Fertility differences across the MENA region

Tatiana Karabchuk, LCSR HSE
Anna Ryabchikova, LCSR HSE
Dmitriy Zakotyanskiy, LCSR HSE

Email address for correspondence and requests: tkarabchuk@hse.ru
Motivation

• With exception for Sub-Saharan Africa, MENA countries still have the highest fertility level in the world.

• The greatest fertility decline in the world during last 30 years also happened in MENA (Salehi-Isfahani et al, 2010), but then fertility decline stalled.

• Densely populated and actively growing region, with common religion, influence of Arab culture, but in the same time very diverse in fertility level (Eberstadt and Shah, 2012).
Motivation

UN population dynamics and projections (medium fertility scenario), thousands of inhabitants

EU-28  |  World Bank MENA + Turkey (22 countries)
Total fertility rate in the world, World Bank regions

- Middle East & North Africa
- East Asia & Pacific
- Europe & Central Asia
- Latin America & Caribbean
- Sub-Saharan Africa
- South Asia
Total fertility rate in MENA countries

- Jordan
- Libya
- Turkey
- Lebanon
- Kuwait
- Oman
- Yemen
- Iran
The goal

The goal is to explain the differences in fertility patterns in MENA countries through the relationship between socio-economic factors and values.

Research question: Why this diversity occurs in countries with similar traditional social norms and common dominating religion?

MENA countries had almost the same fertility level just a half century ago - why then it differs now? And what are the main factors of such diversity nowadays?
Literature review

• Focused mainly on a single countries (Hosseini-Chavoshi and Abbasi-Shavazi, 2012; Frini and Muller, 2012; Salam, 2013; Dinçer et al., 2014; Loeffler and Friedl, 2014), or the whole region (Eberstadt and Shah, 2012), but without revealing fertility differences among the countries.

• Studies where fertility differences are investigated, mostly focused on comparison of developed and developing countries (Abeynayake et al., 2012; Jain and Ross, 2012), but don’t examine fertility differences within the MENA region.
Literature review – key findings

• Muslim family law hinders fertility decline and preserve patriarchy, but socio-economic development puts heavy pressure on it (Moghadam, 2003, 2004)

• Access to contraception and level of education are factors that contribute the most to fertility decline (Moghadam, 2004; Obermeyer, 1994; Hoodfar, 1996; Roudi-Fahimi & Kent, 2007; Salam, 2013; Loeffler and Friedl, 2014)

• Strong leadership of the government, its’ strong intention to provide widely available contraception, healthcare and education (expecially for women), in order to lower fertility level is a key for understanding the trends in some Middle East countries (Caldwell and Sathar, 1996).

• There is no or little connection between fertility level and labor participation of women in MENA countries (İlkkaracan, 2012; Loeffler and Friedl, 2014).
Conceptual scheme – number of children

**Individual:**
- Education
- Income
- Employment
- Gender values
- Freedom of choice

**Country:**
- Level of socio-economic development (GDP, unemployment level)
- State-sponsored education and healthcare system (% of GDP)
- Access to contraception
- Government fertility level stance
- Level of freedoms in the country
- Population attitudes and values
Hypotheses

• H1: People with gender egalitarian attitudes are likely to have fewer children.
• H2: People with high self-perception of freedom have fewer children.
• H3: Employment status affect fertility level. Employed and better going (high income) people are seem to have fewer children than unemployed and inactive as well as low income people.
Data

Dataset: WVS, 4-6 waves, 16 countries, age limits 35-65.
Our sample for 16 countries amounts of 22,196 respondents.

Methods:
1st step – Poisson regression on individual variables for each country, comparison of determinants
2nd step – Explaining revealed fertility patterns differences among MENA countries
3d step - Poisson regression modeling with clustered standard errors, testing macro level variables
WVS vs statistics

Total Fertility rate, 2010, World Bank

WVS number of children, individuals 35-65, last data
Descriptive statistics, sample of 35-65 years old, WVS data

<table>
<thead>
<tr>
<th>Country</th>
<th>Year of survey</th>
<th>N</th>
<th>Number of kids</th>
<th>% women</th>
<th>High educated, %</th>
<th>High educated, f. %</th>
<th>High income, %</th>
<th>Employed, f. %</th>
<th>Unemployed, total %</th>
<th>Lack of freedom, %</th>
<th>Gender egalit.at., index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jordan</td>
<td>2014</td>
<td>603</td>
<td>4.6</td>
<td>47.3</td>
<td>27.3</td>
<td>28.4</td>
<td>14.3</td>
<td>11.0</td>
<td>12.4</td>
<td>5.2</td>
<td>0.4</td>
</tr>
<tr>
<td>Yemen</td>
<td>2014</td>
<td>366</td>
<td>4.3</td>
<td>54.0</td>
<td>14.7</td>
<td>6.3</td>
<td>5.5</td>
<td>8.0</td>
<td>15.0</td>
<td>17.7</td>
<td>0.3</td>
</tr>
<tr>
<td>Qatar</td>
<td>2010</td>
<td>579</td>
<td>4.3</td>
<td>55.1</td>
<td>38.2</td>
<td>43.7</td>
<td>31.3</td>
<td>44.9</td>
<td>6.1</td>
<td>4.1</td>
<td>0.4</td>
</tr>
<tr>
<td>Palestine</td>
<td>2013</td>
<td>453</td>
<td>4.3</td>
<td>55.3</td>
<td>48.5</td>
<td>47.8</td>
<td>8.7</td>
<td>12.3</td>
<td>12.2</td>
<td>11.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Iraq</td>
<td>2012</td>
<td>559</td>
<td>4.0</td>
<td>44.3</td>
<td>22.8</td>
<td>21.2</td>
<td>14.1</td>
<td>11.2</td>
<td>10.6</td>
<td>9.7</td>
<td>0.4</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>2003</td>
<td>538</td>
<td>3.8</td>
<td>49.9</td>
<td>23.1</td>
<td>19.6</td>
<td>30.5</td>
<td>17.7</td>
<td>8.9</td>
<td>7.8</td>
<td>0.3</td>
</tr>
<tr>
<td>Pakistan</td>
<td>2012</td>
<td>528</td>
<td>3.5</td>
<td>53.3</td>
<td>10.2</td>
<td>6.0</td>
<td>19.7</td>
<td>3.0</td>
<td>7.3</td>
<td>6.2</td>
<td>0.3</td>
</tr>
<tr>
<td>Libya</td>
<td>2014</td>
<td>1039</td>
<td>3.3</td>
<td>42.4</td>
<td>47.8</td>
<td>53.5</td>
<td>15.8</td>
<td>30.6</td>
<td>9.3</td>
<td>6.8</td>
<td>0.4</td>
</tr>
<tr>
<td>Kuwait</td>
<td>2014</td>
<td>469</td>
<td>3.3</td>
<td>35.9</td>
<td>41.2</td>
<td>50.7</td>
<td>22.8</td>
<td>77.9</td>
<td>5.6</td>
<td>6.0</td>
<td>0.4</td>
</tr>
<tr>
<td>Iran</td>
<td>2007</td>
<td>870</td>
<td>3.3</td>
<td>51.6</td>
<td>28.0</td>
<td>25.5</td>
<td>10.5</td>
<td>16.2</td>
<td>25.8</td>
<td>6.1</td>
<td>0.3</td>
</tr>
<tr>
<td>Morocco</td>
<td>2011</td>
<td>369</td>
<td>3.0</td>
<td>51.0</td>
<td>5.4</td>
<td>5.4</td>
<td>3.4</td>
<td>84.1</td>
<td>7.5</td>
<td>9.1</td>
<td>0.5</td>
</tr>
<tr>
<td>Algeria</td>
<td>2013</td>
<td>474</td>
<td>2.8</td>
<td>52.6</td>
<td>32.2</td>
<td>36.0</td>
<td>9.1</td>
<td>22.0</td>
<td>22.6</td>
<td>9.4</td>
<td>0.5</td>
</tr>
<tr>
<td>Tunisia</td>
<td>2013</td>
<td>451</td>
<td>2.7</td>
<td>43.7</td>
<td>22.7</td>
<td>24.2</td>
<td>7.9</td>
<td>31.4</td>
<td>21.0</td>
<td>9.3</td>
<td>0.4</td>
</tr>
<tr>
<td>Lebanon</td>
<td>2013</td>
<td>570</td>
<td>2.5</td>
<td>48.8</td>
<td>47.3</td>
<td>47.4</td>
<td>21.7</td>
<td>42.9</td>
<td>11.8</td>
<td>5.1</td>
<td>0.6</td>
</tr>
<tr>
<td>Turkey</td>
<td>2011</td>
<td>718</td>
<td>2.5</td>
<td>48.7</td>
<td>29.0</td>
<td>25.0</td>
<td>22.0</td>
<td>23.4</td>
<td>8.7</td>
<td>3.4</td>
<td>0.5</td>
</tr>
<tr>
<td>Egypt</td>
<td>2013</td>
<td>812</td>
<td>1.8</td>
<td>70.6</td>
<td>22.1</td>
<td>18.4</td>
<td>4.7</td>
<td>9.5</td>
<td>7.5</td>
<td>15.6</td>
<td>0.3</td>
</tr>
</tbody>
</table>
### Tested model: Poisson regression
(Nchildren – dependent variable)

<table>
<thead>
<tr>
<th>Control variables:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>1 - males, 0 - females</td>
</tr>
<tr>
<td>Age groups</td>
<td>‘35-44’, basic category - ‘45-54’, ‘55-65’</td>
</tr>
<tr>
<td>Marital status</td>
<td>1 - married, 0 – others</td>
</tr>
<tr>
<td>Education</td>
<td>1 - higher education, 0 – any other level</td>
</tr>
<tr>
<td>Income</td>
<td>low, basic category – medium income, high</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tested variables:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment status</td>
<td>Basic category - employed, unemployed, inactive</td>
</tr>
<tr>
<td>Perception of self – freedom</td>
<td>Basic category - lack of freedom, medium level freedom, high level freedom</td>
</tr>
<tr>
<td>Gender-equality attitudes index</td>
<td>0 - traditional attitudes, 1 - egalitarian attitudes</td>
</tr>
</tbody>
</table>
Results(I)

Age groups: 35-44 have fewer children than 45-54, and 45-54 have fewer children than 55-64, but not in Egypt

Married: strongly positive effect among all countries

Higher education: negative effect in all countries, where significant (Algeria, Iran, Jordan, Libya, Qatar, Saudi Arabia, Turkey, Egypt)

High income: negative effect in Kuwait, Libya and Turkey, positive – in Saudi Arabia

Low income: positive effect in Kuwait and Iraq, negative – Egypt
Results(II)

*Unemployment*: greater number of children in Qatar, Pakistan, Morocco and Kuwait, fewer - in Iran

*Nonactive (not a part of labor force) to employed*: greater number of children in Iraq, Jordan, Lebanon, Libya, Qatar, Saudi Arabia, fewer - in Egypt

*Medium to high level of freedom*: fewer children in Libya, Egypt, Yemen, more children - in Saudi Arabia

*No freedom*: fewer children in Yemen and Saudi Arabia

*Gender-equality values index*: fewer children for persons with more egalitarian values in most countries, except for Egypt
<table>
<thead>
<tr>
<th>Country</th>
<th>35-45</th>
<th>55-65</th>
<th>High educ</th>
<th>Unemployed</th>
<th>Non active</th>
<th>Medium freedom</th>
<th>No freedom</th>
<th>GEV</th>
<th>N</th>
<th>Pseudo R2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algeria</td>
<td>-0.33***</td>
<td>0.24***</td>
<td>-0.26**</td>
<td>0.03</td>
<td>0.04</td>
<td>-0.09</td>
<td>0.17</td>
<td>-0.17**</td>
<td>474</td>
<td>0.1927</td>
</tr>
<tr>
<td>Palestine</td>
<td>-0.21***</td>
<td>0.28</td>
<td>-0.05</td>
<td>0.03</td>
<td>-0.02</td>
<td>-0.03</td>
<td>-0.11</td>
<td>-0.19**</td>
<td>453</td>
<td>0.0424</td>
</tr>
<tr>
<td>Iran</td>
<td>-0.39***</td>
<td>0.28***</td>
<td>-0.23***</td>
<td>-0.13***</td>
<td>0.12</td>
<td>-0.07</td>
<td>-0.05</td>
<td>-0.21***</td>
<td>866</td>
<td>0.0873</td>
</tr>
<tr>
<td>Iraq</td>
<td>-0.20***</td>
<td>-0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.16***</td>
<td>-0.06</td>
<td>0.01</td>
<td>-0.023***</td>
<td>559</td>
<td>0.0401</td>
</tr>
<tr>
<td>Jordan</td>
<td>-0.19***</td>
<td>0.23***</td>
<td>-0.15**</td>
<td>0.06</td>
<td>0.30***</td>
<td>-0.04</td>
<td>0.04</td>
<td>-0.11</td>
<td>603</td>
<td>0.0732</td>
</tr>
<tr>
<td>Kuwait</td>
<td>-0.27***</td>
<td>-0.6</td>
<td>0.07</td>
<td>0.20**</td>
<td>0.17</td>
<td>-0.90</td>
<td>-0.14</td>
<td>-0.19***</td>
<td>469</td>
<td>0.1033</td>
</tr>
<tr>
<td>Lebanon</td>
<td>-0.30***</td>
<td>0.12***</td>
<td>-0.40</td>
<td>0.17</td>
<td>0.16***</td>
<td>0.4</td>
<td>0.01</td>
<td>-0.24***</td>
<td>570</td>
<td>0.1049</td>
</tr>
<tr>
<td>Libya</td>
<td>-0.34***</td>
<td>0.22***</td>
<td>-0.11**</td>
<td>-0.04</td>
<td>0.23***</td>
<td>-0.65*</td>
<td>-0.09</td>
<td>-0.07***</td>
<td>1028</td>
<td>0.1435</td>
</tr>
<tr>
<td>Morocco</td>
<td>-0.36**</td>
<td>0.26***</td>
<td>-0.03</td>
<td>0.81*</td>
<td>0.48</td>
<td>0.05</td>
<td>-0.17</td>
<td>-0.19*</td>
<td>369</td>
<td>0.0948</td>
</tr>
<tr>
<td>Pakistan</td>
<td>-0.22***</td>
<td>0.21</td>
<td>0.09</td>
<td>0.13*</td>
<td>-0.08</td>
<td>-0.27</td>
<td>0.09</td>
<td>-0.05</td>
<td>528</td>
<td>0.0419</td>
</tr>
<tr>
<td>Qatar</td>
<td>-0.13***</td>
<td>0.12**</td>
<td>-0.10***</td>
<td>0.22**</td>
<td>0.16***</td>
<td>-0.06</td>
<td>-0.19</td>
<td>0.07</td>
<td>578</td>
<td>0.0607</td>
</tr>
<tr>
<td>S.Arabia</td>
<td>-0.19***</td>
<td>0.07***</td>
<td>-0.13***</td>
<td>-0.28</td>
<td>0.26***</td>
<td>.11***</td>
<td>-0.17***</td>
<td>-0.09</td>
<td>538</td>
<td>0.0836</td>
</tr>
<tr>
<td>Tunisia</td>
<td>-0.43***</td>
<td>0.36***</td>
<td>-0.24</td>
<td>-0.22</td>
<td>0.10</td>
<td>-0.07</td>
<td>0.07</td>
<td>-0.11</td>
<td>451</td>
<td>0.1449</td>
</tr>
<tr>
<td>Turkey</td>
<td>-0.18**</td>
<td>0.16**</td>
<td>-0.34***</td>
<td>0.06</td>
<td>0.12</td>
<td>0.02</td>
<td>0.004</td>
<td>-0.04</td>
<td>718</td>
<td>0.0525</td>
</tr>
<tr>
<td>Egypt</td>
<td>0.25***</td>
<td>-0.34***</td>
<td>-0.14*</td>
<td>0.16</td>
<td>-0.16*</td>
<td>-1.13***</td>
<td>-0.03</td>
<td>0.16*</td>
<td>812</td>
<td>0.0625</td>
</tr>
<tr>
<td>Yemen</td>
<td>-0.68**</td>
<td>-0.04</td>
<td>0.03</td>
<td>-0.11</td>
<td>.15</td>
<td>-1.18***</td>
<td>-1.13***</td>
<td>-0.25***</td>
<td>366</td>
<td>0.0272</td>
</tr>
</tbody>
</table>
Country-level data

- Level of socio-economic development and governance: GDP PPP per capita, share of urban population, female labor force participation rate, male unemployment, Gender Inequality Index, ICRG Quality of Government Index.
- State-sponsored education and healthcare system: secondary and tertiary education enrollment rate (females), public education and health expenditures;
- Access to contraception: contraception prevalence;
- Government fertility level stance: policy to raise or lower fertility, family planning support;
- Level of freedoms in the country: Freedom House Civil Liberties level, Number of grounds for abortion, Effective Democracy Index (Freedom Rising)
- Population attitudes and values: Emancipative Values Index, Secular Values Index.
| Country     | Total Fertility rate, WB | Female labor force participation rate, % (ILO estimat e) | Male unemploy. % (ILO estimat e) | GDP per capita (PPP, int $) | Urban population, % (nat, est.) (Palestine, 2009) | Tertiary education enrollment rate | Contrac. abortion prevalence | Abortions (2011) | Family planning support (2011) | Fertility policy (2011) (1 - raise, 2 - maintai n, 3 - lower, 4 - no interve ntion, 5 - no support - forbbid en) | Quality of government (higher number - less liberties) | Effectiveness Democracy Index (1 - highest quality) | Health expenditures, public, % GDP | Educati on expenditures, gov-t, %GDP | Gender Inequality Index (2013) | Emancipative Values Index (Welzel) | Secular Values Index (Welzel) |
|------------|--------------------------|----------------------------------------------------------|---------------------------------|-----------------------------|-------------------------------------------------|-----------------------------------|---------------------------|-------------------|---------------------------------|------------------------------------------|----------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Yemen      | 4,5                      | 24.8                                                     | 9,7                             | 4534,2                       | 31,7                                            | 6,6                               | 27,7                      | 1                 | 3                              | 1                                        | 5                                | 11,0                            | 0,31                            | 1,3                             | 4,6                             | 0,73                            | 0,22                            | 0,29                            |
| Palestine  | 4,2                      | 14,7                                                     | 24,6                            | 4162,7                       | 73,9                                            | 57,4                               | 52,5                      | -                 | -                              | -                                        | -                                | -                               | -                               | -                               | -                               | -                               |
| Iraq       | 4,2                      | 14,5                                                     | 13,5                            | 12329,7                      | 69,0                                            | 11,9                               | 52,5                      | 1                 | 4                              | 1                                        | 6                                | 2,0                             | 0,29                            | 2,7                             | -                               | 0,54                            | 0,27                            | 0,35                            |
| Jordan     | 3,5                      | 15,6                                                     | 10,2                            | 11256,1                      | 82,5                                            | 42,9                               | 59,3                      | 1,2,3,5           | 3                              | 1                                        | 5                                | 25,0                            | 0,56                            | 5,9                             | -                               | 0,49                            | 0,23                            | 0,19                            |
| Pakistan   | 3,4                      | 23,9                                                     | 4                               | 4219,6                       | 36,6                                            | 8,0                                | 35,4                      | 1,2,3             | 3                              | 1                                        | 5                                | 8,0                             | 0,47                            | 1,0                             | 2,3                             | 0,56                            | 0,30                            | 0,31                            |
| Egypt      | 2,9                      | 23,3                                                     | 4,8                             | 10614,6                      | 43,0                                            | 31,8                               | 60,3                      | 1                 | 3                              | 1                                        | 5                                | 11,0                            | 0,47                            | 1,9                             | 3,8                             | 0,58                            | 0,23                            | 0,20                            |
| Saudi Arabia | 2,8                     | 17,7                                                     | 3,5                             | 45597,8                       | 82,1                                            | 40,3                               | 23,8                      | 1,2,3             | 4                              | 3                                        | 6                                | 4,0                             | 0,58                            | 2,6                             | 5,1                             | 0,32                            | -                               | -                               |
| Algeria    | 2,8                      | 14,6                                                     | 8,1                             | 12494,1                      | 67,5                                            | 34,1                               | 61,4                      | 1,2,3             | 3                              | 1                                        | 5                                | 10,0                            | 0,44                            | 3,3                             | 4,3                             | 0,43                            | 0,32                            | 0,35                            |
| Kuwait     | 2,7                      | 42,8                                                     | 1,9                             | 75365,5                      | 98,3                                            | 41,2                               | -                        | 1,2,3,5           | 1                              | 1                                        | 5                                | 33,0                            | 0,61                            | 2,2                             | 3,8                             | 0,29                            | 0,32                            | 0,25                            |
| Morocco    | 2,6                      | 25,9                                                     | 8,9                             | 6465,7                       | 57,7                                            | 13,5                               | 67,4                      | 1,2,3             | 3                              | 1                                        | 4                                | 20,0                            | 0,61                            | 2,1                             | 5,4                             | 0,46                            | 0,33                            | 0,21                            |
| Libya      | 2,5                      | 29,8                                                     | 15,9                            | 30260,7                      | 77,6                                            | 41,9                               | -                        | 1                 | 4                              | 3                                        | 7                                | 0,0                             | 0,39                            | 2,1                             | -                               | 0,22                            | 0,26                            | 0,23                            |
| Tunisia    | 2,1                      | 24,9                                                     | 12,2                            | 10410,9                      | 65,9                                            | 43,4                               | 62,5                      | 1,2,3,4           | 5,6,7                         | 3                                        | 1                                | 5                                | 14,0                            | 0,60                            | 3,8                             | 6,2                             | 0,27                            | 0,28                            | 0,27                            |
| Turkey     | 2,1                      | 27,6                                                     | 11,5                            | 16674,0                       | 70,7                                            | 50,1                               | 73,0                      | 1,2,3,4           | 5,6,7                         | 2                                        | 1                                | 3                                | 34,0                            | 0,52                            | 4,4                             | 2,9                             | 0,36                            | 0,34                            | 0,24                            |
| Qatar      | 2,1                      | 50,5                                                     | 0,1                             | 127983,8                      | 98,7                                            | 26,6                               | 38,0                      | 1,2,3,5           | 1                              | 3                                        | 5                                | 17,0                            | 0,58                            | 1,6                             | 2,4                             | 0,52                            | 0,27                            | 0,13                            |
| Iran       | 1,9                      | 16                                                       | 11,9                            | 16979,6                      | 70,6                                            | 42,9                               | 77,4                      | 1                 | 1                              | 3                                        | 6                                | 6,0                             | 0,48                            | 2,8                             | 4,3                             | 0,51                            | 0,33                            | 0,34                            |
| Lebanon    | 1,5                      | 22                                                       | 4,4                             | 16263,0                       | 87,2                                            | 48,6                               | -                        | 1                 | 4                              | 1                                        | 3                                | 16,0                            | 0,49                            | 2,7                             | 1,6                             | 0,41                            | 0,40                            | 0,43                            |
Contraception use and fertility level in MENA

- Contraception prevalence around 2010, UN
- Total Fertility rate, 2010, World Bank

Countries included:
- Algeria
- Iran
- Turkey
- Tunisia
- Morocco
- Jordan
- Palestine
- Iraq
- Egypt
- Libya
- Qatar
- Saudi Arabia
- Yemen

Graph illustrates the relationship between contraception prevalence and total fertility rate across MENA countries.
Education enrollment and fertility level in MENA

Secondary education enrollment rate, 2010, UNESCO

Total Fertility rate, 2010, World Bank
GDP per capita and TFR in MENA countries

- Qatar (112237)
- Saudi Arabia (37531)
- Libya (22682)
- Kuwait (75218)
- Lebanon
- Turkey
- Iran
- Algeria
- Egypt
- Jordan
- Tunisia
- Morocco
- Pakistan
- Yemen

GDP per capita (PPP), International 2011 $, WB

Total Fertility rate, 2010, World Bank
Labor force participation and TFR in MENA

Female labor force participation rate, %, ILO est

Total Fertility rate, 2010, World Bank
ICRG Quality of Government

ICRG Quality of Government Index, ICRG

Total Fertility rate, 2010, World Bank

Country:
- Algeria
- Iran
- Iraq
- Jordan
- Kuwait
- Lebanon
- Libya
- Morocco
- Pakistan
- Qatar
- Saudi Arabia
- Tunisia
- Turkey
- Egypt
- Yemen
- Turkey
- Lebanon
- Qatar
- Jordan
- Pakistan
- Yemen
- Iraq
Secular Values in MENA countries

- Algeria
- Iran
- Iraq
- Jordan
- Kuwait
- Lebanon
- Libya
- Morocco
- Pakistan
- Qatar
- Tunisia
- Turkey
- Egypt
- Yemen

Secular values, 2007-2014, Freedom Rising

Total Fertility rate, 2010, World Bank
Macro-analysis: clusters (I)

1) Most developed countries with widespread contraception, high level of education and healthcare system and high level of emancipative values:

   Turkey, Tunisia, Iran, Lebanon. TFR=1,5-2,1

2) Oil-exporting economies, that decreased fertility level primarily by vast education investments and astronomical level of GDP per capita but who attempt to restrict contraception and family planning programs. Moderate level of social expenditures (% GDP) and emancipative values, high level of education, low level of contraception prevalence:

   Qatar, Libya, Kuwait, Saudi Arabia, Algeria. TFR=2,1-2,8
Macro-analysis: clusters (II)

3) Moderately developed countries without large reserves of natural resources. Moderate level of contraception prevalence, moderate level of social expenditures and education system, moderate level of emancipative values:

   Egypt, Morocco, Jordan, Palestine. TFR=2,6-4,2

4) Less developed MENA countries with low level of socio-economic development. Low level of contraception prevalence, social expenditures, education system, emancipative values:

   Iraq, Pakistan, Yemen. TFR=3,4-4,5
Thank you for your attention
This report was presented at the 5th LCSR Summer School “Introduction to Factorial Design and Data Visualization with R”.

July 25 – August 3, 2015 – Higher School of Economics, Voronovo, Moscow region.


Настоящий доклад был представлен на V международной летней школе ЛССИ «Введение в факториальный дизайн исследования и визуализация данных с помощью R».


http://lcsr.hse.ru/summer2015