

POLI 443

Applied Political Research

Session 7: Dependent & Independent Variables

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Independent and Dependent Variables

- Political Scientists are constantly looking for explanations about political behavior and in this endeavour, they make use of variables. Two main variables that are usually used for explanations are independent and dependent variables. Most political scientists tend to ask “why” questions in which the researcher is trying to explain the variation in political phenomena i.e. why do political characteristics and behavior occur at some times rather than others.

- To advance the understanding of political behavior, political scientists propose explanations for phenomenon and then produce evidence bearing on those explanations. Proposing an explanation involves identifying other phenomena that the researcher thinks will help account for the object of the research and then specifying how these two (or more) phenomena are related, e.g. a researcher might be seeking to explain why the NPP lost the 2008 general elections in Ghana.

One explanation might be that the NPP lost due to the differences that existed between the supporters of Alan Kyeremateng and nana Akufo Addo or possibly that it was due to the disaffection of the NPP foot-soldiers or that it was due to some of the policies pursued by the Kufour NPP government in the 2008 election year.

Those phenomena which we think will help explain the political behavior of interest (why the NPP lost in 2008) are called independent or (X) variables.

Independent variables are the measures of the phenomena that are thought to influence, affect, or cause some other phenomenon.

Dependent or Y variables are the phenomena that are thought to be caused, to depend upon, or to be a function of the independent variables. Thus if a researcher has hypothesized that acquiring more formal education will lead to increased income later on (in other words, that income may be explained by education), then years of formal education would

- be the independent (X) variable and income would be the dependent (Y) variable. Proposed explanations for political phenomena are often more complicated than the simple identification of one independent variable that is thought to explain a dependent variable. More than one phenomenon is usually needed to account adequately for most political behavior. For example, suppose a researcher proposes that an individual's income and his/her attitude towards busing are related, and that the higher an individual's income (independent variable),

- the more liberal his/her attitude (dependent variable). The insightful researcher would realize the possibility that another phenomenon, such as whether the individual has school age children, might also affect his/her attitude towards busing. The proposed explanation for attitudes toward busing, then, would involve an alternative variable in addition to the independent variable and the researcher would be interested in determining the relative effect of each variable on the dependent variable.

- This is done by “controlling for” or “holding constant one of the independent variables so that the effect of the other variables may be observed. Sometimes researchers are also able to propose explanations for how the independent variables are related to each other. In particular a researcher might want to distinguish between which independent variables come before other independent variables and indicate which variables have a more direct, as opposed to indirect effect on the phenomenon we are trying to explain (the dependent variable).

- Variables that occur prior to all other variables and that may affect other independent variables are called antecedent variables. Variables that occur closer in time to the dependent variables and are themselves affected by other independent variables are called intervening variables. The role of antecedent and intervening variables in the explanation of the dependent variable differs significantly. Let us consider the following examples:
- Suppose a researcher hypothesizes that a person who favours free high school education in Ghana is more likely to vote for the NPP presidential candidate in the 2012 general elections than a person who does not favour free high school education.

- In this case attitude towards government spending on high school education would be the independent variable and the presidential vote the dependent variable. The researcher might wonder what causes the attitude towards government expenditure towards high school expenditure and might propose that those people who are poor are more likely to favour government spending more on high education. This new variable would then be an antecedent variable since it comes before and probably affects the independent variable.

- Thinking about antecedent variables pushes our explanatory scheme further back in time and it is hoped it will lead to a more complete understanding of a particular phenomenon (in this example presidential voting). Notice how the independent variable in the original hypothesis (support for increased government expenditure on high school education), becomes the dependent variable in the hypothesis involving the antecedent variable (poverty).

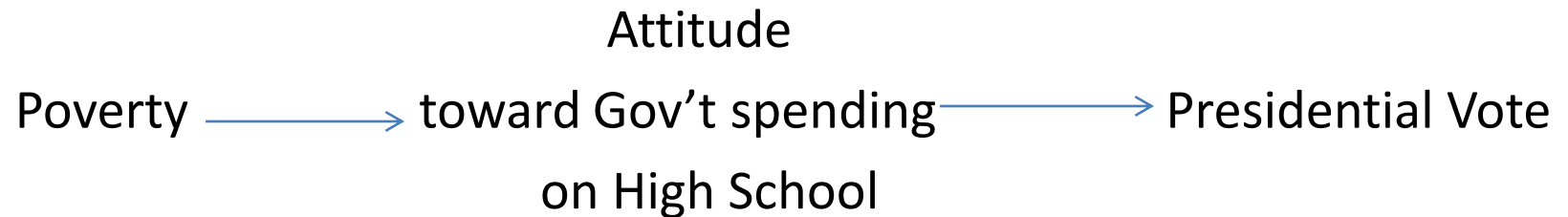
- Also notice that in this example, poverty is thought to exert an indirect effect on the dependent variable (presidential voting) via its impact on attitudes towards government expenditure on high school education. A second example. Suppose a researcher hypothesizes that the number of years of formal education affects a person's chances of turning out to vote. In this case "education" would be the independent variable and "turnout" the dependent variable.

- If the researcher then begins to think about what is it about formal education that has this effect, he/she has begun to identify the intervening variables between education and turnout at elections. For example the researcher might hypothesize that formal education causes a sense of civic duty, which in turn causes/influences voter turnout, or that formal education causes or influences an ability to deal with bureaucratic detail, which in turn causes or influences voter turnout.

- Intervening variables come between an independent and dependent variable and help explain the process by which one variable influences the other. Explanatory schemes that involve numerous independent, alternative, antecedent and intervening variables can become quite complex. A flow or arrow diagram is a handy device for presenting and keeping track of such complicated explanation (see below). It specifies the phenomenon of interest, indicates which variables are

- independent, alternative, antecedent, intervening and dependent, and shows which variables are thought to affect which variables. The diagram presents the flow/arrow diagrams for the two examples discussed above. In both diagrams the dependent variable is placed at the end of the time line to the right with the independent, alternative, intervening and antecedent variables placed in their appropriate locations to indicate which ones come first.

The arrows indicate which variable is independent and which is dependent in the proposed relationship.

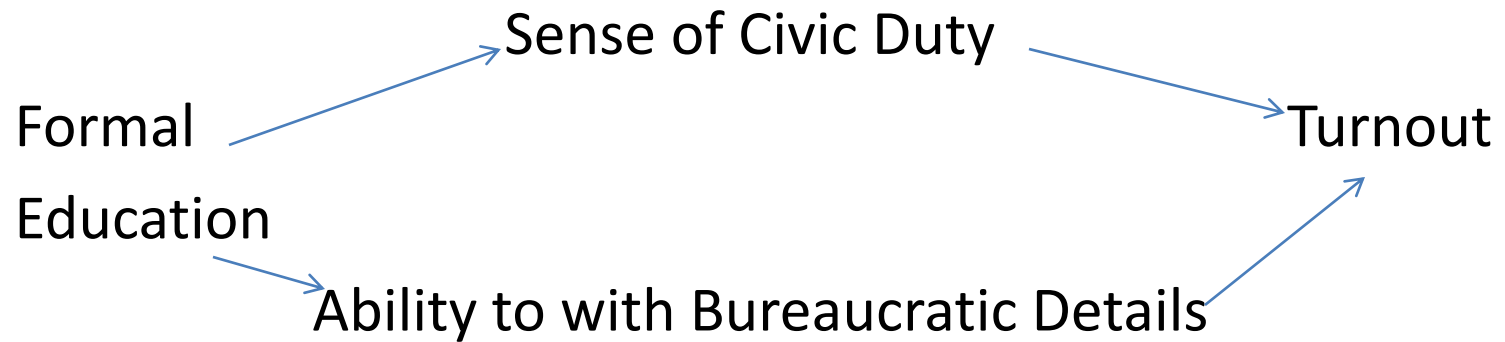


(Antecedent)
Variable

(Independent)
Variable

(Dependent)
Variable





(Independent Variable)

(Intervening Variable)

(Dependent Variable)

→ Time Line →

THANK YOU

