

Mentoring for Excellence: Crafting the Core: The Science behind the Contribution of an Economics Paper

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Why this workshop?

Part I: What makes a good piece of research?

Part II: The sufficient condition, Originality and Significance

Part III: Moving Forward

Appendix

Question: How do we unlock the science behind the contribution of an economics paper?

- This workshop is **not** about polishing your academic writing
- This workshop is about a key research skill:

What makes a good piece of research?

- **Resources for refining academic writing are abundant** (e.g., "Writing in the Sciences Course (Stanford)" | Coursera, [\[Link\]](#))
- This workshop aims to help you **identify the contribution of your research**

- **Higher-order problem:** Lack of diversity in economics leads to a misallocation of talent leads to lower-quality research.
- The problem is **large, persistent, and urgent**:
 - Diversity gaps persist across career stages and top journals.
 - Sharp rise in resources being invested to reform the profession (e.g., mentoring initiatives, new publishing formats like AEApp and AEA Insights).
- **Why does the problem persist?** Much of what it takes to succeed—such as how to frame a paper's contribution—is part of the **hidden curriculum** (John List, UChicago).
- **Why the answer matters for Economics:** By demystifying the hidden curriculum and equipping those who need it most, we ensure a more efficient allocation of talent.

Methodology: "Crafting the core"

- Systematic Method: Employs structured, logical techniques to identify key elements of a paper's *core*
- Socratic Approach: It is about the questions not about the answers.
- General, not prescriptive: applicable to other fields
- Hands-on Implementation Approach:
 - Worksheets with measurable criteria
 - Case Studies
 - Active Classroom Discussions

Contribution and VA of this Workshop

- Current state in the literature is good at identifying general elements and give general guidance.
 - "Introduction Formula" by [Head \[2020\]](#), "How to write applied papers in Economics" by [Bellemare \[2020\]](#); "The Young Economist's Guide to Professional Etiquette" by [Hamermesh \[1992\]](#); "Writing Tips for Crafting Effective Economics Research Papers" by [Nikolov \[2023\]](#); "Advice on publishing in Economics and Science Journals" by [AEA \[2025\]](#)
- **Gap:** The literature is good on the *what*, but not on the *how*.
- **Why does this gap exist:** Polanyi's paradox — "we know more than we can tell" — Tacit knowledge, difficult to fully articulate. Embedded in experience rather than explicitly measurable criteria.
- **How does this workshop closes the gap:** systematic, general method
- **Why me?:** Having a bird's-eye view allows me to observe patterns and develop a systematic approach:
 - European trained in anglo-saxon contexts
 - Successful funding and publication record

Value Added: How answering the question is part of the solution to the higher-order problem that we are trying to solve?

Unlocking the Paper's Contribution through a Systematic Approach:

- Levels the playing field (tacit knowledge equally distributed)
- Strengthens the efficiency of the mentoring relationship
- Improves the quality of the research output [[Angrist and Diederichs, 2024](#)]

Part I: What makes a good piece of research?

Necessary Condition - How: Answer question the best possible way		
	High Originality	Low Originality
High Significance	Top journal article	Policy report
Low Significance	Field journal article	Replication Exercise

Table 1: Sufficient Condition Matrix

- **Originality - What for:** Answers a research question **better** than previous literature (**contribution**)
- **Significance - Why:** Answers a research question that **solves** an **important** higher-order problem (HOP) (**value added**)

Workshop - Sufficient condition and PEE Method

Paragraph Number:	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	GOOD RESEARCH	PEE
HOP/QUESTION													SUFFICIENT CONDITION: Significance	POINT
ECON. THEORY													NECESSARY CONDITION	EVIDENCE
INST. FRAMEWORK														
DATA														
EMPIRICAL APPROACH														
RESULTS														
CREDIBILITY THREATS														
MORE ON CREDIBILITY														
CONTRIBUTION/VALUE-ADDED													SUFFICIENT CONDITION: Originality/ Significance	EXPLANATION
ROAD MAP														

Table 2: Diagonal Worksheet

- **Why: What is our *point*?** → The **HOP** of the paper: "*Why do we care?*"
 - What is the higher-order economic problem we are addressing?
 - Does our question help address the HOP?
 - Sufficient condition (Significance)
- **How: What is our *evidence*?**
 - Can we correctly answer our research question?
 - Necessary condition
- **What is our *explanation*?** → **Originality and Significance:**
 - What for - Originality: How does our approach to answering the question improve upon previous research (**contribution**), and
 - Why - Significance: how does answering the question helps addressing the HOP **value added**

Practice: The PEE method applied to an Economist article

Triumphant research
Golden Goldin

A Nobel for an economist who has overturned assumptions about gender equality

ON THE MORNING of October 8th the National Bureau of Economic Research circulated a working paper to economists around the world entitled "Why Women Won?". In the paper, Claudia Goldin of Harvard University documents how women achieved equal rights in American work places and families. Rather fittingly, a few hours later, Ms Goldin was announced as the winner of this year's economics Nobel prize, for advancing "our understanding of women's labour-market outcomes".

Having been the first woman to be granted tenure at Harvard's economics department, Ms Goldin is now the third woman to have won the subject's Nobel prize. Taken together, her research provides a comprehensive history of gender labour-market inequality over the past 200 years. In telling this history, she has overturned assumptions about both historical gender relations and what is required to achieve greater equality in the present day.

Before Ms Goldin's work, economists had thought that economic growth led to a more level playing field. In fact, Ms Goldin showed, the Industrial Revolution drove married women out of the labour force, as commerce moved from home to factory. In research published in 1990 she demonstrated that it was only the 20th century when service-sector jobs proliferated and high-school education developed, that the more familiar pattern emerged. The relationship between the size of Western economies and female-labour-force participation is U-shaped—a classic Goldin result.

Ms Goldin's research has busted other myths, too. Lawrence Katz, her colleague and husband, marvels at her ability to trawl archives to fill gaps in the historical data on women's work. Simple statistics, such as the female employment rate, were mismeasured because when surveyed, women might respond "I'm a housewife", notes Ms Goldin, even if they managed the family business. Once corrected, the employment rate for white married women, for example, was 32.5% in 1890—five times greater than previously thought.

Her findings also showed that the gender wage gap narrowed in bursts. Women's wages rose relative to men's in 1820–50 and then again in 1890–1930, before shooting up in 1980–2005 (see chart). What drove these bursts? The initial two came well before the equal-pay movement and were caused by changes in the labour market: first, dur-

The great convergence

United States, women's median earnings as % of men's



ing the Industrial Revolution; second, during a surge in white-collar employment for occupations like clerical work.

For the third and most substantial drop, in the late 20th century, Ms Goldin emphasises the role of expectations. If a young woman has more say over when and whether she will have a child, and more confidence that women can work in a wide range of jobs, she may invest more in the future, such as by staying in school for longer. In work published in 2002 Ms Goldin and Mr Katz detailed the example of the contraceptive pill, which was approved in 1960, and gave women more control over decisions about children. Between 1967



The woman who won

and 1979 the share of 20- and 29-year-old women who expected to be employed at 35 jumped from 35% to 80%.

Expectations also matter for employers. Although the pay gap narrowed in the early 1900s, the portion driven by discrimination, rather than job type, grew. An important factor, says Ms Goldin, was changes in how payment was decided. Wages used to be tied to output—how many clothes were knitted, for instance. But after industrialisation, workers were increasingly paid periodically, in part because measuring an individual's output became trickier. Therefore more ambiguous factors grew in importance, such as ideas about how long a worker would stay on the job. This penalised women, who were expected to quit when they had children.

Since around 2005 the wage gap has hardly budged. Here Ms Goldin's work questions popular narratives that continue to blame wage discrimination. Instead, in a book published in 2021, Ms Goldin blames "greedy" jobs, such as being a consultant or lawyer, which offer increasing returns to long (and uncertain) hours.

She explains how men interacts with the so-called parenthood penalty. "Let's say there are two lawyers, equally brilliant," explains Ms Goldin. Once children arrive, "they realise that they both can't work these grueling hours." Women spend more time raising children, which is why the gender pay gap tends to open up after a first child. Both partners could take on less demanding jobs, but then the couple would earn less as a unit, she explains.

Ms Goldin's research holds lessons for economists and policymakers. For the former group, it shows the importance of history. Ms Goldin's prize is the first economics Nobel awarded for work largely in economic history since Robert Fogel, her former adviser, triumphed in 1993. Before Ms Goldin's research, many academics considered questions about historical gender pay gaps to be unanswerable because of a paucity of data. Yet she has repeatedly demonstrated that digging through historical archives allows researchers to credibly answer big questions previously thought beyond their reach.

For policymakers, Ms Goldin's research demonstrates that fixes for gender inequality vary depending on time and place. In early 20th-century America, companies barred married women from obtaining or retaining employment. A policy response came with the Civil Rights Act of 1964, which banned such behaviour. Today wage gaps persist because of greedy jobs and parental norms, rather than because of straightforward employer discrimination. In the past, Ms Goldin has suggested more flexibility in the workplace could be a solution to the problem. Perhaps working out how to achieve it will be her next act. ■

Practice: The PEE Method applied to a paragraph

Triumphant research

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Before Ms Goldin's work, economists had thought that economic growth led to a more level playing field. In fact, Ms Goldin showed, the Industrial Revolution drove married women out of the labour force, as production moved from home to factory. In research published in 1990 she demonstrated that it was only in the 16th century when service-sector jobs proliferated and high-school education developed, that the more familiar pattern emerged. The relationship between the size of Western economies and female-labour-force participation is shaped—a classic Goldin result.

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The Economist [2023]

What is the point? Class Exercise AK

[POINT]: Enthusiasm for public preschool derives in part from encouraging experimental evidence produced by small-scale demonstration programs in the 1960s and 1970s. **[EVIDENCE]:** The High/Scope Perry Preschool Project and Carolina Abecedarian Project randomly assigned small numbers of children to intensive preschool programs or to control groups without program access. Comparisons between the treatment and control groups show that the Perry and Abecedarian interventions improved short-term test scores and behavior as well as long-term outcomes such as educational attainment, crime, and earnings (Campbell and Ramey 1994; Schweinhart et al. 2005; Campbell et al. 2012; Heckman, Pinto, and Savelyev 2013; Garcia et al. 2020). **[EXPLANATION]:** Cost/benefit analyses suggest that these interventions are among the most cost-effective social programs on record (Barnett 1985; Belfield et al. 2006; Heckman et al. 2010b; Hendren and Sprung-Keyser 2020).

Part II: The sufficient condition, Originality and Significance

Part II: The sufficient condition

- **Originality:** Do we answer our research question better? (contribution)
- **Significance:**
 - HOP/Question: Does our question help solve a higher-order Economic Problem (HOP)?
 - **Value Added:** How does answering our question help solve a higher-order Economic Problem (HOP)?

Originality- The Contribution

- **Originality:** To answer your research question **better** than previous literature

- **Framing the Gap**/Identify relevant literature: Which literature addresses our question and informs our contribution?
- **Gap Insights:** How does the existing literature answer our research question? [▶ Literature Worksheet](#)
- **Identifying the Gap:** What unaddressed areas exist within the current literature?
- **Reasons for the Gap:** Why does the gap exist? What factors enable us to close this gap? [▶ Examples of Gap](#)

Originality - The Contribution Worksheet and Scoring Criteria

Scoring Criteria	Key text	Score (1/10)	Score Feedback
[1] What literature does your question speak to?			
[2] What does the literature say about your research question?			
[3] What is the gap in the literature?			
[4] Why is there a gap in the literature?			

Group Exercise: Contribution Worksheet and Scoring Criteria

- Running Example: Read the paragraph with the first contribution in **Gray-Lobe et al. [2023]**
- **Identify the key sentences** in the paragraph that answer the questions in the **contribution worksheet**
- Provide **feedback** to the authors on **how well they answer the questions** in the contribution worksheet.
- Provide a **score** 0-10 to the authors on how they answer to the questions in the value added worksheet.

Group Exercise: Contribution Worksheet and Scoring Criteria

- Running Example: Read the paragraph with the first contribution in [Gray-Lobe et al. \[2023\]](#)

First, we present the first evidence from a randomized research design on the long-term effects of a large-scale preschool program. Previous randomized studies typically look at small-scale programs (Campbell and Ramey 1994; Schweinhart et al. 2005) or are limited to short-term outcomes (Puma et al. 2010; Puma, Bell, and Heid 2012; Bitler, Hoynes, and Domina 2014; Bloom and Weiland 2015; Walters 2015; Feller et al. 2016; Kline and Walters 2016; Lipsey, Farran, and Durkin 2018; Weiland et al. 2019). Other studies look at large-scale programs using observational research designs (Garces, Thomas, and Currie 2002; Gormley et al. 2005; Ludwig and Miller 2007; Fitzpatrick 2008; Wong et al. 2008; Deming 2009; Carneiro and Jinja 2014; Thompson 2018; Johnson and Jackson 2019; De Haan and Leuven 2020; Pages et al. 2020; Bailey, Timpe, and Sun 2021; Cascio forth-coming). Studying long-term effects requires data following students over a long-time horizon, which is rare among modern publicly funded preschool programs. Boston operated a large public preschool program by the late 1990s and allocated seats with a centralized mechanism, allowing us to study program impacts over multiple decades with a randomized design. The program is run by the Boston Public Schools district, so our results are relevant for evaluating expansions of preschool provided by state and local governments (Muralidharan and Niehaus 2017). Our positive estimates for educational attainment are like those from model demonstration programs and nonexperimental studies of Head Start, illustrating the potential for modern public preschool programs to improve long-term outcomes."

Group Exercise: Contribution Worksheet and Scoring Criteria AK

	Scoring Criteria	Identify Key text	Score (1/10)	Score Feedback
[1]	What literature does your question speak to?	► See criteria 1, 2, 3	9	► See Score Feedback 1, 2, 3
[2]	What does the literature say about your research question?	► See criteria 1, 2, 3	8	► See Score Feedback 1, 2, 3
[3]	What is the gap in the literature?	► See criteria 1, 2, 3	8	► See Score Feedback 1, 2, 3
[4]	Why is there a gap in the literature? What is the reason?	► See criteria 4	9	► See Score Feedback 4, 5, 6

What is the point?: To solve a **higher-order (economic) problem HOP** by answering our research question:

- Is a higher-order economic problem well-identified? (Many Possibilities)
- Is the problem **important** (large, hard to solve/immune to policy, persistent, urgent)?
- Is the problem one that the **Economics literature** cares about?
- **Does** answering the research question help solve the problem?
- **How** does filling a gap addresses an important economic problem?

Is a higher-order economic problem well-identified? (Many Possibilities):

- Same research question, many different higher-order problems (depends on the **audience** you want to engage with)
- Requires knowledge of **main debates** in the literature and **key players**
- **Example:**
 - Research question: Why do we need new models of fertility?
 - Higher-order problem (HOP):
 - ▶ **Demography:** Fertility is important for understanding long term population trajectories and the continuation of the human species
 - ▶ **Economics:** Fertility is important for maximizing growth (productivity, sustainability of pension system) (efficiency)
 - ▶ **Sociology:** Fertility is important because it affects gender power dynamics and inequality (equity)

Marie Curie is often quoted as saying something akin to, "I am among those who think that **science has great beauty**... We must not forget that when radium was discovered, no one knew that it would prove useful in hospitals. The work was one of pure science. And this is a proof that scientific work must not be considered from the point of view of the **direct usefulness** of it."

=> What for is not Why

Group Exercise (10 minutes):

- Discuss your research question with your group members
- Choose one research question from a member of your group
- Write down (in the chat) the question and the higher-order problem (HOP)

Significance - Value Added Worksheet

	Scoring Criteria	Key Text	Score (1-10)	Score Feedback
[1]	Is a higher-order problem well-identified?			
[2]	Is the problem important? (large, persistent, hard to solve, urgent)?			
[3]	Is the problem one that the Economics literature cares about??			
[4]	Does answering the research question solve the problem?			
[5]	Value Added: How does answering your question contribute to solving the higher-order problem?			

Significance - Value Added Example

Watch the AEA Awards Ceremony and Presidential Address by Prof. Currie (Princeton University) (Relevant section: min 6:05 to min 8:06):

Watch the Video Here

▶ Example

Group Exercise:

Value Added Worksheet and Scoring Criteria

- Running Example: Read the first paragraph (HOP) in the introduction and the first contribution in [Gray-Lobe et al. \[2023\]](#) as indicated in the next slides
- **Identify the key sentences** in the paragraphs that answer the questions in the **hook worksheet**
- Provide a **score** 0-10 to the authors on how they answer the questions in the hook worksheet
- Provide constructive **feedback** to the authors on **how well they meet the scoring criteria in the Hook Worksheet**

Group Exercise:

Value Added Worksheet and Scoring Criteria

- **Running Example: first paragraph (HOP) in the introduction in Gray-Lobe et al. [2023]**

A substantial body of evidence establishes that early life deficits have persistent negative effects on lifetime well-being (see Knudsen et al. 2006; Almond, Currie, and Duque 2018). High-quality early-childhood interventions are seen as a promising tool to address such deficits, improve economic outcomes, and reduce socioeconomic disparities (Duncan and Magnuson 2013; Heckman 2013; Elango et al. 2016; Yoshikawa, Weiland, and Brooks-Gunn 2016; Chaudry et al. 2017). Contemporary policy efforts in the United States focus on expanding public preschool programs, many funded by state and local governments. The share of U.S. four-year-olds enrolled in state-funded preschool grew from 14% in 2002 to 34% in 2019.¹ By 2019, 44 states and 24 of the 40 largest U.S. cities operated large-scale public preschool programs, and nearly half of four-year-olds attended some form of publicly funded preschool (Barnett et al. 2003, Friedman-Krauss et al. 2019, NIEER 2019). Recent proposals at the federal, state, and local levels aim to continue this rapid expansion (Obama 2013; Biden 2021).

.... We fill this gap by using a lottery-based research design to estimate the effects of large-scale public preschool in Boston, Massachusetts on long-term postsecondary educational outcomes.

Group Exercise: Value Added Worksheet and Scoring Criteria

- The first contribution paragraph in **Gray-Lobe et al. [2023]**

First, we present the first evidence from a randomized research design on the long-term effects of a large-scale preschool program. Previous randomized studies typically look at small-scale programs (Campbell and Ramey 1994; Schweinhart et al. 2005) or are limited to short-term outcomes (Puma et al. 2010; Puma, Bell, and Heid 2012; Bitler, Hoynes, and Domina 2014; Bloom and Weiland 2015; Walters 2015; Feller et al. 2016; Kline and Walters 2016; Lipsey, Farran, and Durkin 2018; Weiland et al. 2019). Other studies look at large-scale programs using observational research designs (Garces, Thomas, and Currie 2002; Gormley et al. 2005; Ludwig and Miller 2007; Fitzpatrick 2008; Wong et al. 2008; Deming 2009; Carneiro and Ginja 2014; Thompson 2018; Johnson and Jackson 2019; De Haan and Leuven 2020; Pages et al. 2020; Bailey, Timpe, and Sun 2021; Cascio forth-coming). Studying long-term effects requires data following students over a long-time horizon, which is rare among modern publicly funded preschool programs. Boston operated a large public preschool program by the late 1990s and allocated seats with a centralized mechanism, allowing us to study program impacts over multiple decades with a randomized design. The program is run by the Boston Public Schools district, so our results are relevant for evaluating expansions of preschool provided by state and local governments (Muralidharan and Niehaus 2017). Our positive estimates for educational attainment are like those from model demonstration programs and nonexperimental studies of Head Start, illustrating the potential for modern public preschool programs to improve long-term outcomes."

	Scoring Criteria	Key Text	Score (1-10)	Score Feedback
[1]	Is a higher-order problem well-identified?	▶ See criteria 1, 2, 3	8/10	▶ See Score Feedback
[2]	Is the problem important? (large, persistent, hard to solve, urgent)?	▶ See criteria 1, 2, 3	7/10	▶ See Score Feedback
[3]	Is the problem one that the Economics literature cares about??	▶ See criteria 1, 2, 3	8/10	▶ See Score Feedback
[4]	Does answering the research question solve the problem?	▶ See criterion 4	6/10	▶ See Score Feedback
[5]	Value Added: How does answering your question contribute to solving the higher-order problem?	▶ See criteria 5	9/10	▶ See Score Feedback

Part III: Moving Forward for Mentees

Part III: Moving Forward for Mentees: Peer-to-Peer Feedback Groups

- read and write papers with a purpose using scoring criteria
- give feedback to peers using worksheets
- ask your advisors for targeted feedback on each scoring criteria
- smart use of AI

Moving Forward for Mentors: Scaffolding

- give systematic feedback to mentees using worksheets and scoring criteria
- automate the feedback process (use AI)

Thank you very much!

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Let us know what you think

Please fill out this survey by scanning **here**



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Originality: Contribution Worksheet AK -

Scoring Criteria 1, 2, 3

Prompt: "Identify the text in the [contribution] paragraph that answers each of the following questions: Our analysis makes two main contributions to the literature.

- 1: What do the authors do to answer the question about the effect of early education on long-run outcomes?
- 2: What does the literature say about the question that the paper addresses?
- 3: What is the gap in the literature?

First, we present the first evidence from a randomized research design on the long-term effects of a large-scale preschool program. Previous randomized studies typically look at small-scale programs (Campbell and Ramey 1994; Schweinhart et al. 2005) or are limited to short-term outcomes (Puma et al. 2010; Puma, Bell, and Heid 2012; Bitler, Hoynes, and Domina 2014; Bloom and Weiland 2015; Walters 2015; Feller et al. 2016; Kline and Walters 2016; Lipsey, Farran, and Durkin 2018; Weiland et al. 2019). Other studies look at large-scale programs using observational research designs (Garces, Thomas, and Currie 2002; Gormley et al. 2005; Ludwig and Miller 2007; Fitzpatrick 2008; Wong et al. 2008; Deming 2009; Carneiro and Ginja 2014; Thompson 2018; Johnson and Jackson 2019; De Haan and Leuven 2020; Pages et al. 2020; Bailey, Timpe, and Sun 2021; Cascio forth-coming). Studying long-term effects requires data following students over a long-time horizon, which is rare among modern publicly funded preschool programs. Boston operated a large public preschool program by the late 1990s and allocated seats with a centralized mechanism, allowing us to study program impacts over multiple decades with a randomized design. The program is run by the Boston Public Schools district, so our results are relevant for evaluating expansions of preschool provided by state and local governments (Muralidharan and Niehaus 2017). Our positive estimates for educational attainment are like those from model demonstration programs and nonexperimental studies of Head Start, illustrating the potential for modern public preschool programs to improve long-term outcomes."

Originality: Contribution Worksheet AK - Scoring Criteria 1, 2, 3

Output:

1: What literature do the authors contribute to?

"We present the first evidence from a randomized research design on the long-term effects of a large-scale preschool program."

2: What does the literature say about the question that the paper addresses?

"Previous randomized studies typically look at small-scale programs... or are limited to short-term outcomes."

3: What is the gap in the literature?

"Studying long-term effects requires data following students over a long-time horizon, which is rare among modern publicly funded preschool programs."

Originality: Contribution

Worksheet AK - Score Feedback 1, 2, 3

Prompt:

Give constructive feedback to the authors about their ability to answer each of the 6 questions above. Give a score between 0 to 10 for each of the questions.

Output:

Here's constructive feedback and scores based on the authors' ability to address each of the six questions:

What do the authors do to answer the question about the effect of early education on long run outcomes?

Score: 9/10. The authors effectively highlight that they provide "the first evidence from a randomized research design on the long-term effects of a large-scale preschool program," which directly addresses the research question. However, they could strengthen their response by giving more details on the specific methods used to measure long-term outcomes.

What does the literature say about the question that the paper addresses?

Score: 8/10. The authors do a good job summarizing prior research, distinguishing between small-scale studies and those focusing on short-term outcomes, while also acknowledging observational studies on large-scale programs. While comprehensive, a more explicit comparison between the different strands of literature and how their study builds on or contrasts with previous findings could improve this section.

What is the gap in the literature?

Score: 8/10. The gap is clearly identified: a lack of long-term data for publicly funded preschool programs. This is well articulated. However, the gap could be more explicitly linked to why this is important for understanding long-term educational and social outcomes, making the case for why filling this gap is valuable beyond just its scarcity.

Originality: Contribution Worksheet AK -

Scoring Criteria 4

Prompt: "Identify the text in the paragraph that answers the following question:

4: Why is there a gap in the literature?

Our analysis makes two main contributions to the literature. First, we present the first evidence from a randomized research design on the long-term effects of a large-scale preschool program. Previous randomized studies typically look at small-scale programs (Campbell and Ramey 1994; Schweinhart et al. 2005) or are limited to short-term outcomes (Puma et al. 2010; Puma, Bell, and Heid 2012; Bitler, Hoynes, and Domina 2014; Bloom and Weiland 2015; Walters 2015; Feller et al. 2016; Kline and Walters 2016; Lipsey, Farran, and Durkin 2018; Weiland et al. 2019). Other studies look at large-scale programs using observational research designs (Garces, Thomas, and Currie 2002; Gormley et al. 2005; Ludwig and Miller 2007; Fitzpatrick 2008; Wong et al. 2008; Deming 2009; Carneiro and Ginja 2014; Thompson 2018; Johnson and Jackson 2019; De Haan and Leuven 2020; Pages et al. 2020; Bailey, Timpe, and Sun 2021; Cascio forth-coming). Studying long-term effects requires data following students over a long-time horizon, which is rare among modern publicly funded preschool programs. Boston operated a large public preschool program by the late 1990s and allocated seats with a centralized mechanism, allowing us to study program impacts over multiple decades with a randomized design. The program is run by the Boston Public Schools district, so our results are relevant for evaluating expansions of preschool provided by state and local governments (Muralidharan and Niehaus 2017). Our positive estimates for educational attainment are like those from model demonstration programs and nonexperimental studies of Head Start, illustrating the potential for modern public preschool programs to improve long-term outcomes."

Originality: Contribution Worksheet AK - Scoring Criteria 4

Output:

4: Why is there a gap in the literature?

"Studying long-term effects requires data following students over a long-time horizon, which is rare among modern publicly funded preschool programs."

What allows you to fill this gap?

"Boston operated a large public preschool program by the late 1990s and allocated seats with a centralized mechanism, allowing us to study program impacts over multiple decades with a randomized design."

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Originality: Contribution

Worksheet AK - Score Feedback 4

Prompt:

Give constructive feedback to the authors about their ability to answer the question above. Give a score between 0 to 10.

Output:

Here's constructive feedback and scores based on the authors' ability to address each of the six questions:

Why is there a gap in the literature?

Score: 9/10. The authors clearly explain that the gap exists due to the rarity of long-term data for modern, publicly funded preschool programs. The explanation is straightforward and concise. However, expanding slightly on why collecting such data is logistically difficult and how this study overcame those challenges would provide more context.

What allows you to fill this gap?

Score: 10/10. The authors effectively explain that the large public preschool program in Boston, with its randomized seat allocation system, allows them to study long-term outcomes. This provides a strong and clear rationale for how their study fills the identified gap, and no improvements are necessary here.

[1] IS A HIGHER-ORDER PROBLEM WELL-IDENTIFIED: A substantial body of evidence establishes that early life deficits have persistent negative effects on lifetime well-being (see Knudsen et al. 2006; Almond, Currie, and Duque 2018). **[3] IS THE PROBLEM ONE THAT THE ECON LIT. CARES ABOUT:** High-quality early-childhood interventions are seen as a promising tool to address such deficits, improve economic outcomes, and reduce socioeconomic disparities (Duncan and Magnuson 2013; Heckman 2013; Elango et al. 2016; Yoshikawa, Weiland, and Brooks-Gunn 2016; Chaudry et al. 2017). **[2] IS THE PROBLEM IMPORTANT? LARGE, PERSISTENT, HARD TO SOLVE, URGENT:** Contemporary policy efforts in the United States focus on expanding public preschool programs, many funded by state and local governments. The share of U.S. four-year-olds enrolled in state-funded preschool grew from 14% in 2002 to 34% in 2019.¹ By 2019, 44 states and 24 of the 40 largest U.S. cities operated large-scale public preschool programs, and nearly half of four-year-olds attended some form of publicly funded preschool (Barnett et al. 2003, Friedman-Krauss et al. 2019, NIEER 2019). Recent proposals at the federal, state, and local levels aim to continue this rapid expansion (Obama 2013; Biden 2021).

Significance - Value Added Worksheet 1

Prompt:

Give constructive feedback to the authors about their ability to identify a higher-order problem in this paragraph: [HOP paragraph] A substantial body of evidence establishes that early life deficits have persistent negative effects on lifetime well-being (see Knudsen et al. 2006; Almond, Currie, and Duque 2018). High- quality early-childhood interventions are seen as a promising tool to address such deficits, improve economic outcomes, and reduce socioeconomic disparities (Duncan and Magnuson 2013; Heckman 2013; Elango et al. 2016; Yoshikawa, Weiland, and Brooks-Gunn 2016; Chaudry et al. 2017). Contemporary policy efforts in the United States focus on expanding public preschool programs, many funded by state and local governments. The share of U.S. four year olds enrolled in state-funded preschool grew from 14% in 2002 to 34% in 2019.¹ By 2019, 44 states and 24 of the 40...We fill this gap by using a lottery-based research design to estimate the effects of large-scale public preschool in Boston, Massachusetts on long-term postsecondary educational outcomes.

Output

Score: 8/10

Constructive Feedback: The paragraph effectively identifies a higher-order problem by highlighting the persistent negative effects of early life deficits on lifetime well-being and the associated socioeconomic disparities. The authors successfully connect this problem to the potential solution of high-quality early-childhood interventions, such as public preschool programs. However, to strengthen the identification of the higher-order problem, it would be beneficial for the authors to explicitly state the broader implications of these persistent deficits and disparities. For example, they could briefly discuss how these issues contribute to long-term societal challenges, such as economic inequality or limited social mobility. Additionally, while the paragraph does a good job of introducing the research gap, clarifying how the specific research question directly addresses the broader problem could further enhance the narrative. This would help to more clearly link the study's focus on long-term educational outcomes with the overarching goal of reducing socioeconomic disparities.

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Significance - Value Added Worksheet 2

Prompt:

Give a score from 0-10 and constructive feedback to the authors about their ability to motivate that the is problem important (large, hard to solve/immune to policy, persistent, urgent): A substantial body of evidence establishes that early life deficits have persistent negative effects on lifetime well-being (see Knudsen et al. 2006; Almond, Currie, and Duque 2018). High- quality early-childhood interventions are seen as a promising tool to address such deficits, improve economic outcomes, and reduce socioeconomic disparities (Duncan and Magnuson 2013; Heckman 2013; Elango et al. 2016; Yoshikawa, Weiland, and Brooks-Gunn 2016; Chaudry et al. 2017). Contemporary policy efforts in the United States focus on expanding public preschool programs, many funded by state and local governments. The share of U.S. four year olds enrolled in state-funded preschool grew from 14% in 2002 to 34% in 2019.¹ By 2019, 44 states and 24 of the 40...We fill this gap by using a lottery-based research design to estimate the effects of large-scale public preschool in Boston, Massachusetts on long-term postsecondary educational outcomes.

Output

Score: 7/10

Constructive Feedback: Score: 7/10 Constructive Feedback: The authors do a solid job of motivating the importance of the problem by citing evidence that early life deficits have persistent negative effects on lifetime well-being and that high-quality early-childhood interventions could address these deficits. They also emphasize the growing policy interest in expanding public preschool programs, which suggests a recognition of the issue's significance. However, the motivation could be strengthened by more explicitly discussing the broader implications of these early life deficits and the challenges in addressing them. For example, elaborating on how these deficits contribute to entrenched socioeconomic disparities and the difficulty of reversing such disparities later in life would underscore the problem's persistence and resistance to simple solutions. Additionally, highlighting the urgency of addressing these deficits, perhaps by linking them to current socioeconomic trends or the long-term impact on society, would make the case even more compelling. By incorporating these elements, the authors could better convey the problem's scale, persistence, and critical importance.

Significance - Value Added Worksheet 3

Prompt:

Give a score from 0-10 and constructive feedback to the authors about their ability to convince the reader that the problem is one that the economics literature cares a lot about. Comment on the references used:

A substantial body of evidence establishes that early life deficits have persistent negative effects on lifetime well-being (see Knudsen et al. 2006; Almond, Currie, and Duque 2018). High- quality early-childhood interventions are seen as a promising tool to address such deficits, improve economic outcomes, and reduce socioeconomic disparities (Duncan and Magnuson 2013; Heckman 2013; Elango et al. 2016; Yoshikawa, Weiland, and Brooks-Gunn 2016; Chaudry et al. 2017). Contemporary policy efforts in the United States focus on expanding public preschool programs, many funded by state and local governments. The share of U.S. four year olds enrolled in state-funded preschool grew from 14% in 2002 to 34% in 2019.¹ By 2019, 44 states and 24 of the 40...We fill this gap by using a lottery-based research design to estimate the effects of large-scale public preschool in Boston, Massachusetts on long-term postsecondary educational outcomes.

Output

Score: 8/10

Constructive Feedback: The authors do a commendable job of convincing the reader that the problem of early life deficits and the role of early-childhood interventions is one that the economics literature cares deeply about. They cite a substantial body of evidence, including key references that are highly regarded in the field, such as works by Almond, Currie, and Heckman. These references are well-chosen, as they represent influential studies that have shaped the understanding of how early life conditions affect long-term economic outcomes and the effectiveness of interventions. However, the argument could be further strengthened by explicitly highlighting how these issues are central to ongoing debates in economics. For instance, the authors could briefly mention how this topic intersects with broader economic concerns, such as human capital formation, intergenerational mobility, and inequality. Additionally, referencing more recent studies or meta-analyses that continue to drive the discussion in the field could help reinforce the idea that this is a vibrant and active area of research in economics.

[4] DOES ANSWERING THE RESEARCH QUESTION SOLVE THE HIGHER-ORDER PROBLEM: We fill this gap by using a lottery-based research design to estimate the effects of large-scale public preschool in Boston, Massachusetts on long-term postsecondary educational outcomes.

Our approach compares students who were randomly lotteried in or out of public preschool as a result of tie-breaking embedded in Boston's school assignment mechanism. We use randomized lottery offers as instruments for preschool enrolment to estimate causal effects of preschool attendance. This analysis builds on earlier work based on tie-breaking in centralized assignment systems (Abdulkadiroglu et al. 2011, 2017) and previous studies looking at short-term impacts of preschool in Boston (Weiland and Yoshikawa 2013; Weiland et al. 2019).

Significance - Value Added Worksheet 4

Prompt:

Give a score from 0-10 and constructive feedback to the authors about their ability to convince the reader that answering the research question solves the problem:

A substantial body of evidence establishes that early life deficits have persistent negative effects on lifetime well-being (see Knudsen et al. 2006; Almond, Currie, and Duque 2018). High- quality early-childhood interventions are seen as a promising tool to address such deficits, improve economic outcomes, and reduce socioeconomic disparities (Duncan and Magnuson 2013; Heckman 2013; Elango et al. 2016; Yoshikawa, Weiland, and Brooks-Gunn 2016; Chaudry et al. 2017). Contemporary policy efforts in the United States focus on expanding public preschool programs, many funded by state and local governments. The share of U.S. four year olds enrolled in state-funded preschool grew from 14% in 2002 to 34% in 2019.¹ By 2019, 44 states and 24 of the 40...We fill this gap by using a lottery-based research design to estimate the effects of large-scale public preschool in Boston, Massachusetts on long-term postsecondary educational outcomes.

Output

Score: 6/10

Constructive Feedback: The authors make a reasonable attempt to connect the research question to the broader problem by focusing on the potential of high-quality early-childhood interventions to mitigate the negative effects of early life deficits. They effectively set the stage by discussing the persistent impact of these deficits and the growing policy interest in public preschool programs as a means to address them. However, the link between answering the specific research question and solving the larger problem could be made more explicit. While the paragraph states that the study will estimate the effects of large-scale public preschool in Boston on long-term postsecondary outcomes, it doesn't fully explain how this will directly contribute to solving the overarching issue of socioeconomic disparities and long-term well-being. The authors could strengthen their argument by explicitly stating that demonstrating positive outcomes from such interventions would provide strong evidence for scaling up similar programs nationwide, thereby addressing the broader problem on a larger scale. Additionally, the authors might benefit from discussing the implications of their findings more clearly—how showing the effectiveness (or lack thereof) of these preschool programs can inform policymakers and contribute to more effective strategies for reducing socioeconomic disparities and improving long-term economic outcomes. By clarifying how their research directly addresses the problem, the authors would provide a more convincing rationale for the importance of their study.

Prompt:

Give a score from 0-10 and constructive feedback to the authors about how answering the research question solves the problem: INSERT FIRST CONTRIBUTION PARAGRAPH IN THE INTRODUCTION HERE

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Output

Score: 6/10

Constructive Feedback: The authors make a reasonable attempt to connect the research question to the broader problem by focusing on the potential of high-quality early-childhood interventions to mitigate the negative effects of early life deficits. They effectively set the stage by discussing the persistent impact of these deficits and the growing policy interest in public preschool programs as a means to address them. However, the link between answering the specific research question and solving the larger problem could be made more explicit. While the paragraph states that the study will estimate the effects of large-scale public preschool in Boston on long-term postsecondary outcomes, it doesn't fully explain how this will directly contribute to solving the overarching issue of socioeconomic disparities and long-term well-being. The authors could strengthen their argument by explicitly stating that demonstrating positive outcomes from such interventions would provide strong evidence for scaling up similar programs nationwide, thereby addressing the broader problem on a larger scale. Additionally, the authors might benefit from discussing the implications of their findings more clearly—how showing the effectiveness (or lack thereof) of these preschool programs can inform policymakers and contribute to more effective strategies for reducing socioeconomic disparities and improving long-term economic outcomes. By clarifying how their research directly addresses the problem, the authors would provide a more convincing rationale for the importance of their study.

	Paper Information	Sub Information	Input
[1]	Paper Title		
[2]	Author		
[3]	Year		
[4]	Journal		
[5]	Question		
[6]	Data		
[7]	Method		
[8]	X (name of variable, construction, units)		
[9]	Y		
[10]	Mechanisms		
[11]	HOP/VA	Significance Scoring Criteria	
[12]	Contribution	Originality Scoring Criteria	

Reasons for the Gap

Example in the Applied Microeconomics field:

- **Internal validity - Better identification strategy:**
 - Better data (type, country, years, nobs., population-level, new variables)
 - Better policy shock
 - Better/different empirical method (not developed by authors)
- **External validity:**
 - Better data (population-level) or method that generalizes the answer to the question?
- **Mechanisms:**
 - Consider new mechanism that answer the question in a different way?
 - Reasons: Same as internal validity
- **Methodological contribution: developed a new method that better answers the research question**

Significance - Value Added Example

What is the point?: To solve a **higher-order economic problem** by addressing our research question:

- **Is the higher-order economic problem well-identified?** (Many possibilities: Gender equality, equal opportunities, climate change)
 - Yes, youth mental health is also an economically costly problem, and addressing it requires causal evidence methods.
- **Is the problem important (e.g., large, persistent, immune to policy, urgent)?**
 - Yes, authoritative figures describe the youth mental health crisis as the defining public health challenge of our times.
- **Is the problem one that the Economics literature cares about?**
 - Yes, addressing this issue highlights the unique skills of economists.
- **Does answering the research question help solve the problem?**
 - Yes, the talk explores how childhood policies can address this higher-order problem.