Environmental Policy — *Northbridge University*
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Aufgabenblatt 3 — **18 September 2026**

Evidence, uncertainty and public decisions

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Aufgabe 1: Framing the decision

Public policy arguments often present a forecast as though it were a measurement. This essay distinguishes the two. A measurement describes an observed quantity; a forecast combines observations with a model and assumptions about what will happen next. That difference is not a reason to abandon quantitative evidence. It is a reason to expose the assumptions that make the evidence useful.

1.1. A practical distinction

Suppose a city records the daily number of bicycle trips before and after a protected lane opens. The observed change is not, by itself, the effect of the lane: weather, fuel prices and a nearby road closure may have changed at the same time. A defensible analysis therefore states a comparison group, the time window, and the mechanism by which the intervention is expected to change behaviour.

Aufgabe 2: A small model

Let Y_1 and Y_0 be the number of bicycle trips on a representative day with and without the lane. The policy effect is the counterfactual

$$\tau = \mathbb{E}[Y_1 - Y_0].$$

Only one of the two potential outcomes can be observed for a given day. That missing counterfactual is why a comparison design matters. If a nearby untreated route has a stable trend, a difference-in-differences estimate can be written as

$$\widehat{\tau} = (\overline{Y}_{\text{treated,after}} - \overline{Y}_{\text{treated,before}}) - (\overline{Y}_{\text{control,after}} - \overline{Y}_{\text{control,before}}).$$

The estimate is informative only if the two routes would have followed parallel trends in the absence of the intervention. That assumption is a claim about the design, not a number produced by the formula.

2.1. Interpretation

a) State the target population before calculating an effect.

b) Report an uncertainty interval and the number of observations.

c) Test whether the result changes under a plausible alternative comparison route.

Aufgabe 3: Reflection

The strongest conclusion available from this small study is conditional: if the comparison route captures the city-wide time trend and no other route-specific change occurred, the protected lane is associated with an increase in cycling. Calling that association a causal effect without checking those conditions would turn a useful model into overconfident storytelling. The assignment's reproducible layout makes those conditions visible alongside the argument, which is the point of a good hand-in.