A. APPENDIX: DERIVATION OF THE EPC-INTEREST

Assume both the restricted and alternative model are identified, i.e. $\mathbf{A}_a'\mathbf{J}(\hat{\boldsymbol{\theta}})\mathbf{A}_a$ and $\mathbf{A}_0'\mathbf{J}(\hat{\boldsymbol{\theta}})\mathbf{A}_0$ are full-rank, and that standard regularity conditions apply (see Satorra, 1989, assumptions 1 through 6* inclusive). By a Taylor expansion at the restricted solution,

$$
\begin{aligned}
F(\mathbf{S}, \boldsymbol{\Sigma}(\boldsymbol{\theta})) &\approx \hat{F} + [\mathbf{a}_0(\boldsymbol{\theta}) - \mathbf{a}_0(\hat{\boldsymbol{\theta}})]'\mathbf{g}(\hat{\boldsymbol{\theta}}) + \frac{1}{2}[\mathbf{a}_0(\boldsymbol{\theta}) - \mathbf{a}_0(\hat{\boldsymbol{\theta}})]'\mathbf{J}(\hat{\boldsymbol{\theta}})[\mathbf{a}_0(\boldsymbol{\theta}) - \mathbf{a}_0(\hat{\boldsymbol{\theta}})] & (1) \\
&= \hat{F} + (\boldsymbol{\theta} - \hat{\boldsymbol{\theta}})'\mathbf{g}(\hat{\boldsymbol{\theta}})\mathbf{A}_0 + \frac{1}{2}(\boldsymbol{\theta} - \hat{\boldsymbol{\theta}})'\mathbf{A}_0'\mathbf{J}(\hat{\boldsymbol{\theta}})\mathbf{A}_0(\boldsymbol{\theta} - \hat{\boldsymbol{\theta}}), & (2)
\end{aligned}
$$

because the likelihood depends only on the free parameters. Now, to investigate what would happen if a set of restrictions in $\mathbf{a}_0$ were freed, we find the solution to the equation $\partial F/\partial \mathbf{a}_a = 0$, that is,

$$
\mathbf{g}(\hat{\boldsymbol{\theta}})\mathbf{A}_a + \mathbf{A}_a'\mathbf{J}(\hat{\boldsymbol{\theta}})\mathbf{A}_a(\boldsymbol{\theta} - \hat{\boldsymbol{\theta}}) = 0.
$$

Therefore,

$$
\boldsymbol{\theta} - \hat{\boldsymbol{\theta}} \approx -(\mathbf{A}_a'\mathbf{J}(\hat{\boldsymbol{\theta}})\mathbf{A}_a)^{-1}\mathbf{g}(\hat{\boldsymbol{\theta}})\mathbf{A}_a, \tag{3}
$$

and, since the parameters of interest are defined as $\boldsymbol{\pi} := \mathbf{P}\boldsymbol{\theta}$,

$$
\text{EPC-interest} := \boldsymbol{\pi} - \hat{\boldsymbol{\pi}} \approx -\mathbf{P}(\mathbf{A}_a'\mathbf{J}(\hat{\boldsymbol{\theta}})\mathbf{A}_a)^{-1}\mathbf{g}(\hat{\boldsymbol{\theta}})\mathbf{A}_a. \tag{4}
$$

A test can also be constructed of the null hypothesis that the total change in the parameter(s) of interest equals zero. From equation 4, under the null hypothesis the

EPC-interest will have variance

$$\text{avar}(\text{EPC-interest}) = \mathbf{P}(\mathbf{A}_a'\mathbf{J}(\hat{\boldsymbol{\theta}})\mathbf{A}_a)^{-1}\mathbf{P}'$$

(Satorra, 1989, eq. 26, p. 143). Under the null hypothesis, then, the statistic

$$T_a := (\text{EPC-interest})'\text{avar}(\text{EPC-interest})^{-1}(\text{EPC-interest})$$

will be distributed as central chi-square with $\text{rk}(\mathbf{P})$ degrees of freedom.

As also noted by Yuan, Marshall and Bentler (2003, 253), the T_a statistic is a generalization of the test developed by Hausman (1978). Indeed, when the hypothesis of invariance holds together with the likelihood specification, the alternative model estimates are consistent but inefficient, while the restricted model estimates will be consistent and most efficient. Lemma 2.1 of Hausman (1978, 1253) will then be directly applicable to $\hat{\boldsymbol{\theta}}_0$ and $\hat{\boldsymbol{\theta}}_a$. Thus, the T_a and EPC-interest statistics fall under the general principle of sensitivity analysis in econometrics.

The power of the T_a test can also be estimated, as follows from Satorra (1989, theorem 5.3) and an extension of the argument in Saris, Satorra and Van der Veld (2009, 570-1). Letting the hypothetical vector of minimum differences in the parameters of interest to be detected equal $\tilde{\boldsymbol{\delta}}$, the noncentrality parameter (ncp) then equals

$$\text{ncp} = \tilde{\boldsymbol{\delta}}'\text{avar}(\text{EPC-interest})^{-1}\tilde{\boldsymbol{\delta}}, \tag{5}$$

and the power of the T_a test to detect combined differences in the parameters of interest as large as or larger than $\tilde{\boldsymbol{\delta}}$ can be calculated by referring to the noncentral chisquare distribution:

$$\Pr(\chi^2(\text{rk}(P), \text{ncp}) > c_\alpha), \tag{6}$$

where c_α is the critical value of the central chi-square distribution with $\mathrm{rk}(P)$ degrees of freedom corresponding to a given α. For example, for $\alpha = 0.05$, $c_a \approx 3.84$ for a one-degree of freedom test. This result allows one to investigate whether the procedure suggested here provides enough power to detect differences in the parameters of interest.

The statistic EPC-interest can also be used to obtain an estimate of the values the model parameters would take on if the restriction under investigation were freed. Without fitting the alternative model, the estimate of the parameters of interest under the alternative model can be approximated by

$$\hat{\pi}_a = \hat{\pi} + \text{EPC-interest}$$

(Bentler and Dijkstra, 1984). These "new" parameter estimates can also be obtained for the other parameters of the model.

B. APPENDIX: ESS PORTRAIT VALUES QUESTIONNAIRE

Question: Here we briefly describe some people. Please read each description, and tick the box on each line that shows how much each person is or is not like you.

Response options: (01) Very much like me; (02) Like me; (03) Somewhat like me; (04) A little like me; (05) Not like me; (06) Not like me at all.

1	Creative	"Important to think up new ideas and be creative"
2	Money	"Important to be rich, have money and expensive things"
3	Equality	"Important that people treated equally and have equal opportunities"
4	Admired	"Important to show abilities and be admired"
5	Security	"Important to live in secure and safe surroundings"
6	Try new things	"Important to try new and different things in life"
7	Follow rules	"Important to do what is told and follow rules"
8	Understanding	"Important to understand different people"
9	Modesty	"Important to be humble and modest, not draw attention"
10	Good time	"Important to have a good time"
11	Freedom	"Important to make own decisions and be free"
12	Helping others	"Important to help people and care for others' well-being"
13	Success	"Important to be successful and that people recognize achievements"
14	Govt. strong	"Important that government is strong and ensures safety"
15	Adventure	"Important to seek adventures and have an exciting life"
16	Proper behavior	"Important to behave properly"
17	Get respect	"Important to get respect from others"
18	Loyal to friends	"Important to be loyal to friends and devoted to people who are close"
19	Environment	"Important to care for nature and environment"
20	Tradition	"Important to follow traditions and customs"
21	Fun	"Important to seek fun and things that give pleasure"

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