

**Exam**  
**Empirical Labor Economics**  
**Uwe Jirjahn**

Winter semester 2019/20

Choose **either** question Q.1 **or** question Q.2.

**Q.1** Discuss Angrist et al.'s study on family size and schooling:

Quantity-quality first stages					
	Twins instruments		Same-sex instruments		Twins and same-sex instruments
	(1)	(2)	(3)	(4)	
Second-born twins	.320 (.052)	.437 (.050)			.449 (.050)
Same-sex sibships			.079 (.012)	.073 (.010)	.076 (.010)
Male		-.018 (.010)		-.020 (.010)	-.020 (.010)
Controls	No	Yes	No	Yes	Yes

*Notes:* This table reports coefficients from a regression of the number of children on instruments and covariates. The sample size is 89,445. Standard errors are reported in parentheses.

From Mazzeo "Metrics: The Path from Cause to Effect" © 2015 Princeton University Press. Used by permission. All rights reserved.

**Q.2**

- Q.2.a Explain the difference between a proxy variable and an instrumental variable.
- Q.2.b Discuss the requirements for the validity of an instrument.
- Q.2.c Discuss the problems entailed by weak instruments.
- Q.2.d What is a local average treatment effect?

**Note:** If you answer both questions, we will only consider Q.1.