Cause-specific contributions to state differences from low mortality benchmark for older female adults (ages 50-84), 1990-2015. States grouped into three regions. The scale in the color was rescaled to make them comparable over age groups in the supplemental material, the maximum value observed was 2.6 years caused by homicides in Chihuahua in 2010.)



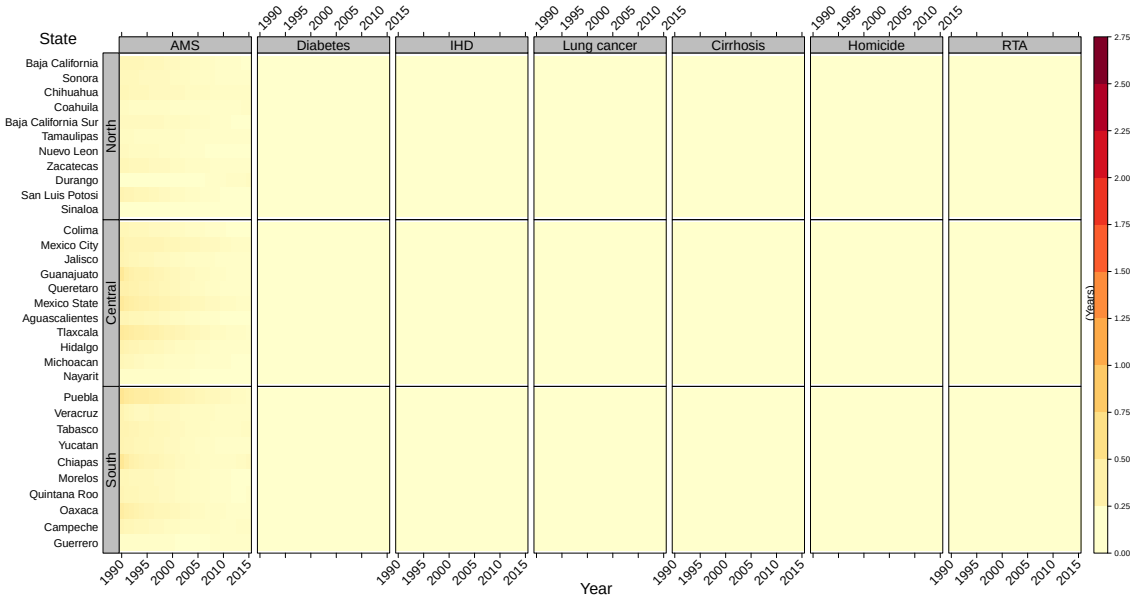
Note: AMS is "amenable to medical service", IHD is "isquemic heart diseases", and RTA is "road traffic accidents". Source: own calculations.

Figure 5: Cause-specific contributions to state differences from low mortality benchmark for male young population (ages 0-14), 1990-2015. The scale in the color was rescaled to make them comparable over age groups in the supplemental material, the maximum value observed was 2.6 years caused by homicides in Chihuahua in 2010.



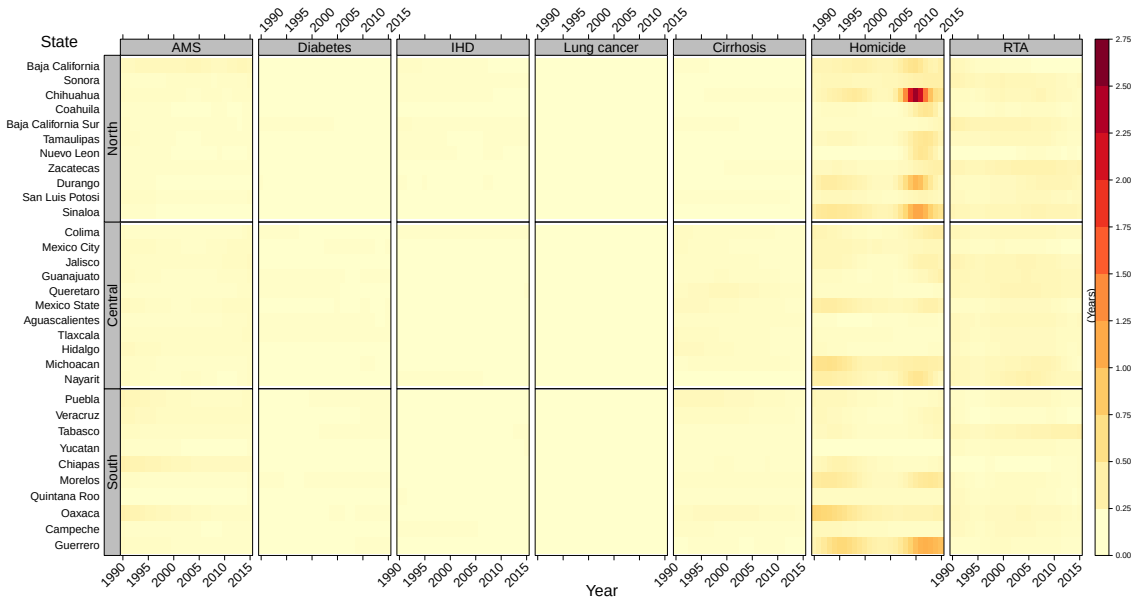
Note: AMS is "amenable to medical service", IHD is "isquemic heart diseases", and RTA is "road traffic accidents". Source: own calculations.

Figure 6: Cause-specific contributions to state differences from low mortality benchmark for female young population (ages 0-14), 1990-2015. The scale in the color was rescaled to make them comparable over age groups in the supplemental material, the maximum value observed was 2.6 years caused by homicides in Chihuahua in 2010.



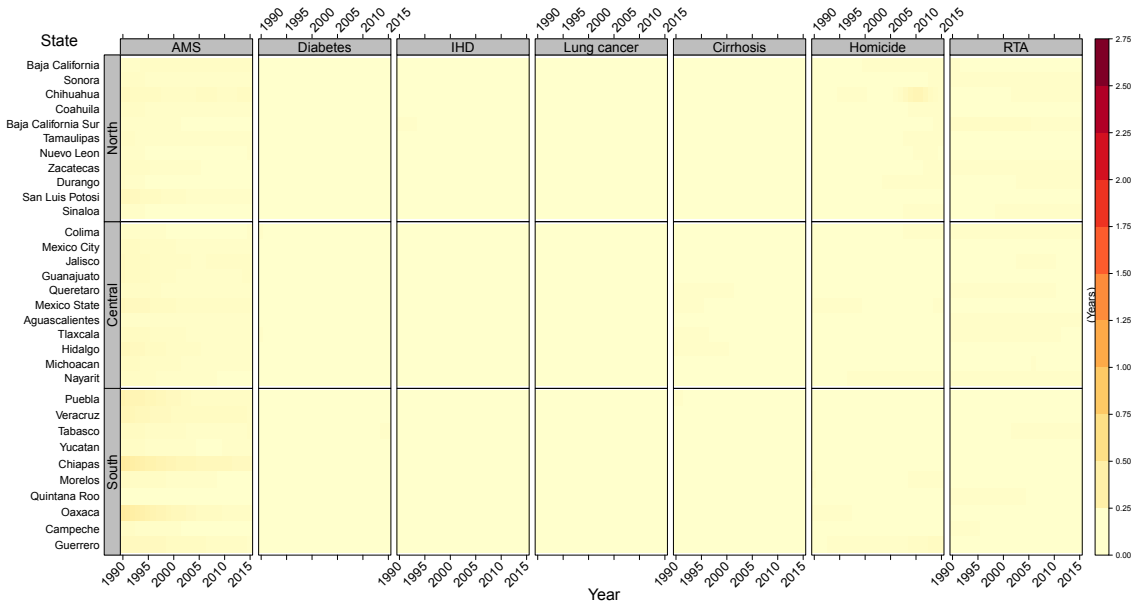
Note: AMS is "amenable to medical service", IHD is "isquemic heart diseases", and RTA is "road traffic accidents". Source: own calculations.

Figure 7: Cause-specific contributions to state differences from low mortality benchmark for male young adults (ages 15-49), 1990-2015. The scale in the color was rescaled to make them comparable over age groups in the supplemental material, the maximum value observed was 2.6 years caused by homicides in Chihuahua in 2010.



Note: AMS is "amenable to medical service", IHD is "isquemic heart diseases", and RTA is "road traffic accidents". Source: own calculations.

Figure 8: Cause-specific contributions to state differences from low mortality benchmark for female young adults (ages 15-49), 1990-2015. The scale in the color was rescaled to make them comparable over age groups in the supplemental material, the maximum value observed was 2.6 years caused by homicides in Chihuahua in 2010.



Note: AMS is "amenable to medical service", IHD is "isquemic heart diseases", and RTA is "road traffic accidents". Source: own calculations.

Figure 9: Distance from low mortality benchmark for selected years between ages 0-14. Source: own calculations.

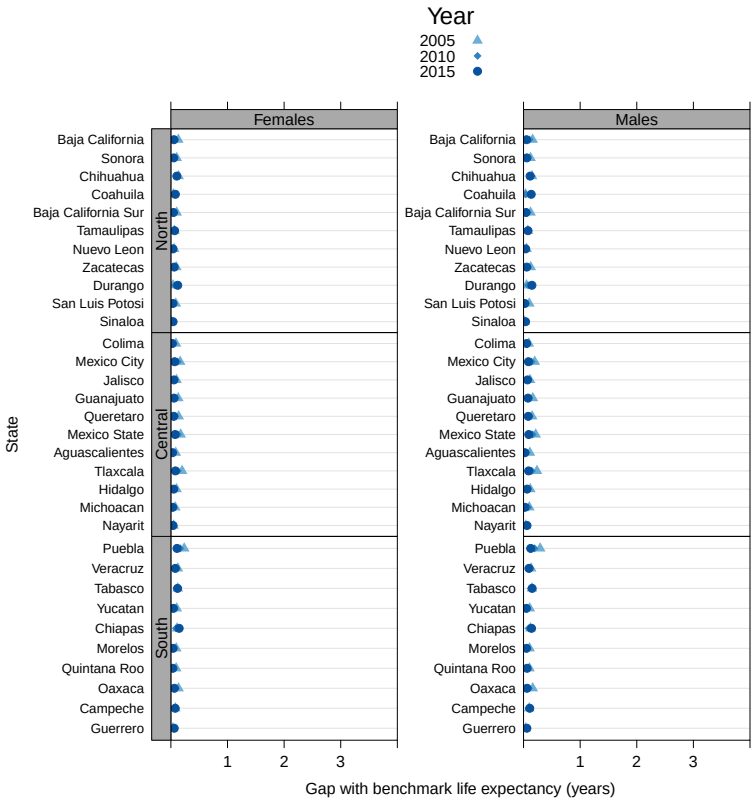


Figure 10: Distance from low mortality benchmark for selected years between ages 15-49. Source: own calculations.

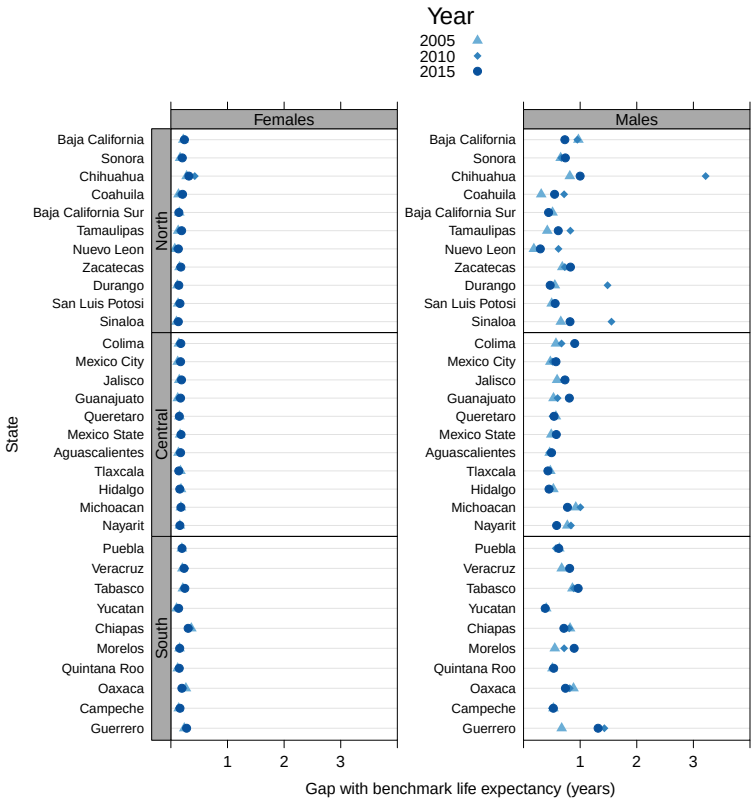


Figure 11: Distance from low mortality benchmark for selected years between ages 50-84. Source: own calculations.

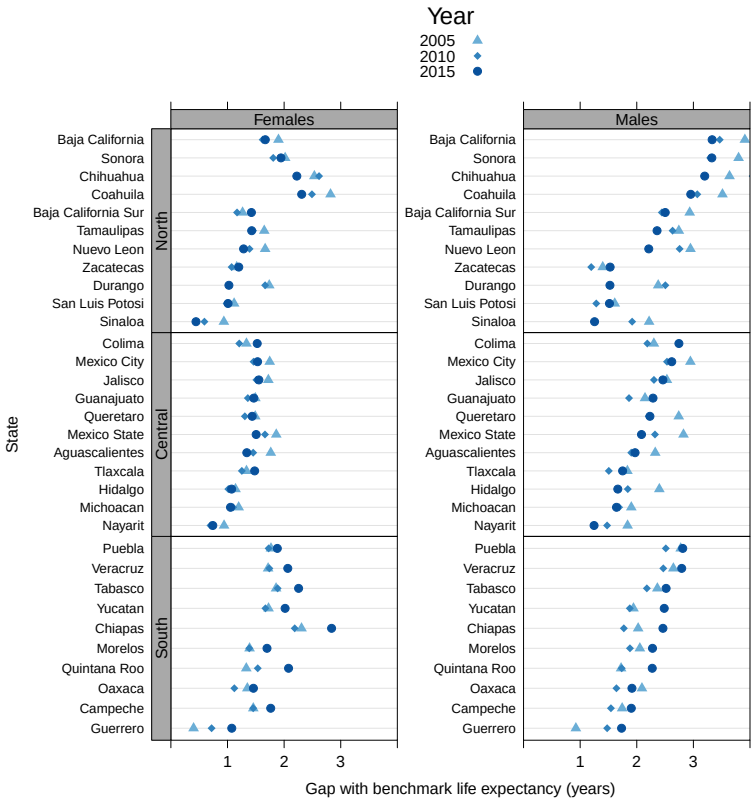


Figure 12: Proportion by cause of death from benchmark mortality for young females (ages 0-14). Source: own calculations.

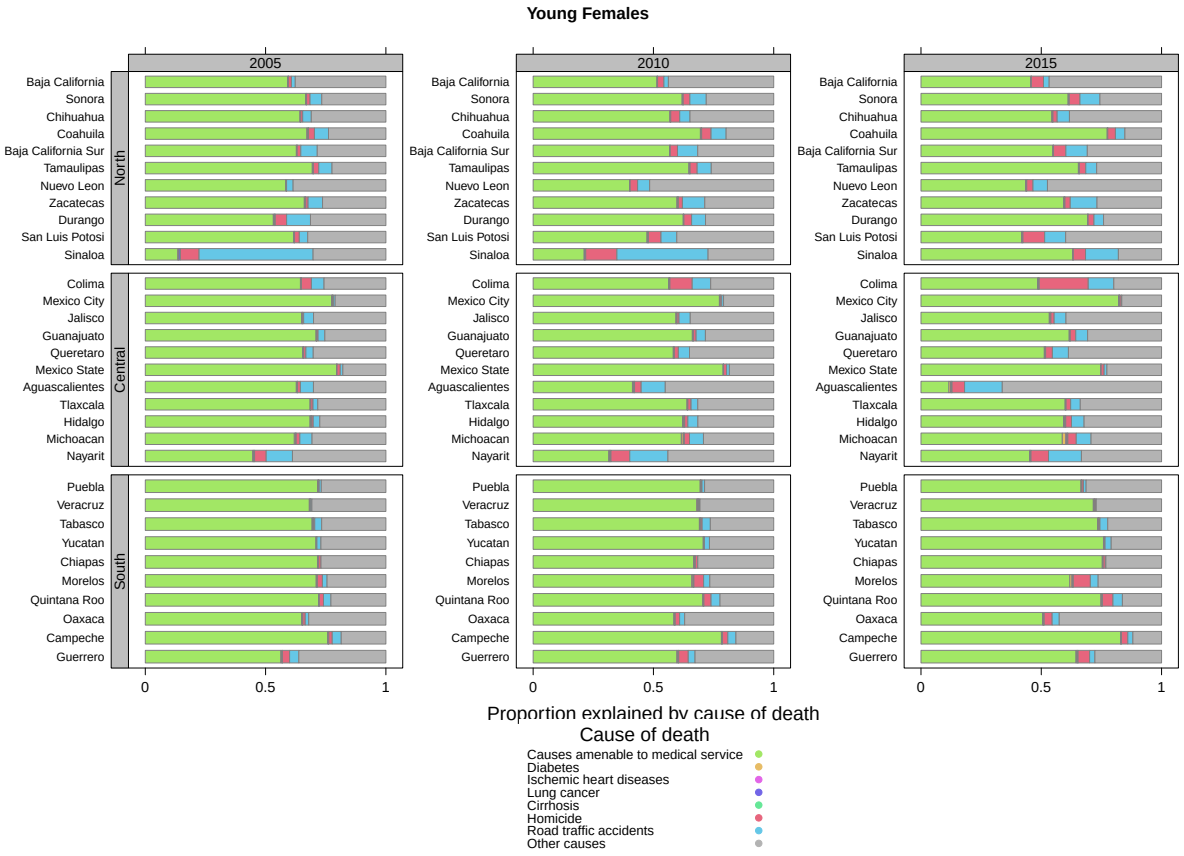


Figure 13: Proportion by cause of death from benchmark mortality for young males (ages 0-14). Source: own calculations.

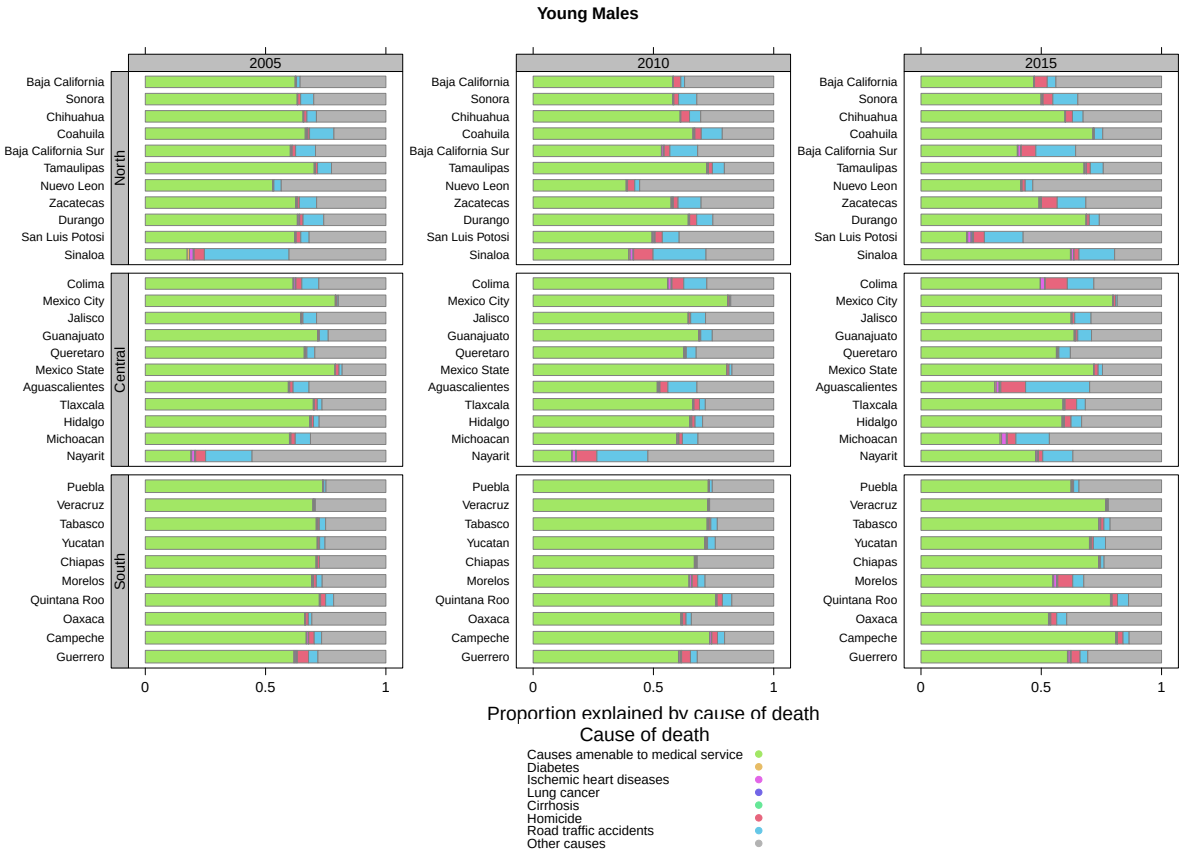


Figure 14: Proportion by cause of death from benchmark mortality for young adult females (ages 15-49). Source: own calculations.

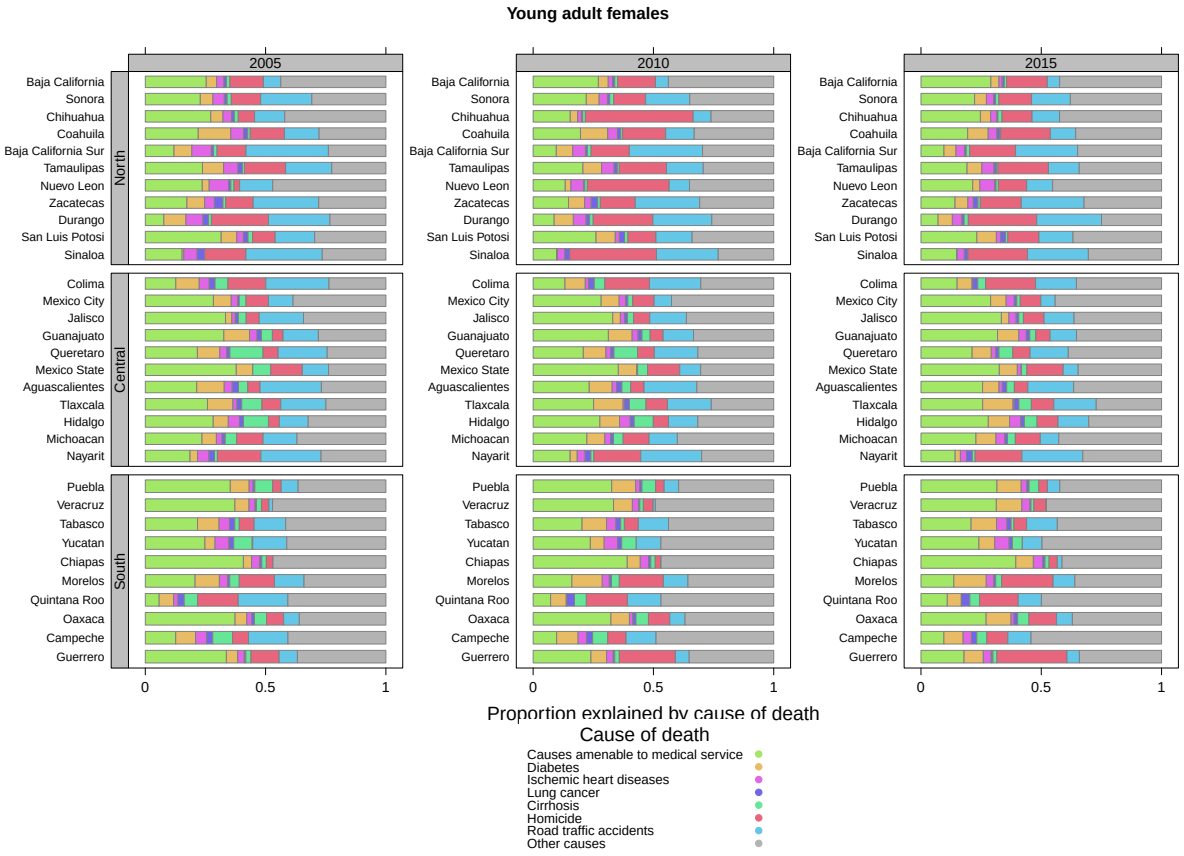


Figure 15: Proportion by cause of death from benchmark mortality for young adult males (ages 15-49). Source: own calculations.

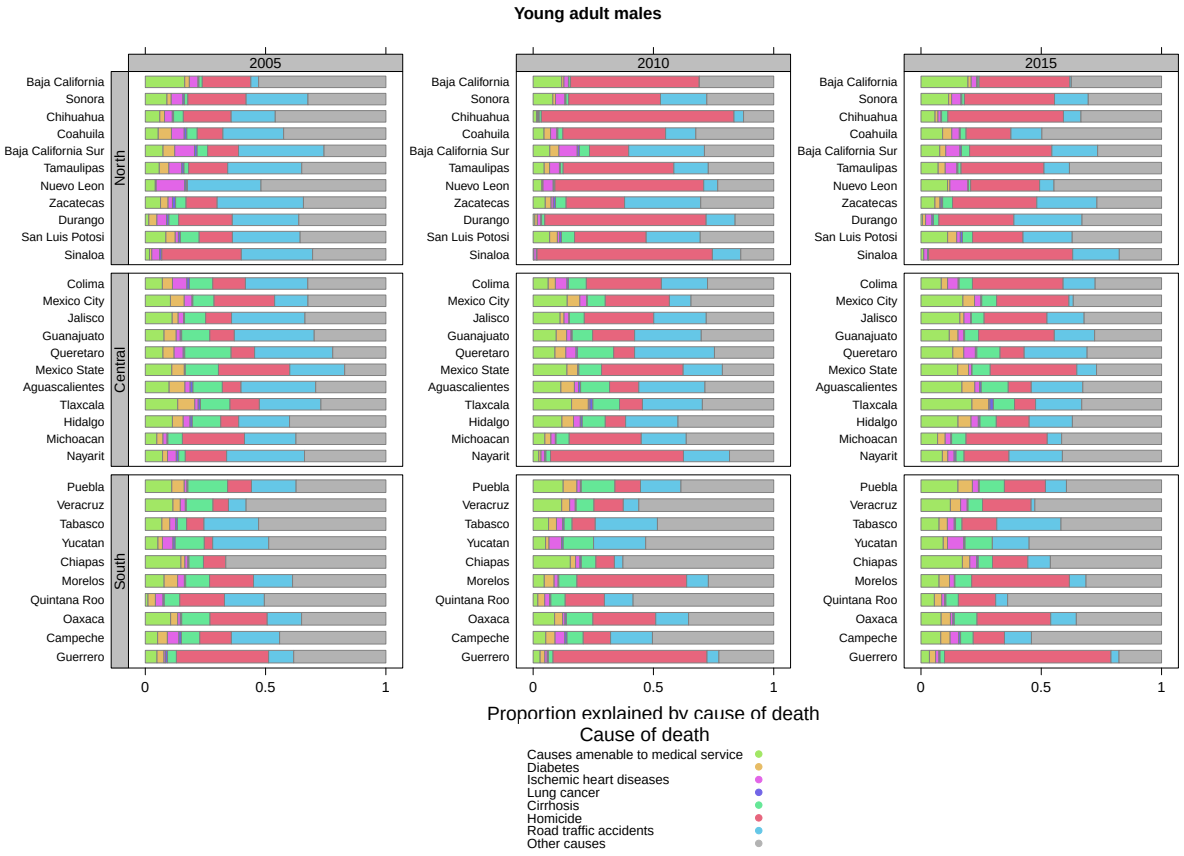


Figure 16: Proportion by cause of death from benchmark mortality for older male adults (ages 50-84). Source: own calculations.

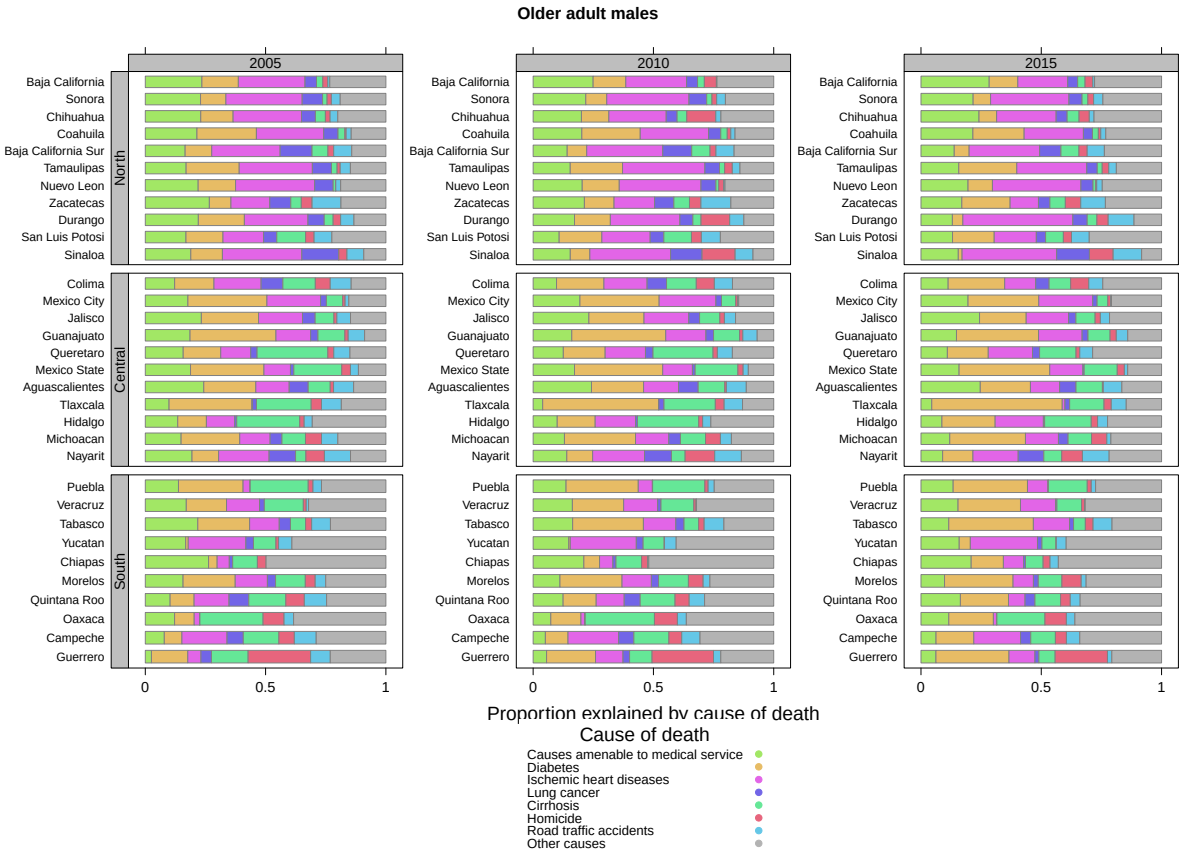


Figure 17: Proportion by cause of death from benchmark mortality for older female adults (ages 50-84). Source: own calculations.