Additional file 6

Sensitivity analysis

[1 Sensitivity analysis for the frequency threshold 1](#_Toc499323511)

[2 Sensitivity analysis for the crossover point in calibration 2](#_Toc499323512)

[2.1 Alternative calibration (I) 2](#_Toc499323513)

[2.2 Alternative calibration (II) 4](#_Toc499323514)

[3 Sensitivity analysis for the consistency threshold 6](#_Toc499323515)

# Sensitivity analysis for the frequency threshold

Table 1) fsQCA solutions for high life expectancy, original calibration (frequency cutoff: 1, consistency cutoff: 0.9)

|  |  |  |  |
| --- | --- | --- | --- |
| Configuration | Raw coverage | Unique coverage | Consistency |
| **Complex solution,** | | | | |
| E\* G \* H \* W | 0.789 | 0.789 | 0.946 |
| solution coverage: 0.789, solution consistency: 0.946 |  |  |  |
| **Parsimonious solution** | | | | |
| E \* G \* H | 0.797 | 0.797 | 0.937 |
| solution coverage: 0. 797, solution consistency: 0.937 | | | | |
| **Intermediate solution** | | | | |
| E\* G \* H \* W | 0.789 | 0.789 | 0.946 |
| solution coverage: 0.789, solution consistency: 0.946 | | | | |
| ‘\*’ means AND, ‘+’ means OR E: education; G: governance; H: health system; I: income inequality; W: wealth  Upper case: high level (>0.5); Lower case: low level (<0.5). | | | | |
|  |  |  |  |

Table 2) fsQCA solutions for low life expectancy, original calibration (frequency cutoff: 1, consistency cutoff: 0.9)

|  |  |  |  |
| --- | --- | --- | --- |
| Configuration | Raw coverage | Unique coverage | consistency |
| **Complex solution** | | | |
| (g \*H \* i) + | 0.194 | 0.031 | 0.944 |
| (e\* H \* i) + | 0.168 | 0.001 | 0.937 |
| (g\* h\* I) + | 0.492 | 0.006 | 0.945 |
| (e \* h\* I) + | 0.539 | 0.066 | 0.953 |
| (E\* G \* h \* i) + | 0.112 | 0.009 | 0.928 |
| (g\* h\* w) + | 0.64 | 0.132 | 0.967 |
| (e \* H \* w) | 0.193 | 0.015 | 0.964 |
| solution coverage: 0.855, solution consistency: 0.930 | | | |
| **Parsimonious solution** | | | |
| e + | 0.846 | 0.139 | 0.947 |
| (h \* i) + | 0.333 | 0.015 | 0.965 |
| (g \* i) + | 0.401 | 0.035 | 0.957 |
| (g \* h) | 0.676 | 0.024 | 0.95 |
| solution coverage: 0.935, solution consistency: 0.926 | | | |
| **Intermediate solution** | | | |
| e + | 0.846 | 0.139 | 0.947 |
| (g \* h) + | 0.676 | 0.024 | 0.95 |
| (g \* i) + | 0.401 | 0.035 | 0.957 |
| (h \* i ) | 0.333 | 0.015 | 0.965 |
| solution coverage: 0.935, solution consistency: 0.926 | | | |
|  | | |  |

# Sensitivity analysis for the crossover point in calibration

## Alternative calibration (I)

The cross over point was set at 40th percentile of the raw data in the new calibrations of each condition.

Table 3) Threshold values for alternative calibration (I)

|  |  |  |  |
| --- | --- | --- | --- |
| Condition set | Fully in | cross-over point | Fully out |
|  | **≈** 40th Percentile |  |
| High Life expectancy | 80 | 72.5 | 68 |
| Low Life expectancy | 68 | 72.5 | 80 |
| High education (E) | 4.86 | 3.7 | 3.04 |
| Good Governance (G) | 0.86 | -0.32 | -0.69 |
| Affluent health system (H) | 0.9 | -0.43 | -0.7 |
| High income inequality (I) | 33 | 18.5 | 15 |
| High Income (W) | 28500 | 7800 | 3000 |
|  |  |  |  |

No individual conditions were identified to be necessary for high or low life expectancy.

Table 4) fsQCA solutions for high life expectancy, alternative calibration (I) **(**consistency cutoff: 0.9)

|  |  |  |  |
| --- | --- | --- | --- |
| Configuration | Raw coverage | Unique coverage | consistency |
| **Complex solution, frequency cutoff: 1 & 2** | | | |
| E \* G \* H \* i \* W | 0.579 | 0. 579 | 0.965 |
| solution coverage: 0.579, solution consistency: 0.965 | | | |
| **Parsimonious solution, frequency cutoff: 1** | | | |
| G \* i \* W | 0.592 | 0.592 | 0.944 |
| solution coverage: 0.592, solution consistency: 0.944 | | | |
| **Parsimonious solution, frequency cutoff: 2** | | | |
| G \* i | 0.6 | 0. 6 | 0.88 |
| solution coverage: 0.6, solution consistency: 0.88 | | | |
| **Intermediate solution, frequency cutoff: 1 & 2** | | | |
| E \* G \* H \* i \* W | 0.579 | 0. 579 | 0.965 |
| solution coverage: 0.579, solution consistency: 0.965 | | | |

Table 5) fsQCA solutions for low life expectancy, alternative calibration (I) (consistency cutoff: 0.9)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Configuration | Raw coverage | | Unique coverage | consistency |
| **Complex solution, frequency cutoff: 1** | | | | |
| (e \* g \* w )+ | | 0.629 | 0.093 | 0.944 |
| (g \* H \* w) + | | 0.256 | 0.02 | 0.934 |
| (e \* g \* H) + | | 0.231 | 0.004 | 0.977 |
| (g \* I \* w) + | | 0.526 | 0.023 | 0.933 |
| (e\* g\* I) + | | 0.507 | 0.01 | 0.929 |
| (e \* h \* I \* w) + | | 0.508 | 0.051 | 0.942 |
| (e\* H\* I \* W) + | | 0.142 | 0.008 | 0.966 |
| E\* G \* h \* i \* w) + | | 0.103 | 0.007 | 0.955 |
| E \* g \* h \* i \* W) | | 0.104 | 0.004 | 0.953 |
| solution coverage: 0.813, solution consistency: 0.917 | | | | |
| **Complex solution, frequency cutoff: 2** | |  |  |  |
| (e \* g \* w) + | | 0.629 | 0.123 | 0.944 |
| (g \* H \* i \* w) + | | 0.16 | 0.022 | 0.925 |
| (g \* h \* I \* w) + | | 0.482 | 0.032 | 0.931 |
| (e \* h \* I \* w) + | | 0.508 | 0.052 | 0.942 |
| (e \* G\* H \* I \* W) | | 0.113 | 0.015 | 0.958 |
| solution coverage: 0.769, solution consistency: 0.927 | | | |  |
| **Parsimonious solution, frequency cutoff: : 1** | | | | |
| e + | 0.785 | | 0.144 | 0.93 |
| (h \* i) + | 0.284 | | 0.02 | 0.966 |
| (g \* w) | 0.706 | | 0.061 | 0.923 |
| solution coverage: 0.884, solution consistency: 0.912 | | | | |
| **Parsimonious solution, frequency cutoff: : 2** | | | | |
| w + | 0.832 | | 0.108 | 0.899 |
| e | 0.785 | | 0.061 | 0.93 |
| solution coverage: 0.894, solution consistency: 0.891 | | | |  |
| **Intermediate solution, frequency cutoff: : 1** | | | | |
| (e \* g) + | 0.667 | | 0.012 | 0.931 |
| (g \* w) + | 0.706 | | 0.061 | 0.923 |
| (e \* I) + | 0.595 | | 0.084 | 0.929 |
| (g \* h \* i) + | 0.265 | | 0.004 | 0.98 |
| (h \* i \* w) | 0.267 | | 0.01 | 0.982 |
| solution coverage: 0.849, solution consistency: 0.914 | | | |  |
| **Intermediate solution, frequency cutoff: : 2** |  | |  |  |
| (g \* w) + | 0.706 | | 0.224 | 0.923 |
| (e \* I) + | 0.595 | | 0.112 | 0.929 |
| solution coverage: 0.819, solution consistency: 0.914 | | | | |
|  | | | | |

## Alternative calibration (II)

The cross over point was set at 60th percentile of the raw data in the new calibrations of each condition.

Table 6) Threshold values for alternative calibration (II)

|  |  |  |  |
| --- | --- | --- | --- |
| Interval-scale | Fully in | cross-over point **≈** 60th Percentile | Fully out |
| High Life expectancy | 80 | 76.4 | 68 |
| Low Life expectancy | 68 | 76.4 | 80 |
| High education | 4.86 | 4.26 | 3.04 |
| Good Governance | 0.86 | 0.04 | -0.69 |
| Affluent health system | 0.9 | 0.11 | -0.7 |
| High Income | 28500 | 14300 | 3000 |
| High income inequality | 33 | 24 | 15 |

No individual conditions were found to be necessary for high or low level of life expectancy.

Table 7) fsQCA solution for high life expectancy, alternative calibration (II), (consistency cutoff: 0.9)

|  |  |  |  |
| --- | --- | --- | --- |
| Configuration | Raw coverage | Unique coverage | consistency |
| **Complex solution, frequency cutoff: 1 & 2** | | | |
| E \* G \* H \* i \*W | 0.721 | 0.721 | 0.946 |
| solution coverage: 0.721, solution consistency: 0.946 | | | |
| **Parsimonious solution, frequency cutoff: 1 & 2** | | | |
| G \* H \* i | 0.734 | 0.734 | 0.921 |
| solution coverage: 0.734, solution consistency: 0.921 | | | |
| **Intermediate solution, frequency cutoff: 1 & 2** | | | |
| E \* G \* H \* i \*W | 0.721 | 0.721 | 0.946 |
| solution coverage: 0.721, solution consistency: 0.946 | | | |

Table 8) fsQCA solutions for low life expectancy, alternative calibration (II) (consistency cutoff: 0.9)

|  |  |  |  |
| --- | --- | --- | --- |
| Configuration | Raw coverage | Unique coverage | consistency |
| **Complex solution, frequency cutoff: 1** | | | |
| ( g \* w) + | 0.778 | 0.075 | 0.966 |
| (e \* h \* w) + | 0.634 | 0.013 | 0.982 |
| (h \* I \* w) + | 0.484 | 0.013 | 0.948 |
| (E \* g \* H) + | 0.183 | 0.021 | 0.944 |
| (E \* g \* I) + | 0.195 | 0.012 | 0.905 |
| ( e \* g \* h \* i) | 0.318 | 0.004 | 0.992 |
| solution coverage: 0.88, solution consistency: 0.938 |  |  |  |
| **Complex solution, frequency cutoff: 2** |  |  |  |
| ( g \* h\* w) + | 0.699 | 0.219 | 0.970 |
| (h \* I \* w) + | 0.484 | 0.043 | 0.948 |
| (E \* g \*H \* i) + | 0.154 | 0.061 | 0.94 |
| (E\* g \* h \* I) | 0.189 | 0.013 | 0.953 |
| solution coverage: 0.821, solution consistency: 0.947 |  |  |  |
| **Parsimonious solution, frequency cutoff: 1 & 2** | | | |
| w + | 0.868 | 0.09 | 0.946 |
| g | 0.842 | 0.064 | 0.929 |
| solution coverage: 0.933, solution consistency: 0.915 | | | |
| **Intermediate solution, frequency cutoff: 1** | | | |
| g + | 0.842 | 0.192 | 0.929 |
| e \* h \* w | 0.634 | 0.013 | 0.982 |
| h \* I \* w | 0.484 | 0.013 | 0.948 |
| solution coverage: 0.899, solution consistency: 0.922 |  |  |  |
| **Intermediate solution, frequency cutoff: 2** |  |  |  |
| g + | 0.842 | 0.401 | 0.929 |
| h \* I \* w | 0.484 | 0.043 | 0.948 |
| solution coverage: 0.885, solution consistency: 0.921 |  |  |  |

# 

# Sensitivity analysis for the consistency threshold

Table 9) fsQCA solutions for high life expectancy, original calibration (consistency cutoff: 0.84)

|  |  |  |  |
| --- | --- | --- | --- |
| Configuration | Raw coverage | Unique coverage | consistency |
| **Complex solution, frequency cutoff: 1 & 2** | | | |
| (E \* G \* H \* W) + | 0.789 | 0.586 | 0.946 |
| (E \* H \* I \* W) | 0.224 | 0.021 | 0.893 |
| solution coverage: 0.811, solution consistency: 0.94 | | | |
| **Parsimonious solution,** **frequency cutoff: 1** | | | |
| (E \* G \*H) + | 0.797 | 0.59 | 0.937 |
| (E \* H \* I) | 0.23 | 0.024 | 0.885 |
| solution coverage: 0.821, solution consistency: 0.93 |  |  |  |
| **Parsimonious solution,** **frequency cutoff: 2** |  |  |  |
| (H \* I) + | 0.237 | 0.027 | 0.729 |
| (G \* H) | 0.808 | 0.598 | 0.907 |
| solution coverage: 0.836, solution consistency: 0.867 | | | |
| **Intermediate solution, frequency cutoff: 1 & 2** | | | |
| (E \* G \* H \* W) + | 0.789 | 0.586 | 0.946 |
| (E \* H \* I \* W) | 0.224 | 0.021 | 0.893 |
| solution coverage: 0.811, solution consistency: 0.94 | | | |
|  | | | |

Table 10) fsQCA solutions for low life expectancy, original calibration (consistency cutoff: 0.94)

|  |  |  |  |
| --- | --- | --- | --- |
| Configuration | Raw coverage | Unique coverage | consistency |
| **Complex solution, frequency cutoff: 1** | | | |
| (g \* H\* i ) + | 0.194 | 0.030 | 0.944 |
| (e\* H \* w) + | 0.193 | 0.008 | 0.964 |
| (g \* h \* I ) + | 0.492 | 0.006 | 0.945 |
| (e\* h \* I ) + | 0.539 | 0.068 | 0.953 |
| (E\* h \* I \* w) + | 0.124 | 0.006 | 0.982 |
| (g \* h\* w) + | 0.64 | 0.003 | 0.967 |
| (e \* g \* W ) | 0.679 | 0.015 | 0.971 |
| solution coverage: 0.846, solution consistency: 0.939 | | | |
| **Complex solution, frequency cutoff: 2** | |  |  |
| ( e \* h \* I ) + | 0.539 | 0.302 | 0.953 |
| ( e \* g \* i \* w) + | 0.331 | 0.134 | 0.995 |
| (g \* h \*I \* W) + | 0.154 | 0.013 | 0.961 |
| ( E \* g \* H \* i \* W) | 0.113 | 0.024 | 0.946 |
| solution coverage: 0.745, solution consistency: 0.955 | | | |
| **Parsimonious solution, frequency cutoff: 1** | | | |
| w + | 0.839 | 0.052 | 0.944 |
| (g \* i) + | 0.401 | 0.033 | 0.957 |
| ( g \* h ) + | 0.676 | 0.007 | 0.95 |
| (e \* h) | 0.741 | 0.017 | 0.955 |
| solution coverage: 0.926, solution consistency: 0.922 | | |  |
| **Parsimonious solution, frequency cutoff: 2** | | | |
| **e +** | 0.846 | 0.149 | 0.947 |
| **(g \* i )+** | 0.401 | 0.035 | 0.957 |
| (g \* h) | 0.676 | 0.024 | 0.95 |
| solution coverage: 0.92, solution consistency: 0.93 | | | |
| **Intermediate solution,** **frequency cutoff: 1** | | | |
| **(g \*** h**) +** | 0.676 | 0.011 | 0.95 |
| **(**g \* i **)+** | 0.401 | 0.045 | 0.957 |
| (e \* w) + | 0.774 | 0.028 | 0.962 |
| ( h \* w) + | 0.743 | 0.017 | 0.954 |
| (e \* h \* I) | 0.539 | 0.015 | 0.953 |
| solution coverage: 0.917, solution consistency: 0.928 | | | |
| **Intermediate solution,** **frequency cutoff: 2** | | | |
| (g \* h) + | 0.676 | 0.028 | 0.95 |
| (g \* i ) + | 0.401 | 0.045 | 0.957 |
| ( e \* g \* w) + | 0.679 | 0.019 | 0.971 |
| (e \* h \* I) | 0.539 | 0.073 | 0.953 |
| solution coverage: 0.863, solution consistency: 0.938 | | | |