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Exogenous Variable

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An exogenous variable is a factor in causal modeling or causal system whose value is independent from the states of other variables in the system; that is, it is a factor whose value is determined by factors or variables outside the causal system under study. For example, rainfall is exogenous to the causal system constituting the process of farming and crop output. There are causal factors that determine the level of rainfall—so rainfall is endogenous to a weather model—but these factors are not themselves part of the causal model one would use to explain the level of crop output.

As with endogenous variables, the status of the variable is relative to the specification of a particular model and causal relations among the independent variables. An exogenous variable is by definition one whose value is wholly causally independent from other variables in the system. The category of “exogenous” variables therefore is contrasted to those of “purely endogenous” and “partially endogenous” variables. A variable can be made endogenous by incorporating additional factors and causal relations into the model.

There are causal and statistical interpretations of exogeneity. The causal interpretation is primary and defines exogeneity in terms of the factor’s causal independence from the other variables included in the model. The statistical or econometric concept emphasizes noncorrelation between the exogenous variable(s) and the error term(s) in the model. Typical regression models assume that all the independent variables are exogenous.

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See also

- [Endogenous Variable](#)

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