

## Additional file 1

**Fig. S1 The change rate of age-standardized DALY rates for rheumatic heart disease from 2000 to 2019**

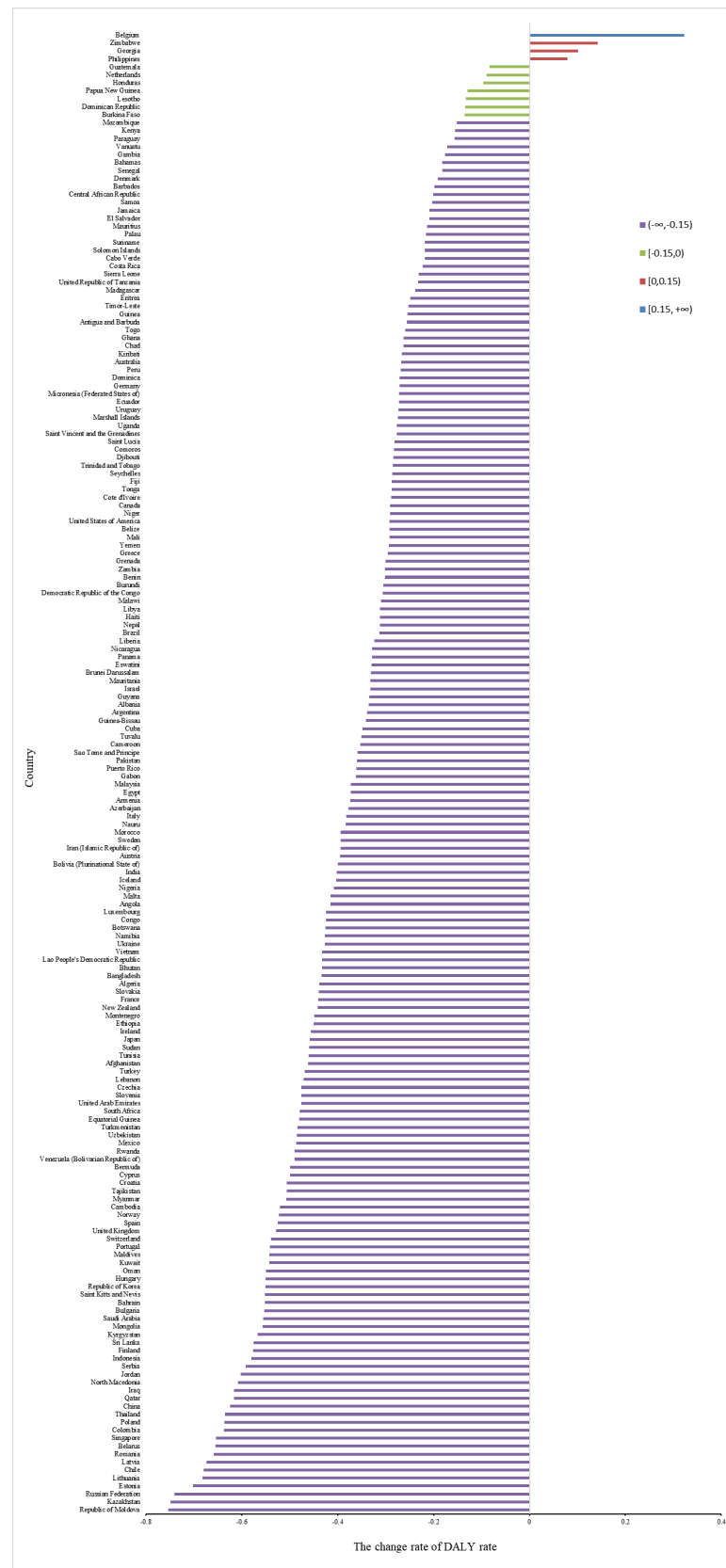


Fig. S2 The change rate of age-standardized DALY rates for ischemic heart disease from 2000 to 2019

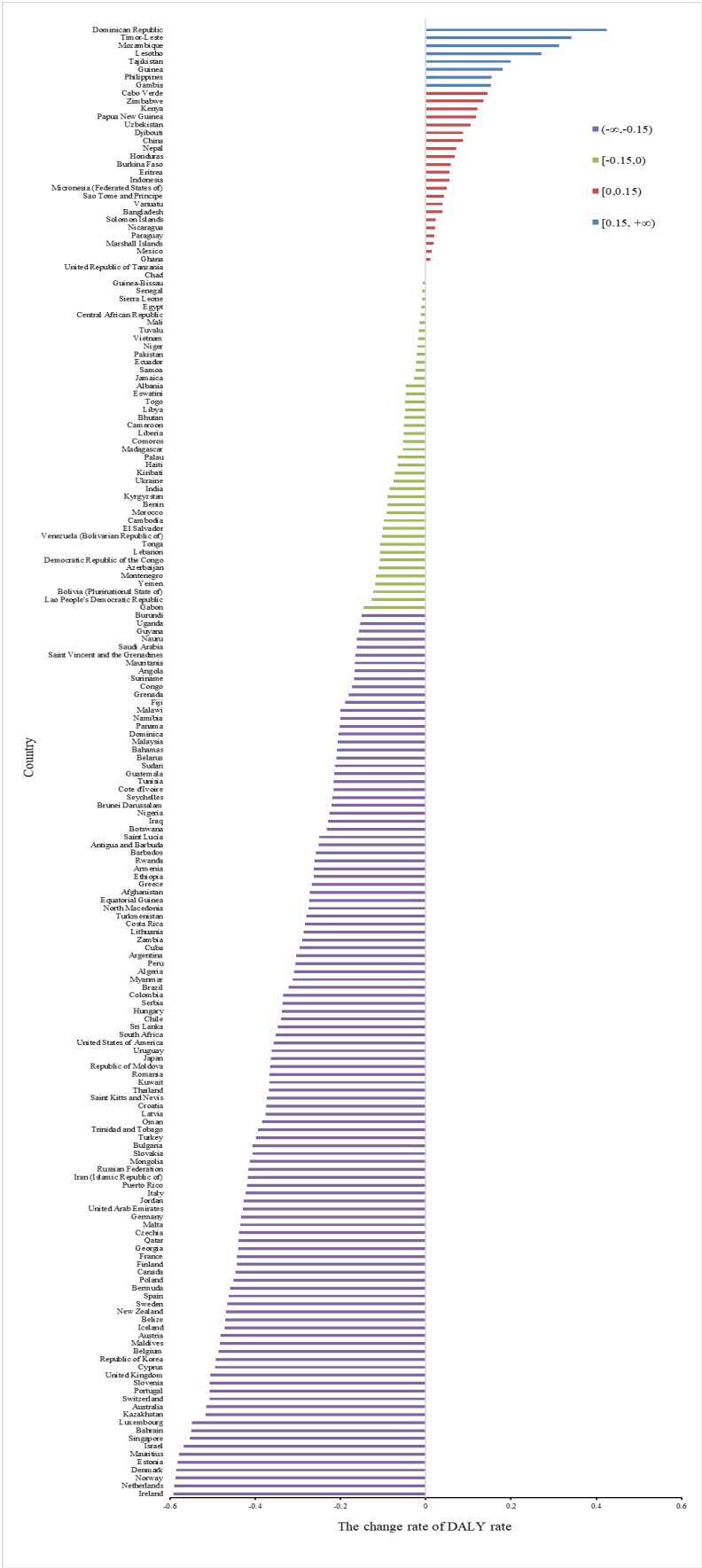
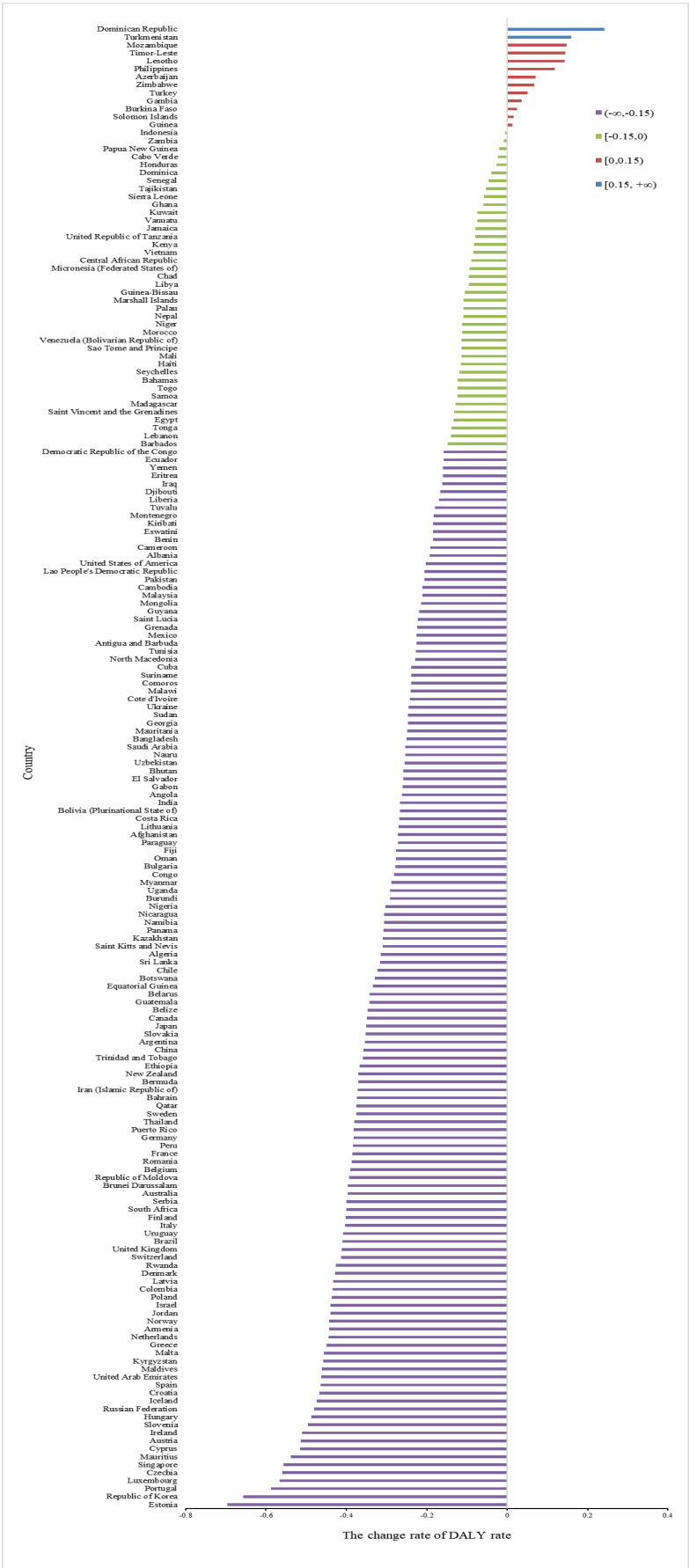
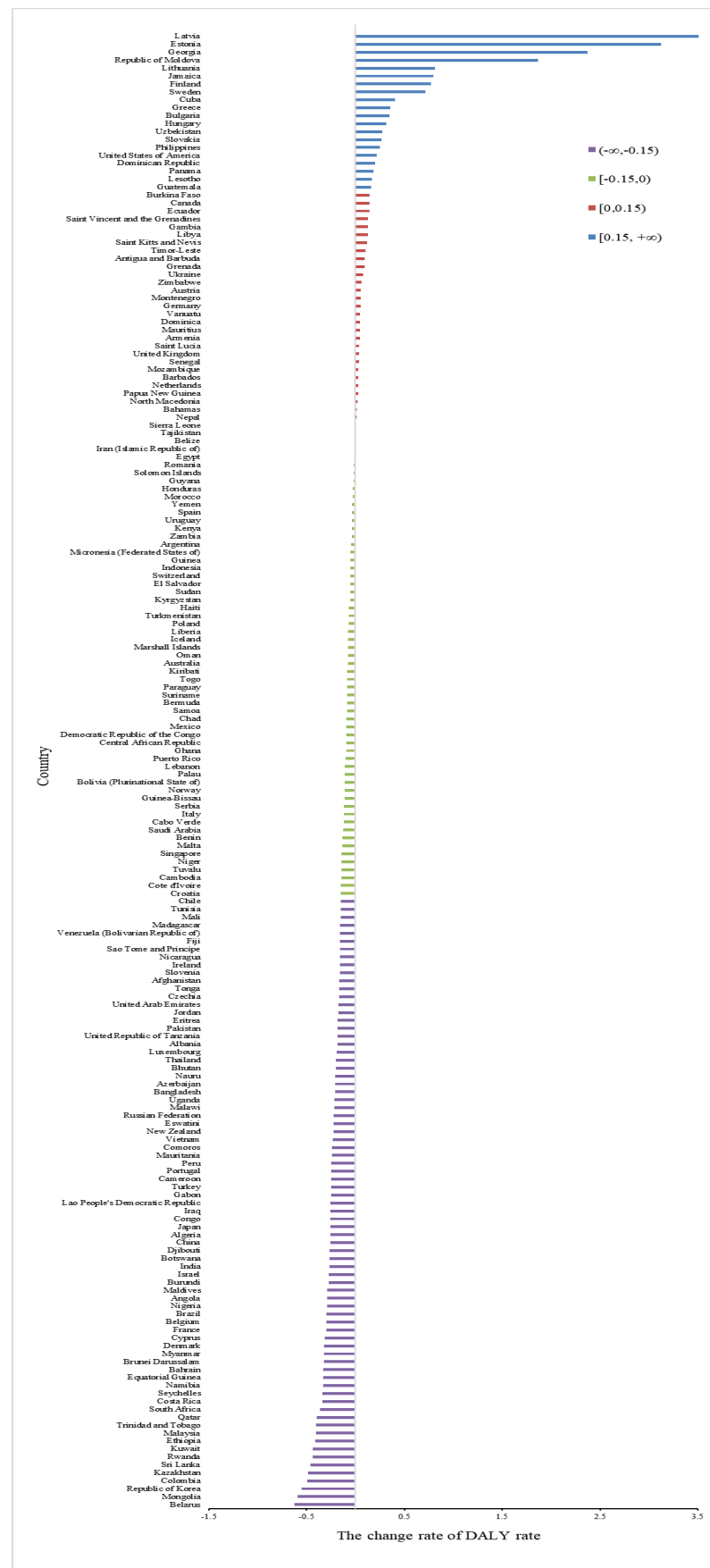


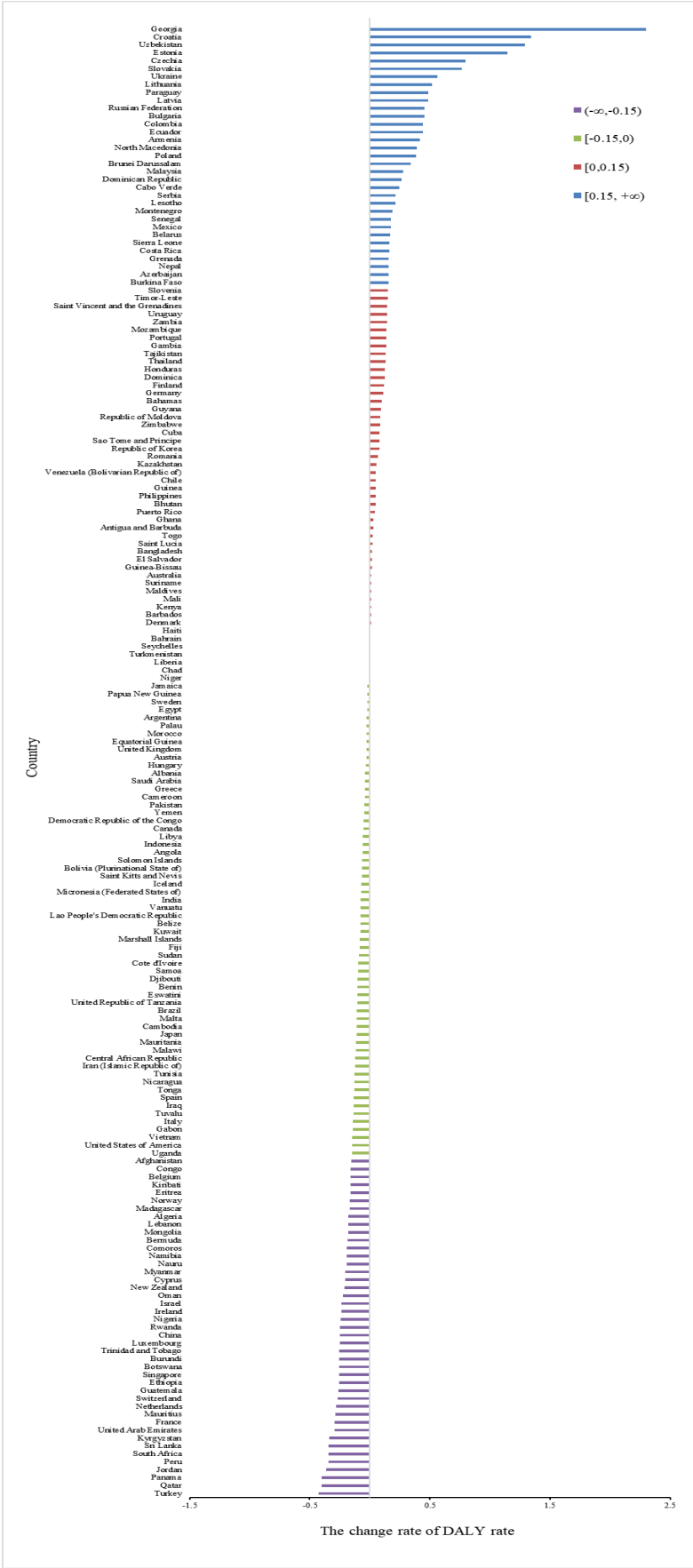
Fig. S3 The change rate of age-standardized DALY rates for stroke from 2000 to 2019



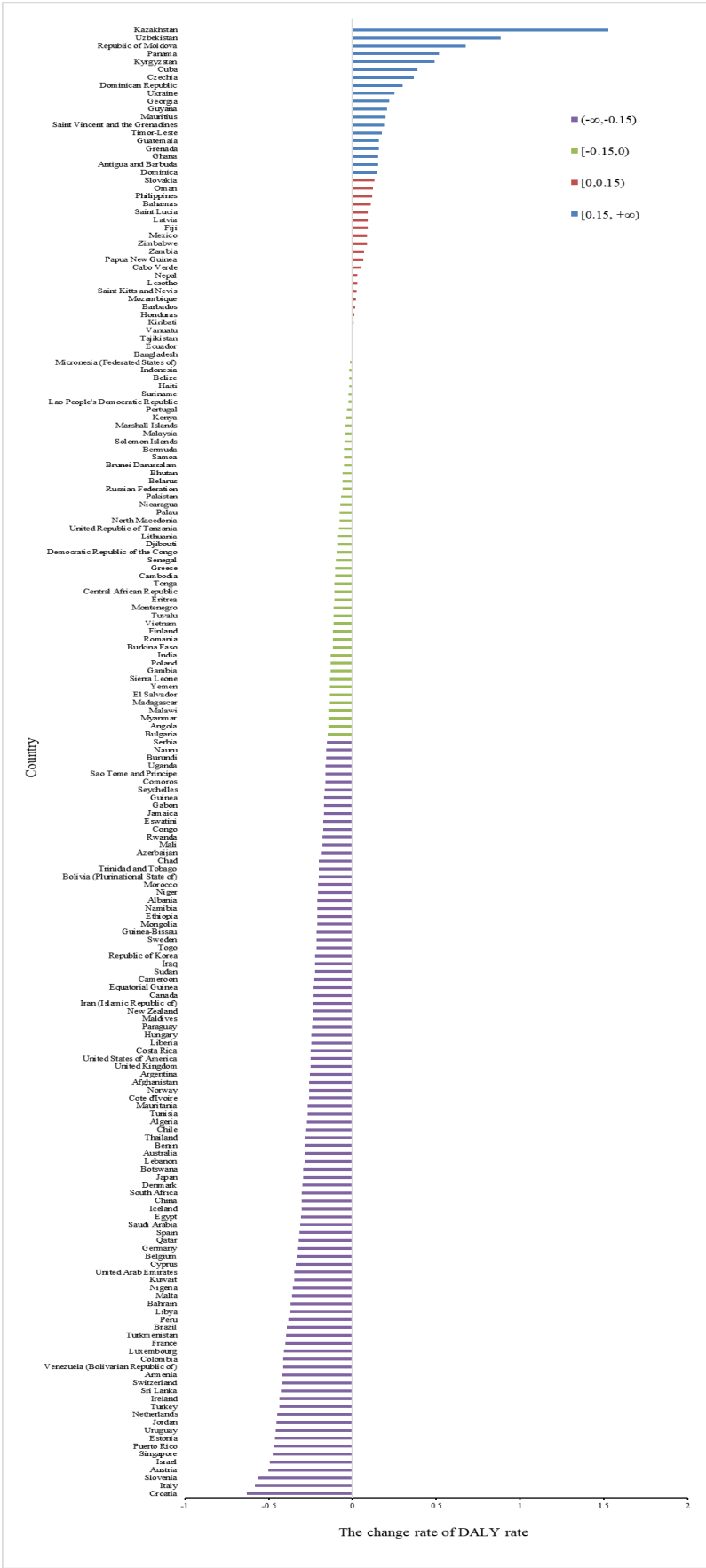
**Fig. S4 The change rate of age-standardized DALY rates for hypertensive heart disease from 2000 to 2019**



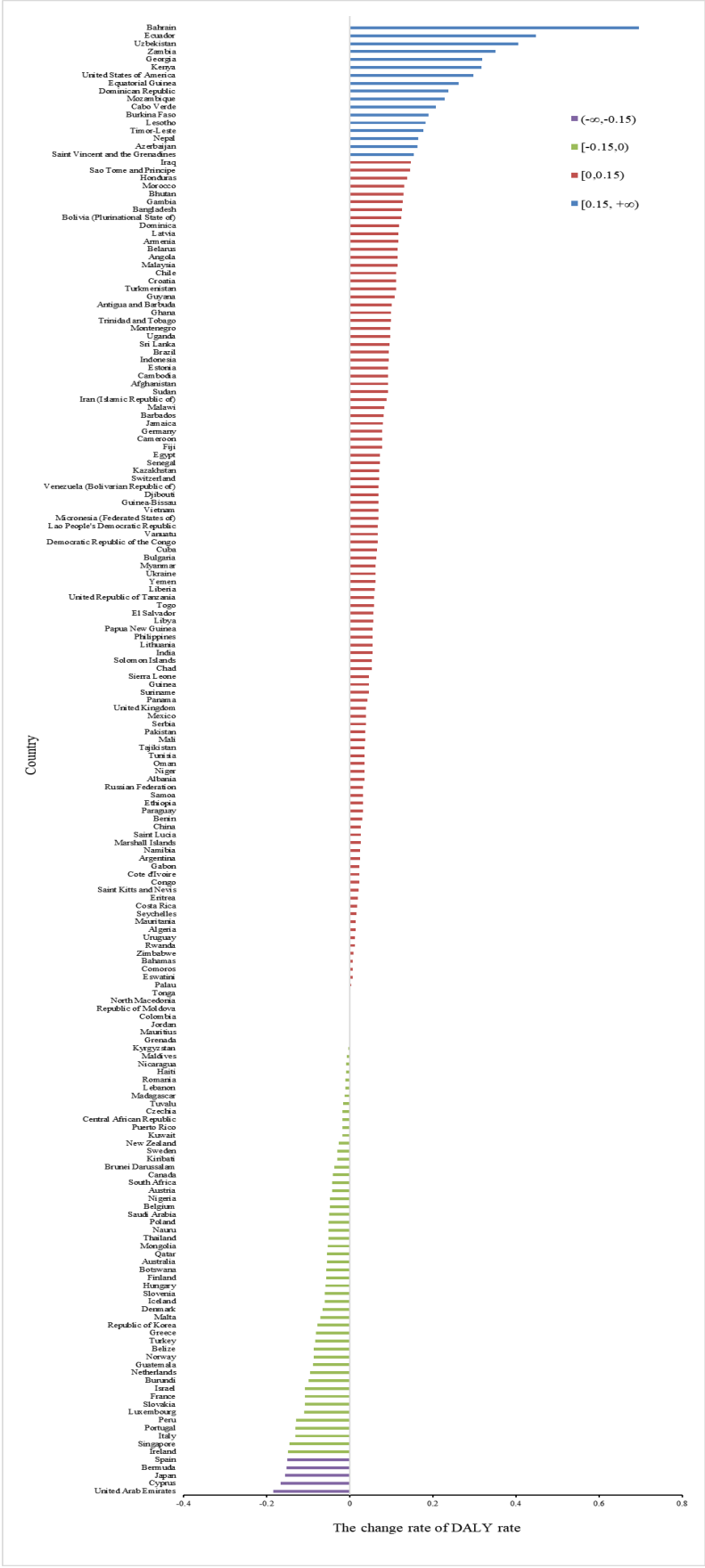
**Fig. S5 The change rate of age-standardized DALY rates for non-rheumatic valvular heart disease from 2000 to 2019**



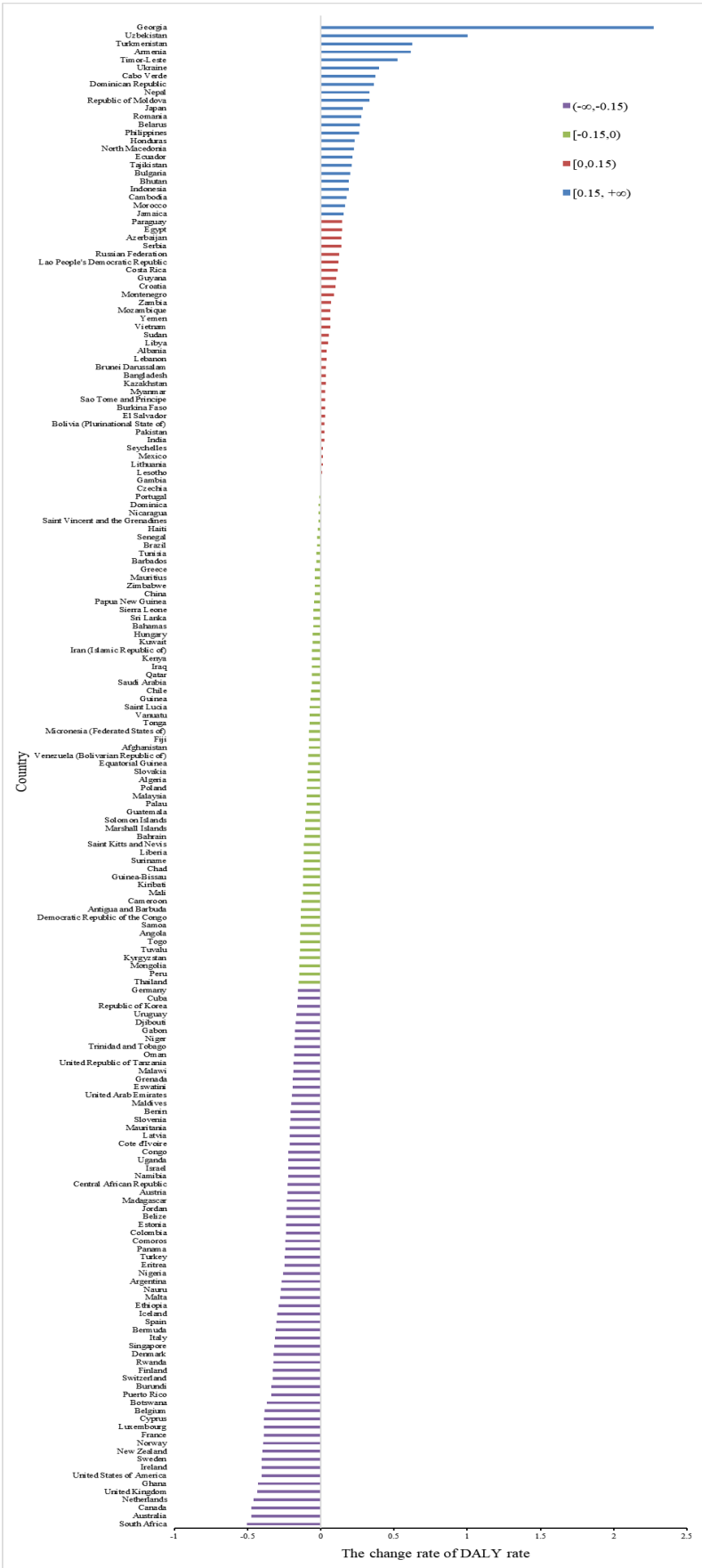
**Fig. S6 The change rate of age-standardized DALY rates for cardiomyopathy and myocarditis from 2000 to 2019**



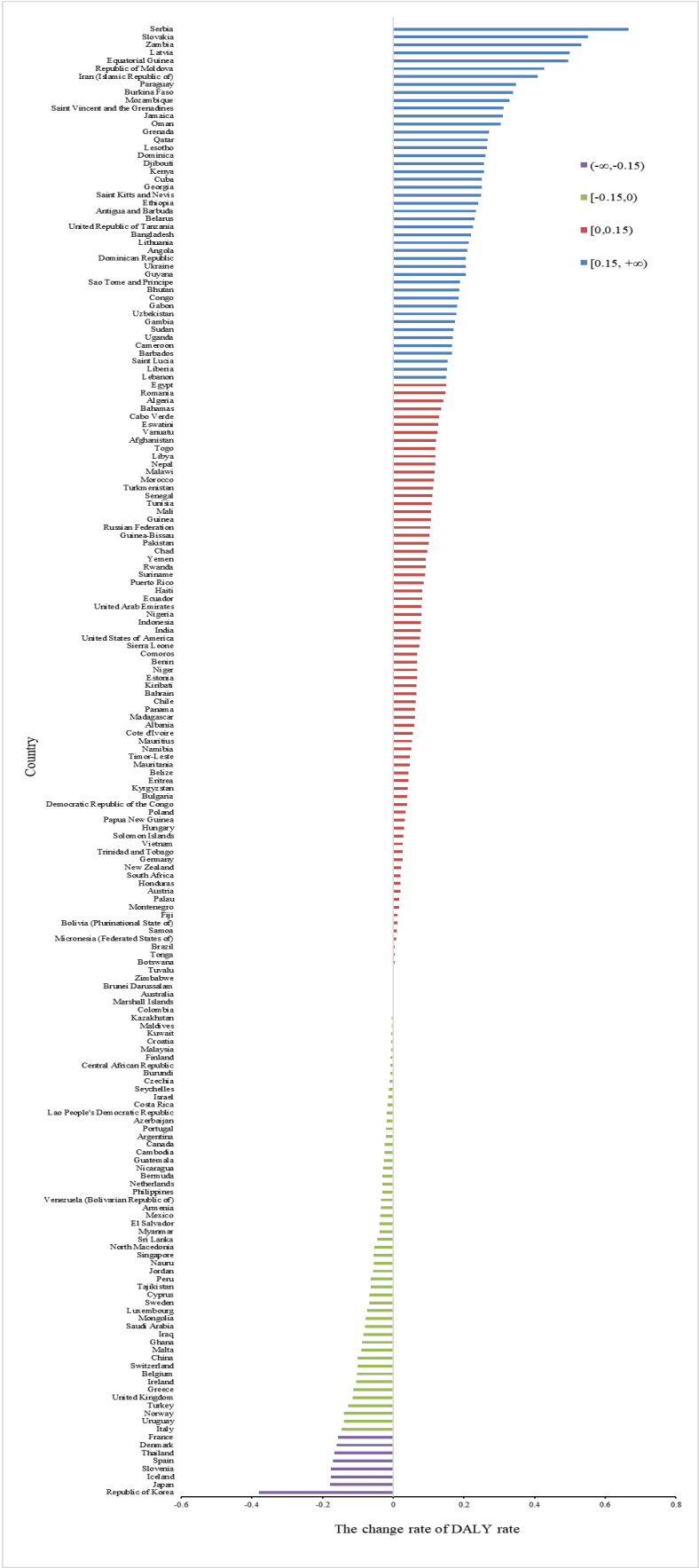
**Fig. S7 The change rate of age-standardized DALY rates for atrial fibrillation and flutter from 2000 to 2019**



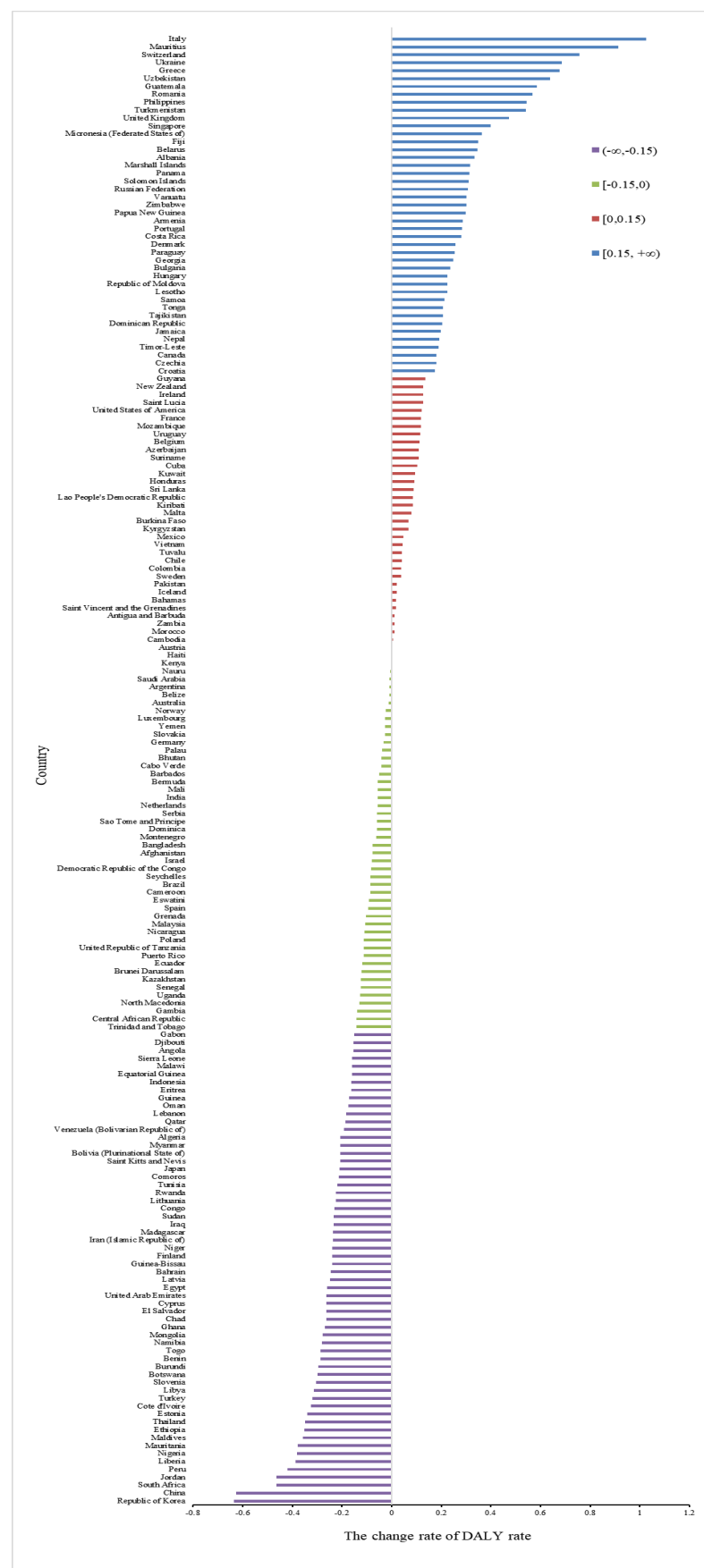
**Fig. S8 The change rate of age-standardized DALY rates for aortic aneurysm from 2000 to 2019**



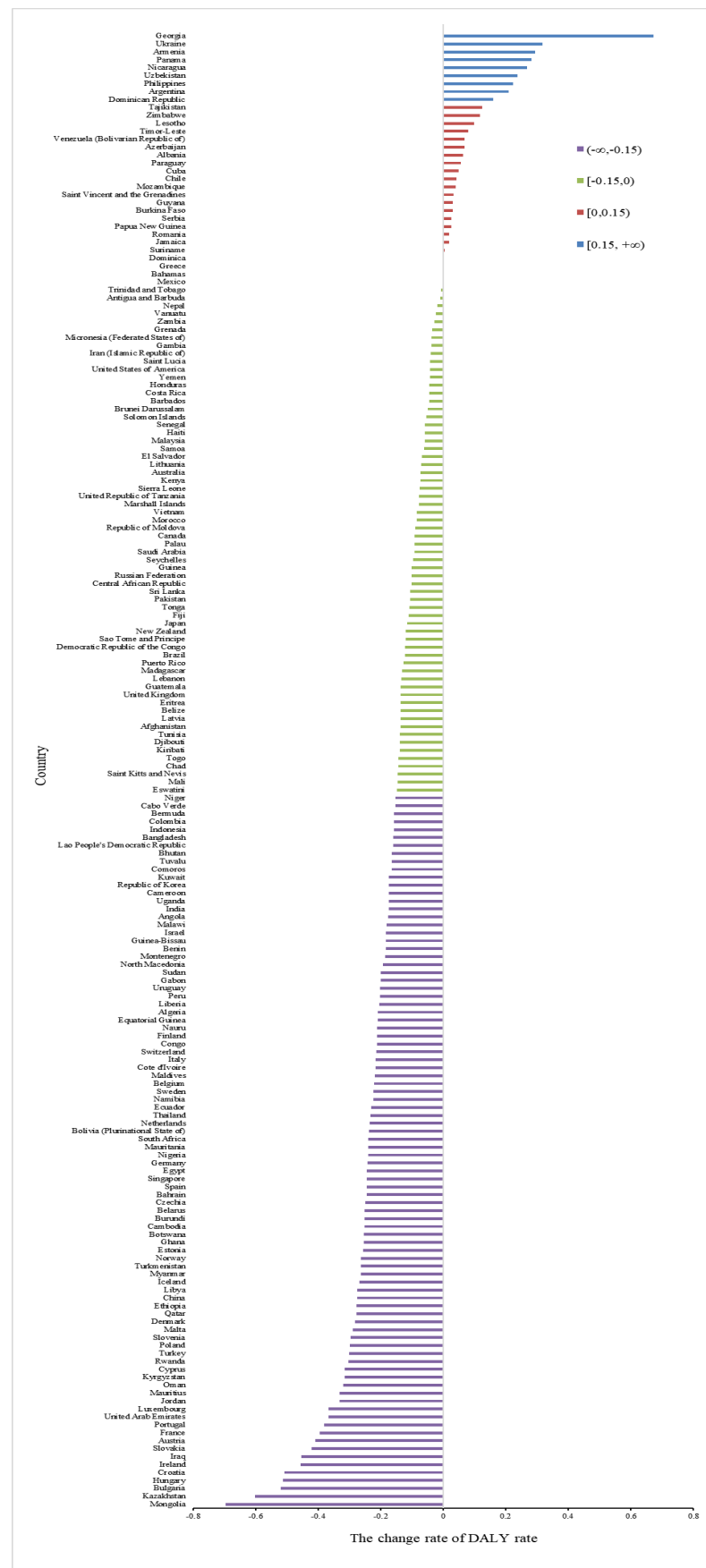
**Fig. S9 The change rate of age-standardized DALY rates for peripheral artery disease from 2000 to 2019**



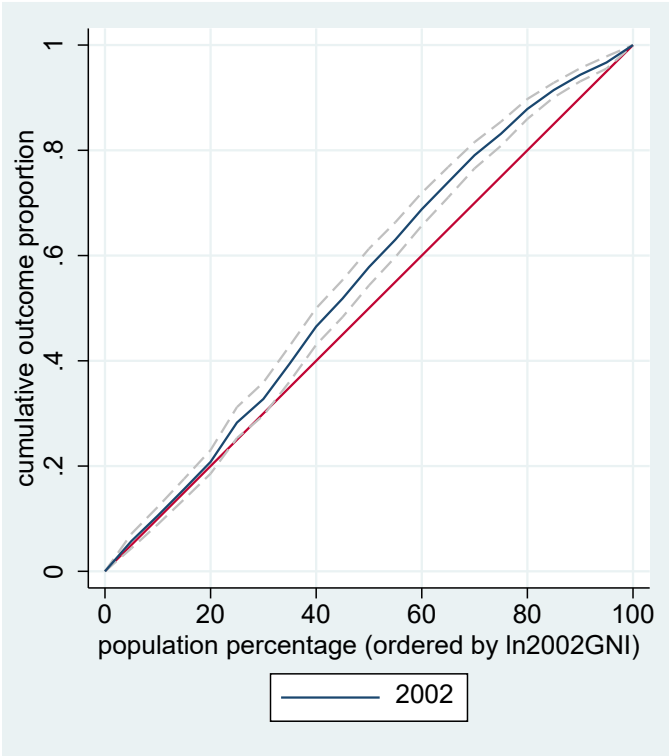
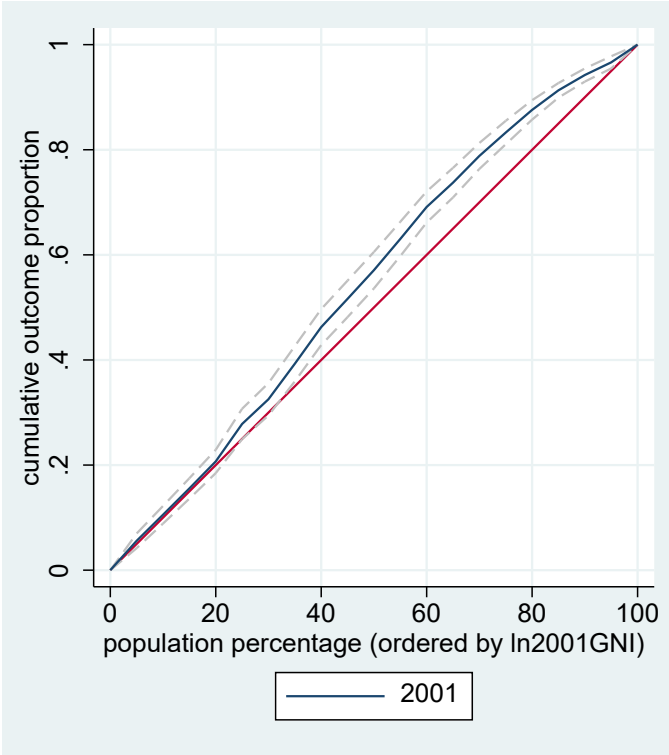
**Fig. S10 The change rate of age-standardized DALY rates for endocarditis from 2000 to 2019**

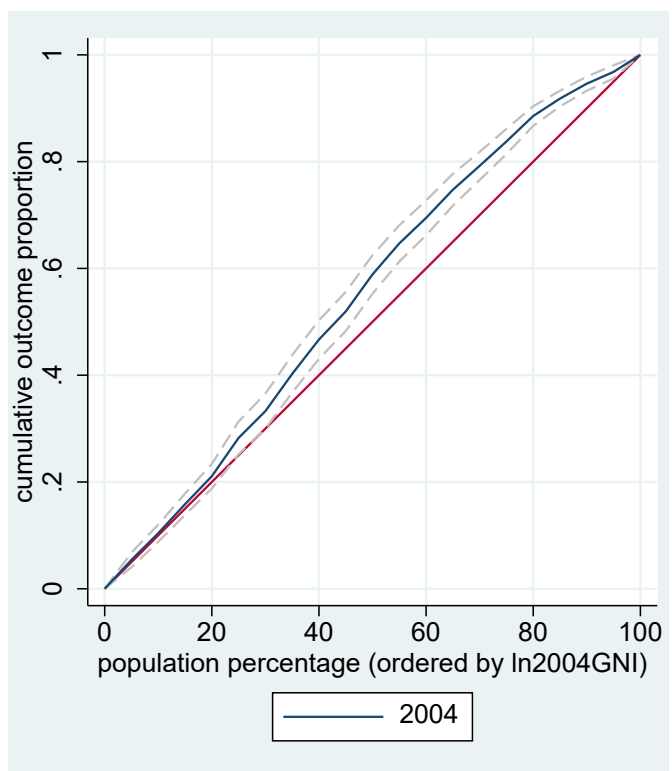
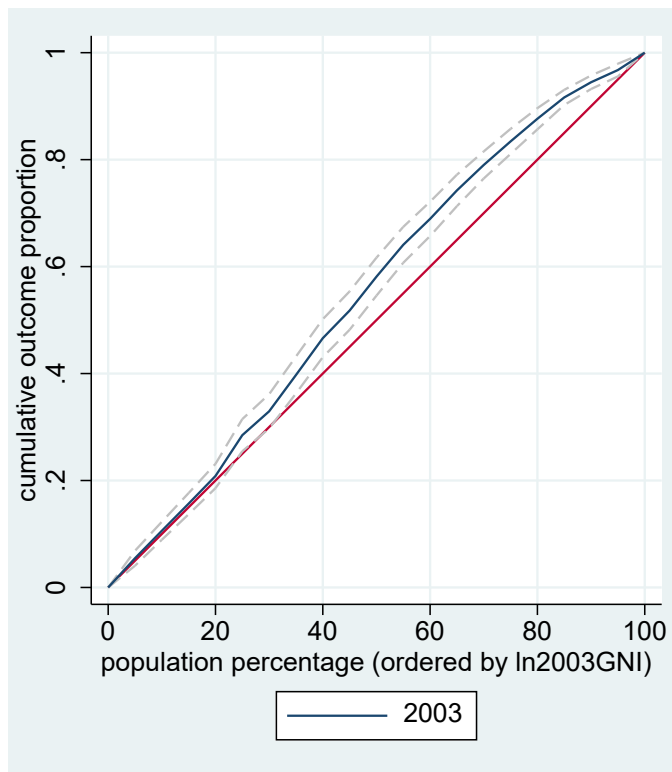


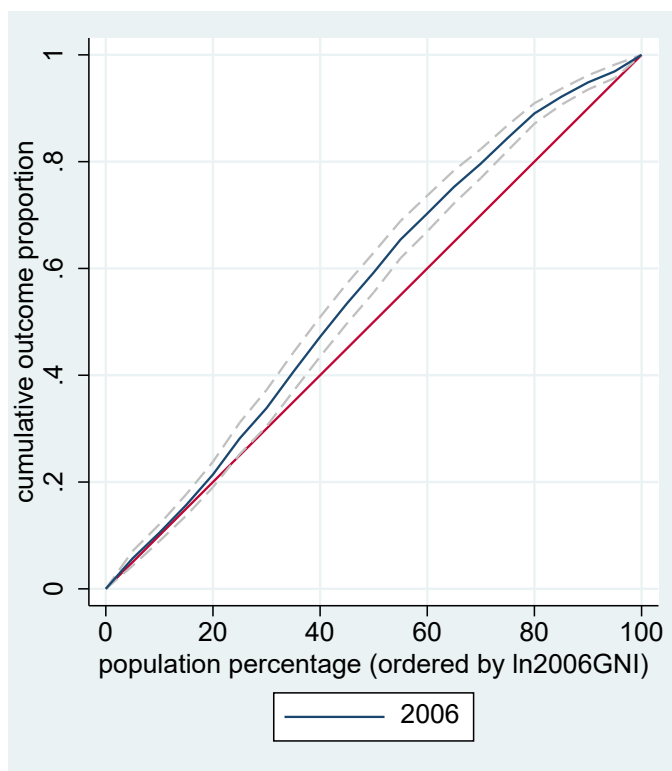
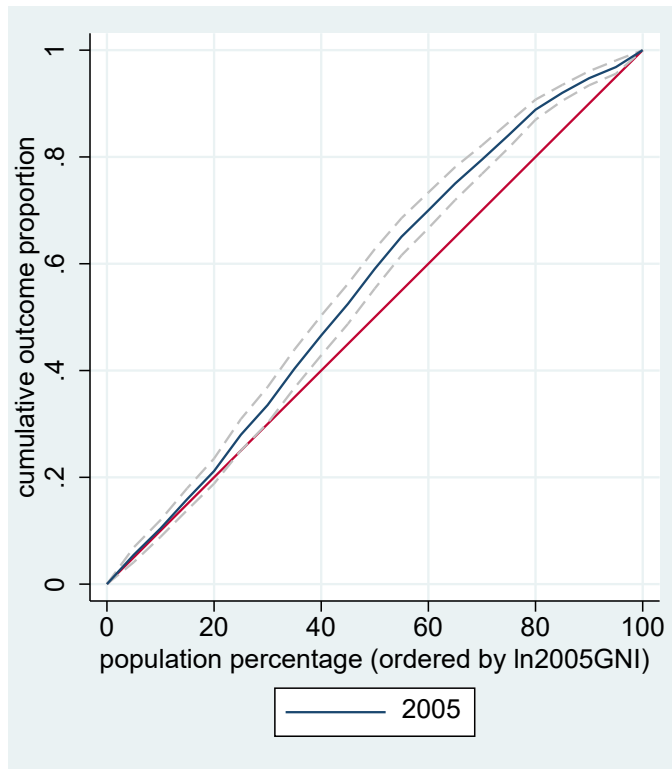
**Fig. S11 The change rate of age-standardized DALY rates for other cardiovascular and circulatory diseases from 2000 to 2019**

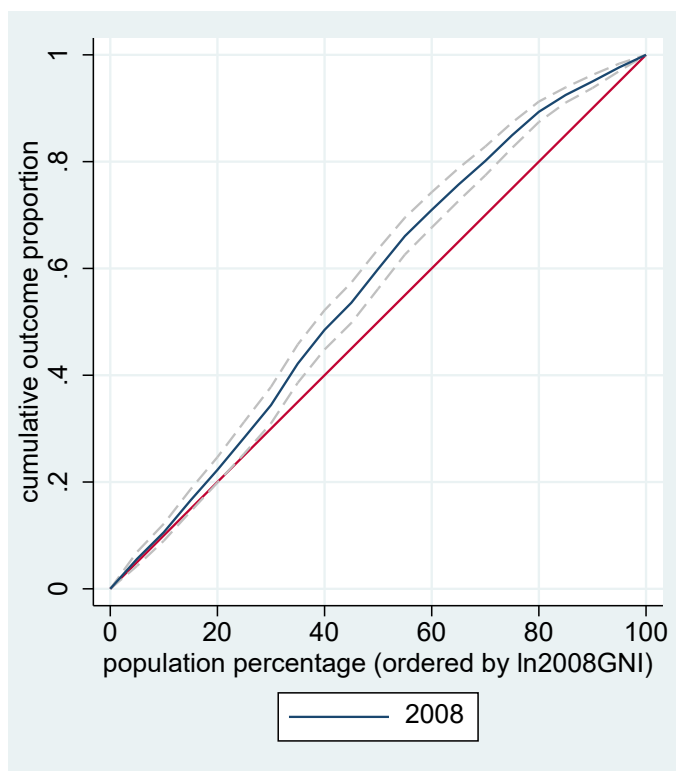
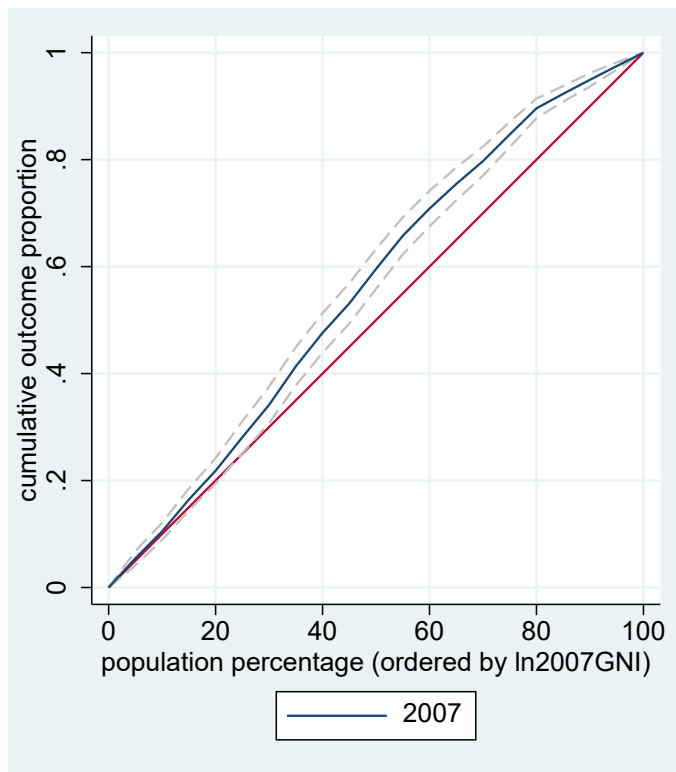


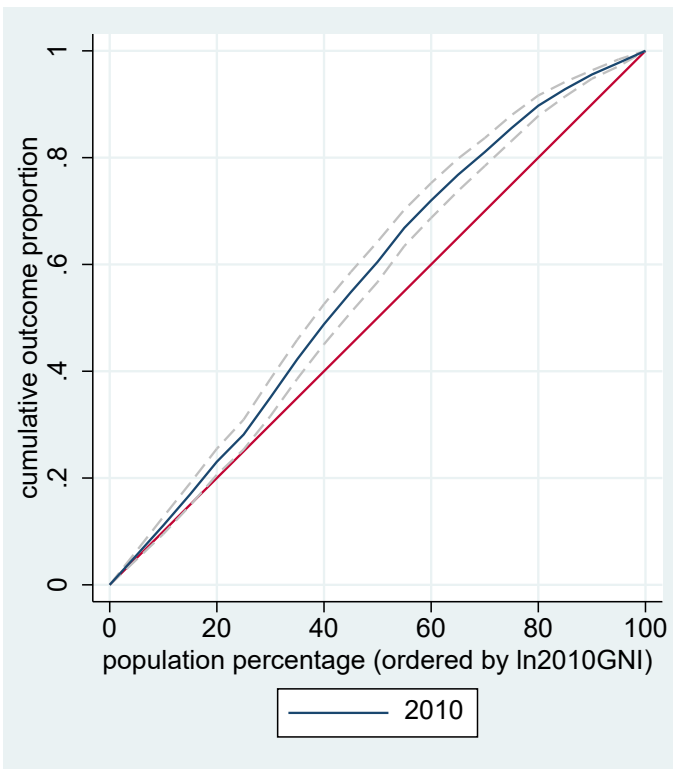
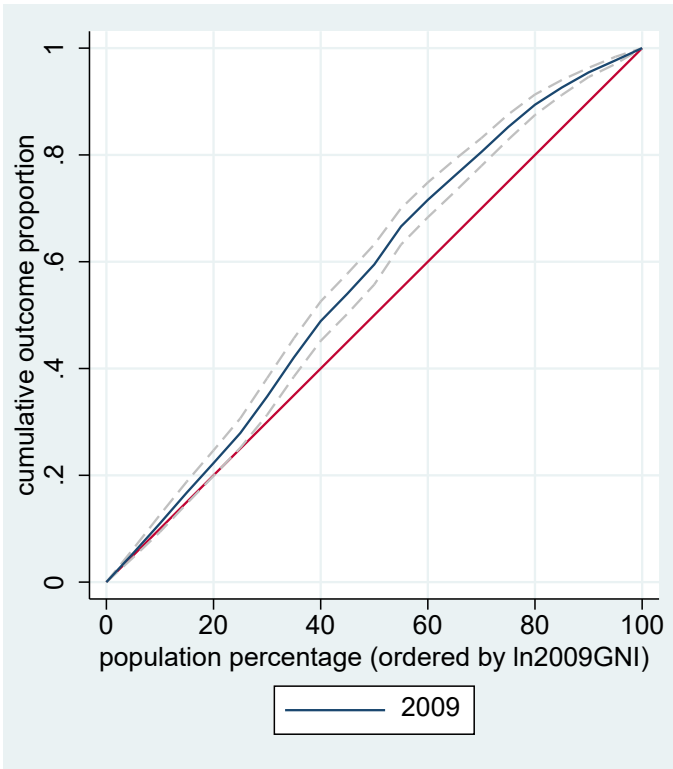
**Figs. S12-29 Concentration curves of age-standardized DALY rates for CVD from 2001 to 2018**

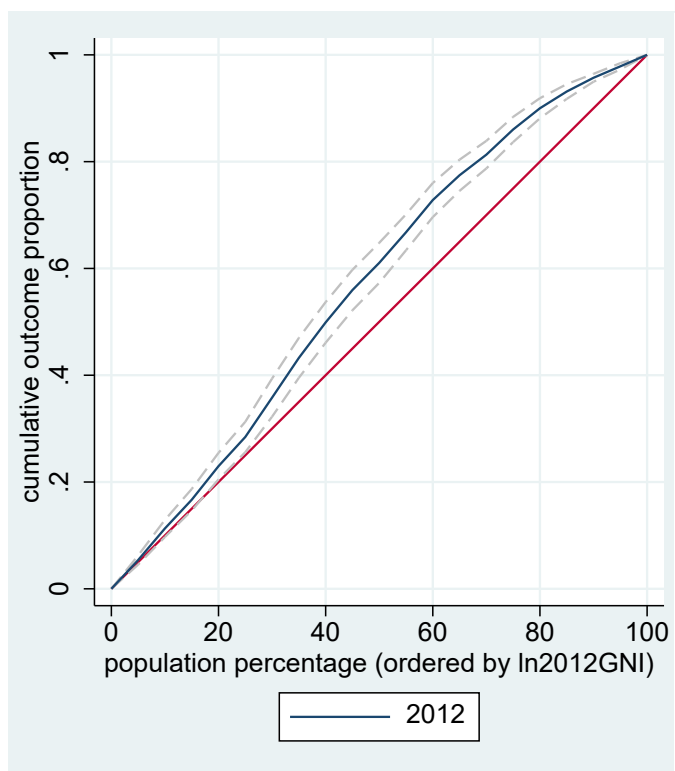
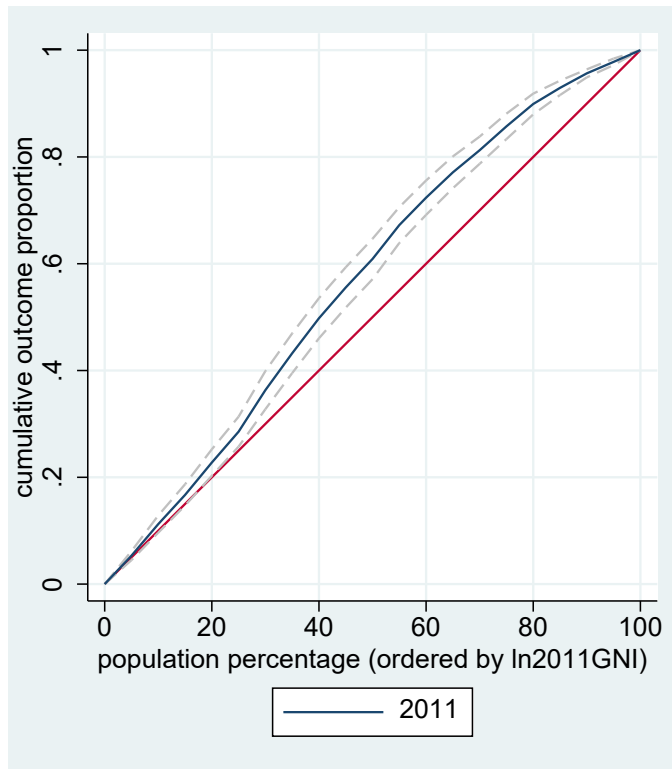


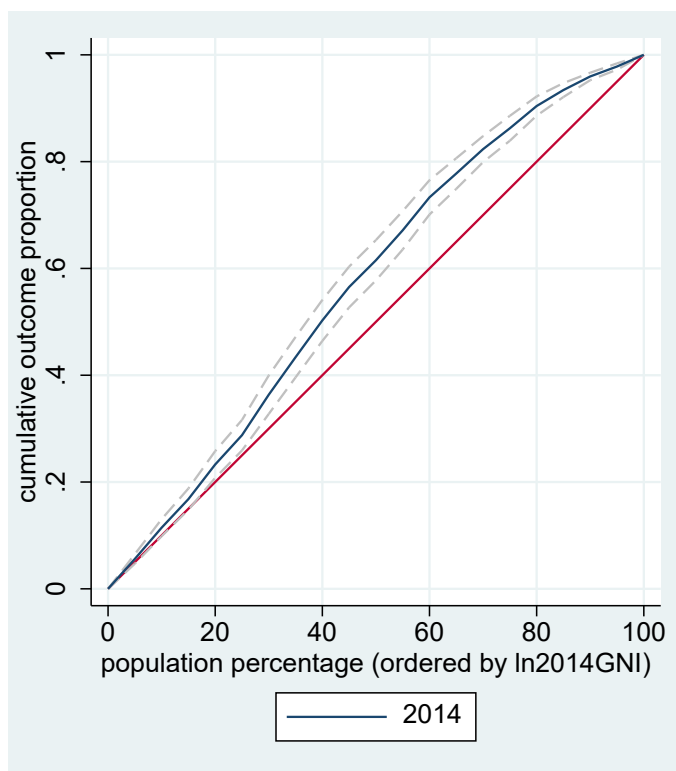
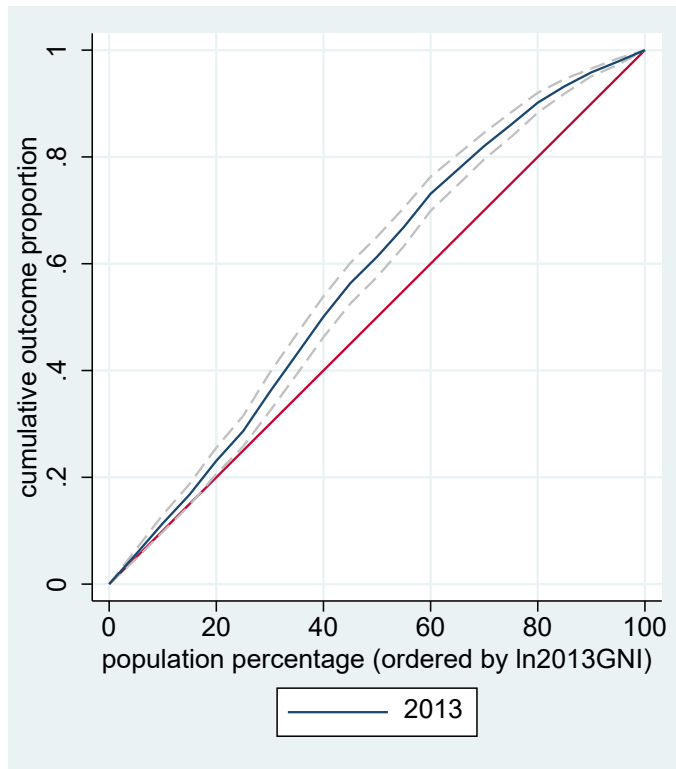


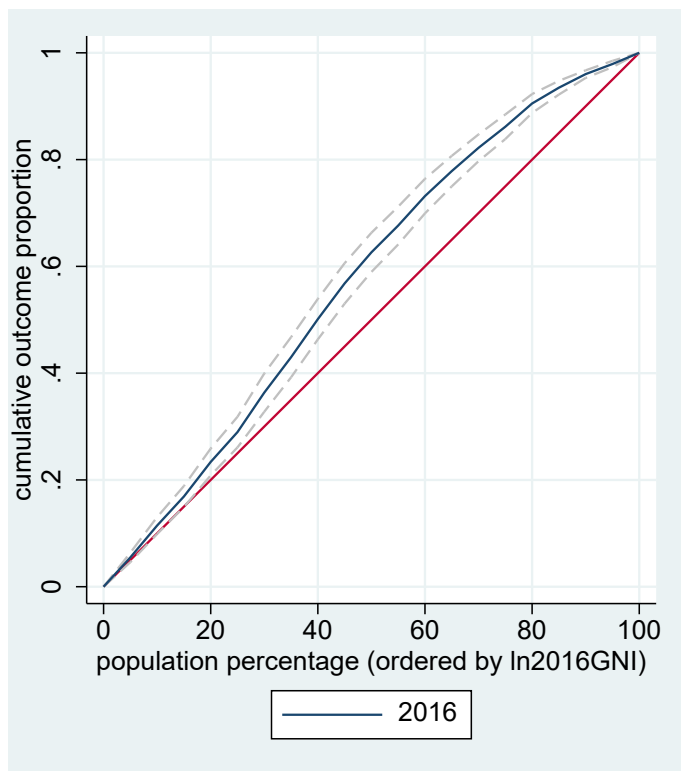
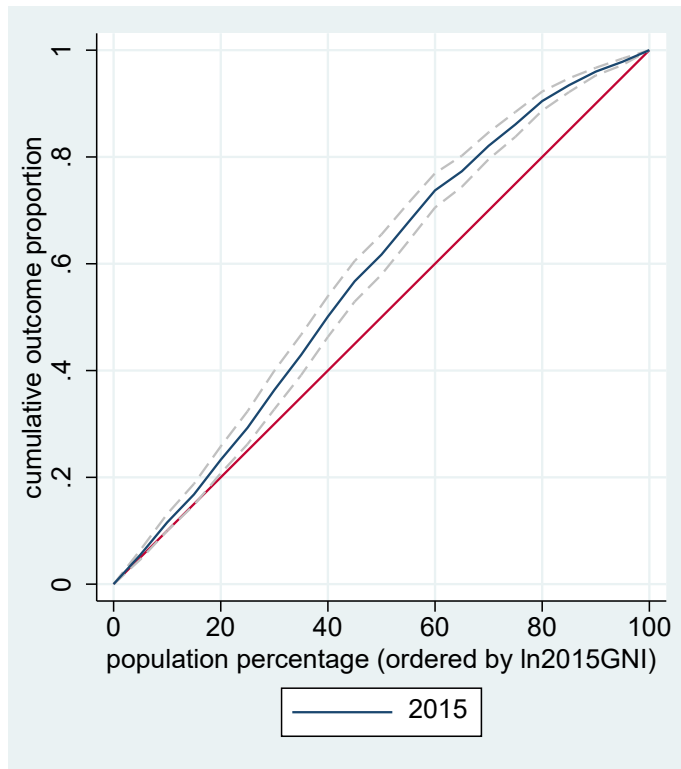


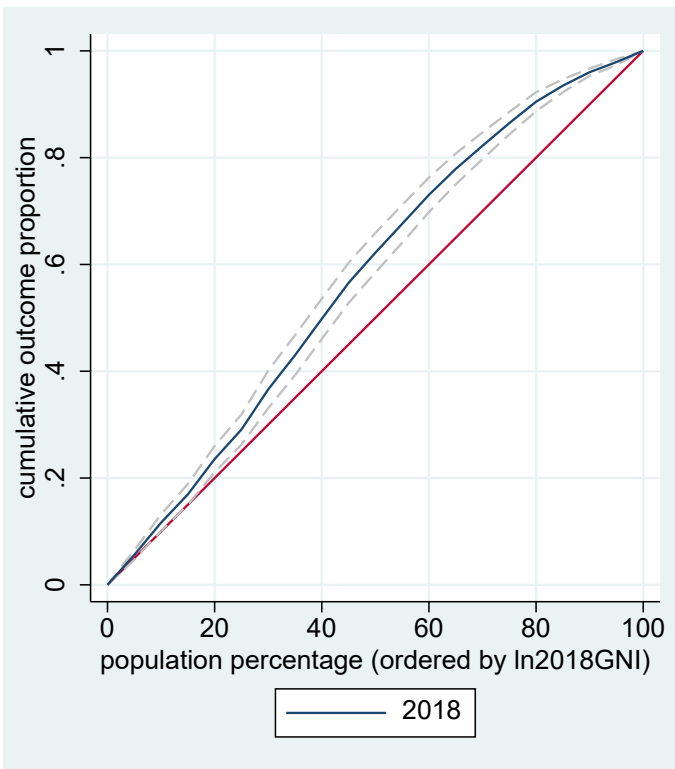
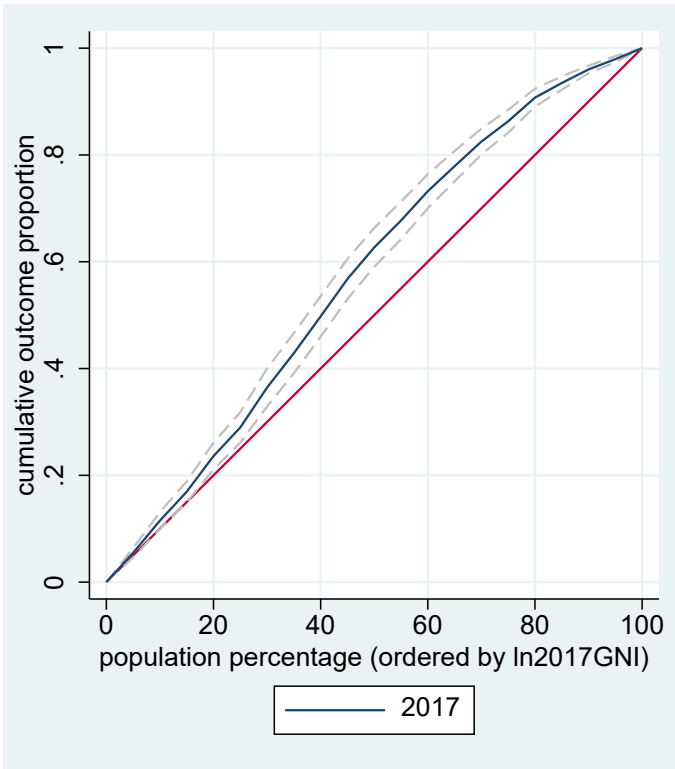




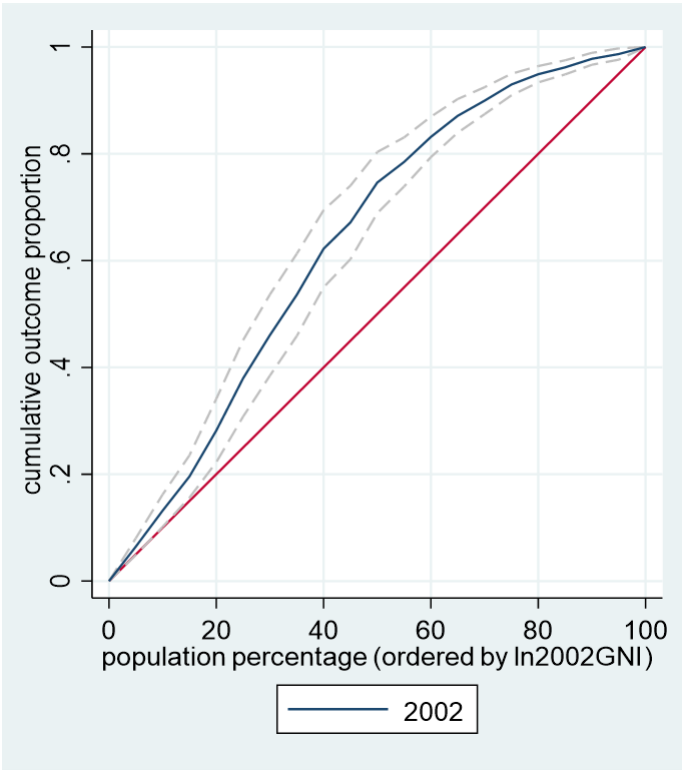
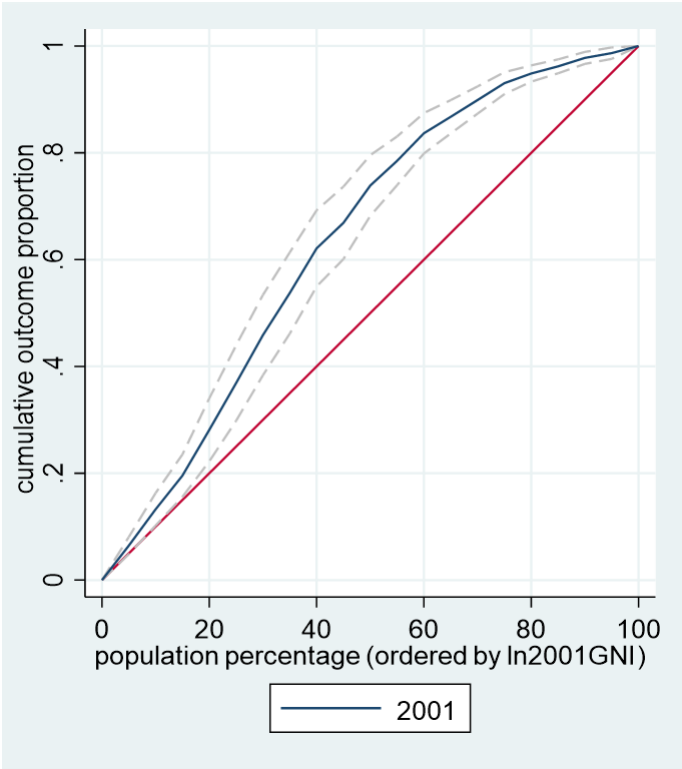


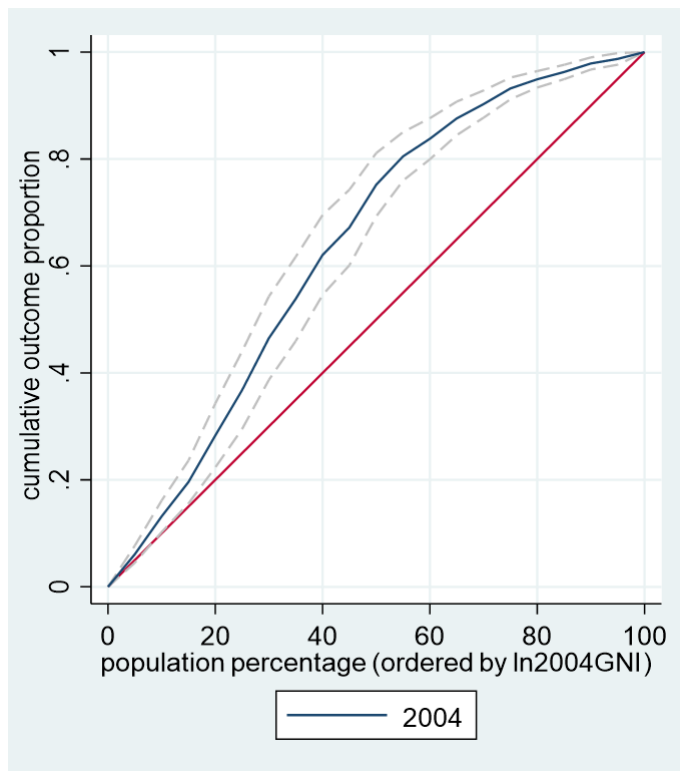
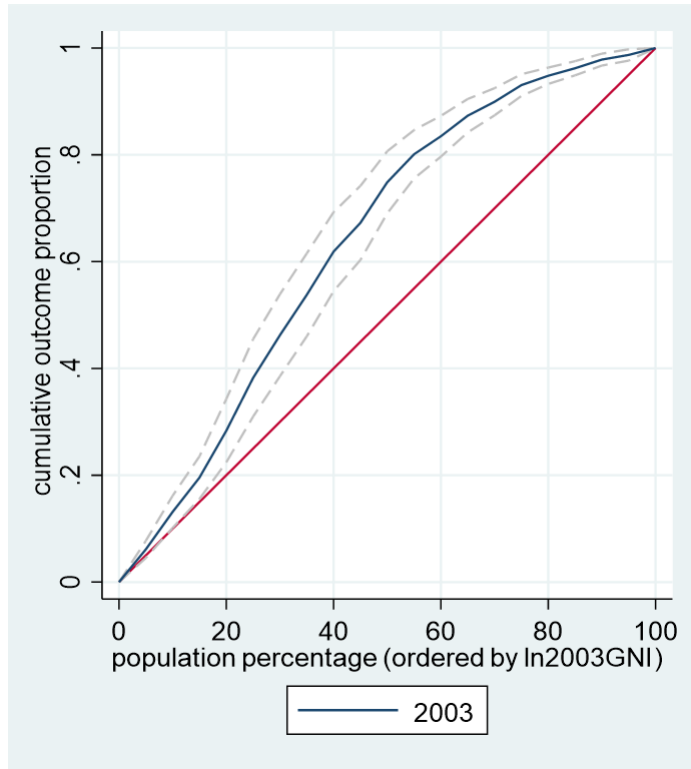


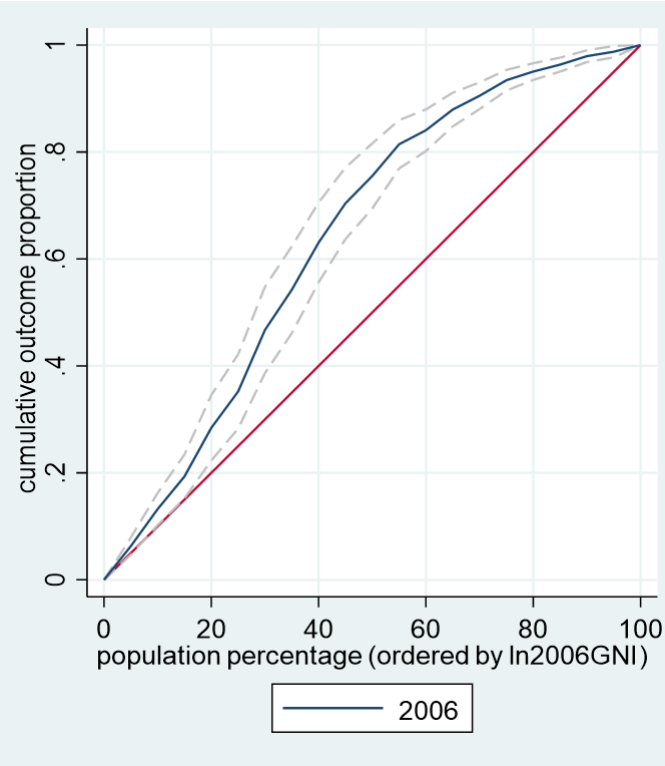
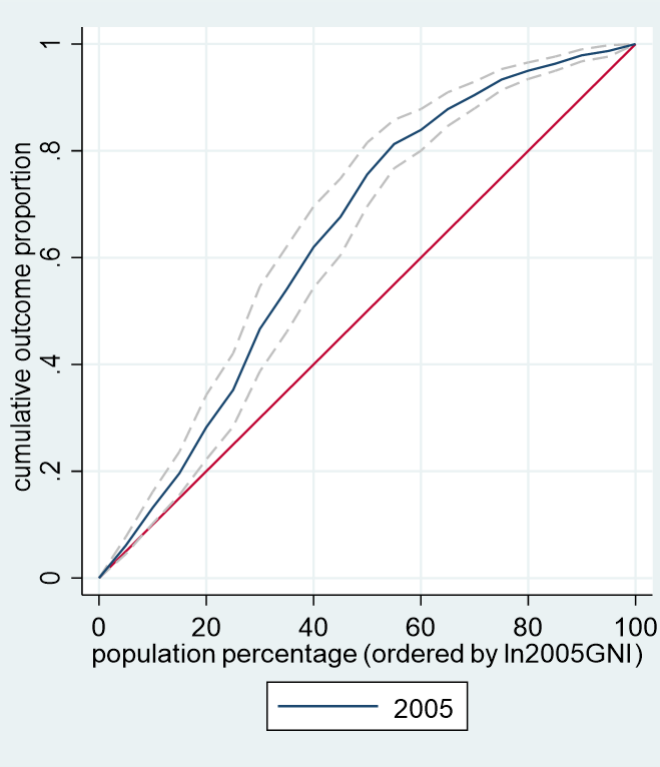


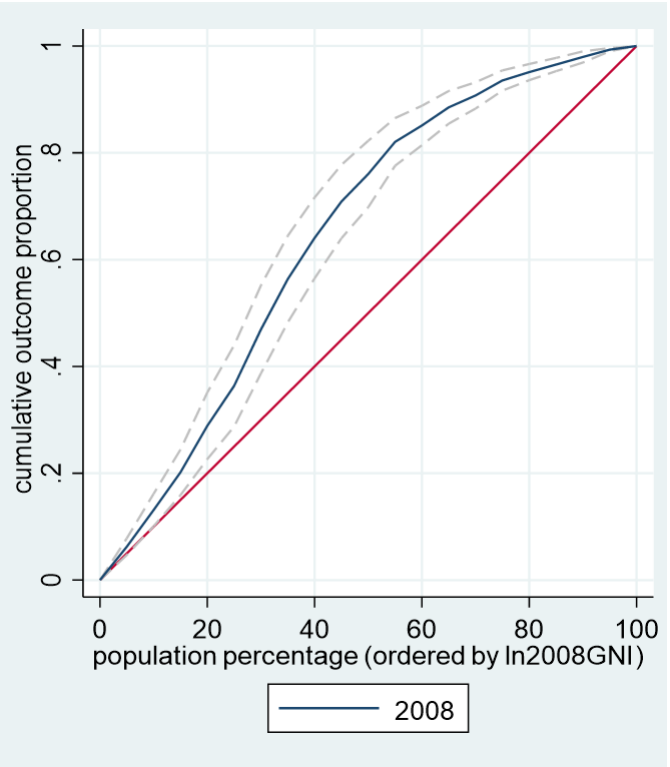
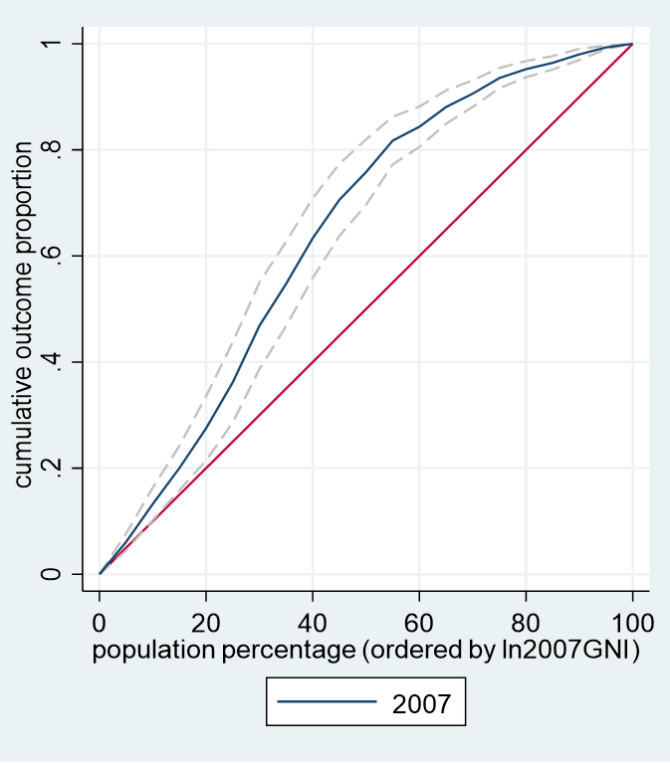


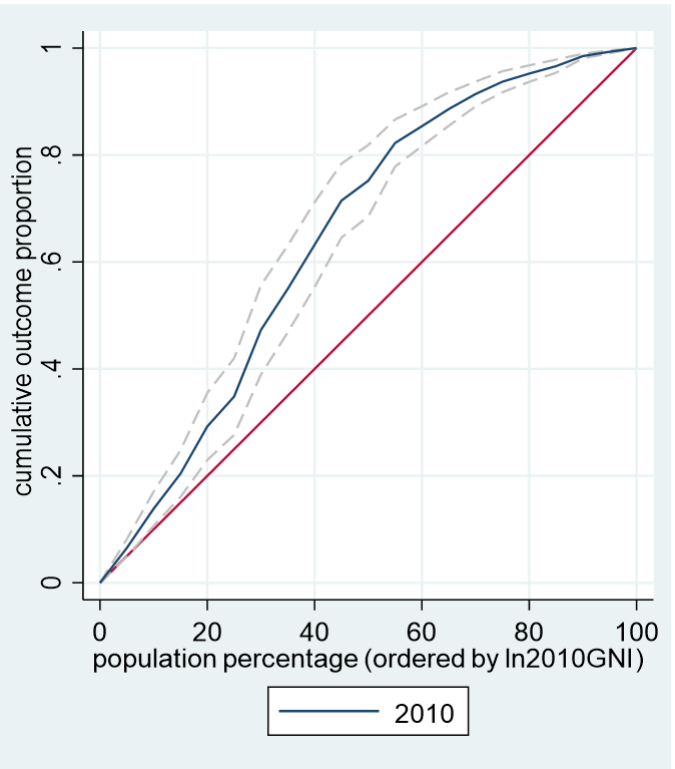
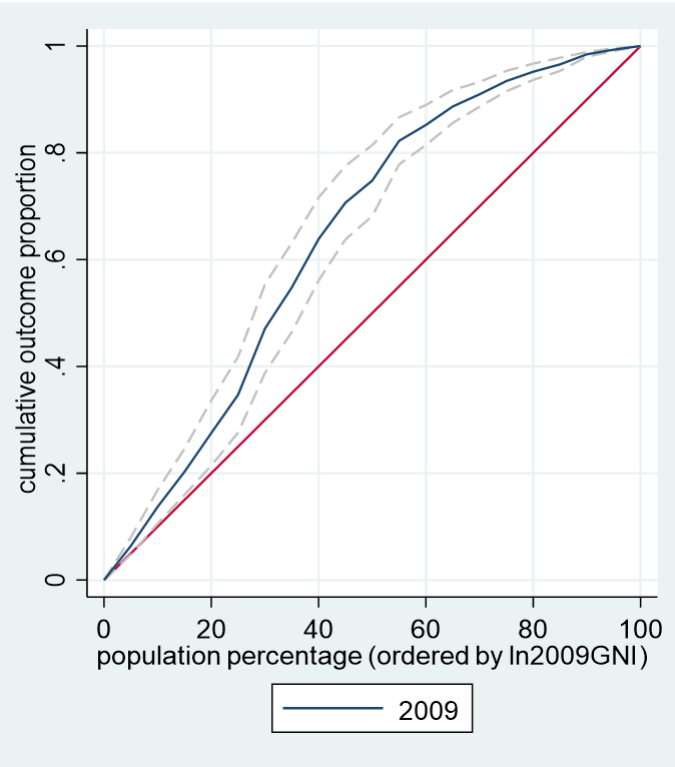
**Figs. S30-47 Concentration curves of age-standardized DALY rates for rheumatic heart disease from 2001 to 2018**

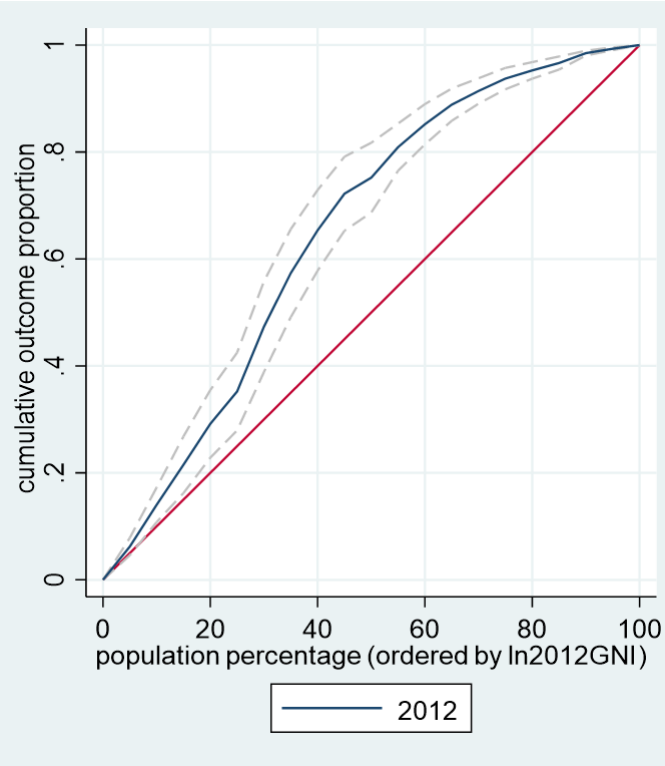
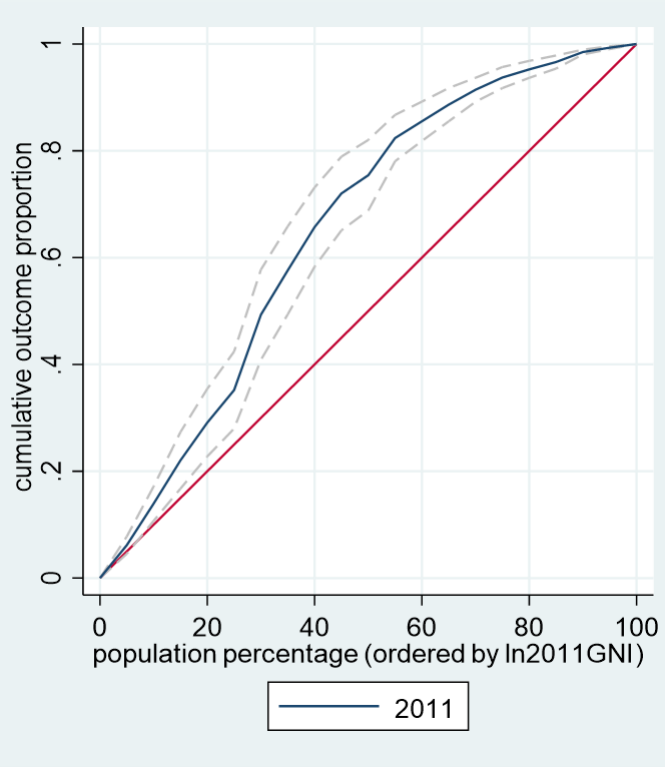


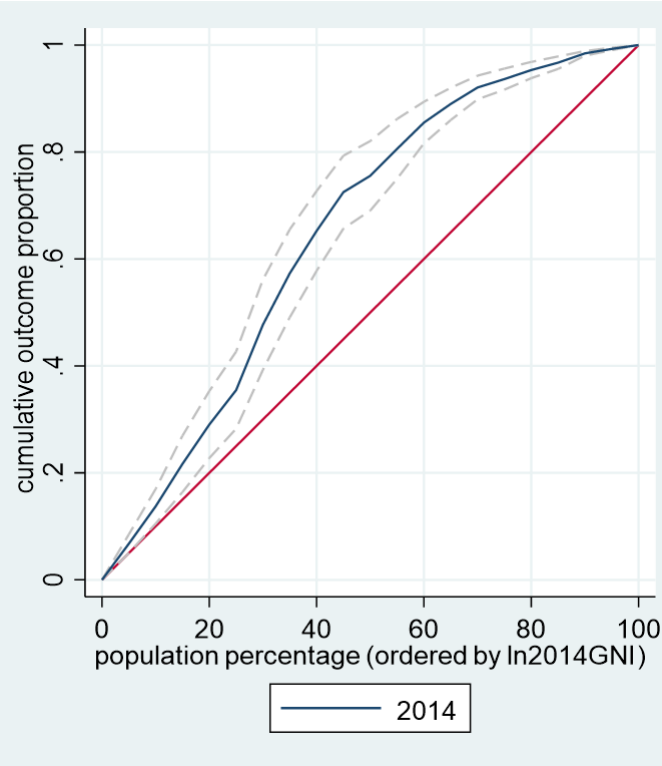
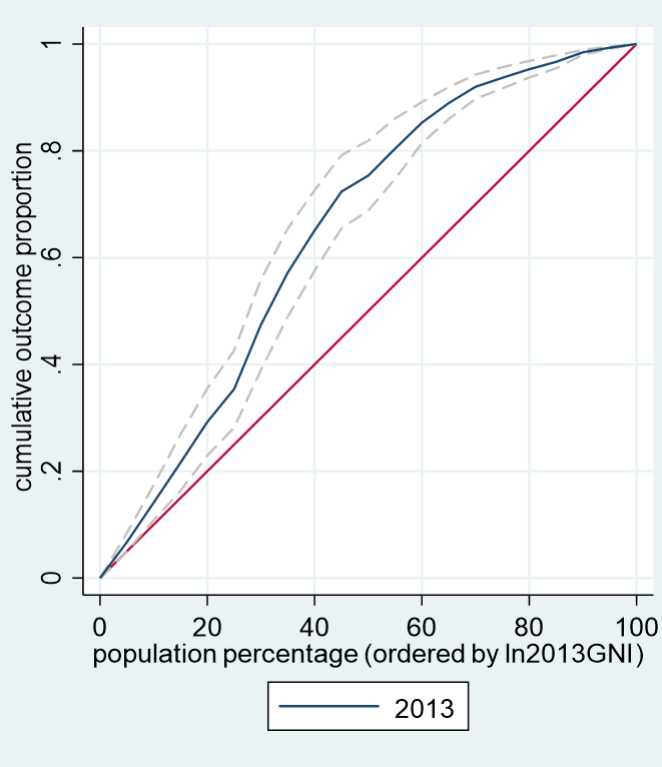


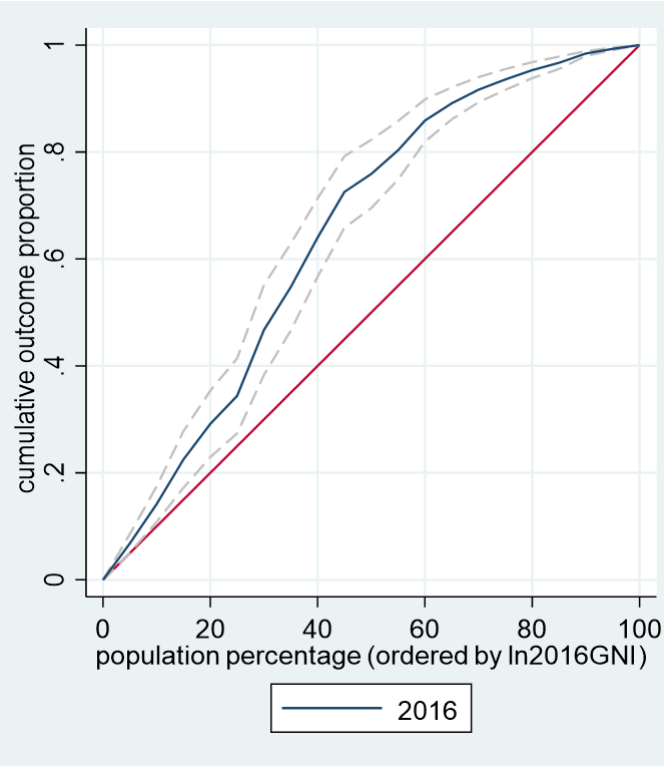
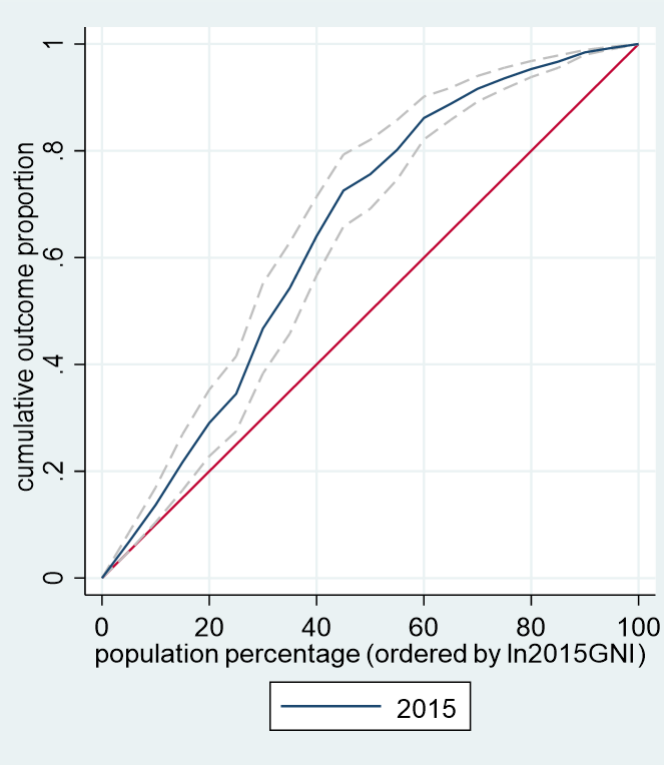


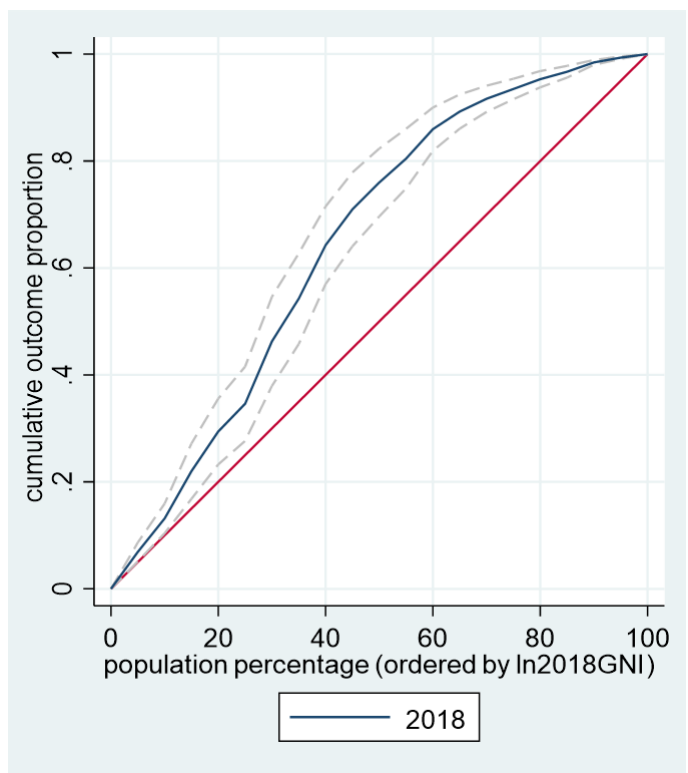
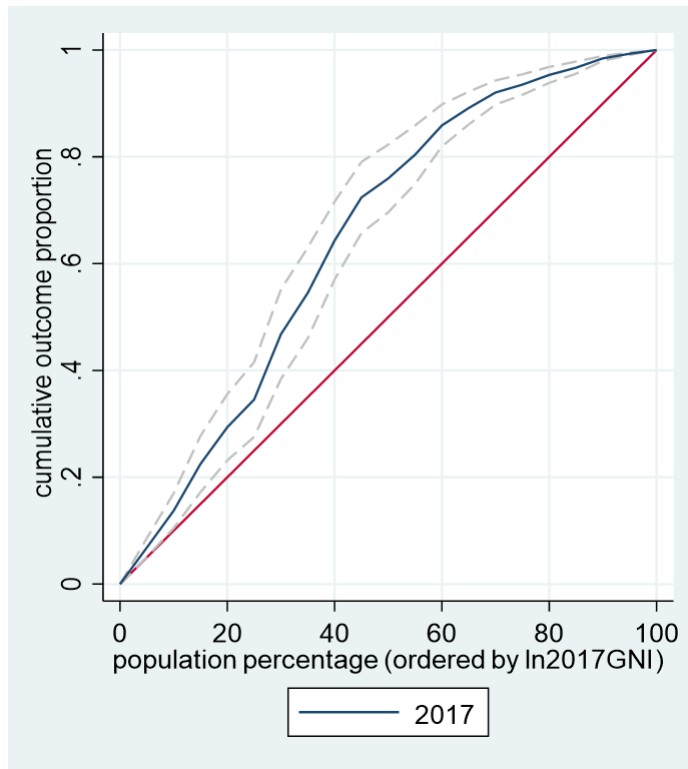




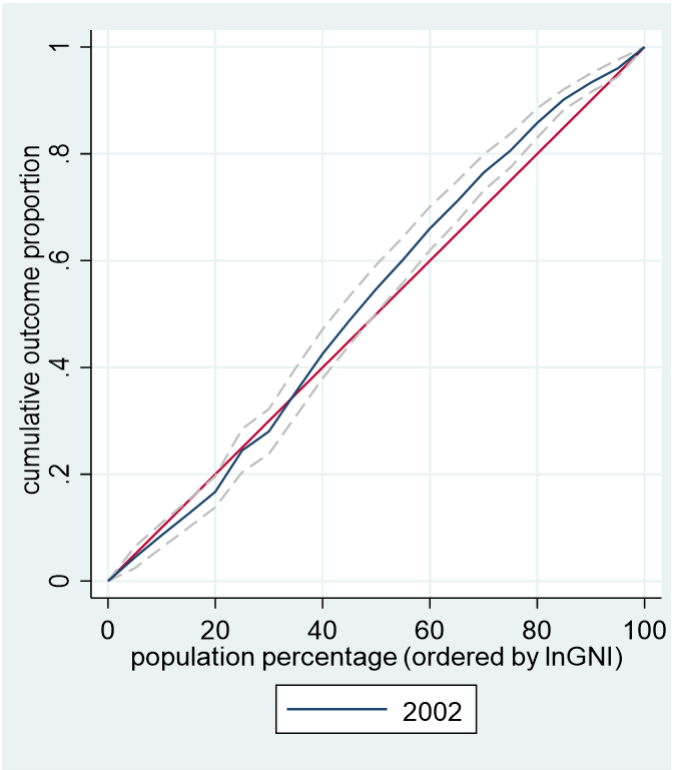
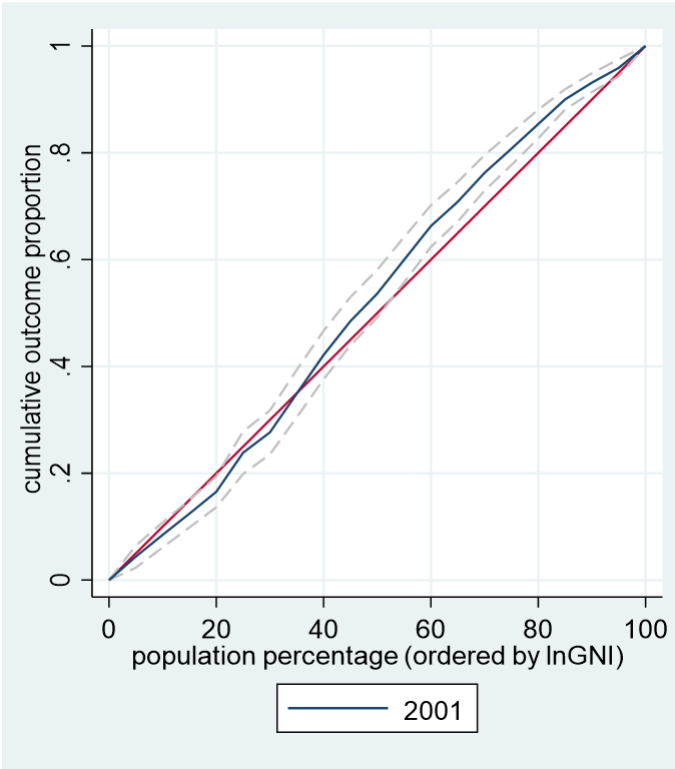


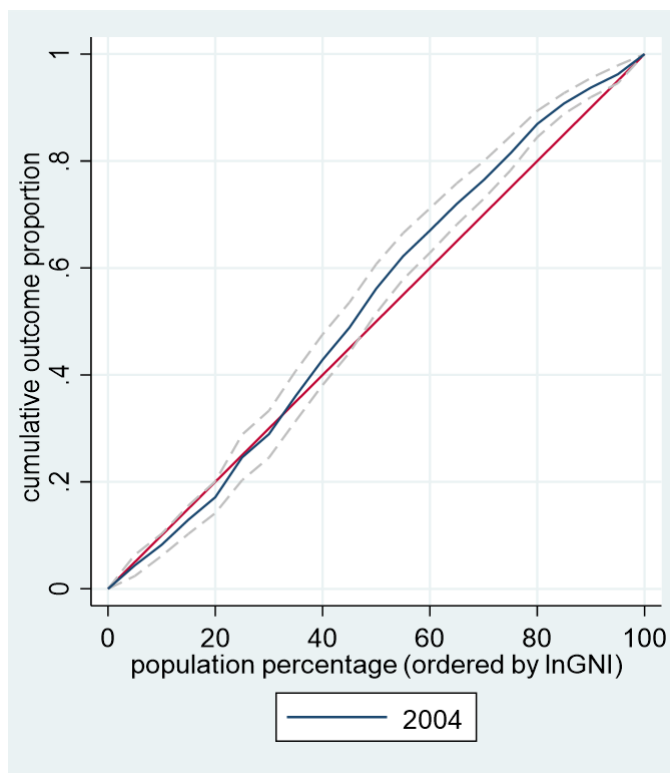
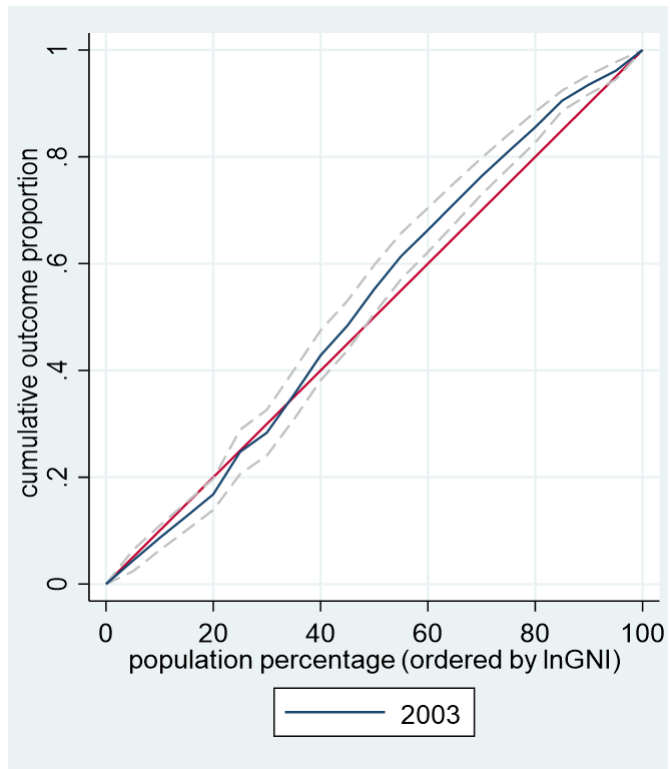


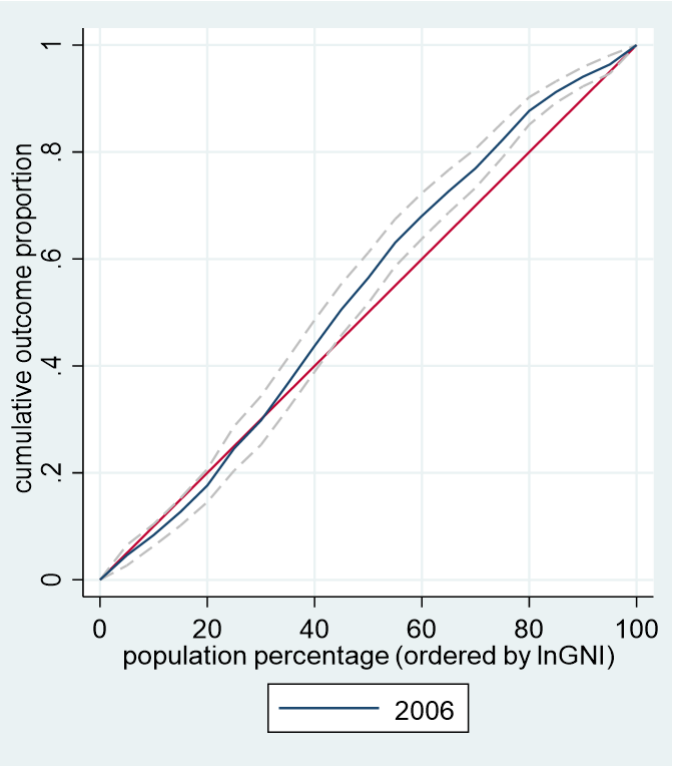
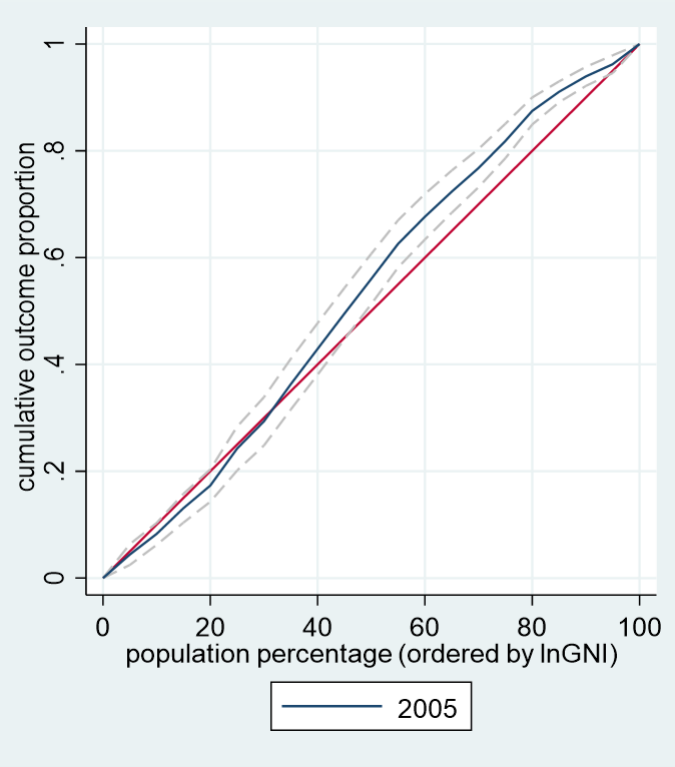


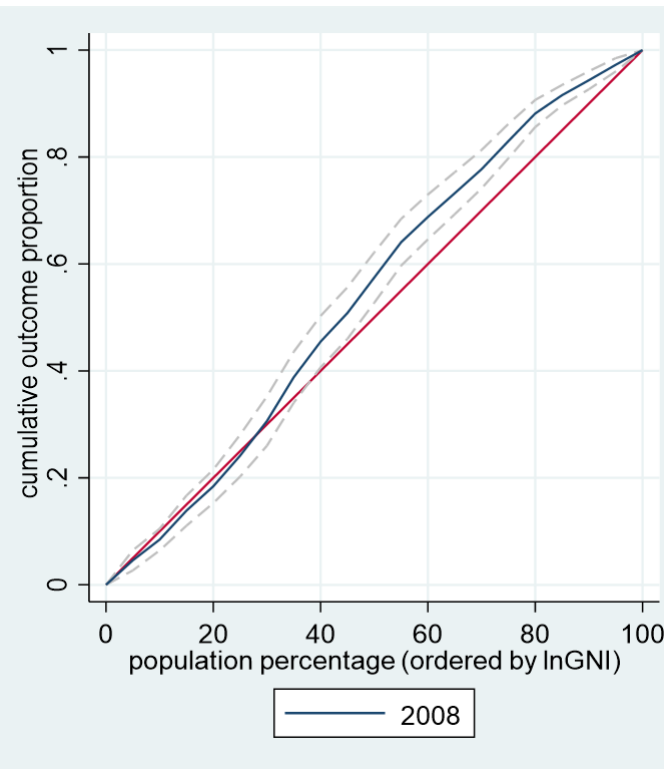
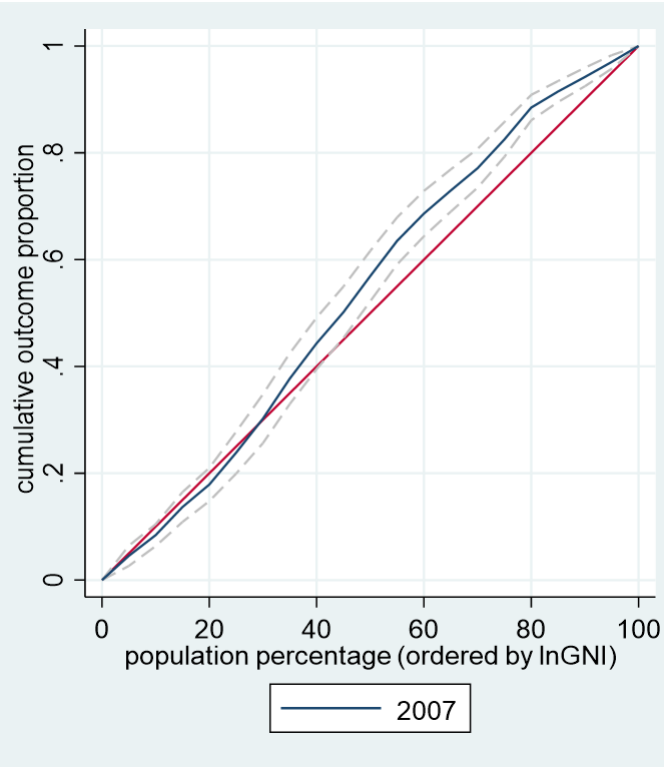


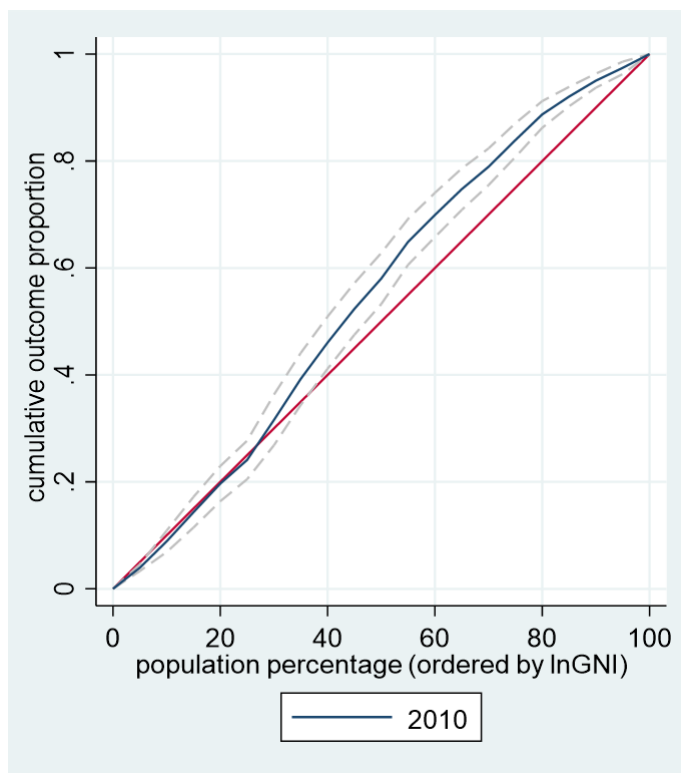
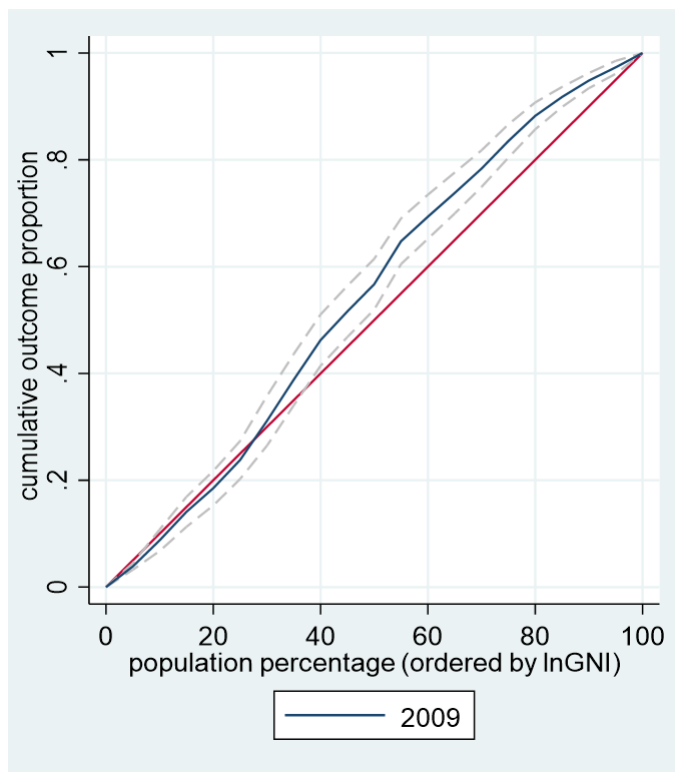
**Figs. S48-65 Concentration curves of age-standardized DALY rates for ischemic heart disease from 2001 to 2018**

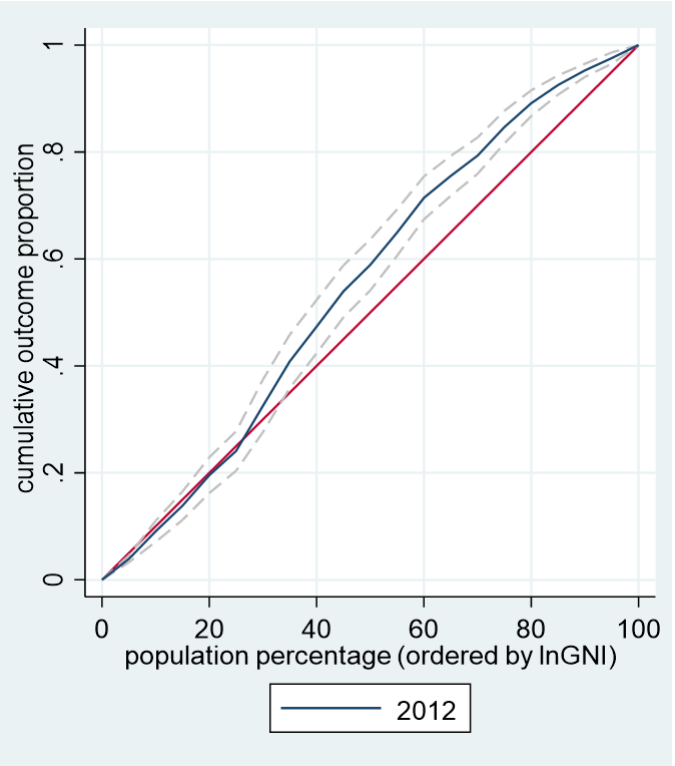
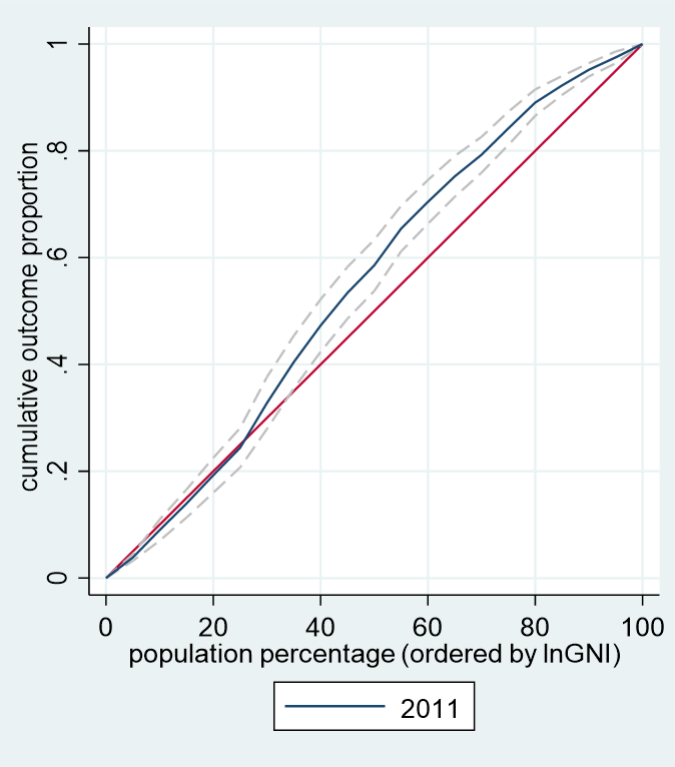


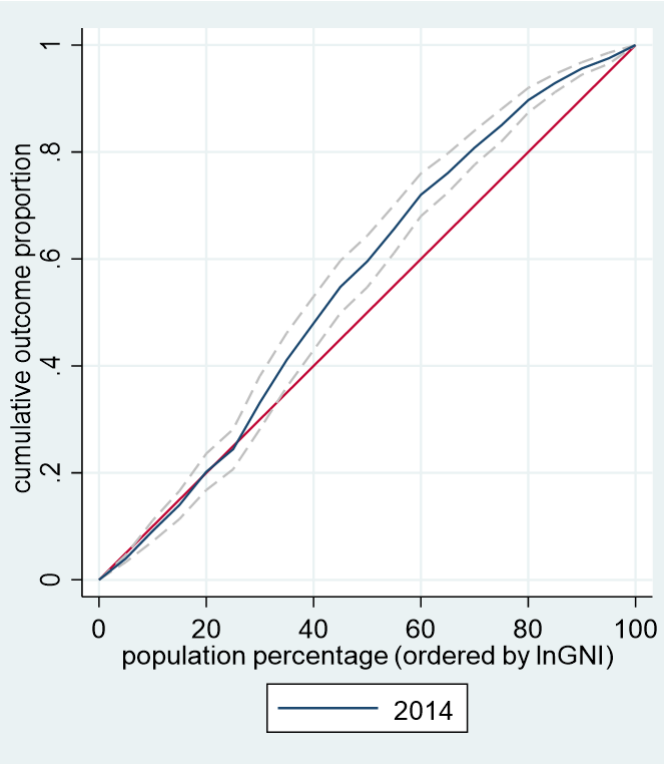
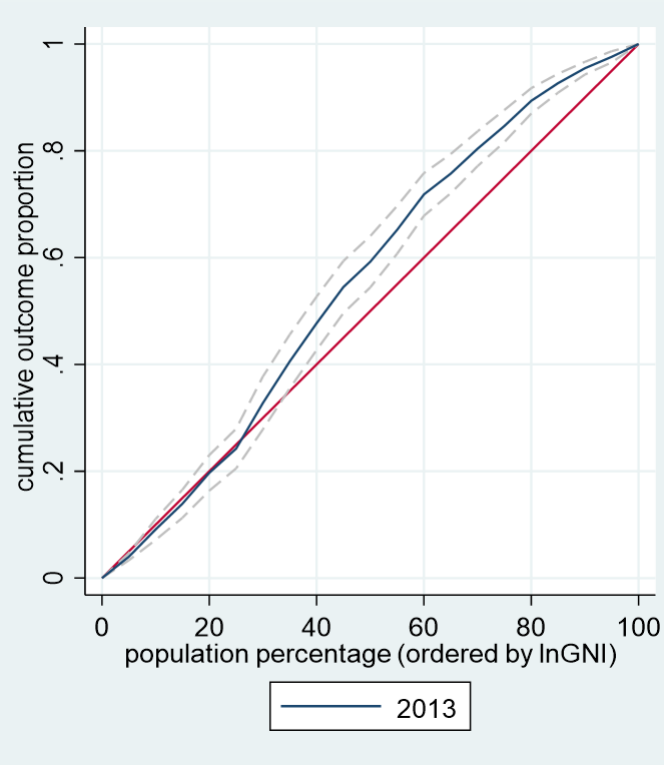


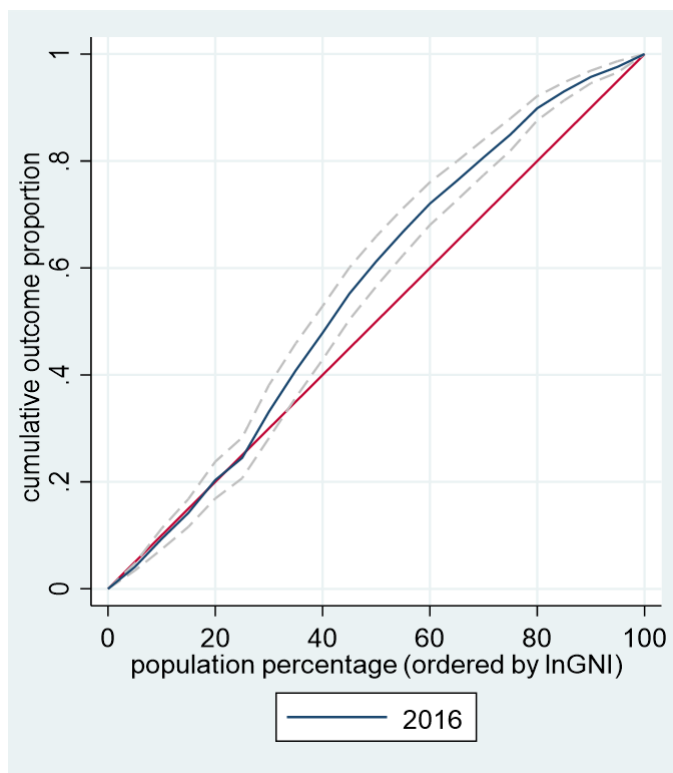
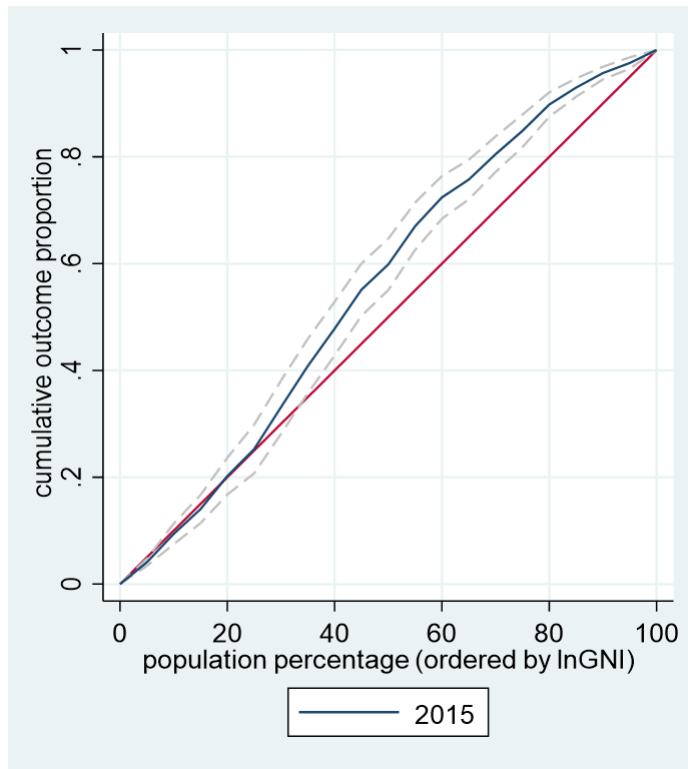


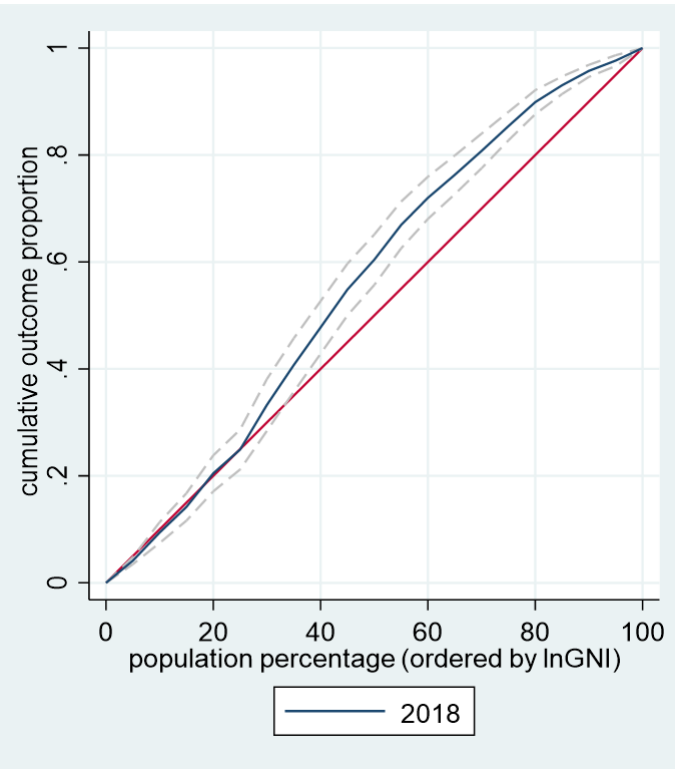
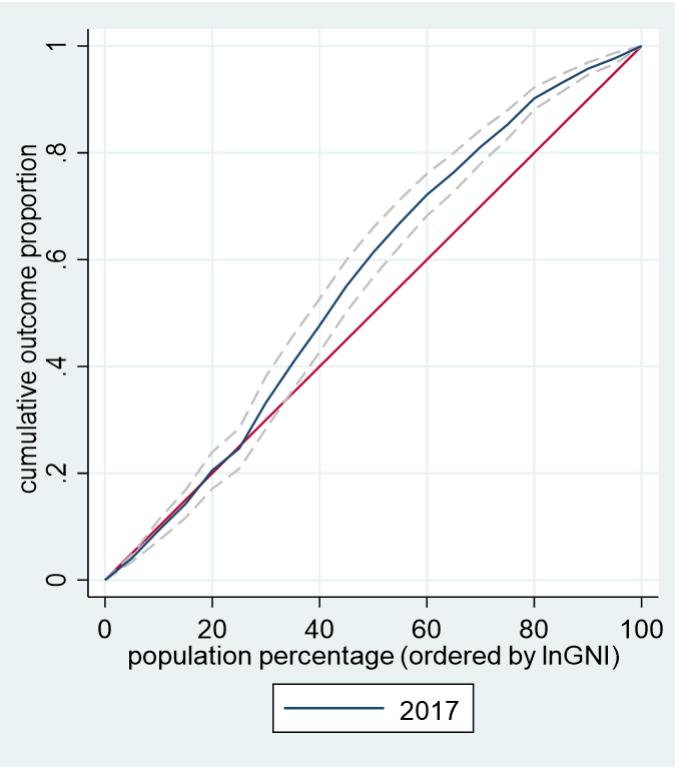




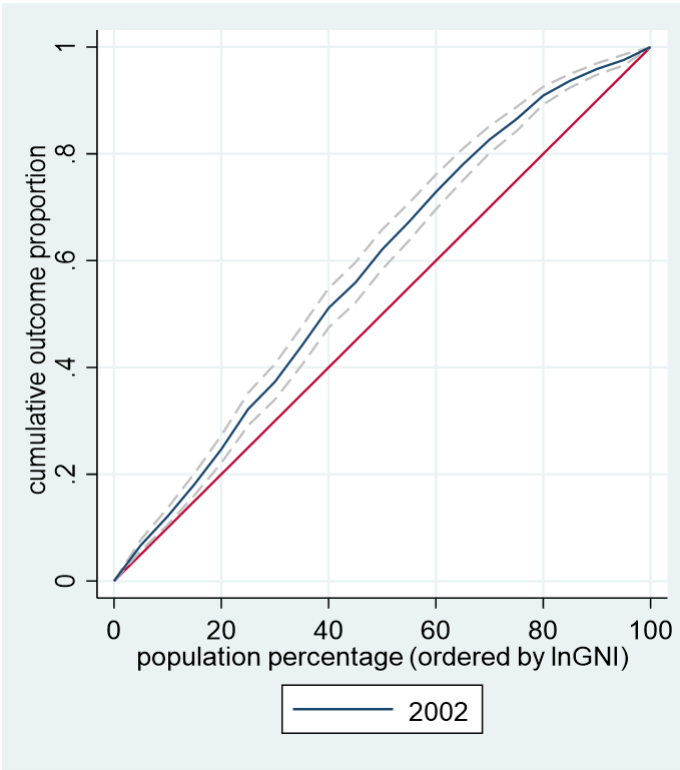
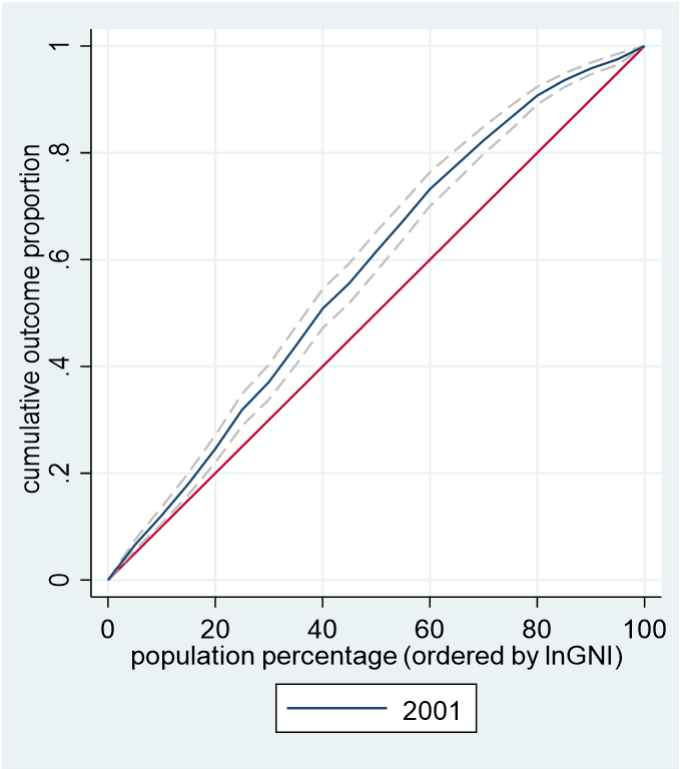


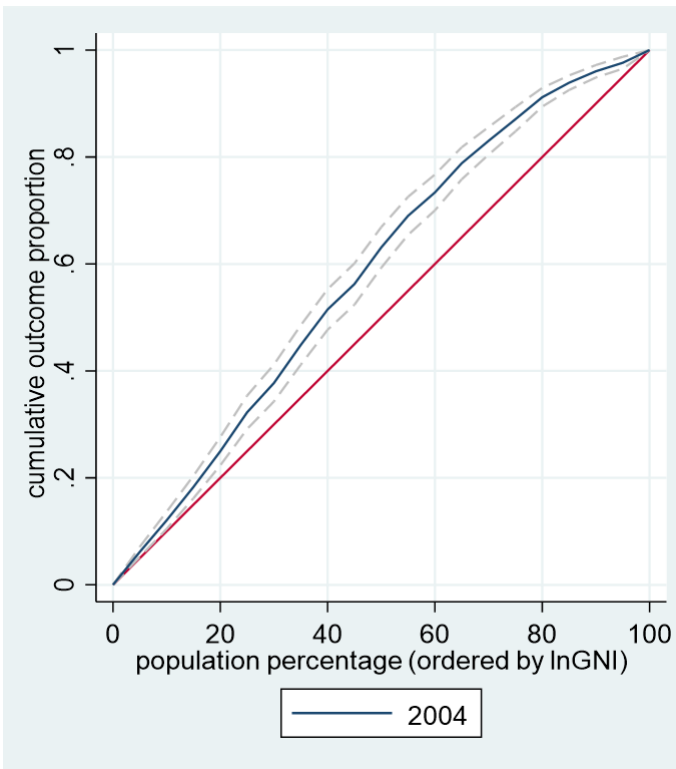
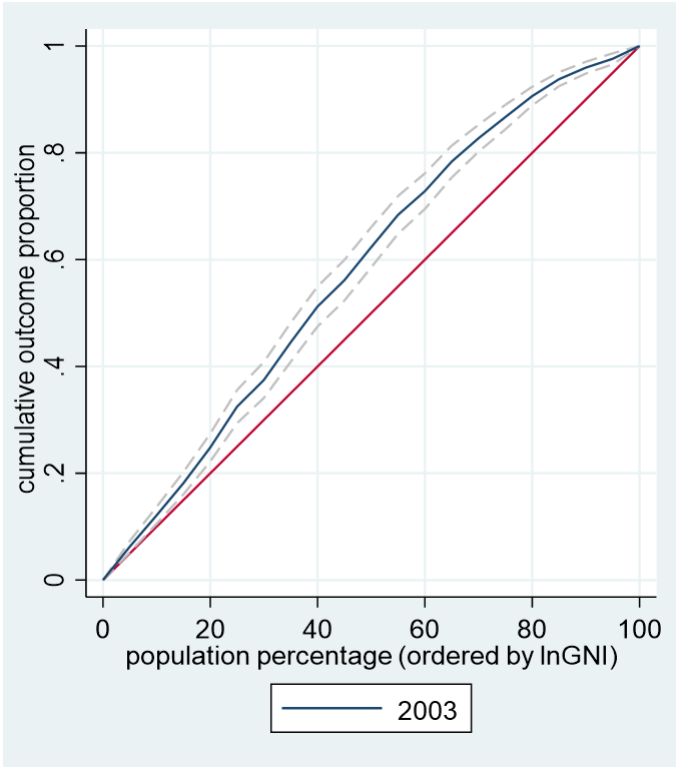


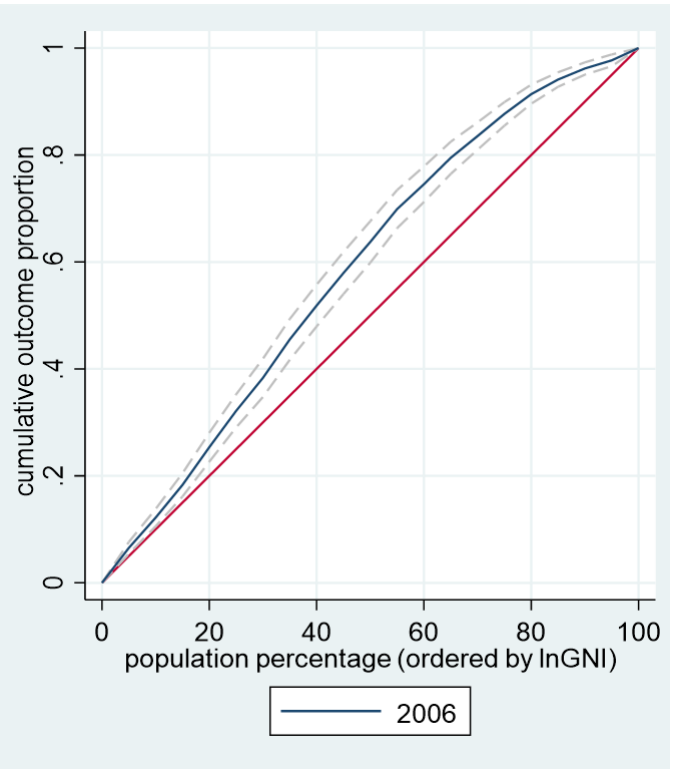
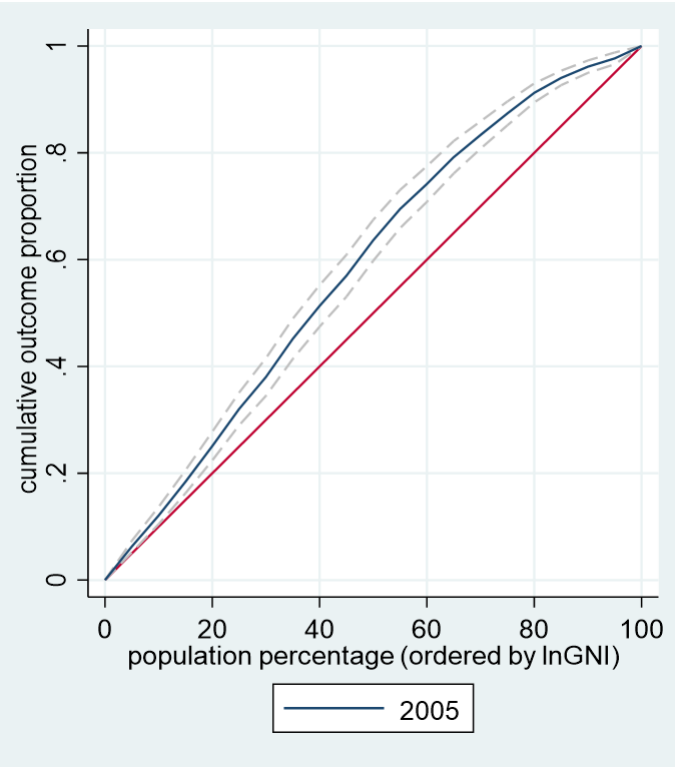


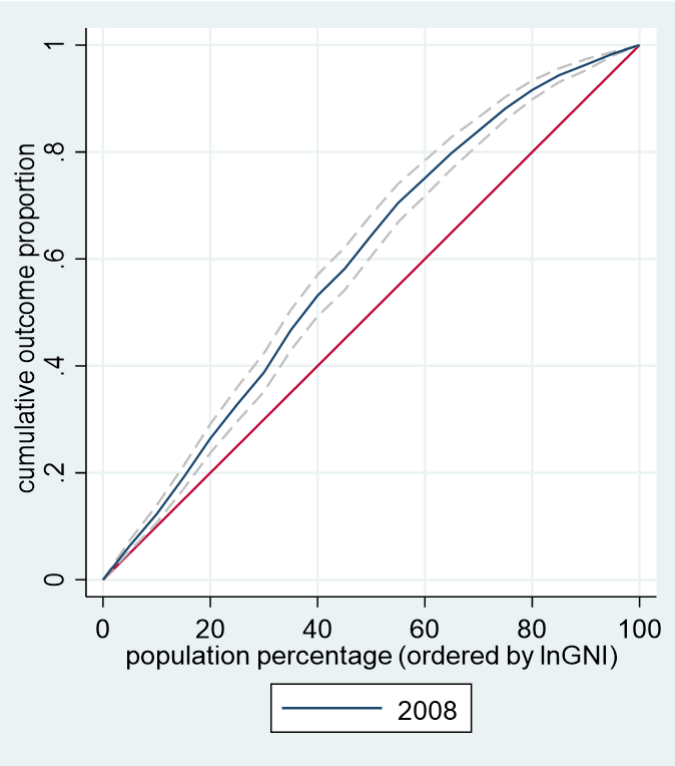
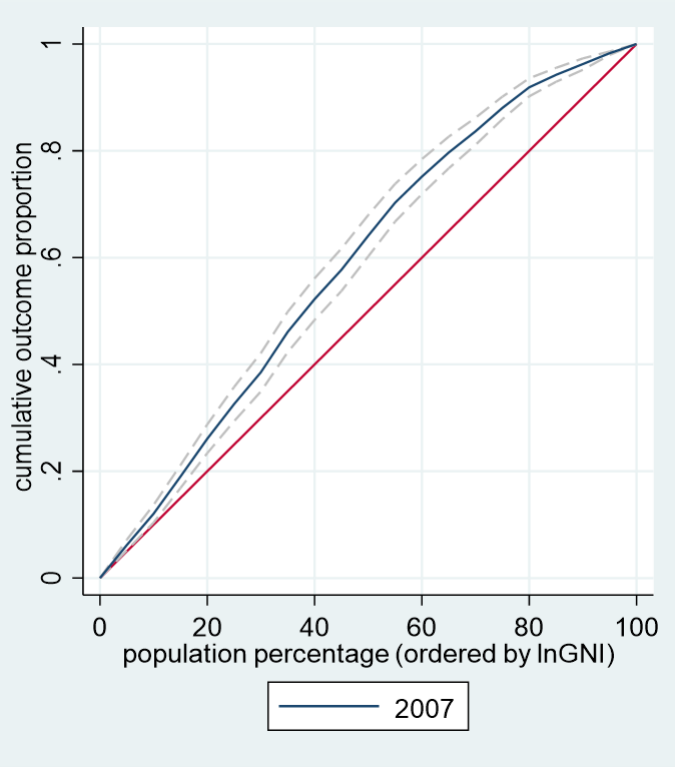


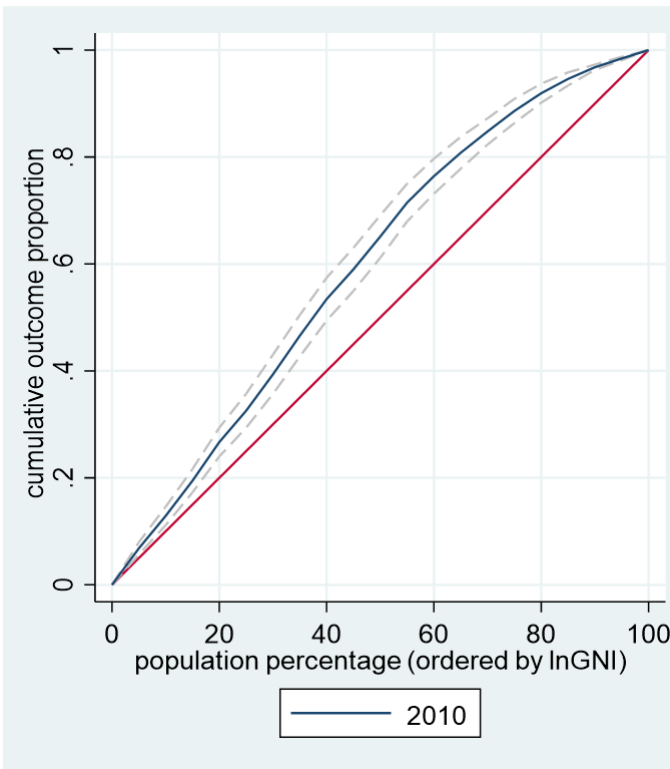
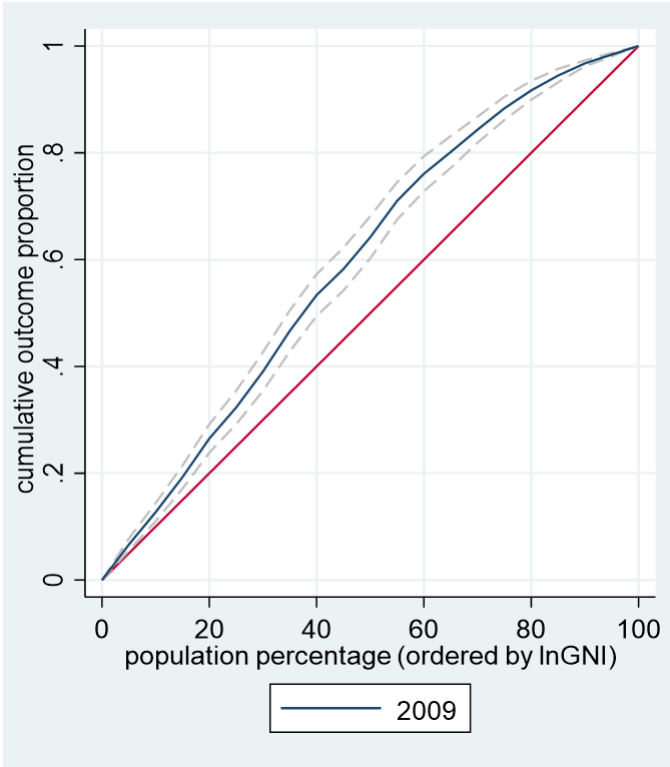
**Figs. S66-83 Concentration curves of age-standardized DALY rates for stroke from 2001 to 2018**

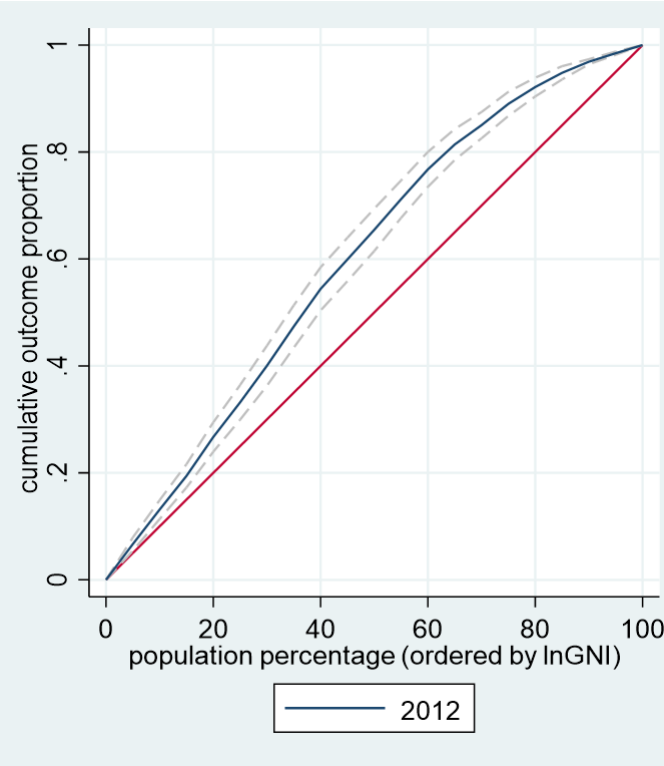
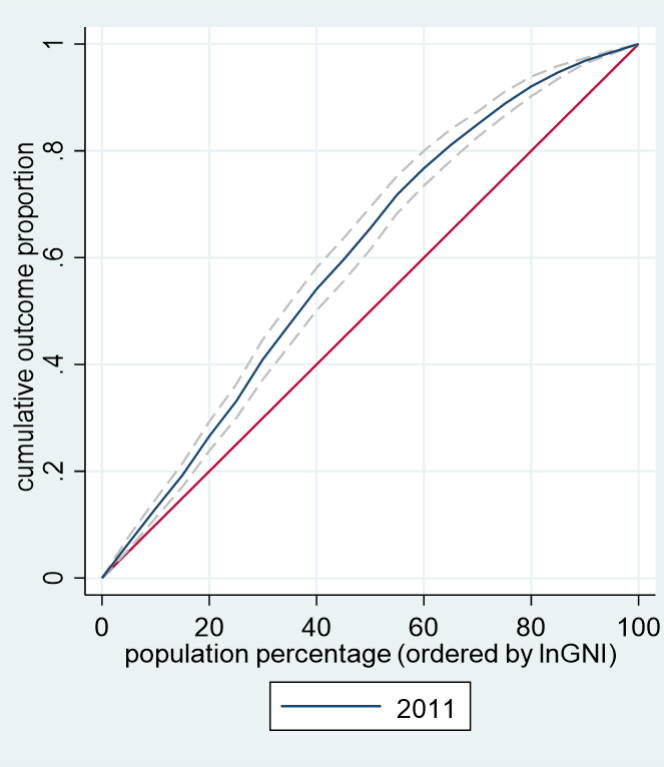


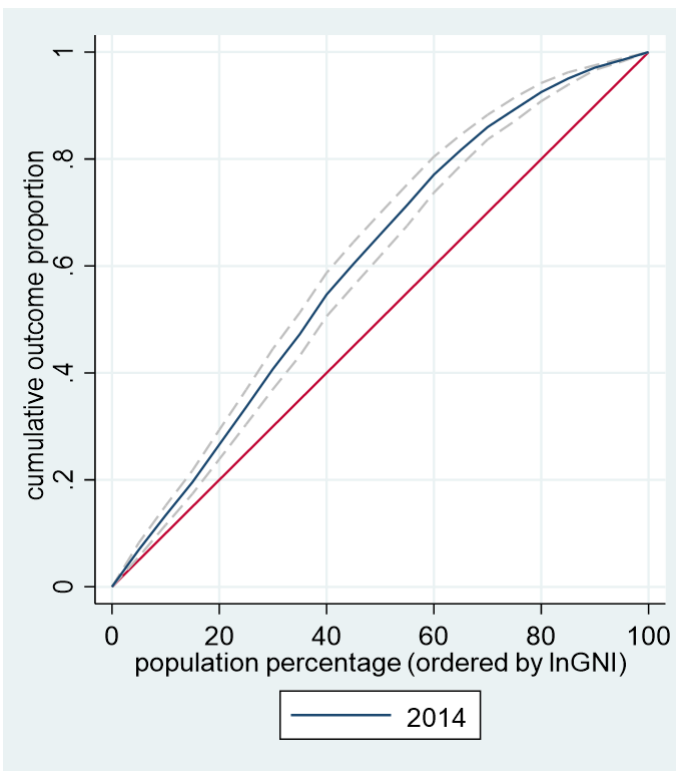
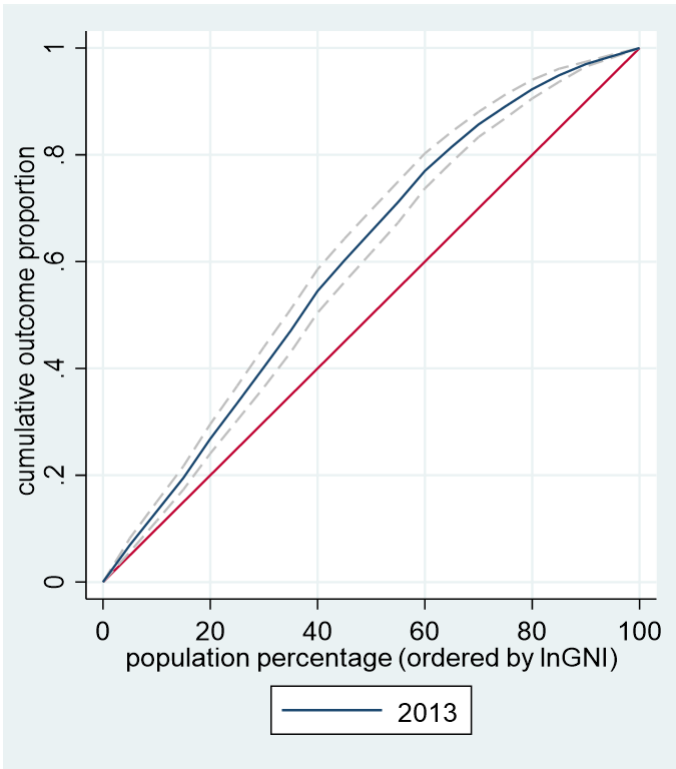


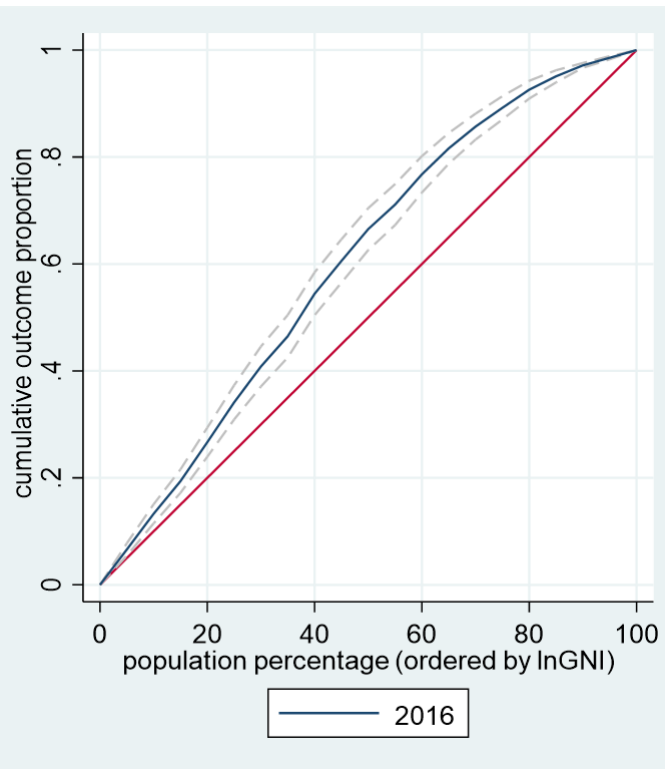
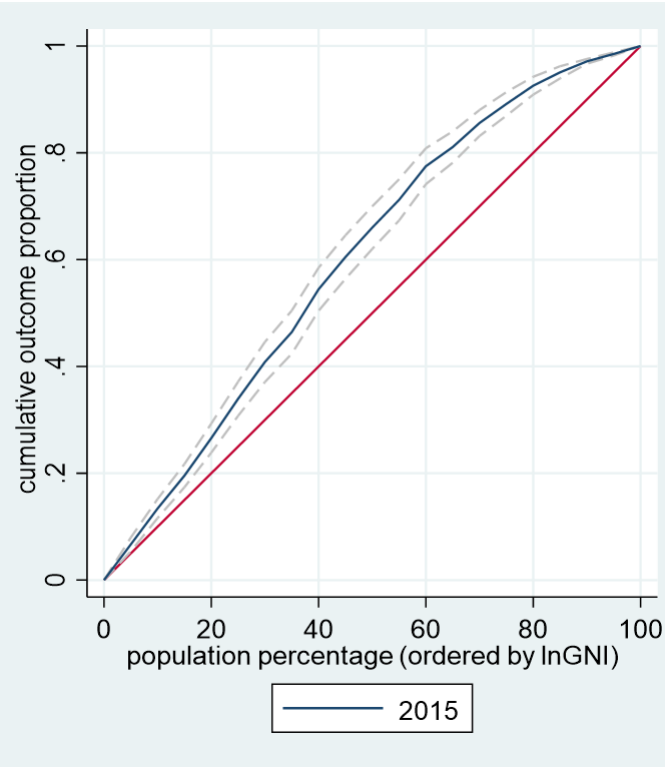


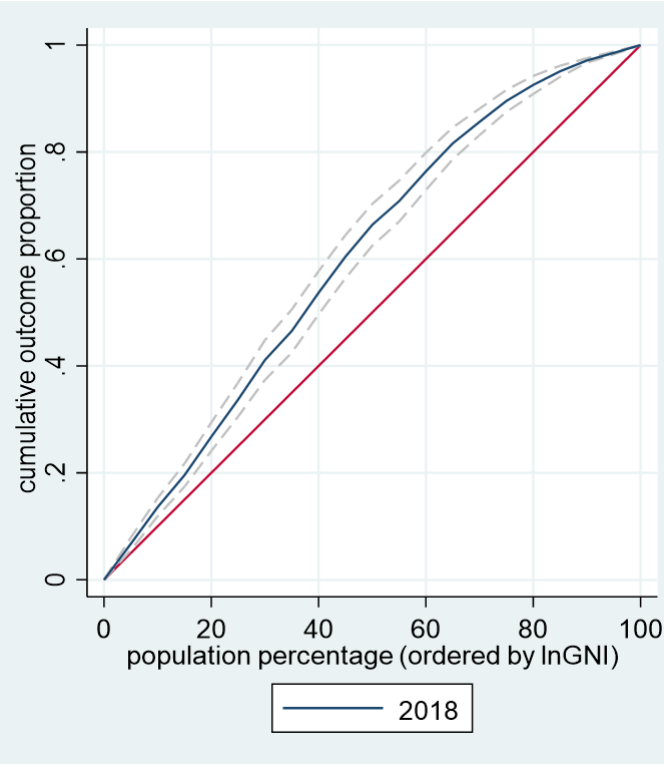
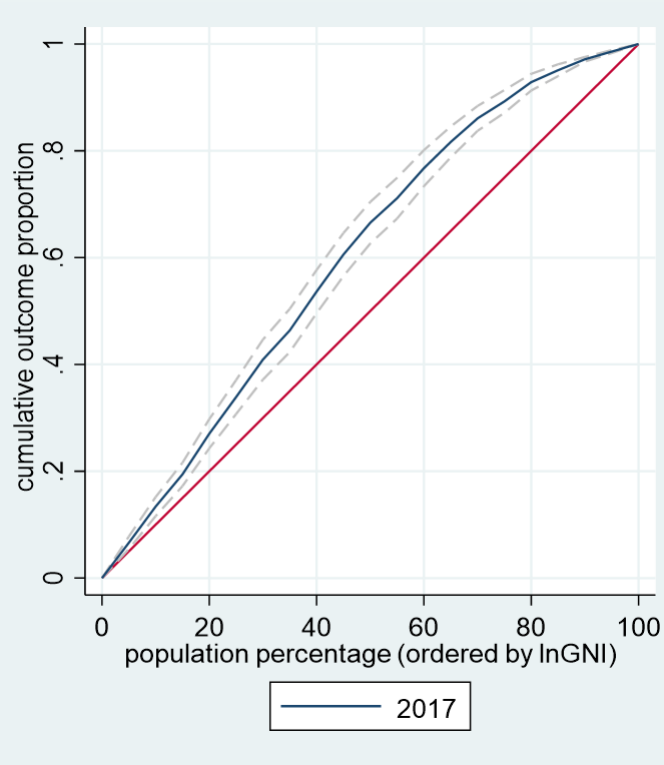




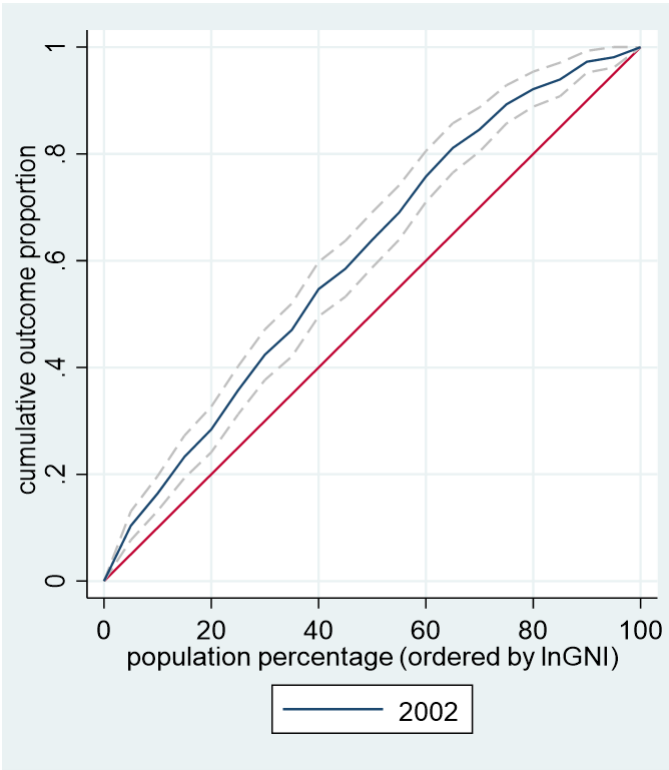
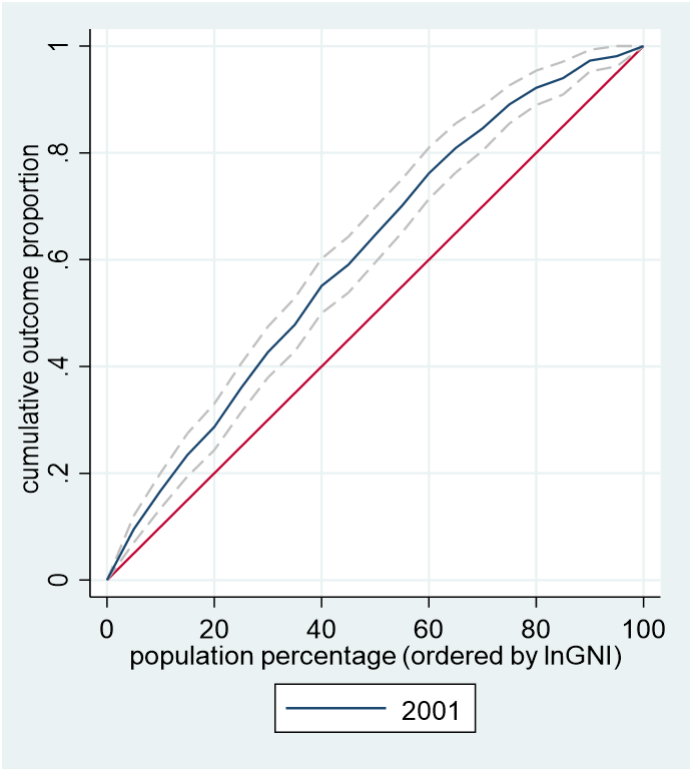


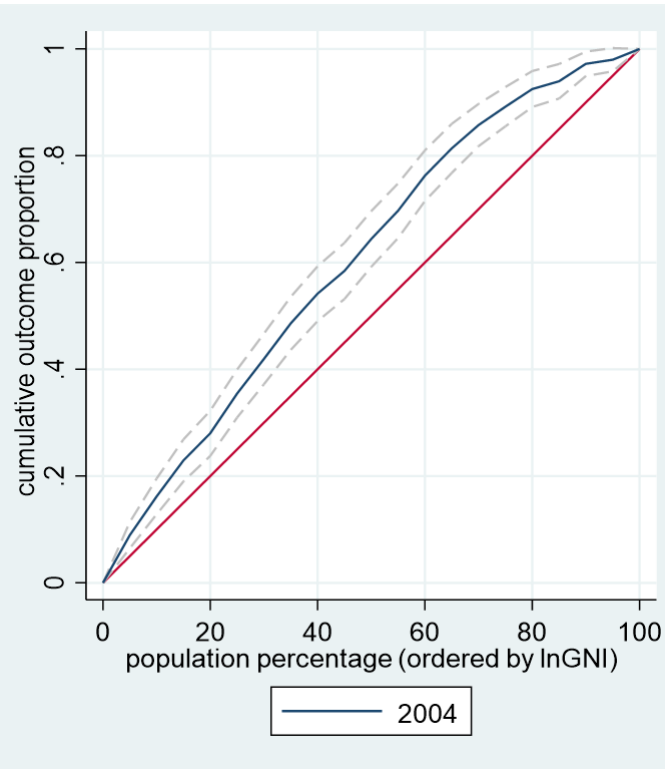
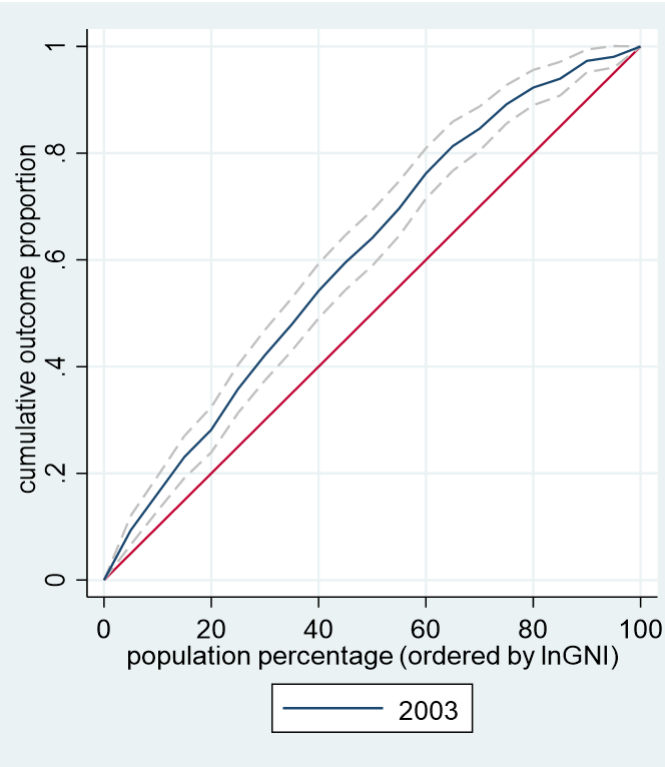


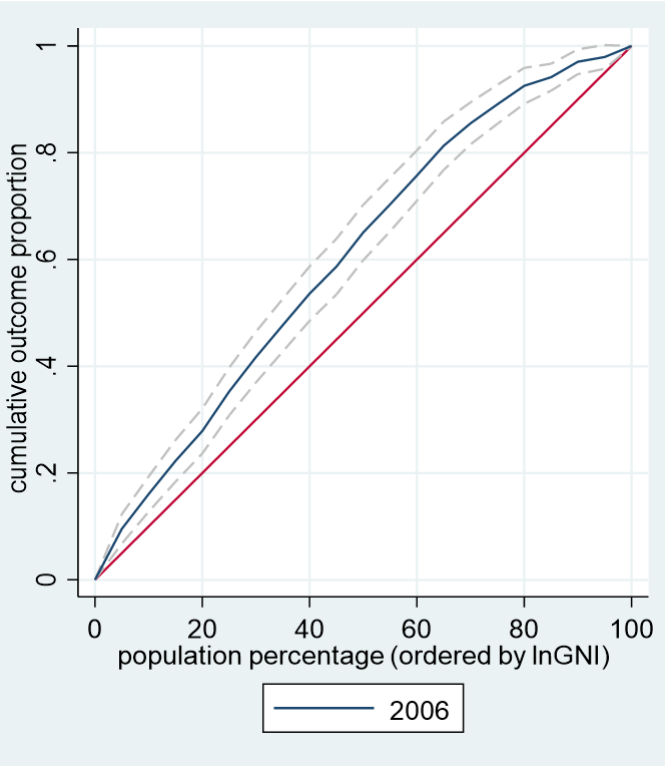
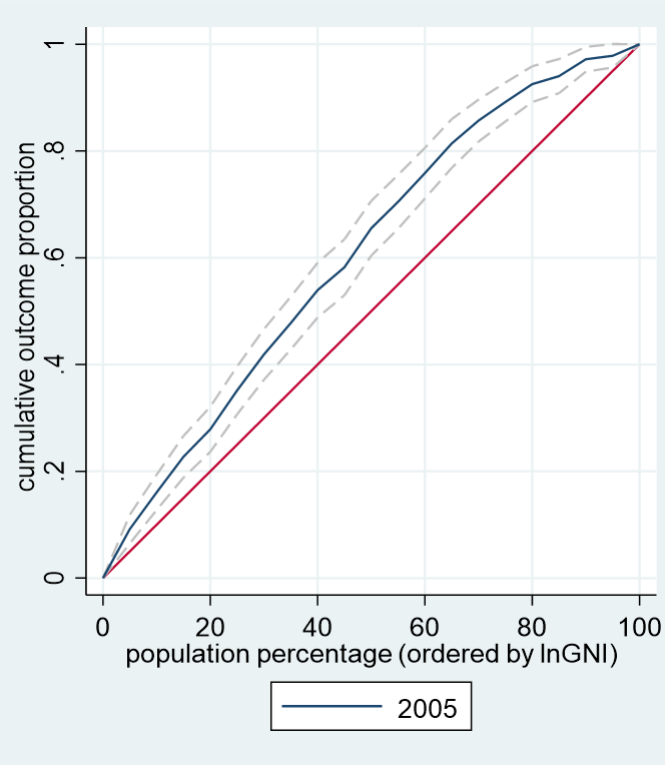


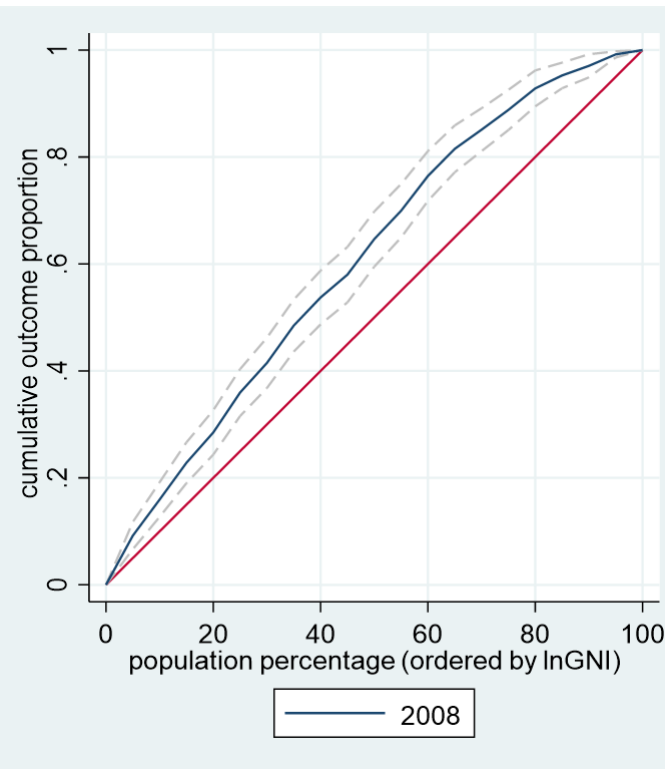
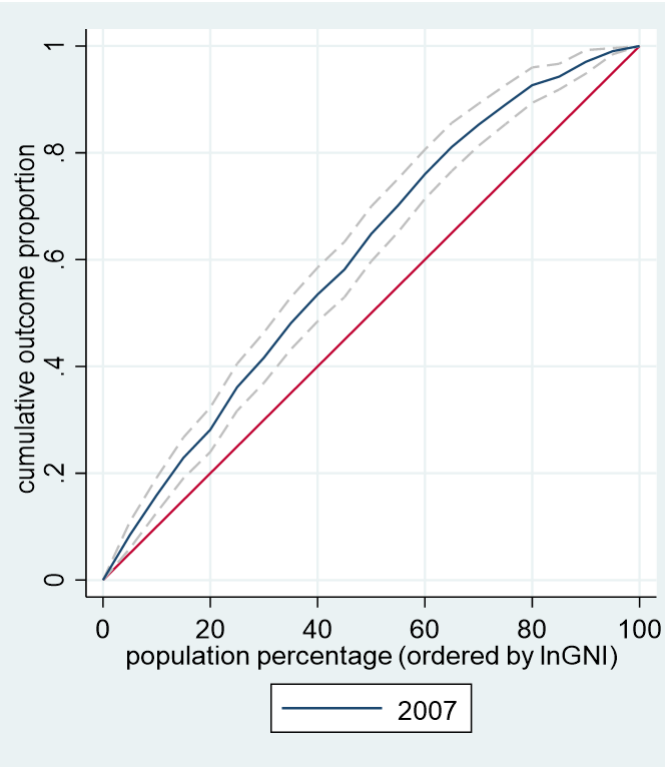


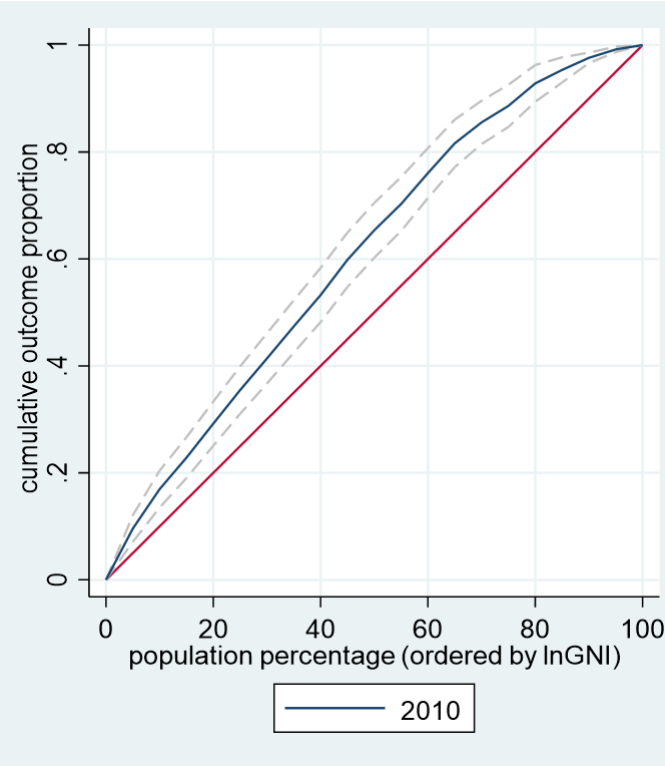
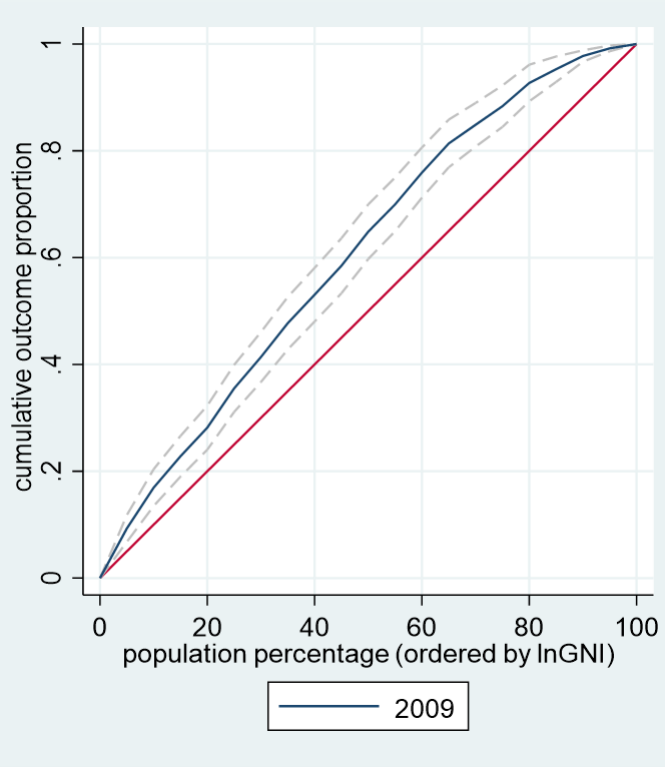
**Figs. S84-101 Concentration curves of age-standardized DALY rates for hypertensive heart disease from 2001 to 2018**

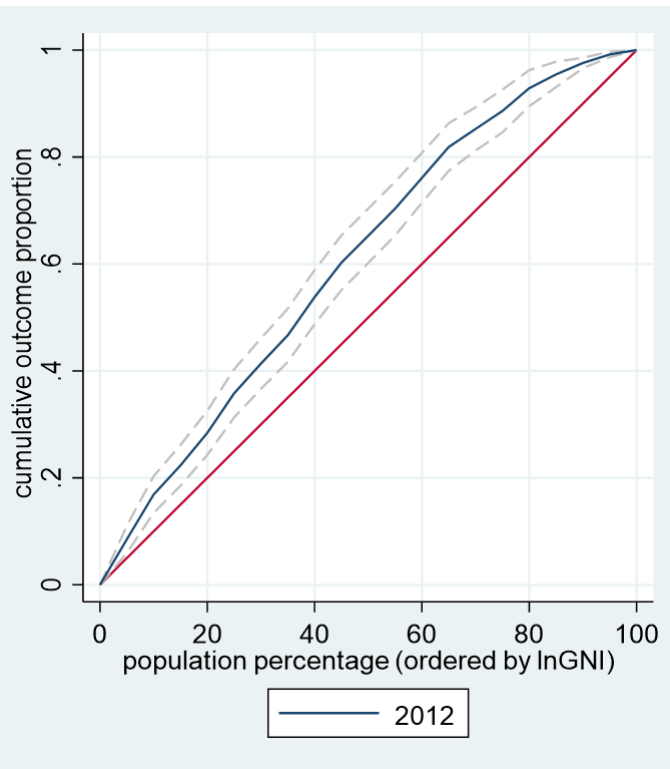
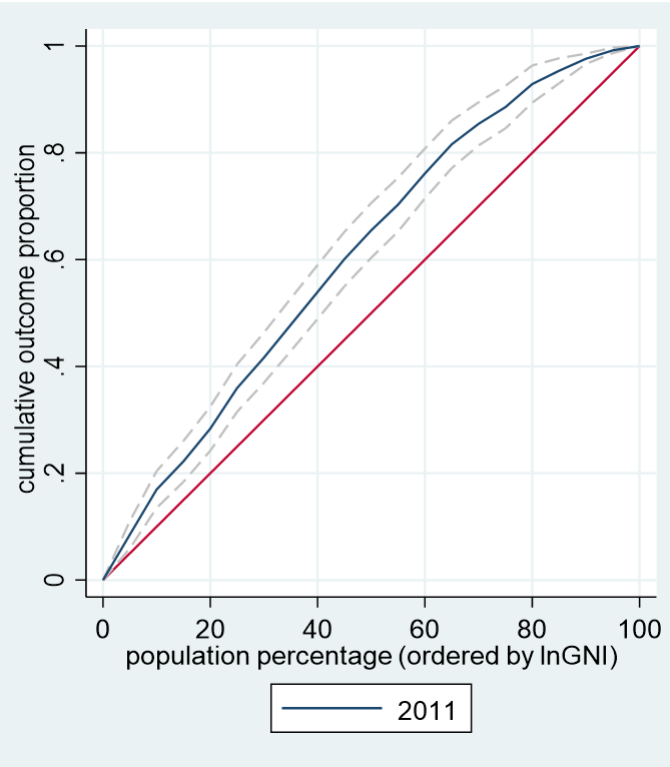


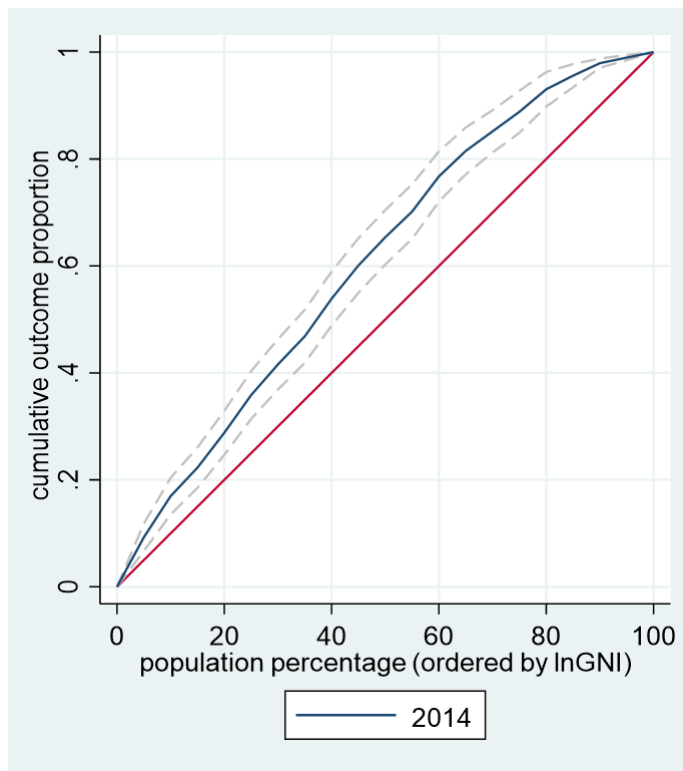
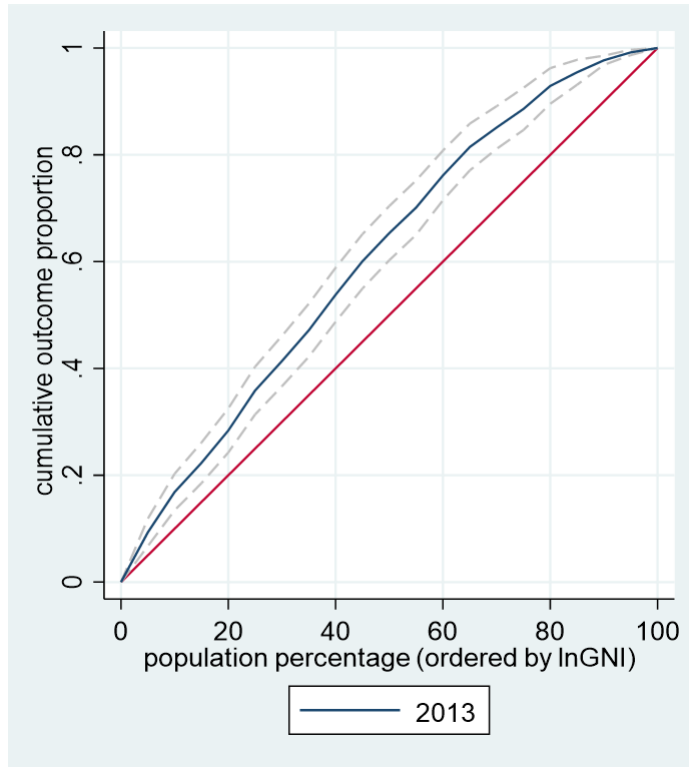


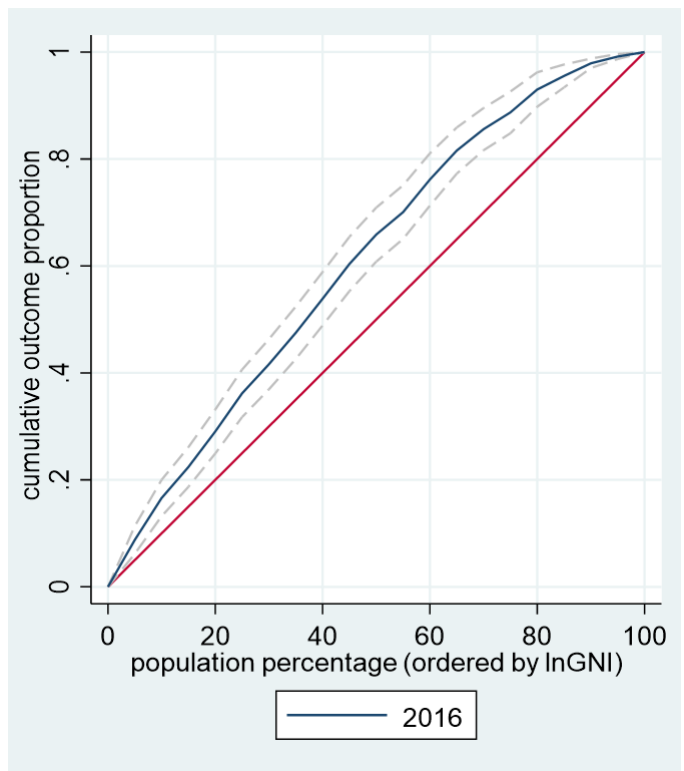
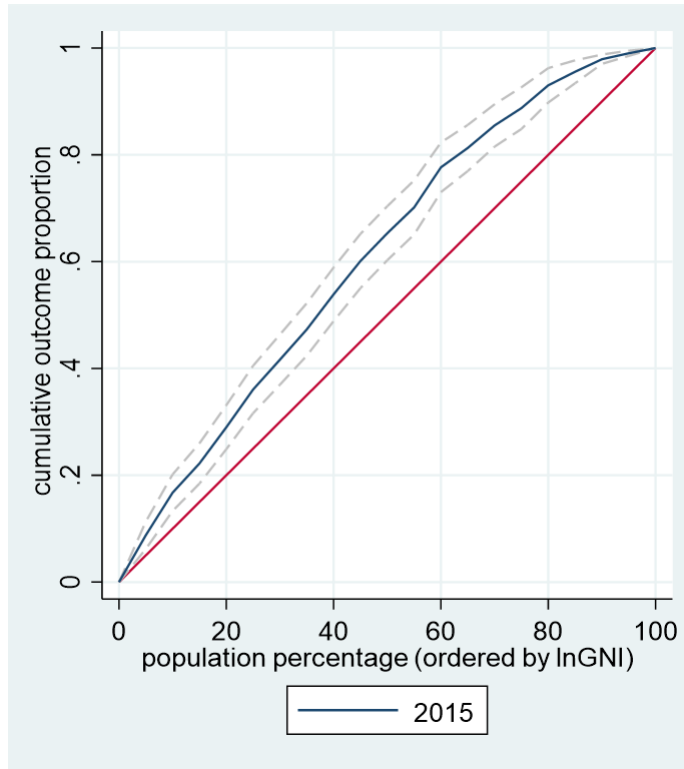


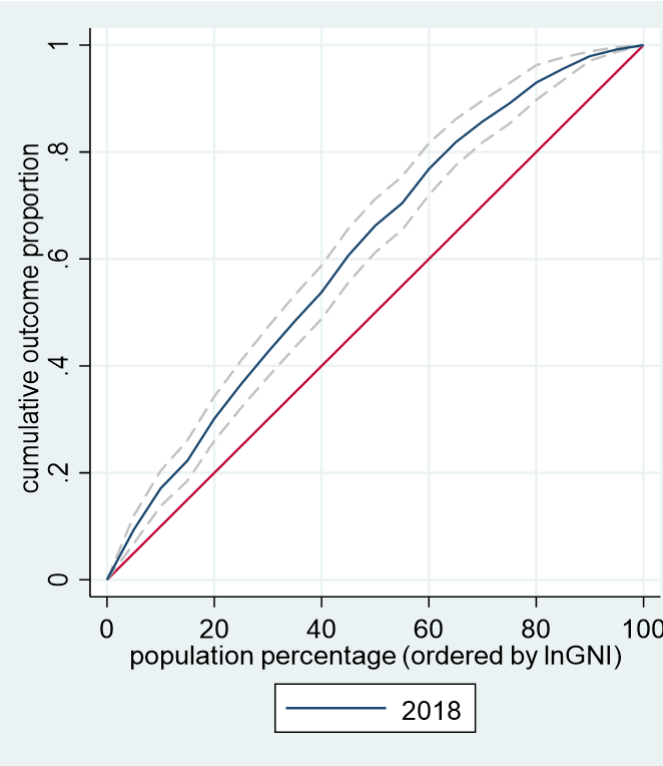
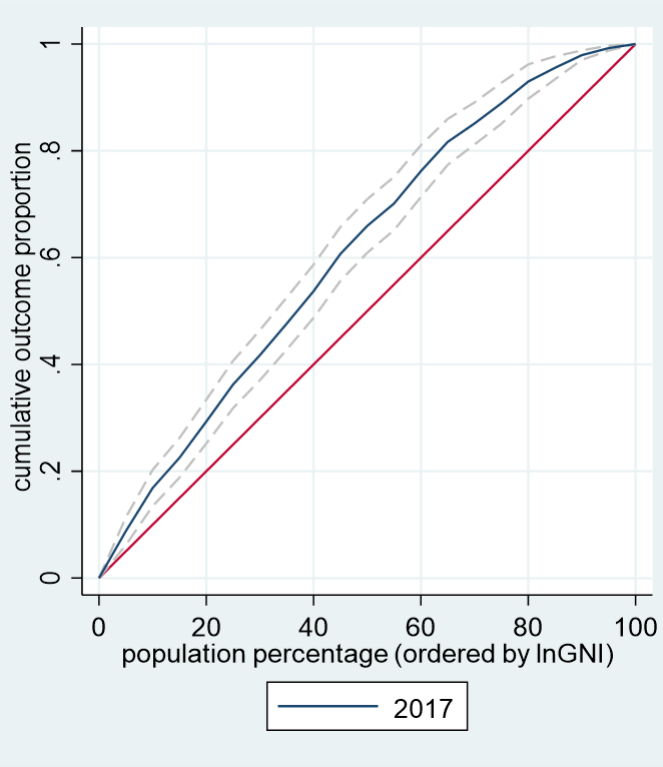




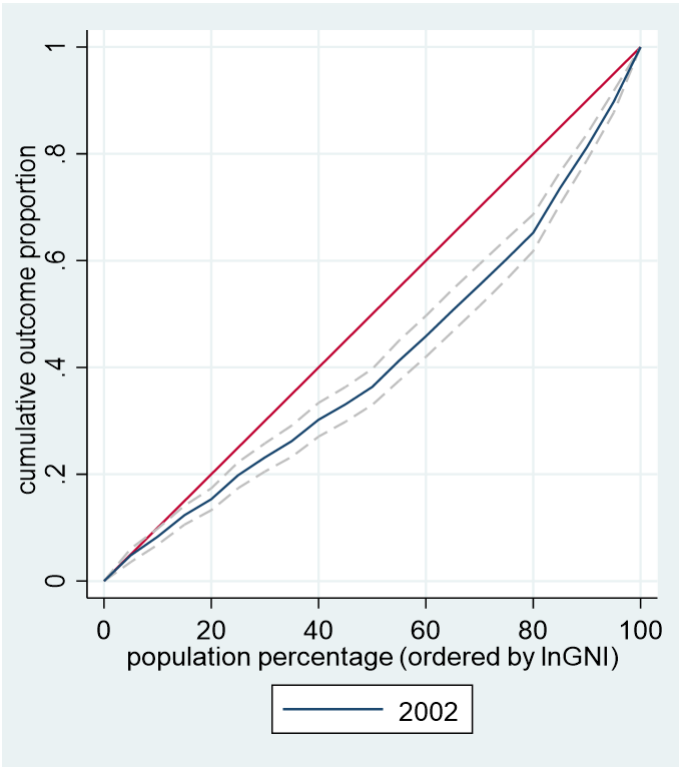
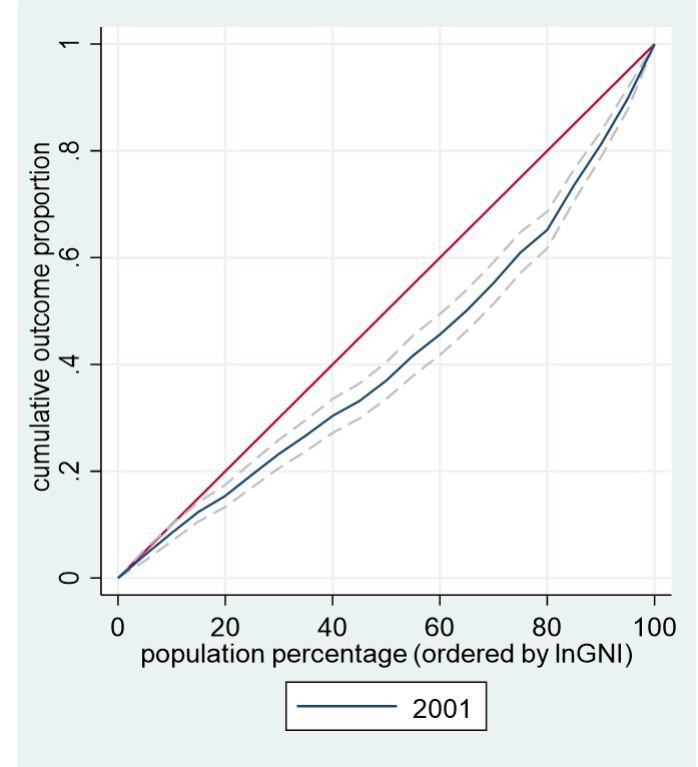


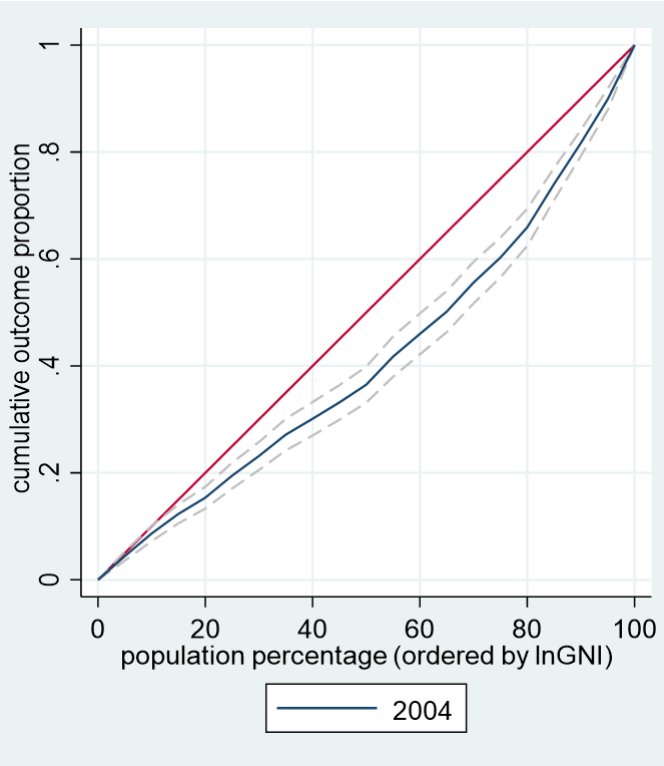
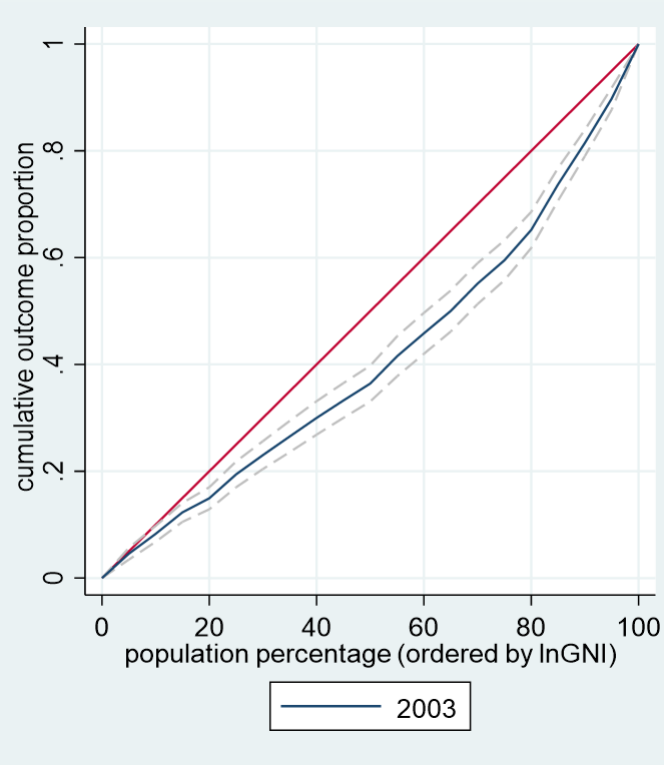


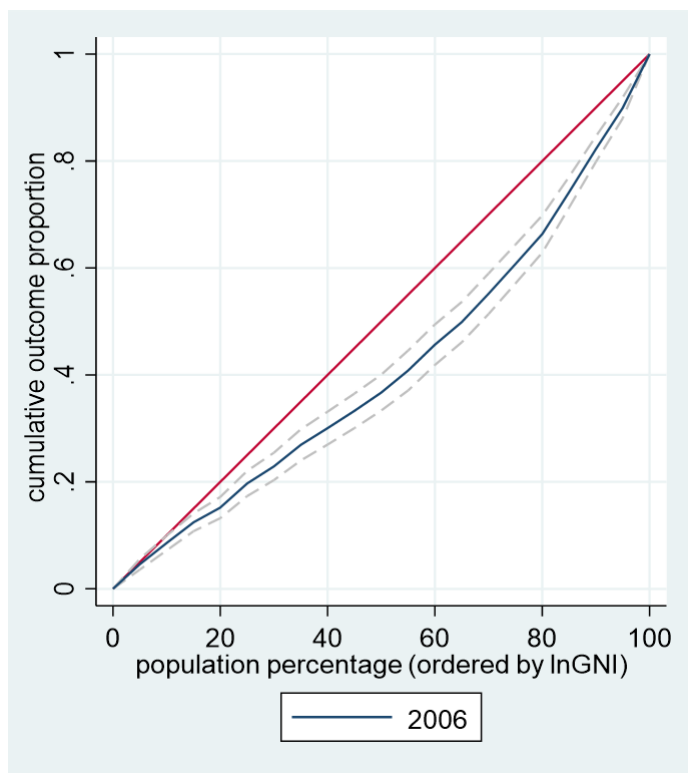
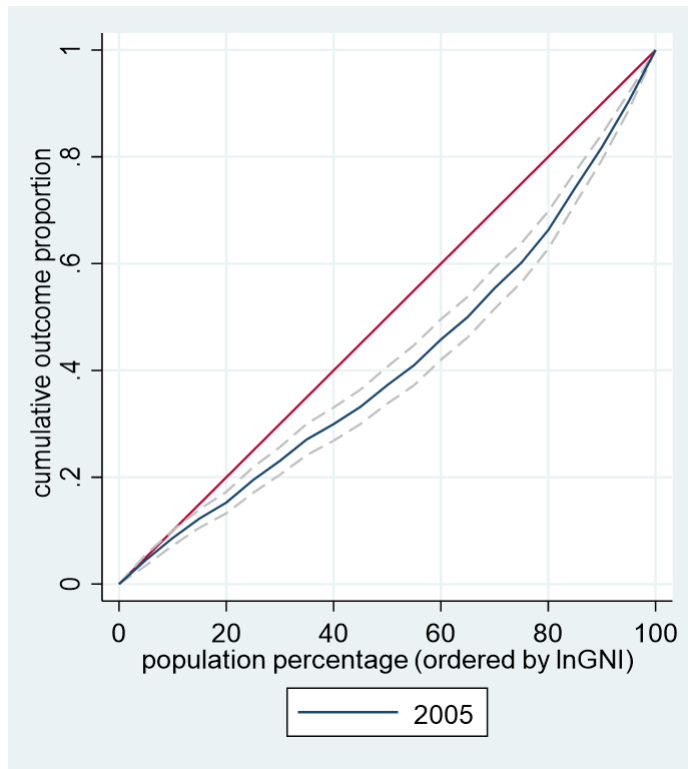


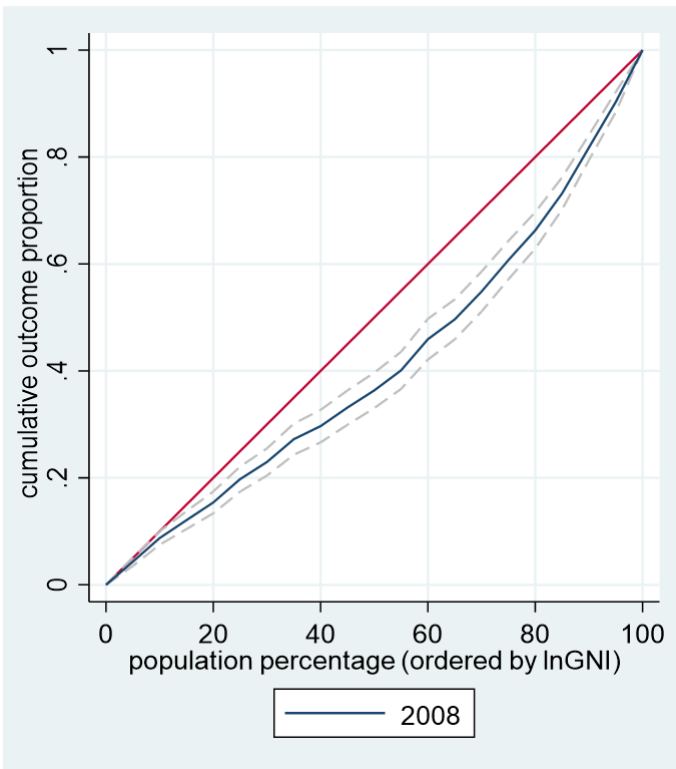
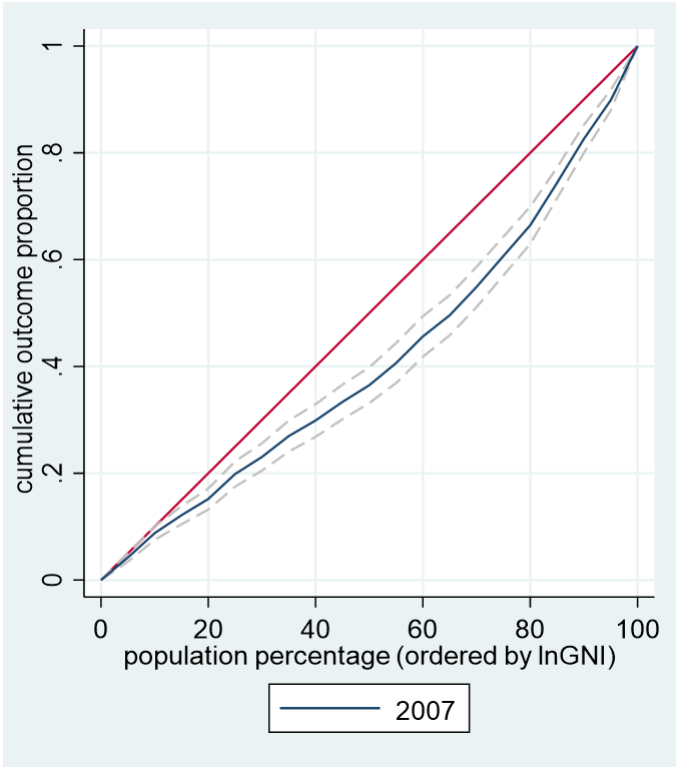


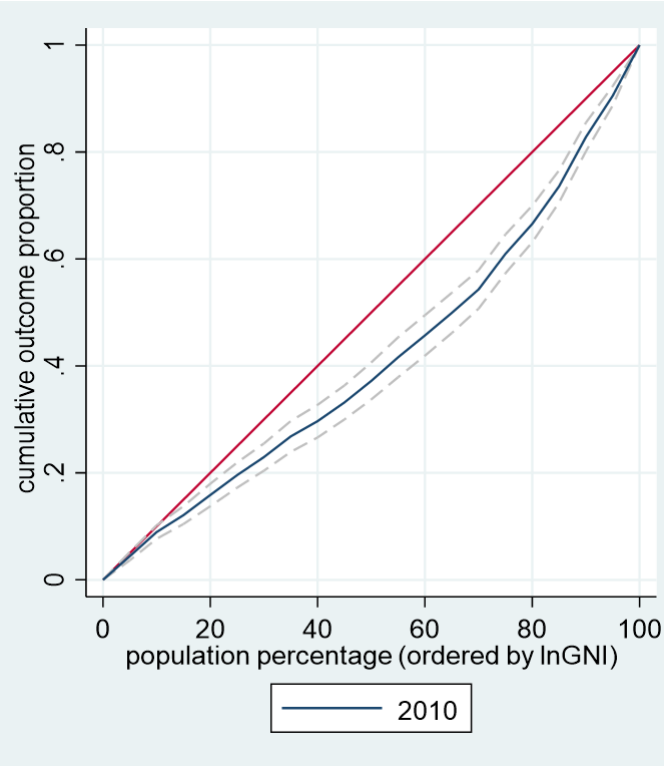
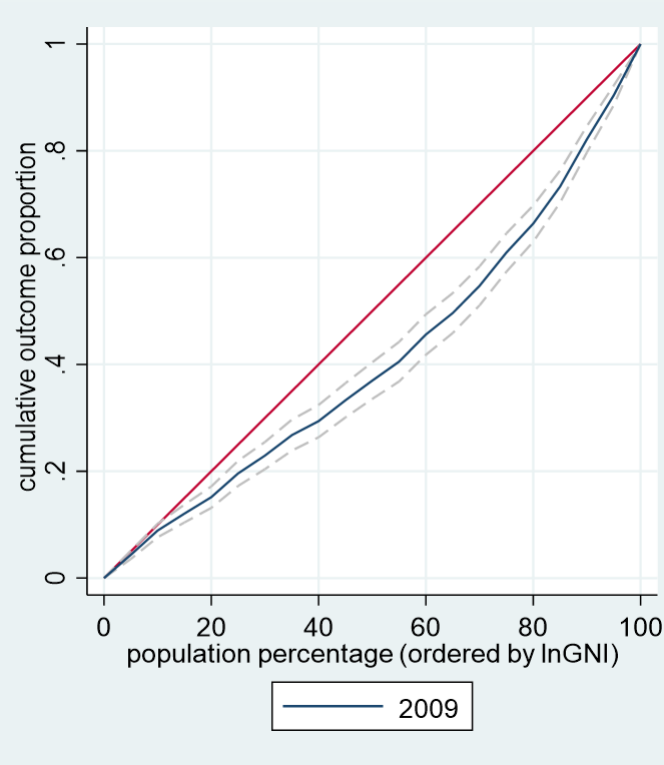
**Figs. S102-119** Concentration curves of age-standardized DALY rates for non-rheumatic valvular heart disease from 2001 to 2018

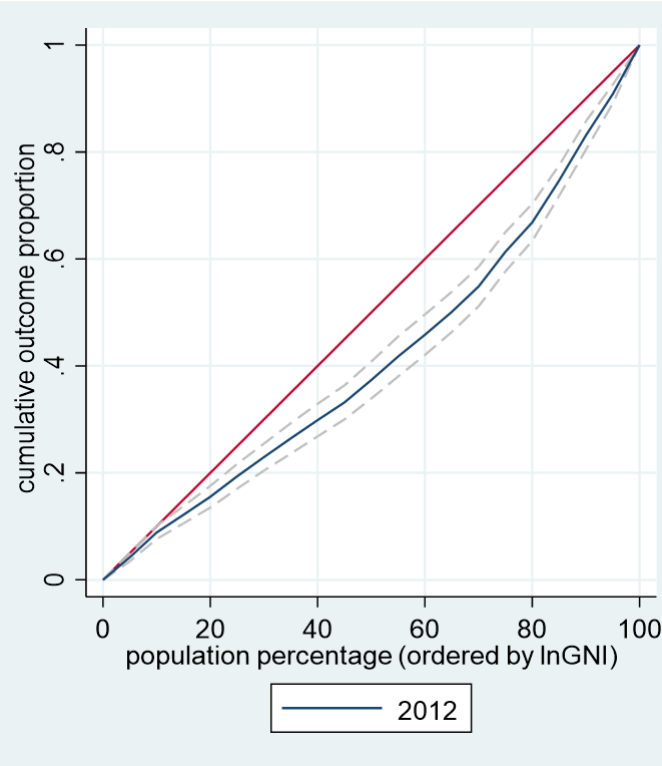
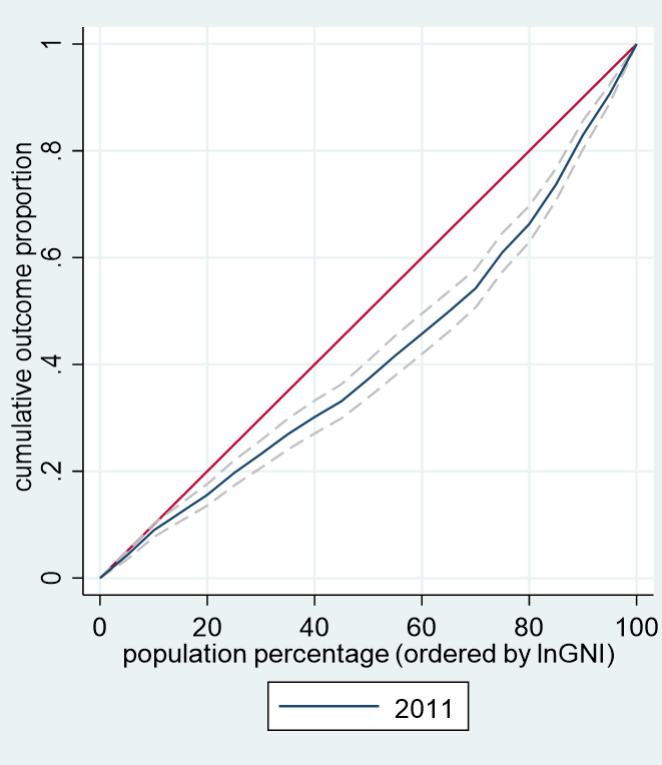


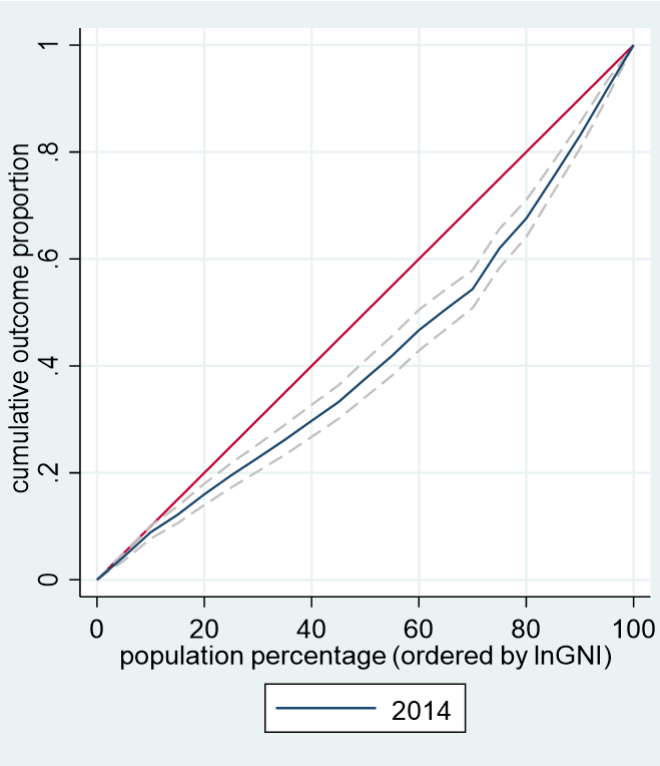
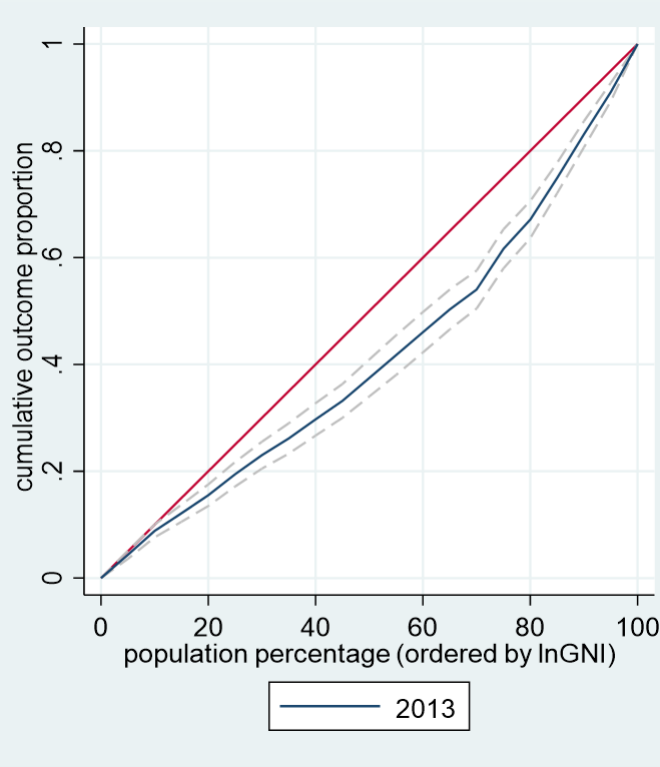


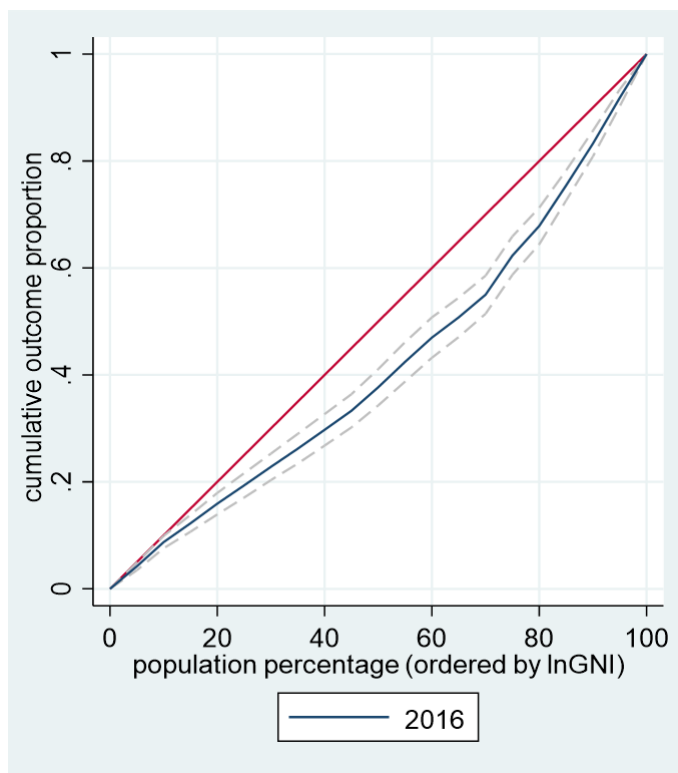
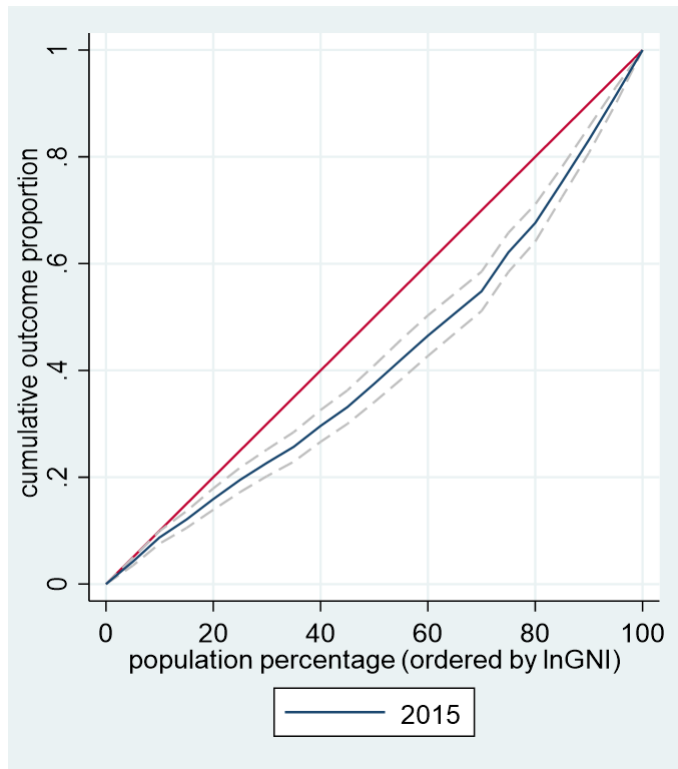


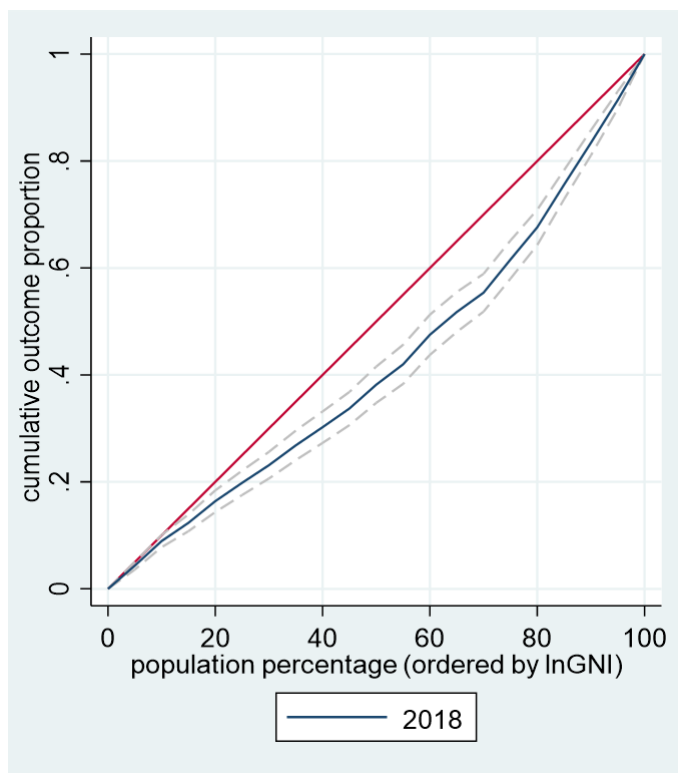
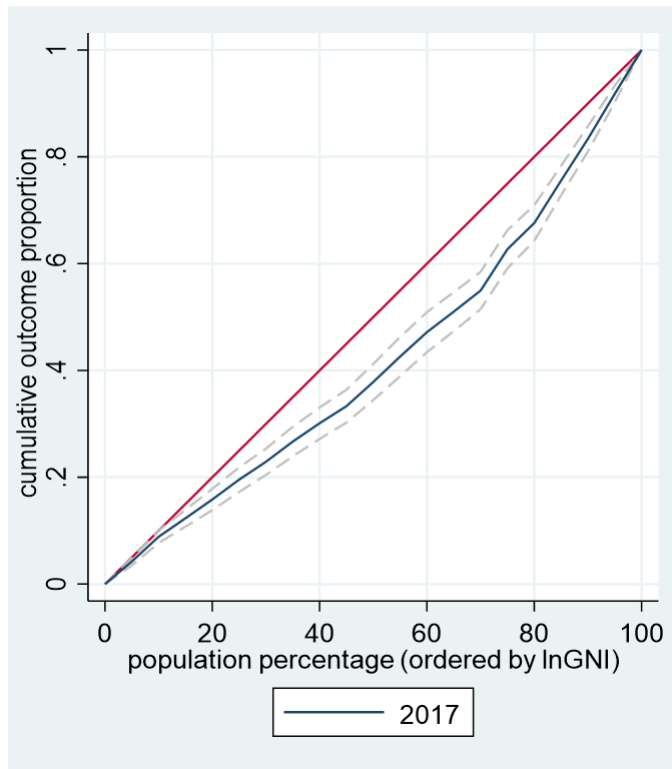




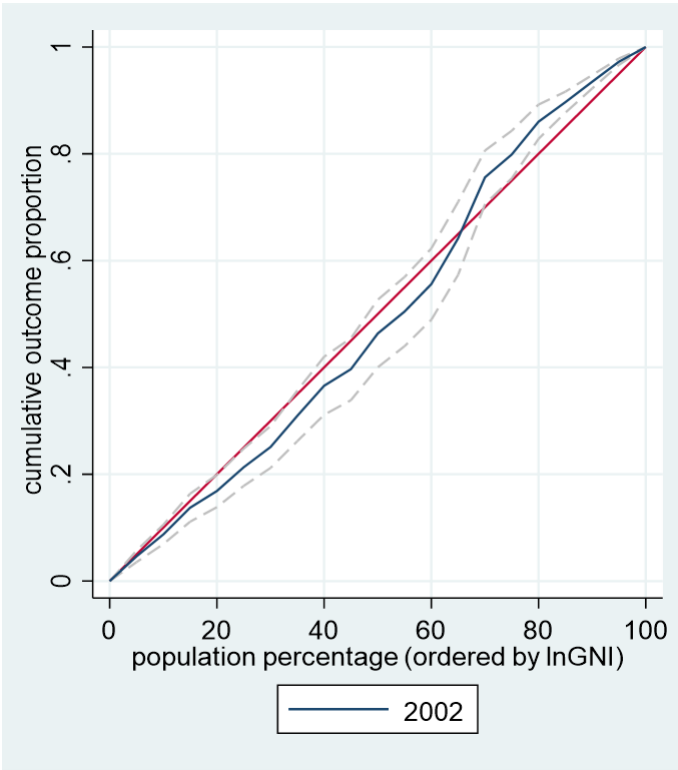
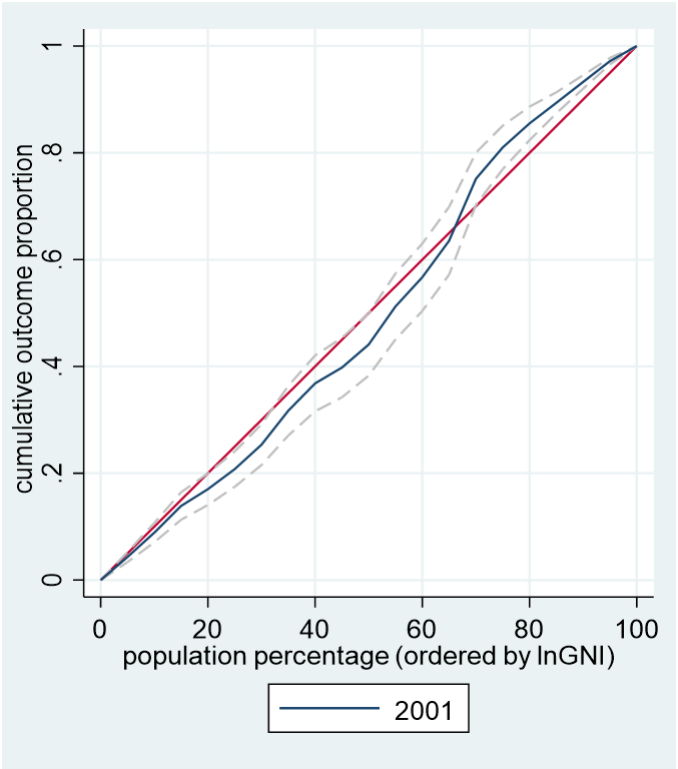


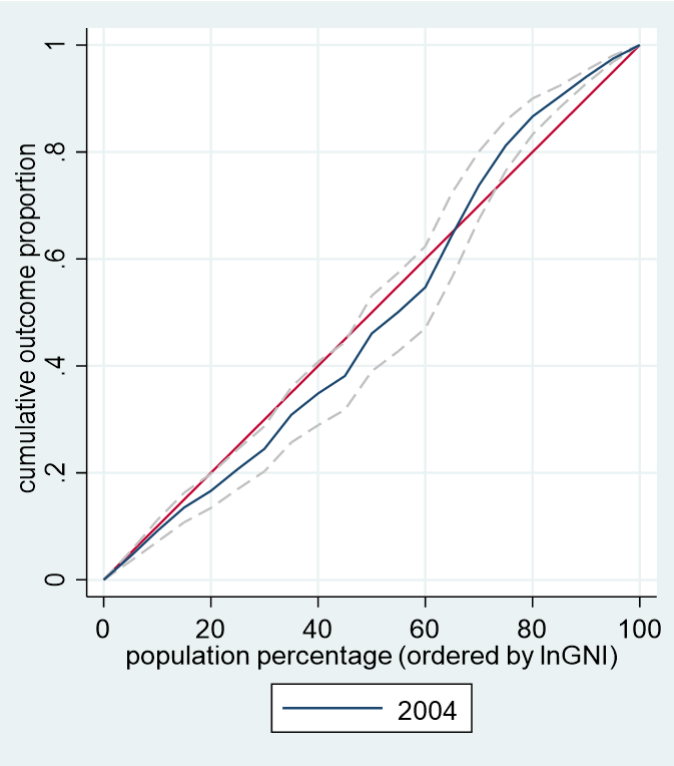
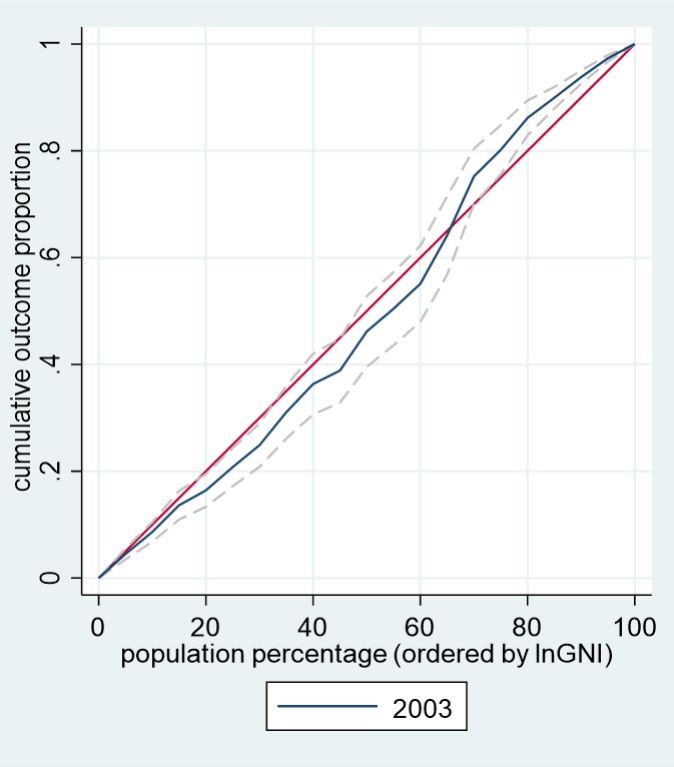


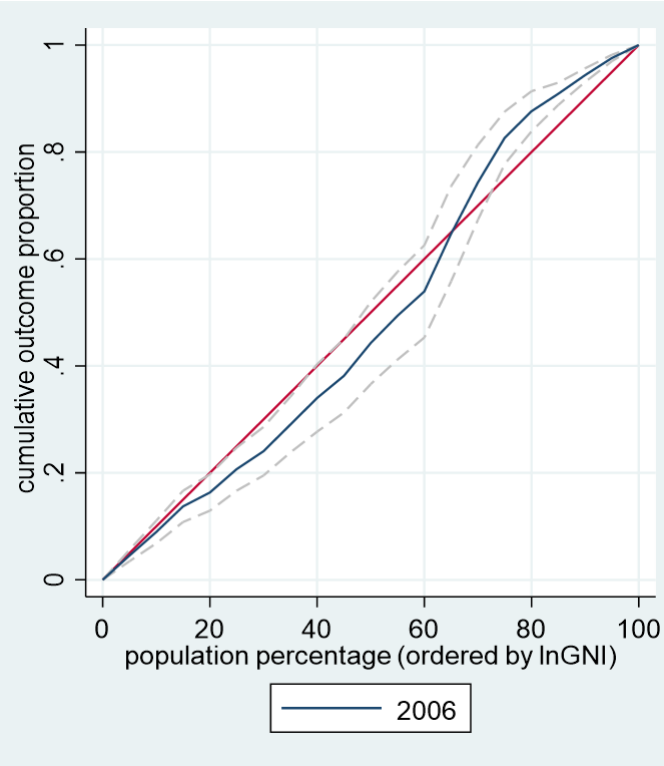
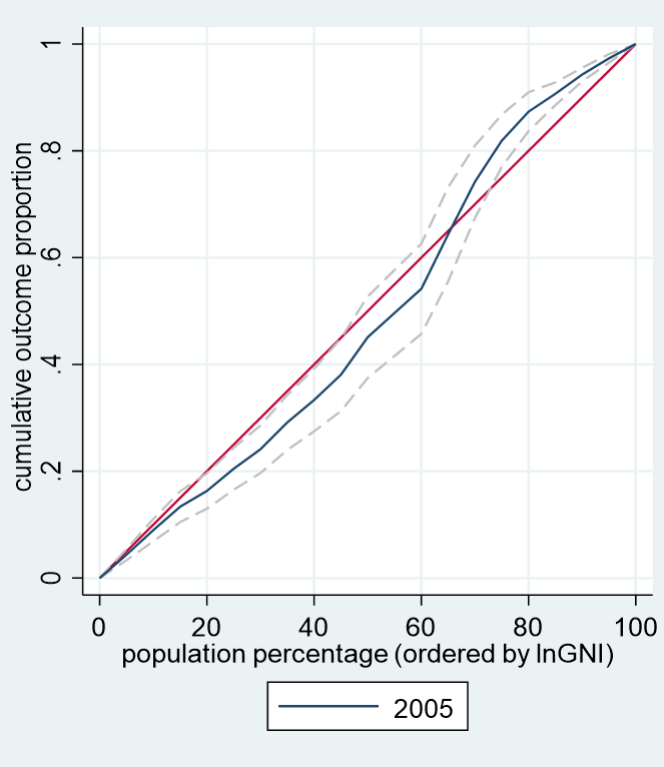


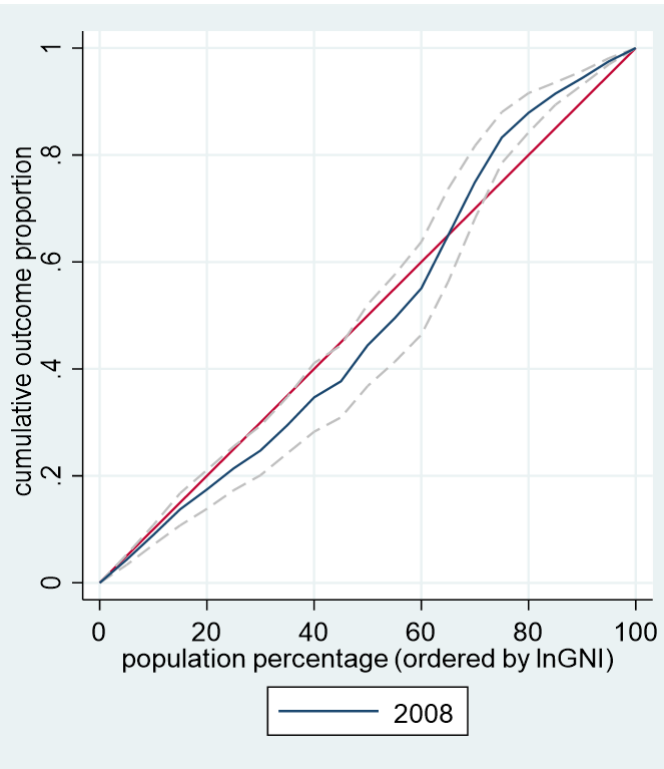
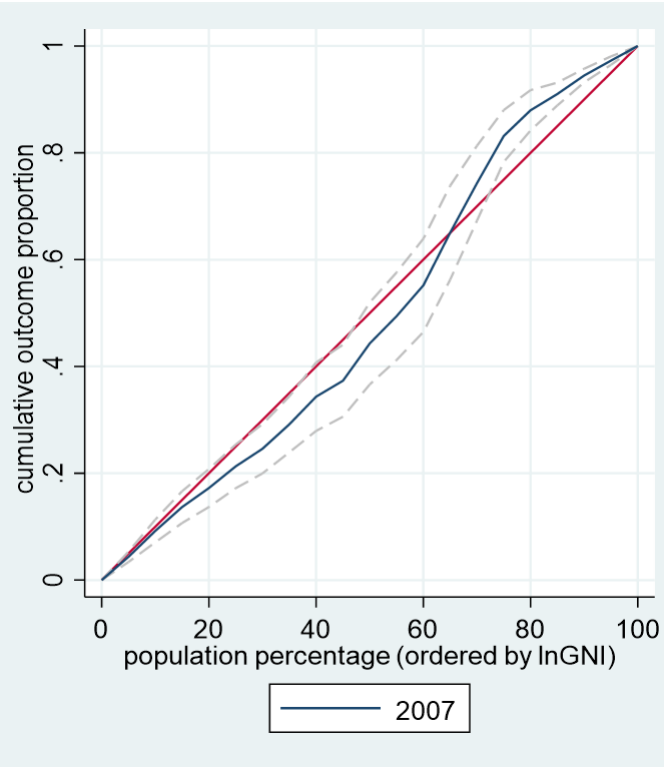


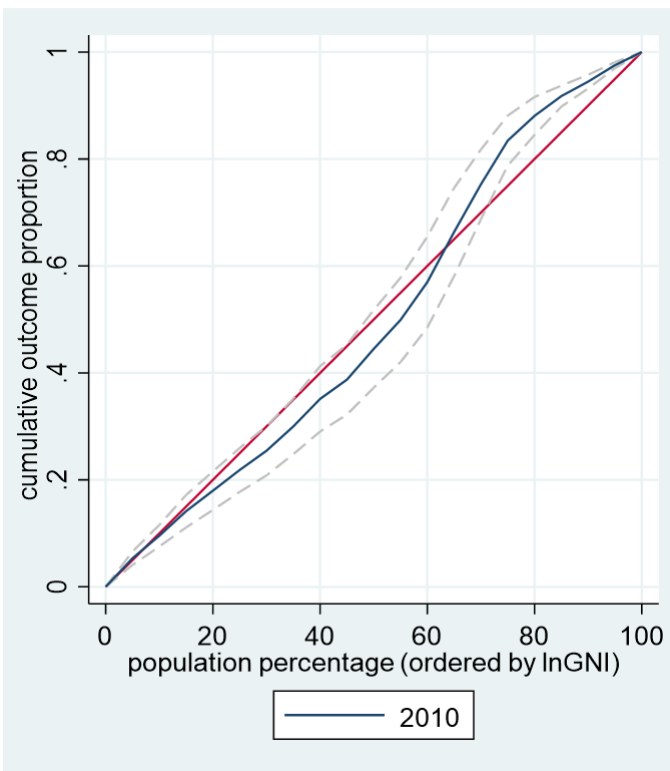
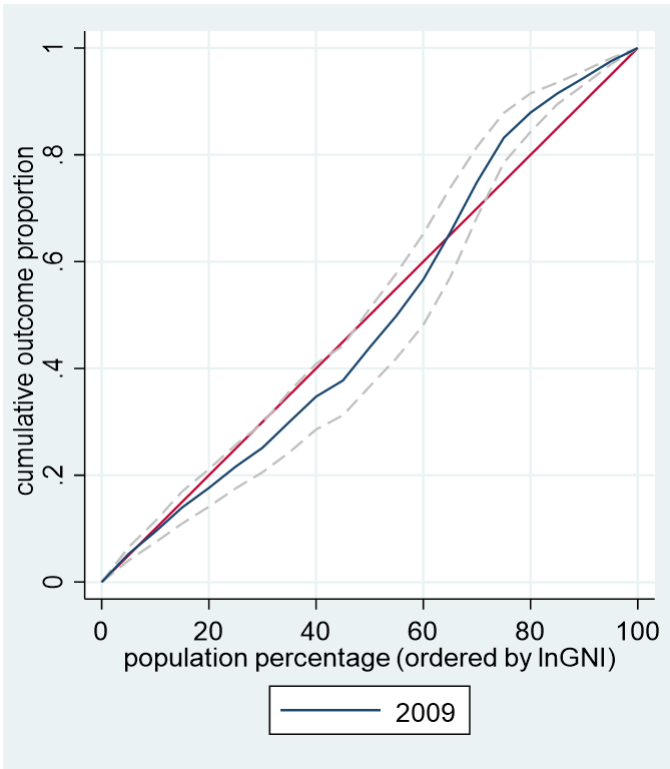
**Figs. S120-137 Concentration curves of age-standardized DALY rates for cardiomyopathy and myocarditis from 2001 to 2018**

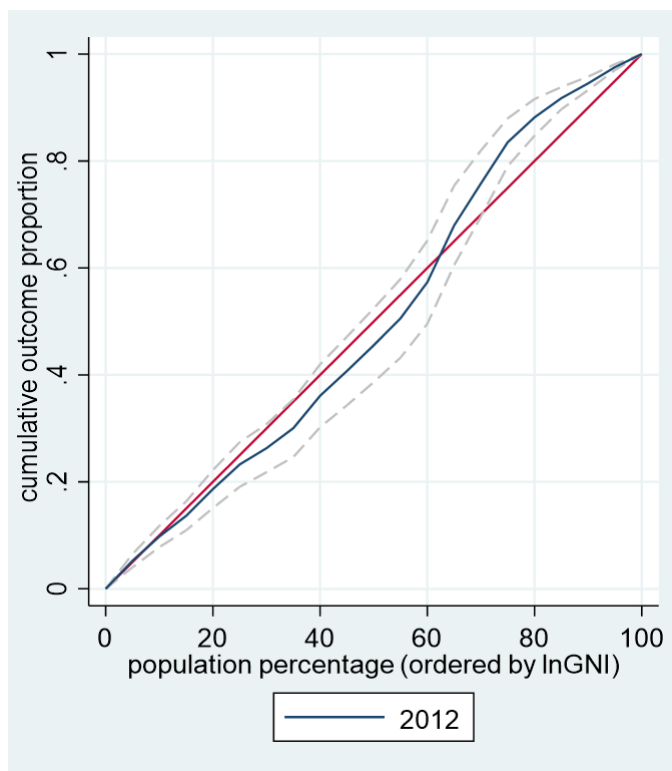
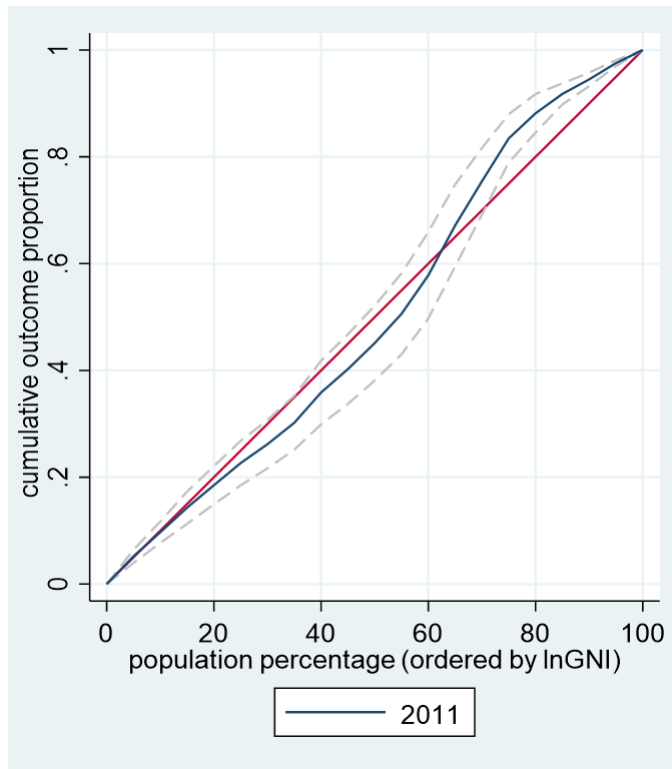


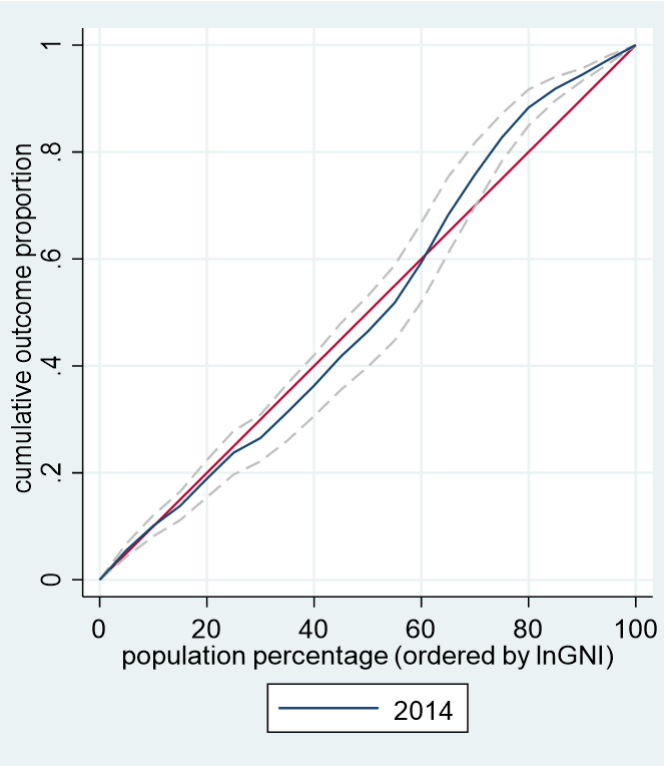
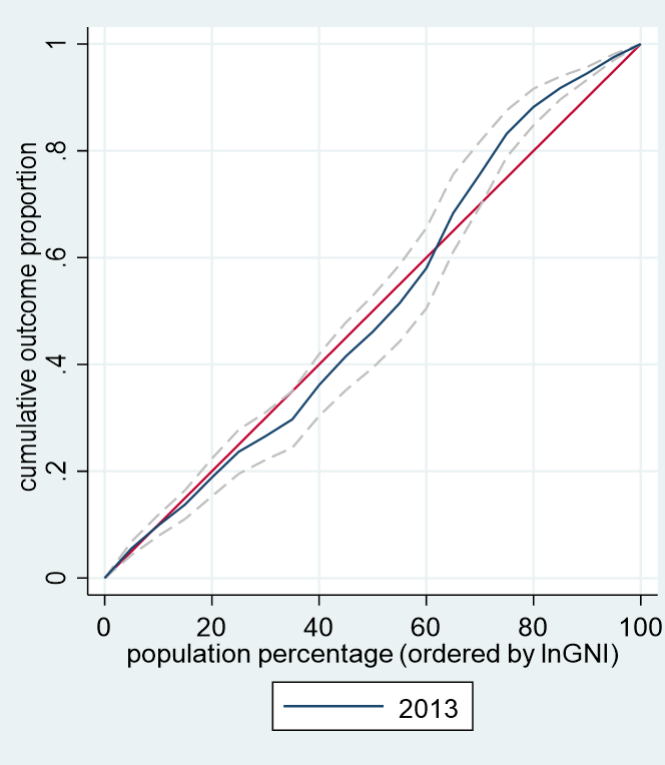


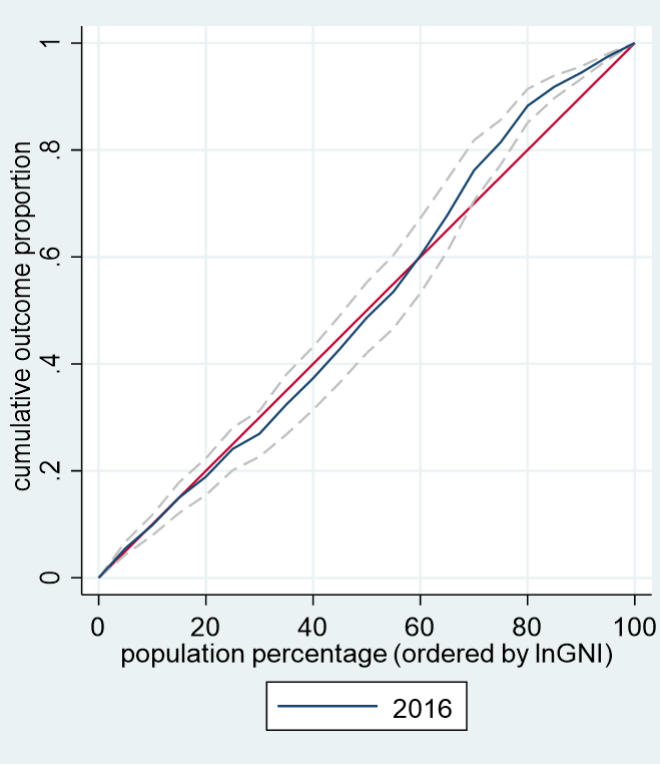
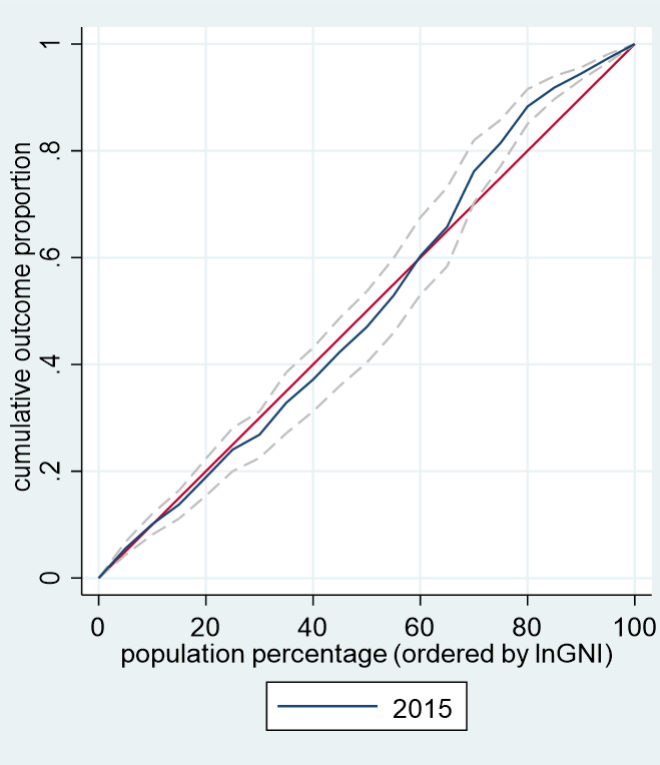


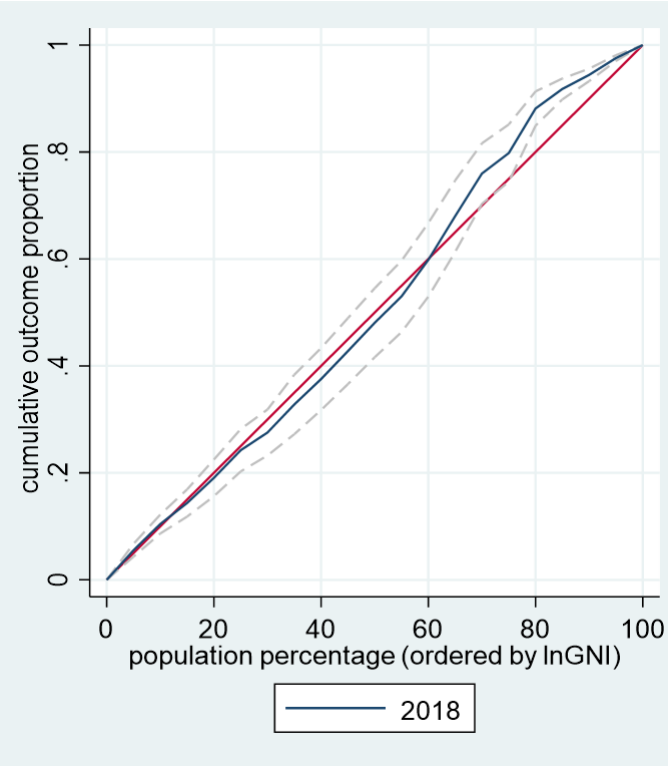
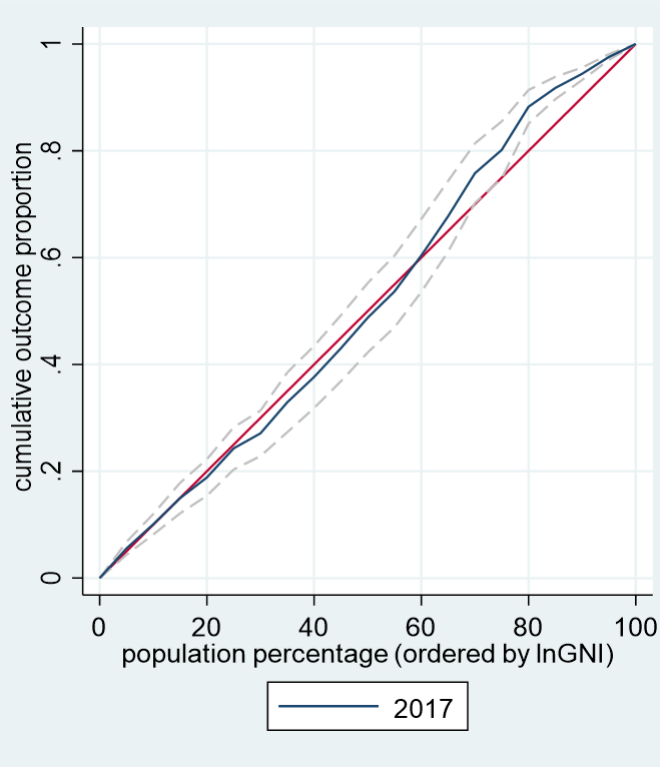




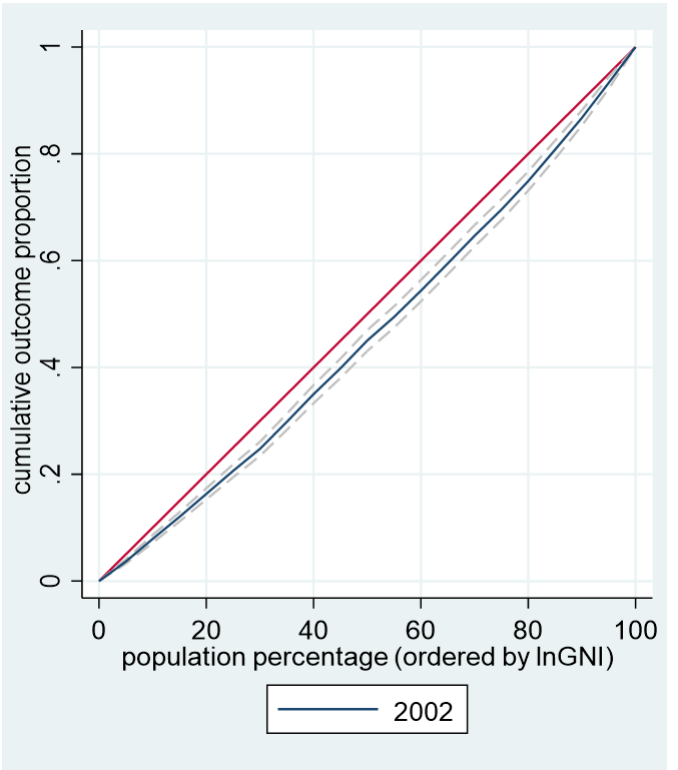
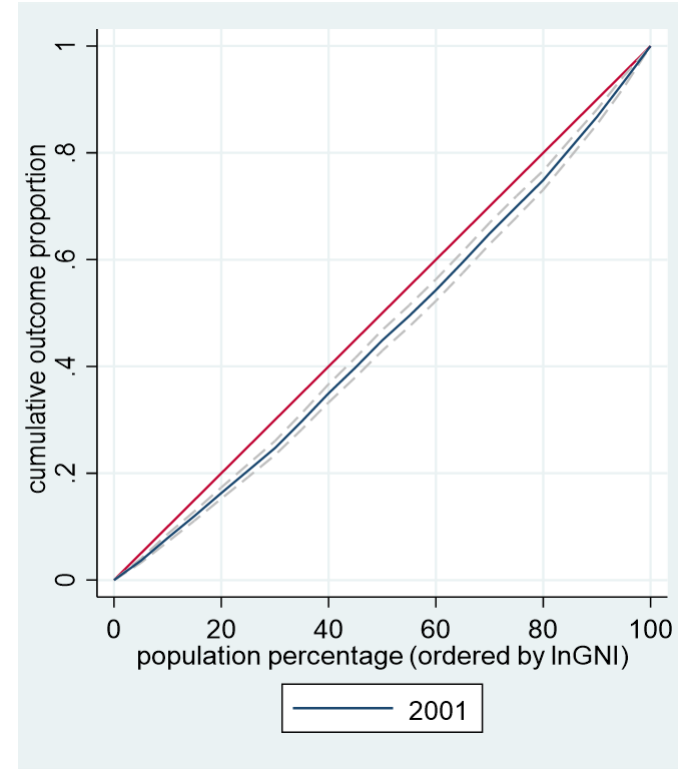


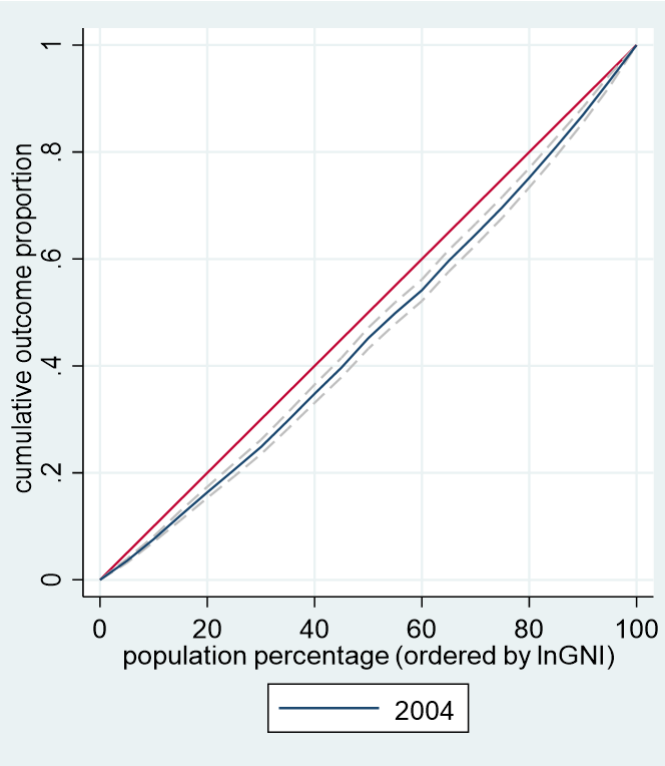
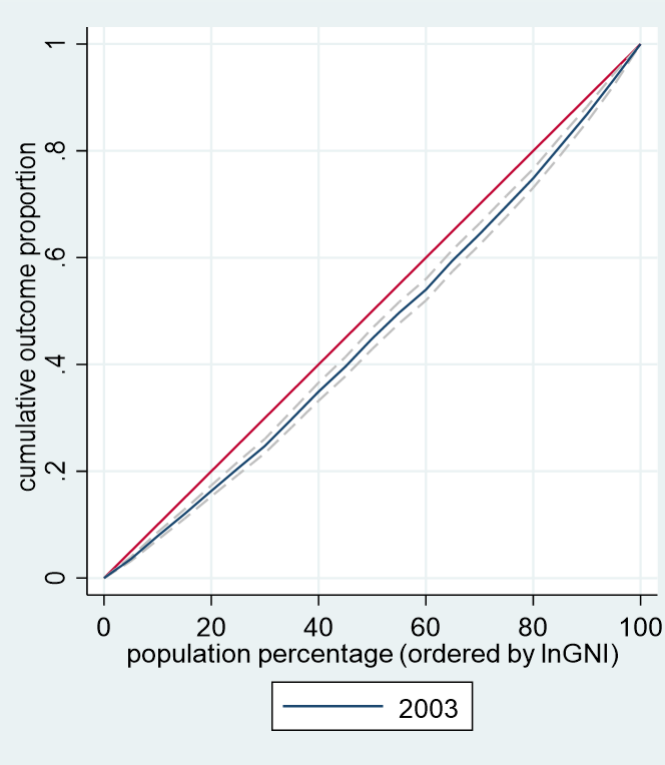


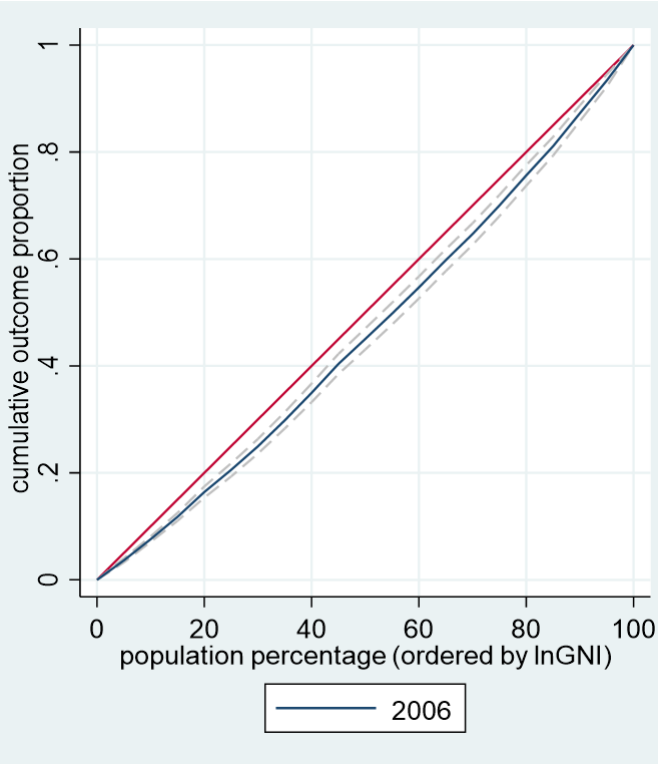
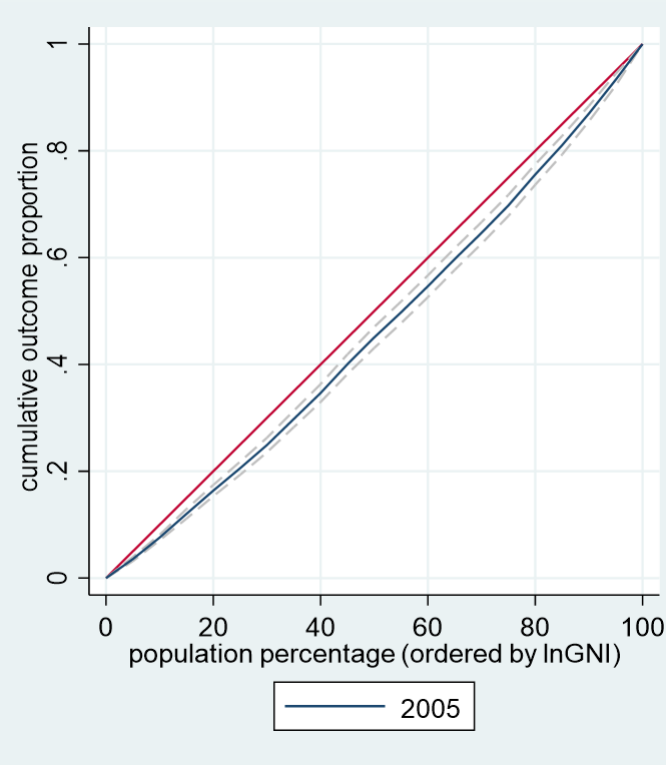


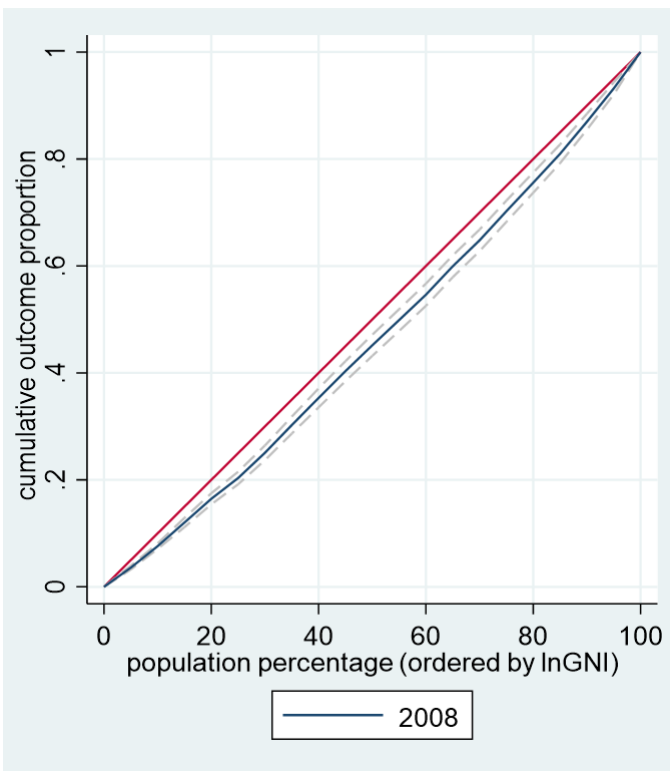
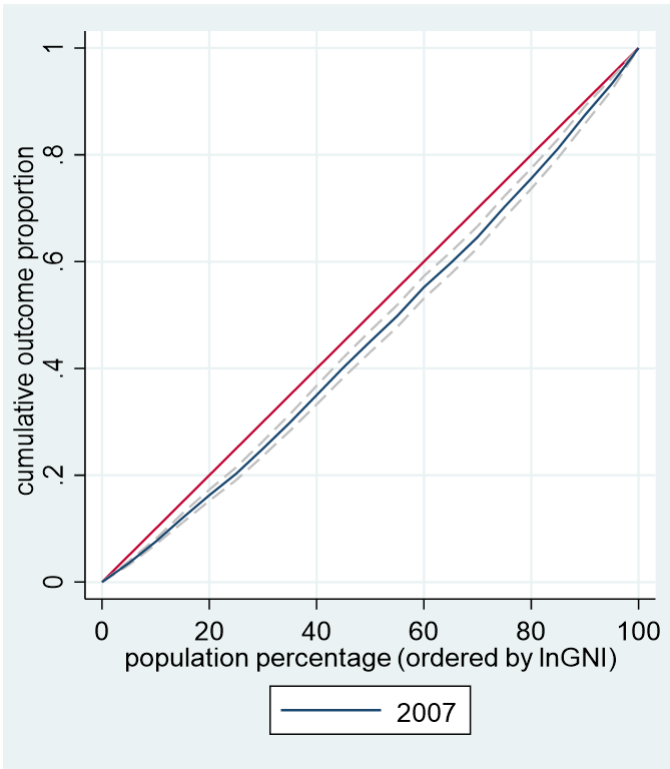


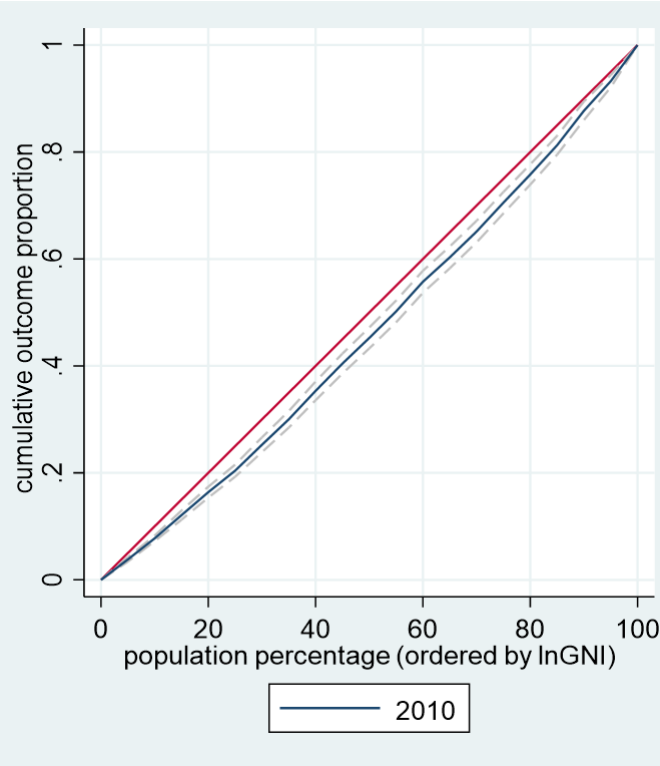
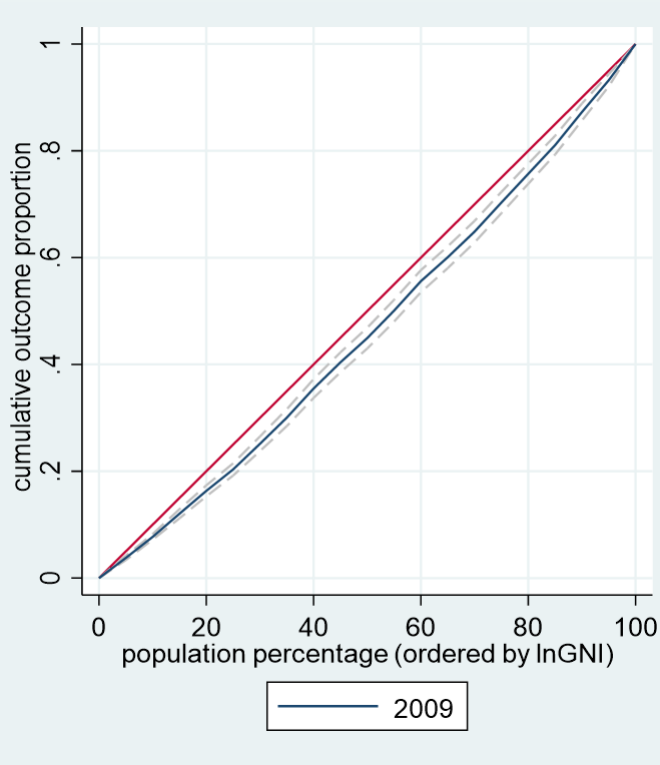
**Figs. S138-155 Concentration curves of age-standardized DALY rates for atrial fibrillation and flutter from 2001 to 2018**

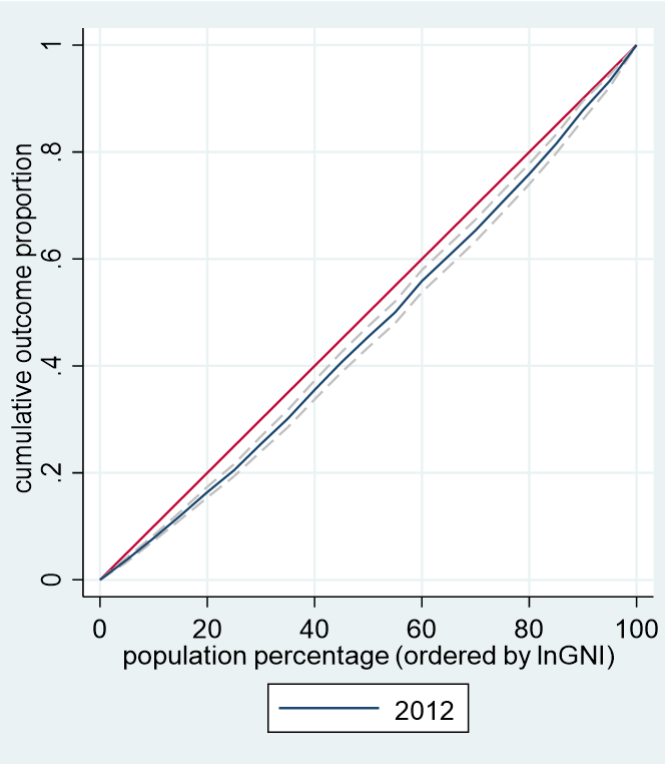
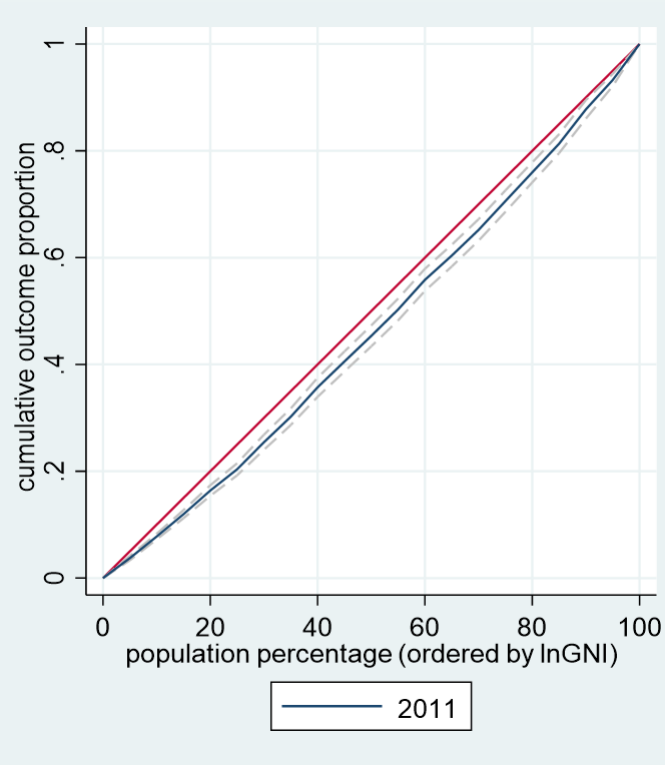


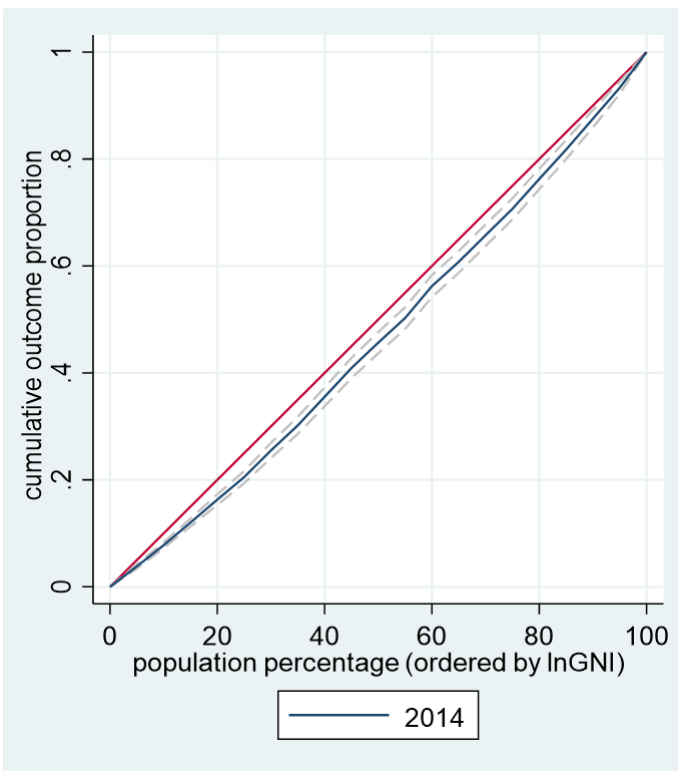
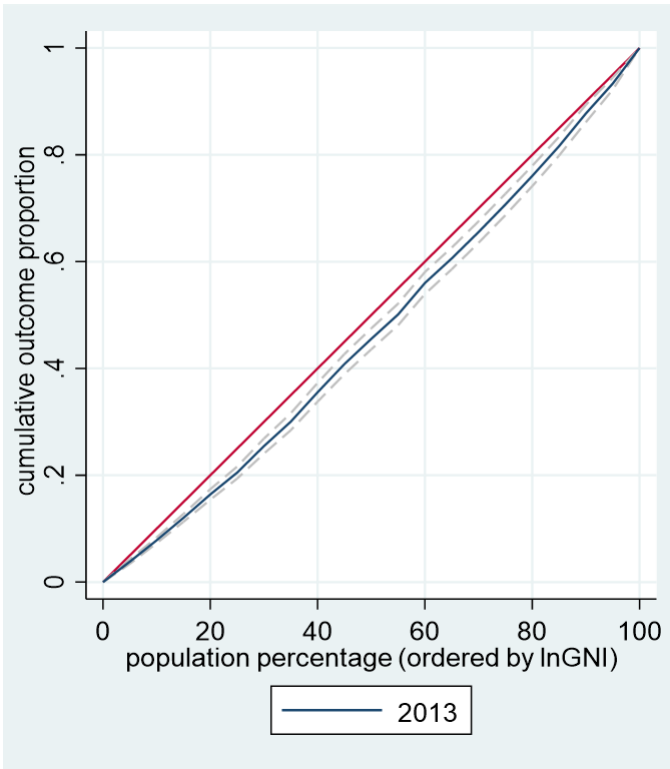


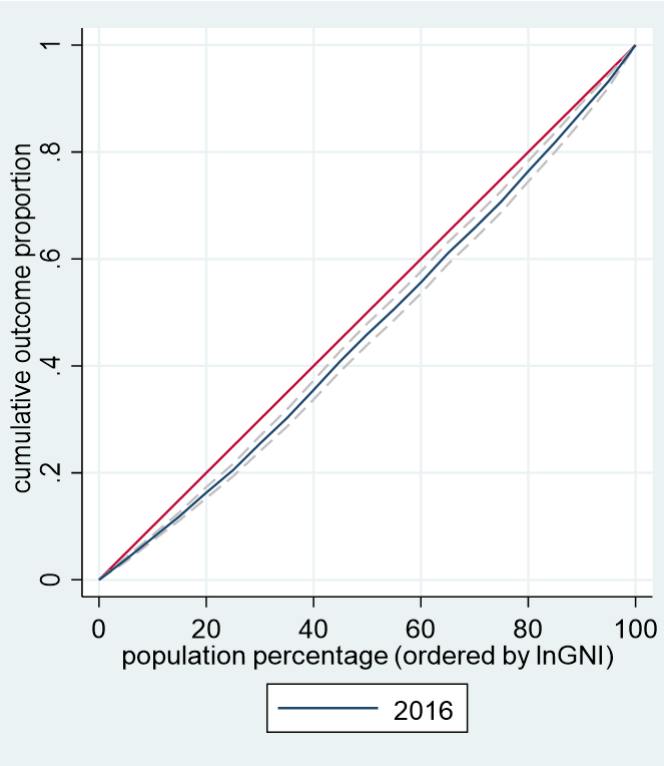
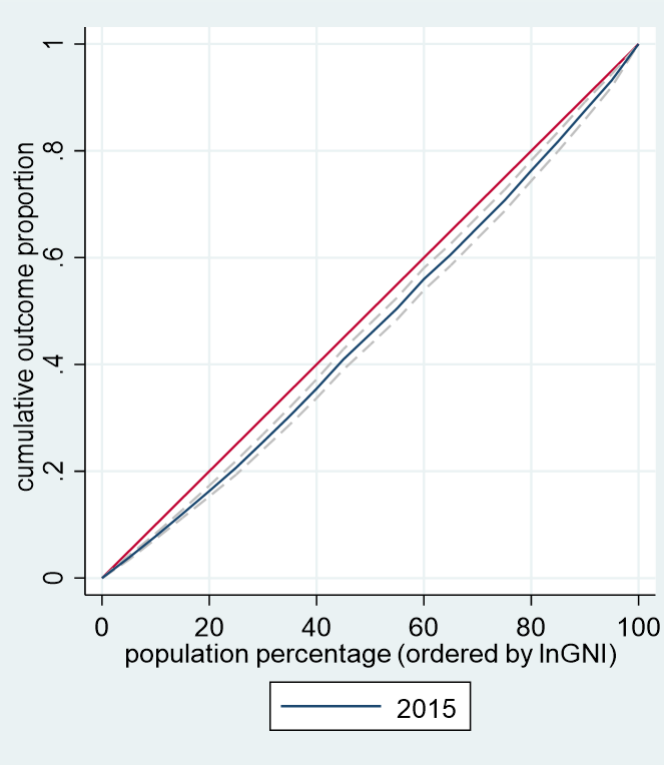


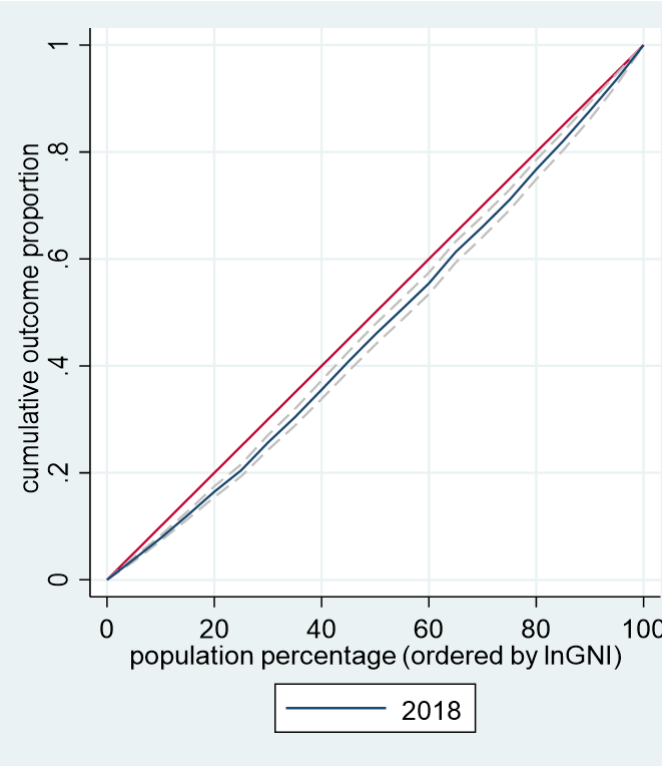
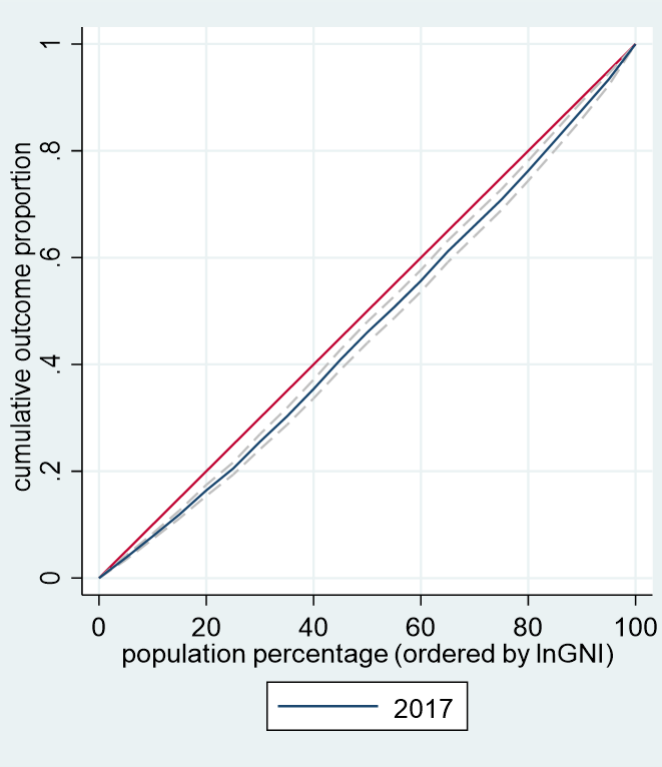




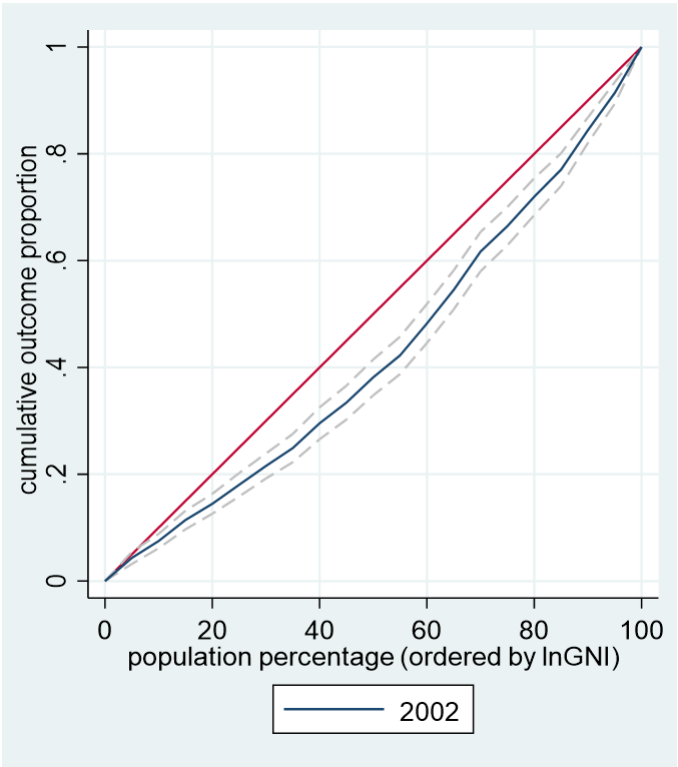
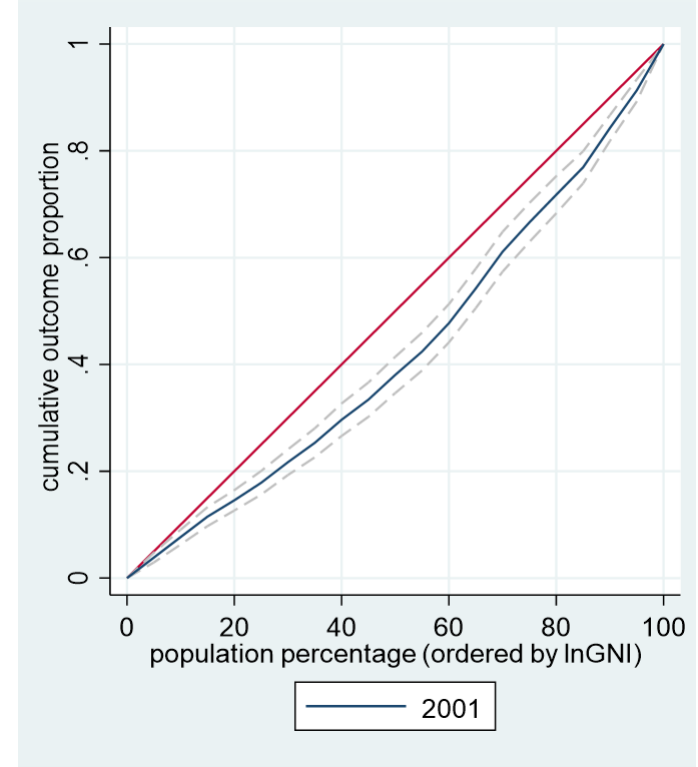


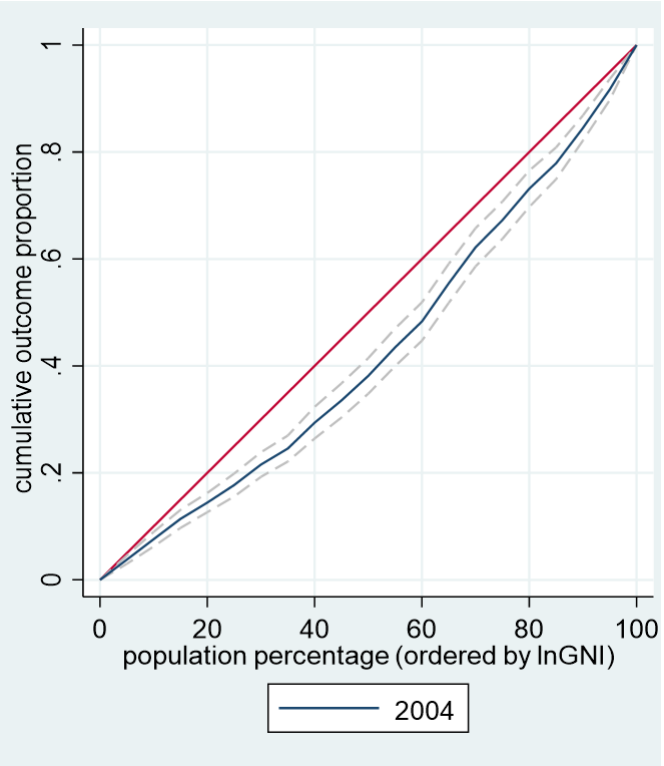
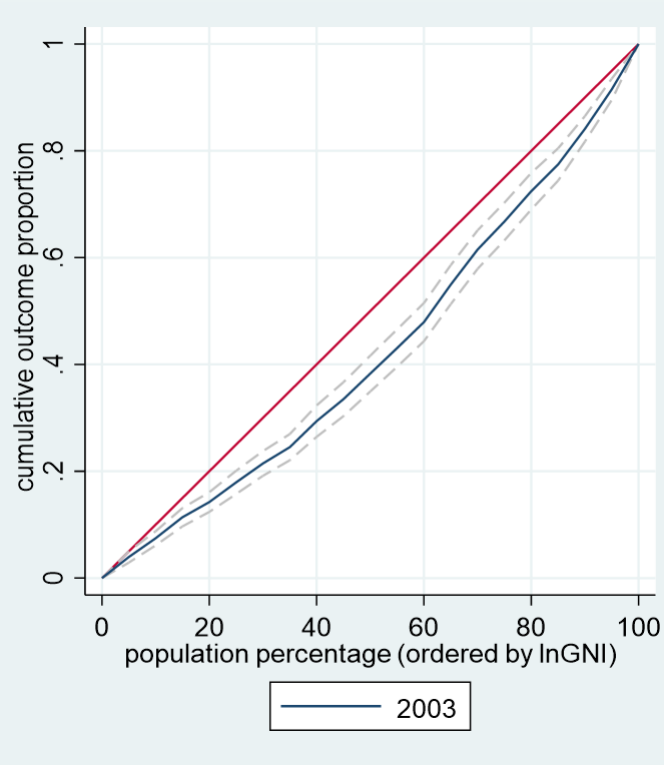


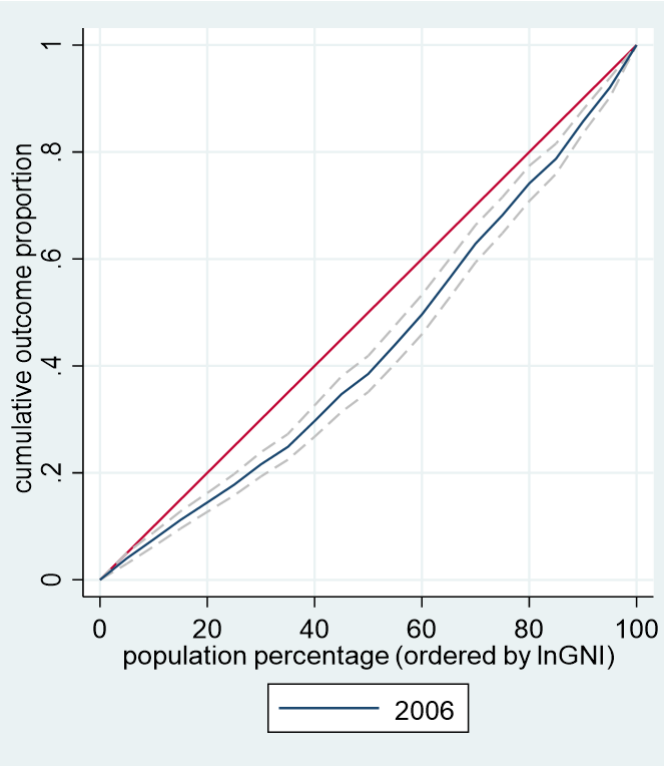
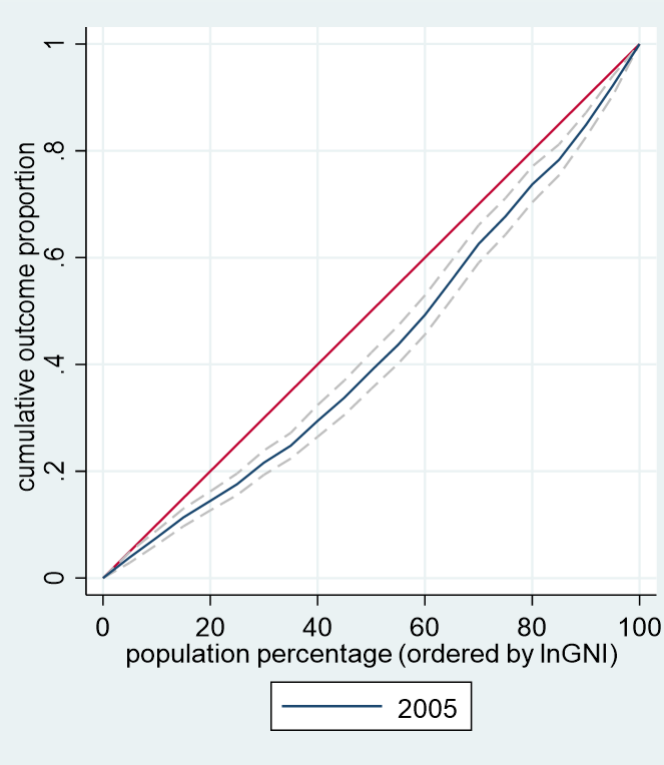


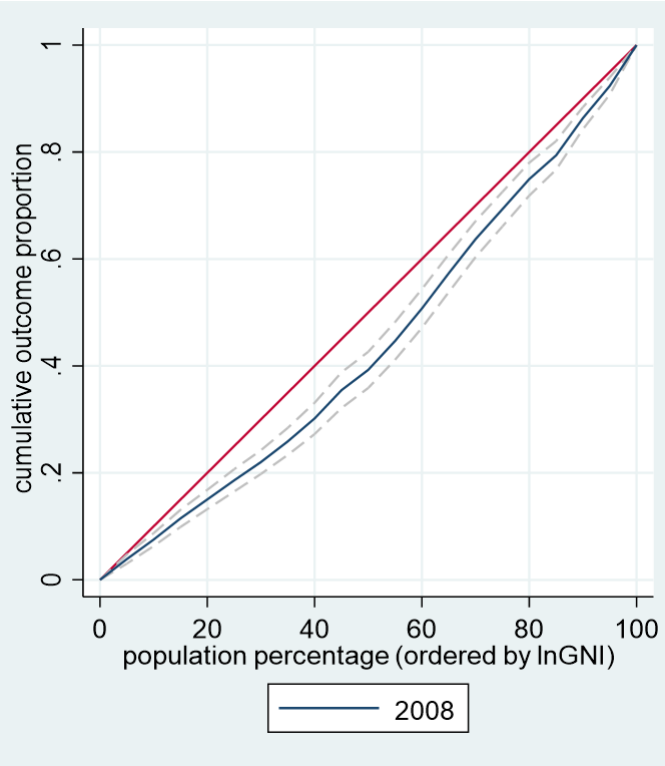
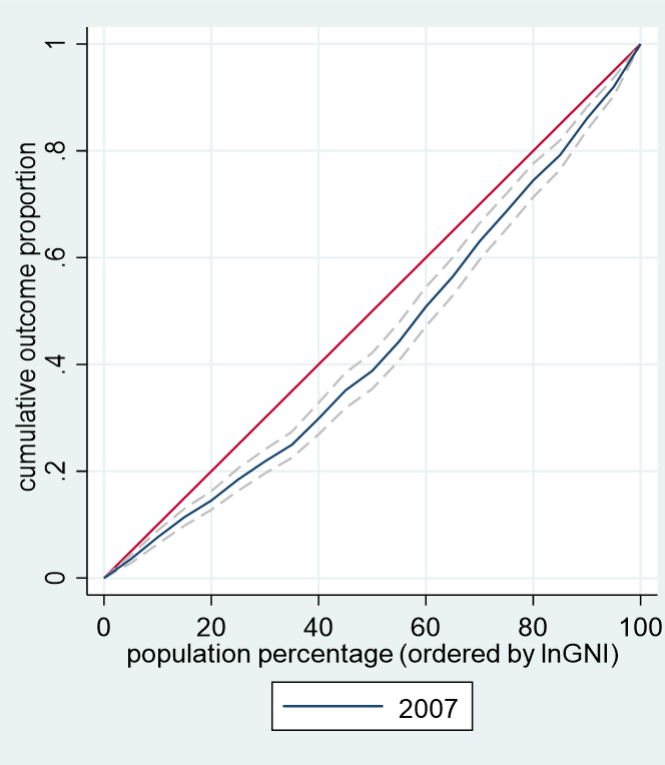


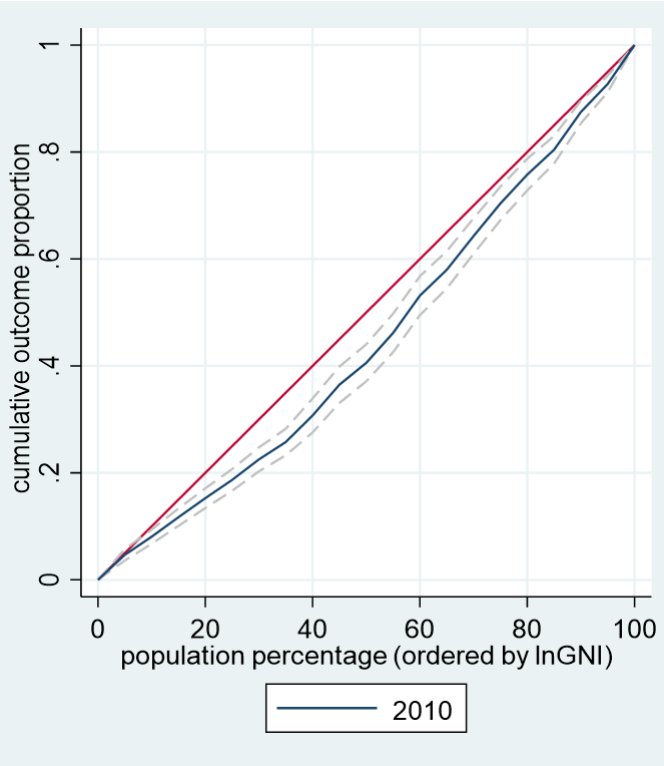
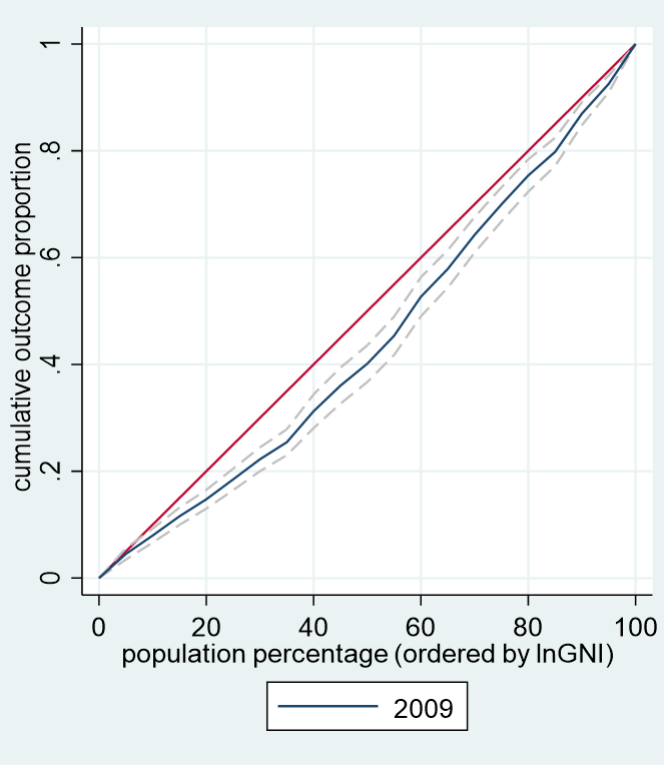
**Figs. S156-173 Concentration curves of age-standardized DALY rates for aortic aneurysm from 2001 to 2018**

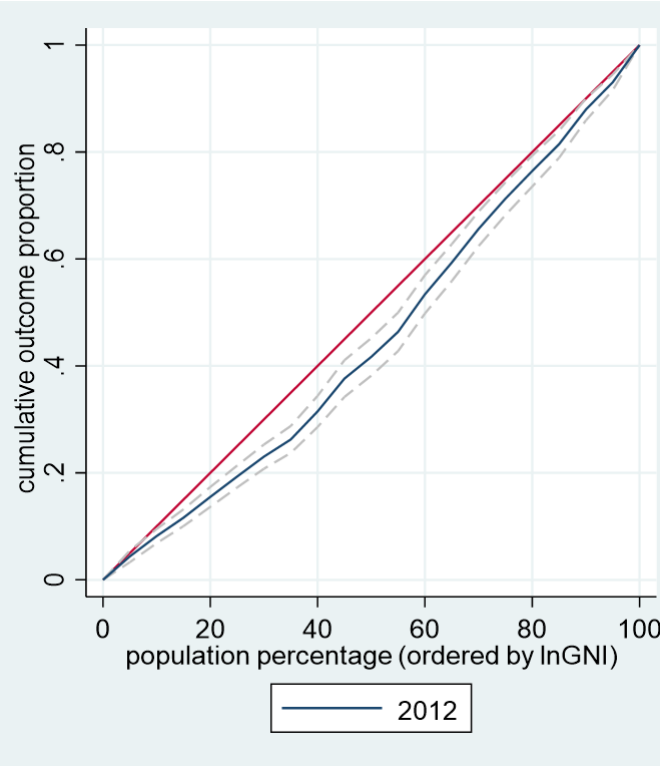
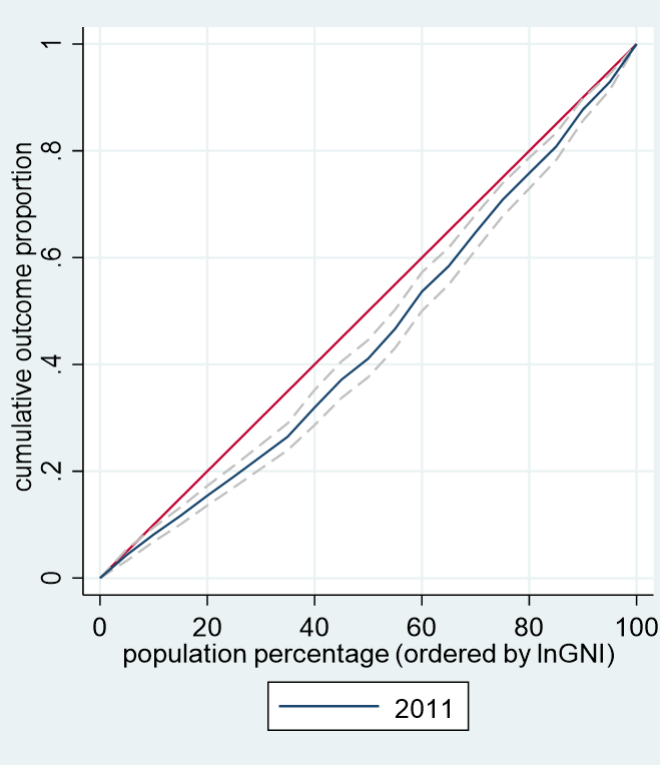


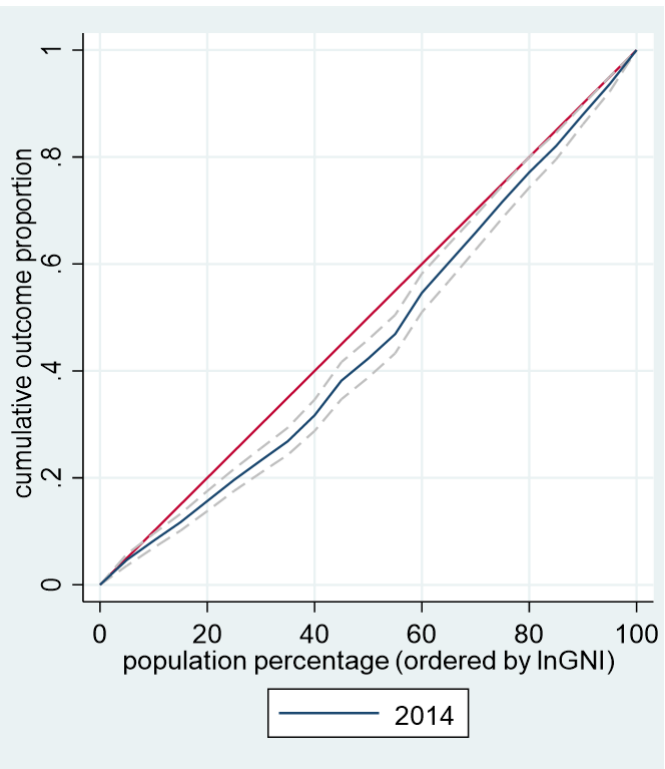
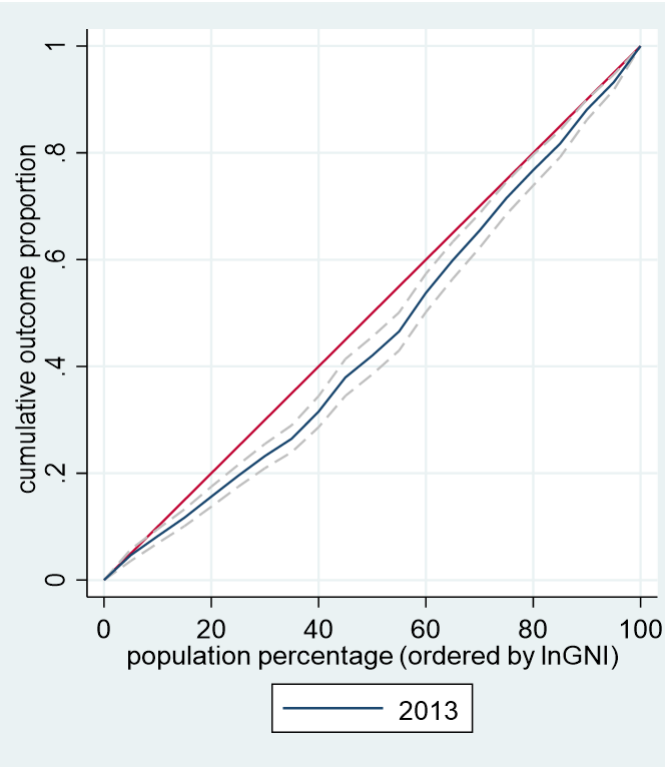


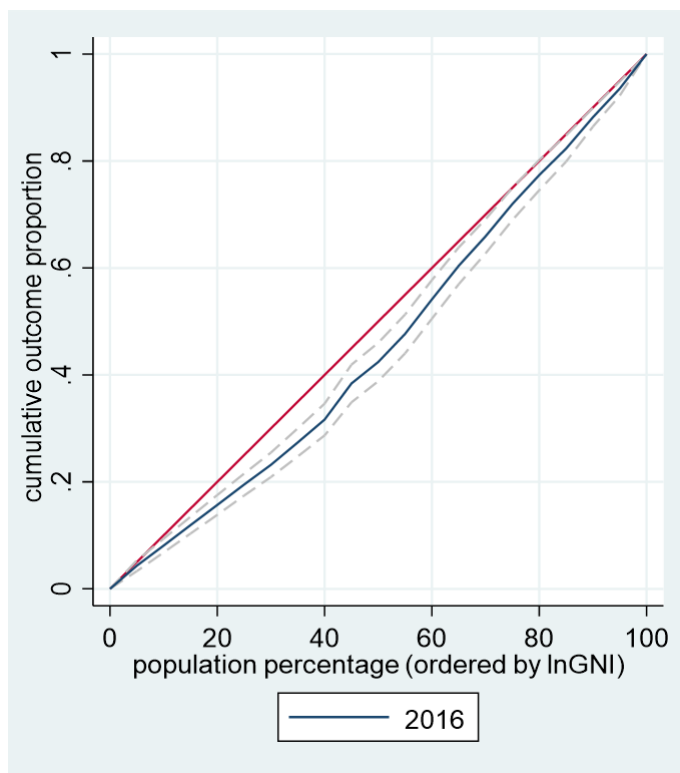
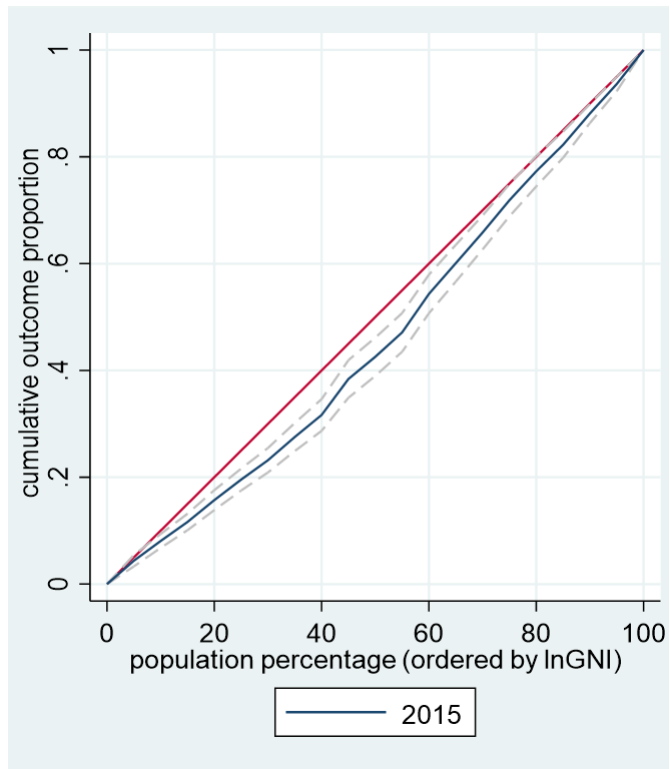


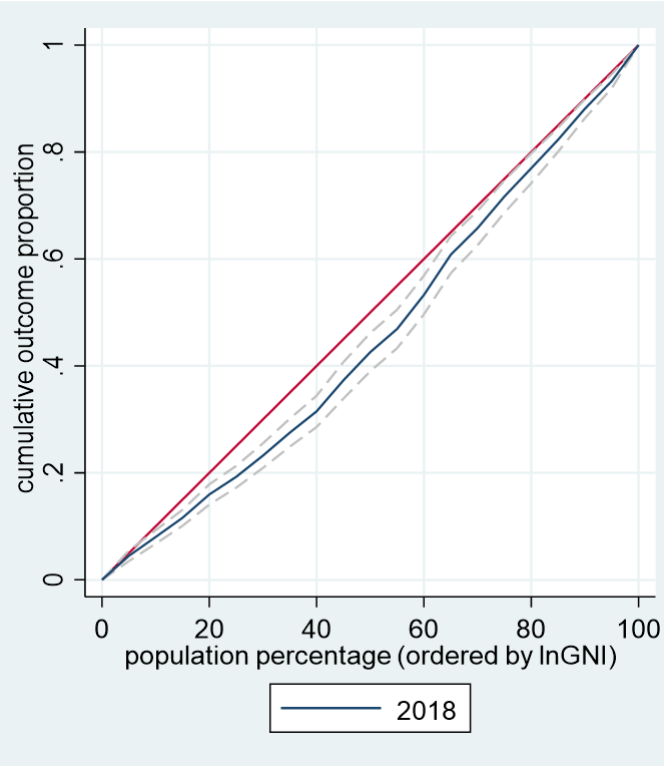
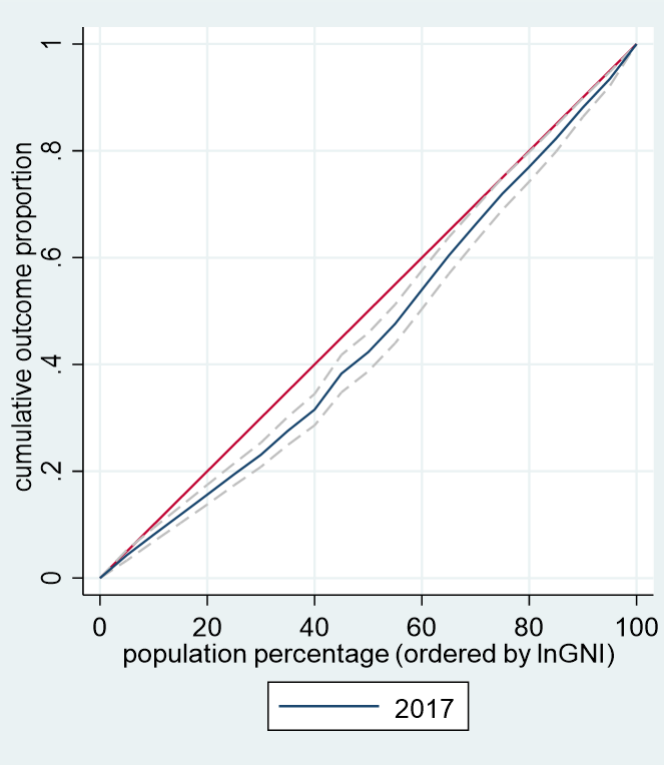




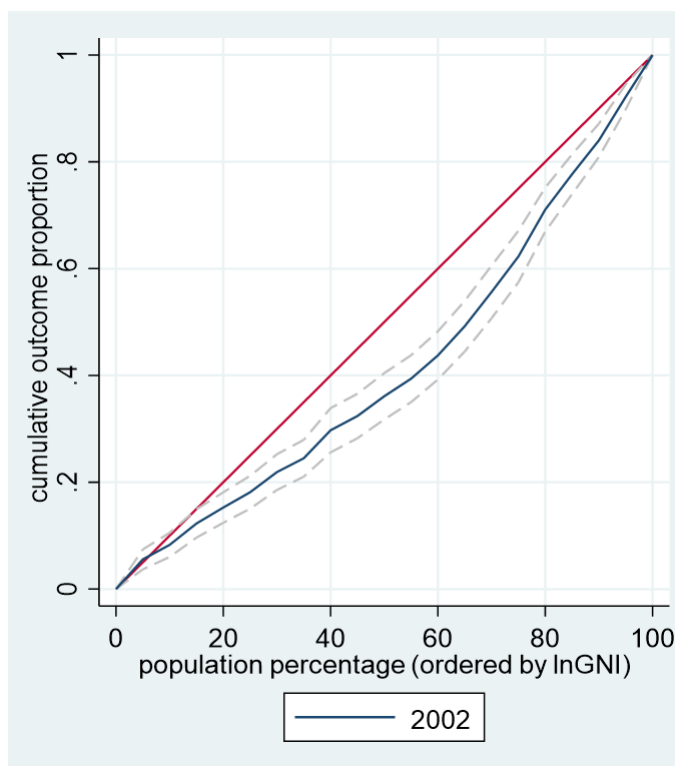
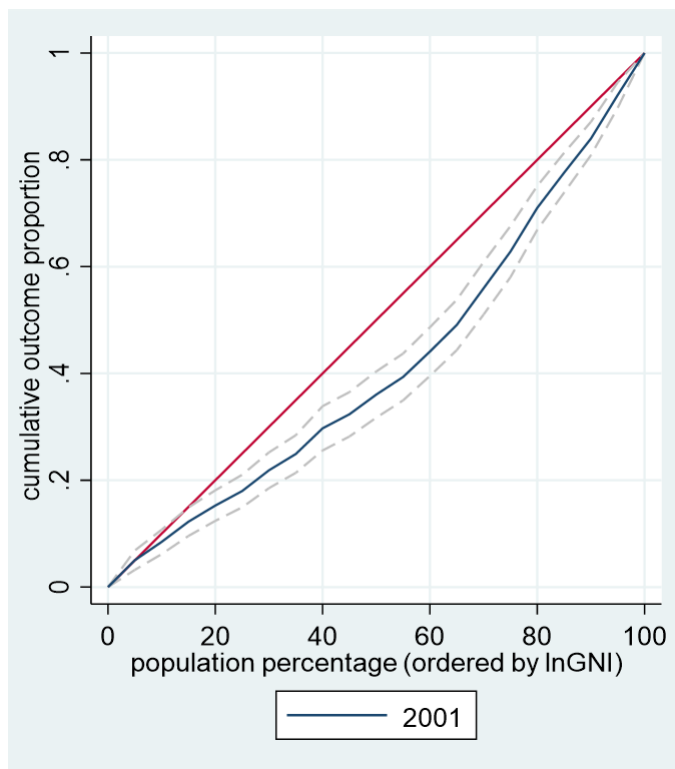


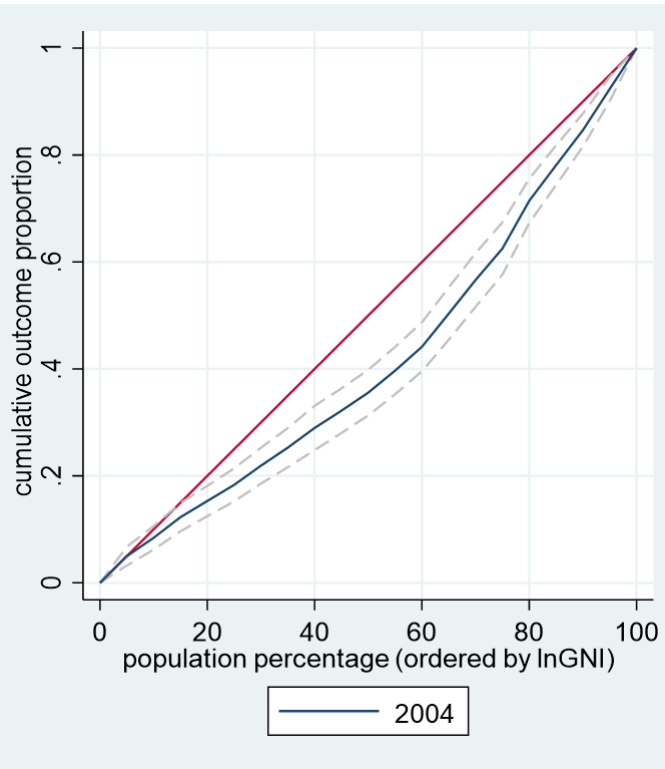
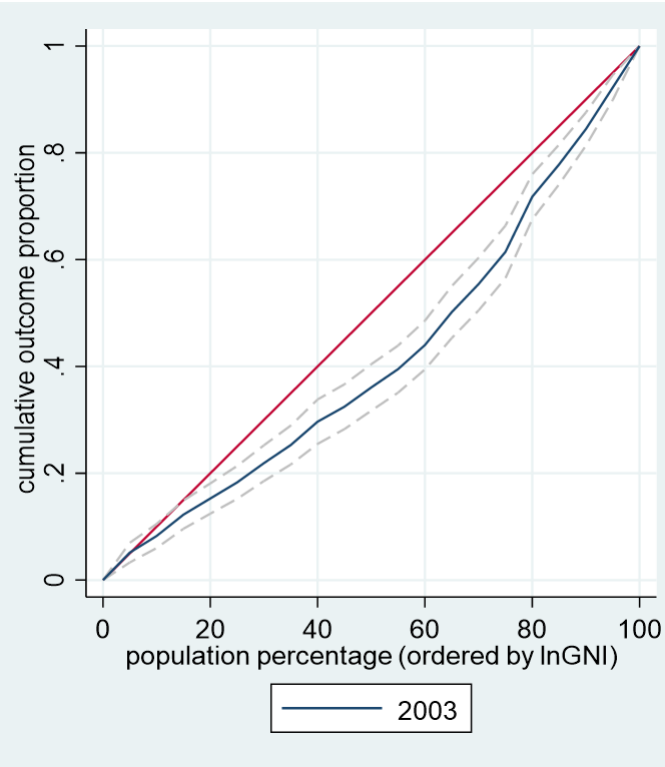


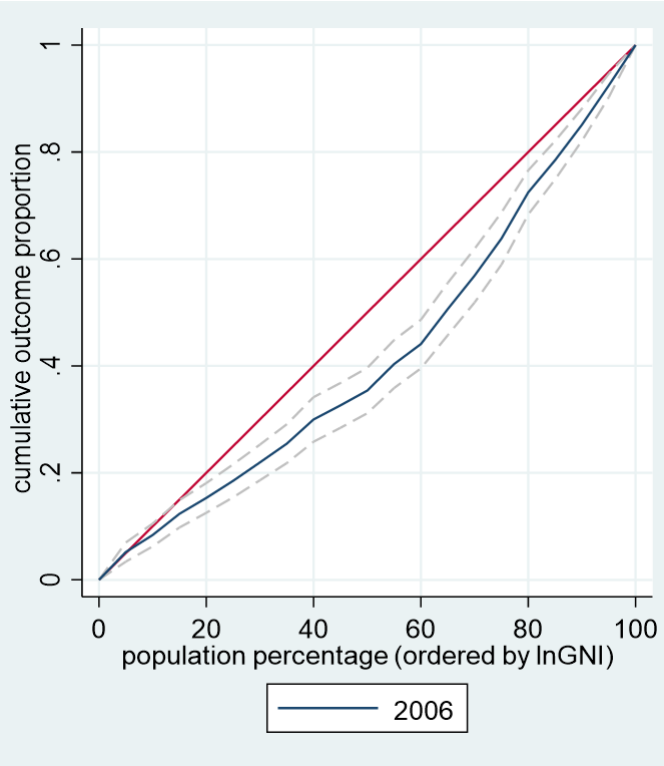
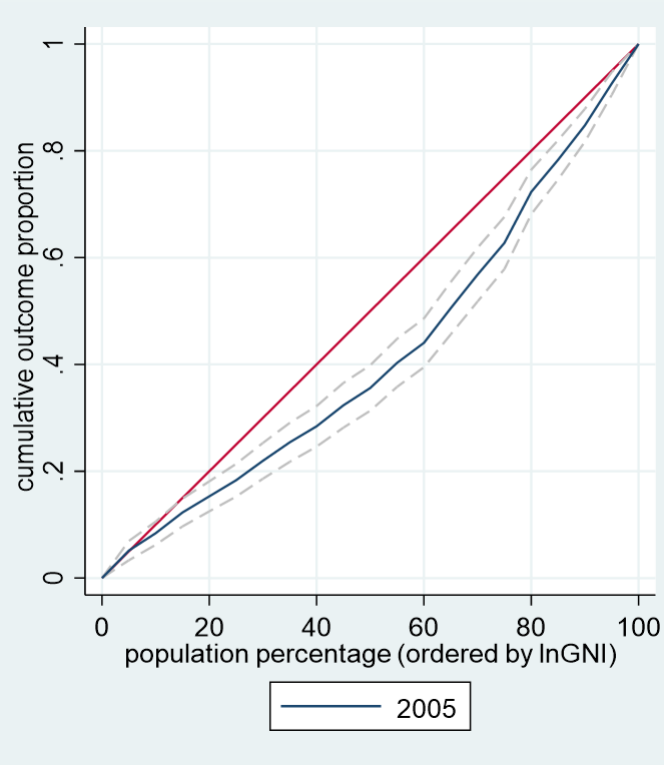


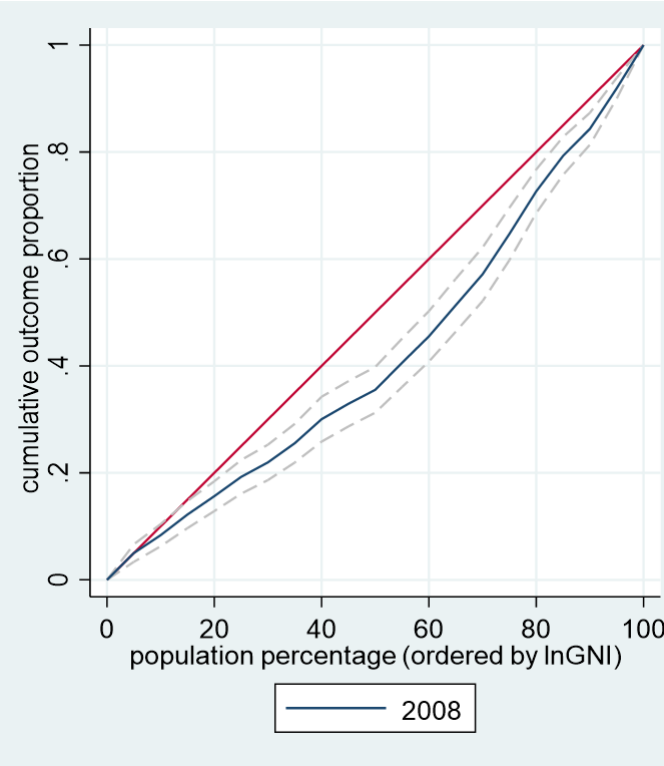
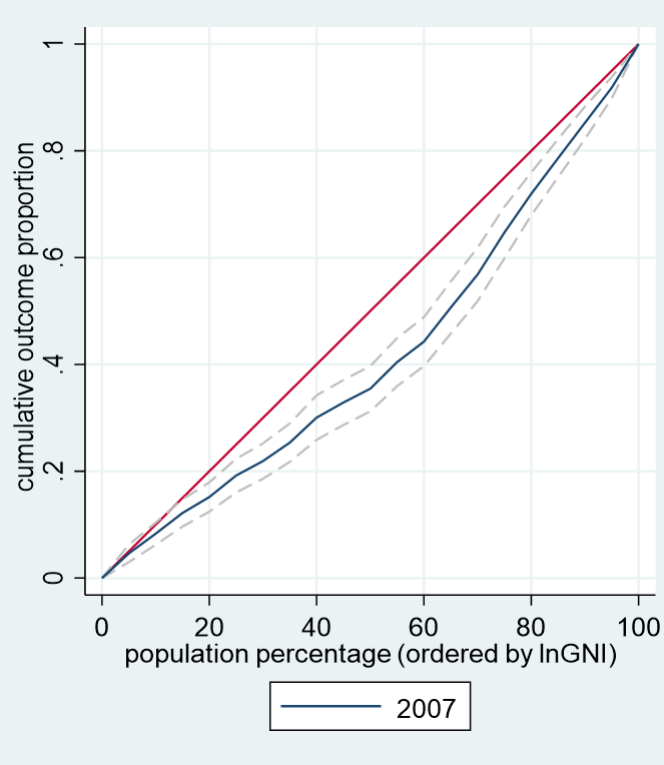


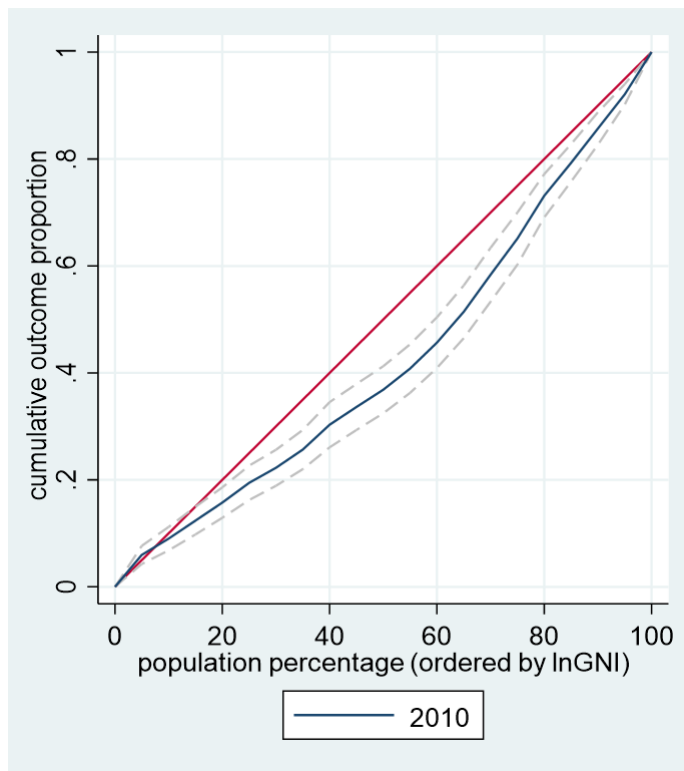
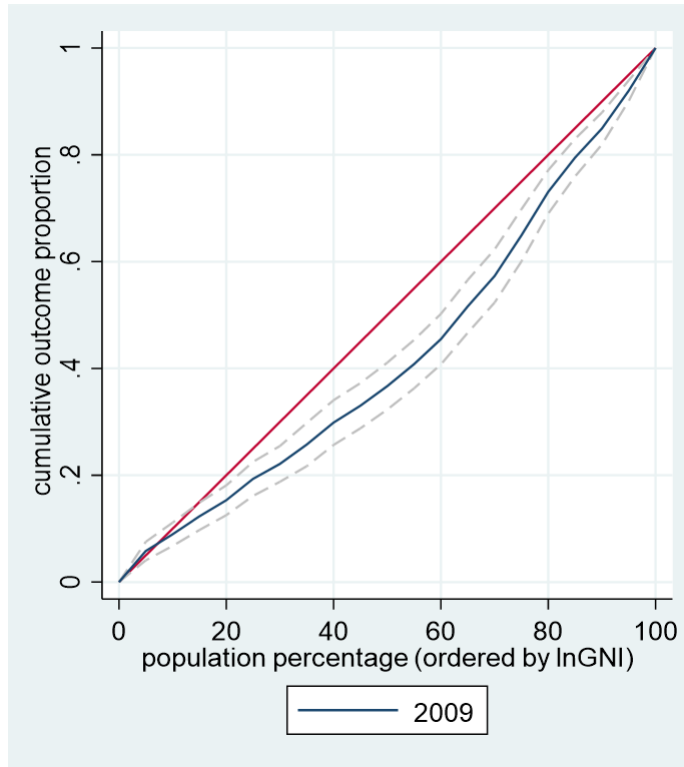
**Figs. S174-191 Concentration curves of age-standardized DALY rates for peripheral artery disease from 2001 to 2018**

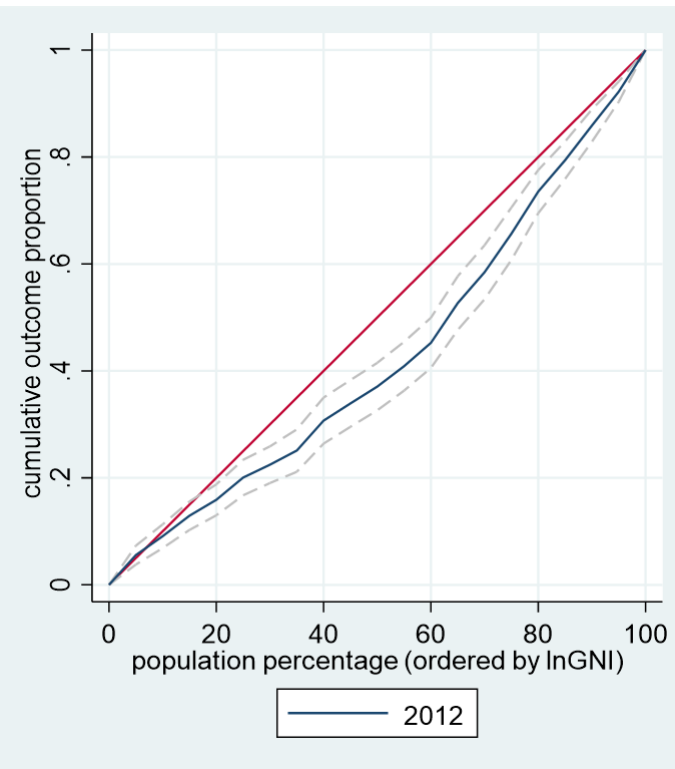
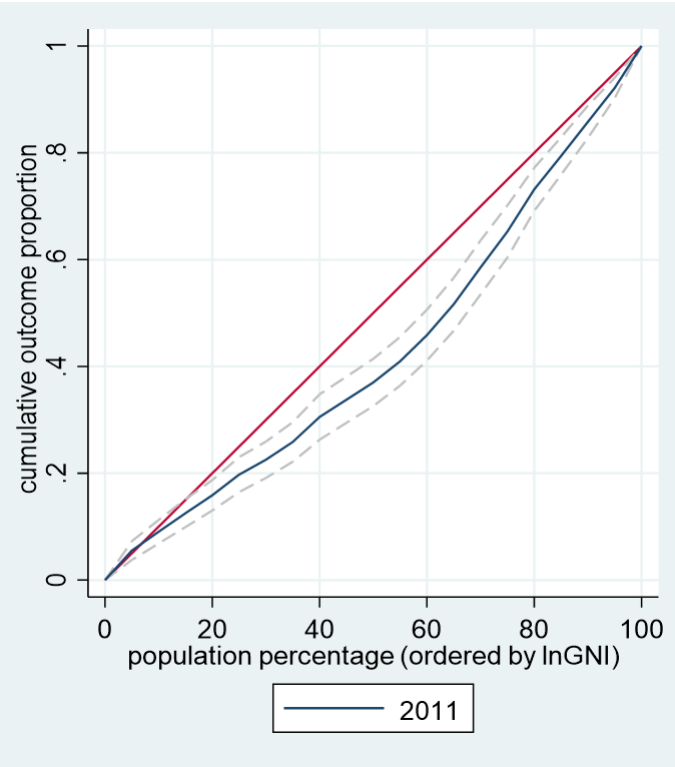


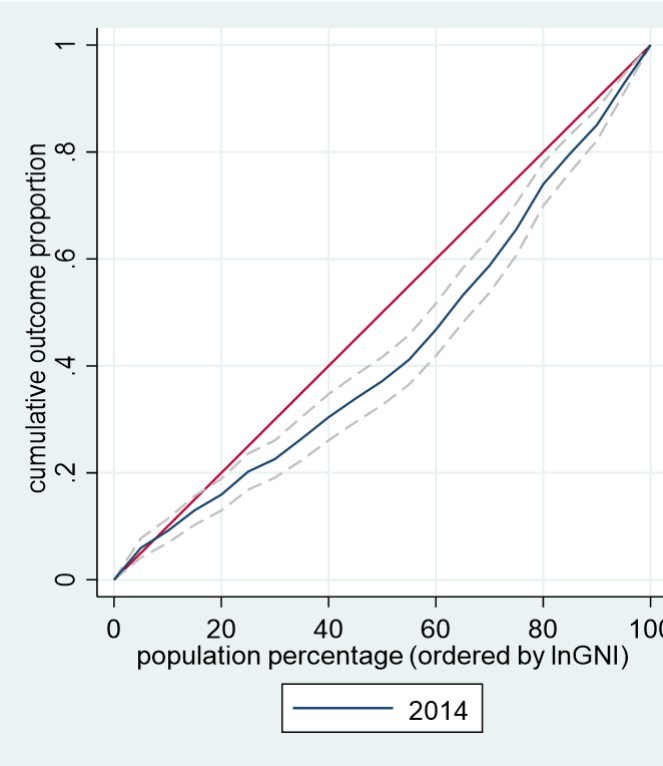
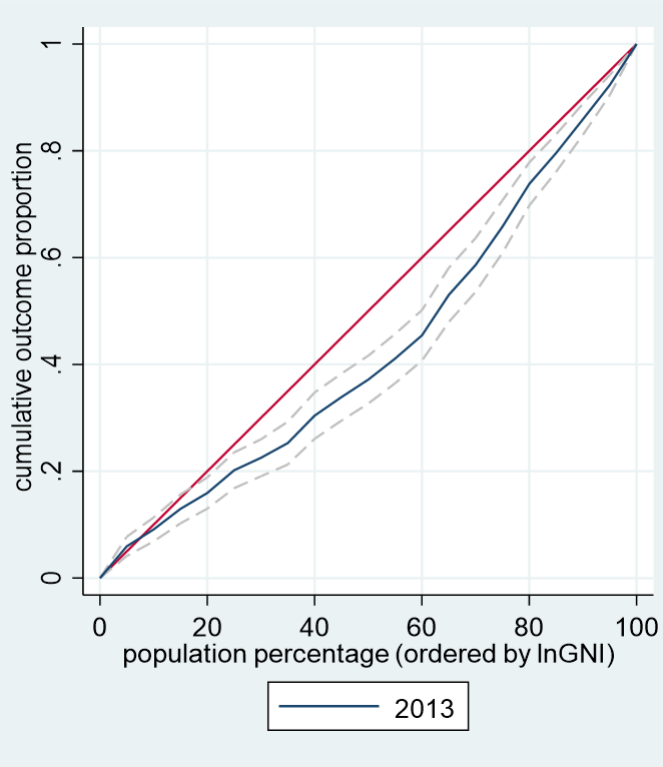


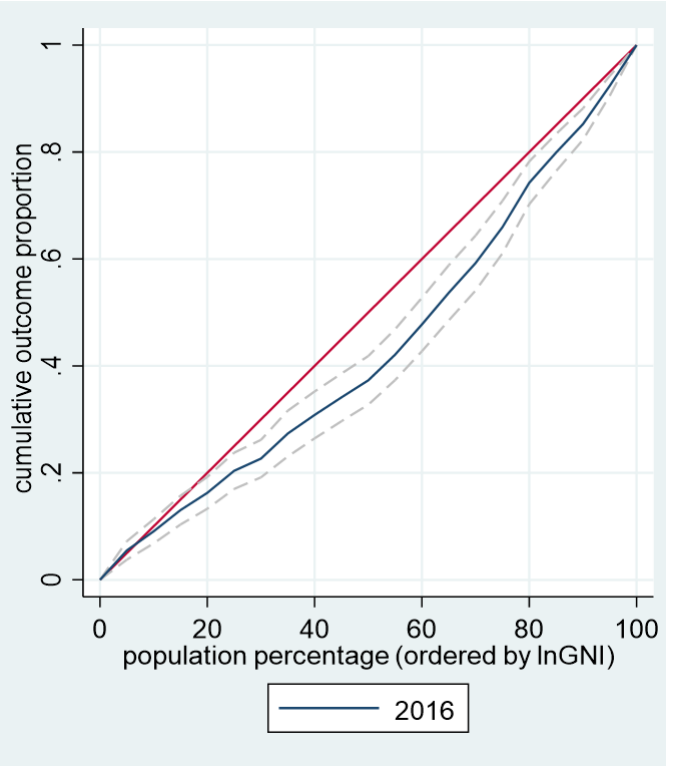
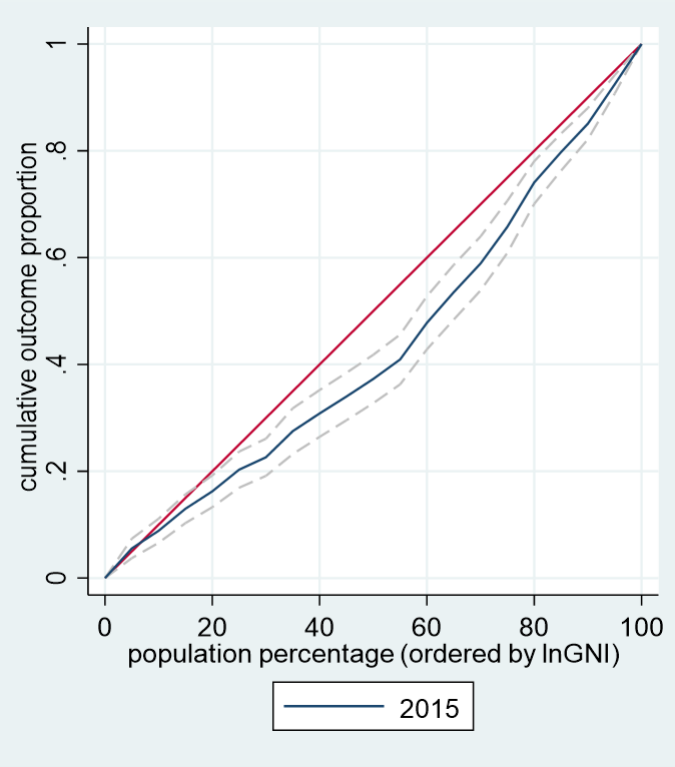


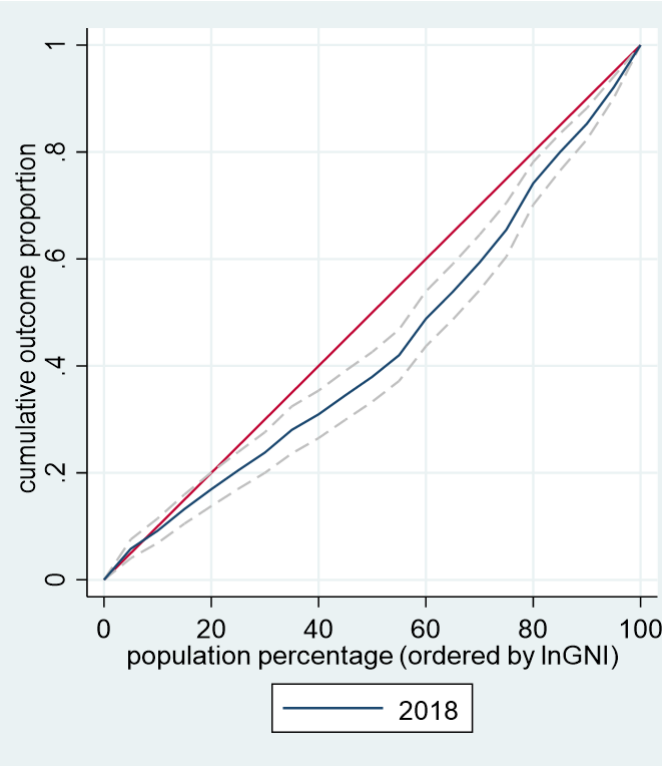
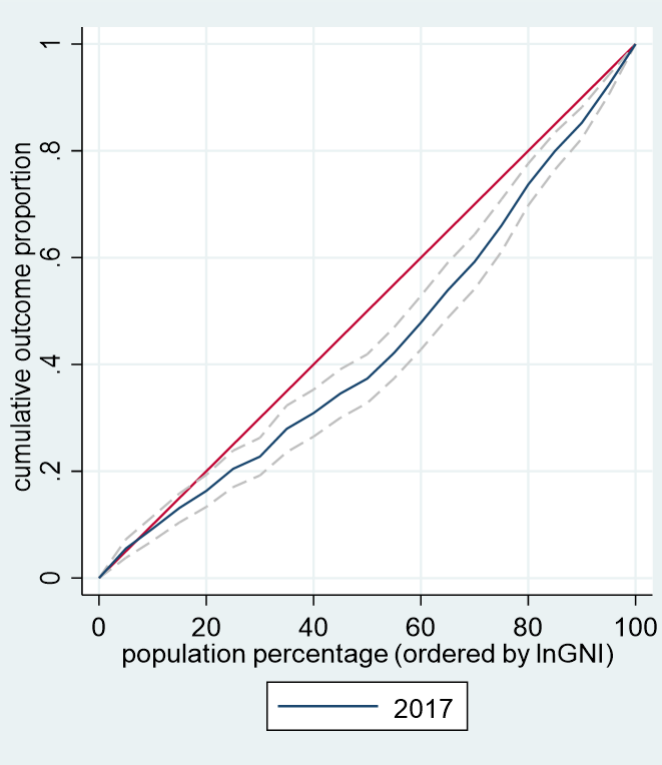




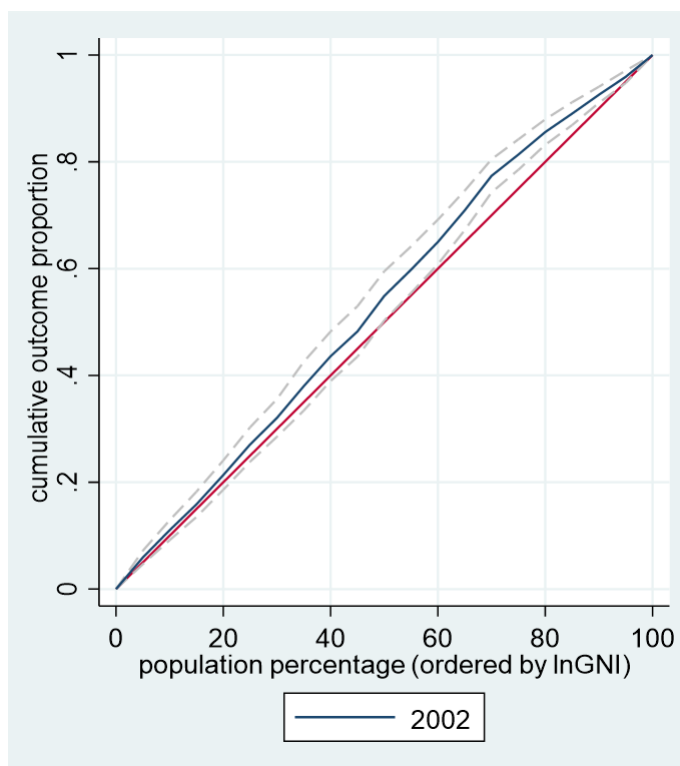
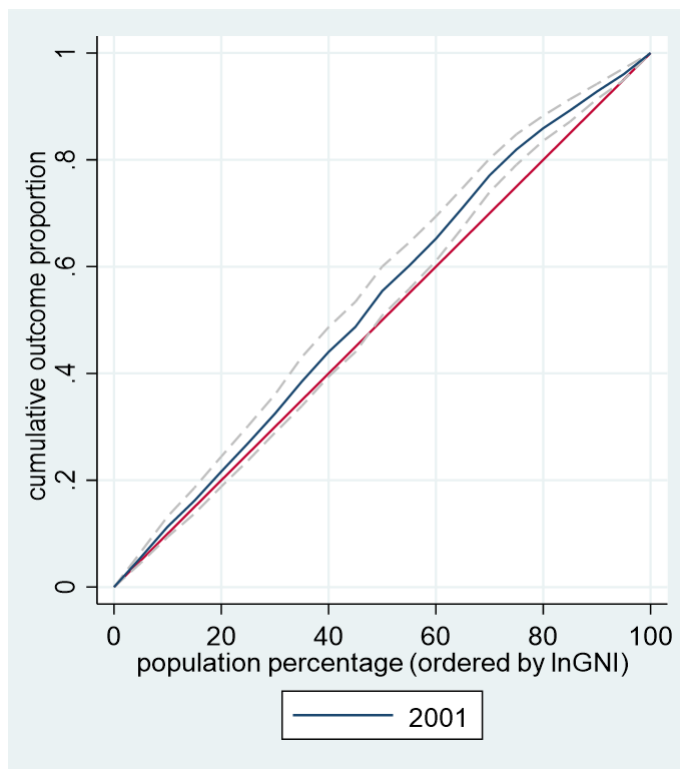


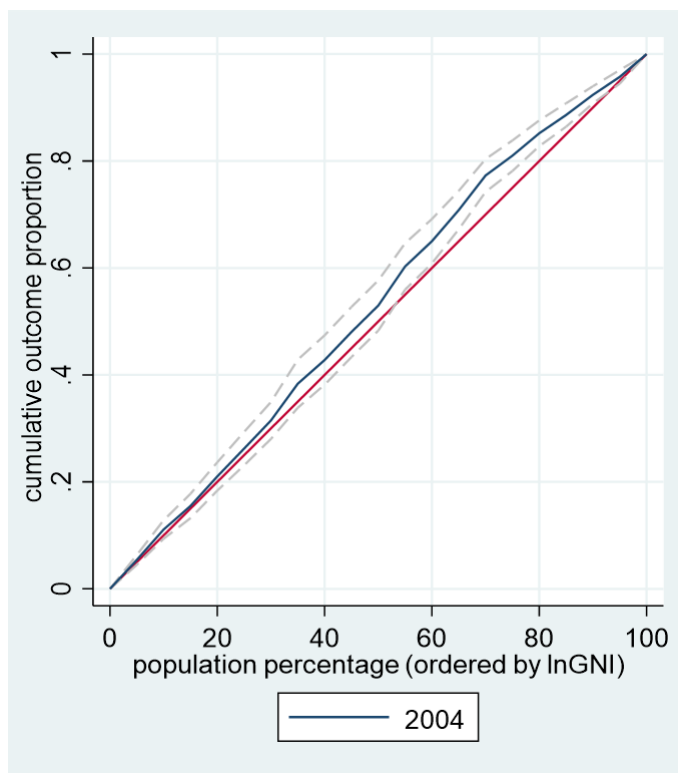
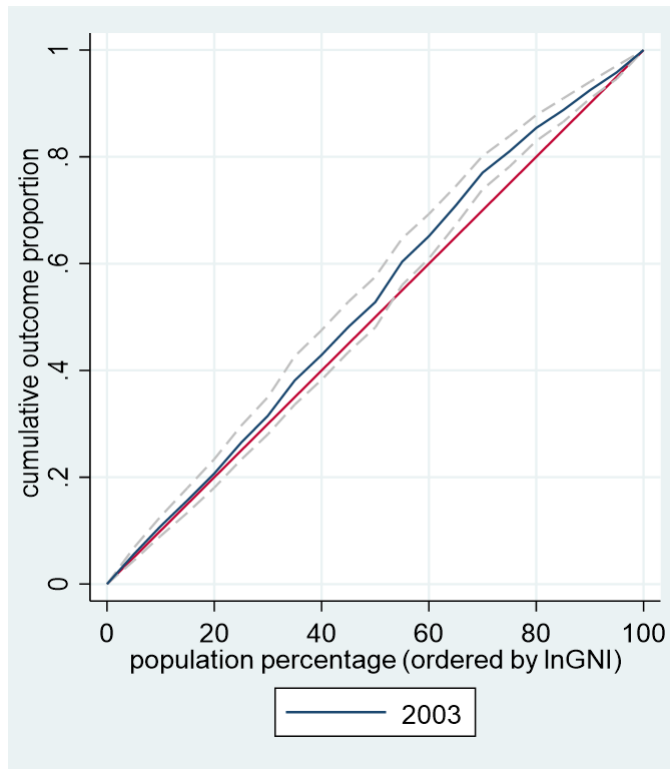


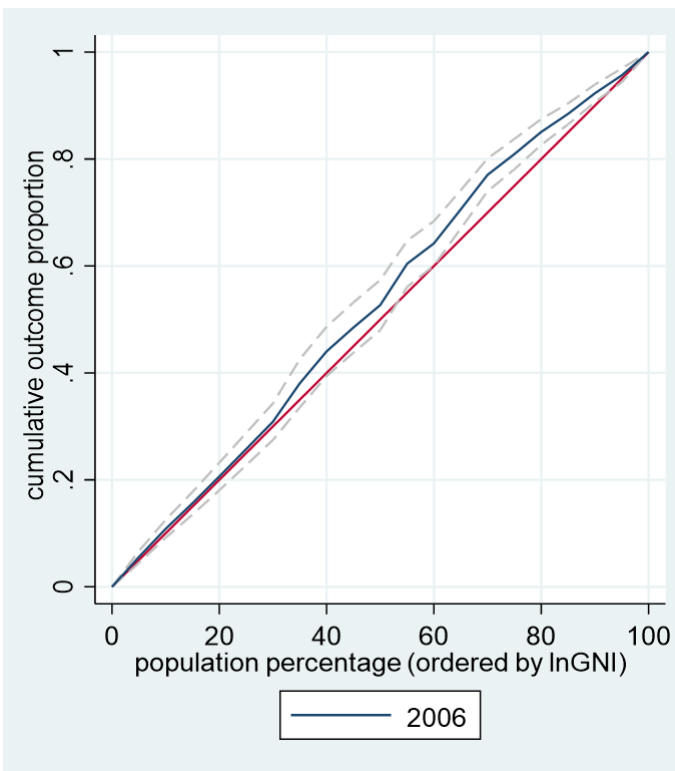
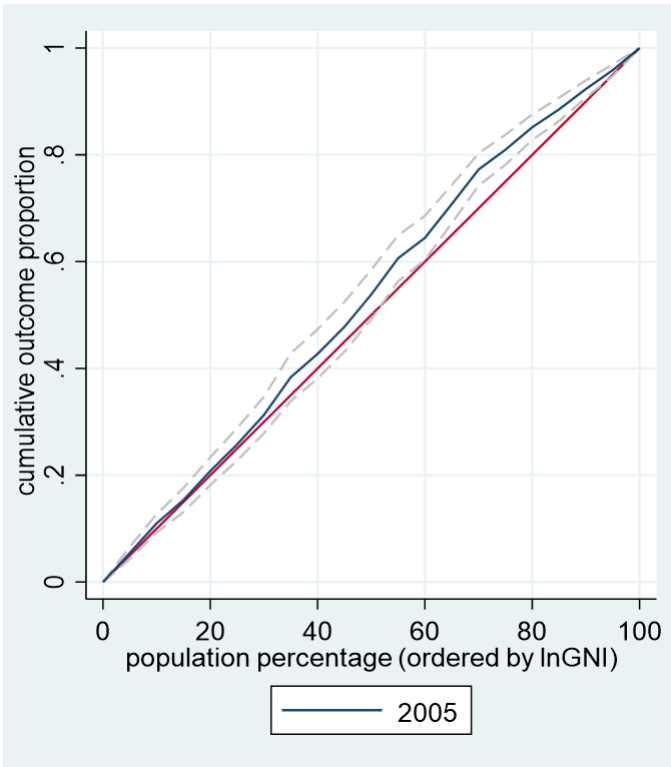


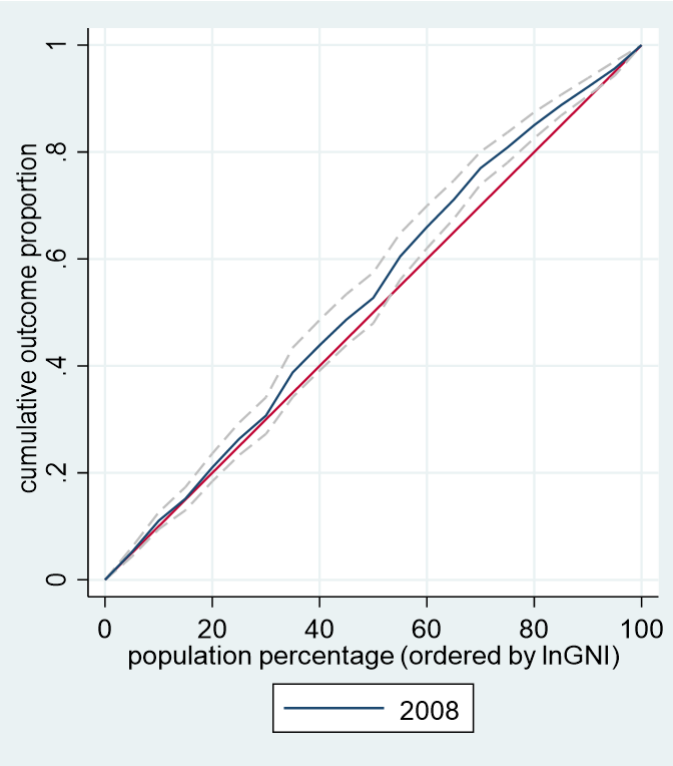
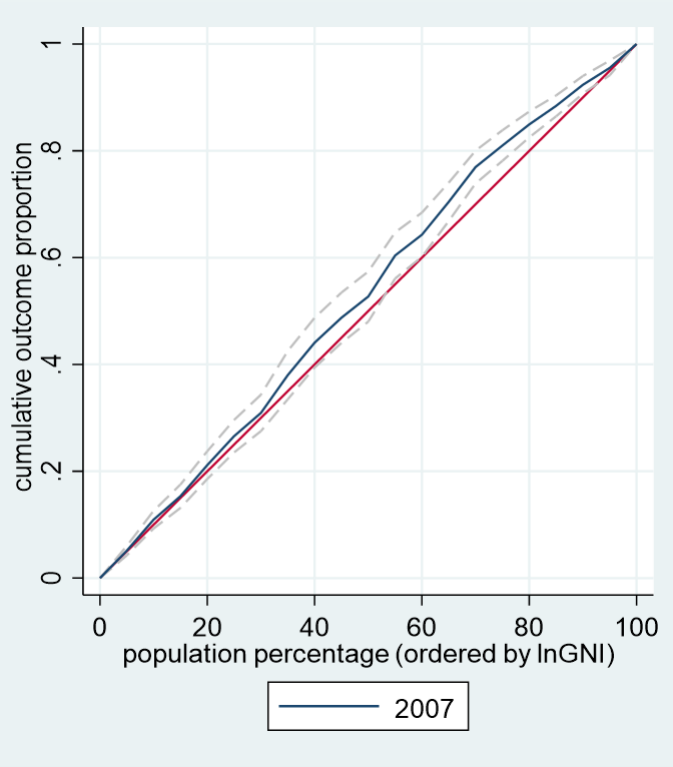


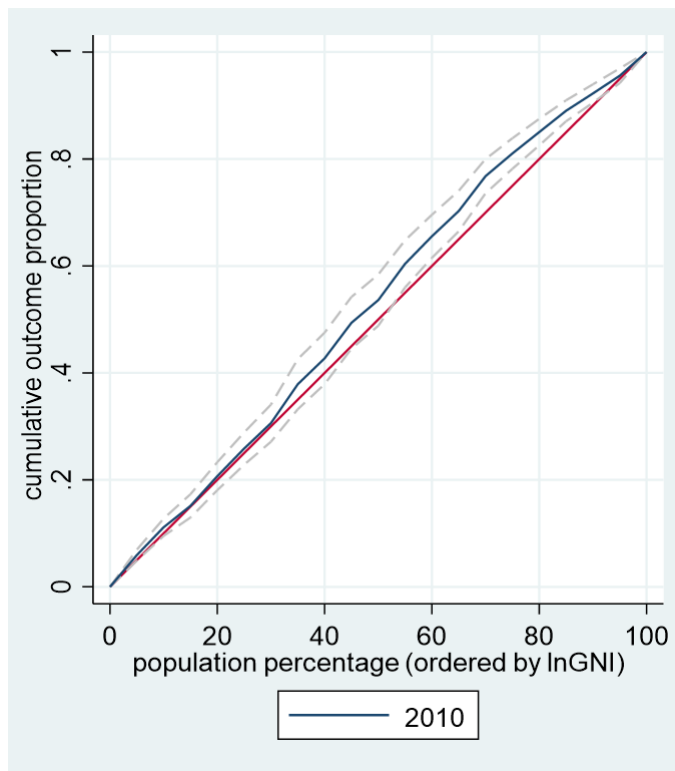
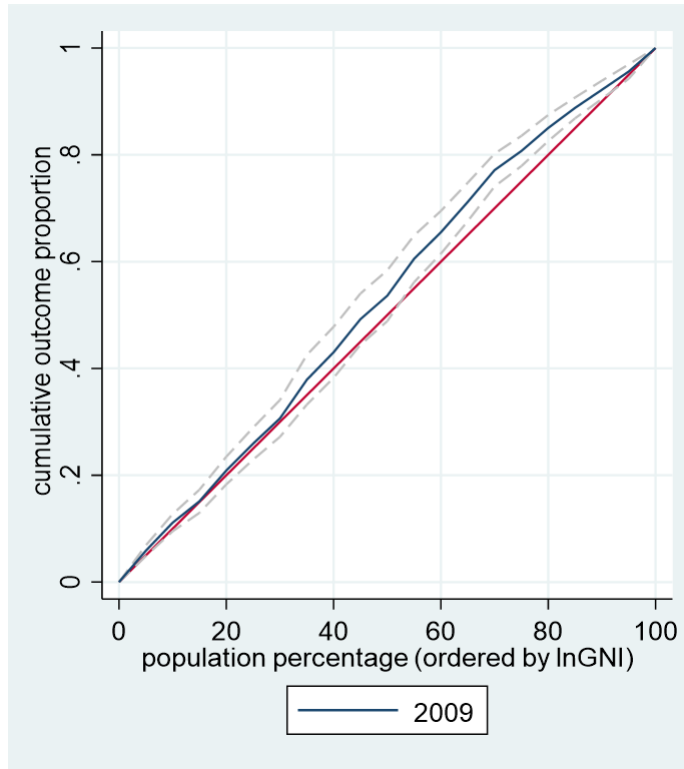
**Figs. S192-209 Concentration curves of age-standardized DALY rates for endocarditis from 2001 to 2018**

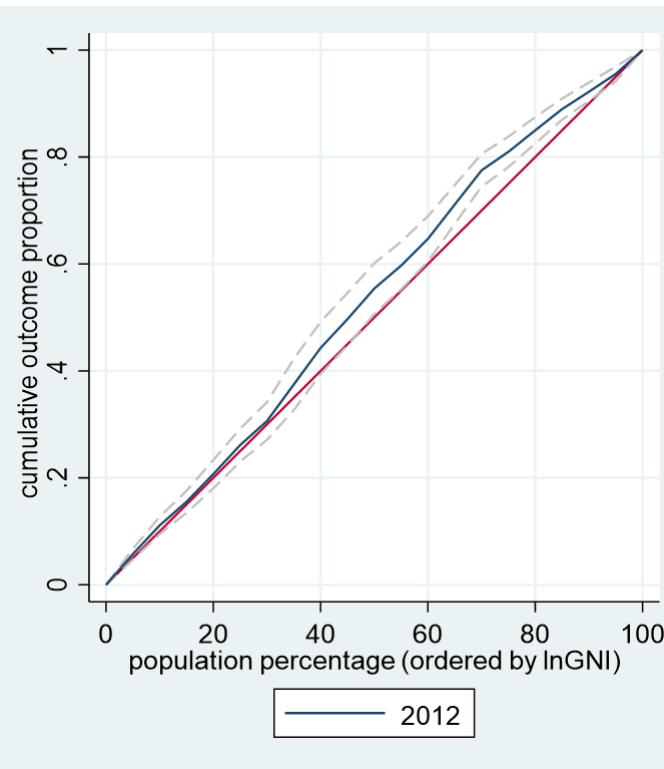
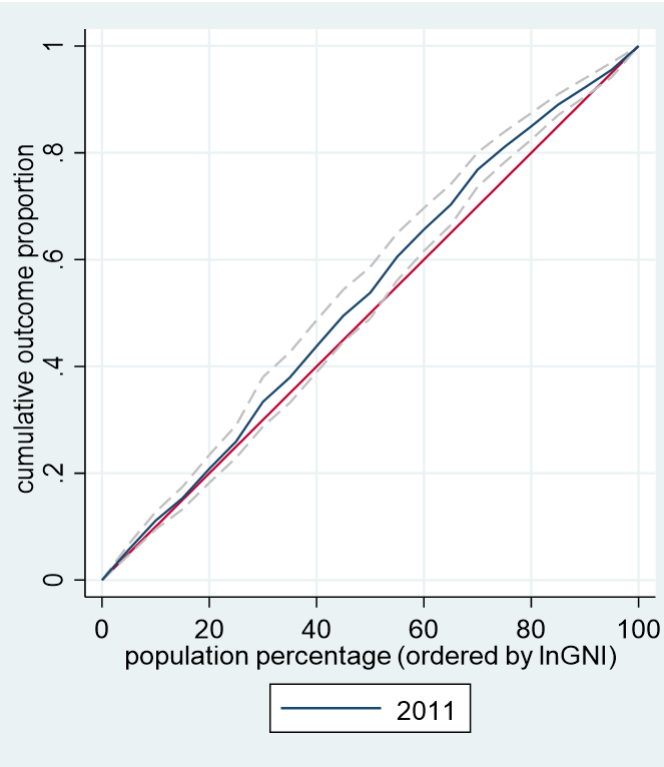


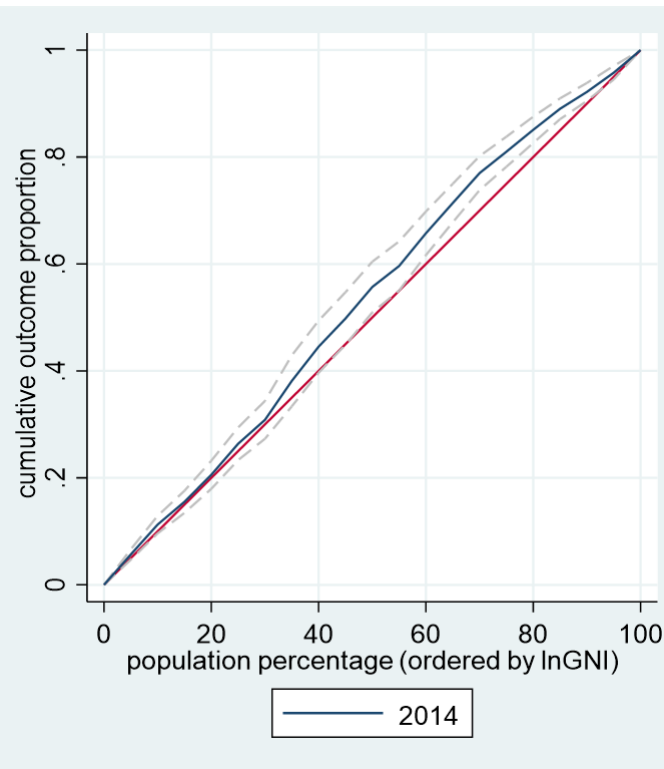
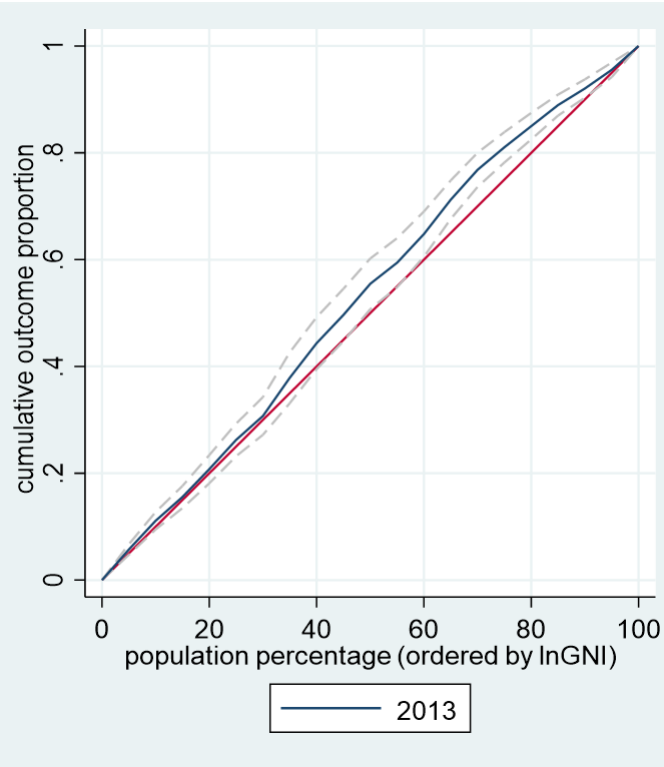


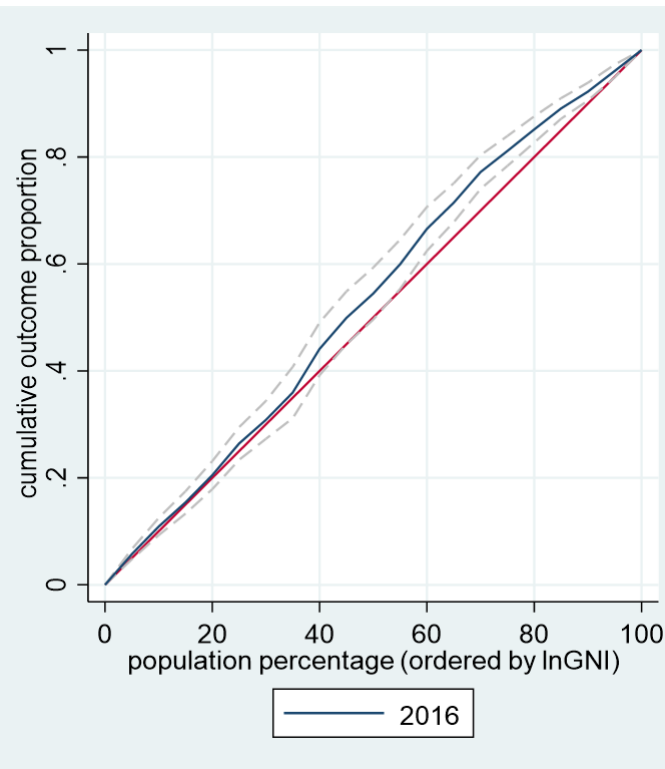
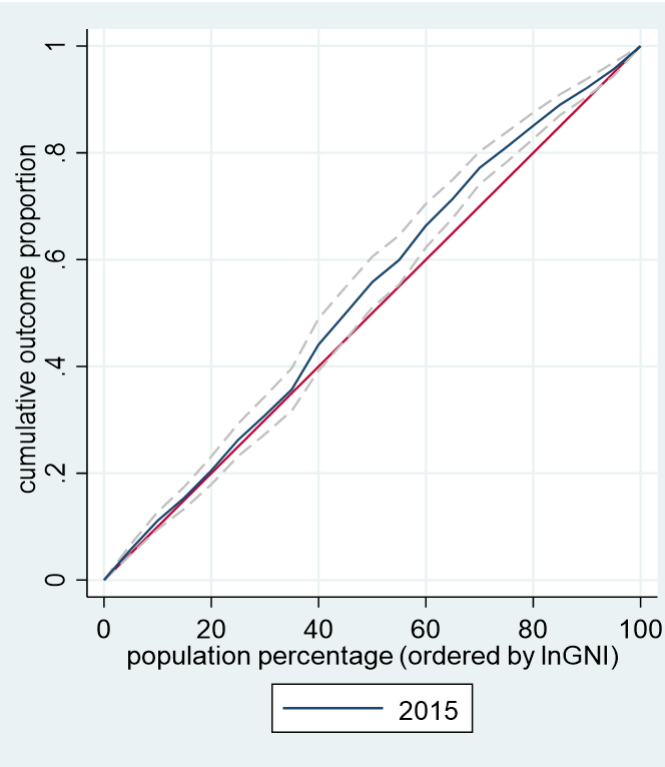


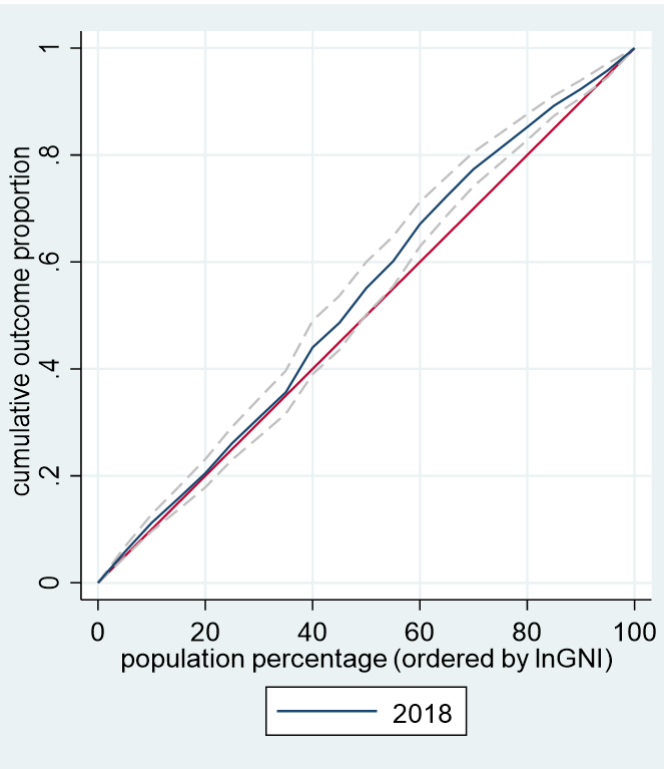
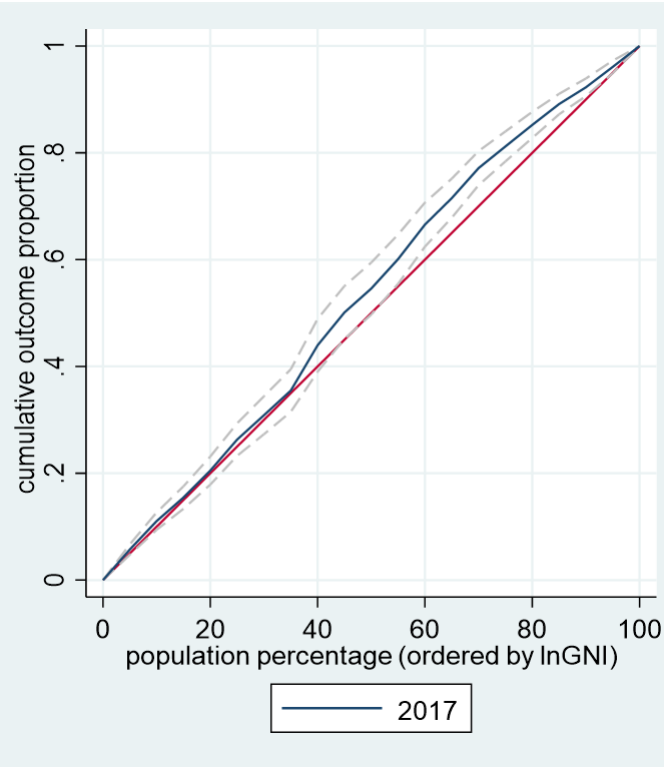




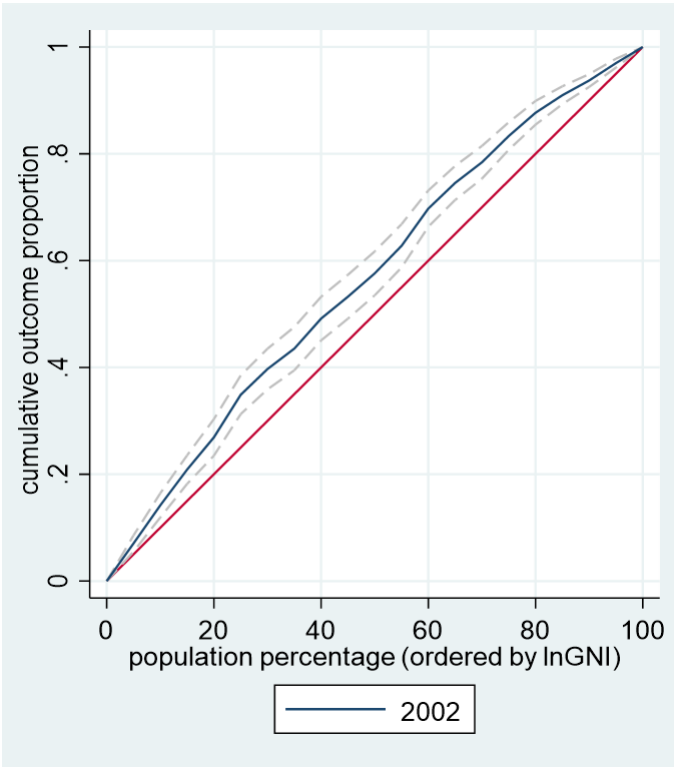
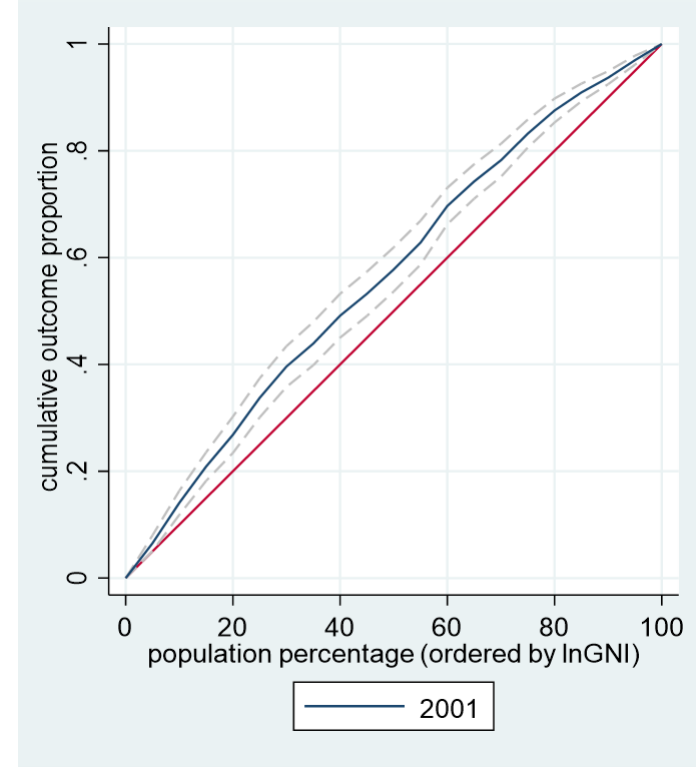


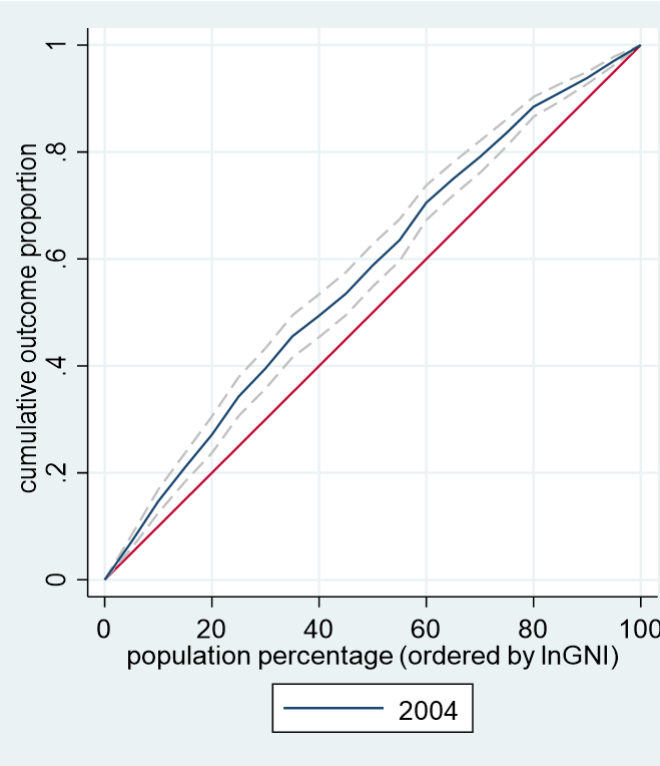
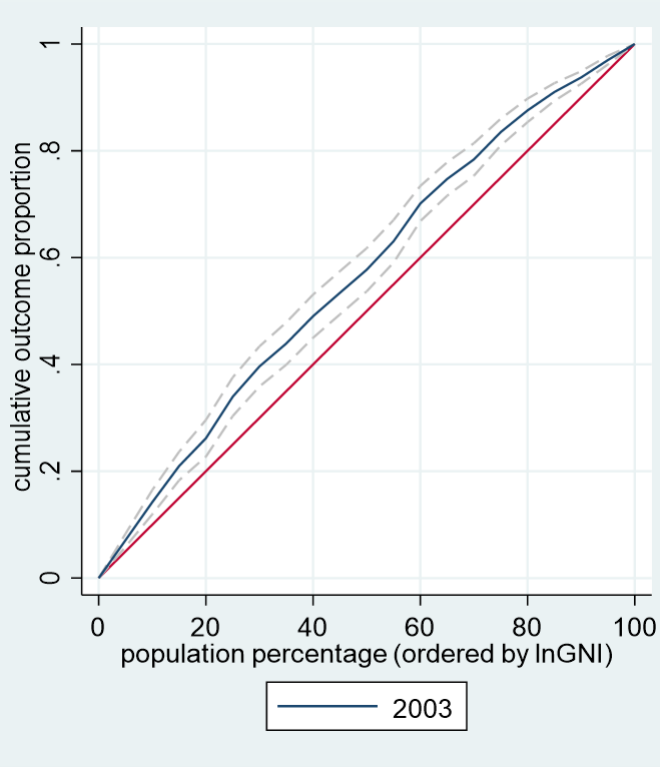


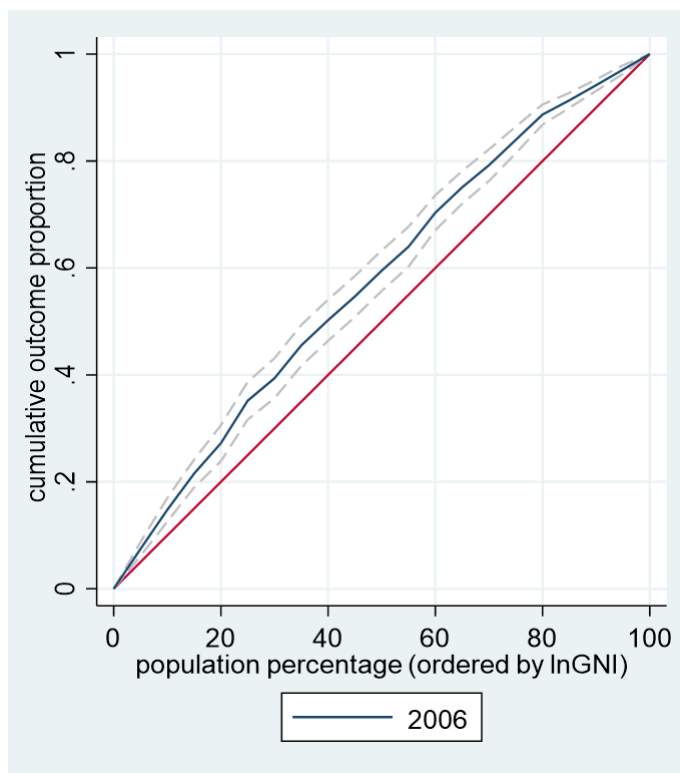
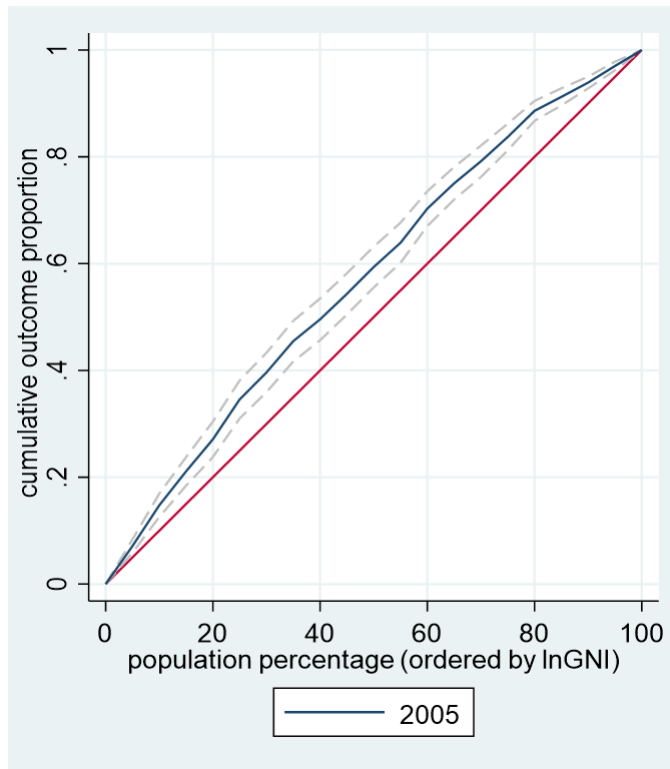


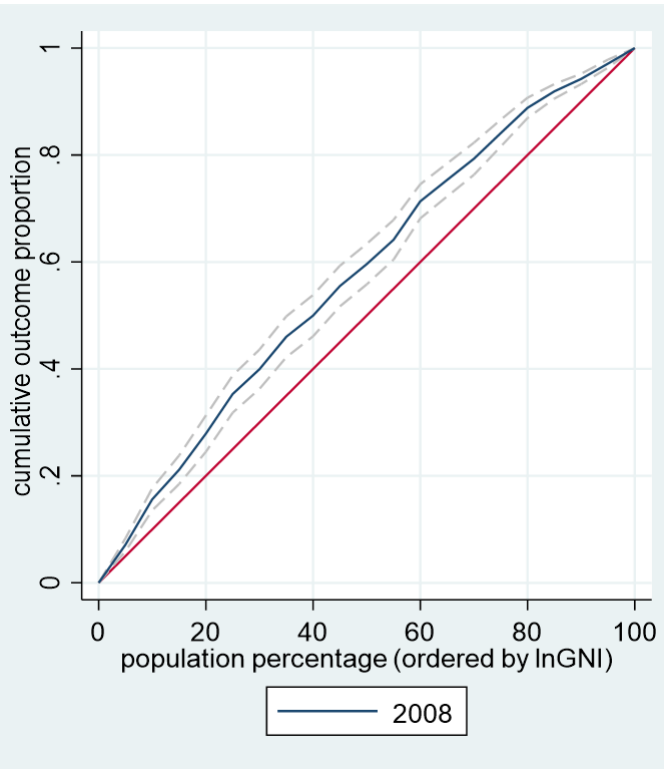
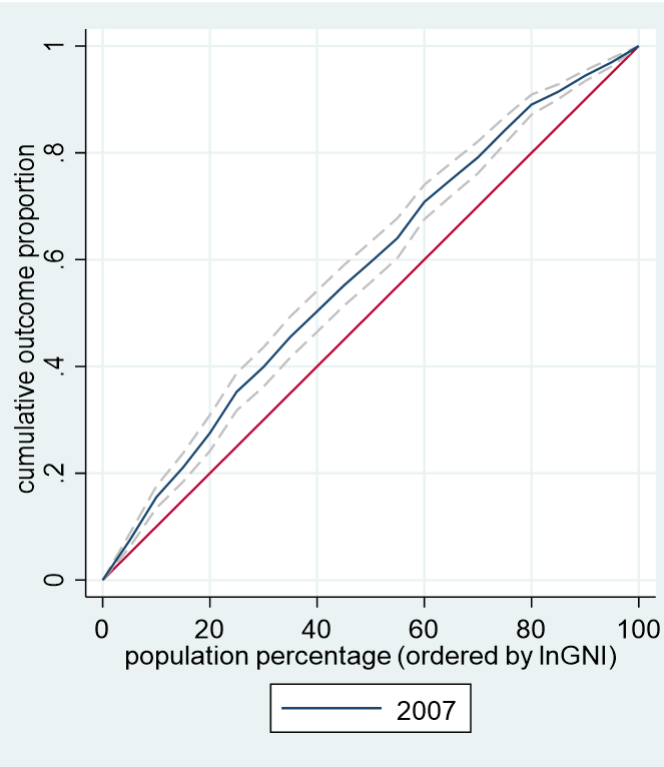


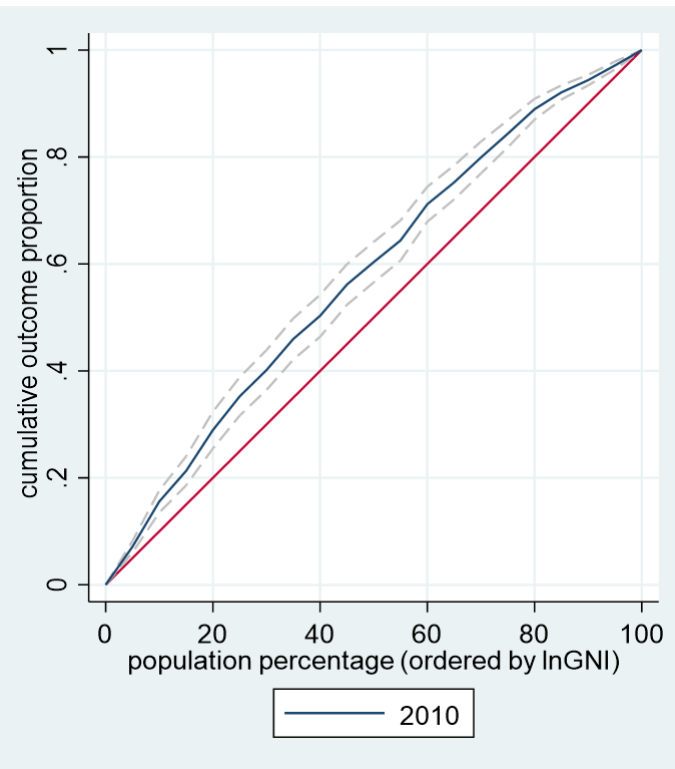
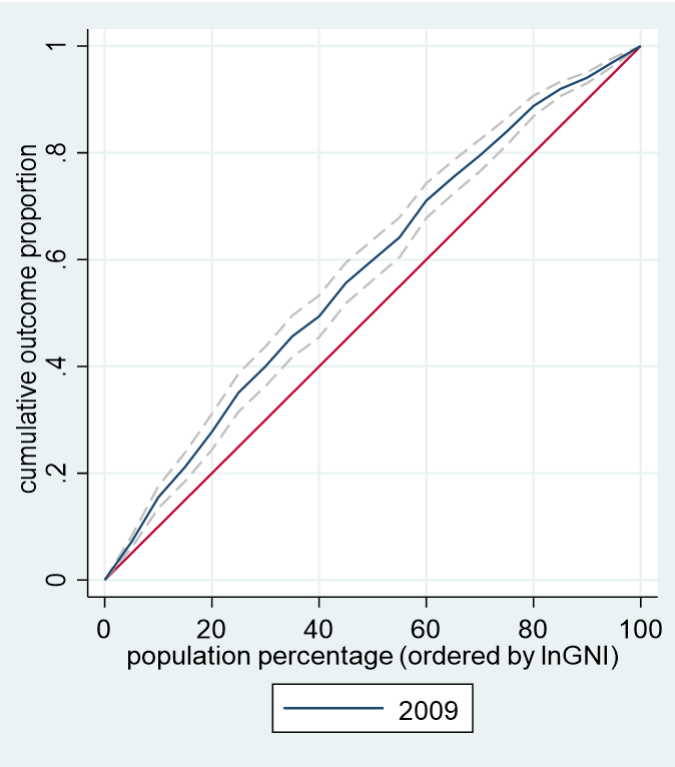
**Figs. S210-227 Concentration curves of age-standardized DALY rates for other cardiovascular and circulatory diseases from 2001 to 2018**

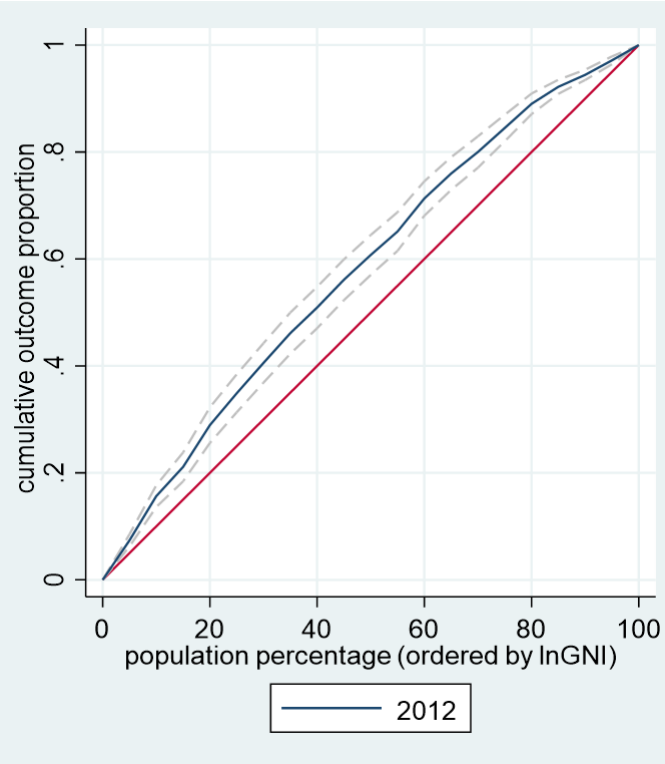
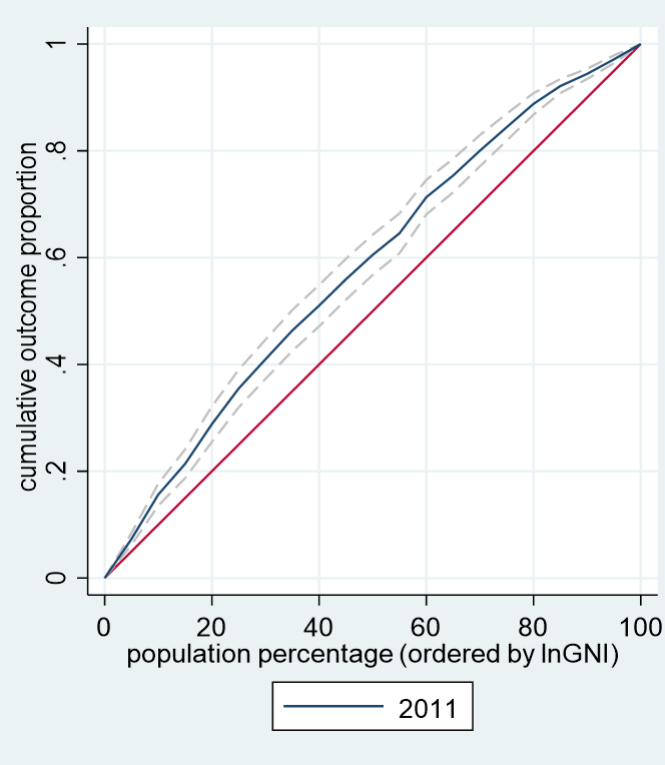


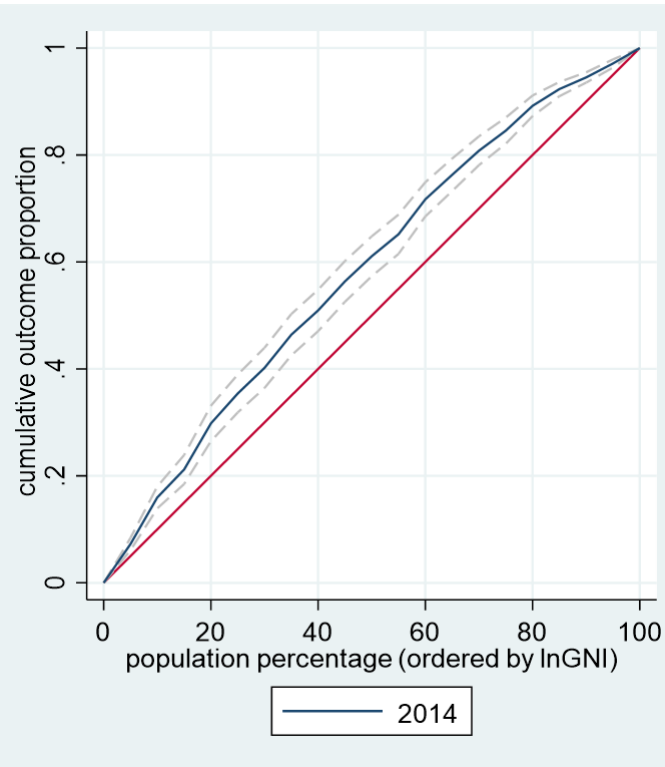
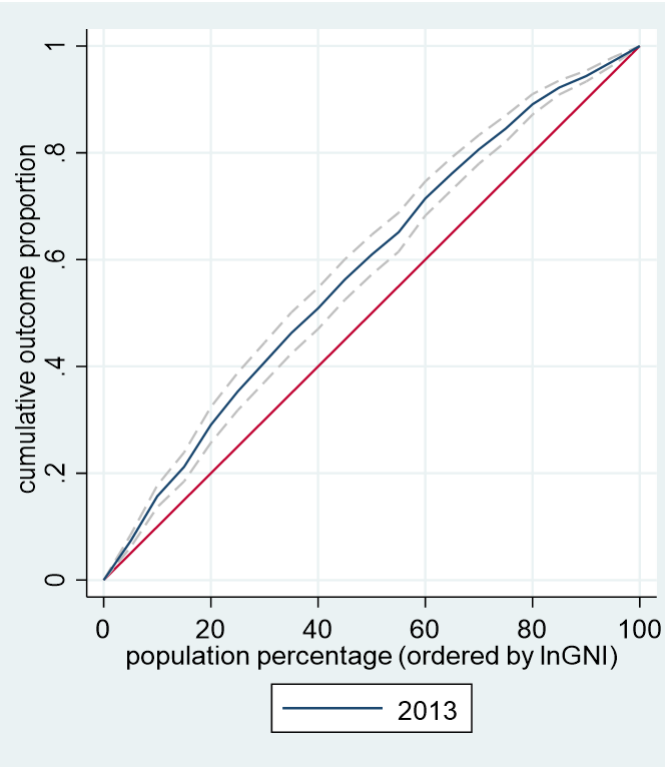


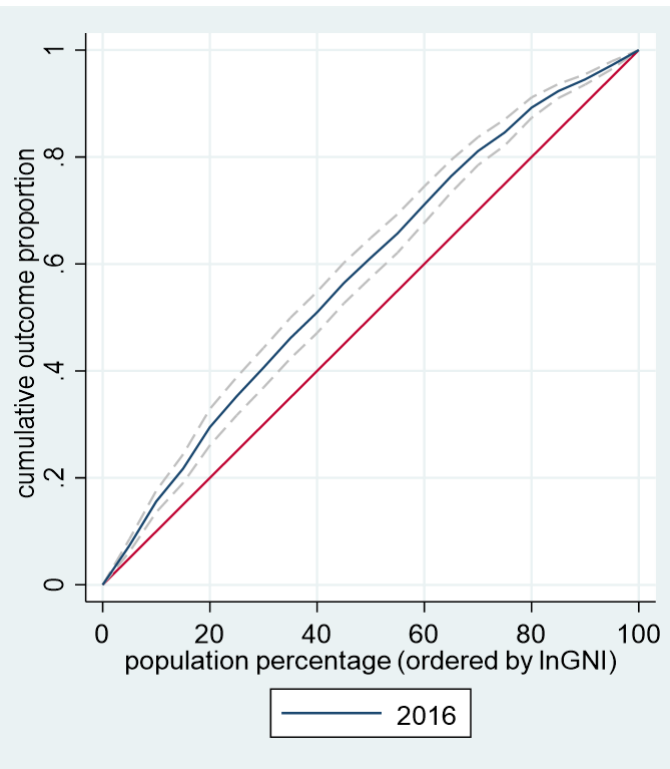
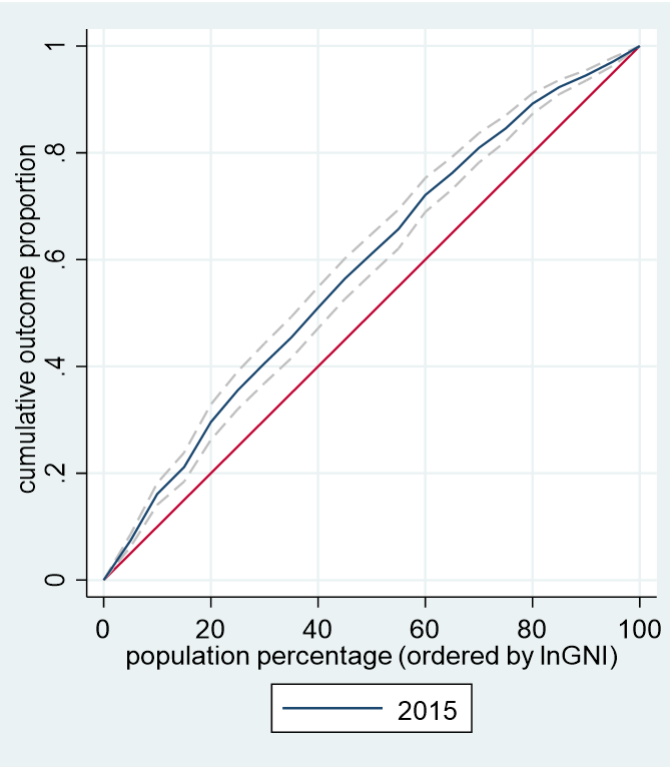


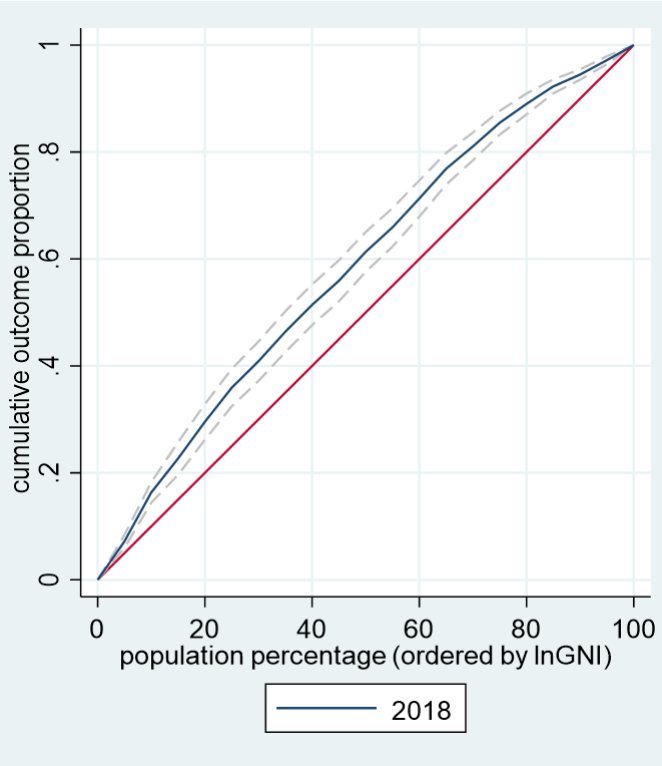
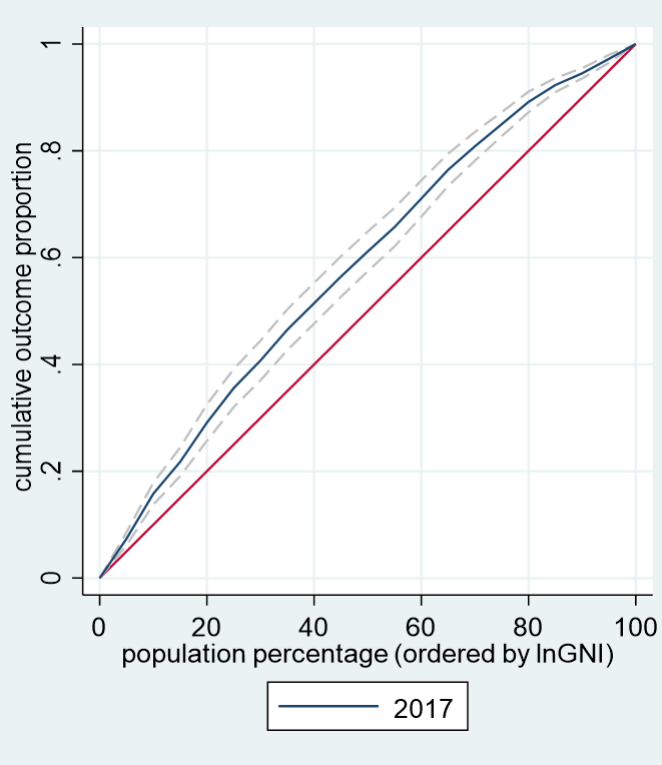












**Table S1 Trends in concentration index of age-standardized DALY rates for rheumatic heart disease from 2000-2019**

Segment	Period	APC/AAPC (%)	95% CI	<i>p</i> -value
Trend 1	2000–2012	−1.0*	−1.2 to −0.8	< 0.001
Trend 2	2012–2019	−0.5*	−1.0 to −0.0	0.036
Total	2000–2019	−0.4*	−0.6 to −0.2	< 0.001

APC=annual percentage change. AAPC=average annual percentage change. CI=confidence interval. \*Significant at alpha=0.05.

**Table S2 Trends in concentration index of age-standardized DALY rates for ischemic heart disease from 2000-2019**

Segment	Period	APC/AAPC (%)	95% CI	<i>p</i> -value
Trend 1	2000–2002	−14.4*	−19.5 to −9.6	< 0.001
Trend 2	2002–2011	−9.4*	−9.9 to −8.9	< 0.001
Trend 3	2011–2015	−3.4*	−5.7 to −1.2	0.007
Trend 4	2015–2019	−0.1	−1.4 to 1.3	0.926
Total	2000–2019	−6.6*	−7.3 to −5.9	< 0.001

APC=annual percentage change. AAPC=average annual percentage change. CI=confidence interval. \*Significant at alpha=0.05.

**Table S3 Trends in concentration index of age-standardized DALY rates for stroke from 2000-2019**

Segment	Period	APC/AAPC (%)	95% CI	<i>p</i> -value
Trend 1	2000–2011	−2.6*	−2.7 to −2.5	< 0.001
Trend 2	2011–2014	−1.0	−2.3 to 0.3	0.117
Trend 3	2014–2019	0.2	−0.1 to 0.5	0.179
Total	2000–2019	−1.6*	−1.8 to −1.4	< 0.001

APC=annual percentage change. AAPC=average annual percentage change. CI=confidence interval. \*Significant at alpha=0.05.

**Table S4 Trends in concentration index of age-standardized DALY rates for hypertensive heart disease from 2000-2019**

Segment	Period	APC/AAPC (%)	95% CI	<i>p</i> -value
Trend 1	2000–2002	0.9	–0.3 to 2.1	0.113
Trend 2	2002–2006	0.1	–0.5 to 0.7	0.696
Trend 3	2006–2016	–0.4*	–0.5 to –0.3	< 0.001
Trend 4	2016–2019	–1.0*	–1.6 to –0.4	0.004
Total	2000–2019	–0.2*	–0.4 to –0.1	< 0.001

APC=annual percentage change. AAPC=average annual percentage change. CI=confidence interval. \*Significant at alpha=0.05.

**Table S5 Trends in concentration index of age-standardized DALY rates for non-rheumatic valvular heart disease from 2000-2019**

Segment	Period	APC/AAPC (%)	95% CI	<i>p</i> -value
Trend 1	2000–2010	–0.1	–0.3 to 0.0	0.125
Trend 2	2010–2019	–1.2*	–1.4 to –1.0	< 0.001
Total	2000–2019	–0.6*	–0.7 to –0.5	< 0.001

APC=annual percentage change. AAPC=average annual percentage change. CI=confidence interval. \*Significant at alpha=0.05.

**Table S6 Trends in concentration index of age-standardized DALY rates for cardiomyopathy and myocarditis from 2000-2019**

Segment	Period	APC/AAPC (%)	95% CI	<i>p</i> -value
Trend 1	2000–2007	12.7*	9.6 to 16.0	< 0.001
Trend 2	2007–2010	–39.1*	–45.2 to –32.2	< 0.001
Total 1	2000–2010	–6.3*	–9.0 to –3.4	< 0.001
Trend 3	2011–2015	–59.0*	–78.3 to –41.9	< 0.001
Trend 4	2015–2019	–2.5	–14.9 to 8.6	0.586
Total 2	2011–2019	–27.7*	–35.1 to –20.6	< 0.001

APC=annual percentage change. AAPC=average annual percentage change. CI=confidence interval. \*Significant at alpha=0.05.

**Table S7 Trends in concentration index of age-standardized DALY rates for atrial fibrillation and flutter from 2000-2019**

Segment	Period	APC/AAPC (%)	95% CI	<i>p</i> -value
Trend 1	2000–2003	0.4	–0.8 to 1.6	0.462
Trend 2	2003–2008	–1.1*	–1.9 to –0.4	0.008
Trend 3	2008–2011	–2.5*	–4.8 to –0.1	0.040
Trend 4	2011–2019	–1.2*	–1.5 to –1.0	< 0.001
Total	2000–2019	–1.1*	–1.6 to –0.7	< 0.001

APC=annual percentage change. AAPC=average annual percentage change. CI=confidence interval. \*Significant at alpha=0.05.

**Table S8 Trends in concentration index of age-standardized DALY rates for aortic aneurysm from 2000-2019**

Segment	Period	APC/AAPC (%)	95% CI	<i>p</i> -value
Trend 1	2000–2002	1.2	–1.8 to 4.2	0.401
Trend 2	2002–2006	–2.7*	–4.1 to –1.2	0.002
Trend 3	2006–2015	–5.1*	–5.4 to –4.8	< 0.001
Trend 4	2015–2019	2.1*	1.2 to 3.1	0.001
Total	2000–2019	–2.5*	–2.9 to –2.0	< 0.001

APC=annual percentage change. AAPC=average annual percentage change. CI=confidence interval. \*Significant at alpha=0.05.

**Table S9 Trends in concentration index of age-standardized DALY rates for peripheral artery disease from 2000-2019**

Segment	Period	APC/AAPC (%)	95% CI	<i>p</i> -value
Trend 1	2000–2002	–0.0	–1.6 to 1.6	0.966
Trend 2	2002–2007	–1.1*	–1.6 to –0.6	0.001
Trend 3	2007–2010	–2.5*	–4.1 to –1.0	0.005
Trend 4	2010–2019	–1.8*	–1.9 to –1.6	< 0.001
Total	2000–2019	–1.5*	–1.8 to –1.3	< 0.001

APC=annual percentage change. AAPC=average annual percentage change. CI=confidence interval. \*Significant at alpha=0.05.

**Table S10 Trends in concentration index of age-standardized DALY rates for endocarditis from 2000-2019**

Segment	Period	APC/AAPC (%)	95% CI	<i>p</i> -value
Trend 1	2000–2004	5.6*	4.1 to 7.0	< 0.001
Trend 2	2004–2019	–0.7*	–0.9 to –0.5	< 0.001
Total	2000–2019	0.7*	0.3 to 1.0	< 0.001

APC=annual percentage change. AAPC=average annual percentage change. CI=confidence interval. \*Significant at alpha=0.05.

**Table S11 Trends in concentration index of age-standardized DALY rates for other cardiovascular and circulatory diseases from 2000-2019**

Segment	Period	APC/AAPC (%)	95% CI	<i>p</i> -value
Trend 1	2000–2013	–1.8*	–1.9 to –1.6	< 0.001
Trend 2	2013–2019	–0.6*	–1.1 to –0.0	0.040
Total	2000–2019	–1.4*	–1.6 to –1.2	< 0.001

APC=annual percentage change. AAPC=average annual percentage change. CI=confidence interval. \*Significant at alpha=0.05.