Analysis of Latent Trait Estimates

from Alternative Measurement Model Specifications

("Experiential Learning and Presidential Management of the U.S. Federal Bureaucracy: Logic and Evidence from Agency Leadership Appointments")

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Listed below is a correlation analysis for the alternative measures grouped by factor type under various model specification (altering indicator variable covariates in the 3 latent factor/trait measurement model), factor specification (2 latent factors/traits versus 3 latent factors/traits versus 4 latent factors/traits), and estimation strategies (Bayesian versus ML-EM), as well as compared to the estimates that we have been using since March 2013 (these are denoted by the variable names in the "Appointments" paper database labels in Stata). These correlations appear below:

LOYALTY FACTOR(S): Please note that in "24" models, the LOYALTY LATENT FACTOR/TRAIT IS split up between *Shared Preferences* for F1 (PARTY2B & MONEY) versus *Fealty* for F2 (ELECT1B, PAEPA2, GOVSERV, & PTYORG2).

*BASELINE: POSTERIOR MEDIAN: **LOYALTY** (BPMODEL 23: FBIT=100,000)*

```
.
. correlate bm23fbf1median loyalmedian bm33fbf1median bm33fbf1median bm43fb2f1median mm23mlrf1mean mm33mlrf1mean mm43mlrf1mean b
> ian bm24fb2f2median mm22mlff1mean
(obs=1372)
```

	bm23fb..	loyalm~n	bm33fb..	bm33fb..	bm43fb..	mm23ml..	mm33ml..	mm43ml..	bm22fb..	bm24fb..	bm24fb..	~ff1mean
bm23fbf1me~n	1.0000											
loyalmedian	0.9989	1.0000										
bm33fbf1me~n	0.9981	0.9984	1.0000									
bm33fbf1me~n	0.9981	0.9984	1.0000	1.0000								
bm43fb2f1m~n	0.9952	0.9957	0.9971	0.9971	1.0000							
mm23mlrf1m~n	0.9978	0.9979	0.9973	0.9973	0.9960	1.0000						
mm33mlrf1m~n	0.9974	0.9977	0.9983	0.9983	0.9971	0.9993	1.0000					
mm43mlrf1m~n	0.9942	0.9949	0.9958	0.9958	0.9983	0.9977	0.9983	1.0000				
bm22fbf1me~n	0.9882	0.9894	0.9897	0.9897	0.9921	0.9922	0.9914	0.9933	1.0000			
bm24fb2f1m~n	0.9372	0.9382	0.9378	0.9378	0.9446	0.9448	0.9415	0.9479	0.9657	1.0000		
bm24fb2f2m~n	0.9921	0.9909	0.9895	0.9895	0.9822	0.9861	0.9863	0.9789	0.9660	0.9037	1.0000	
mm22mlff1m~n	0.9892	0.9907	0.9914	0.9914	0.9940	0.9934	0.9934	0.9956	0.9975	0.9549	0.9678	1.0000

In relation to the baseline, the largest discrepancy case (0.9372) for *Loyalty* is with respect to the two indicator "*Shared Preference*" subdimension in Model "24". These models neither pass measurement nor validity tests noted in the ***Measurement Model Appendix*** document.

***MANAGERIAL* COMPETENCE FACTOR(S): Please note that in "22" models, the COMPETENCE LATENT FACTOR/TRAIT IS a composite/combined of *Managerial Competence* & *Policy Competence* indicators.**

*BASELINE: POSTERIOR MEDIAN: **MANAGERIAL COMPETENCE** (BPMODEL 23: FBIT=100,000)*

```
. correlate bm23fbf2median mecompmedian bm33fbf2median bm43fb2f2median mm23mlrf2mean mm33mlrf2mean mm43mlrf2mean bm22fb
> ean
(obs=1372)
```

	bm23fb..	mecomp~n	bm33fb..	bm43fb..	mm23ml..	mm33ml..	mm43ml..	bm22fb..	bm24fb..	~ff2mean
bm23fbf2me~n	1.0000									
mecompmedian	0.9922	1.0000								
bm33fbf2me~n	0.9990	0.9923	1.0000							
bm43fb2f2m~n	0.9974	0.9908	0.9985	1.0000						
mm23mlrf2m~n	0.9981	0.9916	0.9983	0.9972	1.0000					
mm33mlrf2m~n	0.9977	0.9914	0.9984	0.9976	0.9999	1.0000				
mm43mlrf2m~n	0.9964	0.9902	0.9975	0.9984	0.9990	0.9993	1.0000			
bm22fbf2me~n	0.9931	0.9879	0.9950	0.9938	0.9930	0.9934	0.9926	1.0000		
bm24fb2f3m~n	0.9993	0.9921	0.9987	0.9970	0.9978	0.9974	0.9960	0.9928	1.0000	
mm22mlff2m~n	0.9936	0.9879	0.9954	0.9943	0.9945	0.9948	0.9941	0.9991	0.9933	1.0000

***POLICY* COMPETENCE FACTOR(S): Please note that in "22" models, the COMPETENCE LATENT FACTOR/TRAIT IS a composite/combined of *Managerial Competence* & *Policy Competence* indicators.**

*BASELINE: POSTERIOR MEDIAN: **POLICY COMPETENCE** (BPMODEL 23: FBIT=100,000)*

```
. correlate bm23fbf3median pecompmedian bm33fbf3median bm43fb2f3median mm23mlrf3mean mm33mlrf3mean mm43mlrf3mean
> ean
(obs=1372)
```

	bm23fb..	pecomp~n	bm33fb..	bm43fb..	mm23ml..	mm33ml..	mm43ml..	bm22fb..	~4median	~ff2mean
bm23fbf3me~n	1.0000									
pecompmedian	0.9966	1.0000								
bm33fbf3me~n	0.9875	0.9891	1.0000							
bm43fb2f3m~n	0.9446	0.9485	0.9735	1.0000						
mm23mlrf3m~n	0.9928	0.9928	0.9939	0.9617	1.0000					
mm33mlrf3m~n	0.9825	0.9849	0.9968	0.9740	0.9961	1.0000				
mm43mlrf3m~n	0.9470	0.9512	0.9756	0.9963	0.9688	0.9806	1.0000			
bm22fbf2me~n	0.7544	0.7624	0.8024	0.8560	0.7648	0.7866	0.8323	1.0000		
bm24fb2f4m~n	0.9964	0.9936	0.9810	0.9323	0.9871	0.9750	0.9343	0.7438	1.0000	
mm22mlff2m~n	0.7441	0.7520	0.7928	0.8485	0.7549	0.7771	0.8245	0.9991	0.7335	1.0000

In relation to the baseline, the largest discrepancy case (0.7544) for *Policy Competence* is with respect to the "Combined" Competence supradimension in Models "22" (Bayesian). These models neither pass measurement nor validity tests noted in the ***Measurement Model Appendix*** document.

<u>LOYALTY FACTOR(S)</u>: Please note that in "24" models, the LOYALTY LATENT FACTOR/TRAIT IS split up between *Shared Preferences* for F1 (PARTY2B & MONEY) versus *Fealty* for F2 (ELECT1B, PAEPA2, GOVSERV, & PTYORG2).

*<u>BASELINE: POSTERIOR STANDARD DEVIATION: **LOYALTY** (BPMODEL 23: FBIT=100,000)</u>*

```
.
. correlate bm23fbf1sd loyalsd bm33fbf1sd bm43fb2f1sd bm22fbf1sd bm24fb2f1sd bm24fb2f2sd
(obs=1372)
```

	bm23~1sd	loyalsd	bm33~1sd	bm43~1sd	bm22~1sd	bm24~1sd	bm24~2sd
bm23fbf1sd	1.0000						
loyalsd	0.9879	1.0000					
bm33fbf1sd	0.9870	0.9875	1.0000				
bm43fb2f1sd	0.9802	0.9812	0.9830	1.0000			
bm22fbf1sd	0.9609	0.9608	0.9622	0.9654	1.0000		
bm24fb2f1sd	0.1846	0.1741	0.1748	0.1806	0.2707	1.0000	
bm24fb2f2sd	0.9761	0.9735	0.9736	0.9593	0.9248	0.1939	1.0000

In relation to the baseline, the largest discrepancy case (0.1846) for *Loyalty* is with respect to the two indicator "*Shared Preference*" subdimension in Model "24". These models neither pass measurement nor validity tests noted in the ***Measurement Model Appendix*** document.

***<u>MANAGERIAL</u>* <u>COMPETENCE FACTOR(S)</u>: Please note that in "22" models, the COMPETENCE LATENT FACTOR/TRAIT IS a composite/combined of *Managerial Competence* & *Policy Competence* indicators.**

*<u>BASELINE: POSTERIOR STANDARD DEVIATION: **MANAGERIAL COMPETENCE** (BPMODEL 23: FBIT=100,000)</u>*

```
. correlate bm23fbf2sd mecompsd bm43fb2f2sd bm22fbf2sd bm24fb2f3sd
(obs=1372)
```

	bm23~2sd	mecompsd	bm43~2sd	bm22~2sd	bm24~3sd
bm23fbf2sd	1.0000				
mecompsd	0.9712	1.0000			
bm43fb2f2sd	0.9865	0.9678	1.0000		
bm22fbf2sd	0.9609	0.9521	0.9716	1.0000	
bm24fb2f3sd	0.9933	0.9709	0.9860	0.9618	1.0000

***POLICY* COMPETENCE FACTOR(S): Please note that in "22" models, the COMPETENCE LATENT FACTOR/TRAIT IS a composite/combined of *Managerial Competence* & *Policy Competence* indicators.**

*BASELINE: POSTERIOR STANDARD DEVIATION: **POLICY COMPETENCE** (BPMODEL 23: FBIT=100,000)*

```
. correlate bm23fbf3sd pecompsd bm33fbf3sd bm43fb2f3sd bm22fbf2sd bm24fb2f4sd
(obs=1372)
```

	bm23~3sd	pecompsd	bm33~3sd	bm43~3sd	bm22~2sd	bm24~4sd
bm23fbf3sd	1.0000					
pecompsd	0.9402	1.0000				
bm33fbf3sd	0.9160	0.9199	1.0000			
bm43fb2f3sd	0.5630	0.5668	0.5814	1.0000		
bm22fbf2sd	0.0351	0.0327	-0.0343	0.4614	1.0000	
bm24fb2f4sd	0.9299	0.9279	0.8992	0.5309	0.0204	1.0000

In relation to the baseline, the largest discrepancy case (0.0351) for *Policy Competence* is with respect to the "Combined" Competence supradimension in Models "22" (Bayesian). The Exploratory Factor Analysis (EFA) reveals that Competence falls on two separate dimensions that we have been working with. Also note, that dropping two indicator covariates in this latent trait dimension [**EDISS3B** & **ISSUECT**] also reduces the correlation between the revised reported and this model's posterior SD to 0.5630. These models neither pass measurement nor validity tests noted in the ***Measurement Model Appendix*** document.

<u>LOYALTY FACTOR(S)</u>: Please note that in "24" models, the LOYALTY LATENT FACTOR/TRAIT IS split up between *Shared Preferences* for F1 (PARTY2B & MONEY) versus *Fealty* for F2 (ELECT1B, PAEPA2, GOVSERV, & PTYORG2).

*<u>BASELINE: POSTERIOR 2.5% CREDIBILITY INTERVAL [LCL]: **LOYALTY** (BPMODEL 23: FBIT=100,000)</u>*

```
. correlate bm23fbf125lcl loyal25lcl bm33fbf125lcl bm43fb2f125lcl bm22fbf125lcl bm24fb2f125lcl bm24fb2f22
(obs=1372)
```

	bm23fb..	loyal2~l	bm33fb..	bm43fb..	bm22fb..	bm24fb..	bm24fb..
bm23fbf125~l	1.0000						
loyal25lcl	0.9969	1.0000					
bm33fbf125~l	0.9961	0.9964	1.0000				
bm43fb2f12~l	0.9936	0.9943	0.9953	1.0000			
bm22fbf125~l	0.9837	0.9850	0.9847	0.9875	1.0000		
bm24fb2f12~l	0.8811	0.8808	0.8793	0.8891	0.9276	1.0000	
bm24fb2f22~l	0.9908	0.9891	0.9883	0.9820	0.9630	0.8487	1.0000

In relation to the baseline, the largest discrepancy case (0.8811) for *Loyalty* is with respect to the two indicator "*Shared Preference*" subdimension in Model "24". These models neither pass measurement nor validity tests noted in the ***Measurement Model Appendix*** document.

***<u>MANAGERIAL</u>* <u>COMPETENCE FACTOR(S)</u>: Please note that in "22" models, the COMPETENCE LATENT FACTOR/TRAIT IS a composite/combined of *Managerial Competence* & *Policy Competence* indicators.**

*<u>BASELINE: POSTERIOR 2.5% CREDIBILITY INTERVAL [LCL]: **MANAGERIAL COMPETENCE** (BPMODEL 23: FBIT=100,000)</u>*

```
. correlate bm23fbf225lcl mecomp25lcl bm33fbf225lcl bm43fb2f225lcl bm22fbf225lcl bm24fb2f325lcl
(obs=1372)
```

	bm23fb..	meco~lcl	bm33fb..	bm43fb..	bm22fb..	bm24fb..
bm23fbf225~l	1.0000					
mecomp25lcl	0.9926	1.0000				
bm33fbf225~l	0.9982	0.9926	1.0000			
bm43fb2f22~l	0.9962	0.9909	0.9975	1.0000		
bm22fbf225~l	0.9904	0.9867	0.9927	0.9923	1.0000	
bm24fb2f32~l	0.9985	0.9926	0.9979	0.9958	0.9901	1.0000

***POLICY* COMPETENCE FACTOR(S): Please note that in "22" models, the COMPETENCE LATENT FACTOR/TRAIT IS a composite/combined of *Managerial Competence* & *Policy Competence* indicators.**

BASELINE: POSTERIOR 2.5% CREDIBILITY INTERVAL [LCL]: ***POLICY COMPETENCE*** *(BPMODEL 23: FBIT=100,000)*

```
. correlate bm23fbf325lcl pecomp25lcl bm33fbf325lcl bm43fb2f325lcl bm22fbf225lcl bm24fb2f425lcl
(obs=1372)

             | bm23fb.. peco~lcl bm33fb.. bm43fb.. bm22fb.. b~425lcl
-------------+------------------------------------------------------
bm23fbf325~l |   1.0000
 pecomp25lcl |   0.9943   1.0000
bm33fbf325~l |   0.9814   0.9848   1.0000
bm43fb2f32~l |   0.9311   0.9385   0.9700   1.0000
bm22fbf225~l |   0.7606   0.7677   0.7951   0.8222   1.0000
bm24fb2f42~l |   0.9937   0.9903   0.9727   0.9153   0.7508   1.0000
```

In relation to the baseline, the largest discrepancy case (0.7606) for *Policy Competence* is with respect to the "Combined" Competence supradimension in Models "22" (Bayesian). The Exploratory Factor Analysis (EFA) reveals that Competence falls on two separate dimensions (see ***Tables MMA−4A*** & ***MMA−4B*** of the ***Measurement Model Appendix*** document).

LOYALTY FACTOR(S): Please note that in "24" models, the LOYALTY LATENT FACTOR/TRAIT IS split up between *Shared Preferences* for F1 (PARTY2B & MONEY) versus *Fealty* for F2 (ELECT1B, PAEPA2, GOVSERV, & PTYORG2).

BASELINE: POSTERIOR 97.5% CREDIBILITY INTERVAL [UCL]: ***LOYALTY*** *(BPMODEL 23: FBIT=100,000)*

```
. correlate bm23fbf1975ucl loyal975ucl bm33fbf1975ucl bm43fb2f1975ucl bm22fbf1975ucl bm24fb2f1975ucl bm24fb2f297
(obs=1372)

             | bm23fb.. loyal9~l bm33fb.. bm43fb.. bm22fb.. bm24fb.. bm24fb..
-------------+------------------------------------------------------------
bm23fbf197~l |   1.0000
 loyal975ucl |   0.9968   1.0000
bm33fbf197~l |   0.9959   0.9963   1.0000
bm43fb2f19~l |   0.9941   0.9944   0.9949   1.0000
bm22fbf197~l |   0.9812   0.9804   0.9787   0.9830   1.0000
bm24fb2f19~l |   0.8671   0.8638   0.8590   0.8743   0.9308   1.0000
bm24fb2f29~l |   0.9924   0.9915   0.9898   0.9863   0.9680   0.8469   1.0000
```

In relation to the baseline, the largest discrepancy case (0.8671) for *Loyalty* is with respect to the two indicator "*Shared Preference*" subdimension in Model "24". These models neither pass measurement nor validity tests noted in the ***Measurement Model Appendix*** document.

> ***MANAGERIAL* COMPETENCE FACTOR(S): Please note that in "22" models, the COMPETENCE LATENT FACTOR/TRAIT IS a composite/combined of *Managerial Competence* & *Policy Competence* indicators.**
>
> *BASELINE: POSTERIOR 97.5% CREDIBILITY INTERVAL [UCL]: **MANAGERIAL COMPETENCE** (BPMODEL 23: FBIT=100,000)*

```
. correlate bm23fbf2975ucl mecomp975ucl bm33fbf2975ucl bm43fb2f2975ucl bm22fbf2975ucl bm24fb2f3975ucl
(obs=1372)
```

	bm23fb..	meco~ucl	bm33fb..	bm43fb..	bm22fb..	bm24fb..
bm23fbf297~l	1.0000					
mecomp975ucl	0.9838	1.0000				
bm33fbf297~l	0.9985	0.9843	1.0000			
bm43fb2f29~l	0.9977	0.9842	0.9981	1.0000		
bm22fbf297~l	0.9950	0.9831	0.9960	0.9956	1.0000	
bm24fb2f39~l	0.9987	0.9838	0.9985	0.9977	0.9950	1.0000

> ***POLICY* COMPETENCE FACTOR(S): Please note that in "22" models, the COMPETENCE LATENT FACTOR/TRAIT IS a composite/combined of *Managerial Competence* & *Policy Competence* indicators.**

*BASELINE: POSTERIOR 97.5% CREDIBILITY INTERVAL [UCL]: **POLICY COMPETENCE** (BPMODEL 23: FBIT=100,000)*

```
. correlate bm23fbf3975ucl pecomp975ucl bm33fbf3975ucl bm43fb2f3975ucl bm22fbf2975ucl bm24fb2f4975ucl
(obs=1372)
```

	bm23fb..	peco~ucl	bm33fb..	bm43fb..	bm22fb..	~4975ucl
bm23fbf397~l	1.0000					
pecomp975ucl	0.9946	1.0000				
bm33fbf397~l	0.9845	0.9865	1.0000			
bm43fb2f39~l	0.9387	0.9431	0.9639	1.0000		
bm22fbf297~l	0.6734	0.6813	0.7181	0.7974	1.0000	
bm24fb2f49~l	0.9941	0.9914	0.9774	0.9276	0.6629	1.0000

In relation to the baseline, the largest discrepancy case (0.6734) for *Policy Competence* is with respect to the "Combined" Competence supradimension in Models "22" (Bayesian). The Exploratory Factor Analysis (EFA) reveals that Competence falls on two separate dimensions (see ***Tables MMA−4A*** & ***MMA−4B*** of the ***Measurement Model Appendix*** document).