

BUILDING HYPOTHESES

BUSINESS RESEARCH



The seven-step deductive research process



Theoretical framework consists of ...

- Variable definitions
- Conceptual model
- Hypotheses

What is a hypothesis?

- A tentative statement
- about the coherence
- between two or more variables



What makes a good hypothesis?

- ☐ Testable (measurable variables)
- ☐ Derived from theory
- ☐ Unambiguously phrased

Agenda

- How to phrase testable hypotheses?
- How to justify a hypothesis, based on theory?

1. How to phrase testable hypotheses?

Directional versus undirectional hypotheses

- Directional hypotheses
 - A merger **decreases** employee morale.
 - The effect of employee morale on employee productivity is **weaker** for older employees.

- Undirectional hypotheses
 - A merger **affects** employee morale.
 - The effect of employee morale on employee productivity **depends on** employee age.



Main effect hypotheses

- H: X positively affects Y.
- H: The effect of X on Y is positive.
- H: If X increases, Y decreases.
- ...

Main effect hypotheses

EXAMPLES

- Continuous X

H: R&D investments positively affect firm profitability.

H: The effect of R&D investments on firm profitability is positive.

- Discrete X

H: Public companies invest more in R&D than private companies.

H: Developed countries have higher private label shares than developing countries.

Mediating effect hypotheses

- H_a : The effect of X on MED is positive.
 H_b : The effect of MED on Y is positive.

and/or

- H: The effect of X on Y is mediated by MED.

Mediating effect hypotheses EXAMPLES

- H_a : The use of more personalized ads for a product leads to higher privacy concerns among consumers.
 H_b : Higher privacy concerns among consumers lead to a lower product attitude.

and/or

- H : The effect of personalization of ads on consumers' product attitude is mediated by consumers' privacy concerns.

Moderating effect hypotheses: When the main effect is directional

- H: The effect of X on Y is strengthened by MOD.
H: The effect of X on Y increases when MOD increases.
H: The effect of X on Y is stronger when MOD equals ... than when MOD equals

- H: The effect of X on Y is attenuated by MOD.
H: The effect of X on Y is weakened when MOD increases.
H: The effect of X on Y is weaker when MOD equals ... than when MOD equals ...

Moderating effect hypotheses

EXAMPLES

- Main effect:

H: Consumers' privacy concerns negatively affect online shopping.

- Moderating effects:

H: The effect of consumers' privacy concerns on online shopping is strengthened when their uncertainty avoidance increases.

H: The effect of consumers' privacy concerns on online shopping is weakened by the selling firms' reputation.

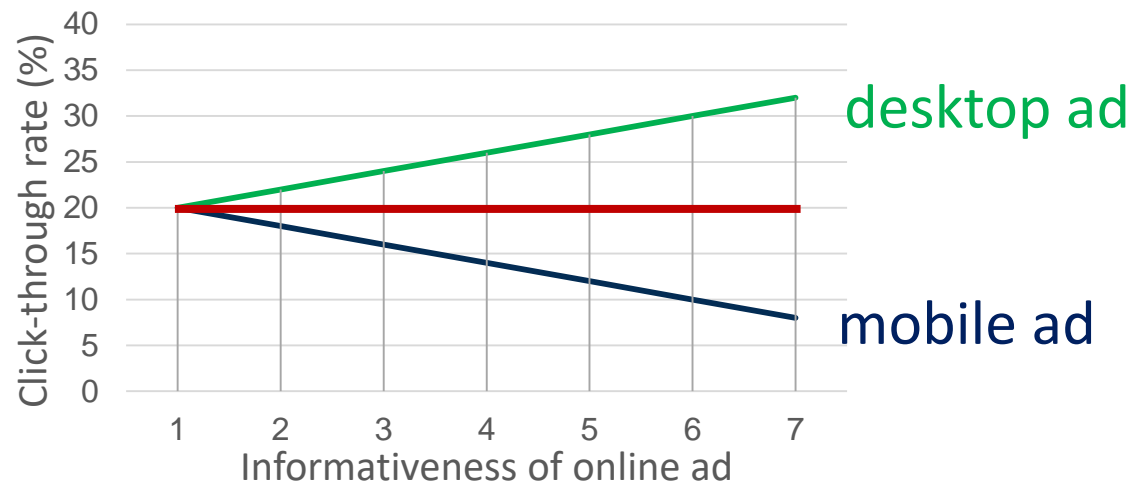
Moderating effect hypotheses: When the main effect is UNdirectional

- H: When MOD equals ... , X has a positive effect on Y.

and

- H: When MOD equals ... , X has a negative effect on Y.

Moderating effect hypotheses EXAMPLE



- H: For desktop ads, ad informativeness has a positive effect on click-through rates.
- H: For mobile ads, ad informativeness has a negative effect on click-through rates.

2. How to justify a hypothesis?

Argumentation leading up to hypotheses is key !



- First argue why your hypothesis is plausible.
 - Based on the literature
 - Pitfall: Author X has said so, so it must be true.

- Then conclude with the hypothesis.
 - This leads to the following hypothesis:
 - We therefore hypothesize/expect/propose:
 - As such:
 - ...

Argumentation leading up to hypotheses is key !

Example

H: A merger leads to decreased employee morale.

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- Because *author XYZ (2010)* said so.
 - Merger = 2 firms with different cultures and management styles
 - Employees need to adjust (*author A 2010*)
 - Employee stress may increase (*author B 2013*)
 - Employee morale is likely to decrease (*author C 2011*)
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Final notes

- Avoid unidirectional hypotheses for mediators and moderators.
- Use unidirectional hypotheses for main effects sparingly:
 - When arguments for both directions are equally strong.
 - When one or more moderating hypotheses are introduced to explain when the main effect turns positive vs. negative.

Link with statistics: Null and alternate hypotheses

- Null hypothesis
 - Expresses no relationship between variables
 - Set up in order to be rejected (in favor of the alternate hypothesis)

- Alternate hypothesis
 - Expresses a relationship between variables
 - = Research hypothesis

Null hypotheses are not presented in research reports.