**Results**

Because the latent factors to be modeled in the article are fairly complex and nebulous, it is important that the measurement part of the SEM model is valid. Theoretical validation of construct validity was provided previously; empirical validation is attempted here. An exploratory factor analysis and various dimensionality diagnostics were run on each of the three sets of indicators, corresponding to each latent factor. The goal was to empirically establish construct validity of the indicators by checking their dimensionality. Obviously a one-factor solution was desired because that indicates that all of the items load onto one latent construct.

For each set of indicators, dimensionality was assessed with the amount of variance explained, Kaiser’s criterion, a scree plot, Horn’s Parallel Analysis, Velicer’s MAP test, and whether or not the proposed factor solution had a simple factor structure (i.e. no cross-loadings). The first three tests were run in SPSS; the Parallel Analysis and MAP test were run in R. Once the number of factors was determined, the inter-indicator correlation matrix was run in CEFA with maximum-weighted likelihood extraction specified; validity of indicators was assessed by their loadings onto the factor(s), presumed to be the latent construct(s) they are supposed to measure.

**Dimensionality Assessment and EFA of Political Instability Indicators**

The number of factors underlying the political instability (P) indicators was established first. A one-factor solution was preferred. The first three eigenvalues were 2.7, 0.79, and 0.65. The first eigenvalue explained 54% of the total variance of all P indicators. In addition, only the first eigenvalue fulfilled the Kaiser criterion. The scree plot indicated an elbow point at the second eigenvalue, suggesting a one-factor solution as well. According to Horn’s Parallel Analysis only the first eigenvalue performed better than corresponding averaged eigenvalues produced by randomly generated data sets matching the original P indicator dataset. The mean square partial correlations produced by the MAP test produced a minimum with the first eigenvalue. All diagnostics indicated a one-factor solution.

Before an exploratory factor analysis was run, several assumptions were checked. Sample size was 5097, more than adequate enough to make up for small-factor solutions (one-factor specified here) and possible problems with low communalities and few indicators (5 indicators available here). Data was NMAR but no estimation methods or other fixes were used. Full explanation is given in the assumptions part of the Hypothesized Model section on PAGE SOMETHINGFIXTHIS. Multivariate normality and linearity were also assessed in the SEM section; the normality assumption is not crucial to EFA, it just enhances the solution. SMCs and eigenvalues for the P indicators were inspected for any sign of multicollinearity and singularity. There were none.

Factorability of the P indicator correlation matrix was assessed next. Substantial correlations are required for factor analysis to be appropriate. All correlations were significant but this was an artefact of the large sample size. All bivariate correlations were greater than 0.30 in magnitude. Partial correlations were on the lower side meaning the discrepancy between bivariate and partial correlations was substantial enough to signal the presence of factors. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was above 0.60; there were small values on the off-diagonal of the anti-image matrices; and Bartlett’s Test of Sphericity indicated that the correlation matrix differed significantly from an identity matrix, .

A maximum-weighted likelihood extraction with no rotation was performed through CEFA on the five P indicators. A one factor solution was specified. Loadings of variables on the one factor, communalities, and percents of variance are shown in Table X. Loadings under .45 are replaced by zeros. The factor extracted was presumed to be Political Instability.

Communalities were somewhat large, indicating that Political Instability is well-defined. The maximum absolute residual was 0.03, indicating a reasonably small discrepancy between the observed and reproduced correlation matrices. The RMSEA was 0.121, which indicates poor fit. The factor structure was excellent, with no variables with a factor loading under 0.45. With the exception of the RMSEA, all dimensionality diagnostics and the factor analysis itself indicate that the five P indicators are relatively simple and pure measures of Political Instability.

**Dimensionality Assessment and EFA of Religiosity Indicators**

The number of factors underlying the Religiosity (R) indicators was established first.. The first three eigenvalues were 2.68, 0.67, and 0.66. The first eigenvalue explained 53% of the total variance of all R indicators. Only the first eigenvalue fulfilled the Kaiser criterion. The scree plot indicated an elbow point at the second eigenvalue, suggesting a one-factor solution as well. Horn’s Parallel Analysis indicated only the first eigenvalue performing above chance; the MAP test produced a minimum mean square partial correlation for the first eigenvalue. All diagnostics indicated a one-factor solution.

Factor analysis assumptions were assessed. Sample size was 5097, more than adequate for factor analysis. As with the P indicators, missing status of data, multivariate normality, and multivariate linearity of the R indicators are dealt with in the SEM assumptions section. SMCs and eigenvalues for the P indicators did not indicate multicollinearity or singularity.

Factorability of the P indicator correlation matrix was assessed next. Due to large sample size, all bivariate correlations were significant. They were all also greater than 0.30 in magnitude. The discrepancy between bivariate and partial correlations was substantial enough to signal the presence of factors. The KMO Measure of Sampling Adequacy was above 0.60; there were small values on the off-diagonal of the anti-image matrices; and Bartlett’s Test of Sphericity indicated that the correlation matrix differed significantly from an identity matrix, .

A maximum-weighted likelihood extraction with no rotation was performed through CEFA on the five R indicators. A one factor solution was specified. Loadings of variables on the one factor, communalities, and percents of variance are shown in Table X. Loadings under .45 are replaced by zeros. The factor extracted was presumed to be Religiosity.

Communalities were somewhat large, indicating that Religiosity is well-defined. The maximum absolute residual was 0.03, indicating a reasonably small discrepancy between the observed and reproduced correlation matrices. The RMSEA was 0.028, indicating excellent fit. The factor structure was also excellent, with no variables with a factor loading under 0.45. All dimensionality diagnostics and the factor analysis itself indicate that the five R indicators are relatively simple and pure measures of Religiosity.

**Dimensionality Assessment and EFA of Progressiveness Indicators**

The number of factors underlying the Progressiveness (Pr) indicators was established first. The first five eigenvalues were 2.64, 1.32, 0.87, 0.75, and 0.61. The first eigenvalue explained 38% of the total variance of all R indicators; the second eigenvalue, 57%. The first two eigenvalues fulfilled the Kaiser criterion. The scree plot indicated an elbow point at the second eigenvalue, suggesting a one-factor solution. Horn’s Parallel Analysis indicated two eigenvalues performing above chance; the MAP test produced a minimum mean square partial correlation for the first eigenvalue. Diagnostics were split between a one-factor and two-factor solution. Two EFAs were run, testing each solution.

Factor analysis assumptions were assessed. Sample size was 5097, more than adequate for factor analysis. Missing status of data, multivariate normality, and multivariate linearity of the Pr indicators are dealt with in the SEM assumptions section. SMCs and eigenvalues for the Pr indicators did not indicate multicollinearity or singularity.

Factorability of the P indicator correlation matrix was assessed next. Due to large sample size, all bivariate correlations were significant. Only five out of the fifteen total bivariate correlations were greater than 0.30 in magnitude. The discrepancy between bivariate and partial correlations was much smaller than those of the P and R indicators. The KMO Measure of Sampling Adequacy was above 0.60; there were small values on the off-diagonal of the anti-image matrices; and Bartlett’s Test of Sphericity indicated that the correlation matrix differed significantly from an identity matrix, .

The one-factor solution was investigated with a maximum-weighted likelihood extraction with no rotation, performed through CEFA. Loadings of variables on the one factor, communalities, and percents of variance are shown in Table X. Loadings under .25 are replaced by zeros; this criterion was relaxed in order to include the factor loading of the first indicator. The factor extracted was presumed to be Progressiveness.

Communalities were mostly very small, indicating that Progressiveness was not well-defined. The maximum absolute residual was 0.45, indicating a large average discrepancy between the observed and reproduced correlation matrices; this was mostly a result of error in reproducing the correlation between items “Abortion justifiable” and “Homosexuality and justifiable.” The RMSEA was 0.173, indicating poor fit. The factor structure was adequate, with all but two factor loadings above 0.40; “Abortion justifiable” and “Homosexual neighbors okay” had loadings of 0.33, and 0.25, respectively. So while the factor structure appears adequate, the fit of the solutions is bad.

The two-factor solution was investigated through a maximum-weighted likelihood extraction with Varimax rotation also performed through CEFA. Loadings of variables on the two factors, communalities, and percents of variance are shown in Table X. Loadings under 0.25 are replaced by zeros; the criterion was lowered for this rotation to demonstrate the messiness of the factor structure versus those of the other indicators. The factors extracted were interpreted as Gay/Abortion Rights and Gender Equality.

Communalities had high variability, ranging from a low of 0.10 to a high of 0.84, indicating that some variables did not have much common variance with both factors extracted. The maximum absolute residual was 0.06, indicating a somewhat large discrepancy between the observed and reproduced correlation matrices. The RMSEA was 0.038, indicating good fit. The factor structure was fairly simple with two exceptions: the item “Men have more right to jobs” was cross-loaded between the two factors; the item “Homosexual neighbors are okay” only loaded onto one factor and poorly. In sum, the factors appeared to satisfactorily reproduce the observed correlation matrix but the factor structure was messy looking.

In sum, Political Instability and Religiosity proved to have pure and valid indicators. Progressiveness was extremely messy – both one- and two-factor solutions had equal, poor support from the data; neither was very good. Ultimately, the authors followed theoretical considerations and considered the one-factor solution to have the best fit, tentatively validating the 7 Pr indicators as measures of Progressiveness.

**Hypothesized Structural Equation Model**

The hypothesized model is in Figure 1. The three circles represent the three latent variables, Political Instability, Religiosity, and Progressiveness. The rectangles represent the indicators i.e. the survey items that operationalize the latent variables. Arrows represent a direct effect; absence of an arrow indicates no direct effect.

The model was formulated to confirm the hypothesis that Political Instability is only related to Progressiveness through Religiosity. In other words, Political Instability predicts Religiosity, which in turn predicts Progressiveness.

IBM SPSS and EQS were used to evaluate assumptions. MOREHEREHERE.

**Model Estimation.** The model was run in EQS. The estimated parameters can be seen in Figure 2. The parameters for this model were not evaluated and interpreted because the overall fit of the model was poor, . It is important to note that model chi-square is reported due to convention; the large sample size obfuscates its interpretation. Clearly the model needed to be modified.

**Model Modification.** Possible model modifications were considered through tests of the statistical necessity of sets of parameters, specifically the multivariate Wald (W) and LaGrange Multiplier (LM) test. The chi-square difference (D) test was not used because the W, LM, and D tests are asymptotically equivalent, which is applicable given the large sample size of the World Survey dataset (Bentler, 2006). The Multivariate W test did not indicate any free parameters to be dropped. However the multivariate LM test did propose several parameters to be estimated; three parameters were significant according to Hancock’s conservative criterion. Of these three, two were associated with a significant standardized parameter change in the univariate LM test. One possible parameter was that between the item “Homosexuality justifiable” and the Religiosity latent factor, ; the associated univariate increment was significant according to Hancock’s criterion, . The other was between “Homosexual neighbors” and the Religiosity latent factor, ; the associated univariate increment was significant according to Hancock’s criterion, . These parameters were cross-loadings between supposedly pure Pr indicators and the Religiosity latent factor.

The results of the LM test suggested a problem with the measurement portion of the model, specifically the measurement of Progressiveness. This makes sense given the poor fit of the one-factor structure when an EFA was performed on the Pr indicators. The LM-suggested modifications were not instituted because cross-loadings were not desired for the final model. Instead, the integrity of the indicators was re-evaluated by performing an oblique-rotation EFA on all of the indicators, which is akin to a fully saturated structural equation model where all indicators can load onto all latent factors.

**Exploratory Factor Analysis of All Indicators**

The number of factors underlying the full set of indicators was established first. The first seven eigenvalues were 4.7, 2.9, 1.9, 1.1, 0.78, 0.76, and 0.67. The first three eigenvalues explained 56% of the variance in all of the indicators. The first four eigenvalues fulfilled the Kaiser criterion, the last one just barely explaining more variance than a single indicator. The scree plot indicated an elbow point at the fourth eigenvalue, suggesting a three-factor solution. Horn’s Parallel Analysis indicated four eigenvalues performing above chance; the MAP test produced a minimum mean square partial correlation for the third eigenvalue. Diagnostics were split between a three-factor and four-factor solution. One oblique rotation EFA with a three-factor solution was run.

Factor analysis assumptions were assessed. Sample size was 5097, more than adequate for factor analysis. Missing status of data, multivariate normality, and multivariate linearity of the Pr indicators were dealt with in the SEM assumptions section. SMCs and eigenvalues for full set of indicators did not indicate multicollinearity or singularity.

Factorability of the P indicator correlation matrix was assessed next. Due to large sample size, the majority of bivariate correlations were significant. A good amount of correlations were above 0.30, mostly those between indicators of the same latent variable. The discrepancy between bivariate and partial correlations was small but substantial. The KMO Measure of Sampling Adequacy was above 0.60; there were small values on the off-diagonal of the anti-image matrices; and Bartlett’s Test of Sphericity indicated that the correlation matrix differed significantly from an identity matrix, .

The three-factor solution was investigated through a maximum-weighted likelihood extraction with Geomin rotation performed through CEFA. Loadings of variables on the two factors, communalities, and percents of variance are shown in Table X. Loadings under 0.25 are replaced by zeros; the criterion was lowered for this rotation to demonstrate the messiness of the factor structure versus those of the other indicators. The factors extracted were interpreted as Political Instability, Religiosity, Progressiveness.

Communalities were mostly large, indicating that the three extracted factors accounted for much of the indicator variance. The maximum absolute residual was 0.29, indicating a medium average discrepancy between the observed and reproduced correlation matrices; no specific discrepancy was greater than 0.11. The RMSEA was 0.075, indicating medium to good fit. The factor structure was clean with the exception of three items belonging to the set of Pr indicators. “Homosexual neighbors,” “Homosexuality justifiable,” and “Abortion justifiable” all cross-loaded on both Religiosity and Progressiveness. These three indicators were clearly a problem.

The three problem indicators were deemed too complex to retain in the model. This left four indicators to measure Progressiveness, which is fine from a modeling standpoint but it also became unclear if the remaining indicators would capture the complexity of the construct. Therefore the Progressiveness factor was replaced by a Women’s Rights factor, which corresponds to one of the factors extracted in the two-factor EFA on the Pr indicators.

**Empirically Revised Structural Equation Model**

The revised model is in Figure 2.

**Model Estimation.**

**Direct Effects.**

**Indirect Effects.**

Table X

*Correlations for Political Instability Construct Indicators*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Items** | P1 | P2 | P3 | P4 | P5 |
| P1: Confidence in Armed Forces |  |  |  |  |  |
| P2: Confidence in the Police | 0.39\* |  |  |  |  |
| P3: Confidence in the Justice System | 0.33\* | 0.59\* |  |  |  |
| P4: Confidence in the Government | 0.33\* | 0.47\* | 0.51\* |  |  |
| P5: Confidence in the Political Parties | 0.25\* | 0.38\* | 0.41\* | 0.53\* |  |

\* .

Table X

*Factor Loadings, Communalities (h2), and Percents of Variance for MWL Extraction with No Rotation on Political Instability Indicators*

|  |  |  |
| --- | --- | --- |
| **Measure** | ***F*1a** | ***h*2** |
| P1: Confidence in Armed Forces | 0.47 | 0.22 |
| P2: Confidence in the Police | 0.72 | 0.33 |
| P3: Confidence in the Justice System | 0.75 | 0.40 |
| P4: Confidence in the Government | 0.71 | 0.41 |
| P5: Confidence in the Political Parties | 0.60 | 0.27 |
| Percent of Variance | ASDF |  |

a Factor labels:  
 *F*1 – Political Instability

Table X

*Correlations for Religiosity Construct Indicators*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Items** | R1 | R2 | R3 | R4 | R5 |
| R1: Importance of Religion |  |  |  |  |  |
| R2: Importance of Having Faith | 0.46\* |  |  |  |  |
| R3: Confidence in Churches | 0.45\* | 0.34\* |  |  |  |
| R4: Frequency of Service Attendance | 0.44\* | 0.33\* | 0.34\* |  |  |
| R5: Importance of God in Life | 0.61\* | 0.41\* | 0.40\* | 0.39\* |  |

\*.

Table X

*Factor Loadings, Communalities (h2), and Percents of Variance for MWL Extraction with No Rotation on Religiosity Indicators*

|  |  |  |
| --- | --- | --- |
| **Indicator** | ***F*1a** | ***h*2** |
| R1: Importance of Religion | 0.81 | 0.69 |
| R2: Importance of Having Faith | 0.57 | 0.31 |
| R3: Confidence in Churches | 0.56 | 0.30 |
| R4: Frequency of Service Attendance | 0.55 | 0.29 |
| R5: Importance of God in Life | 0.73 | 0.54 |
| Percent of Variance | ASDF |  |

a Factor labels:  
 *F*1 – Religiosity

Table X

*Correlations for Progressiveness Construct Indicators*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Items** | Pr1 | Pr2 | Pr3 | Pr4 | Pr5 | Pr6 | Pr7 |
| Pr1: Homosexual Neighbors Okay |  |  |  |  |  |  |  |
| Pr2: Homosexuality Justifiable | 0.28\* |  |  |  |  |  |  |
| Pr3: Abortion Justifiable | 0.17\* | 0.59\* |  |  |  |  |  |
| Pr4: Men Have More Right to Jobs | 0.18\* | 0.24\* | 0.19\* |  |  |  |  |
| Pr5: Men Are Better Politicians | 0.13\* | 0.26\* | 0.19\* | 0.32\* |  |  |  |
| Pr6: Edu More Important for Men | 0.10\* | 0.16\* | 0.13\* | 0.27\* | 0.40\* |  |  |
| Pr7: Men Are Better Executives | 0.16\* | 0.25\* | 0.17\* | 0.32\* | 0.58\* | 0.48\* |  |

\* .

Table X

*Factor Loadings, Communalities (h2), and Percents of Variance for MWL Extraction with No Rotation on Progressiveness Indicators*

|  |  |  |
| --- | --- | --- |
| **Measure** | ***F*1a** | ***h*2** |
| Pr1: Homosexual Neighbors Okay | 0.25 | 0.08 |
| Pr2: Homosexuality Justifiable | 0.42 | 0.12 |
| Pr3: Abortion Justifiable | 0.33 | 0.06 |
| Pr4: Men Have More Right to Jobs | 0.46 | 0.08 |
| Pr5: Men Are Better Politicians | 0.71 | 0.08 |
| Pr6: Edu More Important for Men | 0.57 | 0.03 |
| Pr7: Men Are Better Executives | 0.76 | 0.07 |
| Percent of Variance | ASDF |  |

a Factor labels:  
 *F*1 – Progressiveness

Table X

*Factor Loadings, Communalities (h2), and Percents of Variance for MWL Extraction with Varimax Rotation on Progressiveness Indicators*

|  |  |  |  |
| --- | --- | --- | --- |
| **Measure** | ***F*1a** | ***F*2** | ***h*2** |
| Pr1: Homosexual Neighbors Okay | 0.00 | 0.29 | 0.08 |
| Pr2: Homosexuality Justifiable | 0.00 | 0.91 | 0.12 |
| Pr3: Abortion Justifiable | 0.00 | 0.63 | 0.06 |
| Pr4: Men Have More Right to Jobs | 0.39 | 0.21 | 0.08 |
| Pr5: Men Are Better Politicians | 0.68 | 0.00 | 0.08 |
| Pr6: Higher Edu More Important for Men | 0.59 | 0.00 | 0.03 |
| Pr7: Men Are Better Executives | 0.80 | 0.00 | 0.07 |
| Percent of Variance | ASDF |  |  |

a Factor labels:  
 *F*1 – Gay/Abortion Rights  
 *F*2 – Gender Equality

Table X

*Factor Loadings, Communalities (h2), and Percents of Variance for MWL Extraction with Varimax Rotation on All Indicators*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Measure** | ***F*1a** | ***F*2** | ***F*3** | ***h*2** |
| P1: Confidence in Armed Forces | 0.54 | 0.00 | 0.00 | 0.33 |
| P2: Confidence in the Police | 0.78 | 0.00 | 0.00 | 0.60 |
| P3: Confidence in the Justice System | 0.80 | 0.00 | 0.00 | 0.63 |
| P4: Confidence in the Government | 0.74 | 0.00 | 0.00 | 0.58 |
| P5: Confidence in the Political Parties | 0.61 | 0.00 | 0.00 | 0.38 |
| R1: Importance of Religion | 0.00 | 0.87 | 0.00 | 0.74 |
| R2: Importance of Having Faith | 0.00 | 0.57 | 0.00 | 0.34 |
| R3: Confidence in Churches | 0.00 | 0.59 | 0.00 | 0.45 |
| R4: Frequency of Service Attendance | 0.00 | 0.69 | 0.00 | 0.48 |
| R5: Importance of God in Life | 0.00 | 0.82 | 0.00 | 0.64 |
| Pr1: Homosexual Neighbors Okay | 0.00 | 0.30 | 0.00 | 0.16 |
| Pr2: Homosexuality Justifiable | 0.00 | 0.47 | 0.00 | 0.35 |
| Pr3: Abortion Justifiable | 0.00 | 0.51 | 0.00 | 0.31 |
| Pr4: Men Have More Right to Jobs | 0.00 | 0.00 | 0.46 | 0.27 |
| Pr5: Men Are Better Politicians | 0.00 | 0.00 | 0.79 | 0.64 |
| Pr6: Higher Edu More Important for Men | 0.00 | 0.00 | 0.63 | 0.38 |
| Pr7: Men Are Better Executives | 0.00 | 0.00 | 0.86 | 0.74 |
| Percent of Variance | ASDF |  |  |  |

a Factor labels:  
 *F*1 – Political Instability  
 *F*2 – Religiosity  
 *F*3 – Progressiveness