Figure 7.26 Checklist for Conducting Multiple Regression (*Continued*)

III. Summarize Results

a. Describe any data elimination or transformation.
b. Present descriptive statistics in tables (correlation matrix, means, and standard deviations).
c. Narrate the significance of the overall regression (R^2, R^2_{adj}, F and p-values with degrees of freedom).
d. If stepping method was used, summarize steps in a table (R^2, R^2_{adj}, R^2 change, and level of significance for change).
e. Create a table that reports the B weights, β weights, bivariate r, and partial r for each IV in the model.
f. Draw conclusions.

Exercises for Chapter 7

$\hat{Y} = b_1 X_1 + b_2 X_2 + a$

1. The following output was generated from conducting a forward multiple regression to identify which IVs (*urban, birthrat, lnphone,* and *lnradio*) predict *lngdp*. The data that were analyzed were from the SPSS *country.sav* data file.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	LNPHONE		Forward (Criterion: Probability-of-F-to-enter <= .050)
2	BIRTHRAT		Forward (Criterion: Probability-of-F-to-enter <= .050)

a. Dependent Variable: LNGDP

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.941[a]	.886	.885	.5180	.886	862.968	1	111	.000
2	.943[b]	.890	.888	.5109	.004	4.095	1	110	.045

a. Predictors: (Constant), LNPHONE

b. Predictors: (Constant), LNPHONE, BIRTHRAT

ANOVA[c]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	231.539	1	231.539	862.968	.000[a]
	Residual	29.782	111	.268		
	Total	261.321	112			
2	Regression	232.608	2	116.304	445.561	.000[b]
	Residual	28.713	110	.261		
	Total	261.321	112			

a. Predictors: (Constant), LNPHONE

b. Predictors: (Constant), LNPHONE, BIRTHRAT

c. Dependent Variable: LNGDP

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	6.389	.058		110.662	.000					
	LNPHONE	.736	.025	.941	29.376	.000	.941	.941	.941	1.000	1.000
2	(Constant)	6.878	.248		27.744	.000					
	LNPHONE	.663	.044	.849	15.238	.000	.941	.824	.482	.322	3.104
	BIRTHRAT	-1.29E-02	.006	-.113	-2.024	.045	-.811	-.189	-.064	.322	3.104

a. Dependent Variable: LNGDP

Excluded Variables[c]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	URBAN	.095[a]	1.901	.060	.178	.404	2.475	.404
	BIRTHRAT	-.113[a]	-2.024	.045	-.189	.322	3.104	.322
	LNRADIO	.026[a]	.567	.579	.053	.461	2.171	.461
2	URBAN	.091[b]	1.848	.067	.174	.403	2.479	.225
	LNRADIO	.021[b]	.455	.650	.044	.459	2.178	.243

a. Predictors in the Model: (Constant), LNPHONE

b. Predictors in the Model: (Constant), LNPHONE, BIRTHRAT

c. Dependent Variable: LNGDP

a. Evaluate the tolerance statistics. Is multicollinearity a problem?

b. What variables create the model to predict *lngdp*? What statistics support your response?

c. Is the model significant in predicting *lngdp*? Explain.

d. What percentage of variance in *lngdp* is explained by the model?

e. Write the regression equation for lngdp.