

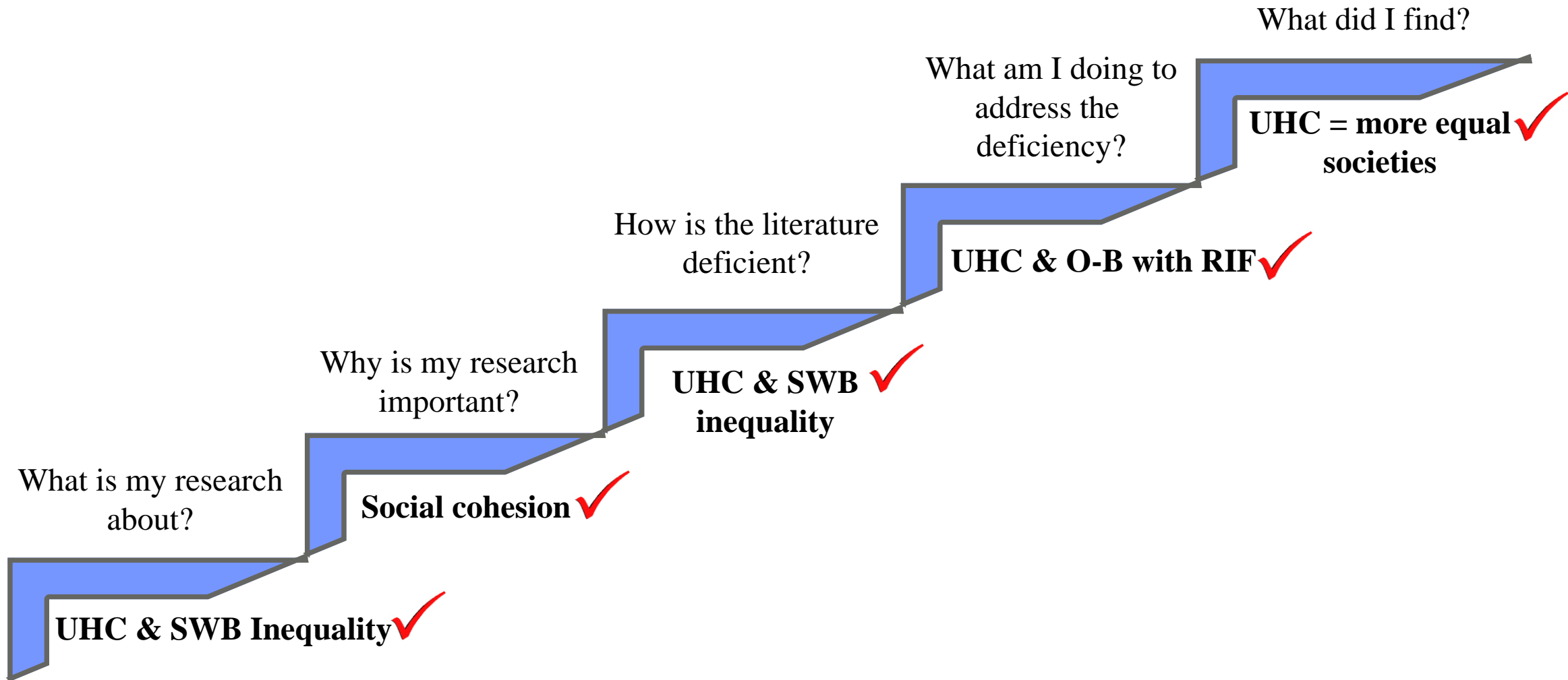
DO PUBLIC HEALTHCARE  
PROGRAMS MAKE SOCIETIES MORE  
EQUAL? CROSS-COUNTRY EVIDENCE  
ON SUBJECTIVE WELLBEING

Ryan Joseph R. Dizon  
Economics  
Faculty of Business and Law  
University of Wollongong



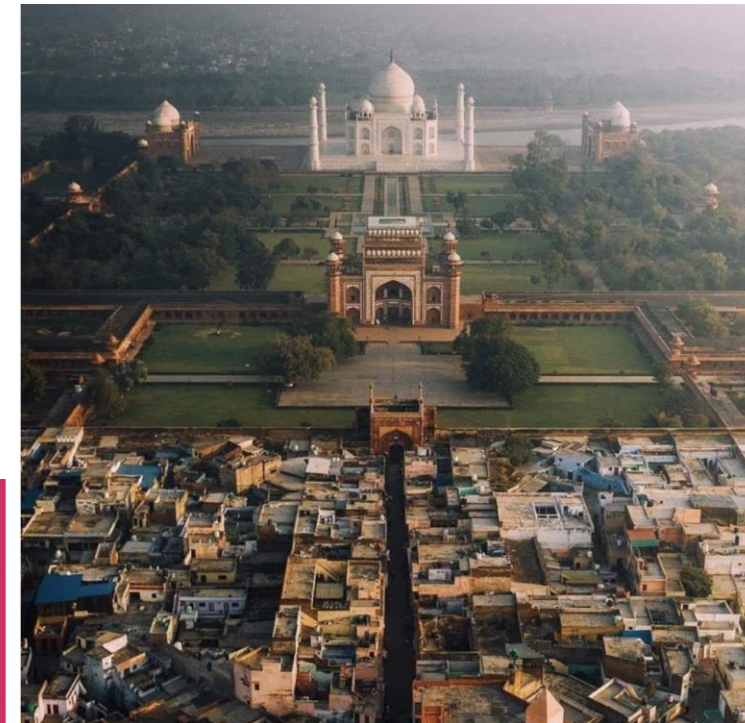
UHC = MORE EQUAL  
and  
INCLUSIVE SOCIETY

# OVERVIEW OF THE RESEARCH



# 1. What is my research about?

- Universal Health Coverage and Inequality (SWB)



## Universal Health Coverage

| Reproductive, maternal, newborn, and child health | Infectious diseases                       | Non-communicable diseases               | Service capacity and access       |
|---|---|---|-----------------------------------|
| 1. Family planning                                | 5. Tuberculosis Treatment                 | 9. Prevention of Cardiovascular disease | 13. Hospital access               |
| 2. Pregnancy and delivery care                    | 6. Human Immunodeficiency Virus treatment | 10. Management of Diabetes              | 14. Healthcare worker density     |
| 3. Child immunization                             | 7. Malaria prevention                     | 11. Cancer detection and treatment      | 15. Access to essential medicines |
| 4. Child treatment                                | 8. Water and sanitation                   | 12. Tobacco Control                     | 16. Health security               |

## Inequality

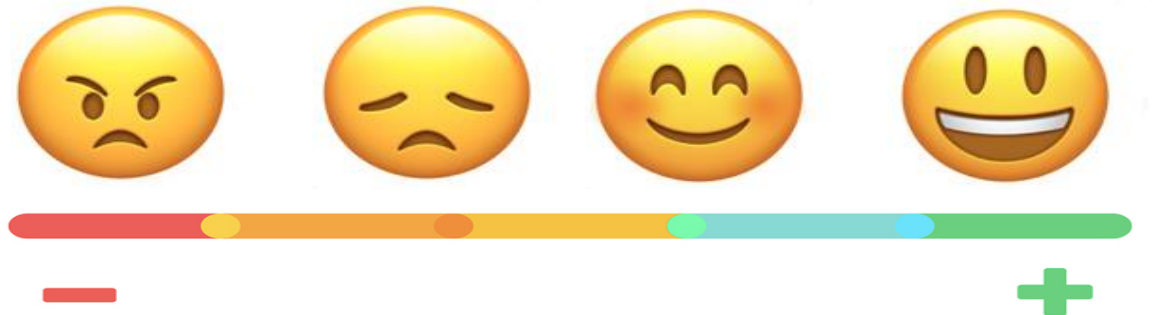
- = Income inequality is known to be the source of multiple social issues ranging from poor physical and mental health, low social trust, low social mobility, and crime (Wilkinson and Pickett, 2009).
- = However, Income as a measure of inequality is inadequate and suffers from different issues.



# SWB



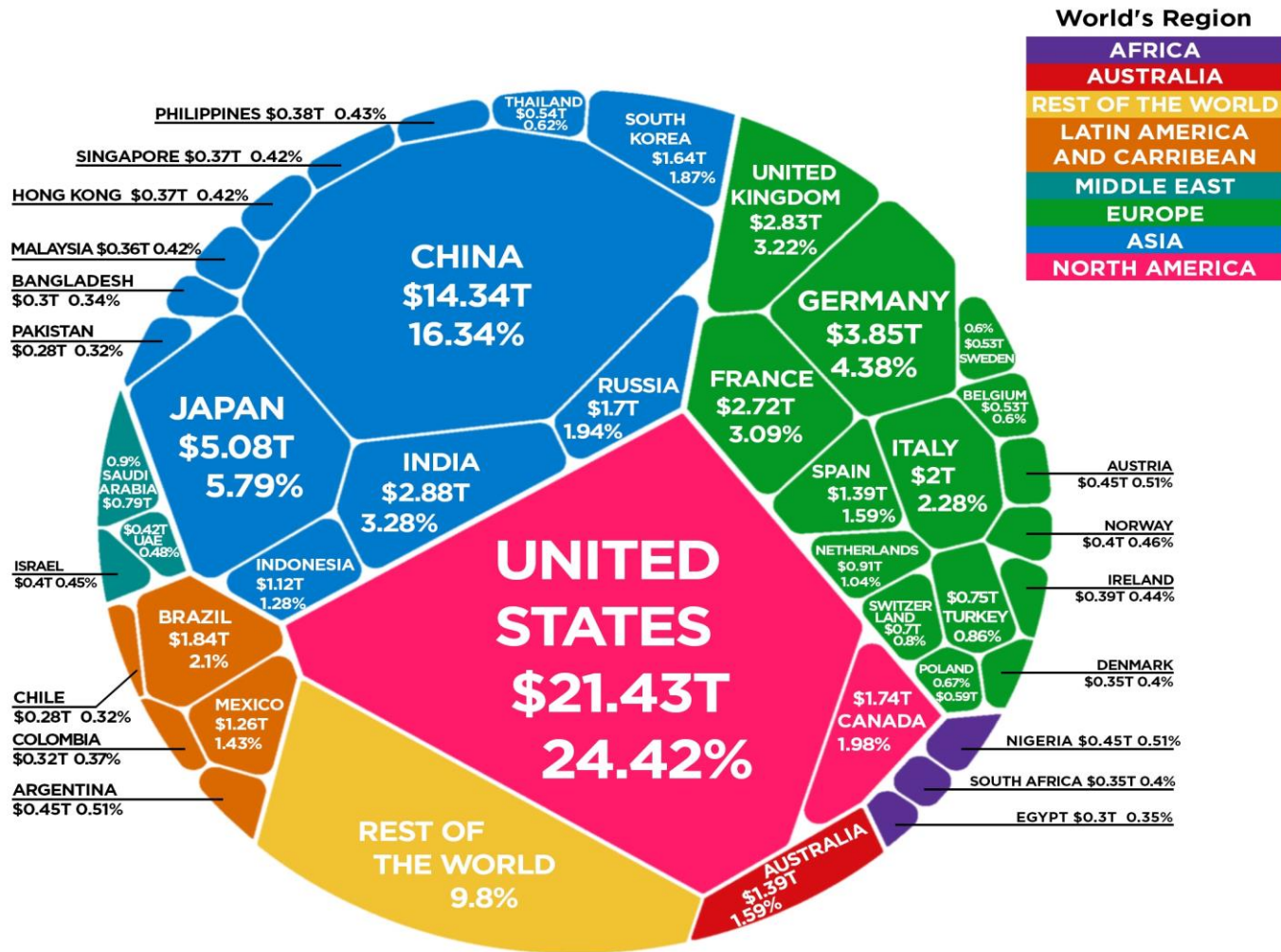
- = Subjective Wellbeing is proposed to be a better tool in measuring and assessing inequality.
- = SWB inequality can tell more stories and comprehensively capture relevant life domains that matter to humans and to the society.



2. Why is my research important

# The World Economy

Gross Domestic Product (GDP) by Country 2019



= “what matters is not just the size of the pie, but how it is divided, the set of ingredients used when preparing it, and whether these ingredients will continue to be available in the future”—OECD

= As a society, we care about **social cohesion** and the **distribution of wellbeing** —Prof. Joseph Stiglitz

### 3. How is the literature deficient? What are the theoretical and empirical issues?

- = Relationship between UHC and SWB inequality (distribution)
- = Identifying whether public health programs can potentially address social issues (e.g. inequality) other than health in a wider context
- = Validity of the SWB as a measure
- = SWB: Cardinal or Ordinal



4. What am I doing to address the deficiency?

✓ UHC index

| <b>Reproductive, maternal, newborn, and child health</b> | <b>Infectious diseases</b> | <b>Non-communicable diseases</b>        | <b>Service capacity and access</b> |
|--|----------------------------|---|------------------------------------|
| 1. Family planning                                       | 5. Tuberculosis Treatment  | 9. Prevention of Cardiovascular disease | 13. Hospital access                |
| 2. Pregnancy and delivery care                           | 6. HIV treatment           | 10. Management of Diabetes              | 14. Healthcare worker density      |
| 3. Child immunization                                    | 7. Malaria prevention      | 11. Cancer detection and treatment      | 15. Access to essential medicines  |
| 4. Child treatment                                       | 8. Water and sanitation    | 12. Tobacco Control                     | 16. Health security                |

Plus: Out-of-Pocket Expenditure = **UHC INDEX**

**Process:** Five indicators  $\gg$  Z-score  $\gg$  Quintile  $\gg$  Geometric mean  $\gg$  **UHC INDEX**

#### 4. What am I doing to address the deficiency?

- ✓ Cross-country analysis covering 75 countries from 1990 to 2014
- ✓ Use EVS and WVS integrated data sets: “*All things considered, how satisfied are you with your life as a whole?*” 1 (completely dissatisfied) to 10 (completely satisfied)
- ✓ *Standard deviation*
- ✓ OLS and Oaxaca-Blinder (O-B) Decomposition Method, O-B + Recentered Influence Function (RIF) : 5<sup>th</sup>, 25<sup>th</sup>, 50<sup>th</sup>, 75<sup>th</sup>, and 95<sup>th</sup> percentile

5. What did I find?



OLS



(-)

SWB Inequality



- ✓ Economic growth and freedom (-)
- ✓ Unemployment (+)

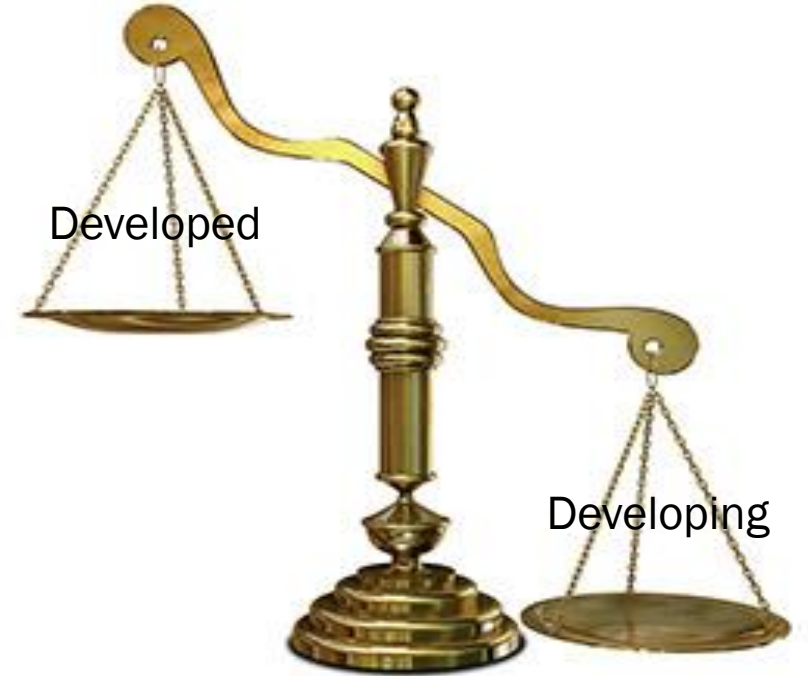
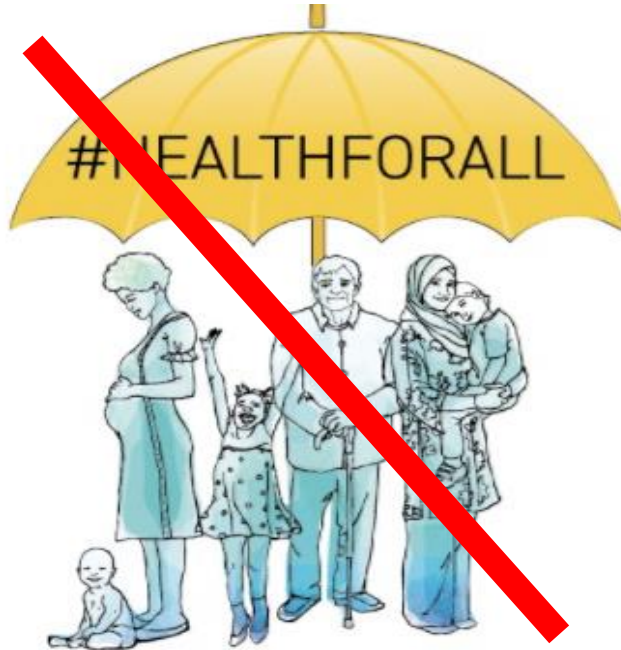
RIF

|                 |                   |                   |                   |                    |
|-----------------|-------------------|-------------------|-------------------|--------------------|
| $RIF_5$<br>(-)* | $RIF_{25}$<br>(-) | $RIF_{50}$<br>(-) | $RIF_{75}$<br>(-) | $RIF_{95}$<br>(+)* |
|-----------------|-------------------|-------------------|-------------------|--------------------|

5. What did I find?



O-B and O-B +RIF



Education  
GDP  
Sex ratio  
Effectiveness of the government

## 6. Conclusion



U

O

W

Thank you!



UNIVERSITY  
OF WOLLONGONG  
AUSTRALIA

# Appendix

| Variables                          | Life Satisfaction Distribution<br>(standard deviation) | Income Distribution<br>(Gini) |
|------------------------------------|--|-------------------------------|
| UHC                                | -0.065 **<br>(0.025)                                   | -1.050<br>(0.681)             |
| Age                                | -0.110<br>(0.063)                                      | 0.074<br>(1.130)              |
| Age squared                        | 0.000<br>(0.000)                                       | 0.001<br>(0.013)              |
| Education                          | -0.196<br>(0.251)                                      | 3.805<br>(4.284)              |
| Economic status                    | -0.006**<br>(0.002)                                    | -0.012<br>(0.062)             |
| Culture Zone                       | 0.536***<br>(0.094)                                    | –                             |
| GDP                                | -0.000<br>(0.000)                                      | -0.000**<br>(0.000)           |
| Sex ratio                          | 0.178<br>(0.121)                                       | -9.077**<br>(3.602)           |
| Marital status                     | 0.017<br>(0.027)                                       | -0.235<br>(0.489)             |
| Unemployment                       | 0.005*<br>(0.003)                                      | 0.366***<br>(0.066)           |
| Political position                 | 0.037<br>(0.030)                                       | 0.007<br>(0.570)              |
| Effectiveness<br>of the government | -0.025<br>(0.037)                                      | 2.883***<br>(0.796)           |
| Freedom                            | -0.111***<br>(0.039)                                   | 0.018<br>(0.901)              |
| Prob>F                             | 0.0000   | 0.0000                        |
| R-squared                          | 0.585  | 0.438                         |

| Percentile                      | <i>RIF</i> <sub>5</sub> | <i>RIF</i> <sub>25</sub> | <i>RIF</i> <sub>50</sub> | <i>RIF</i> <sub>75</sub> | <i>RIF</i> <sub>95</sub> |
|---------------------------------|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Variables                       |                         |                          |                          |                          |                          |
| UHC                             | -0.108*<br>(0.063)      | -0.007<br>(0.040)        | -0.042<br>(0.037)        | -0.005<br>(0.046)        | 0.125*<br>(0.075)        |
| Age                             | 0.199<br>(0.139)        | -0.068<br>(0.089)        | -0.148*<br>(0.080)       | -0.185*<br>(0.101)       | -0.067<br>(0.166)        |
| Age squared                     | -0.002<br>(0.002)       | 0.001<br>(0.001)         | 0.001<br>(0.001)         | 0.002*<br>(0.001)        | 0.001<br>(0.002)         |
| Education                       | 0.602<br>(0.477)        | -0.220<br>(0.306)        | 0.0330<br>(0.277)        | -0.062<br>(0.347)        | -0.254<br>(0.570)        |
| Economic status                 | -0.006<br>(0.007)       | 0.000<br>(0.005)         | -0.008*<br>(0.004)       | 0.001<br>(0.005)         | -0.026***<br>(0.009)     |
| Culture zone                    | 0.057***<br>(0.020)     | 0.005<br>(0.013)         | -0.011<br>(0.012)        | -0.001<br>(0.015)        | 0.058**<br>(0.024)       |
| GDP                             | -0.000<br>(0.000)       | -0.000***<br>(0.000)     | -0.000***<br>(0.000)     | 0.000<br>(0.000)         | 0.000<br>(0.000)         |
| Sex ratio                       | 0.223<br>(0.375)        | 0.552**<br>(0.241)       | 0.330<br>(0.218)         | 0.162<br>(0.273)         | -0.714<br>(0.448)        |
| Marital status                  | 0.053<br>(0.055)        | 0.001<br>(0.035)         | 0.058*<br>(0.032)        | -0.014<br>(0.040)        | 0.009<br>(0.065)         |
| Unemployment                    | 0.005<br>(0.006)        | 0.008*<br>(0.004)        | 0.014***<br>(0.004)      | 0.016***<br>(0.005)      | 0.033***<br>(0.008)      |
| Political position              | -0.032<br>(0.065)       | -0.018<br>(0.042)        | -0.052<br>(0.038)        | -0.012<br>(0.047)        | 0.066<br>(0.078)         |
| Effectiveness of the government | -0.055<br>(0.075)       | -0.125***<br>(0.048)     | -0.232***<br>(0.044)     | -0.128**<br>(0.055)      | 0.046<br>(0.090)         |
| Freedom                         | -0.032<br>(0.075)       | -0.113**<br>(0.048)      | -0.094**<br>(0.043)      | 0.057<br>(0.054)         | 0.082<br>(0.089)         |
| Constant                        | -3.051<br>(2.883)       | 3.137*<br>(1.850)        | 5.800***<br>(1.674)      | 6.111***<br>(2.096)      | 3.625<br>(3.445)         |
| Observations                    | 288                     | 288                      | 288                      | 288                      | 288                      |
| R squared                       | 0.20                    | 0.40                     | 0.50                     | 0.25                     | 0.20                     |

| Percentile Variables                    | <i>RIF</i> <sub>5</sub> |                      | <i>RIF</i> <sub>25</sub> |                     | <i>RIF</i> <sub>50</sub> |                    | <i>RIF</i> <sub>75</sub> |                     | <i>RIF</i> <sub>95</sub> |                     |
|---|-------------------------|----------------------|--------------------------|---------------------|--------------------------|--------------------|--------------------------|---------------------|--------------------------|---------------------|
|   | EX                      | UN                   | EX                       | UN                  | EX                       | UN                 | EX                       | UN                  | EX                       | UN                  |
| <b>UHC</b>                              | 0.061<br>(0.048)        | 0.468<br>(0.294)     | 0.007<br>(0.033)         | -0.353*<br>(0.208)  | 0.006<br>(0.027)         | -0.114<br>(0.182)  | -0.008<br>(0.031)        | -0.107<br>(0.201)   | -0.029<br>(0.058)        | -0.097<br>(0.403)   |
| <b>Age</b>                              | -1.290<br>(1.757)       | -27.363*<br>(15.371) | -0.388<br>(1.234)        | -10.566<br>(10.856) | 0.079<br>(1.009)         | -10.583<br>(9.362) | 0.977<br>(1.149)         | 3.548<br>(10.427)   | 0.780<br>(2.154)         | 20.052<br>(20.645)  |
| <b>Agesq</b>                            | 1.295<br>(1.630)        | 13.002*<br>(7.143)   | 0.321<br>(1.144)         | 4.120<br>(5.046)    | -0.070<br>(0.936)        | 4.784<br>(4.382)   | -0.914<br>(1.066)        | -1.442<br>(4.868)   | -0.839<br>(1.998)        | -10.367<br>(9.702)  |
| <b>Education</b>                        | 0.047<br>(0.103)        | 0.650<br>(0.508)     | 0.055<br>(0.073)         | 0.557<br>(0.359)    | 0.092<br>(0.060)         | 0.504<br>(0.316)   | 0.077<br>(0.068)         | 0.112<br>(0.349)    | 0.020<br>(0.127)         | 0.245<br>(0.704)    |
| <b>Economic status</b>                  | -0.026<br>(0.030)       | 0.088<br>(0.068)     | 0.001<br>(0.021)         | -0.006<br>(0.047)   | -0.029<br>(0.018)        | 0.067<br>(0.041)   | -0.021<br>(0.020)        | 0.018<br>(0.045)    | 0.024<br>(0.037)         | -0.096<br>(0.090)   |
| <b>Culture zone</b>                     | 0.314**<br>(0.146)      | -0.939**<br>(0.366)  | 0.122<br>(0.102)         | -0.582**<br>(0.259) | 0.145*<br>(0.084)        | -0.449*<br>(0.229) | -0.108<br>(0.095)        | 0.127<br>(0.253)    | -0.064<br>(0.178)        | 0.652<br>(0.513)    |
| <b>GDP</b>                              | 0.115<br>(0.085)        | 0.102<br>(0.083)     | 0.147**<br>(0.060)       | -0.022<br>(0.060)   | 0.071<br>(0.049)         | -0.027<br>(0.055)  | 0.067<br>(0.055)         | -0.048<br>(0.060)   | 0.043<br>(0.104)         | -0.011<br>(0.128)   |
| <b>Sex ratio</b>                        | -0.008<br>(0.026)       | 0.061<br>(0.747)     | -0.021<br>(0.019)        | 0.343<br>(0.529)    | -0.013<br>(0.015)        | 0.284<br>(0.467)   | -0.001<br>(0.017)        | 0.178<br>(0.516)    | 0.075**<br>(0.037)       | 1.321<br>(1.044)    |
| <b>Marital status</b>                   | -0.013<br>(0.018)       | 0.324<br>(0.208)     | -0.006<br>(0.012)        | 0.196<br>(0.147)    | -0.018<br>(0.012)        | 0.196<br>(0.129)   | 0.009<br>(0.011)         | -0.114<br>(0.142)   | 0.001<br>(0.020)         | 0.068<br>(0.286)    |
| <b>Unemployment</b>                     | 0.022<br>(0.024)        | -0.200<br>(0.133)    | -0.003<br>(0.016)        | 0.196**<br>(0.095)  | -0.005<br>(0.013)        | 0.164**<br>(0.081) | 0.007<br>(0.015)         | 0.092<br>(0.090)    | 0.010<br>(0.028)         | 0.089<br>(0.175)    |
| <b>Political position</b>               | 0.054<br>(0.045)        | -0.782<br>(0.790)    | -0.019<br>(0.031)        | -0.263<br>(0.557)   | -0.004<br>(0.025)        | -0.278<br>(0.473)  | 0.024<br>(0.029)         | -0.317<br>(0.530)   | 0.074<br>(0.055)         | -0.992<br>(1.032)   |
| <b>Effective-ness of the government</b> | -0.226<br>(0.148)       | 0.027<br>(0.025)     | 0.004<br>(0.104)         | 0.012<br>(0.017)    | 0.253***<br>(0.086)      | -0.024<br>(0.017)  | 0.527***<br>(0.100)      | -0.068**<br>(0.027) | 0.559***<br>(0.183)      | -0.067*<br>(0.039)  |
| <b>Freedom</b>                          | 0.001<br>(0.192)        | -0.229<br>(0.453)    | 0.025<br>(0.135)         | -0.155<br>(0.319)   | 0.069<br>(0.111)         | -0.200<br>(0.266)  | 0.069<br>(0.126)         | -0.094<br>(0.300)   | 0.004<br>(0.236)         | 0.420<br>(0.513)    |
| <b>Constant</b>                         |                         | 14.502*<br>(8.530)   |                          | 6.590<br>(6.019)    |                          | 5.443<br>(5.135)   |                          | -2.282<br>(5.742)   |                          | -11.513<br>(11.253) |

|                                |                     |  |                     |  |                     |  |                     |  |                     |
|--------------------------------|---------------------|--|---------------------|--|---------------------|--|---------------------|--|---------------------|
| <b>Overall</b>                 |                     |  |                     |  |                     |  |                     |  |                     |
| <b>Group1<br/>(developing)</b> | 1.805***<br>(0.045) |  | 2.127***<br>(0.036) |  | 2.310***<br>(0.032) |  | 2.466***<br>(0.326) |  | 2.844***<br>(0068)  |
| <b>Group2<br/>(developed)</b>  | 1.570***<br>(0.041) |  | 1.814***<br>(0.030) |  | 1.967***<br>(0.029) |  | 2.160***<br>(0.035) |  | 2.484***<br>(0.052) |
| <b>Difference</b>              | 0.235***<br>(0.061) |  | 0.312***<br>(0.047) |  | 0.343***<br>(0.043) |  | 0.306***<br>(0.048) |  | 0.360***<br>(0.086) |
| <b>Explained</b>               | 0.345<br>(0.277)    |  | 0.245<br>(0.195)    |  | 0.576***<br>(0.161) |  | 0.704***<br>(0.184) |  | 0.657*<br>(0.341)   |
| <b>Unexplained</b>             | -0.110<br>(0.283)   |  | 0.068<br>(0.199)    |  | -0.233<br>(0.164)   |  | -0.398**<br>(0.186) |  | -0.298<br>(0.350)   |

| Variables                       | Overall | Explained           | Unexplained        | Interaction        |
|---------------------------------|---------|---------------------|--------------------|--------------------|
|                                 |         |                     |                    |                    |
| UHC                             |         | 0.018<br>(0.021)    | -0.039<br>(0.176)  | 0.007<br>(0.031)   |
| Age                             |         | -0.551<br>(0.682)   | -10.84<br>(8.382)  | 1.331<br>(1.034)   |
| Age squared                     |         | 0.485<br>(0.646)    | 5.215<br>(4.477)   | -1.173<br>(1.010)  |
| Education                       |         | 0.068*<br>(0.039)   | 0.460<br>(0.346)   | -0.101<br>(0.076)  |
| Economic status                 |         | -0.014<br>(0.012)   | 0.007<br>(0.013)   | 0.009<br>(0.015)   |
| Culture zone                    |         | 0.092<br>(0.062)    | -0.088<br>(0.087)  | -0.119<br>(0.117)  |
| GDP                             |         | 0.085*<br>(0.045)   | -0.053<br>(0.296)  | 0.044<br>(0.245)   |
| Sex ratio                       |         | -0.005<br>(0.010)   | 0.369<br>(0.348)   | -0.017<br>(0.017)  |
| Marital status                  |         | -0.005<br>(0.007)   | 0.134<br>(0.091)   | 0.016<br>(0.013)   |
| Unemployment                    |         | 0.000<br>(0.009)    | 0.122**<br>(0.051) | 0.030*<br>(0.016)  |
| Political position              |         | 0.010<br>(0.019)    | -0.307<br>(0.354)  | -0.020<br>(0.024)  |
| Effectiveness of the government |         | 0.255***<br>(0.058) | 0.174*<br>(0.094)  | -0.198*<br>(0.107) |
| Freedom                         |         | 0.010<br>(0.079)    | -0.005<br>(0.111)  | -0.004<br>(0.091)  |

Culture zone 1  
Reformed West

Culture zone 2  
New West

Culture zone 3  
Old West

Culture zone 4  
Returned West

Culture zone 5  
Orthodox East

Culture zone 6  
Indic East

Culture zone 7  
Islamic East

Culture zone 8  
Sinic East

Culture zone 9  
Latin America

Culture zone 10  
Sub-Saharan Africa

Denmark  
Finland  
Germany  
Iceland  
Netherlands  
Norway  
Sweden  
Switzerland  
United Kingdom

Australia  
Canada  
New Zealand  
United States

Andorra  
Austria  
Belgium  
Cyprus  
Estonia  
France  
Greece  
Ireland  
Israel  
Italy  
Luxemburg  
Malta  
Portugal  
Spain

Czech Republic  
Croatia  
Estonia  
Hungary  
Latvia  
Lithuania  
Poland  
Slovakia  
Slovenia

Azerbaijan  
Albania  
Armenia  
Belarus  
Bosnia  
Bulgaria  
Georgia  
Kyrgyzstan  
Macedonia  
Moldova  
Romania  
Russia  
Serbia  
Ukraine

Bangladesh  
India  
Indonesia  
Malaysia  
Pakistan  
Philippines  
Singapore  
Thailand

Algeria  
Egypt  
Iran  
Iraq  
Jordan  
Morocco  
Saudi Arabia  
Turkey

China  
Hong Kong  
Japan  
South Korea  
Taiwan  
Vietnam

Argentina  
Brazil  
Chile  
Colombia  
Dominican Rep  
Guatemala  
El Salvador  
Mexico  
Peru  
Trinidad and Tobago  
Uruguay  
Venezuela

Burkina Faso  
Ghana  
Mali  
Nigeria  
Rwanda  
Tanzania  
South Africa  
Uganda  
Zambia  
Zimbabwe