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## Non-linear transformations of Independent Variables - Quiz

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### Question 1

1/1 point (graded)

True, false or uncertain: One can still use a linear regression framework even if the relationship between a regressor and the dependent variable is not linear.

☒ a. True ✓

☐ b. False

☐ c. Uncertain

### Explanation

As Prof. Duflo discussed in lecture, polynomials or other transformations of your variables can be used to represent fit functional forms using the standard OLS linear regression framework.

- ▶ [Module 5: Moments of a Random Variable, Applications to Auctions, & Intro to Regression](#)
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✓ Correct (1/1 point)

## Question 2

1/1 point (graded)

Which of the following statements is **not** true?

- ☐ a. Like in kernel regression models, series regression models have a trade-off between bias and variance.
- ☐ b. Kernel and series regression models are both ways modeling nonlinear functional forms.
- ☐ c. In both the kernel and series regression framework, the optimal trade-off between bias and variance is found by minimizing the mean squared error, and/or other cross validation criterion. to balance the trade-off between bias and variance.
- ☒ d. In kernel regression, a more flexible functional form leads to lower variance. Whereas, in series regression, a more flexible functional form increases variance. ✓

## Explanation

## Regressions, and Omitted Variable Bias

### Practical Issues in Running Regressions

due Dec 5, 2016 05:00 IST



### Omitted Variable Bias

due Dec 5, 2016 05:00 IST



### Module 10: Homework

due Nov 28, 2016 05:00 IST



The following table summarizes the key features of the kernel and series regression frameworks Prof.Duflo discussed in class. You should be have an intuition for why these are true, if not, we suggest that you rewatch the segment.

	Kernel Regression	Series Regression
<u>Trade-off</u>	For fixed $N$ , a more flexible functional form (smaller bandwidth) increases variance, and decreases bias.	For fixed $N$ , a more flexible functional form (more terms in the polynomial) increases variances, and decreases bias.
<u>Promise</u>	To make your bandwidth smaller as $N$ increases.	To increase the number of terms in your polynomial as your sample size increases.
<u>Cross Validation</u>	the trade-off between bias and variance by using cross validation criterion, usually by minimizing mean squared error.	

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✓ Correct (1/1 point)

## Discussion

**Topic:** Module 10 / Non-linear transformations of Independent Variables - Quiz

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