

HYPOTHESIS TESTING

Data Analysis for Journalism and Political Communication
(Spring 2025)

Prof. Bell

WRITING HYPOTHESES

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- H_0 is the hypothesis of “not”. For example:
 - ▶ H_0 : Voters who decided in the last month were **not** more likely to support Donald Trump than Kamala Harris.
 - H_A is the hypothesis of **difference**. For example:
 - ▶ H_A : Voters who decided in the last month were more likely to support Donald Trump than Kamala Harris.

LET'S PRACTICE

Identify whether each of these hypotheses is H_0 or H_A , and provide its opposite:

- 1 Global temperatures are not different today than they were 50 years ago.
- 2 Regular viewers of 24-hour news channels are more partisan than non-viewers.
- 3 The number of soldiers from a voter's area who are killed in Iraq is correlated with votes for John Kerry in the 2004 presidential election.

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 H_A : Global temperatures are higher today than they were 50 years ago.
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- **We can never prove or disprove H_0 .** We can only generate enough evidence to *reject H_0* or *fail to reject H_0* .

In-class example

TYPES OF HYPOTHESIS TESTS

One-sample t-test

A difference-of-means test comparing an estimate of the mean to a specific alternative mean (often 0)

Two-sample t-test

A difference-of-means test comparing estimates of the mean of two samples

TYPES OF HYPOTHESIS TESTS

One-tailed t-test

A difference-of-means test of whether an estimate of the mean is greater or less than an alternative (mean or sample)

Two-tailed t-test

A difference-of-means test of whether an estimate of the mean is different than an alternative (mean or sample)

*Most researchers use two-tailed tests even when they hypothesize a directional difference (greater or lesser) because a two-tailed test is more conservative and less likely to result in Type 1 error.

Return to the in-class example

REAL-WORLD EXAMPLE

“Working Twice as Hard to Get Half as Far: Race, Work Ethic, and America’s Deserving Poor”

Christopher D. DeSante, *Am. Journal of Political Science* vol. 57 iss. 2 (2013)

WORK FIRST ASSISTANCE APPLICATION

Applicant Name: **Latoya** [redacted] Date of Application: [redacted]
Address: [redacted] Telephone: [redacted]
County: [redacted]
Case No.: [redacted] District No. [redacted]

HOUSEHOLD: List all household members for whom Assistance is being requested:

(Non-applicant household members are not required to provide a social security number, immigrant or citizenship status)

Name	Date of Birth	Sex	Social Security No.	Citizen / eligible immigrant	Relationship
[redacted]	08/16/1998	M	[redacted]	Y	Son
[redacted]	04/14/2001	F	[redacted]	Y	Daughter

Does the household include a child who meets the Work First age rule? ☒ Yes ☐ No

Is the child living with an adult who meets the Work First kinship rule? ☒ Yes ☐ No

Has anyone listed on the EA Application ever received EAT? ☐ Yes When: [redacted] ☒ No

Does anyone live in the home that is not listed on the EA Application? ☐ Yes ☒ No
If yes, is the individual(s) a roomer/boarder? ☐ Yes ☐ No

Total assessed monthly need: \$ 900.00

APPLICANT 1 Worker Quality Assessment (circle one):
Poor Average Excellent

Applicant Statement: I understand that it is against the law for me to make false statements and that I am subject to prosecution if I do. I certify that the information I have provided is a true and complete statement of facts according to my best knowledge and belief. I certify, under penalty of perjury, that all persons for whom I am applying are U.S. citizens or qualified immigrants. I declare under penalty of perjury (and being subject to prosecution under 28 U. S. C. § 1746) that the foregoing is true and correct. I give the agency permission to verify any information necessary to determine my eligibility for Emergency Assistance.

Witness's Signature: Chris D. DeSante Applicant's Representative's Signature: _____ Date: _____

WORK FIRST ASSISTANCE APPLICATION

Applicant Name: **Keisha** [redacted] Date of Application: [redacted]
Address: [redacted] Telephone: [redacted]
County: [redacted]
Case No.: [redacted] District No. [redacted]

HOUSEHOLD: List all household members for whom Assistance is being requested:

(Non-applicant household members are not required to provide a social security number, immigrant or citizenship status)

Name	Date of Birth	Sex	Social Security No.	Citizen / eligible immigrant	Relationship
[redacted]	05/07/2005	M	[redacted]	Y	Son
[redacted]	03/20/2007	F	[redacted]	Y	Daughter

Does the household include a child who meets the Work First age rule? ☒ Yes ☐ No

Is the child living with an adult who meets the Work First kinship rule? ☒ Yes ☐ No

Has anyone listed on the EA Application ever received EAT? ☐ Yes When: [redacted] ☒ No

Does anyone live in the home that is not listed on the EA Application? ☐ Yes ☒ No
If yes, is the individual(s) a roomer/boarder? ☐ Yes ☐ No

Total assessed monthly need: \$ 900.00

APPLICANT 2 Worker Quality Assessment (circle one):
Poor Average **Excellent**

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