Calculation of Factor Score Coefficients

$$B = R^{-1} A$$

$$B = \begin{pmatrix} 4.76 & -7.46 & 3.91 & -2.35 & 2.42 & -0.49 \\ -7.46 & 18.49 & -12.42 & 5.45 & -5.54 & 1.22 \\ 3.91 & -12.42 & 10.07 & -3.65 & 3.79 & -0.96 \\ -2.35 & 5.45 & -3.65 & 2.97 & -2.16 & 0.02 \\ 2.42 & -5.54 & 3.79 & -2.16 & 2.98 & -0.56 \\ -0.49 & 1.22 & -0.96 & 0.02 & -0.56 & 1.27 \end{pmatrix} \begin{pmatrix} 0.87 & 0.01 \\ 0.96 & -0.03 \\ 0.92 & 0.04 \\ 0.00 & 0.82 \\ -0.10 & 0.75 \\ 0.09 & 0.70 \end{pmatrix}$$

Column 1 of matrix B

To get the first element of the first column of matrix *B*, you need to multiply each element in the *first column* of matrix *A* with the correspondingly placed element in the *first row* of matrix R^{-1}. Add these six products together to get the final value of the first element. To get the second element of the first column of matrix *B*, you need to multiply each element in the *first column* of matrix *A* with the correspondingly placed element in the *second row* of matrix R^{-1}. Add these six products together to get the final value … and so on.

$$\begin{aligned} B_{11} &= (4.75924 \times 0.87407) + (-7.46190 \times 0.95768) + (3.90949 \times 0.92138) \\ &\quad + (-2.35093 \times -0.00237) + (2.42104 \times -0.09575) + (-0.48607 \times 0.096) \\ &= 0.343 \end{aligned}$$

$$\begin{aligned} B_{12} &= (-7.4619 \times 0.87407) + (18.48556 \times 0.95768) + (-12.41679 \times 0.92138) \\ &\quad + (5.445 \times -0.00237) + (-5.54427 \times -0.09575) + (1.22155 \times 0.096) \\ &= 0.376 \end{aligned}$$

$$\begin{aligned} B_{13} &= (3.90949 \times 0.87407) + (-12.41679 \times 0.95768) + (10.07382 \times 0.92138) \\ &\quad + (-3.64853 \times -0.00237) + (3.78869 \times -0.09575) + (-0.95731 \times 0.096) \\ &= 0.362 \end{aligned}$$

$$\begin{aligned} B_{14} &= (-2.35093 \times 0.87407) + (5.445 \times 0.95768) + (-3.64853 \times 0.92138) \\ &\quad + (2.96922 \times -0.00237) + (-2.16094 \times -0.09575) + (0.02255 \times 0.096) \\ &= 0.000 \end{aligned}$$

$$\begin{aligned} B_{15} &= (2.42104 \times 0.87407) + (-5.54427 \times 0.95768) + (3.78869 \times 0.92138) \\ &\quad + (-2.16094 \times -0.00237) + (2.97983 \times -0.09575) + (-0.56017 \times 0.096) \\ &= -0.037 \end{aligned}$$

$$\begin{aligned} B_{16} &= (-0.48607 \times 0.87407) + (1.22155 \times 0.95768) + (-0.95731 \times 0.92138) \\ &\quad + (0.02255 \times -0.00237) + (-0.56017 \times -0.09575) + (1.27072 \times 0.096) \\ &= 0.039 \end{aligned}$$

Column 2 of matrix B

To get the first element of the second column of matrix *B*, you need to multiply each element in the *second column* of matrix *A* with the correspondingly placed element in the *first row* of

matrix R^{-1}. Add these six products together to get the final value. To get the second element of the second column of matrix *B*, you need to multiply each element in the *second column* of matrix *A* with the correspondingly placed element in the *second row* of matrix R^{-1}. Add these six products together to get the final value … and so on.

$$\begin{aligned} B_{11} &= (4.75924 \times 0.00842) + (-7.46190 \times -0.03653) + (3.90949 \times 0.03178) \\ &\quad + (-2.35093 \times 0.81556) + (2.42104 \times 0.75435) + (-0.48607 \times 0.69936) \\ &= 0.006 \end{aligned}$$

$$\begin{aligned} B_{12} &= (-7.4619 \times 0.00842) + (18.48556 \times -0.03653) + (-12.41679 \times 0.03178) \\ &\quad + (5.445 \times 0.81556) + (-5.54427 \times 0.75435) + (1.22155 \times 0.69936) \\ &= -0.020 \end{aligned}$$

$$\begin{aligned} B_{13} &= (3.90949 \times 0.00842) + (-12.41679 \times -0.03653) + (10.07382 \times 0.03178) \\ &\quad + (-3.64853 \times 0.81556) + (3.78869 \times 0.75435) + (-0.95731 \times 0.69936) \\ &= 0.020 \end{aligned}$$

$$\begin{aligned} B_{14} &= (-2.35093 \times 0.00842) + (5.445 \times -0.03653) + (-3.64853 \times 0.03178) \\ &\quad + (2.96922 \times 0.81556) + (-2.16094 \times 0.75435) + (0.02255 \times 0.69936) \\ &= 0.473 \end{aligned}$$

$$\begin{aligned} B_{15} &= (2.42104 \times 0.00842) + (-5.54427 \times -0.03653) + (3.78869 \times 0.03178) \\ &\quad + (-2.16094 \times 0.81556) + (2.97983 \times 0.75435) + (-0.56017 \times 0.69936) \\ &= 0.437 \end{aligned}$$

$$\begin{aligned} B_{16} &= (-0.48607 \times 0.00842) + (1.22155 \times -0.03653) + (-0.95731 \times 0.03178) \\ &\quad + (0.02255 \times 0.81556) + (-0.56017 \times 0.75435) + (1.27072 \times 0.69936) \\ &= 0.405 \end{aligned}$$