

Two perspectives of design and modeling when some independent variable is uncontrollable.

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SUMMARY

We consider a linear regression model with two independent variables, one of them is uncontrollable but their values are known after the experiment is performed. We compare two ways of modeling this situation. On the one hand, there is a model with two explanatory variables (controllable and uncontrollable). On the other hand, there is a second model of simultaneous equations. Under restricted conditions, the D-optimal design is the same for both models. Under a general framework the D-optimal designs are different since the approaches are essentially different.

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