Penn State Public Policy Journal

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About

The *Penn State Public Policy Journal* is a student-led publication that was founded in 2022 by several Master of Public Policy (MPP) students at the Penn State School of Public Policy. The Journal is currently published by the Penn State Public Policy Association (PSPPA), a registered student organization based at the Penn State University Park campus. Association membership spans across colleges, disciplines, and at both the graduate and undergraduate level.

Mission

The core mission of the *Penn State Public Policy Journal* is to offer all Penn State students the opportunity to publish original public policy analysis and research, discuss emerging and established public problems, and to share recommended policy approaches with a wider audience. By doing so, we hope to encourage students to think critically and creatively about some of the biggest challenges facing society, and in turn publish and share high-quality, nuanced policy writing.

Focus & Scope

The *Penn State Public Policy Journal* publishes submissions on a wide range of issues. As a generalist publication intended for a wide audience, we welcome submissions from public policy scholars, political scientists, economists, legal scholars, sociologists, public health researchers, and others, so long as the work exhibits intellectual rigor, scholarly depth, accessible writing, and relevance to the public policy sphere.

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Letter from the Editors

Dear Reader:

The Penn State Public Policy Association (PSPPA) is proud to release the second edition of the Penn State Public Policy Journal (PSPPJ). The purpose of *PSPPJ* is to provide a platform for students from a wide array of academic disciplines to research, analyze, and discuss the most pertinent public policy issues we face today. We would like to thank all authors, editors, and members of PSPPA for their support and hard work that helped make the second edition of this journal a reality.

The publication of the second edition of PSPPJ would not have been possible if not for the efforts of our editors, our undergraduate student membership, and our fellow Master of Public Policy students, all of whom contributed their invaluable perspectives and expertise. We would also like to thank Dr. Lilliard Richardson, Jeremy Hoffman, Dustin Elder, and all faculty from the Penn State School of Public Policy for supporting our academic pursuits inside and outside of the classroom. Their support provided us with the necessary tools to pursue our passions and examine these critical policy issues.

Public policy is, inherently, a human enterprise. Public problems span across realms of human life and society, and can have broad impacts that can significantly impact global populations. It is integral that as we address public problems through policy, we do so through an interdisciplinary and inclusive lens; one that puts all people at the decision-making table. We hope that the insights and findings of the second edition of the Penn State Public Policy Journal challenge you to think beyond what you may already know and hold to be the status quo.

Sincerely,

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Suspension of the UN Security Council's Veto Power in Cases of Mass Atrocities

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EXECUTIVE SUMMARY

To the United Nations General Assembly, during the 70th General Assembly, France, jointly presented with Mexico, undersigned a political statement on the suspension of the veto power in cases of mass atrocities. France argued that if any of the 5 five permanent members of the Security Council were to use the veto power to obstruct international peace, it would require 50 member states to agree to suspend the right of veto. Rather than a threshold of 50 member states, this article proposes the request to suspend the veto power in cases of mass atrocities to be supported by a two-thirds majority of the General Assembly. By allowing the General Assembly to override the veto power awarded to the Security Council, the United Nations could gain back its international reputation and adhere to its political commitment – *the responsibility to protect.*

THE VETO POWER AND ITS HISTORY

Beyond the common understanding that the United Nations has been created to save generations from war, maintain international peace, and protect the dignity and worth of human beings and their rights, the Security Council has also been given an advantage within the organization (United Nations 69th General Assembly, 2014). While current member states of the United Nations understand that the Security Council was given "primary responsibility to maintain international peace and security by the United Nations Charter" (United Nations 70th General Assembly, 2015), it is important to highlight the power that the five permanent members of the Security Council (the P-5) currently uphold. The P-5 have carefully protected this power and have used it to liberally protect their interests (Sinha, 2019). Originating from Article 27.2 of the Charter, the veto power

allows any of the P-5 – the United States, China, France, Russia, and the United Kingdom – to veto any resolution (Council on Foreign Relations, 2023). A United Nations resolution, as explained by the UN Security Council, is a formal expression of the opinion or will of the UN organs. In other words, the Security Council can intercept any resolution and officially turn it down. This privilege, to veto any resolution, arose in the aftermath of World War II, when the US, the United Kingdom, and the Union of Soviet Socialist Republics (USSR) were the victors of the war. After long and extensive planning of what the United Nations could be made of, either of recognized nations, major global superpowers, or former colonies, U.S. former President Roosevelt insisted on including China as part of the four global policemen (Council on Foreign Relations, 2023). It was later discovered that Roosevelt argued for China to be included due to its key role when defeating Germany and Japan during WWII (Council on Foreign Relations, 2023). At the same time, former British Prime Minister Churchill understood that France was vulnerable to a German or Soviet attack, and ultimately recommended that they should be included in the four global policemen, turning the nickname to the P-5 (Council on Foreign Relations, 2023).

After the P-5 were given the ability to veto any resolution, Russia has been the most frequent user, and has exercised its veto power a total of 158 times as of March 2024 (UN Veto Dataset, 2024). Although Russia has exercised the veto the most, it is key to understand that there has been a decrease in resolutions vetoed before and after the dissolution of the USSR. International Relations (IR) scholars argue that after the downfall of the Soviet Union, the Soviets were focusing on many world issues, such as the Cold War, and vetoing UN resolutions allowed them to continue to play a major role within the international community (Council on Foreign Relations, 2023). Nevertheless, there has been a decrease in Russia's veto power after the downfall of the USSR. For the most part, this is because Russia has decreased in its size, and vetoing a UN resolution is targeted only by the motherland, and not by the prior states of the USSR.

Although Russia has used the veto more than any other P-5 member, the United States follows behind. According to the 2023 United Nations Security Council Report, the United States has used the veto power 87 times (United Nations Security Council Report, 2023). Ranging from its first vote in 1970 to its most recent one in February

2024, the US has mostly blocked decisions regarding the interests of Israel. At the same time, the UK has used the veto 29 times; however, the last time the British government used it was in 1989 (Security Council Veto List, 2023). They are followed by France – the French government has only used the veto power 16 times, with the last one being in 1989 (Ministère de L'Europe et des Affaires Étrangères, 2023). With the least number of vetoes, China comes in fifth place with a total of 16 vetoed resolutions (United Nations Security Council Report, 2023).

USAGE OF THE VETO

Since February 1946 - when the USSR cast its first veto power - the veto has been recorded 293 times (United Nations Veto Report, 2024). While it is important to understand that the veto power was implemented to maintain international peace, it is also crucial to acknowledge that the veto power always benefits whoever is exercising it (Callahan, 2022). Nevertheless, the veto is not used that frequently - hence the international outcry when it is used (Callahan, 2022). While the veto power has been put in motion for multiple reasons, there have been seven key moments in the history of the United Nations where it has been used to obstruct nations from stopping mass atrocities. These are as follows:

1. In January 2007, the United States and the United Kingdom drafted a resolution in the Security Council to call Myanmar to release "all political prisoners […] and end its military attacks […] and human rights abuses against ethnic minorities" (UN News, 2007). After the draft was brought to the Security Council, Russia and China vetoed the resolution - making history for the first use of multiple vetoes at the Council since 1989 (United Nations Department of Public Information, 2007).

2. In July 2008, after the public knowledge that the President of Zimbabwe Robert Mugabe engaged in state-sponsored murders, intimidation, violence, and sexual violence, the Security Council intended to impose sanctions against him (United Nations Department of Public Information, 2008). Nevertheless, the resolution was vetoed one more time by Russia and China.

3. In October 2011, the Security Council drafted a resolution that would have condemned "grave and systematic human rights violations" in Syria under President Bashar al-Assad (United Nations Department of Public Information, 2011). However, the same two permanent members, Russia and China, vetoed the resolution.

4. Shortly after, in 2012, Russia and China vetoed again a Security Council a resolution that would have demanded that all parties in Syria "stop all violence and reprisals [...] regardless of where it comes from [...] and gross violations of human rights" (United Nations Department of Public Information, 2012).

5. In late 2012, there was a resolution drafted by the Security Council to impose economic sanctions on the Assad administration; however, it was then vetoed by Russia and China (United Nations Department of Public Information, 2012). Although later in 2013 it was discovered that an agreement was reached on the destruction of Syria's chemical weapons, the initial peace plan was vetoed by two of the P-5 (United Nations Department of Public Information, 2012).

6. More recently, in October 2022, the Security Council issued a resolution to condemn Russia for the attempted annexation of Ukraine regions (United Nations Global Perspective Human Stories, 2022). For obvious reasons, Russia vetoed the resolution.

7. Nevertheless, in December of 2023, the Security Council sought to impose a ceasefire in the ongoing Israel-Hamas war in Gaza (Kelemen and Leff, 2023). As expected, the United States vetoed the Gaza cease-fire resolution during the December 8th Security Council meeting (Kelemen and Leff, 2023).

As seen above, the veto power is only used when it benefits each nation's political self-interest. The use of the veto power in the cases

of Russia and China occurred due to external conflicts among the countries involved (UN Security Council Report, 2020). Since 2011, Russia cast 19 votes, 14 of which were on Syria (UN Security Council Report, 2020). In the case of China, the Chinese vetoed nine resolutions, eight of which were on Syria (UN Security Council Report, 2020). All in all, it can be argued that the veto power is only enforced when the country enforcing it is the primary beneficiary. Nevertheless, it is also crucial to highlight the distinction between what is a good use of a veto and what is a bad use of it. There have been issues when the veto has been used because the primary state causing these mass atrocities are either directly involved in the conflict, as seen in the Ukraine-Russia war, or publicly supports one of the main actors, as seen in the Palestine-Israel war. However, the United Nations has been founded to prevent atrocities, intervene when human rights are being violated, and uphold a responsibility to protect the powerless (United Nations 70th General Assembly, 2015). In my opinion, if any of the P-5 members utilize their veto power to obstruct the United Nations from intervening in cases of mass atrocities, the veto power is deemed to be a bad one.

Moreover, it is important to understand the stance of a country when vetoing a resolution regarding cases of mass atrocities, along with the practical consequences that flow from the exercise of such veto power. For example, despite evidence of human rights violations, intimidation, and violence in Syria and Zimbabwe, both the Russian and Chinese governments have demonstrated their reluctance to support UN intervention in these incidents by vetoing UN resolutions. More recently, as alluded to above, during the December 8th Security Council meeting, the U.S. vetoed a UN Security Council resolution, calling for an immediate ceasefire in the Israeli-Gaza conflict. At the time, the US Ambassador to the UN, Linda Thomas-Greenfield, sought to justify the US's stance due to the omission of language condemning Hamas (Kelemen and Leff, 2023). Further, on February 20, 2024, the US vetoed a subsequent UN Security Council resolution concerning the Gaza conflict, which demanded an immediate humanitarian ceasefire, citing that it would jeopardize negotiations to secure the release of Israeli hostages (Lederer, 2024). Regardless of their reasoning, the practical result is that, in each of these instances, the US effectively blocked UN intervention. The consequences of inaction in this conflict are particularly dire, given that the atrocities in Gaza continue to endure. As of February 2024, it is thought that the conflict has claimed the lives of over 30,000

Palestinians, most of them being innocent civilians (Batrawy, 2024). Moreover, several commentators have claimed that Israel's recent actions in Gaza amount to an act of genocide, although it should be noted that these allegations have been strongly disputed by the Israeli government, among others, and have not been proven in a court of law (Schifrin et al., 2024; Mian & Brown, 2024; Associated Foreign Press, 2024). Regardless of Israel's actions amount to violations of international law, it is the author's view that there is a clear need for a swift and comprehensive UN response.

POLICY PROPOSAL

BACKGROUND

Following the 2005 World Summit, the governments of Costa Rica, Jordan, Liechtenstein, Singapore, and Switzerland proclaimed the nickname the Small Five (S5) after advocating to "refrain [...] from using a veto to block Council actions aimed at preventing or ending genocide, war crimes, and crimes against humanity" (UN Security Council Report, 2020). After the S5 brought their concerns to the General Assembly, there were conversations that their demands were later dropped due to pressure from the P-5 Security Council members. However, in 2013, the concerns were picked up again by a cross-regional group of 27 small and medium-sized states (UN Security Council Report, 2020), where they argued that the Security Council needed to be restructured. While their arguments were supported by 120 member states - including France and the UK -, it was not even considered to be a drafted resolution by the rest of the P-5 members (UN Security Council Report, 2020). Although the P-5 has the ultimatum, whether a resolution is passed, every member of the General Assembly can draft one. Per Article 10 of the UN Charter, "the General Assembly may discuss any questions or any matters within the scope of the present Charter or relating to the powers and functions of any organs of the UN and [...] may make any recommendations to the Security Council on any questions or matters" (United Nations Charter, 2021). In other words, resolutions can be adopted by the General Assembly, where these are deemed to be recommendations for the Security Council; however, they are not legally binding on the member states until they are adopted by

the Security Council - without having any of the P-5 veto the resolution.

After leaving in evidence that Russia, China, and the United States were not on board, in October 2013, France, jointly presented with Mexico, proposed a "code of conduct" for the use of the veto in the Security Council just in situations of "mass atrocity crimes - defined by the responsibility to protect as "genocides, war crimes, crimes against humanity, and ethnic cleansing" (United Nations General Assembly, 2013). Here, France argued that the code of conduct would act if there was a case of mass atrocities. If there was clear evidence that there was a threat to the rights of the people, then the following steps must be taken:

- It would not require an amendment to the Charter (United Nations Association, 2015).

- It would require at least 50 member states to request the UN Secretary-General to determine the nature of the crimes taking place (United Nations Association, 2015).

- Once the UNSG confirmed the atrocity crimes, the code of conduct proposed by France would apply immediately (United Nations Association, 2015).

While the code of conduct proposed by one of the P-5 members could hardly split the members and dictate where each state stands, it is important to understand what the P5 perspectives on the veto are. In the case of the UK, the last time that the British government used its veto power was in 1989 (Security Council Veto List, 2023). Recently, the UK has engaged in talks where reforming the UN Security Council has been a main topic, leaving evidence that the British government is open to reforming the Council. In the case of the US, the American government has not made any statements on the issue, allowing viewers to be unsure of the American stance (United Nations Association, 2015). Lastly, Russia and China, both have argued against the reform of the UN Security Council but have actively engaged in meetings regarding the veto initiative (United Nations Association, 2015).

SOLUTION

Although the code of conduct proposal suggested by France states important key issues, it is crucial to highlight that the resolution has not been passed yet. As of today, nothing has been implemented to prevent the P-5 members from utilizing the veto power in cases of mass atrocities. While France and Mexico strictly stated the next steps to regulate or guide the usage of the veto power, there are a couple of key points that need to be changed:

1. Instead of having the code of conduct to be undersigned by a General Assembly member, in this case Mexico, it is recommended that the proposal were to be signed by a current UN Security Council permanent member, the UK in this case. As a result, two out of the five permanent members would push for this resolution, enforcing pressure on the remaining three.

2. To expedite the process, it is recommended for the Council to verbally commit and agree on not utilizing the veto power in cases of genocides, war crimes, crimes against humanity, and ethnic cleansing. This would allow for a small step to be taken before the big one - an officially passed resolution.

3. Most importantly, it is recommended that instead of a threshold of 50 member states, France would propose to have two-thirds or 127 countries majority in the General Assembly to request to the Secretary-General to prevent the P-5 from using the veto power.

Despite the given policy recommendations, there have also been multiple times when members of the United Nations have pushed for a responsibility to not veto (United Nations Association, 2015). Ranging from the 2001 claim by former French Minister Hubert Védrine to not apply their veto to block humanitarian action when neither of the P-5 national interests was involved, to the most recent one in 2015 when Amnesty International, a worldwide known human rights group, decided to urge the P-5 to not use the veto in classes of mass atrocities in their annual report (United Nations Association, 2015). Therefore, while pushing France's already in-motion request, it can be assumed that the UN Security Council would be able to shift its structure and allow the veto power to not be used in cases of

mass atrocities. In the end, there is a pressing need for the P-5 to transform, and it is important to understand that while the veto power has been used on multiple occasions, there has been major world suffering and an exponential decrease in international peace. From Myanmar in 2007, to Gaza in 2023, the United Nations has failed to protect the powerless, leaving evidence that the international organization is controlled by the permanent members.

POLICY IMPLICATIONS: TO VETO OR NOT TO VETO?

Carnegie Endowment for International Peace conducted a study with the Global Order and Institution Program which consisted of inviting fifteen scholars from around the world to answer a simple question: "How should the UN Security Council be reformed, from the perspective of your country or region?" (Carnegie Endowment for International Peace, 2023). Emerging powers such as India, Brazil, Japan, and Germany argue that there must be a Council reform, but they precisely mention three changes: (1) include two permanent seats for Africa; (2) form a G4 coalition, meaning that either Brazil, Germany, India, or Japan are the main four aspirants to a permanent council membership; and (3) allow the veto power to have some flexibility (Mukherjee et al, 2023). In the case of Mexico, it was mentioned that the Mexican delegation agrees that the Security Council should be expanded, but with "no additional permanent members with veto power" (Ruiz Cabaña Izquierdo, 2023). On the other hand, Nigeria, which has served on the Security Council five times, publicly announced its desire to become a permanent member of the council with the right to veto (Adebajo, 2023). However, they also mentioned the idea that it is open to the possibility of a restricted veto power since they believe they can increase their influence in other ways (Adebajo, 2023).

Onto the current permanent members, Russia argues that the veto provision "is the central decision-making function of the organization" (Kolosovskiy, 2023). They argue that the veto is designated to push the P5 towards a common group, while also protecting the Security Council (SC) decisions that might run contrary to their national interests and beliefs (Kolosovskiy, 2023). At the same time, China has a similar take on the veto power. They argue that the Security Council is facing unprecedented challenges, and allowing more members with or without veto power will be

controversial, a geopolitical backdrop, and a poor decision (Guihong, 2023). France, on the other hand, states that a Security Council reform has been one of the UN's longest-standing topics of discussion (Novosseloff, 2023). The French delegation argues that despite the consensus to move forward, there must be a reform of the Security Council to reinforce the legitimacy and authority of the international organization (Novosseloff, 2023). In addition, they also mention that there must be a responsible use of the veto in situations of mass atrocities, and it supports new permanent members with a "greater African presence" (Novosseloff, 2023). The United Kingdom plays a more diplomatic role when these arguments are brought up. The British government took the reform of the Security Council as an asset to diplomacy but agreed to recognize that the world in 1945 was extremely different from the world in 2024 (Gowan, 2023). Although the British government does not explicitly state whether a reform must occur, they also fail to acknowledge that there should not be a change within the United Nations (Novosseloff, 2023). Lastly, the United States of America argued for and against a reform. The U.S. Ambassador to the UN Linda Thomas-Greenfield stated that the U.S. will "defend an outdated status quo", but also mentioned that a reform of the Security Council must occur to "empower the UN to take on the challenges of the 21st century" (Dayal, 2023). While these talks have been happening ever since the United Nations was created, three decades later, the UN Security Council continues to meet – with no tangible results.

Although the impulse for reform is understandable and sounds daunting, nearly eight decades later, the Security Council continues to have the same five permanent members. When taking a closer look at the decisions made by the Security Council, the geopolitical rivalry between Western democracies and authoritarian regimes can be easily spotted. If the council continues to be the same way that it has been since 1945, especially in the usage of the veto power in cases of mass atrocities, the Security Council will carry on with its ability to be unjust, dominated by world superpowers, and wrongly represented across the entire international organization (Patrick, 2023). Rather than a safeguard of international peace, the Security Council has turned into a unilateral block that only functions depending on its national interests (Patrick, 2023). It is key to restoring the council's effectiveness and legitimacy, and blocking the

usage of the veto power in cases of mass atrocities is the first step to its reform.

Conclusion

To summarize everything that has been stated, this article proposes to shift France's code of conduct and address three main issues. (1) include the United Kingdom as a co-signer to the proposal implemented by France and Mexico; (2) push for the P-5 to verbally commit and agree not to use their veto power in cases of genocides, war crimes, crimes against humanity, and ethnic cleansing; and (3) recommend the increase from 50 member states to two-thirds or 127 countries majority to request to the UNSG to revoke the P-5 veto power in cases of mass atrocities. All in all, it is important to note that after the endless amounts of failure to address the humanitarian crisis in Syria, Rwanda, Sudan, Ukraine, and now Gaza for example, there must be a change within the Security Council to put more effort into promoting international peace, prevent future generations from going to war, and protect the dignity and worth of human beings. In the end, the United Nations has the ability and the responsibility to protect civilians, but having five superpowers as the main actors of the institution only pushes for more inequality, corruption, and abuse of power.

References

Associated Foreign Press (2024, April 4). Almost impossible to deliver aid in Gaza, say top charities. *France 24*. https://www.france24.com/en/live-news/20240404-almost-impossible-to-deliver-aid-in-gaza-say-top-charities

Batrawy, A. (2024, February 24). Gaza's death toll now exceeds 30,000. Here's why it's an incomplete count. *NPR*. https://www.npr.org/2024/02/29/1234159514/gaza-death-toll-30000-palestinians-israel-hamas-war

Callahan, M. (2022, April 14). The shackles of the United Nations Security Council veto, explained. *Northeastern Global News*. https://news.northeastern.edu/2022/04/14/united-nations-security-council-veto/

France Diplomacy. (2021). Why France wishes to regulate use of the veto in the United Nations Security Council. *Ministère de l'Europe et des Affaires étrangères.* https://www.diplomatie.gouv.fr/en/french-foreign-policy/united-nations/france-and-the-united-nations/france-and-the-united-nations-security-council/why-france-wishes-to-regulate-use-of-the-veto-in-the-united-nations-security-65315/

France Diplomacy. (2023). France and the United Nations Security Council. *Ministère de l'Europe et des Affaires étrangères.* https://www.diplomatie.gouv.fr/en/french-foreign-policy/united-nations/france-and-the-united-nations/france-and-the-united-nations-security-council/

Global Centre for the Responsibility to Protect. (2015). Political declaration on suspension of veto powers in cases of mass atrocities. https://www.globalr2p.org/resources/political-declaration-on-suspension-of-veto-powers-in-cases-of-mass-atrocities/

Goodman, A. (2024, February 12). "worst-case scenario": Noura Erakat on Israel's looming invasion of Rafah. *Democracy Now.* https://www.democracynow.org/2024/2/12/noura_erakat_rafah_gaza

Lederer, E. M. (2024, February 20). The US vetoes an Arab-backed UN resolution demanding an immediate humanitarian cease-fire in Gaza. *Associated Press.* https://apnews.com/article/un-israel-palestinians-gaza-ceasefire-resolution-vote-350c86ef261bf1a00a2515cf22764de5

Leff, A., Kelemen, M. (2023, December 8). The U.S. has vetoed a Gaza cease-fire resolution in the U.N. Security Council. *NPR.* https://www.npr.org/2023/12/08/1218332312/israel-hamas-war-us-ceasefire-veto-un

Mian, L., & Brown, B. (2024, March 27). "Reasonable grounds" to believe Israel is committing genocide in Gaza, UN rights expert says. *CNN.* https://www.cnn.com/2024/03/27/middleeast/israel-

committing-genocide-in-gaza-un-rights-expert-says-intl/index.html

Shabad, R., & Gains, M.. (2024, April 9). Defense Secretary Lloyd Austin rejects accusations Israel has committed genocide in Gaza. *NBC News*https://www.nbcnews.com/politics/congress/defense-secretary-lloyd-austin-rejects-accusations-israel-committed-ge-rcna147031

Patrick, S. (2023). UN Security Council Reform: What the world thinks. *Carnegie Endowment for International Peace*. https://carnegieendowment.org/2023/06/28/un-security-council-reform-what-world-thinks-pub-90032

Schifrin, N., Sagalyn, D., Kopelev, S., & Warsi, Z. (2024, January 11). Experts give 2 perspectives on accusations Israel is committing genocide in Gaza. *PBS*. https://www.pbs.org/newshour/show/experts-give-2-perspectives-on-accusations-israel-is-committing-genocide-in-gaza

Security Council Report. (2024, February 13). The veto: UN Security Council Working Methods. *Security Council*. https://www.securitycouncilreport.org/un-security-council-working-methods/the-veto.php

Seventieth General Assembly of the United Nations: France, & Mexico. (2015). Political statement on the suspension of the veto in case of mass atrocities. *United Nations General Assembly*. https://onu.delegfrance.org/IMG/pdf/2015_08_07_veto_political_declaration_en.pdf

Sinha, D. (2019, October - December). Veto provision in UN Charter: Issues and dimensions. *Indian Foreign Affairs Journal*, 14(4), 267–274. https://www.jstor.org/stable/48636736

United Nations Association - UK. (2015). UN Security Council and the responsibility to protect: Voluntary restraint of the veto in situations of mass atrocity. *Parliamentarians by UNA – UK*.

https://una.org.uk/sites/default/files/Briefing%20-%20Veto%20code%20of%20conduct.pdf

United Nations General Assembly. (2013, September 24). France. *UN General Debate*. https://gadebate.un.org/en/68/france

United Nations: Meetings Coverage and Press Releases. (2008, July 11). Security Council fails to adopt sanctions against Zimbabwe leadership as two permanent members cast negative votes. *UN Press.* https://press.un.org/en/2008/sc9396.doc.htm

United Nations: Meetings Coverage and Press Releases. (2011, October 4). Security Council fails to adopt draft resolution condemning Syria's crackdown on anti-government protestors, Owing to veto by Russian Federation, China. *UN Press.* https://press.un.org/en/2011/sc10403.doc.htm

United Nations: Meetings Coverage and Press Releases. (2012, February 4). Security Council fails to adopt draft resolution on Syria as Russian Federation, China veto text supporting Arab league's proposed peace plan. *UN Press*. https://press.un.org/en/2012/sc10536.doc.htm

United Nations News: Global Perspective Stories. (2007, January 12). China and Russia veto US/UK-backed Security Council draft resolution on Myanmar. *UN Press.* https://news.un.org/en/story/2007/01/205732

United Nations News: Global Perspective Stories. (2022, September 30). Russia vetoes Security Council resolution condemning attempted annexation of Ukraine regions. *UN Press.* https://news.un.org/en/story/2022/09/1129102

United Nations Office on Genocide Prevention and the Responsibility to Protect. (2016). Security Council. *UN Press*. https://www.un.org/en/genocideprevention/security-council.shtml

United Nations Press Release. (2024, February 23). Arms exports to Israel must stop immediately: UN Experts. *Office of the United Nations High Commissioner for Human Rights*.

https://www.ohchr.org/en/press-releases/2024/02/arms-exports-israel-must-stop-immediately-un-experts

United Nations. (2022, February 26). General Assembly adopts landmark resolution aimed at holding five permanent Security Council members accountable for use of veto. *UN Press*. https://press.un.org/en/2022/ga12417.doc.htm

United Nations. (2023, April 26). General Assembly holds first-ever debate on historic veto resolution, adopts texts on infrastructure, national reviews, Council of Europe Cooperation. *UN Press*. https://press.un.org/en/2023/ga12500.doc.htm

United Nations. (2021). How decisions are made at the UN. *United Nations*. https://www.un.org/en/model-united-nations/how-decisions-are-made-un

United Nations. (2024, March 11). UN Security Council meetings & outcomes tables. *UN Press*. https://research.un.org/en/docs/sc/quick

Environmental Injustice: Disproportionate Effects of Extreme Heat, Food Deserts, and 'Forever Chemicals'

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ABSTRACT

Environmental justice is addressing the devastating effects of climate change through the same lens that addresses historic racism, classism, and all forms of inequality in America. This policy analysis examines environmental justice through three compounding public problems– vulnerability to extreme heat, food insecurity in food deserts, and exposure to per- and polyfluoroalkyl substances (PFAS), often referred to as 'forever chemicals'. To further illustrate how environmental issues compound with social injustices, a linear regression is conducted with data from the Pennsylvania Department of Environmental Protection; pointing towards a statistically significant, positive relationship between certain socioeconomic factors and having a higher environmental justice burden. It concludes with a discussion of policy implications, and suggests continued investment by federal, state, and especially local governments into advancing environmental justice.

INTRODUCTION

Climate change and its devastating effects are disproportionately harming those most vulnerable. Across cultures, across countries, and across the world, climate change harms people of color, people of low-income, and people of certain locations more than their counterparts (Mohai et al., 2009). This environmental injustice has led to calls for an advancement of environmental justice– where those in positions of power and influence recognize these disproportionate effects and work to address them. Advancing environmental justice means fighting against climate change in the

most equitable way possible; paying particular attention to those who climate change hurts the most.

While these groups vary, and definitions or beliefs of best practices to advance environmental justice are non-unanimous, there is a collective urgency that shrouds this issue. As the scientific community continues to emphasize the need to control and reduce excess greenhouse gas emissions, the gasses that are responsible for trapping heat in the Earth's atmosphere and thus dangerously raising its temperature, global commitments to address climate change have become more aggressive (UN CCCOP28, 2023). Countries and companies alike are committing to reduce their greenhouse gas (GHG) emissions as a means to fight against climate change– but what are they committing to address rampant environmental injustice?

In particular, the United States is plagued with these environmental injustices. From toxic petrochemical plants in low-income areas along Louisiana's "Cancer Alley", to unsafe polluted drinking water in the predominantly non-white Flint, Michigan, or through scorching temperatures in previously redlined communities in Baltimore, Maryland, the time to address environmental justice in the United States is now (Impacts of Plastic Production and Disposal on Environmental Justice Communities, 2023; Centers for Disease Control and Prevention, 2020; Locke et al., 2020).

People of low-income are more vulnerable to extreme heat due to a lack of tree cover in their neighborhood and an inability to perpetually cool their homes (McDonald et al., 2021). People of color are more likely to suffer from food insecurity and live in food deserts because grocery stores are not often profitable in areas of low economic development and low investment (Raja et al., 2008). People in particular geographical locations are more likely to be exposed to toxic chemicals in their air, food, and water supply due to a lack of proper environmental regulations for certain manufacturing industries (Johnston & Cushing, 2020). The United States must address these environmental issues and has a responsibility to do so in ways that support those who are most vulnerable. As these devastating effects of climate change begin to compound with one another, the necessity of advancing environmental justice grows. Addressing environmental justice begins with understanding its dimensions, and what policymakers can do to address them.

This article explores environmental justice in three specific contexts: vulnerability to extreme heat, food insecurity, and exposure to toxic 'forever chemicals' in drinking water. These three environmental justice issues are not all-encompassing of the broader issues surrounding climate change, but help to define and contextualize how these public problems compound long-standing social and environmental inequities.
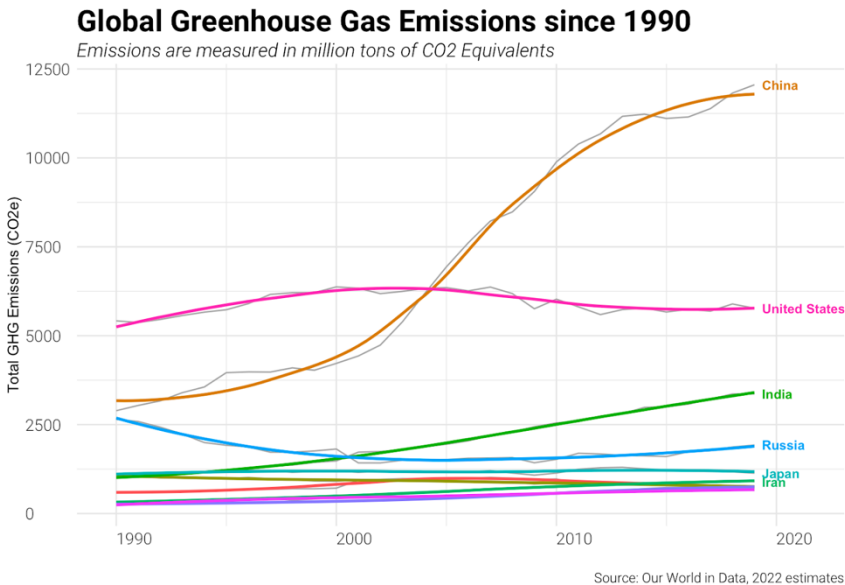
CONTEXT

Environmental justice is now. Climate change is now. The time to take purposeful and targeted action on these complex, global issues is now. As social injustice and global warming continue to compound with one another and exacerbate existing and long-standing inequalities, policymakers have increasingly begun to pay attention to calls for environmental justice. At the national level, the United States House of Representatives has a United for Climate and Environmental Justice Task Force, the United States Senate has an Environmental Justice Caucus, and the Biden administration has made environmental justice a core pillar of their campaign platform; signing Executive Order 14008 to address the climate crisis within the administration's first week (The White House, 2024). By addressing climate change through the same lens that addresses historic social and racial injustices, policymakers can understand the ways that certain climate policies can support those disproportionately affected by climate change.

Since the 1990s, global greenhouse gas emissions have increased substantially (Ritchie, Rosada, Roser, 2020). Greenhouse gases are naturally occurring gases in the atmosphere that traps heat and regulates global temperatures (US EPA, 2024). Under normal circumstances, this natural process is mutually beneficial for the Earth and all living things. However, human industry and the excess burning of fossil fuels have released excess greenhouse gas emissions into the atmosphere, wrapping the Earth in a thicker blanket of gases and heat faster than it is able to release those gases into space. Thus, global temperatures rise and phenomena like extreme weather events, increased precipitation, and reduced crop yields become more common (US EPA, 2024). Greenhouse gases (GHG) come from a wide range of sources, such as transportation,

industry, and energy production and consumption. These greenhouse gases are carbon dioxide, commonly emitted by the burning of gasoline and coal; methane, often emitted from agriculture operations; and nitrous oxide, commonly released through the treatment of wastewater (US EPA, 2024). As the global population increases, technological and industrial innovation continues to grow, and consumption rises, so does the release of these greenhouse gasses into the atmosphere.

As of 2020 estimates, China is the country that emits the most greenhouse gasses, followed by the United States, India, and Russia (Ritchie, Rosada, Roser, 2020). These estimates come from OurWorldInData, a data-driven nonprofit organization, and measure emissions via CO2e, which equates the global warming potential of a greenhouse gas to that of the global warming potential of carbon dioxide (Ritchie, Rosada, Roser, 2020). These global GHG emissions by country are outlined in Figure 1.

Figure 1. Global greenhouse gas emissions, by country (1990-2020)

Global Greenhouse Gas Emissions since 1990
Emissions are measured in million tons of CO2 Equivalents

Source: Our World in Data, 2022 estimates

This helps contextualize where the United States stands in their contribution to global climate change. Through this contextualization, policymakers in the US can better understand what climate policies can help to reduce the United States' release

of greenhouse gasses. This creation of climate policy is exactly where the necessity to address environmental justice lies– as the US works to create policies that reduce GHG emissions, the nation can simultaneously ensure the policies support those most at risk to climate change's devastating effects.

The next section of this article outlines how three specific dimensions of environmental justice will be analyzed– vulnerability to extreme heat, access to food, and exposure to forever chemicals. These dimensions serve as examples of how social inequities compound are exacerbated by climate change,resulting in a need for policy that addresses these environmental injustices.

METHODOLOGY

Using a multitude of data from a variety of sources, these three particular dimensions of environmental justice– vulnerability to extreme heat, food inequality in food deserts, and exposure to PFAS forever chemicals in drinking water– were analyzed. The most up-to-date, publicly available, and reliable sources of data will be utilized for each of these sectors. All data was wrangled and all analysis was conducted via R.

VISUALIZATIONS

For vulnerability to extreme heat, data was collected from a multi-scale estimate of community resilience to extreme heat from the US Census Bureau, which is a novel estimate that combines estimates from the 2019 American Community Survey (ACS) and the U.S. Census Bureau's Population Estimates Program (US Census Bureau, 2023). Community resilience is defined by the US Census Bureau as, "…the capacity of individuals and households within a community to absorb the external stresses of a disaster.", and this estimate takes into account the effect of extreme heat (US Census Bureau, 2023). This measure incorporates factors such as financial hardship, household quality, employment, ability and/or disability, insurance coverage, transportation, and internet access. This data is measured at the county level, across the entire United States.

To measure food access and inequality in what the United States Department of Agriculture (USDA) classifies a 'food desert', I utilized data from the USDA's Food Access Research Atlas, a comprehensive dataset that includes various measures of access to food. The USDA defines a 'food desert' as any US census tract where at least one-third of the population is classified by the US Census Bureau as low income and has low access to a grocery store (>1 mile for designated urban areas and >10 miles for designated rural areas). This data was released in 2022, but includes estimates from 2015. The data was originally divided into different racial categories and percentage bands within each category. I wrangled this data to create a binary variable indicating whether a census tract was classified as a food desert or not.

To measure exposure to toxic and polluted waterways and utility sites, I sourced data indicating exposure to per- and polyfluoroalkyl substances (PFAS), which are often referred to as 'forever chemicals'. These are chemicals remain in the human body almost indefinitely and have documented negative health effects on both humans and the environment, despite being used in a variety of manufacturing industries. PFAS are commonly found in industries such as plastic products manufacturing, including nonstick cookware, fireproof furniture, and plastic food packaging (Impacts of Plastic Production and Disposal on Environmental Justice Communities, 2023). Data to measure PFAS exposure across the US comes from the US Environmental Protection Agency's fifth Unregulated Contaminant Monitor Rule, which requires states to document detectable levels of chemical substances found in water, such as PFAS, as well as data from the Environmental Working Group's landmark PFAS contamination site map. As of February 2024, the Environmental Working Group's updated PFAS water site testing data reveals there are now over 1200 total PFAS contaminated sites across the US. The PFAS dataset used in this project was last updated in August 2023, which had around 450 sites with detectable levels of PFAS. The PFAS and forever chemical crisis has and will continue to rise.

Data was wrangled by adjusting the unit of observation to be representative of individual sites per state. This data was then aggregated at the contained site-level, divided by US state, allowing the estimation of the total detectable amount of PFAS per state, measured in parts per trillion.

MULTIPLE LINEAR REGRESSION

Each of these three environmental justice problems – vulnerability to extreme heat, food deserts, and exposure to toxic forever chemicals – illustrates part of the greater issue of advancing environmental justice. While environmental justice can be difficult to document and measure, states across the US are making greater efforts to begin estimating the degree to which their populations are impacted by environmental injustice. A leader in the nation is the Commonwealth of Pennsylvania – the PA Department of Environmental Protection (DEP) continuously monitors and updates their environmental justice screening tools, allowing policymakers to make better-informed policy decisions (PA DEP, 2024). The PA DEP created a novel framework to explore this called the PennEnviroScreen tool, assigning US Census blocks a Final 'environmental justice score' on a scale of 0-100, based on the percentage of an individual PA Census blocks' pollution burden, environmental exposures, environmental effects, population characteristics, percentage of sensitive populations, and percentage of socioeconomically disadvantaged populations. The higher a PennEnviroScreen score, the higher percentage of that US Census block faces an environmental justice burden. They explained the tool as follows:

> *The Pennsylvania Department of Environmental Protection (PA DEP) created the PennEnviroScreen framework which provides an annually updated snapshot of undue environmental burden on vulnerable communities. This model combines Pollution Burden and Population Characteristics data in order to identify Environmental Justice (EJ) Areas in accordance with the EJ Policy, which will increase public participation in the permitting process of proposed facilities (PA DEP, 2024).*

To further investigate the concept of environmental justice, a multiple linear regression was run using the 2024 PennEnviroScreen tool and the publicly available data from the PA DEP. The 0-100 PennEnviroScreen score was the outcome variable, with unemployment, housing burden, race, educational attainment, and healthcare coverage as potential explanatory variables. Results of

this multiple linear regression analysis point towards a statistically significant, positive relationship between having a higher environmental justice burden and certain socioeconomic characteristics. This regression emphasizes the compounding relationship between environmental issues and historically marginalized groups– furthering the need for environmental justice.

FINDINGS

VULNERABILITY TO EXTREME HEAT

One of the most immediate ways that the existential threat of climate change is felt across communities is through persistent, hotter temperatures. Extreme heat not only irreparably damages natural ecosystems and ecological processes, it also inhibits the ability of humans to effectively regulate their internal body temperature, increases cardiovascular stress, and worsens chronic conditions (NIEHS.gov, 2022). The US National Institute of Health argues that, "The health outcomes of temperature extremes are closely related and, in some cases, interdependent on other factors, such as air quality, infrastructure, demography, and mental health status. These can create additional comorbidities that compounds the effect of disease or injury." (NIEHS.gov, 2022). A core part of advancing environmental justice is addressing these compounding environmental and health effects.

The US Census Bureau's Community Resiliency Estimates (CRE) are a unique metric developed to analyze a community's social vulnerability to disasters, such as COVID-19 and other local and natural disasters, by "…measuring the capacity of individuals and households at absorbing, enduring and recovering from the external stresses of the impacts of a disaster." (US Census Bureau, 2024). To specifically measure the rising and adverse effects of climate change, the US Census Bureau, in partnership with Arizona State University's Knowledge Exchange for Resilience, developed Community Resiliency Estimates (CRE) for heat, measuring vulnerability in the context of exposure to extreme heat (US Census Bureau, 2023). These CRE for heat are measured as 'extreme heat risk factors', which take into account ten potential risks to a community: financial hardship, caregivers in a home, housing quality, language barriers, employment, disability status, health insurance

coverage, age, transportation access, and internet access (CRE Heat Technical Documentation, 2019). These vulnerabilities are compounded, measured at the community level, and are then aggregated to estimate the number of people in a county with a specific number of risks. The estimate is then categorized into counties with zero risks, 1-2 risks, and 3+ risks (CRE Heat Technical Documentation, 2019). The result is a measurement of the number of individuals in a county that are exposed to these extreme risk heat factors, and are thus socially vulnerable to the adverse effects of climate change.

Figure 2 on the next page showcases a map of the United States at county-level exposure to these CRE extreme heat risk factors. Counties are measured at the rate of individuals exposed to one or more extreme risk heat factors.

This map raises some important points regarding environmental justice. Across the southern and western United States, the rate of individuals exposed to one or more extreme heat risk factors is notably higher than those living in more northern states – consistent with temperature trends across the southern and western US. Additionally, when this map of exposure to extreme heat risk factors is compared to US demographic trends in race, poverty, and social status, the issue of environmental injustice is further illustrated. Counties in the US that are more vulnerable to extreme heat and climate change have a strong overlap with historically marginalized and disadvantaged communities. This compounding effect of climate change and marginalization is exactly what policymakers in the United States must address. Policies must pay particular attention to supporting these groups. Figure 2 illustrates how these compounding effects particularly harms these marginalized communities more than in comparison to less marginalized communities.

Extreme Heat Inhibits Community Resilience

Rate of individuals exposed to one or more 'Extreme Heat Risk Factors', by County (US Census multi-scale estimate)
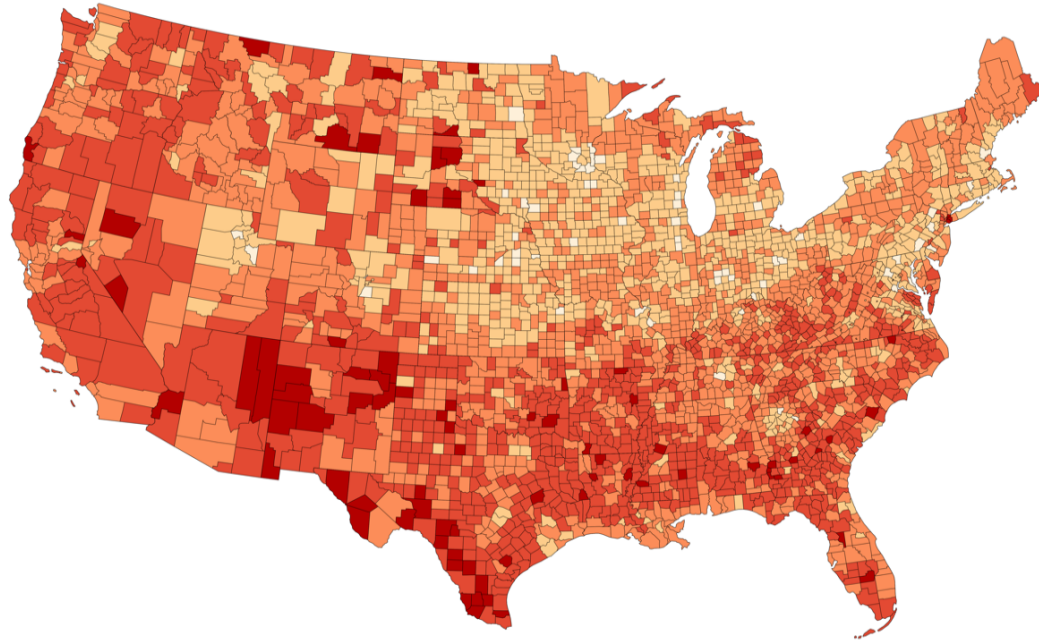
Percent of indiviuals exposed to at least one 'Extreme Heat Risk Factor'

45.0% - 54.9% 55.0% - 64.9% 65.0% - 74.9% 75.0% - 84.9% 85.0% - 94.9%

Data source: US Census Community Resilience Estimates for Heat, 2019

FOOD DESERTS

A 'food desert' is defined by the United States Department of Agriculture as low-income US Census tracts with low-access to food options (Dutko et al., 2012). Low-income US Census tracts are places where the poverty rate is more than 20% above the national poverty line, and low-access US Census tracts are places where ⅓ of the tract's population lives more than 1 mile from a large supermarket and/or grocery store for designated urban areas, or more than 10 miles for designated rural areas (Dutko et al., 2012).

While this definition is specific enough to set measurable standards, a food desert is broadly characterized by places where residents have limited access to quality and healthy food, either due to a lack of infrastructure, a lack of nutritious options, or by historically marginalizing policies. Communities that are historically disadvantaged are often classified as lower income communities, which makes opening businesses, light supermarkets, or grocery stores less financially viable; this creates a vicious cycle of a lack of food options and a lack of opportunities to be alleviated out of poverty. Low access to quality food means that many communities rely on more processed, less-quality foods that can cause a variety of negative health issues (Cummins & Macintyre, 2002). While many studies explore the degree to which this cycle of food deserts is caused by a lack of availability of quality food or a by a lack of demand for quality food, the broader public problem of food insecurity ravages the United States; disproportionately harming racial or ethnic minority groups (Myers & Painter, 2017). Figure 3 illustrates the disparities between different racial-ethnic groups in the United States, according to the data gathered from the United States Department of Agriculture's Food Access Research Atlas.

Figure 3. Distribution of the US population living in and out of USDA food deserts, by race-ethnicity (2019)

Racial disparities among those living in or out of a 'USDA Food Desert'*
Percentage (%) of US population living in Food Deserts, by race-ethnicity

*A USDA Food Desert is defined as a Census Tract with low-income and low-access to a super market
(>1 mile for urban areas, >10 miles for rural)
Source: 2019 USDA Food Access Research Atlas
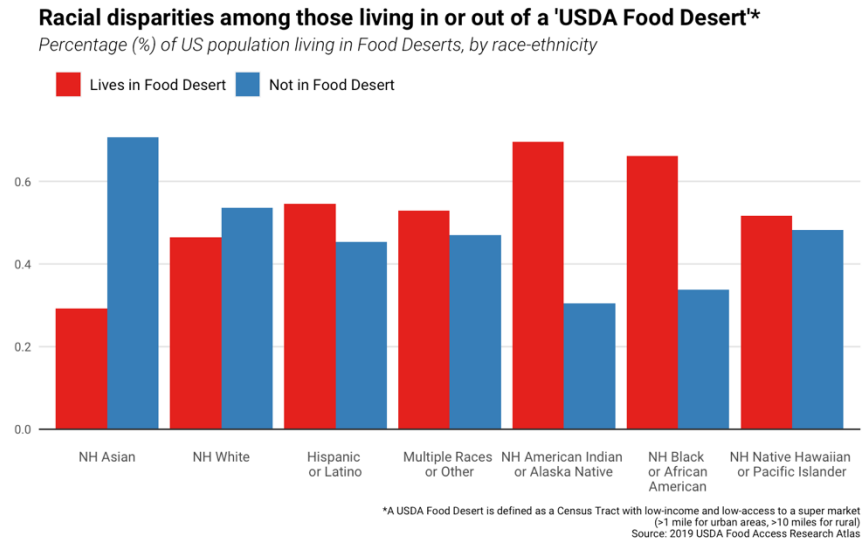
The USDA Food Access Research Atlas estimates that around 39,000,000 people live in a USDA food desert, which is around 14% of the total US population (USDA Food Access Research Atlas, 2019). Among these 39 million Americans, there is significant disparity between what proportion of each US Census race/ethnicity category lives inside or outside of a designated food desert. According to Figure 3, out of the seven main US Census race/ethnicity categories, five of them have more populations living in food deserts than out of them– with the largest disparities among non-Hispanic American Indian or Alaskan Natives and among Non-Hispanic Black or African Americans. In comparison, Non-Hispanic Asian and Non-Hispanic White populations primarily live outside of USDA food deserts. This racial disparity among living in food deserts speaks to the broader issue of food insecurity, and Figure 3 illustrates the significance of these racial disparities.

Policymakers must understand these racial inequities in creating more equitable food policy and in advancing environmental justice. Environmental issues, such as higher temperatures, challenges in crop growing and transportation, as well as worsening economic conditions exacerbate the issue of food access as an environmental

justice issue. Policy must address the issue of food deserts as the environmental justice issue it is, with compounding effects of racial and economic disparities leading to negative environmental and social outcomes. Targeted interventions, such as market stimuli to increase the number of supermarkets and grocery stores, improved transportation options, and tax incentives for businesses, are some of the ways that policy might begin to address the racial disparities that exist within food deserts.

EXPOSURE TO PFAS (FOREVER CHEMICALS)

Modern manufacturing and industrial processes support the lifestyle that many Americans are able to live – from convenient plastic food packaging, nonstick cooking equipment, and any variety of 'quality-of-life' improving plastic gadgets. Advancements in manufacturing processes also allow for the creation of products like new medical technologies, improved firefighting equipment, waterproof technical gear, electronic computing products, and seemingly all facets of manufacturing (Beans, 2021, Garg et al., 2020). But what exactly are these products made out of? The US Environmental Protection Agency attributes many of these advancements to a small group of chemicals called per- and polyfluoroalkyl substances, commonly referred to as PFAS (EPA, 2024)). PFAS have revolutionary resistance to water, excess heat, and oil, which makes them so valuable in modern technologies. This small group of chemicals are found all across manufacturing processes, and have allowed for such technological advancements. A researcher from the National Institute of Health describes PFAS as such:

> *Stain-resistant carpets and nonstick pots were once the epitome of "better living through chemistry," their space-age properties conferred by molecules known as perfluoroalkyl and polyfluoroalkyl substances (PFAS). But in the early 2000s, researchers began to discover that PFAS were somehow reaching the farthest corners of the planet—from polar bears in Alaska to pilot whales in the Faroe Islands of the North Atlantic (Giesy & Kannan, 2001, Berger et al., 2004). These molecules contain chains of carbon peppered with fluorine atoms, which together form one of the strongest known chemical bonds. That helps these chemicals excel at repelling grease and water but also makes them astonishingly resistant*

to degradation in the environment (NIEHS, 2019). (Beans, 2021).

Recent studies have begun to warn of the adverse health effects of PFAS – with scientists labeling them as 'forever chemicals' due to their extreme persistence in the environment, in animals and ecosystems, and in the human body post-consumption (Brunn et al., 2023). When PFAS break down from the products they are a part of, these microscopic chemicals find their way into the environment and into the human body, never to truly be broken down (Brunn et al., 2023). PFAS are in the air, in food, and in the water (Beans, 2021). In the human body, PFAS have been linked to weakening the immune system, particularly the functions of the liver and the kidney, limiting the ability to fight off disease, and have even been linked to cancer (Beans, 2021, The White House, 2023).

The production of PFAS leads to contamination of the soil and groundwater surrounding the production site. Communities that live in close proximity to PFAS production sites are thus exposed to these toxic forever chemicals at a much higher rate than others (Johnston & Cushing, 2020). Housing costs for communities that are nearby PFAS production sites, and thus nearby contaminated soil and water, are significantly less than housing farther from these contaminated sites– thus attracting historically marginalized groups (Johnston & Cushing, 2020). As such, PFAS are an immense environmental justice issue. All across the United States, these marginalized communities are disproportionately exposed to these toxic 'forever chemicals'. Figure 4 explores these contaminated sites by the 50 US states, highlighting the relationship between the amount of detectable contaminated sites and the detectable level of PFAS contamination.

Figure 4. Number of PFAS contaminated utility & water sites by detectable levels of PFAS (parts per trillion), by state (2023)

'Forever Chemicals' detected across the US
Amount of Per- and Polyfluorinated Substances (PFAS) by contaminated site, by State

Sources: US Environmental Protection Agency UCMR 5 & The Environmental Working Group, 2023
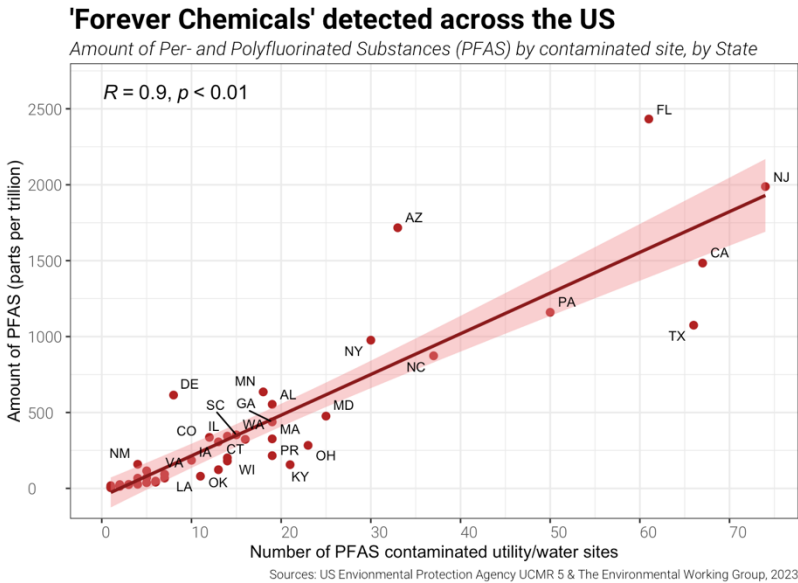
Figure 4 compares the amount of PFAS contaminated water sites in each state by the amount of detectable PFAS contamination, measured in parts per trillion. Some states, such as Arizona and Florida, notably deviate above the average, having higher levels of detectable PFAS in comparison to the amount of contaminated sites they have. This relationship between PFAS contamination and the amount of detectable contaminated water sites highlights the growing problem of PFAS in waterways across the US, and sheer inability to outright avoid such contamination. The more PFAS in a state, the greater chance that PFAS production is harming fenceline communities that live near the manufacturing site– communities that are historically marginalized (The White House, 2023).

The US Environmental Protection Agency's Unregulated Contaminant Monitoring Tool is mandated under the Safe Drinking Water Act to measure water contaminants, including PFAS (US EPA, 2024). The Environmental Working Group jointly measures PFAS contamination, highlighting water sites across the US that are contaminated with PFAS (EWG, 2024). The data used to create Figure 4 includes around 450 detectable PFAS contaminated sites

from November 2023, though an update in February 2024 reveals there are now over 1200 total contaminated sites across the US– a significant increase in a relatively short period of time, further emphasizing the PFAS issue (EWG, 2024).

PFAS are regularly approved for production by the US government, with little knowledge on how they may negatively affect humans and the environment (Beans, 2021). The Biden administration has made addressing PFAS a key part of their environmental justice 'Justice40' initiative, investing in reducing PFAS contamination in drinking water, setting standards for combatting PFAS, funding research into PFAS, and supporting the communities most harmed by these toxic forever chemicals (The White House, 2023). Future policy to address PFAS must continue to recognize the immense environmental justice concerns PFAS pose, as well as investing in PFAS detection, disposal, health effects, and alternatives (The White House, 2023).

An important issue in PFAS research is the difficulty in measurement. PFAS are typically measured in parts per trillion, which is a relatively small unit of measurement. In addition, PFAS already in the human body are difficult to measure and collect data on. Despite scientific consensus that PFAS are everywhere and that PFAS are bad for humans and the environment, actually measuring them poses significant challenges (Johnston & Cushing, 2020).

Pennsylvania Environmental Justice Zones

Through its establishment of an Office of Environmental Justice in 2015, implementation policies that define specific environmental justice zones, and the continuous collection of environmental justice data, the Commonwealth of Pennsylvania has demonstrated its leadership in the advancement and recognition of environmental justice (PA DEP, 2024). A measure developed by the PA Department of Environmental Protection called the PennEnviroScreen Score assigns a score to each of PA's 3218 US census tracts based on their environmental justice burden– tracts with lower scores have a lower environmental justice burden, and tracts with higher scores have a higher environmental justice burden. The PA Department of Environmental Protection's definition of a tract being an 'Environmental Justice Areas' is if that tract has a poverty rate of 20% or greater or a non-white population of 30% or greater (PA DEP, 2024). A multiple linear regression was

run with the PennEnviroScreen Score (0-100) as the outcome, and unemployment, housing burden, race, educational attainment, and healthcare coverage as explanatory variables. The results of this regression are showcased in Table 1.

Table 1: Regression Model of Environmental Justice Burden in PA (PennEnviroScreen Score, 0-100), by US Census Tract (2023)

Effect	Estimate	SE	95% CI		p
			LL	UL	
Fixed effects					
Intercept	10.159***	.384	9.406	10.91	<.002
Unemployment rate (%)	0.234***	.018	.199	.268	<.002
Housing-burdened low-income homes (%)	0.275***	.021	.234	.314	<.002
Persons of color (%)	0.031***	.005	.020	.041	<.004
Rate with less than a HS degree (%)	0.265***	.030	.205	.324	<.002
Uninsured rate (%)	0.699***	.061	.579	.819	<.002

Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
N = 7358. Residual standard error: 7.87 on 7352 degrees of freedom.
CI = confidence interval; LL = lower limit; UL = upper limit

Each of the five explanatory variables: unemployment rate, amount of housing-burdened low-income homes, rate of persons of color, rate with less than a high school degree, and the uninsured rate,have a positive, statistically significant relationship with the

PennEnviroScreen score. Out of these five explanatory variables, the strongest impact on having a higher PennEnviroScreen score was not having health insurance. Holding all other variables constant, the model predicts that every single percentage increase in a tract's population not having health insurance is associated with a 0.7 percentage point increase in that tract's PennEnviroScreen score. Meaning that every 10% increase in a tract's population not having health insurance, this model predicts a 7 percentage-point increase in that tract's PennEnviroScreen score. All of the explanatory variables have a statistically significant, positive impact on the tract's environmental justice burden, however. This multiple linear regression model showcases the statistically significant association that environmental issues have with certain socioeconomic factors, further cementing the existence and urgency to address environmental justice issues.

POLICY IMPLICATIONS

All of these issues pose significant policy challenges – addressing the disproportionate effects of extreme heat, access to food, and exposure to toxic chemicals requires policy that is well-researched and equitable for all. Advancing environmental justice is a multifaceted, multilateral, and ever-evolving process, ensuring that the concerns and voices of those facing the brunt of these environmental issues are fully addressed at all levels of government. Advancing environmental justice takes many forms beyond extreme heat, access to food, and exposure to toxic chemicals; issues like poor air quality, hazardous waste, pesticide use, and land abuse are all compounding environmental justice issues that must be addressed via effective and well-informed policy. Addressing climate change through policy intervention has too long ignored the specific, compounding effects of climate change on marginalized communities, necessitating the advancement of environmental justice.

Environmental justice policy must engage the communities most affected by these issues. Often, these impacts are most felt on the local level, which emphasizes the need to hold community deliberative forums and distribute information regarding these environmental justice issues to meaningfully engage citizens in the policymaking process. These policies may take the form of stronger

regulations for PFAS manufacturers, investment in relief to extreme heat through tree planting and cooling infrastructure, or in the form of incentivizing food producers and supermarkets to have a presence in underserved areas. Environmental justice policy must be a result of multi-governmental collaboration, requiring efforts across all levels of government to effectively address this injustice.

At the federal level, advancing environmental justice has been a cornerstone of the Biden administration, with President Biden emphasizing the need to, "...[address] the disproportionate health, environmental, and economic impacts that have been borne primarily by communities of color — places too often left behind" (Biden, 2022). The Biden administration has launched environmental justice executive councils, establishing a 'Justice40' initiative that ensures 40% of federal funding to address climate change goes to environmental justice communities, as well as supporting the US Environmental Agency, the Department of Justice, and other executive agencies in creating offices and task forces to address environmental justice. An Environmental Justice Scorecard has been established by the Biden administration that tracks the implementation and progress of various Justice40 initiatives (EJ Scorecard, 2024). Justice40 initiatives have slowly begun to take shape, with investment highlights being the Department of Energy helping to provide Tribal offices and government buildings with electricity that were otherwise non-electrified, and the development of affordable housing in underserved communities through the Department of Housing and Urban Development's HOME Investment Partnerships Program (EJ Scorecard, Department of Energy, 2024; EJ Scorecard, Department of Housing and Urban Development, 2024).

The passage of the Inflation Reduction Act in 2022 marked one of the most significant investments in addressing climate change in American history, by investing in a variety of programs and initiatives to support the American economy, including many environmental justice initiatives (The White House, 2024). The Inflation Reduction Act has invested in environmental justice block grants, water, and air pollution cleanup projects in fenceline communities, and solar power project development tax credits (The White House, 2024). By supporting the advancement of environmental justice on the federal

level, subnational governments can begin to feel empowered to address these issues in their own communities.

Arguably, much of the action to be taken in advancing environmental justice is at the local and community level. Local governments wield great power when it comes to addressing climate change, as climate policy can be the most successful when it is specifically tailored to a community. The same can be said for addressing historic inequalities – local governments can create policies that uniquely address both visible and invisible inequalities throughout their community, and often ones that are specific to their communities. One part of a city may require more investment in housing than another; a different part of a city may have worsening water problems; another part of a city may be historically non-white and historically underserved. Since local governments better know the community they serve than the federal government might, they are better able to develop climate policy that advances environmental justice. Through the allocation of funds via legislation such as the Inflation Reduction Act and through goals set by the Justice40 initiative, local governments are getting more and more resources necessary to address environmental injustices in their communities; though work to address these historic inequalities is constantly ongoing.

CONCLUSIONS

Addressing the existential threat of climate change cannot be addressed without also addressing the disproportionate burden these effects have had on historically marginalized communities. The compounding effects that environmental issues, like vulnerability to extreme heat, food insecurity in food deserts, and exposure to toxic forever chemicals, have on those most vulnerable illustrates the necessity to advance environmental justice. Across all levels of government, and at all levels of policymaking, environmental justice must be an integral part of fighting against the devastating effects of climate change. States like Pennsylvania lead among other states in their dedication to addressing environmental justice, but all future policies must ensure that particular attention is paid to these issues. The lens used to address the devastating effects of climate change must be the same lens used to address historical racial, social, and all inequities in America. In addition, more

research into documenting these compounding environmental justice issues is crucial to creating the best solution to the problem as possible. Meaningful involvement of these marginalized communities is also crucial, empowering their voices to be heard in respect to the development of equitable climate policy.

Environmental justice is a growing area of interest to policymakers and to the general public, and this policy analysis reinforces that. Through an analysis of county-level vulnerability to extreme heat, food insecurity from living in a food desert, exposure to toxic forever chemicals (PFAS) in waterways, and an analysis of the relationship between certain socioeconomic factors and environmental justice burden in Pennsylvania, this paper argues that the advancement of environmental justice in the United States is essential. As America looks towards a more sustainable, green future, it must be one that addresses the needs of those most vulnerable.

References

Beans, C. (2021). How "forever chemicals" might impair the immune system. *Proceedings of the National Academy of Sciences*, 118(15), e2105018118.

Berger U., Järnberg U., Kallenborn R., Perfluorinated alkylated substances (PFAS) in the European Nordic environment. *Organohalogen Compd*. 66, 3996–4002 (2004).

Brunn, H., Arnold, G., Körner, W., Rippen, G., Steinhäuser, K. G., & Valentin, I. (2023). PFAS: forever chemicals—persistent, bioaccumulative and mobile. Reviewing the status and the need for their phase out and remediation of contaminated sites. *Environmental Sciences Europe*, 35(1), 1-50.

Centers for Disease Control and Prevention. (2020). Flint Water Crisis. https://www.cdc.gov/nceh/casper/pdf-html/flint_water_crisis_pdf.html

Cummins, S., & Macintyre, S. (2002). "Food deserts"—evidence and assumption in health policy making. *Bmj*, 325(7361), 436-438.

Dutko, P., Ver Ploeg, M., & Farrigan, T. (2012). *Characteristics andInfluential Factors of Food Deserts* (ERR-140). U.S. Department of Agriculture, Economic Research Service.

EJ Scorecard. (2024). Environmental Justice Scorecard. *Council on Environmental Quality.*
https://ejscorecard.geoplatform.gov/scorecard/

EJ Scorecard, Department of Energy. (2024). Environmental Justice Scorecard. *Council on Environmental Quality.*
https://ejscorecard.geoplatform.gov/scorecard/department-of-energy/

EJ Scorecard, Department of Housing and Urban Development. (2024). Environmental Justice Scorecard. *Council on Environmental Quality.*
https://ejscorecard.geoplatform.gov/scorecard/housing-and-urban-development/

Environmental Working Group. (2024). PFAS Chemicals. *EWG.*
https://www.ewg.org/areas-focus/toxic-chemicals/pfas-chemicals

Garg, S., Kumar, P., Mishra, V., Guijt, R., Singh, P., Dumée, L. F., & Sharma, R. S. (2020). A review on the sources, occurrence and health risks of per-/poly-fluoroalkyl substances (PFAS) arising from the manufacture and disposal of electric and electronic products. *Journal of Water Process Engineering*, 38, 101683.

Giesy J. P., Kannan K., Global distribution of perfluorooctane sulfonate in wildlife. *Environ. Sci. Technol.* 35, 1339–1342 (2001).

Impacts of Plastic Production and Disposal on Environmental Justice Communities: Hearing before the U.S. Senate Committee on Environment and Public Works, 118th Cong. (2023).
https://www.epw.senate.gov/public/index.cfm/2023/6/impacts-of-plastic-production-and-disposal-on-environmental-justice-communities

Johnston, J., & Cushing, L. (2020). Chemical exposures, health, and environmental justice in communities living on the fenceline of industry. *Current environmental health reports*, 7, 48-57.

Locke, D., Hall, B., Grove, J. M., Pickett, S. T., Ogden, L. A., Aoki, C., O'Neil-Dunne, J. P. (2020, January 6). Residential housing segregation and urban tree canopy in 37 US Cities. https://doi.org/10.1038/s42949-021-00022-0

McDonald, R. I., Biswas, T., Sachar, C., Housman, I., Boucher, T. M., Balk, D., … & Leyk, S. (2021). The tree cover and temperature disparity in US urbanized areas: Quantifying the association with income across 5,723 communities. *PloS one*, 16(4), e0249715.

Mohai, P., Pellow, D., & Roberts, J. T. (2009). Environmental justice. *Annual review of environment and resources*, 34, 405-430.

Myers, A. M., & Painter, M. A. (2017). Food insecurity in the United States of America: an examination of race/ethnicity and nativity. *Food Security*, 9, 1419-1432.

National Institute of Environmental Health Sciences (NIEHS). (2022, June 6). Temperature-related Death and Illness. *Climate Change and Human Health - Heat.* https://www.niehs.nih.gov/research/programs/climatechange/health_impacts/heat

National Institute of Environmental Health Sciences (2019). Perfluoroalkyl and polyfluoroalkyl substances (PFAS). https://www-niehs-nih-gov.ezaccess.libraries.psu.edu/health/materials/perfluoroalkyl_and_polyfluoroalkyl_substances_508.pdf. Accessed 15 January 2021.

Pennsylvania Department of Environmental Protection. (2024). PA DEP. *PA Environmental Justice Areas*. https://www.dep.pa.gov/PublicParticipation/OfficeofEnvironmentalJustice/Pages/PA-Environmental-Justice-Areas.aspx

Pennsylvania Department of Environmental Protection. (2024). Environmental Justice Policy. *Summaries and Documents.* https://www.dep.pa.gov/PublicParticipation/OfficeofEnvironmentalJustice/Pages/Summaries-and-Documents.aspx

Raja, S., Ma, C., & Yadav, P. (2008). Beyond food deserts: Measuring and mapping racial disparities in neighborhood food environments. *Journal of Planning Education and Research*, 27(4), 469-482.

Ritchie, H., Rosado, P., & Roser, M. (2020). Greenhouse gas emissions. *Published online at OurWorldInData.org*. https://ourworldindata.org/greenhouse-gas-emissions

The White House. (2022, August 17). Fact Sheet: Inflation Reduction Act Advances Environmental Justice. *White House.* https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/17/fact-sheet-inflation-reduction-act-advances-environmental-justice/

The White House. (2023, March 14). Fact Sheet: Biden-Harris Administration Takes New Action to Protect Communities from PFAS Pollution. *White House.* https://www.whitehouse.gov/briefing-room/statements-releases/2023/03/14/fact-sheet-biden-harris-administration-takes-new-action-to-protect-communities-from-pfas-pollution/

The White House. (2024). Environmental Justice. https://www.whitehouse.gov/environmentaljustice/

United Nations Framework Convention on Climate Change. (2023). *UNFCCC. COP28*. https://unfccc.int/cop28/

United States Environmental Protection Agency. (2024). Overview of Greenhouse Gases. *EPA*. https://www.epa.gov/ghgemissions/overview-greenhouse-gases

U.S. Census Bureau. (2023, April 13). Community Resilience Estimates (CRE) for Heat. *Experimental Data Products - CRE-*

Heat. https://www.census.gov/data/experimental-data-products/cre-heat.html

U.S. Census Bureau. (2024, January 30). Community Resilience Estimates (CRE). https://www.census.gov/programs-surveys/community-resilience-estimates.html

US Department of Agriculture. (2019). Food Access Research Atlas. Technical Documentation. Retrieved from https://www.ers.usda.gov/data-products/food-access-research-atlas/documentation/

U.S. Environmental Protection Agency. (2024, February 1). Fifth Unregulated Contaminant Monitoring Rule. *EPA.* https://www.epa.gov/dwucmr/fifth-unregulated-contaminant-monitoring-rule

Racial and Gender Disparities in Student Loan Debt

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ABSTRACT

In the field of higher education financing, student loans stand out as an important mechanism that provides borrowers with a lifeline to help them fund their education. This paper delves into the two major classifications of student loans in the United States – federal and private loans, the complexities of the Income-Driven Repayment Plan (IDR) for federal loans, and examines the differences in the regulations that apply to different types of borrowers. While the IDR plan is designed to align loan repayment schedules with the financial realities of borrowers, a comprehensive analysis identifies the problems and challenges inherent in the implementation of the plan, such as racial and gender inequalities, and the disproportionate repayment pressures faced by different groups. The paper then concludes with a discussion of the regulations associated with the newest IDR plan, the SAVE plan to make recommendations for improvements that future policymakers can implement to make IDR plans more equitable for the most disadvantaged loan borrowers in the U.S.

POLICY DESCRIPTION & PUBLIC FRAMING

The concept of student loans in the United States originated in the mid-20th century and was first made available in 1958 under the National Defense Education Act (NDEA), which is called the National Defense Student Loan (NDSL) Program (U.S. Department of Education, 2017). However, the availability of student loans was small and did not reach the majority of students because they were only available to students in specific specializations, such as those studying engineering, science, or education (Glater, 2011). Student loans became more widespread in the 1960s with the enactment of the Higher Education Act (HEA) in 1965 (Danilova, 2017), when the federal government began to make a concerted effort to provide

financial assistance to prospective college students. HEA was a part of President Lyndon Johnson's "Great Society" agenda, which aimed to break the cycle of poverty. One of the strategies to accomplish this was expanding access to higher education to more Americans (HISTORY, 2017). Over time, however, higher education costs have risen dramatically, far outpacing inflation and growth in family incomes. This dramatic increase has made student loans not just an option but a necessity for many students who seek higher education (Hammond, 2023).

In the present day, most families with low incomes require financial aid to send their children to college. As a result, students and families find themselves at a crossroads, choosing between federal and private student loans. Federal student loans, with four categories of Direct Subsidized Loans, Direct Unsubsidized Loans, Direct PLUS Loans and Direct Consolidation Loans, were established and are regulated by the federal government, and are the most dominant segment of student loans (Federal Student Aid. n.d.). They offer a range of benefits, with one of the most notable advantages being their relatively low fixed interest rates, which provide a degree of predictability and stability in repayment plans. Additionally, these loans often come with income-driven repayment options that allow graduates to adjust their monthly repayments based on their income level, a feature that is particularly beneficial during times of financial uncertainty or hardship (Federal Student Aid. n.d.). In addition, federal loans offer unique benefits to undergraduate students with financial need. For example, a feature of subsidized loans is that the U.S. Department of Education covers interest payments while the student enrolled at least half time in school and for a six month after leaving school (referred to as the grace period), and in certain deferment situations, which in turn can significantly reduce the overall cost of borrowing for students (Federal Student Aid. n.d.). Loan forgiveness programs and a variety of deferment or postponement options, such as the Public Service Loan Forgiveness and the Total and Permanent Disability Discharge, further increase their appeal of federal loans, especially for those in public service occupations or facing financial hardship. However, even though federal student loans have a fixed interest rate set by the government, the U.S. Department of Education adjusts the interest rate on newly disbursed Federal Direct Loans annually, so borrowers are still exposed to fluctuating interest rates that are beyond their

control (Cobb, 2019).

In contrast, private student loans offered by banks, credit unions, and other financial institutions act as a supplement to federal loans, especially when these loans do not cover the total cost of education. Private loans are based on creditworthiness and usually require a co-signer, such as a parent or relative with a good credit history. Unlike federal loans, private loans typically have higher interest rates than federal loans and can be fixed or variable (Federal Student Aid. n.d.). Variable interest rates, while they may be lower initially, may increase risk over time. Private loans lack the flexible repayment options that federal loans have. The terms are set by individual lenders and typically do not include income-driven repayment plans. In addition, private loans do not offer the same level of forgiveness or deferment options as federal loans and are rarely part of a loan forgiveness program. The terms and conditions of these loans are more similar to other types of consumer debt, such as personal loans or credit cards (Federal Student Aid. n.d.). Of course, private loans may be more attractive to certain students. The U.S. Department of Education, for example, does not offer federal financial aid to most international students, while some private lenders will offer loans to non-U.S. citizens who meet certain criteria, such as attending an eligible college on at least a half-time basis, having a valid student visa, and likely adding a U.S. citizen as a co-signer. Additionally, private loans have higher borrowing limits than federal loans, and borrowers are therefore more likely to be at risk of overborrowing (Chafin, 2021).

INCOME-DRIVEN REPAYMENT PLAN: THE FEDERAL SOLUTION TO THE DEBT CRISIS

The growing problem of student loan debt in U.S. higher education requires innovative solutions, with income-driven repayment (IDR) programs standing out as the best option for many borrowers. These programs present a dynamic approach to managing the growing burden of student debt by tying monthly repayments to a borrower's income and family size. The core of IDR embodies the principles of fairness and adaptability, meaning that loan repayments should be commensurate with affordability. For many students, especially those with low earnings or facing underemployment, this adjustment guarantees at least a basic standard of living.

Table 1. Income-Driven Repayment Plan (U.S. Department of Education, 2023; The White House, 2023)

PLAN	PAYMENT TERMS	FORGIVENESS TIME	EFFECT OF FINAL RULE
SAVING ON A VALUABLE EDUCATION (SAVE)	5% of discretionary income for undergraduate loans, 10% for graduate loans, and a weighted average for borrowers who have both.	10 years for low-balance borrowers (<$12,000), 20 years for only undergraduate loans, and 25 years for any graduate loans.	Transforms terms of REPAYE.
REVISED PAY AS YOU EARN (REPAYE)	10% of discretionary income.	20 years for only undergraduate loans and 25 years for any graduate loans.	Transformed into SAVE.
PAY AS YOU EARN (PAYE)	10% of discretionary income, up to the standard 10-year payment amount.	20 years.	No new enrollments.
INCOME-BASED REPAYMENT (IBR)	10% of discretionary income, up to the standard 10-year payment amount. Borrowers before 2014 pay 15% of discretionary income.	20 years. Borrowers before 2014 pay for 25 years.	Remains available, but borrowers cannot select after 60 payments on REPAYE that occur on or after July 1, 2024.
INCOME-CONTINGENT REPAYMENT (ICR)	The lesser of: 20% of discretionary income and 12-year repayment amount multiplied by an income percentage factor.	25 years.	No new enrollments for students. Available only to future borrowers with consolidated Parent PLUS.

As of early 2023, U.S. federal student loan debt totaled more than $1.6 trillion, owed by approximately 43.6 million borrowers (Hanson,

2023). This debt burden has overtaken auto loans and credit card debt to become the second most significant type of consumer debt after mortgages (Figure 1). The average student loan debt is currently $37,338, and the average college graduate leaves school owing $33,500 per year (Hanson, 2023). This figure is likely much higher for students from private or for-profit institutions. As a result, young college graduates are coming out of college with less consuming ability, increased financial burden, and negating further opportunities for low-income and non-white individuals to generate wealth that they can pass onto future generations.

Figure 1: Total Debt Balance and Its Composition (2018-2023)

Data Source: New York Fed Consumer Credit Panel/Equifax
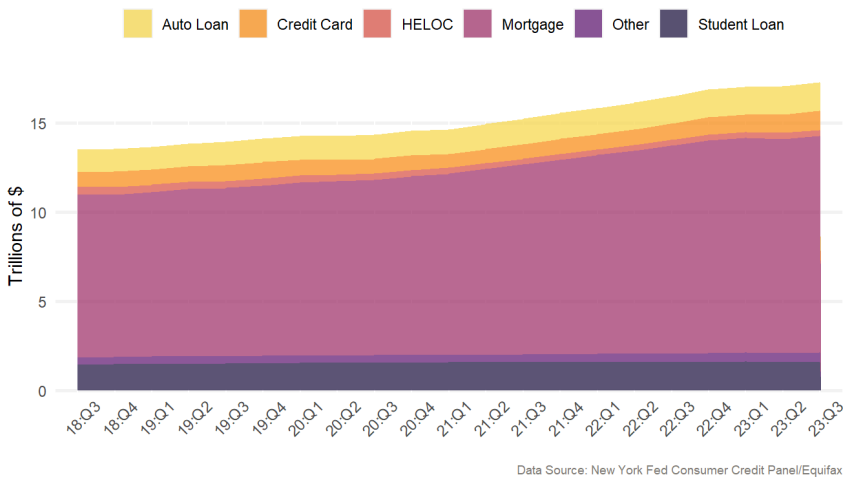
Moreover, although IDRs provide lower monthly repayment ratios and are one of the most beneficial plans for borrowers, they may be accompanied by longer loan terms and may increase the total interest paid over time. Despite IDR plans usually having the option to forgive any outstanding loans after 20 to 25 years, IDRs come with their own set of stipulations, including potential tax implications on the amount forgiven. The most recent iteration of the IDR introduced by the Biden Administration in 2024 is the Saving On a Valuable Education (SAVE) plan. The SAVE plan details different regulations for undergraduate and graduate loans where the regulations for undergraduate and graduate loans are differentiated (Table 1). The undergraduate loan repayment ratio has been reduced to 5% of discretionary income compared to the 10% of discretionary income that graduate students repay each month, somewhat reducing the financial burden on lower-income borrowers. However, is this

regulation really fair? Does SAVE adequately address the inherent issues with student loan debt repayment?

The plan's seemingly fair treatment of undergraduate and graduate borrowers with different regulations may have been motivated by the statistic that graduate students earn higher wages than undergraduates, but it does not take into account historical injustices that some borrowers may suffer on account of their race, gender, sexuality, among other factors. If these groups do not receive the same income as their counterparts but face the same regulations when repaying their loans, they are at greater financial burden and risk of not being able to repay their loans. In the analysis section that follows, I will use the statistical data collected to demonstrate the irrationality of the current IDR program.

DATA

In this research, I aimed to delve into the existence of potential inequality issues inherent in current Income-Driven Repayment (IDR) Plans. To achieve a comprehensive understanding, I utilized a variety of datasets to make visualizations, each offering unique insights into the complexities of student debt and its intersection with socioeconomic factors. The datasets I used are as follows:

1. New York Fed Consumer Credit Panel/Equifax Data (2018-2023): This dataset provides a wealth of information on total debt balance and its composition over a five-year span (Federal Reserve Bank of New York, n.d.).

2. National Center for Education Statistics (NCES) Dataset (2020, 2023) The NCES helps correlate educational attainment and individual characters with student debt levels (National Center for Education Statistics, n.d).

3. American Community Survey (ACS) Dataset (2017-2021)(Abstracted in R): The ACS dataset is instrumental in providing socioeconomic and demographic data.

4. Current Population Survey (CPS) Dataset (2022): Created

by the U.S. Bureau of Labor Statistics, the CPS dataset is key in understanding employment trends and their correlation with student debt (Bureau, 2023).

While some of these datasets may not be updated to the present day they are nonetheless illuminating of the historical trends of the student debt crisis and the socioeconomic factors influencing it. This historical perspective is not only instructive for current policymaking but also provides a foundation for projecting future trends and the potential impacts of policy changes.
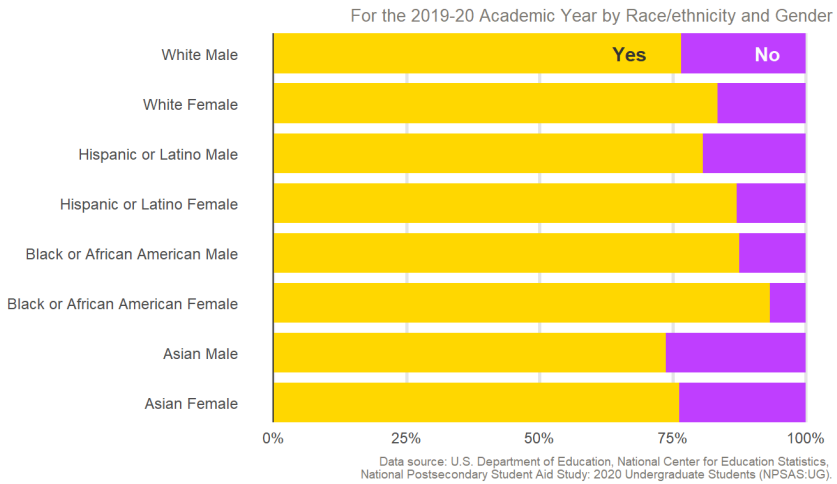
STATEMENT OF THE PROBLEM

As mentioned above, the distinction between undergraduate and graduate student loans under the SAVE Plan is rooted in protecting low-income groups based on the statistics and common sense that graduate students earn higher wages than undergraduates. However, due to historical income inequality issues mentioned earlier, the regulation may hurt some populations that really need help. Research has found that young women, who are more likely to enroll in and graduate from higher education institutions (Parker, 2021), also leave college with more student debt and take longer to pay it off (Hanson, 2023). This is due in part to the gender wage gap (lower wages in female-dominated occupations) and gender discrimination in the labor market. In addition, Black adults face a racial wage gap with other racial groups and experience racial discrimination in the labor market (Hernández Kent & Addo, 2022). Black parents are less likely to save for their children's college education, primarily driven by the large racial wealth gap, and as a result, Black students are more likely to carry loan debt. These disparities are shown in Figures 2 and 3, respectively.

Figure 2 illustrates the percentage of undergraduate students applying for financial aid (by race/ethnicity and gender) for the 2019-20 academic year. The figure reveals that non-Hispanic Black or African American female students are most likely to apply for financial aid (93.2%), followed closely by non-Hispanic Black or African American male students (87.5%). This trend suggests that all groups irrespective of race apply for aid at high rates, and among them, non-Hispanic Black students, especially females, may feel an even greater need for financial aid to pursue higher education. Since non-Hispanic Black students are more likely to seek financial aid,

focusing on the racial wealth gap is important as it directly relates to their ability to repay their loans.

Figure 2: Percentage of Undergraduate Students Applied for Any Financial Aid

For the 2019-20 Academic Year by Race/ethnicity and Gender

Data source: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study: 2020 Undergraduate Students (NPSAS:UG).

In Figure 3, a breakdown of cumulative federal loan amounts by race/ethnicity and gender shows that the average debt burden for non-Hispanic Black or African Americans is significantly higher than their peers in other racial-ethnic groups. Among all racial-ethnic groups, the average federal loan debt for females exceeds that of males. Non-Hispanic Asian students, of either gender, had the lowest average loan debt. The disparity in debt levels among non-Hispanic Black or African American females may be due to a combination of factors, including race, sex, and gender disadvantages in the labor market, which affect their ability to repay their loans.

The data in these two graphs confirm that for traditionally disadvantaged groups in terms of income and wealth, non-Hispanic Black students, are more dependent on financial aid and accumulate more student loan debt than other racial groups. This is further complicated by the intersectionality of race and gender when these two or more characteristics combine or "intersect" to produce unique forms of discrimination or privilege for that individual, as evidenced by the particularly high levels of debt among non-Hispanic Black or African American women. So, is income inequality a significant

factor in radicalizing this phenomenon? Why are discrepancies bigger for non-Hispanic African Americans than other groups and by sex as well? Do they face the problem of lower payments than their counterparts in the workplace?

Figure 3: Cumulative. Federal Loan Amount Owed, Principal & Interest, Undergraduate (Average) in 2020, by race-ethnicity and gender

Data Source: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study: 2020 Undergraduate Students (NPSAS:UG).
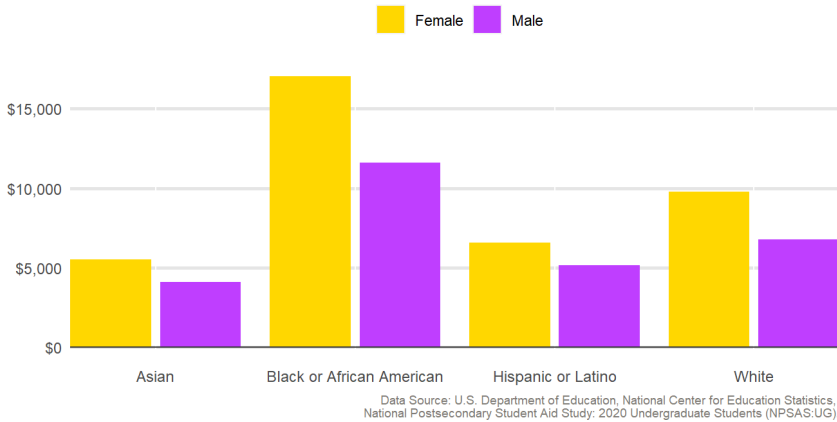
Figure 4 visually illustrates the median gross income of independent students (including spouses) or parents of dependent students in 2017, broken down by race/ethnicity and education level. From this figure, we observe that non-Hispanic Asian families have the highest incomes when considering the median income of those with a master's degree or post-master's certificate. In contrast, non-Hispanic Black or African American households with a master's degree have significantly lower incomes and earn just slightly more than non-Hispanic white households with a lower degree. This income gap suggests that even equal levels of education have different economic returns for different races. In addition, under SAVE Plan regulations, where repayment rates for graduate student loans are 10%, which is twice as high as those for undergraduate loans (Table 1), non-Hispanic Black families with higher education levels do not have a greater financial advantage, instead, they may face more monthly debt than white families with undergraduate degrees because of higher repayment rates.

Figure 4: Total Median Income for Independent Students (Including Spouse) Or Parents of Dependent Students In 2017, by race-ethnicity and educational attainment

Note: Education level is the highest prior degree the student has earned since high school, according to the National Center for Education Statistics.
Data Source: U.S. Department of Education, National Center for Education Statistics,
National Postsecondary Student Aid Study: 2020 Undergraduate Students (NPSAS:UG).
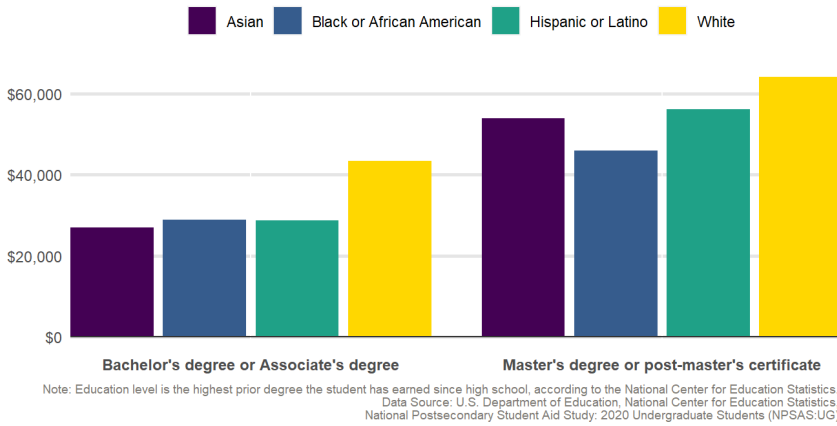
Figure 5 depicts the relationship between the educational attainment of adults 25 and older and the median income by gender. Overall, income trends are consistent with the widespread perception that higher educational attainment is associated with higher income. This ranking emphasizes the economic value of higher education and its potential to increase earning power. However, gender differences in earnings are evident at every level of education, with men consistently earning more than women. This wage gap suggests that there are systemic issues in the labor force that affect income equality across race and sex. The gender wage gap is particularly pronounced among individuals with graduate or professional degrees, which may indicate a gender bias in well-paid senior positions requiring advanced qualifications. Additionally, women with higher-level degrees consistently earn less than men with lower-level degrees, and as previously mentioned, in the different regulations for undergraduate and graduate students in the SAVE Plan, women face higher debt than men at the disadvantage of lower monthly earnings. This further corroborates the fact that women carry more loans in Figure 5.

Figure 5: Median Income by Education Attainment by Gender

Educational attainment is the highest level received by adults aged 25+
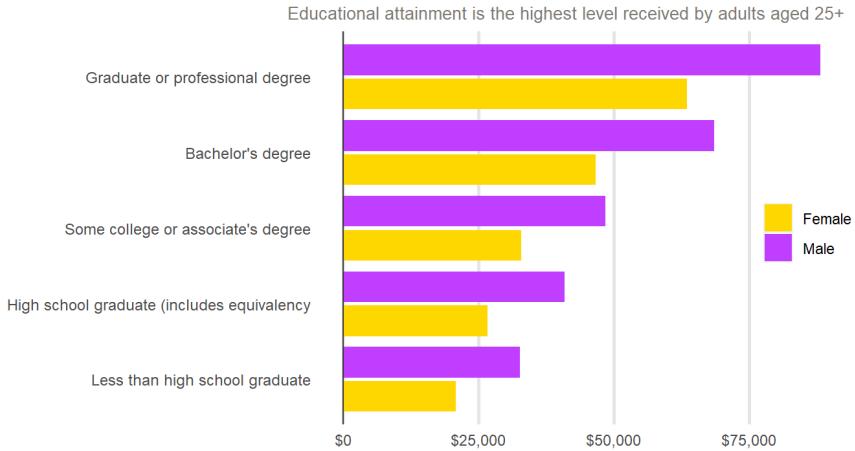
The median incomes are derived from the median earnings in the past 12 months (in 2020 inflation-adjusted dollars) of each state from 2017 to 2021.
Data Source: 2017-2021 ACS Dataset

Figure 6 depicts unemployment rates by race from 2000 to 2022, providing a longitudinal view of labor market dynamics across racial-ethnic groups. The line graph shows that non-Hispanic Black or African American individuals consistently experience higher unemployment rates compared to their counterparts throughout the period. This means that they may face greater economic vulnerability, which could affect student loan repayment, leading to greater reliance on IDR plans or an increased likelihood of deferring or postponing payments. While a college education may help some individuals get out of poverty, these statistics show that pursuing a higher education has tremendous costs with student debt that oftentimes override the benefits of higher pay with a degree. Moreover, under IDR regulations, if a borrower's income decreases or he or she loses a job, a re-verification is required in the second year, and interest on the student loan continues to accrue during the period of layoff that is not forgiven. The graph also shows the sharp increases in unemployment for all groups that have coincided with recessions over the years, such as the 2008 financial crisis and the 2020 COVID-19 pandemic. These spikes suggest that a number of people may have difficulty repaying their student loans due to unemployment or reduced income.

Figure 6: Unemployment Rates by Race-Ethnicity, 2000-2022 Annual Averages

Note: People whose ethnicity is identified as Hispanic or Latino may be of any race.
Data source: U.S. Bureau of Labor Statistics, Current Population Survey (CPS).
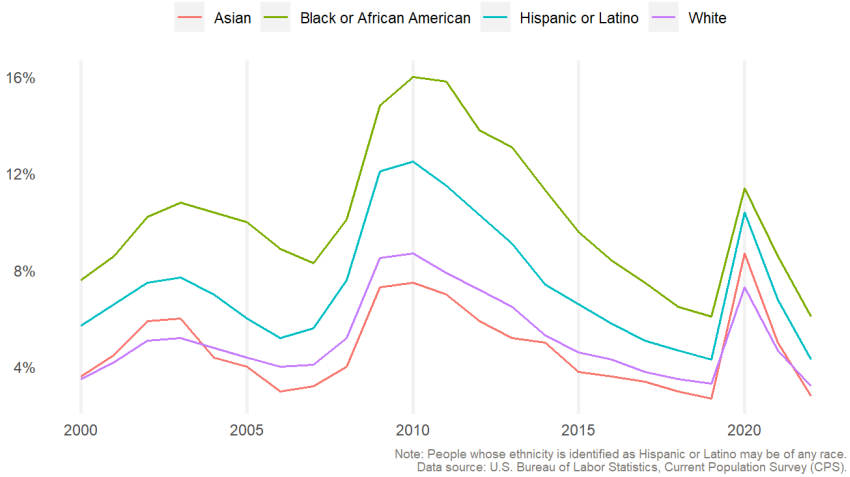
Figure 7 provides a snapshot of the average amount of debt owed as a percentage of the amount borrowed by federal student loan borrowers from different racial-ethnic groups four years after earning a bachelor's degree from the academic year 2015-16. The bars show that non-Hispanic Asian graduates have the lowest debt as a percentage of the initial amount borrowed, with only 63% still in debt. This suggests that, on average, in comparison to other racial groups non-Hispanic Asian graduates are more successful in paying off student debt four years after graduation. In contrast, the average debt load of non-Hispanic Black or African American graduates exceeds 105% of the initial borrowed amount. Not only does this alarming statistic indicate slower repayment paces, but the accrued interest is enough to push the total debt over the original principal amount. The phenomenon revealed in this chart is consistent with previous analyses that non-Hispanic Black or African American students are more likely to take on more debt and be more dependent on financial aid. Combined with the trends in unemployment rates in Figure 6, it is clear that higher unemployment rates among non-Hispanic Black or African American individuals may have a direct impact on their ability to repay.

Figure 7: Average Amount Owed as Percentage of Amount Borrwed as of 4 Years After 2015-16 Bachelor's Degree Completion, by race-ethnicity.

Among Federal Student Loan Borrowers, By Race/Ethnicity, 2020

Race/Ethnicity	Percentage
White	73%
Hispanic or Latino	84%
Black or African American	105%
Asian	63%

NOTE: Estimates pertain to individuals who completed the requirements for a bachelor's degree in 2015–16 and were awarded their degree by a Title IV eligible postsecondary institution in the 50 states, the District of Columbia, or Puerto Rico no later than June 30, 2017. Federal student loans include subsidized and unsubsidized Direct Loans (formerly called Stafford Loans), excluding Direct Unsubsidized Loans to students who received a TEACH Grant and failed to fulfill the service obligation; Perkins Loans; and Graduate PLUS Loans. Excludes Parent PLUS Loans. The amount borrowed represents cumulative amount borrowed in federal student loans for undergraduate and graduate education as of 4 years after completion of the respondent's 2015–16 bachelor's degree.
Data Source: National Center for Education Statistics. (2023).

Synthesizing the insights gleaned from these charts, it is clear that significant racial and gender disparities in current student loan debt and repayment in the United States are evident. Rather than being isolated statistics, these disparities interact with broader socioeconomic patterns that affect access to higher education, debt accumulation, and the ability to repay debt after graduation especially for the non-Hispanic African American population. However, current IDR plans do not tackle the heart of the problem of student debt relief and so more must be done by policymakers to address the systemic issues within the federal loan system, that I will explore through possible alternatives in the following section.

POLICY ALTERNATIVES

In the present day, the Biden administration has begun to tackle the crisis of significant debt that millions of Americans face when pursuing higher education. These include a suspension of loan repayment and stopping interest accrual during the COVID-19 pandemic in order to help borrowers cope with the difficult economic circumstances (National Consumer Law Center, n.d.). However, beginning September 2023, these payments and accrued interest have resumed. The Biden administration proposed a new student loan forgiveness program in June that would have forgiven a portion of the debt of borrowers with personal incomes below $125,000, but this plan would have increased the deficit by more than $330 billion and was struck down by the Supreme Court (Gurudatt, Watson &

McBride, 2023). Currently, The Biden-Harris administration has approved and announced several initiatives, such as providing an additional $5.2 billion in debt relief for 53,000 borrowers under the Public Service Loan Forgiveness programs, one of the most common ways people employed by the government or nonprofit organizations apply for student loan relief (Federal Student Aid. n.d.); achieving the largest increase in Pell Grants in a decade, and providing $11.7 billion to 513,000 borrowers with total and permanent disabilities; treating debt forgiven by IDR programs as taxable income, such that a person with annual taxable income of $40,000 and $25,000 in canceled debt would have their taxable income increased to $65,000 (Gurudatt, Watson & McBride, 2023), and letting community colleges increase college affordability and reduce unnecessary student debt (U.S. Department of Education, 2023). The Biden administration's efforts are aimed at reducing the burden on current and future borrowers.

In addition to federal efforts to tackle the student debt crisis, academic researchers and external organizations have proposed a range of ideas, from bold policy reforms to minor adjustments to existing structures. One such proposal is to make community college universally free (Churchill, 2022), a move that would lower the barriers to entry into higher education and ease the overall debt burden for those who may need to take out loans to pay for four-year college. Meanwhile, some participants have advocated that the federal government should cancel all student debt. There has also been opposition to existing regulations, arguing that limiting eligibility for cancellation by loan type or degree level (e.g., undergraduate vs. graduate degrees) is unreasonable. Jackson and Mustaffa (2022) recommend that an increase in the protected income threshold to 300% of the federal poverty level or higher, and further reductions in the monthly repayment rate and the length of the forgiveness time, depending on the borrower's family size (Jackson and Mustaffa, 2022).

RECOMMENDATION & EVALUATION

All of these policy alternatives require careful balancing, as the challenge is not only to develop programs to address the large size of student debt, but also to address the complex structural inequalities revealed by the data for disadvantaged populations. For

example, targeted strategies are necessary to address the disproportionately high debt and slower repayment rates of non-Hispanic Black or African American graduates, and similarly, the gender wage gap highlighted by the data suggests the need to address the greater financial barriers faced by women. On the one hand, we can consider addressing inequality at its root, or on the other hand, giving these groups more financial assistance at the beginning of their education. Since systemic inequality has existed for a long time, a great number of organizations and individuals are working on this complicated issue, and this is not an outcome that can be achieved in the short term. My preference is to give help in the short-term, much like the Biden-Harris administration provided additional financial assistance to borrowers with permanent disabilities.

Firstly, I agree with the elimination of the disparate terms imposed by loan type and degree level, as advocated for by the Education Trust (Jackson and Mustaffa, 2022). My analysis suggests that the SAVE Plan, while well-intentioned, may not fully capture the complexity of the financial returns to education for different racial groups. While the overall trend is that borrowers with higher educational attainment have higher incomes, this is not the case for all populations such as for non-Hispanic Black borrowers and women, who do not have correspondingly high returns to education and are more likely to face greater obstacles for the same returns. Additionally, in principle, income-driven programs primarily consider the borrower's income and family size, but educational attainment is only one of many factors like personal capability, regional level of development, and time of working that affect income and should not be used as a separate criterion for setting regulation. However, the downside of this proposal is that it may be unfair to other undergraduate students with varying incomes and circumstances, so in terms of the implementation, it would be more beneficial to take the lower value from the two loan types to release the burden for all borrowers, which is a 5% repayment rate and a 20-year forgiveness time (Table 1). At the same time, the federal government could conduct a broader range of opinion gathering to fully understand the real needs of borrowers before changing the regulations.

Secondly, in order to provide protections specifically for certain racial groups, policymakers need to consider strengthening support for minority-serving institutions, such as increasing funding and support

for institutions such as Historically Black Colleges and Universities (HBCUs) and Hispanic Serving Institutions (HSIs), reducing unnecessary expenditures, and improving access and affordability for minority students. In addition, more must be done by higher education institutions to expand and promote scholarships and grants for underrepresented groups (especially women and minorities) to reduce their need to take on debt. However, supporters of affirmative action may oppose this proposal. In response, the government could organize forums, seminars, and public discussions to bring together and understand their concerns. Government agencies and future administrations should engage in research on the effects of student-debt for future generations and how it affects vulnerable communities. Although affirmative action and diversity, equity and inclusion policies are disputed across the country, policymakers should devise other means to assist historically marginalized communities through NGOs or non-profits.

Finally, we return to the key element of the total loan amount and the time table to repay debt. The length of time spent studying directly affects the total cost and thus, the amount of debt accrued by the student. Therefore, increasing federal loan counseling would be effective in reducing the time it takes students to earn a degree. Counseling services can be key to educational mechanisms for a number of reasons. First, they can address the information asymmetry that many students face. Imagine an incoming freshman who is full of passion but unsure of the academic path that best suits their career aspirations and financial realities. Without clear guidance, they may change her major, enroll in unnecessary courses, or even temporarily drop out, all of which would prolong their time in college and increase debt. Critics may argue that the cost of expanding counseling services is significant. However, when considering the potential reduction in student loan debt, the cost of investment becomes acceptable. To achieve the desired positive outcomes, the federal government has to consider collaborating with educational institutions and proposing an incentive program in which institutions could receive grants to train counselors as well as expand counseling services, but with the goal of achieving an increase in student graduation rates or a reduction in the average time to degree completion. The government could choose to pilot the program at selected institutions, including community colleges, HBCUs, HSIs, etc., before rolling it out nationwide. These pilots would

allow the government to study the effectiveness of increased counseling services. It is evident through this research that ongoing efforts such as the SAVE plan are temporary measures to a structural problem.

Higher education is a privilege that should be accessible to those who work hard, yet despite their hard work, college comes at such a cost that cannot be out "worked". Policymakers must not only tackle the student debt crisis but the structural reasons from race to economic inequity that caused this problem as well. Future research should focus on viable solutions to the student debt crisis as outlined in the policy alternatives of this paper and forecast the effects of easing student debt for millions of Americans. Student debt is a significant stressor for all Americans who wish to obtain a college degree and it is imperative that policymakers across the spectrum work together to free future generations from that debt.

REFERENCES

Chafin, J. A. (2021, March 31). Pros and Cons of Private Student Loans. *LendingTree*. https://www.lendingtree.com/student/private-student-loans-pros-cons/.

Churchill, M. (2022, September 13). We're in a moment: Making community college tuition-free. *Inside Higher Ed*. https://www.insidehighered.com/blogs/higher-ed-policy/we%E2%80%99re-moment-making-community-college-tuition-free.

Cobb, C. (2019, June 5). *3* Reasons Why You Shouldn't Borrow Student Loans. *U.S.News*. https://www.usnews.com/education/blogs/student-loan-ranger/articles/2019-06-05/3-reasons-why-you-shouldnt-borrow-student-loans.

Danilova, M. (2017, October 5). More than half of students at for-profit colleges defaulted on loans, study finds. *Chicago Tribune*. https://www.chicagotribune.com/business/ct-biz-for-profit-college-loan-default0-20171005-story.html.

Federal Reserve Bank of New York. (n.d.). Household debt and credit report. Household Debt and Credit – Federal Reserve Bank of New York. https://www.newyorkfed.org/microeconomics/hhdc/background.html.

Federal Student Aid. (n.d.). The U.S. Department of Education offers low-interest loans to eligible students to help cover the cost of college or career school. https://studentaid.gov/understand-aid/types/loans/subsidized-unsubsidized.

Federal Student Aid. (n.d.). When it comes to paying for college, career school, or graduate school, federal student loans can offer several advantages over private student loans. https://studentaid.gov/understand-aid/types/loans/federal-vs-private.

Gerson, E. S. (2020, October 13). Can I apply for FAFSA with bad credit? *Experian*. https://www.experian.com/blogs/ask-experian/can-i-apply-for-fafsa-with-bad-credit/

Glater, J. (2011, July 23). The Other Big Test: Why Congress Should Allow College Students to Borrow More Through Federal Aid Programs. *New York University Journal of Legislation and Public Policy*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1871305.

Gurudatt, A., Watson, G., & McBride, W. (2023, August 10). Inconsistent tax treatment of student loan debt forgiveness creates confusion. *Tax Foundation*. https://taxfoundation.org/blog/student-loan-debt-forgiveness/#timeline.

Hammond, E. (2023, February 27). How student loan debt became a trillion-dollar problem for Americans. *CNN*. https://www.cnn.com/2023/02/27/politics/us-student-loan-debt-timeline/index.html.

Hanson, M. (2023, August 20). Student Loan Debt Statistics.

Education Data Initiative. https://educationdata.org/student-loan-debt-statistics.

Hanson, M. (2023, July 16). Student Loan Debt by Gender. *Education Data Initiative*. https://educationdata.org/student-loan-debt-by-gender.

Hanson, M. (2023, May 22). Average student loan debt. *Education Data Initiative*. https://educationdata.org/average-student-loan-debt.

Hernández Kent, A., & Addo, F. R. (2022, November 10). Gender and racial disparities in student debt. *Federal Reserve Bank of St. Louis*. https://www.stlouisfed.org/publications/economic-equity-insights/gender-racial-disparities-student-loan-debt#.

HISTORY. (2017, November 17). Great Society. Updated August 28, 2018. https://www.history.com/topics/1960s/great-society#head-start-and-education-reform.

National Center for Education Statistics. (n.d.). *Datalab*. https://nces.ed.gov/datalab/.

National Consumer Law Center. (n.d.). COVID-19 Payment Pause. https://studentloanborrowerassistance.org/for-borrowers/dealing-with-student-loan-debt/pausing-student-loan-payments/covid-19-automatic-payment-pause/.

Parker, K. (2021, November 8). What's behind the growing gap between men and women in college completion?. *Pew Research Center*. https://www.pewresearch.org/short-reads/2021/11/08/whats-behind-the-growing-gap-between-men-and-women-in-college-completion/.

Victoria Jackson and Jalil B. Mustaff. (2022, November 16). Income-Driven Repayment Plans Fail Black Borrowers. https://edtrust.org/resource/income-driven-repayment-plans-fail-black-borrowers/.

The White House. (2023, August 22). FACT SHEET: The Biden-Harris Administration Launches the SAVE Loan Repayment

Plan Ever to Lower Monthly Payments for Millions of Borrowers. https://www.whitehouse.gov/briefing-room/statements-releases/2023/08/22/fact-sheet-the-biden-harris-administration-launches-the-save-plan-the-most-affordable-student-loan-repayment-plan-ever-to-lower-monthly-payments-for-millions-of-borrowers/.

U.S. Department of Education. (2017, May 25). Federal role in education. https://www2.ed.gov/about/overview/fed/role.html.

U.S. Department of Education. (2023, June 30). How the New SAVE Plan Will Transform Loan Repayment and Protect Borrowers. https://www2.ed.gov/policy/highered/reg/hearulemaking/2021/idrfactsheetfinal.pdf.

U.S. Department of Education. (2023, October 30). Biden-Harris administration continues efforts to provide debt relief for more student loan borrowers. https://www.ed.gov/news/press-releases/biden-harris-administration-continues-efforts-provide-debt-relief-more-student-loan-borrowers.

U.S. Department of Education. (2023, October 4). Biden-Harris administration announces an additional $9 billion in student debt relief. https://www.ed.gov/news/press-releases/biden-harris-administration-announces-additional-9-billion-student-debt-relief

U.S. Census Bureau. (2023, October 11). *Census datasets*. *Census.gov*. https://www.census.gov/data/datasets.html.

Impact of Access to Water and Sanitation Services on Child Chronic Malnutrition: Evidence from Urban and Rural Areas of Peru

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ABSTRACT

In Peru, public policy in the water and sanitation sector has been aimed at meeting the needs of urban areas, leaving rural communities neglected for a long time. This situation has led to significant differences in access to and quality of water and sanitation services, jeopardizing the health of families, which is primarily reflected in high rates of chronic malnutrition. This affects vulnerable populations, such as children under 5 years old, limiting their growth and development prospects, despite being beneficiaries of social programs in most cases. This research analyzes the relevance of access to water and sanitation services in Peru in reducing the index of child chronic malnutrition (DCI), considering a national-level assessment and differences between urban and rural children. Based on a review of the literature, it is inferred that lack of access to water and sanitation services is one of the main reasons policies to reduce malnutrition lose effectiveness. This study uses data from the Demographic and Family Health Survey (ENDES), specifically, two cross-sectional baseline years - 2010 and 2015; furthermore, hypotheses are validated in the results section using the Propensity Score Matching (PSM) methodology. Finally, in terms of motivation for conducting this research, it is worth noting that increasing access to water and sanitation services is not only aimed at countering health indices but is a fundamental right that all people, men, and women - in this case, girls and boys - should exercise.

INTRODUCTION

While the rate of child chronic malnutrition (DCI) has decreased in Peru by around 20 percentage points over the past two decades, the national average hides the reality of rural communities. In 2022, malnutrition affected 11.7% of children under five in Peru (ENDES, 2022). However, the malnourished population is concentrated in rural areas, where more than a fifth (23.9%) are affected, triple the proportion in urban areas (7.1%). This is a clear manifestation of the social inequality in our country.

Chronic malnutrition, defined as stunting, is one of the major public health problems affecting children in developing countries. It is also one of the main causes of premature death and perpetuates poverty, as many children who suffer from DCI have lower cognitive abilities, leading to poor performance in school and adult life, often accepting low wages insufficient to support their families. This highlights the relationship between living in poor communities and malnutrition, potentially perpetuating it in future generations (Sen, 1999).

Until a few years ago, when discussing how to combat malnutrition, the immediate response was often to provide more food to poor families, assuming this was the solution, without recognizing its multidimensional causes. It is important to note that analyzing DCI requires considering its various components.

Given this, this study discusses determinants of DCI that have not been extensively addressed in Peru: water and sanitation services. According to the literature, these services are fundamental to improving population health, thereby reducing malnutrition. Consequently, a lack sanitation, water, and hygiene leads to nutritional deterioration. For example, children in poor sanitation conditions face risks such as the absorption of soil pathogens, leading to chronic malnutrition. Moreover, the lack of access to clean water sources near communities also negatively impacts nutritional status; often, this situation forces families to choose unsafe water sources for consumption. Notably, the regions in Peru with the highest rates of chronic malnutrition (Huancavelica and Loreto) coincidentally have the lowest levels of access to sanitation services.

In relation to this issue, I hypothesize that greater access to water and sanitation services substantially reduces the rate of child chronic malnutrition. Furthermore, my second hypothesis is that the impact on malnutrition differs depending on vulnerability conditions, emphasizing the geographical location of children (urban/rural).

In this context, the study aims to demonstrate that the combined action of water and sanitation services has a greater impact than water alone when sanitation facilities are not involved. However, a significant reflection is that lack of access to water and sanitation services is one of the main reasons policies aimed at reducing DCI lose effectiveness. Thus, if water, sanitation, and good hygiene practices are not available, despite children receiving nutritional supplements, the effect of social policy can be neutralized, potentially increasing the DCI rate (Venero, Venero, & Sotelo, 2016).

My research objectives are as follows:

a) Characterize chronic malnutrition in children under five in Peru.
b) Estimate the impact of water and sanitation services on DCI in 2010 and 2015 through three separate cases: the first evaluates the impact of drinking water provision, the second of sanitation service provision, and the third of both services.
c) Assess heterogeneous effects in estimation according to the geographical area where the child lives (urban-rural).

Thus, this study sheds light on the importance of having water and sanitation services at home to improve children's health and reduce the DCI rate, which threatens their survival and development. Moreover, the Peruvian population and policymakers must understand the relationship between these two components without neglecting the importance of other factors in DCI, such as nutrient intake, maternal care, etc. It is also important to remember that the need to increase water and sanitation service coverage is not only aimed at improving health indices but is a fundamental right that all people, men, and women (in this case, girls and boys), should exercise.

1. THEOROTEICAL FRAMEWORK: CONSEQUENCES OF CHRONIC MALNUTRITION PREMATURE MORTALITY

The most evident effect of chronic malnutrition is stunted growth, reflected in a child's short stature compared to what is expected for their age. Stunting is critical as it is a permanent problem, unlike relative weight (i.e., weight for height), which is more easily recoverable. This process often begins very early in a child's life and, once it occurs, is rarely reversible. Thus, in developing countries, most cases of stunting start when a child is around 3 years old, and in poorer societies, it may even start at birth (Semba et al., 2008).

1.1 CONSEQUENCES OF CHRONIC MALNUTRITION

The literature serving as the basis for this research (Semba et al., 2008) has identified mainly three costs of DCI. These are: a) human costs due to premature child deaths; b) treatment costs for the medications associated with malnutrition; and c) economic costs due to loss of productivity. It is important to note that chronic malnutrition has negative effects not only on those who suffer from it but also on their descendants.

1.1.1. PREMATURE MORTALITY DISEASES

Chronic malnutrition is one of the main underlying causes of infant mortality. In developing countries, the number of children under 5 years old who die annually is around 12 million people. Until recently, the causes of these deaths were mainly attributed to diseases such as pneumonia, acute diarrheal diseases (EDA), and vaccine-preventable diseases. However, previously, the simultaneous relationship between malnutrition and infections on mortality was overlooked (Scrimshaw et al., 1968).

1.1.2. DISEASES FUNCTIONAL OUTCOMES

One reason for the strong association between malnutrition and infant mortality is that malnourished children tend to suffer from more infections, including acute diarrheal diseases (EDA). Beyond the discussion of whether DCI increases the infant mortality rate, malnutrition implies an increased risk of illness, which deteriorates the well-being of survivors (Lomborg, 2009).

1.1.3. FUNCTIONAL OUTCOMES

Furthermore, malnutrition affects children's functional performance. These impairments can be physical, cognitive, or behavioral, and are often highly interrelated. Another important aspect is the timing of malnutrition onset; the younger the child when malnutrition is detected, the more severe and lasting the consequences in subsequent years (Semba et al., 2008).

Children with chronic malnutrition do not perform well in school. They start school late, progress slowly, and achieve lower grades than average (Lomborg, 2009; Semba et al., 2008). This cognitive deficit problem is present during childhood or adolescence and extends into adulthood. Thus, individuals who suffer from this condition in their early years carry poor knowledge levels in later years, limiting their ability to apply for higher-paying jobs and often leading to poverty, perpetuating this condition for future generations. Therefore, poverty and malnutrition are two interrelated components that cause and explain each other, as a person who suffers from DCI in their first 5 years of life is highly likely to be living in a household with low access to potential resources and, in turn, to remain in that situation for decades.

1.2. CAUSES OF CHRONIC MALNUTRITION

The conceptual framework presented in this research is an adaptation of the framework elaborated by the United Nations Children's Fund (UNICEF), incorporating socioeconomic and biological determinants. The causes of malnutrition are numerous and highly interconnected (Smith et al., 1999); three levels of causality are recognized: 1) immediate, 2) underlying, and 3) basic. Understanding these relationships and their implications is crucial

for designing effective programs to reduce malnutrition and its consequences (Semba et al., 2008).

1.2.1. *IMMEDIATE CAUSES*

It is known that infectious diseases have a considerable impact on children's growth (acute diarrheal diseases (EDA) and respiratory infections are the most well-known cases). In this regard, various authors highlight the strong relationship between acute diarrheal diseases and chronic child malnutrition, for which a link is found to work in both directions; while children with repeated diarrhea infections eat less and are unable to absorb nutrients from food fully, those suffering from DCI are vulnerable to contracting diarrhea, especially when exposed to fecal matter in their environment. In other words, on one hand, EDA negatively affects children's nutritional status by reducing food intake, reducing intestinal absorption capacity, increasing catabolism, and eliminating essential nutrients required for their growth (Brown, 2003; Mahmud et al., 2016), and, on the other hand, poor nutritional status reduces immunity and weakens the body's defense barriers, creating a predisposition for children to contract infections (Denis et al., 2014).

1.2.2. *UNDERLYING CAUSES*

The immediate determinants are influenced by three underlying causes, which manifest at the household level. These are inadequate food access, childcare practices, and access to water, sanitation, and health services. Firstly, food security is achieved when family members have physical and economic access to sufficient food, allowing for a healthy and active life. Women's attention to children significantly influences this, as they are commonly the primary caregivers from birth. Care, the second underlying cause of DCI, refers to the support, attention, and time required at home to achieve the child's social, physical, and mental well-being. It is important to emphasize that this care is greatly influenced by mothers' control over the allocation of economic resources, autonomy in decision-making, and their physical and mental state. On the other hand, the third underlying determinant of DCI is based on families' availability to access water, sanitation, health, and environmental safety services.

The Impact of Access to Water and Sanitation Services on Chronic Child Malnutrition

Studies have highlighted the impact of access to drinking water and sanitation services on reducing chronic malnutrition in recent years. This link refers to multiple connections between sanitation practices and nutritional states. Primarily, three direct pathways have been identified; these are acute diarrheal diseases (ADD), environmental enteropathy, and intestinal nematode infections (Briend, 1990; Humphrey, 2009; Pruss-Ustun & Corvalan, 2006; and UNICEF, 2013). However, for this research, the pathway of greatest significance, supported by extensive literature, is the first one: ADD.

In general terms, lack of sanitation, hygiene, and water are among the main components leading to nutritional deterioration and population growth reduction. Children in poor sanitation conditions face risks, involving the absorption of soil pathogens, leading to environmental enteropathy symptoms, causing chronic malnutrition (Denis et al. 2014). However, it is important to note that constructing latrines alone does not change people's behavior and, therefore, does not reduce exposure to pathogens. To improve sanitation conditions, interventions must be implemented alongside other measures in which individuals know the implications of not living in a healthy environment. On the other hand, the absence of a source of drinking water near the population's residence also has a detrimental effect on people's nutritional status. This situation often leads them to choose a water source unsuitable for human consumption and to be unable to engage in activities that require this component, including hygiene practices (Denis et al. 2014; Mahmud et al. 2016). In summary, access to sanitation and water is necessary to prevent children from frequently getting sick and losing nutrients, which affects their growth. However, it is impossible to think these services significantly affect chronic malnutrition if implemented in isolation from other components.

1.2.3. BASIC CAUSES

Finally, a key component affecting all determinants is poverty. Absolute poverty is considered when a person cannot meet basic needs, such as health, food, housing, water, and primary education. The effects of poverty on DCI are ubiquitous, as poor households cannot achieve food security, have sufficient resources for care, and

contribute to creating resources for sustainable health bases. In this context, the basic determinants of DCI are influenced by the potential resources of the community. They are circumscribed to access to technology, the quality of human resources, and the environment.

2. HYPOTHESIS AND METHODOLOGY

2.1. HYPOTHESIS

Consistent with the findings outlined in the literature review above, this study suggests that in Peru, there is a substantial decrease in childhood chronic malnutrition (CCM) due to increased access to drinking water and sanitation systems, largely because of the effect these services have on acute diarrheal diseases (ADD). At the same time, the latter affects the CCM index. In other words, I hypothesize that when children have access to sanitation services at home, there is a high probability that their hygiene practices will improve, leading to adequate food intake and a lower likelihood of contracting infectious diseases. Additionally, my second hypothesis is that the impact on chronic malnutrition will vary depending on vulnerability conditions, emphasizing, in this case, the geographical location where children live (urban/rural).

2.2. METHODOLOGY

In many scientific disciplines, there is a desire to understand the effect of a "treatment" on a variable of interest; this treatment can be a program or an economic policy, and the variable of interest is an academic achievement like an illness indicator (Lee, 2005). The econometric strategy presented below allows for evaluating the impact of access to water and sanitation services on chronic childhood malnutrition. This estimation is a significant challenge because, in reality, it is not possible to know for the same individual their CCM index when accessing water and sanitation services and when not accessing them; therefore, there is a need to simulate it by constructing a counterfactual, also known as a control group, comprising those children who do not have access to these services (Choque 2013 and Heckman et al. 1985).

Thus, with D being the treatment status indicator:

$$D_i \begin{cases} 1, & \textit{if i has access to water and sanitation services} \\ 0, & \textit{if i does not have access to water and sanitation services} \end{cases}$$

For each child, there are two potential outcomes:

$y_{1i=}$ *DCI index if child i <u>does have</u> access to water and sanitation services*

$y_{0i=}$ *DCI index if child i <u>does not have</u> access to water and sanitation services*

2.2.1 PROPENSITY SCORE MATCHING

Due to a lack of experimental data, I employ propensity score matching (PSM), a technique widely used when analyzing policies from observational or non-experimental data (Kumar et al. 2011). The estimation of treatment effects might be biased due to confounding variables; however, PSM is an alternative that reduces biases and addresses the problem of dimensionality.

Based on treatment and control groups, this methodology aims to match individuals with similar characteristics. Subject to a set of covariates, the propensity score p(X) estimates the probability of receiving treatment (Rosenbaum et al. 1983). For this case, it is the conditional probability of accessing sanitation services given the observed characteristics, as expressed in the following equation:

$$p\,(X) \equiv \Pr(D = 1|X) = E(D|X)$$

Equation 1

Where *X* is the multidimensional vector of these characteristics.

2.2.2 THE AVERAGE TREATMENT EFFECT ON THE TREATED (ATT)

Once matching is done, it is possible to measure the difference between the outcomes of the treated and control groups; this difference is defined as the average treatment effect on the treated

(ATT) (Begum et al. 2013 and Kumar et al. 2011), and it is estimated as shown below:

$$\widehat{ATT} \equiv E\{Y_{1i} - Y_{0i}|D_i = 1\}$$

$$\equiv E[E\{Y_{1i} - Y_{0i}|D_i = 1, p\ (X_i)\}]$$

$$\equiv E[\text{E}\ \{Y_{1i}|D_i = 1, p\ (X_i)\} - \text{E}\ \{Y_{0i}\ |\ D_i = 0, p\ (X_i)\}\ |D_i = 1\ ]$$

<div align="right">Equation 2</div>

Equation 2 indicates the average impact of accessing services under the conditional independence assumption (CIA) and common support. The conditional independence assumption requires that the outcome variable is independent of treatment assignment; thus, all covariates (X) will not be affected by access to water and sanitation services (Begum et al. 2013). Furthermore, the common support condition excludes individuals who do not have a counterpart in the other group (García, 2011); it is worth noting that common support is the range of values of observed characteristics, which in this case is defined as the intersection of the supports of those who do and do not have access in their scores.

2.2.3 MATCHING METHODS

In practice, PSM is estimated through probit or logit regressions. After that, for each child with access to sanitation services, a sample is sought in the group without access to these services that have a similar probability of having them (Choque 2013). There are different alternatives for matching. In this instance, I used "kernel matching," "nearest neighbor matching," and "stratification" methods. A brief description of each is provided below.

The nearest neighbor method involves selecting, from the control group, the untreated individual with the nearest propensity score to that of the treated individual (Abadie et al. 2004; Carbajal 2014).

Formally, this estimator is as follows:

$$\widehat{ATT} \equiv \frac{1}{N_1} \sum_{i=I} \{Y_i - Y_j\}$$

<div align="right">Equation 3</div>

For a caliper δ>0, j is chosen so that,

$$\delta > |p\,(X_i) - p\,(X_j)| = min_{k \in I}\{|p\,(X_i) - p\,(X_j)|\}$$

<div align="right">Equation 4</div>

The "kernel matching" method uses a kernel function that requires a specified bandwidth and gives more weight to observations closer together, while giving less weight to those further apart (Choque 2013 and Carbajal 2014). Finally, the stratification method divides the sample into blocks to balance both groups; thus, randomization of treatment assignment is ensured (Arellano 2006).

3. Emperical Evidence Results Data

3.1 Data Outcome Variables

The database for this study is the Demographic and Family Health Survey (ENDES), conducted by the National Institute of Statistics and Informatics (INEI) under the Demography and Health Survey (DHS) Program framework. This survey collects information on maternal and child health, pregnancy, and childbirth care, as well as mechanisms to prevent AIDS and physical aggression in the home. It also interviews children, women of childbearing age (15 to 49 years old), and men and women aged 15 and older (INEI, 2015).

The ENDES, analysis targets children under 5 years of age and covers the years 2010 and 2015, with the latter representing the end of a government that created a ministry to address social issues more closely. In 2012, Directive No. 004-2012-MIDIS was approved, outlining guidelines for coordinated intersectoral and intergovernmental management to reduce childhood chronic malnutrition within the development and social inclusion policies framework. It is inferred from this that it was a period in which more

children were benefiting from the various programs created. However, it is necessary to consider that institutional weakness, among other factors (such as lack of capacity or personnel turnover, for example), are limitations that have not allowed the country to further reduce high DCI rates, especially among children living in rural areas.

3.2 VARIABLES OUTCOME VARIABLES

3.2.1 OUTCOME VARIABLES

Currently, childhood malnutrition is measured in various ways. The most common and significant methods involve measuring the child's height and weight, as they synthesize their level of development and growth. Anthropometry is one of the techniques employed for this purpose, and compared to other measures, such as clinical and biochemical ones, it has advantages in assessing nutritional status by comparing individuals or populations with reference groups (Kamiya, 2009).

Along these lines, the International Child Growth Standards were developed in 1978 by the National Center for Health Statistics (NCHS), the Centers for Disease Control and Prevention (CDC), and the World Health Organization (WHO) (referred to here as "the NCHS reference"). In April 2006, the WHO published new standards because of some technical limitations in the NCHS reference (Dibley et al., 1987; Hamill et al., 1979; Bloem, 2006; De Onis et al., 2008).

For height-for-age and weight-for-height indicators, percentile classification and/or Z-scores are used, calculated as follows:

$$Z\ score = \frac{current\ value\ (H) - reference\ mean\ (MH)}{standard\ deviation\ (\sigma)}$$

Equation 5

While there are multiple types of childhood malnutrition within anthropometric indicators, this study focuses on chronic malnutrition, also known as stunting, defined as the percentage of children under 5 years of age whose height for their age is less than

2 standard deviations below the mean (UNICEF 2011 and UNICEF 2013).

Thus, regarding the construction of the Z score for chronic childhood malnutrition, in the formula, H represents the child's height; MH, the age and gender of a child of average height with good nutritional status; and σ is the standard deviation of the height of a child with good nutritional status.

3.2.2 TREATMENT VARIALBLES

Since this research aims to explore the impact of water and sanitation services on DCI, the main explanatory variables are access to drinking water and sanitation services.

Access to drinking water service refers to the population (in this case, children under five years of age) that has a water service network connected to household pipes for one or more faucets, or a connection to running water through a faucet located in the yard or plot outside the home.

Similarly, access to sanitation refers to children with improved sanitation services, including toilets, sewerage systems, septic tanks, pour-flush latrines/ventilated improved pit latrines, pit latrines with slabs, and ecological sanitation facilities.

Thus, for estimation, 3 binary variables have been chosen, which are access to "drinking water", access to "sanitation", and access to both services - "water and sanitation", so that the water access variable takes the value of "1" if the household has access to this service and "0" otherwise; similarly for the other cases: sanitation is "1" if the household has access to it and "0" if it does not, and the third variable, which combines the 2 services, is "1" if the household has access to both services and "0" if it has access to neither.

In addition to treatment variables, based on the literature review (Fink et al. 2011 and Bateman, 1993), other factors have been included as control variables, including child, mother, household, and home characteristics. These include the child's gender, age, birth order, mother's education, household wealth level, geographic area of residence, and whether or not the household has electricity service.

4. RESULTS ESTIMATION OF PROPENSITY SCORE MATCHING

Before describing the results, it is convenient to remember that the unit of analysis is children under 5 years old. Likewise, two cross-sectional baseline years have been considered for estimating the results: 2010 and 2015.

4.1 ESTIMATION OF PROPENSITY SCORE MATCHING

As mentioned above, the control variables considered from the ENDES survey are the child's age, gender, birth order, mother's education, household wealth index, geographical area, and whether or not they have access to electricity.

The logit estimation is shown in Table 1. In this table, it can be observed that, for the treatment variables "sanitation" and "water and sanitation together," all covariates, except age and gender, are strongly significant (at the 1% significance level); likewise, all these variables appear with the expected sign. In the case of drinking water, gender, age, and higher education are significant and also appear with the expected sign (Begum et al. 2013).

Analyzing each of the variables, it is found that the wealth level of households where children under 5 years of age live has a significant relationship with their access to drinking water and sanitation services; that is, families with higher purchasing power are more likely to access both services.

Likewise, it is shown that the rural area where children live is inversely proportional to their access to water and sanitation services. This means that children living in rural communities have fewer opportunities to develop compared to their urban peers because many of them do not have access to various public services, mainly due to the distance and the long hours it takes them to reach them, such as health centers, schools, or in this case, obtaining the service of drinking water for human consumption. It is worth noting that, in rural areas, the absence of a garbage truck that collects the waste of the inhabitants is notorious, as well as a toilet inside the house, whose nature is based on preventing people from

getting contaminated with the waste produced around them (Feres et al. 2001).

Table 1: Logit Model Coefficients for Generating the Proposenity Score Matching, ENDES 2015

Dependent Variable: Treated=1, Control=0	Water	Sanitation	Water and sanitation
	Coeficient	Coeficient	Coeficient
Child Characteristics			
Under 6 months	-0.1085496	-0.02992234	-.03989049
Female	0.00034288	-0.00787715	-.02661146
Birth Order	-.02606685**	-.07725498***	-.06159056***
Mother's Characteristics			
Higher Education	.14677735*	1.4532689***	1.3578302***
Household Characteristics			
Wealthy	.3687279***	3.1530631***	3.1454091***
Rural	-.32560765***	-1.6403006***	-1.4895602***
Has electricity	1.5731382***	1.6951889***	2.4984703***
Constant	0.02801981	-.3018943***	-.20456596*
N	23437	23437	16750
LR chi2(7)	1678.41	8280.79	5170.98
Prob > chi2	0.0000	0.0000	0.0000
Pseudo R2	0.0684	0.2792	0.3255

Legend: * $p<0.05$; ** $p<0.01$; *** $p<0.001$
Source: ENDES 2015. Own elaboration.

Other variables with high levels of significance are having electricity in the household, the child's birth order, and the mother's education, especially for sanitation. Thus, from this last variable, it follows that in households where the mother has a high level of education, the probability of having water and sanitation in the household is higher. On the other hand, the variables that show little significance with these two services are the child's age and gender, so it is not asserted with certainty that being of a certain gender or age group, the child does not have these services at home.

When conducting this analysis for 2010, it was found that those variables with a high significance level in 2015 were also for this last year. These variables are the mother's education, household wealth index, the geographical area in which the family lives, and whether or not they have access to electricity.

On the other hand, in the estimation of the propensity score performed for each service, it is verified that the balance property is satisfied. This means that both groups (those with and without access to water and sanitation) are statistically similar. This ensures the matching quality and, in turn, anticipates that the estimates of the ATT are reliable for both years: 2015 and 2010.

4.2. ESTIMATION OF THE ATT FOR WATER AND SANITATION SERVICES DRINKING WATER

After generating propensity score matching, I estimated of the proceeds, which is the difference in outcomes between those who have access to drinking water and sanitation services and those who do not. This methodology proposes some assumptions for its estimation, including restricting the sample to a common support (Rossi, 2011). The imposition of a minimum distance (also known as "caliper") ensures matching between treated observations and control only within the range; thus, the smaller the distance, the better the matching quality.

When estimating the impact of water and sanitation services on child chronic malnutrition, I found evidence to support my initial hypothesis, namely the existence of a negative impact by these services with a high significance level. However, when analyzing the impact of these services separately, it is found that one of the two is the one that has greater relevance in reducing this indicator. Below are the levels of impact found for each service, individually and jointly.

4.2.1. DRINKING WATER

Regarding the ATT for drinking water service, I found that, in 2015, the incidence of DCI was negative and statistically significant at 1% (on average, -1.83%); however, in 2010 (on average, -2.33%), in one

of the matching cases it is, but up to 5% significance (see Tables 2 and 3). From the latter, it follows that access to drinking water in Peru impacts DCI; however, there have been years, such as 2010, when this may not necessarily have been the case. It is important to note that this may be because access to drinking water in Peru does not guarantee that families are drinking safe water. As indicated by Venero, Venero, and Sotelo (2016), currently, although countless families have access to water considered "drinkable", there is a high probability that it is not suitable for human consumption. In this way, it is logical to understand that as long as access to water is not ideal for human consumption, there will be no transcendental effect to reduce the incidence of different diseases.

4.2.2. SANITATION

Unlike drinking water, the results for the sanitation service, in addition to having a negative sign, manifest to be highly significant (p <0.01). This was observed in both 2010 and 2015; in this sense, children from households with access to sanitation in their homes have lower probabilities of suffering from chronic malnutrition compared to those who do not have the service, with an average incidence level in DCI of -7.1% in 2015 and -9.83% in 2010 (Table 2 and 3).

4.2.3. DRINKING WATER AND SANITATION

In the case of access to water and sanitation, the results show that children who have access to both services in their homes have a lower probability of contracting malnutrition than those who only have one. In other words, accessing water and sanitation generates a greater impact than accessing just one. Although in 2015, the greatest decrease in the incidence of DCI occurred from access to both services together, it is not guaranteed always to be the case (table 2); in this latter year, sanitation is slightly ahead (-7.53% vs. -7.1%). However, in 2010, it was by more than 3 percentage points, -13.27% ("water and sanitation") vs -9.83% ("sanitation"), table 3.

Table 2: Impact on Child Chronic Malnutrition, 2015

Matching Type		Water	Sanitation	Water and Sanitation
Nearest Neighbor	ATT	-0.015**	-0.069***	-0.069***
	T-stat	-2.148	-4.047	-4.717
Stratification	ATT	-0.015***	-0.072***	-0.069***
	T-stat	-2.683	-8.185	-7.228
Kernel	ATT	-0.025	-0.072	-0.088
	T-stat	.	.	.
Average		-1.83%	-7.10%	-7.53%

Source: ENDES 2015. Own elaboration.

Table 3: Impact on Child Chronic Malnutrition, 2010

Matching Type		Water	Sanitation	Water and Sanitation
Nearest Neighbor	ATT	-0.017	-0.097***	-0.135***
	T-stat	-1.101	-4.474	-4.83
Stratification	ATT	-0.02**	-0.096	-0.124***
	T-stat	-1.862	.	-5.927
Kernel	ATT	-0.033	-0.102	-0.139
	T-stat	.	.	.
Average		-2.33%	-9.83%	-13.27%

Source: ENDES 2010. Own elaboration.

In summary, in 2015, it was found that the potable water service has a negative impact on the DCI equal to -1.83%; similarly for sanitation, which on average is equal to -7.1%; and for those who have access to both services, with a level of incidence on the DCI of -7.53%, compared to those who do not have access to either of these 2 (Table 2). On the other hand, when observing the incidence levels for 2010, the results are similar to those of 2015 - there is a negative impact, and the magnitude is even greater than that exposed in the latter year: the potable water service had an incidence equal to -2.33%; sanitation, -9.83%; and both services together, an impact of -13.27% (see Table 3). In these two years, it is evident that the

sanitation service, even to a greater extent than potable water, is a transcendental component for reducing the DCI index: an incidence of 10% (on average in 2010) is a considerable percentage that political authorities and those responsible for the issue cannot ignore, let alone fail to address (Kumar et al. 2011).

In this line, it is clear that the impact of both services together is greater than that generated by potable water, although uncertain regarding sanitation as in 2015. This shows that a child is not in good health just because they have access to the potable water service. If minimum environmental standards are not met in the home, there is a risk of close contact with waste and feces, which attract insects and mosquitoes. In other words, no matter how much water a child can access, this service will not have a significant effect on the incidence of diseases if, in addition to this, there is not also a clean and healthy environment.

4.3. HETEROGENEOUS EFFECTS

It is known that problems with public services are more frequent in rural areas. Thus, to examine how this urban-rural difference may affect the results, I analyzed water and sanitation services based on geographical scope (Roushdy et al. 2012). In the following tables, I found that, in 2015, the potable water service did not substantially improve for the urban area; however, in the rural area, the incidence was been positive (-3.93and was statistically significant at a 1% level of significance. Regarding sanitation and both services together, these do have a significant impact on the DCI for both urban and rural areas, especially when it comes to access to both services together, which have an average incidence of -6.57% in the urban area and -8.17% in the rural area; likewise, the impact on the DCI from the sanitation service is -4.63% in the urban area and -6.37% in the rural area (see Tables 4 and 5).

Table 4: Heterogeneous Effects: Urban area, 2015

Matching Type		Water	Sanitation	Water and Sanitation
Nearest Neighbor	ATT	-0.005	-0.045***	-0.058***
	T-stat	-0.758	-2.545	-3.686
Stratification	ATT	-0.007	-0.046***	-0.059***
	T-stat	-1.112	-3.995	-5.142
Kernel	ATT	-0.016	-0.048	-0.08
	T-stat	.	.	.
Average		-0.93%	-4.63%	-6.57%

Source: ENDES 2015. Own elaboration.

Table 5: Heterogeneous Effects: Rural area, 2015

Matching Type		Water	Sanitation	Water and Sanitation
Nearest Neighbor	ATT	-0.039***	-0.062***	-0.082***
	T-stat	-3.349	-5.189	-5.716
Stratification	ATT	-0.038***	-0.064***	-0.083***
	T-stat	-3.373	-5.864	-6.053
Kernel	ATT	-0.041	-0.065	-0.08
	T-stat	.		.
Average		-3.93%	-6.37%	-8.17%

Source: ENDES 2015. Own elaboration.

Continuing with the analysis of heterogeneous effects, I performed an estimation according to the natural region in which the child lives within the rural area; for this purpose, the survey applied classifies this variable into Metropolitan Lima, Rest of the Coast, Highlands, and Jungle. Due to having a small and nonsignificant sample in Lima and the rest of the coast, these last two cases are omitted, and the analysis continues in the highlands and jungle of the rural area.

Thus, when estimating in the highlands of the rural area, I found that access to sanitation and water and sanitation together significantly impacts the index of chronic child malnutrition. In the case of

sanitation, it is -6.40%, and for both components together, it is -9.40%. However, access to water alone does not significantly affect the rural highlands. Why is this? As previously noted, one possible cause is that although many communities in the Peruvian highlands can access water service, this service is not of quality, which is unsuitable for human consumption.

Table 6: Rural Sector, Heterogeneous Effects: Highlands, 2015

Matching Type		Water	Sanitation	Water and Sanitation
Nearest Neighbor	ATT	-0.026	-0.063***	-0.097***
	T-stat	-1.249	-3.946	-4.023
Stratification	ATT	-0.026*	-0.065	-0.092***
	T-stat	-1.345	.	-4.413
Kernel	ATT	-0.022*	-0.064***	-0.093***
	T-stat	-1.456	-4.682	-3.823
Average		-2.47%	-6.40%	-9.40%

Source: ENDES 2015. Own elaboration.

When delving deeper into understanding which rural communities have the least access to drinking water and sanitation services, ENAPRES indicates that these are predominantly located in regions of the Peruvian jungle, such as Loreto, Madre de Dios, and Ucayali.

Following this line of inquiry, the aim here was to determine the impact of water and sanitation services in the rural jungle areas of Peru., I found that each of these components yielded a negative sign (as expected) and this covariate was highly significant. The effects on the Chronic Malnutrition Index (DCI) are as follows: for water, -6.47%; for sanitation, -10.77%; and for water and sanitation combined, -13.93%. As observed, the impacts generated in rural jungle areas of Peru are greater than those in the highlands. This does not imply that water quality in the jungle is satisfactory; rather, what can be inferred from these results is that since the jungle population is the most affected, i.e., those with the least access to water and sanitation services throughout Peru, having access to these services has a significant impact on reducing the chronic malnutrition index. Better access to water and sanitation provides children with a resource to consume and enables them to be cleaner

and less exposed to contaminants that could lead to various diseases.

Table 7: Rural Sector, Heterogenous Effects: Jungle, 2015

Matching Type		Water	Sanitation	Water and Sanitation
Nearest Neighbor	ATT	-0.067***	-0.107***	-0.147***
	T-stat	-3.553	-4.095	-6.119
Stratification	ATT	-0.063	-0.109	-0.134***
	T-stat	.	.	-6.003
Kernel	ATT	-0.064***	-0.107***	-0.137***
	T-stat	-4.099	-4.159	-5.941
Average		-6.47%	-10.77%	-13.93%

Source: ENDES 2015. Own elaboration.

In this line, it is necessary to understand that access to water alone is not enough to reduce the rate of CDI, as long as it remains contaminated, it only causes children to continue getting sick instead of achieving a positive effect. According to ENAPRES 2022, only 2.7% of the rural population in Peru has access to chlorinated water.

In this context, Table 8 shows the impact on malnutrition of not only access to water in homes, but also ensuring that it is suitable for human consumption, thus, confirming that simply having access to water is not enough if the water is not of good quality. Furthermore, I established that chlorination of water can have a significant impact on reducing malnutrition, up to ten times more than when water is not chlorinated. Therefore, in rural households where water is considered safe, the impacts obtained at a 5% significance level are as follows: for water, -38.63%; for sanitation, -12.23%; and for both services together, almost 50% (-48.60%). On the other hand, when this estimation is performed only for the population that does not have chlorinated water in their homes, very similar results are found to those obtained in the case of the entire rural population.

Table 8. Rural Sector. Heterogeneous Effects: Chlorinated Water, 2015
Table 8: Rural Sector, Heterogeneous Effects: Clorinated Water, 2015

Matching Type		Water	Sanitation	Water and Sanitation
Nearest Neighbor	ATT	-0.468**	-0.143*	-0.62**
	T-stat	-2.222	-1.596	-2.35
Stratificatio n	ATT	-0.353**	-0.11**	-0.44**
	T-stat	-2.05	.	.
Kernel	ATT	-0.347*	-0.114**	-0.398**
	T-stat	-1.611	-1.699	-1.765
Average		-38.93%	-12.23%	-48.60%

Source: ENDES 2015. Own elaboration.

5. CONCLUSIONS, DISCUSSION AND RECCOMENDATIONS

This research examines the impact that access to water and sanitation services has had on chronic child malnutrition (DCI) in Peru; for this purpose, the Propensity Score Matching (PSM) technique and the ENDES database for 2010 and 2015 were used.

The estimates of the average treatment effect on the treated (ATT) show that in 2015, access to "drinking water and sanitation" services together reduced the probability of chronic malnutrition by −7.53 % compared to children with similar characteristics who do not have access to either service. In 2010, this impact was also negative and highly significant at 1% with an average incidence of -13.27%. In assessing the impact of access to water, it was found that in 2015, it decreased the incidence of malnutrition by -1.83%. Similarly, for access to sanitation services, a reduction in the probability of suffering from DCI is equal to -7.10% (2015). Thus, I found that sanitation services have the highest level of incidence in reducing DCI; this occurs both for the year 2015 (-7.10%) and for 2010 (-9.88%). Conversely, the impact of drinking water service was -1.83% in 2015 and -2.33% in 2010.

On the other hand, I observed that the overall result is driven by the effects of the services in the rural area, unlike the urban area. When heterogeneous effects are performed for each geographical area, it

is found that both services are relevant; however, in urban areas, "water" does not generate such a significant impact on DCI; regarding sanitation services and "water and sanitation" together, these have shown significant results in the urban area to address malnutrition, with their impacts in 2015 being -4.63% and -6.57% respectively. On the rural side, I found that the impacts of services on DCI are important and even greater than those presented in urban areas. This geographical area's drinking water service achieves a high impact (-3.93% in 2015). For sanitation and water and sanitation together, in 2015, impacts on DCI were also greater than those indicated in the urban area, being -6.37% and -8.17%, respectively, in the rural area. Furthermore, as discussed above, I also performed an analysis was of the highlands and jungles of rural areas of Peru. I found that the impacts of water, sanitation, and water and sanitation together are as follows: in the highlands, -2.47%, -6.4%, and -9.40% respectively; and, in the jungle, -6.47%, -10.77%, and -13.93%. Finally, where access to water is ensured to be suitable for drinking, there was a significant impact of -38.93%, -12.23%, and -48.6% respectively.

Based upon the abovementioned results, it is clear that there is clear evidence to support my first hypothesis, i.e., access to water and sanitation services has a significant impact on reducing the rate of chronic malnutrition in children under 5 years of age. Likewise, I also found evidence to corroborate my second hypothesis, i.e., that when heterogeneous effects are account for, there is a differentiated impact according to vulnerability conditions; these are the geographical area in which children live and access or lack of access to chlorinated water service. In summary, having water and sanitation at home has a substantial and greater impact on children living in rural communities compared to their urban counterparts and even greater on the jungle compared to the highlands in the rural world.

5.1. DISCUSSION

Access to water and sanitation services has been considered one of the transcendental components to decrease the rate of chronic malnutrition; that is, it is one of the first steps to address diseases and ensure a minimum quality of life for children in communities. As observed earlier in this study, different gaps can be seen, between

children with and without access to water and sanitation services, and who suffer from malnutrition and those who do not. As expected, these inequalities are accompanied by other components, which have not been expanded upon in their explanation. Still, it is necessary to mention them to understand a little more why these gaps have not yet been closed.

When classifying existing differences between urban and rural areas it is confirmed that the most disadvantaged children are in rural communities. Thus, it is in rural areas where poverty levels are high, and where the greatest obstacles exist to access services that guarantee well-being and a better quality of life.

It is worth noting that those who live in concentrated and dispersed areas within the rural area are the latter group that has the smallest population size and receives the least attention in sanitation policies. This is related to the estimates obtained for children under 5 years of age in the highlands and jungles of the country. What was found in the results section is that access to water and sanitation services for children living in the jungle in rural areas has a greater impact on DCI than for those in the rural highlands of the country. One of the possible explanations for this, although not the only one, is that the population tends to be more dispersed in the jungle. And how could that affect the population? On the one hand, due to the distance and time it takes for municipalities to visit the JASS, provide technical assistance, and monitor that the sanitation service management is adequate. In some cases, they arrive by motorcycle; in others, by boat, and for long hours, due to lack of resources, such as economic ones, it is complex to travel. It is not surprising, then, that it is precisely the regions of the jungle that have the least access to water and sanitation services. Under this geographical context, what I found is that there are gaps in access to sanitation not only among children in urban and rural areas but also among those living within rural areas.

However, it is impossible to talk about access to water and sanitation services without also mentioning the importance of their quality and sustainability. Therefore, in this research, after I estimated the impact on malnutrition for urban and rural areas, as well as for the highlands and jungle in rural communities, I investigated the effect that water DCI has, considering both water access and the chlorination of water sources. Although until 2016,

the National Superintendence of Sanitation Services (SUNASS) was responsible for the supervision, regulation, and oversight of sanitation services only in urban areas, with Legislative Decree 1280, its powers are expanded, creating an opportunity for it to work in rural areas as well, which generates many expectations for improvement in sanitation services quality.

5.2. POLICY RECCOMENDATIONS

Peru's water and sanitation sector is facing several urgent issues, and the findings herein raise several insights for policymakers and stakeholders. Firstly, it is important to create and implement strategies to increase the coverage of these services as quickly as possible. Failing to do so may cause chronic malnutrition rates to remain stagnant, falling short of expected decreases. Therefore, substantial investments are necessary to provide these services. However, it is important to understand that mere physical access is insufficient. Apart from expanding coverage, it is also essential to address other challenges inherent to the sector that directly affect health indicators.

One of the major concerns is the need to increase investment in infrastructure. While lack of funding was the primary obstacle in the past, today, it is also important to ensure the effectiveness of investment projects to maximize their impact. To ensure the success of projects, one must focus on their quality and feasibility. Along with this, it is necessary to address any institutional deficiencies that hinder compliance with rules and regulations. Adherence to established regulations is essential to ensure that the sector functions properly. Furthermore, it is important to address the geographical disparities that exist in many rural communities where government presence is limited.

Strengthening managerial and technical capacities, especially in rural settings where infrastructure maintenance requires specialized skills, is crucial. Lastly, one must promote a water culture and an appreciation that sanitation services are essential aspects of governance that require priority attention. It is vital to recognize the importance of driving behavior change through community participation, education, and awareness. Public policies aimed at water and sanitation must be complemented with initiatives

addressing poverty, improving maternal education, and promoting gender equity. A comprehensive approach that not only seeks to increase access to services but also ensures their quality and promotes greater regulation is needed. Lastly, it is crucial to emphasize that increasing sanitation service coverage not only aims to improve health indicators but also represents a fundamental right that all individuals, including children, should fully exercise.

REFERENCES

Abadie, A. "Implementing Matching Estimators for Average Treatment Effects in Stata". p. 290-311. *IN: The Stata Journal. Year IV. No. 3. 2004.*

Alderman, H. H. Hoogeveen, & M. Rossi. "Preschool Nutrition and Subsequent Schooling Attainment: Longitudinal Evidence from Tanzania." p. 239-260. *IN: Economic Development and Cultural Change. Year LVII. No. 2. 2009*.

Arellano, A. A review of methods for studying and evaluating active employment policies. Madrid. *Universidad Carlos III de Madrid*. 2005.

Arocena, Víctor. Factors Associated with Chronic Child Malnutrition in Peru, 1996-2007. Lima. *INEI. 2009*.

Barrera, H, & Saldívar, D. Health Culture and Quality of Life. Monterrey. Dialogues- Universal Forum of Cultures. 2007.

Bateman, M., S. Smith, & P. Roark. A comparison of the Health effects of water supply and sanitation in urban and rural areas of five African countries. Washington, D.C. USAID. 1993.

Begum, S., M. Ahmed, & B. Sen. Impact of water and sanitation interventions on childhood diarrhea: evidence from Bangladesh. Dhaka. Grantee Final Report. 2013.

Bloem, M. "The 2006 WHO child growth standards". p. 705-6. *IN: BMJ. 334 (7596)*. April 2007.

Briend, A. "Is diarrhea a major cause of malnutrition among the under-fives in developing countries? A review of available evidence". p. 611-628. *IN: European Journal of Clinical Nutrition.* 44. 1990.

Brown, K. H. "Diarrhea and Malnutrition". *IN: The Journal of Nutrition, American Society of Nutritional Sciences*. 2003.

Carbajal, M. Evaluation of the impact of sanitation in Peru: effects on health. Lima. *SUNASS*. 2014.

Casanueva, E. A. B. Perez, & M. Kaufer. Medical Nutrition. 3rd ed. Mexico City. Mexican Health Foundation. 2008.

Checkley, W., R. Gilmar, R. Black, L. Epstein, L. Cabrera, C. Sterling, & L. Moulton. "Effect of water and sanitation on childhood health in a poor Peruvian peri-urban community". p. 112-118. *IN: Rev. The Lancet*. 363. 2004.

Choque, F. "Impact of drinking water consumption on household health in Peru". p.38-52. *IN: Rev. Comunicacción*. Year IV. No. 2. 2013.

Cumming, O., & S. Cairncross. Can water, sanitation and hygiene help eliminate stunting? Current evidence and policy implications. London. Maternal & Child Nutrition. 2016.

De La Mata, Cristina. "Malnutrition, Malnutrition, and Overfeeding". p. 17-20. *IN: Rev. Med. Rosario*. 74. 2008.

Del Pino, P., M. Mena, S. Torrejón, E. Del Pino, M. Aronés, & T. Portugal. Rethinking Malnutrition. Childhood, nutrition, and culture in Ayacucho, Peru. Lima. Institute of Peruvian Studies. 2012.

Denis, C., J. Lapegue, K. Lellouche, R. Lozano, & E. Rodriguez. Greater investment in water, sanitation, and hygiene is key to the fight against undernutrition. Paris. Action contre La Faim. 2014.

De Onis, M., & R. Yip. "The WHO growth chart: historical considerations and current scientific issues". p. 74-89. *IN: Bibl Nutr Dieta*. No. 53. 1996.

De Onis, M., & A. Onyango. "WHO child growth standards". *IN: Lancet*. January 2008.

DHS. DHS Overview. Rockville. Retrieved from http://dhsprogram.com/What-We-Do/Survey-Types/DHS.cfm

Dibley, M., J. Goldby, N. Staehling, & F. Trowbridge. "Development of normalized curves for the international growth reference: historical and technical considerations". p. 736-748. *IN: The American Journal of Clinical Nutrition*. Year XLVI. No. 5. November 1987.

Endes. "Peru: Demographic and Family Health Survey 2007*". Lima: INEI*. 2007.

Endes. "Peru: Demographic and Family Health Survey 2014". Retrieved from http://www.inei.gob.pe/media/MenuRecursivo/publicaciones_digitales/Est/Lib1211/index.html

Endes. "Peru: Demographic and Family Health Survey 2015". *Lima:* INEI. 2015.

FAO. The articulated intervention: public policy against child poverty and malnutrition [video]. Lima. FAO ALC. 2012.

Fink, G., I. Gunther, & K. Hill. The effect of water and sanitation on child health: evidence from the demographic and health surveys 1986-2007. Cambridge, MA. Center for Population and Development Studies. 2011.

Frankenberg, T. Measuring Household Livelihood Security: An Approach for Reducing Absolute Poverty. Washington, D.C. Food Aid Management. 1996.

Frontera, P., & G. Cabezuelo. How to feed children: a guide for parents. Madrid. Amat. 2003.

Galdo, V., & B. Briceño. An impact evaluation of a potable water and sewerage expansion in Quito: is water enough? Washington, D.C. IDB. 2005.

García, L. "Econometrics of impact evaluation". p. 81-125. *IN: Rev. Economía*. Year XXXIV. No. 67. 2011.

Grantham-Mcgregor, S., S. Walker, S. Chang, & C. Powell. "Effects of early childhood supplementation with and without stimulation on later development in stunted Jamaican children". p. 247-253. *IN: Am J Clin Nutr*. 66. 1997.

Grantham-Mcgregor, S., S. Walker, & S. Chang. "Nutritional deficient and later behavioural development". p. 47-54. *IN: Proc Nutr Soc*. 59. 1999.

Grummer-S., Laurence, C. Reinold, & N. Krebs. Use of World Health Organization and CDC Growth Charts for Children Aged 0-59 Months in the United States. Atlanta. *National Center for Chronic Disease Prevention and Health Promotion*. 2010.

Hamill, P., T. Drizd, C. Johnson, R. Reed, A. Roche, & W. Moore. "Physical growth: National Center for Health Statistics percentiles". p. 607-629. *IN: The American Journal of Clinical Nutrition*. Year XXXII. No. 3. March 1996.

Heckman, J., H. Ichimura, & P. Todd. "Characterising Selection Bias Using Experimental Data". p. 1017-1098. *IN: Econometrica*. Year LXVI. No. 5. 1998.

Heckman, J., H. Ichimura, & P. Todd. "Matching as an Econometric Evaluation Estimator: Evidence from Evaluating a Job Training Programme". p. 605-654. *IN: Review of Economic Studies*. Year LXIV. 1997.

Heckman, J., & R. R. "Alternative Methods for Evaluating the Impact of Interventions: An Overview". p. 239-67. *IN: Journal of Econometrics*. Year XXX. No. 2. 1985.

Hernández, N. "Malnutrition: Psychomotor Development". p. 65-71. *IN: GASTROHNUP*. Year V. No. 1. 2003.

Hughes, D. Good Practices for Physical Activity. Delaware: *Nemours*. Health & Prevention Services. 2014.

Humphrey, J. "Child malnutrition, tropical enteropathy, toilets and handwashing". p. 1032-1035. *IN: The Lancet*. 374. 2009.

ICN- International Conference on Nutrition. Caring for the Socio-Economically Deprived and Nutritionally Vulnerable. Rome. FAO. 1992.

INEI. Database of the National Survey of Strategic Programs, ENAPRES. Lima. *INEI*. 2015.

INEI. Peru: Demographic and Family Health Survey 2015. Lima. *INEI*. 2015.

INS. Measurement of Height and Weight. Guide for first-level health personnel. Lima. Ministry of Health, National Institute of Health. 2014.

Jouravlev, A. Potable water and sanitation services at the threshold of the 21st century. Santiago de Chile. United Nations. 2004.

Kamiya, Y. Economic analysis on the socioeconomic determinants of child malnutrition in Lao PDR. Osaka. *OSIPP*. 2009.

Kumar, S., & S. Vollmer. Does improved sanitation reduce diarrhea in children in rural India? Munich. *MRPA*. 2011.

Lee, M. Micro-econometrics for policy, program and treatment effects. New York. *Oxford University*. 2005.

León- Cava, N., C. Lutter, J. Ross, & L. Martin. Quantification of the benefits of breastfeeding: a review of the evidence. Washington, D.C. Pan American Health Organization. 2002.

Lomborg, Bjorn. Global Crises, Global Solutions: Costs and Benefits. (2nd ed.). Cambridge. *Cambridge University Press*. 2009.

Mahmud et al. Water, Sanitation, Hygiene and Nutrition in Bangladesh. Can Building Toilets affect children's growth? Washington, D.C. World Bank. 2016.

Marín, A et al. Manual of Ambulatory Pediatrics. Bogotá. Médica Internacional. 2008

Marini, A. "The three factors to halving childhood stunting in Peru over just a decade". 2016. Retrieved from http://blogs.worldbank.org/health/three-factors-halving-childhood-stunting-peru-over-just-decade

MIDIS. Guidelines for intersectoral and intergovernmental articulated management aimed at reducing infant chronic malnutrition, within the framework of development and social inclusion policies. Lima. MIDIS. 2012.

Montoya, P. Feeding, Nutrition, and Health. 2002. Retrieved from http://www.oda-alc.org/documentos/1341945107.pdf

Moore, K. Evaluating the Impact of water and sanitation quality on child malnutrition in Sub-Saharan Africa. Washington, DC. Georgetown University. 2011.

OTASS. EPS. Lima. OTASS. Retrieved from http://www.otass.gob.pe/buscador-eps.php

PNSU. Annex 2. Program Budget with Results Approach. Lima. PNSU. 2012.

Pruss-Ustun, A., & Corvalan, C. Preventing disease through healthy environments: Towards an estimate of the environmental burden of disease. Geneva. WHO. 2006.

Rosenbaum, P., & D. Rubin. "The Central Role of the Propensity Score in Observational Studies for Causal Effects". p. 358-377. *IN: The Stata Journal*. Year IV. 1983.

Rossi, M. Impact Evaluation. Buenos Aires. Universidad de San Andrés. Retrieved from

http://preval.org/files/Evaluaci%C3%B3n%20de%20Impacto%201.pdf

Roushdy, R., Sieverding, M, & Radwan, H. The impact of water supply and sanitation on child health: evidence from Egypt. New York. Population Council. 2012.

SEGHNP- AEP. Nutritional Status Assessment. IN: Diagnostic-Therapeutic Protocols. Madrid. SEGHNP-AEP. 2010.

Sen, A. Development and Freedom. New York. Knopf. 1999.

Scrimshaw, N., C. Taylor, & J. Gordon. Interactions of Nutrition and Infection. Geneva. World Health Organization. 1968.

Semba, Richard, & Bloem, M. Nutrition and Health in Developing Countries (2nd ed.). New Jersey. *Humana Press*. 2008.

Sotelo Tornero, M, & Arias Callupe, W"¿Cuál es el efecto del rol de las mujeres rurales sobre la adecuada cloración del agua? Evidencia para el caso peruano." *Espacio y Desarrollo,* (40), 58-86. 2023 https://doi.org/10.18800/espacioydesarrollo.2023.003

Smith, Lisa, & Haddad, L. Explaining Child Malnutrition in Developing Countries: A Cross-country Analysis. Washington, D.C. International Food Policy Research Institute. 1999.

Sunil, A, Gaukler, C, & Tilahun, J. Combating Malnutrition in Ethiopia. An Evidence-based approach for sustained results. Washington, D. C. World Bank. 2012.

Thomas, D., & J. Strauss. "Health an wages: Evidence on men and women in urban Brazil". p. 159-186. *IN: Rev. Econometrics*. Year LXXVII. No. 1. 1997.

UNICEF. Evaluation of the growth of boys and girls. Buenos Aires. UNICEF. 2012.

UNICEF. Improving Child Nutrition. The achievable imperative for global progress. New York. UNICEF. 2013.

UNICEF. Child malnutrition. Causes, consequences, and strategies for prevention and treatment. Madrid. UNICEF. 2011.

UNICEF. Improving Child Nutrition. The imperative for global progress that is possible to achieve. New York. UNICEF. 2013.

UNICEF. The Impact of Poor Sanitation on Nutrition. New Delhi: UNICEF India. 2013.

Venero, H. "The challenges facing the Government in the field of public water and sanitation services". IN: Rev. Arguments. Year X. No. 3. September 2016.

Venero, H., Venero, J & Sotelo Tornero, M. "Gaps in access to potable water and sanitation services: how does it affect the health of rural children in Peru? *IN: José Durand, Jaime Urrutia, & Carmen Yon*. Peru: The agrarian problem in debate. SEPIA XVI. Lima. SEPIA. 2016.

Wisbaum, W. Child Malnutrition. Causes, consequences, and strategies for prevention and treatment. Madrid. UNICEF Spain. 2011.

WHO. Child Growth Assessment Training Course. Washington, DC. WHO. 2008.

World Bank. Poverty and Hunger: Issues and Options for Security in Developing Countries. Washington, D.C. World Bank. 1986.

Prospects of a Normalization in Relations Between Israel and Saudi Arabia

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ABSTRACT

The likelihood of a successful US-brokered normalization of relations between Israel and Saudi Arabia before the 2024 Presidential Election is slim. Seeking a political victory ahead of his reelection campaign, President Biden and his administration have put significant efforts in the months prior to October 7th in forging diplomatic relations between the Kingdom of Saudi Arabia and the Jewish state of Israel (Israel-UAE Peace Deal: Flipping the Regional Order of the Middle East | Responsible Statecraft, n.d.). Such a relationship will significantly empower the US grand strategic plan for the Middle East and create a powerful economic and military alliance amidst increased tensions with the Islamic state of Iran. Additionally, the success of Biden's plan to create a major trade network within the region, the Indian-Middle East-Europe Economic Corridor (IMEC) relies heavily on successful normalization (The White House, 2023). However, the efforts by Biden and his team will likely fail due to fundamental differences in the desires of both Saudi Arabia and Israel.

BACKGROUND

A dominant power within the region, the Kingdom of Saudi Arabia has continued to insist on the existence of a Palestinian state in the area currently controlled and administrated by the Israeli government. As a nation with a majority Muslim population and the custodian of Mecca and Medina, its leader Crown Prince Muḥammad bin Salmān ʾĀl Suʿūd, and his advisors have placed a high value on the protection of Sunni Muslims (Britannica, 2019). Additionally, the Saudi Kingdom insisted on the provision of a US security guarantee on par with NATO's Article 5 in order to normalize

relations with Israel (The Myth of an Emerging "Mideast NATO," 2022).

Meanwile, the Israeli government has demanded similarly increased security guarantees from the US , which negatively affects the chances of normalization with the Saudi Kingdom. In light of the October 7 attacks by Hamas militants, the likelihood that the Nētanyāhū administration will accept any guarantees less than those given to Saudia Arabia is incredibly slim. As the United States heads into the 2024 election cycle, and as a major beneficiary of Israeli-Saudi normalization beyond promoting stability, it becomes increasingly unlikely that neither Prime Minister Binyāmīn Nētanyāhū's (בִּנְיָמִין נְתַנְיָהוּ) nor Crown Prince Muḥammad bin Salmān ʾĀl Suʿūd (محمد بن سلمان آل سعود) are fully prepared to afford President Biden a foreign policy victory to use in his ongoing presidential campaign. Regardless of the results of the normalization process, US strategic objectives in the region are at stake.

Exploring the implications of the deliverables demanded by each of the involved actors is critical to formulating a path by which the US can still pursue extra-regional hegemony in the Middle East region. If regional stability is the goal of the Biden administration, navigating these negotiations could dramatically affect their operational capabilities and ability to balance against other rising powers vis-a-vis the Islamic Republic of Iran.

THE EXISTENCE OF A PALESTINIAN STATE

Heavily supported by the Kingdom of Saudi Arabia, formal recognition of a sovereign Palestinian state would provide for greater security of surrounding Arab states and show Israel's willingness to coexist with said states. As many of Israel's neighbors are also members of the Arab League pushing for regional de-escalation, the establishment of a Palestinian state will be seen as a major success in this plan for regional stability (The Myth of an Emerging "Mideast NATO," 2022). Additionally, any Israeli recognition of a Palestinian state would likely gain support from the other Arab League members, leading to normalization with other regional actors. However, such a deal is a non-starter for the Nētanyāhū administration.

This is due to one simple fact: Binyāmīn Nētanyāhū's ruling coalition will never accept the existence of a Palestinian state. The breakup of this coalition would be catastrophic for the domestic political career of Binyāmīn Nētanyāhū and his coalition government.

Considering Hamas's Al Aqsa Storm operation late last year (the October 7th attacks), it is increasingly unlikely that the Israeli government would agree to the promise of a Palestinian state. At this point, a Palestinian state would be seen as an existential threat to the security of Israel and its territorial possessions. Events have also brought to light recent repeated warnings by the Kingdom of Saudi Arabia that the continued deprivation of the Palestinian people would result in violence. The Saudi Foreign Ministry also commented in a statement on October 7th that there must be a "credible peace process that leads to the two-state solution" (Wong & Nereim, 2023).

Saudi and Israeli normalization is in jeopardy as a result of the Al Aqsa Storm operation alone. Any deals will likely fall through if a Palestinian state is essential for the Saudi government. Additionally, the Israeli response to Al Aqsa Storm will increase security concerns for Arab states. With recent bombings of Syrian airports, and attacks on Lebanese territory, the Israeli state has shown promising Arab partners that the current administration is wary of their influence and attacks by other Iranian-backed Arab militias.

US-SAUDI DELIVERABLES

Additionally, Saudi representatives have demanded that the United States grant a security arrangement on par with NATO's Article 5, demanding nothing less than full intervention if attacked. Such an arrangement is unlikely to gain traction amidst a Biden administration seeking to prevent foreign entanglements. Additionally, American public support for an intervention in the Middle East has declined since the failure of the Iraq War (The U.S. Faces a Public Relations Crisis in the Arab and Muslim World, n.d.). Signing a security pact with the Saudi Kingdom at this level would lead to domestic distrust of the Biden administration and internal stresses ahead of the 2024 election.

Saudi representatives have also asked the US for access to the front end of the nuclear fuel cycle (Castelli, 2023). Amidst a global nonproliferation regime, this would significantly change US foreign

policy. The Nētanyāhū administration would also likely see granting the nuclear fuel cycle process to the Saudi Kingdom as an existential threat to the state of Israel. Normalizing relations with a state that could threaten its security would be an improbable strategic choice. Additionally, Saudi representatives have insisted that any such nuclear program be run on their terms and will not necessarily agree to a 123 agreement, which are U.S. nuclear nonproliferation frameworks or principles. Such agreements limit the agreeing party's ability to control efforts to enrich nuclear fuel and restrict the types of research and projects that the party can pursue. Filtering or refusing any of these deliverables on the part of the US is unlikely to get Saudi Arabia and Israel to say yes to normalization.

US-Isreali Deliverables

As for the Israeli side, the Biden administration is seeing pressure from the Nētanyāhū administration to weaken or limit Saudi demands. Given the effectiveness of the Israeli lobby in the US, any agreement requiring US Senate approval would likely reduce or weaken any Saudi demands in exchange for more robust security guarantees or increased military provisions for Israel. In addition, any negotiated deal between the Saudi and Israeli governments would likely not include establishing a Palestinian state. Amidst the killings and destruction wrought by Al Aqsa Storm, any granting of land to the Palestinian Authority by the Israeli government would be seen as a domestic betrayal. In fact, recent months have left many analysts with the impression that the Gaza strip will never return to its pre-invasion state, as large regions have been rendered inhabitable due to damage (The Guardian, 2024).

In addition, any Israeli normalization with the Kingdom of Saudi Arabia would likely incur a security guarantee or high-level security treaty between the two countries to begin building an anti-Iran coalition. An existential threat facing Israel at the current moment is Iranian-backed Arab militias in surrounding states such as Yemen, Lebanon, and Iraq. Israel would benefit significantly from having an ally within the region. Therefore, despite disputes over their Palestinian state, the Nētanyāhū administration would likely prefer normalizing relations to offset Iranian influence. Additionally, if the Biden administration is forced to give security guarantees to the

Saudi Kingdom, Israel will likely require the same security guarantees.

In short, the Israeli government could seek to extract significant funding and provision of arms from Western allies. The Nētanyāhū administration would also likely use its influence in the domestic US to shift Ukrainian aid toward Israel due to the aftereffects of Al Aqsa Storm.

IMPACTS ON THE US

With much riding on the success of the normalization deals between Saudi Arabia and Israel, the Biden administration holds great stock in its success. However, both Binyamin Nētanyāhū and Mohammed bin Salman Al Saud do not look upon the reelection of President Biden favorably. In comparison to the foreign policy of President Donald Trump, Binyāmīn Nētanyāhū has not had great support under President Biden. Events such as shifting the US embassy's location to East Jerusalem and providing military aid to Israelis were widely viewed as domestic policy victories for the Nētanyāhū administration when Trump was in office. However, under Biden, this has so far not been the case, as he has instead sought to pivot US foreign policy towards China and Iran and advocated for a Palestinian state. In fact, the events of the past few months show that it is likely that Nētanyāhū will choose to not align himself with Biden's strategic vision for the region.

Additionally, in the case of Muḥammad bin Salmān ʾĀl Suʿūd, President Biden is seeking to curtail Saudi nuclear aspirations. Under President Trump, Saudi Arabia almost bypassed the standard 123 agreement process with his attempts to provide a South Korean reactor (Gardner, 2019). In many ways, the Trump administration was more friendly to the strategic objectives of the Kingdom of Saudi Arabia as it did not seek to influence their overall goals and domestic politics. On the other hand, the Biden administration seeks to influence internal Saudi politics such that Saudi Arabia will become a closer US ally and less inclined to pursue economic ties with China.

POLICY IMPLICATIONS AND RECOMMENDATIONS

Despite their disagreements with the Biden administration's policies and actions, successful normalization is the priority for all actors involved. An unsuccessful normalization process would allow Iran to develop a greater sphere of influence and exploit regional conflict to counter Western attempts to create an anti-Iranian coalition. If normalization is successful, such an achievement is still possible for the Biden administration. However, that is contingent upon the success of efforts to meet the demands of the governments of Israel and Saudi Arabia.

It is beneficial to both the state of Israel and the Kingdom of Saudi Arabia that they can reverse the global trend of de-escalation vis-a-vis Iran. The future security of both is dependent on achieving this goal. As Iran becomes an increasingly stronger regional hegemon, both Saudis and Israelis alike will need to balance against this new rising power. Neither side wishes to see a Middle East dominated by the Islamic Republic, least of all the Kingdom of Saudi Arabia which stands to become a global economic and technological powerhouse. As a dominant member of the Arab League, it holds significant sway over other states within the region and can easily coordinate regional actors.

As a result, it would be in the interest of the United States to find a middle ground between Israel and Saudi Arabia. This will be incredibly challenging, and of all of the potential scenarios in a post-October 7th world, is the least likely to succeed. This option will require difficult negotiations between both the US and Israel and the US and Saudi Arabia. Such negotiations will require significant US concessions that are valued high enough to be comparable to concessions by the Saudis on a Palestinian state, and similar concessions in order to cause Israel to cease hostilities in the Gaza Strip.

While not impossible, this scenario is unlikely, as a game theoretic analysis of the situation would dictate that in this "negotiation game," the payoffs associated with these actions by either actor will require the US to take a significant loss such that its strategic aspirations are inhibited. From a grand strategy point of view, doing so would not be a rational play for the United States

A secondary possibility requires that the Biden administration engage with Saudi Arabia and other Arab League members to create a coalition against the Islamic Republic of Iran and embrace regional de-escalation. As arguably a major contributor to the lack of stability within the region, Israel would be constrained and would eventually need to concede some of its position to continue receiving funding and support from the United States. By putting its full weight behind the Arab League's goal, the US will be able to leverage geopolitics and economics in such a way as to convince Israel of the value of normalization.

CONCLUSION

If the United States fails to engage Israel and the Kingdom of Saudi Arabia on the issue of normalization, the US will need to contend with a rising Iran in a region that will choose to not suffer the costs of a great-power war. Those with economic ties to Saudi Arabia will be less likely to divest their interests from those of Iran. States favoring relations with Iran will become increasingly motivated to provide for their security via negotiations with the regional power, leading to a regional atmosphere less conducive to the effective use of US influence. In short, a failure of normalization will lead to continued de-escalation vis-a-vis Iran and disrupt the US grand strategy to prevent regional hegemony by this rising power.

REFERENCES

Bianco, C., & Lovatt, H. (2020, August 17). Israel-UAE peace deal: Flipping the regional order of the Middle East | Responsible Statecraft. Responsiblestatecraft.org. https://responsiblestatecraft.org/2020/08/16/israel-uae-peace-deal-flipping-the-regional-order-of-the-middle-east/

Britannica. (2019). Saudi Arabia - Religion. In *Encyclopædia Britannica*. https://www.britannica.com/place/Saudi-Arabia/Religion

Castelli, L. (2023, March 3). Why does Saudi Arabia want to acquire the nuclear fuel cycle? • Stimson Center. Stimson Center.

https://www.stimson.org/2023/why-does-saudi-arabia-want-to-acquire-the-nuclear-fuel-cycle/

Gardner, T. (2019, March 27). U.S. approved secret nuclear power work for Saudi Arabia. https://www.reuters.com/article/idUSKCN1R82LY/

Pandith, F. (2023, October 23). The U.S. Faces a Public Relations Crisis in the Arab and Muslim World. Council on Foreign Relations. https://www.cfr.org/article/us-faces-public-relations-crisis-arab-and-muslim-world

The Myth of an Emerging "Mideast NATO." (2022, October 3). Www.crisisgroup.org. https://www.crisisgroup.org/middle-east-north-africa/gulf-and-arabian-peninsula/united-arab-emirates-israelpalestine-saudi

The White House. (2023, September 9). Memorandum of Understanding on the Principles of an India - Middle East - Europe Economic Corridor. The White House. https://www.whitehouse.gov/briefing-room/statements-releases/2023/09/09/memorandum-of-understanding-on-the-principles-of-an-india-middle-east-europe-economic-corridor/

The Guardian. (2024, January 5). UN warns Gaza is now "uninhabitable" as war continues. *The Guardian*. https://www.theguardian.com/world/2024/jan/05/un-warns-gaza-is-now-uninhabitable-as-war-continues

Wong, E., & Nereim, V. (2023, October 7). The war could upend Biden's diplomacy on Saudi-Israel normalization. *The New York Times*. https://www.nytimes.com/2023/10/07/world/middleeast/saudi-israel-gaza-war.html

The Correlation Between Gender Equality and Individual Religiosity in the Middle East and North Africa

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ABSTRACT

Though the Middle East and North Africa, or MENA, continues to make strides toward gender equality, countries in this region consistently rank towards the bottom of the Global Gender Gap index ranking by the World Economic Forum. While traditionally orientalist views conclude that the lack of gender parity in the Middle East and North Africa is a result of high levels of individual religiosity in the region, this paper argues that this is not the case. I find that individual religiosity does not play a role in attitudes toward gender equality in MENA. This analysis focuses on the specific cases of Kuwait and Iraq. First, an analysis of statistics from the Arab Barometer finds that both countries exhibit very similar levels of individual religiosity yet rank much differently in regards to gender parity. Data from the Arab Barometer supports the Global Gender Gap index ranking that attitudes in Kuwait trend much closer to gender parity than those in Iraq. The following analysis then goes on to address which alternate factors might impact gender equality in these countries, since it is not levels of religiosity. Specifically, I discuss a lack of labor force participation and an absence of women in politics as alternate explanations for the sluggish climb toward gender parity. Ultimately, I conclude that levels of individual religiosity do not impact attitudes toward gender equality in a country. Instead, other factors, like a woman's labor force or political participation, offer explanations to the disparity in the region.

INTRODUCTION

Over the last century, great strides have been made for gender equality and women's rights. But while other countries continue to work to close gender gaps and increase inclusivity, countries in the Middle East and North African region have fallen behind on this front.

Experiencing rigid laws, unjust rules, and great disparity on the basis on sex, women in the Middle East and North Africa, or MENA, are greatly mistreated and underrepresented. Many countries in the MENA region cling to traditional familial and gender norms, often leaving women at a disadvantage. This is a complex subject, and while the region has made progress in recent decades to achieve gender equality, it has been slow moving, with many remaining disparities between men and women (Freedman, 2023).

METHODOLOGY

The following research seeks to address the ongoing question of whether or not individual religiosity negatively impacts gender equality in the Middle East and North Africa. Specifically, the research question I pose below is, "Does someone's individual religiosity impact their attitudes towards gender equality?". In the following analysis, I utilize individual religiosity as an independent variable, and attitudes towards gender equality as the dependent variable. After reading through extensive existing literature, as well as looking at data, I argue that individual religiosity does not impact attitudes towards gender equality. To support this conclusion, I looked at Kuwait and Iraq as examples. I chose these countries after looking at the Global Gender Gap Report from 2021. The report features an index ranking the gender gap in the 156 countries covered in that year's report, and ranks countries on a scale from 0-1, 1 being the closest to gender parity, and 0 being the furthest from it (World Economic Forum, 2021). Their ranking is determined by their progress across four separate areas: economic participation and opportunities, educational attainment, health and survival, and political empowerment (World Economic Forum, 2021). Of the 156 countries ranked, most Middle East and North African countries fall within the bottom 30 countries. Among these bottom 30 countries, Kuwait was ranked 143, with a score of 0.621, and Iraq was ranked 154, with a score of 0.535 (World Economic Forum, 2021). I will first introduce a brief history of gender equality in both Kuwait and Iraq, followed by a review of existing literature regarding my research topic. I will then discuss how individual religiosity is similar in both countries, but attitudes towards gender equality are not, supporting my argument that individual religiosity does not impact attitudes towards gender equality. I will then argue what factors I believe do

impact attitudes towards gender equality in the Middle East and North Africa.

A HISTORY OF GENDER EQUALITY IN KUWAIT AND IRAQ

The aforementioned progress that has been made in the Middle East and North Africa has also taken place in Kuwait and Iraq. But with said progress, many setbacks and challenges have also been present. In 2004, the Kuwaiti cabinet submitted a bill to parliament, which amended previous electoral law, and gave women the right to vote and run for office; this bill was passed in May of 2005, granting Kuwaiti women the right to vote (Al Mughni, 2008; Haddadin, 2006). But nearly 20 years since this enormous triumph, things have begun to backslide. Conservative politicians in Kuwait have begun to push back against growing feminist sentiment in the region. It was recently decided by the government, upon the consultation of religious authorities, that women could only join the army in non-combat roles if wearing an Islamic headscarf, and obtaining a male guardian's permission (NPR, 2022). This was especially shocking given that the Kuwaiti government has been typically indifferent to whether or not women cover their hair (NPR, 2022). Kuwait's parliament also recently turned to religious clerics regarding cases of abhorrent "honor-killings", leaving Kuwaitis appalled at the government's consultation of religious authorities, deeming it a power move to appease conservatives (NPR, 2022). These recent events in Kuwait show that, despite moving in a direction of closing the gender gap, they are still facing substantial barriers to gender equality, such as failure to protect women from gender-based violence and guarantee equal rights to men and women.

In Iraq, what has occurred there has not been dissimilar to the path Kuwait has followed. Iraq used to be one of the countries in the Middle East and North Africa closest to gender parity. Through the 1980's, Iraq maintained such status. Women were well and thoroughly educated, working outside of the home was socially acceptable, they received generous maternity leave, and were granted the right to vote and run for office, all while making up 40 percent of the workforce (Open Society Foundations, 2003). However, this changed in the 1990s. As a result of the Gulf War in 1991, the United Nations imposed sanctions afterwards that disproportionately impacted women and children (Open Society

Foundations, 2003). In an effort to amass the support of other Arab countries during these times, Saddam Hussein allowed for a shift back toward traditional Islamic Sharia law, giving tribal leaders the power to act upon tribal codes, and in 1990, he amended a law regarding honor killings, allowing them without penalty (Open Society Foundations, 2003). Through these decisions, the role of women reverted to one of traditional ideals that did not prioritize gender equality, and failed to protect women from gender based violence. Today, women are continually facing an uphill battle to reach gender parity. Their struggles persist due to ongoing patriarchal norms and a discriminatory legal system, leaving them at a constant disadvantage and susceptible to ongoing gender-based violence (Alkhudary, 2020). While both Kuwait and Iraq are trending towards gender equality, they also both face continual setbacks that are hindering their ability to more fully achieve gender equality.

EXISTING LITERATURE

There is already a large volume of existing literature that addresses gender equality within the MENA region. Some commentators have argued that Islam is to blame for the inequalities women face. In the wake of 9/11, the media was full of stories and sentiment relating to the unfair treatment of women in the Middle East (Mastro, 2016). A prime example of this rhetoric being Laura Bush's 2001 radio address, where she spoke about the Taliban's oppression of women and children (Bush, 2001). In her discourse, she allows the lines between the drastic differences of Islam and the Taliban to blur, letting people in an already Islamophobic America believe that the Taliban was an accurate representation of Muslim culture (Berry, 2003). There is also a tendency for western culture to impose its ideas of what gender equality and women's rights should look like on women in the Middle East and North Africa (Bryan, 2012). However, in recent years, research from the Arab Barometer has found that there has been a decline in "religious faith and trust in religious parties across the Middle East and North Africa" (Habtom, 2020). In response to these findings, the Director of the Arab Barometer, Michael Robbins, was asked if this decline in religiosity would impact other beliefs, such as the role of women in society. In response, he said that, though it was too soon to tell, there would need to be a major shift in cultural norms beyond levels of religiosity for views on women's rights to change (Habtom, 2020). Across the MENA region,

63 percent of people who are religious say that the husband should always have the final say in family decisions, compared with 56 percent of those who are not religious, showing that lower levels of religiosity do not translate directly into a drastically different view of women in society (Habtom, 2020). In 2022, the Arab Barometer released a report about gender attitudes and relating trends in the Middle East and North Africa. In this report, it says that, despite ongoing inequalities, the region is trending toward gender equality (Roche, 2022). The report details that these existing gender disparities can be attributed to a multitude of factors, some being gender-based violence, lack of employment opportunities, and a lack of women in politics. Ultimately, regardless of the gender disparities that have pervaded society, the Middle East and North Africa seems to experience a positive trend toward closing the gender gap. Additionally, with the previously mentioned explanations regarding these disparities, research can be more easily performed in an effort to find a solution to this ongoing issue.

INDIVIDUAL RELIGIOSITY IN KUWAIT AND IRAQ

I argue that individual religiosity does not play a role in attitudes towards gender equality. I will be evaluating individual religiosity, by looking at Kuwait and Iraq as examples to support this claim. I stated above that these countries ranked differently on the gender gap index, with Kuwait falling 0.086 closer to gender parity than Iraq. But despite their gender disparity, both Kuwait and Iraq share similar levels of religiosity in their countries. In 2013, Wave III of Arab Barometer data found that 90 percent of people in Iraq deemed themselves religious or somewhat religious, compared with 96.3 percent of people in Kuwait (Arab Barometer, 2013). These numbers show that a very similar percentage of people in these two countries consider themselves to be religious individuals, lending itself to the notion that Kuwait and Iraq have comparable levels of individual religiosity. Similarly, when asked if they prayed daily, 96.8 percent of Iraqis said that they did "always, most of the time, or sometimes", compared with 98.5 percent of Kuwaitis (Arab Barometer, 2013). These statistics about personal prayer habits are very close to one another. This near identical data shows that individual religiosity is similar in the two countries given that statistics about an aspect of individual religiosity, like daily prayer, are incredibly alike. Lastly, when asked if one listened to or read the Quran, 90.1 percent of Iraqis said they did "always, most of the time, or sometimes", compared

with 88.4 percent of Kuwaitis. These statistics about reading the Quran show very close numbers for both countries, further supporting that another aspect of individual religiosity in both countries is similar to one another. These statistics demonstrate that levels of individual religiosity are very similar in Kuwait and Iraq. . Individual perception of one's religiousness, daily prayer, and reading the Quran are all aspects of individual religiosity. And all these aspects, for both Kuwait and Iraq, are supported by data that is highly comparable, supporting the conclusion that Kuwait and Iraq share similar levels of individual religiosity.

ATTITUDES TOWARDS GENDER EQUALITY IN KUWAIT AND IRAQ

Similarly, data from Iraq and Kuwait provides an indication of attitudes towards gender equality in the Middle East and North Africa. In a report released in 2022 by the Arab Barometer regarding attitudes and trends surrounding gender, contains a wealth of data that supports the findings of the Global Gender Gap index, which found that Kuwait ranks closer to gender parity than Iraq. Data from the Arab Barometer shows that 39 percent of people in Iraq found a "lack of means for transportation" to be a bigger barrier for women than men, compared with 12 percent of people in Kuwait (Roche, 2022). This demonstrates that women in Iraq are far more limited by a lack of transportation than women in Kuwait. A lack of public transportation further hinders women's ability to participate in the workforce, making this a key variable in the status of women's economic participation (Belhaj, 2023). The report also found that 17 percent of Iraqis agree or strongly agree with the statement "University education for males is more important than university education for females", compared with 8 percent of Kuwaitis (Roche, 2022). This illustrates that far more Iraqis than Kuwaitis believe that university education is more valuable for men than women. This is detrimental not only to a woman and her chances of participating in the workforce, but in addition, countries where women are deprived of education tend to be less economically developed, making a woman's lack of rights a disadvantage to all (QS GEN, 2018). Lastly, the data from the report indicate that 65 percent of Iraqis agree or strongly agree with the statement "A man should have the final say in all decisions concerning the family", compared with only 49 percent of Kuwaitis (Roche, 2022). However, men are far more likely to hold this view than women. In Iraq, 59 percent of women say they

agree or strongly agree with the previous statement, compared with 70 percent of men (Roche, 2022). And in Kuwait, only 30 percent of women agree or strongly agree that a man should have final say in all decisions concerning the family, compared with 69 percent of men (Roche, 2022). In both countries, men feel more strongly about them having the final say. The abovementioned data indicate that people in Iraq, especially men, hold traditional familial roles in much higher regard than people in Kuwait. These views can be harmful to women. One way this manifests itself is in the context of domestic violence. In most cases of domestic violence, individuals will go to family members for support (Caramazza, 2020). Because of this, women are far less likely to turn to the authorities or the state for help, and with the view of men dominating the family life, this can leave women unprotected from gender-based violence. These statistics from the Arab Barometer support the Global Gender Gap index ranking which shows that there is more gender disparity in Iraq than there is in Kuwait.

ANALYZING THE CORRELATION BETWEEN INDIVIDUAL RELIGIOSITY AND GENDER EQUALITY

 To answer the principal question I posed above, namely, "Does someone's individual religiosity impact their attitudes towards gender equality?", I focused on examining Iraq and Kuwait. For my independent variable, individual religiosity, by looking at statistics and data from the Arab Barometer, I concluded that Iraq and Kuwait populations have very similar levels of individual religiosity. I reached this conclusion by analyzing data about personal perception of religiosity, daily prayer habits, and whether someone reads the Quran, which are all aspects of individual religiosity. The numbers for both Kuwait and Iraq were incredibly close in all regards, proving that these levels of individual religiosity in both countries were similar.

However, for my dependent variable, attitudes toward gender equality, by examining at the Global Gender Gap index rankings and additional Arab Barometer data, I concluded that there is a difference in attitudes towards gender equality in these two countries, with Kuwait having more positive attitudes towards gender parity than Iraq. I arrived at this conclusion by looking at data concerning barriers to women's participation in society and the workforce, attitudes regarding university education for women, and views about men having the final say on family matters. The data from all of these

subjects support the notion that there is far more gender parity in Kuwait than there is in Iraq. This demonstrates that attitudes towards gender equality in Kuwait are more positive than attitudes in Iraq.

With these findings, it can be seen that both Iraq and Kuwait have very similar levels of individual religiosity, however, they have differing attitudes towards gender parity. This means that individual religiosity is not the driving factor impacting gender parity in these two countries. Thus, it appears that answer to my research question is no, individual religiosity does not impact attitudes towards gender equality. If individual religiosity impacted impact attitudes towards gender equality, we would see a correlation between the statistics about individual religious practice and belief and gender in the Middle East and North Africa. However, the statistics surrounding religiosity remain practically the same in both countries, while gender attitudes remain vastly different. This supports the conclusion that there is no correlation between individual religiosity and gender equality in the Middle East and North Africa.

IF NOT INDIVIDUAL RELIGIOSITY, THEN WHAT?

While data from the Arab Barometer supports my argument that there is no correlation between individual religiosity and gender equality in the Middle East and North Africa, this does not change the fact that there is an ongoing crisis regarding gender equality in the region. There are many other factors that do directly correlate with gender equality in MENA. I am going to discuss two in particular that correlate with gender equality. The first one being women's labor force participation, which has continued to climb at a sluggish rate. The second factor I will discuss is women and politics in the Middle East and North Africa. I will again look at all of these aspects in the context of Kuwait and Iraq. Looking at these factors and their correlation with women's rights is necessary to understand why gender equality in the region continues to trail behind many other countries.
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LABOR FORCE PARTICIPATION AND GENDER EQUALITY

Similar to many other facets of daily life for women in the Middle East and North Africa, women's participation in the labor force continues to lag behind other countries by a considerable margin. In all other developing regions, more than 50 percent of women are employed or actively looking for employment, compared with 25.2 percent of women in MENA (Adas, 2012). While this data is from 2011, and these numbers have risen for both populations, the fact remains of a vast rift in participation in the labor force for women in MENA compared to other countries. This lack of participation can be attributed to several factors. The 2022 Arab Barometer report regarding Gender Attitudes in the Middle East and North Africa provides data about the most challenging barriers to enter the workplace for women, the two most prominent being a lack of transportation and childcare. In Kuwait, 38 percent of women deemed structural barriers, such as a lack of transportation and childcare, to be the biggest barrier to women entering the workplace, and 48 percent of women found this to be the case in Iraq (Roche, 2022). These statistics show how these factors hinder a woman's ability to participate in the workforce. Improving public transportation plays a major role in women's economic empowerment by increasing accessibility to labor opportunities. In turn, this would benefit everyone in MENA, as the International Monetary Fund predicts that per capita GDP would increase by 20 percent to 40 percent should women fully participate in economic activities (Um & Effah, 2020).

Additionally, as previously mentioned, a lack of childcare also serves to prevent women from participation in the labor force. In the most recent report from the Arab Barometer, the authors found that 25 percent of Kuwaiti respondents found a lack of childcare to be the most challenging barrier to women entering the workforce (Alnajjar, 2022). Of the six other barriers listed, a lack of childcare was deemed the most challenging by 7 percent. In the most recent Iraq report, 28 percent of respondents deemed a lack of childcare to be the most challenging barrier to women entering the workforce, also deeming it the most challenging of the six other barriers listed by 9 percent (Arab Barometer, 2022). This data demonstrates how large a role a lack of childcare plays in limiting women from entering the workforce. Increasing access to childcare for women can help to increase employment outcomes because they can leave the home, and generally increase female labor force participation (Morris, 2023). Women's lack of participation in the labor force in the Middle

East and North Africa is further hindered by factors such as a lack of transportation. Remedying these barriers will not only increase women's participation in the labor force, but in turn will increase the prosperity of economies in MENA.

POLITICS AND GENDER EQUALITY

Though progress has been made, women's political participation is still a space in which the Middle East and North Africa have fallen behind many other countries. Attitudes towards women in politics remain largely centered around traditional views of gender norms. The 2022 Arab Barometer gender report found that, when presented with the statement, "in general, men are better at political leadership than women", 65 percent of Kuwaitis and 69 percent of Iraqis agree or strongly agree with this statement (Roche, 2022). But despite what may seem like a disheartening statistic, levels of disagreement with that previous statement are at an all-time high (Roche, 2023). This proves that, while attitudes towards women in politics continue to show a lack of confidence in women's political leadership, they are trending in a direction of improved gender equality. But in order to strive for greater gender parity in MENA, greater participation and representation of women in the political sphere remains a key factor. If visibility of women in political positions continues to increase, the confidence in women as political leaders will grow with it (Roche, 2023). This is why it is important to implement legislative quotas, which reserve seats to guarantee a certain number of seats for women in the legislature. Legislative quotas have slowly but continually created more opportunity for women within the political sphere (Welborne, 2022). There is evidence that legislative quotas also impact how decision-making bodies operate, which in turn impacts public opinion (Welborne, 2022). This is crucial to increasing female participation in politics in the Middle East and North Africa with the intention of achieving greater gender parity and promoting equal representation.

CONCLUSION

While slow moving, gender equality in the Middle East and North Africa is trending in a positive direction. Though western perceptions of women's rights in the region attempt to explain this disparity, they are not always doing so accurately. A vast selection of existing

literature and data from the Arab Barometer supports the conclusion that, despite what the orientalist view may infer, individual religiosity does not correlate with gender equality in MENA. In countries like Iraq and Kuwait, where levels of individual religiosity are near identical, attitudes toward gender equality remain vastly different in the two regions. This proves that there is no correlation between the two. But while individual religiosity may have no relationship with achieving gender parity in MENA, the same cannot be said for other factors of everyday life, such as participation in the labor force and the political sphere. Understanding the factors that continue to hinder the advancement of women's rights is crucial. Not only to be able to successfully overcome them and strive for gender equality, but to benefit all of MENA. Changing the traditional gender attitudes of an entire region is no small feat. But being able to understand the relationship between gender equality and components that impact it, such as the labor force and political participation, is an essential step in moving in a direction of greater gender parity in the Middle East and North Africa. Achieving gender equality will not only be pivotal for women, but rewarding for all who call the region home.

REFERENCES

Adas, Mariam Abu. (2012, Oct 7). "Gender Equality and Development in the Middle East and North Africa Region." World Bank. World Bank Group. https://www.worldbank.org/en/news/feature/2011/09/19/gender-equality-development-middle-east-north-africa-region.

Al Mughni, Haya Abdulrahman. (2008, Aug 20). "The Politics of Women's Suffrage in Kuwait." Carnegie Endowment for International Peace. https://carnegieendowment.org/sada/21231.

Alkhudary, Taif. (2020, June 2020). "Iraqi Women Are Engaged in a Struggle for Their Rights." Middle East Centre. https://blogs.lse.ac.uk/mec/2020/06/15/iraqi-women-are-engaged-in-a-struggle-for-their-rights/.

Alnajjar, Dr. Ghanim. (2022, Nov). "Arab Barometer VII - Kuwait Report." Arab Barometer. https://www.arabbarometer.org/wp-content/uploads/ABVII_Kuwait_Report-ENG.pdf.

BELHAJ, FERID, et al. (2023, March 8). "Public Transport Is Key to Strengthening Women's Economic Participation in Mena." World Bank Blogs. https://blogs.worldbank.org/arabvoices/public-transport-key-strengthening-womens-economic-participation-mena.

Berry, Kim. (2003). "The Symbolic Use Of Afghan Women In The War On Terror." *Humboldt Journal of Social Relations*, vol. 27, no. 2. pp. 137–60. *JSTOR*. http://www.jstor.org/stable/23524156. Accessed 26 Apr. 2023.

Bryan, Desiree. (2012, Aug 4). "Women in the Arab World: A Case of Religion or Culture?" E. https://www.e-ir.info/2012/08/02/women-in-the-arab-world-a-case-of-religion-or-culture/#_ftn1.

Bush, Laura. (2001, Nov). "Text: Laura Bush on Taliban Oppression of Women." The Washington Post, WP Company. https://www.washingtonpost.com/wp-srv/nation/specials/attacked/transcripts/laurabushtext_111701.html.

Caramazza, Gaia. (2020, March). "Remembering the Middle East Victims of Gender-Based Violence." *The New Arab*. https://www.newarab.com/analysis/remembering-middle-east-victims-gender-based-violence.

Editorial Team. (2018, Feb). "The Lack of Women's Education in the Middle East." QS GEN. https://qs-gen.com/the-lack-of-womens-education-in-the-middle-east/.

Freedman, Benjamin, et al. (2023, April 26). "Gender Gaps in MENA Remain Stubbornly Entrenched, Despite Positive Trends." Middle East Institute. https://www.mei.edu/publications/gender-gaps-mena-remain-stubbornly-entrenched-despite-positive-trends.

Habtom, Naman Karl-Thomas. (2020, Apr 6). "Is the MENA Region Becoming Less Religious? an Interview with Michael Robbins." Arab Barometer. https://www.arabbarometer.org/2020/04/is-the-mena-region-becoming-less-religious-an-interview-with-michael-robbins/.

Haddadin, Haitham. (2006, Apr 5). "'Historic Day' as Kuwaiti Women Vote for First Time." The Guardian. *Guardian News and Media*. https://www.theguardian.com/world/2006/apr/05/mainsection.international1.

Mastro, Megan A. (2016). "The Mainstream Misrepresentation of Muslim Women in the Media." *The Cupola* Scholarship at Gettysburg College, Gettysburg College. https://cupola.gettysburg.edu/cgi/viewcontent.cgi?article=1012&context=islamandwomen.

Morris, Megan. (2023, Feb). "Access to Childcare to Improve Women's Economic Empowerment." The Abdul Latif Jameel Poverty Action Lab (J-PAL). https://www.povertyactionlab.org/policy-insight/access-childcare-improve-womens-economic-empowerment.

Roche, MaryClare. (2023, Mar 6). "Female Political Participation Inspires Confidence in Female Political Leadership in Mena ." Arab Barometer. https://www.arabbarometer.org/media-news/female-political-participation-inspires-confidence-female-political-leadership-in-mena/.

Roche, MaryClare. (2022, Sept). "Gender Attitudes and Trends in MENA." Arab Barometer. https://www.arabbarometer.org/wp-content/uploads/ABVII_Gender_Report-ENG.pdf.

AB Wave III - 2013 - Religious Person. (2013). Arab Barometer. https://arabbarometer-online.com/online.jsp?collection=11&ref=MjAyMzIxOTI5OQ.

Arab Barometer VII - Iraq Report. (2022, Sept). Arab Barometer. https://www.arabbarometer.org/wp-content/uploads/ABVII_Iraq_Country_Report-ENG.pdf.

Casualties of War: Iraqi Women's Rights and Reality Then and Now. (2003, Nov 17). Open Society Foundations. https://www.opensocietyfoundations.org/events/casualties-war-iraqi-womens-rights-and-reality-then-and-now.

Global Gender Gap Report 2021. (2021, Mar). World Economic Forum. https://www3.weforum.org/docs/WEF_GGGR_2021.pdf.

If Urban Transport in Mena Was Safe for Women, Economies Would Prosper. (2020, Oct 29). World Bank Blogs. https://blogs.worldbank.org/arabvoices/mena-if-urban-transport-was-safe-women-economies-would-prosper.

The Associated Press. (2022, Feb 21). As Kuwait Cracks Down, a Battle Erupts Over Women's Rights. *NPR*. https://www.npr.org/2022/02/21/1082070405/as-kuwait-cracks-down-a-battle-erupts-over-womens-rights.

Um, Paul Noumba, and Effah, Dickson. (2020, Oct 29). If Urban Transport in Mena Was Safe for Women, Economies Would Prosper. World Bank Blogs. https://blogs.worldbank.org/arabvoices/mena-if-urban-transport-was-safe-women-economies-would-prosper.

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The Effect of Media on Human Perception of Violence

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Abstract

The prevalence of violence in media raises significant concerns about its effects on human perception and behavior. Despite living in one of the most peaceful eras in human history, media has become progressively more violent. In turn, media consumption leads to an overestimation of real world violence. This research seeks to understand how, why, and when perceptions are altered by media violence. These perceptions include collective thought, individual beliefs, and behavior. Specifically, it explores factors such as the type and amount of media consumed, which populations are most affected by violent media, and which beliefs are most likely to be targeted. This analysis draws from established research on cultivation theory as well as empirical evidence on the effects of violent media. This research concludes by discussing relevant policy implications and providing suggestions for action. These include media literacy programs, regulations, and information campaigns. This research asserts media violence as a public problem and provides policymakers with informed policy choices.

Introduction

The world may be less violent than it was 100 years ago, however violence permeates almost every form of media we consume on a daily basis. Television makes up one of the most common and widespread forms of media. The first televisions were available to the public in 1939, and by 1960 they could be found in more than 90% of American households (Bartholow et al., 2003, p. 1). And, as the prevalence of media has increased in the past several decades, so has the amount of violence shown in the media. According to the National Television Violence Study, 61% of television programs featured violence in 1998, and this number continues to increase (Bartholow et al., 2003, p. 5).

For this reason, it is increasingly important for policymakers to understand the effects of violence in media. As technology continues to develop and become more aggressive, policymakers should be informed about the social and behavioral effects of this content so that they can protect vulnerable populations and protect public health. Furthermore, because media comes from many sources, public policy is necessary to regulate any potential consequences of media violence.

Media violence can be defined as "all forms of mass communication that depict the threat to use force, the act of using force, or the consequences of the use of force against animate beings (Baumeister, 2007)". In an increasingly media-dependent world, it is important to understand how media impacts behavior and perceptions of the world. Therefore, this paper aims to examine the research available and dissect how, when, and why social reality is affected by media. It is also important to identify which populations and perceptions are most likely to be affected in order to understand collective thought processes.

Many researchers have investigated the possible effects of violent media on human consumption. Cognitive psychologist Steven Pinker associates higher exposure to violence with stronger perceptions of violence (Pinker, 2012). His work, The Better Angels of Our Nature: The Decline of Violence in History and Its Causes, claims that despite the mass reporting of violence, we are experiencing the most peaceful era in human history (Pinker, 2012). This perspective is similar to George Gerbner's field of cultivation theory. He described a "mean world syndrome" that states that humans who view more violent TV tend to think of the world as more dangerous (Gerbner, 1998, p. 185). In his studies, Gerbner created a "mean world" index that compared the views of light, medium and heavy TV viewers to estimate how often individuals confused "TV reality" with real world statistics. In addition to this, Gerbner also argued that violent media also dictates how we act.

Cultivation theory, "mean world syndrome", and the "mean world" index inspired research on the effects of violent media, which can be used to assess the question: how has exposure to media influenced human perception of violence? In addressing this question, there are also many other important factors to account for, including the type

and amount of media consumed, how individual differences impact susceptibility to the effects of media consumption, and which specific beliefs are most likely to be affected by media. By researching these topics, we can begin to understand how the public problem of violence in media is formed. More knowledge in these areas also allows for more educated and efficient policy responses to address this problem.

George Gerbner's research focused on the collective nature of mass media, in particular its "public-making" ability. He defined this as "the ability to form historically new bases for collective thought and action quickly, continuously, and pervasively across previous boundaries of time, space, and culture (Gerbner, 1969, p. 140)". He found that media exposure shapes collective thoughts about social realities. In particular, he cited television as a constant and pervasive influence on the collective public. This has massive implications in terms of policy responses; if the public is reflective of the media they consume, policies should be actively limiting dangerous material. To formulate these policies, certain key considerations are necessary to understand the true influence of media consumption on human perception. Most notable among these are the role of individual choice in media viewing and the distinctions between different media types. Policies should incorporate a multifaceted and individualistic approach in researching how media affects human perception of violence. In doing so, a direct link can be established to evaluate to what extent technology impacts human perception and well-being, and how and why this shapes collective thought, behavior, and action.

Cultivation theory explains how common messages are created through mass media systems, focusing on collective and non-selective viewing habits. This theory, however, does not take individual media consumption into account. Many critiques of cultivation theory point out the importance of acknowledging differences in personal viewing patterns. These differences include the amount, type, and the nature of the media consumed.

Type and Amount of Media Consumed

Gerbner's "Cultivation Analysis" addressed the disproportion of cultivation effects between heavy and light television viewers. This discrepancy is referred to as the cultivation differential, which is "the margin of difference in conceptions of reality between light and heavy viewers in the same demographic subgroups (Gerbner, 1998, p. 180)". Gerbner found that heavy viewers tend to overestimate the prevalence of violence in real life (Gerbner et al., 1977, p. 178). Other research has followed the same principle of distinguishing between light and heavy viewers. However, there has also been an added focus on other factors that affect the influence of media.

Frequency, Recency, and Vividness

Riddle et al.'s "Beyond Cultivation" offers a fresh approach to cultivation theory by accounting not just for frequency, but also recency and vividness of media exposure. This research backed up Gerbner's findings that heavy television viewers estimated a higher prevalence of crime as opposed to light viewers (Riddle et al., 2011, p. 182). They also found that recent viewers are more likely to recall violent media. However, the recency of media consumption alone does not affect perceptions of social reality (Riddle et al., 2011, p. 184). This reinforces Gerbner's cultivation theory, supporting the idea that continuous exposure is needed to alter perceptions.

Nature of Media Consumed

The research of Riddle et al. (2011) also found strong indicators that the vividness of violence in media is more significant than the frequency of exposure. The results of their experiment showed that individuals were more likely to remember violence in media when it was particularly vivid or gory, regardless of whether they were frequent or recent viewers (Riddle et al., 2011, 183). This shows that graphic media leaves a lasting impression on the viewer's memory. Furthermore, they found that it was this aspect of vividness that impacted viewers' beliefs of the world the most. The lasting effects of vivid media have been demonstrated in real-world contexts. Recently, this has manifested in the form of increased psychological distress in response to coverage of the COVID-19 pandemic (Garfin

et al., 2020, p. 355). Garfin et al. found that increased exposure to graphic images during the outbreak caused heightened feelings of stress and fear among viewers. Furthermore, other physical and psychological responses to violent media have been noted in the past. For example, individuals who viewed images of a graphic nature (such as containing blood) following the Boston Marathon bombings later had higher incidences of post-traumatic stress. This same tendency was observed following television coverage of 9/11, with exposure being linked to post-traumatic stress and the diagnosis of other novel physical ailments (Garfin et al., 2020, p. 356).

Type of Media Consumed

It is also important to note the variation between television genres, as different social perceptions are represented in different forms of media. Gerbner's research was before many of the advancements in technology that have allowed individuals to personalize their viewing experience. In "Cultivation Analysis", Gerbner explains that because the primary goal of television is to attract the largest audience possible, programs tend to be homogeneous in nature (even despite categorical differences) in order to gain popularity. He also stated that because traditional television broadcasting was based on certain time slots for programs, an individual's media exposure was dependent on the times they watched television:

Most of its programs are by commercial necessity designed to be watched by large and heterogeneous audiences in a relatively nonselective fashion… The audience is always the group available at a certain time of the day, the week, and the season. Viewing decisions depend more on the clock than on the program. (Gerbner, 1998, p. 178).

This observation, however, is becoming increasingly less relevant considering today's innumerable streaming options and variety of media choices. Genre-specific research has been introduced to account for these developments. "Cultivation Revisited" by Jonathan Cohen and Gabriel Weimann specifically explores the effects of genre on perceptions of violence. Their findings demonstrate that while certain genres of media, such as horror, cause greater perceptions of fear among viewers, the opposite effect can be observed with other genres (Cohen & Weimann, 2000, p. 110). For

example, the viewing of sitcoms was associated with more optimistic beliefs of real life (Cohen & Wiemann, 2000, p. 108). These findings support the conclusion that perceptions are most heavily impacted with genre devotion, and therefore a diverse consumption of media is recommended to avoid the shaping of social realities through media (Cohen & Weimann, 2000, p. 112). These findings of media frequency, type, and vividness have relevant implications for policy formulation. In terms of media frequency, one possible approach to reduce its effects on perceptions would be the creation of media literacy programs. These programs would aim to make individuals more conscious about the harmful effects of violent media and its consumption. Alternatively, regulation of sensitive content may reduce the impact of graphic media. In particular, graphic media should be limited in times of crisis, as it adds to psychological distress and public hysteria during these events. Limiting this media could protect the well-being of the public during crises and help people to make more rational decisions. Media could also take an active role in sharing mental health resources during these events. Finally, the effects of homogenous media point towards media diversification as a policy strategy. This could be accomplished by providing incentives for media companies to produce more diverse programming.

DEMOGRAPHICS MOST INFLUENCED BY MEDIA CONSUMPTION

Just as differences in media cause variations in perception, some demographics may be more inclined than others to form certain social perceptions. This can be due to a number of factors, including age and gender, beliefs and past experiences, and even location. All of these factors make up our social realities, which are subject to differing beliefs.

AGE AND GENDER

In research on media effects, it has often been assumed that younger individuals are the most likely to be influenced due to an inability to question and rationalize the media they consume. However, Cohen & Weimann's "Cultivation Revisited" found significant evidence that children ages 13-15 were less likely to be influenced by cultivation as compared to the age group of 16-18 (Cohen & Weimann, 2000, p. 109). This could be due to the effects

of accumulation on media cultivation; an older age implies longer exposure time, and therefore a higher possibility that media-based perceptions have formed.

Research has also indicated that women and men experience media cultivation differently. Riddle et al. (2011) demonstrated that women estimated higher instances of violence and crime, and were able to recall violent media in more detail. Kathleen Custers and Jan Van den Bulck suggest some reasons for this increased perception of violence in "The Cultivation of Fear of Sexual Violence in Women: Processes and Moderators of the Relationship Between Television and Fear" (Custers and Van den Bulck, 2013). Their research shows that exposure to crime drama programs increaeses "perceived risk", or an individual's belief that they will be the target of a crime or violent sexual act (Custers and Van den Bulck, 2013, p. 116). However, this increased feeling of risk did not occur with news viewing. According to Custers and Van den Bulck, a reason for this could be the phenomenon of "victim blaming" in news stories about sexual violence. As a consequence, female viewers tend to disassociate themselves with the victims portrayed on the news (Custers and Van den Bulck, 2013, p. 117).

BELIEFS AND EXPERIENCES

Social reality can also be constructed through religious beliefs. In their cultivation theory research, Cohen and Weimann argue that religious individuals are less susceptible to the effects of cultivation (Cohen & Weimann, 2000, p. 109). They also found variation among different levels of religious devotion; heavily religious viewers were most likely to cultivate mean world beliefs, while less religious individuals' beliefs of interpersonal trust were most affected by television consumption. A possible explanation for this is that religion typically provides an individual with a set of beliefs to adhere to, and therefore, television may have a less powerful impact on these pre-established conceptions.

Personal experiences are an important factor in cultivation. Encounters with crime in the past can affect the forming of social perceptions from media exposure. Custers and Van den Bulck found that women without personal experiences of crime were much more likely to derive a sense of perceived risk from watching crime dramas (Custers and Van den Bulck, 2013, p. 117). Gerbner explains this

concept with a term called "resonance", wherein "everyday reality and television provide a 'double dose' of messages that 'resonate' and amplify cultivation (Gerbner, 1998, p. 182)". An example of this is that people who live in high crime areas are most likely to derive fear from watching television, as they have more real-life experience to reinforce this fear. However, by this logic, women with a past experience with crime should be more likely to gain a sense of perceived risk from media consumption. Ultimately, the effect that media has on a person's perception relies on their own unique experiences and how they relate these social realities to the world of media.

LOCATION

The location and surroundings of a person also influence how their perceptions are shaped. Both geographic and demographic factors account for variation in cultivation for different regions. For instance, Gerbner focused on the cultivation effects of American television in particular. He stated that American programs differ from those in other countries because of the mainstreaming qualities of American media, which he describes as "a relative homogenization, an absorption of divergent views, and an apparent convergence of disparate outlooks on the overarching patterns of the television world (Gerbner, 1998, p. 183)". While watching American media was associated with increased fear of neighborhood safety, this pattern was not observed with the consumption of media in the former Soviet Union (Gerbner, 1998, p. 190). This could be due to lesser portrayals of violence in the former Soviet Union. Cohen and Weimann (2000) observed that watching news programs in the United States led to higher presumptions of violence and mistrust, while news viewing in Israel was associated with positive effects in viewers, such as increased feelings of interpersonal trust (Cohen & Weimann, 2000, p. 112).

The consumption of American media by different regional audiences may also have different outcomes. In Korea, consumption of American television was associated with the cultivation of liberal views on gender norms and family values, while viewing American programs in Argentina led to the cultivation of more traditional gender roles (Gerbner, 1998, p. 190). Therefore, it is very important

to take location and surroundings into account when analyzing cultivation theory research.

These cultivation differences in age and gender, beliefs and experiences, and location should be taken into account when designing media policies. If media literacy programs are implemented, they should be oriented towards specific audiences. For example, these programs could be targeted towards communities with higher vulnerability to media influence and risk perception. Considering age and location, among other relevant social factors, would also help media literacy education programs to be internalized better by the intended audience. In terms of regulations, age should be a main consideration when designing appropriate media restrictions. Finally, it would be beneficial for policymakers to support funding for further research about which individuals are most likely to be affected by media, including international collaboration into the effects of cultivation in different countries.

Specific Perceptions Shaped by Media Consumption

Similarly to how certain populations are more likely to be influenced by the consumption of media, some specific perceptions of violence are targeted through cultivation. These perceptions are important, as they may shape beliefs and, in turn, behaviors.

Beliefs

As previously discussed, gender is an important factor to account for in the effects of violent media consumption. A reason for the gender differences in media cultivation is the norms and relations perpetuated by media. In television, women are more likely to be portrayed as victims than their male counterparts (Custers and Van den Bulck, 2013, p. 105). This contributes to "perceived risk", or an individual's fear of becoming a victim of a crime (Custers and Van den Bulck, 2013, p. 101). Increased exposure to female victims on television increases the perception that a woman might experience crime personally. Additionally, women are typically represented as vulnerable and incapable of defending themselves. In this way, the media illustrates women as the "ideal victim" (Custers and Van den Bulck, 2013, p. 98). These attributes of female victims in media

influence another important process in how women view crime: perceived control (Custers and Van den Bulck, 2013, p. 102). A third pattern is the sexualization of violence against women. In recent years, there has been an increased proportion of sexual violence portrayed in the media, most notably in crime shows and "slasher" films (Custers and Van den Bulck, 2013, p. 97). The sexual nature of this violence magnifies the perceived seriousness of the crime (Custers and Van den Bulck, 2013, p. 102).

The portrayal of the victim and criminal in media can also affect the cultivation of racial beliefs. In media, criminals are disproportionately portrayed as black males. According to research conducted by Pollock et al. (2022), New York police stations represent upwards of 75% of criminals as black, an overestimate of 24-31%. Furthermore, police officers are typically represented as white and nonviolent. This is especially relevant given that most people do not interact with police officers aside from occasional traffic violations, and therefore perceptions of police relations are especially shaped by media influence.

While media can form new perceptions of violence, it can also reinforce pre-existing conceptions. Jöckel & Früh (2016) found that crime shows supported a "just world belief", or the idea that we live in a mean world, but a system of justice exists to hold criminals accountable. Another aspect of this mindset is the belief that inequalities in the world occur for a reason. Most importantly, the authors also found that supporters of this belief were more likely to watch crime TV, as it reinforces these beliefs (Jöckel & Früh, 2016, p. 211). This is especially significant regarding the study of cultivation theory, as it demonstrates that the media a person consumes is largely shaped by existing beliefs. In this way, media exposure can further increase bias in individuals.

BEHAVIORS

Television has had a growing impact on career choices. Studies have demonstrated that crime shows influence criminal justice students in their career path choices (Pollock et al., 2022, p. 45). Furthermore, the portrayal of police officers as positive role models in the media also contributes to favorable perceptions of policy officers. From 2019 to 2020, 70% of shows aired on CBS were about police officers,

and the majority of these programs depicted these officers as "reliable heroes" (Pollock et al., 2022, p. 49). According to the study by Pollock et al. (2022), "crime media consumption was a statistically significant positive predictor of whether a person had an interest in policing as a career (p. 49)". This is especially important given that the people who watch these shows and may become influenced to become a police officer are also subjected to the same stereotypical victim and criminal portrayals; these internalized beliefs could, in turn, materialize in their actions as a police officer.

Another potentially violent behavior that can be impacted by the media is driving habits. Beullens et al. (2011) found that action programs were associated with positive joyriding and speeding attitudes, while news programs were associated with negative attitudes. This can be attributed to the portrayals of these actions in each genre; risky driving is a fundamental part of action media while news media often shows the negative outcomes of these behaviors (Beullens et al., 2011, p. 489).

Recently, during the COVID pandemic, we witnessed firsthand the media's effect on dangerous behaviors. As discussed earlier, heightened broadcasting during the COVID pandemic increased amounts of stress and fear among media consumers. This fear manifested in the form of unnecessary "self-help" practices. These included surges in hospital visits, panic-buying, and the hoarding of materials such as face masks (Garfin et al., 2020, p. 356). Ultimately, however, this disadvantaged the communities most at risk. This is a prime example of how the type of media consumed can directly influence beliefs, and in turn, behaviors.

Policy is therefore necessary to mitigate any potential harmful beliefs and behaviors stemming from media consumption. Guidelines should be implemented to monitor the representation of harmful stereotypes, especially in terms of gender and race. Additionally, policymakers should pursue initiatives to educate viewers on the dangers of certain behaviors, such as risky driving and panic-buying during crises. Most importantly, media literacy campaigns should make viewers aware of media's ability to affect beliefs and behaviors.

POLICY IMPLICATIONS

Policymakers should additionally support research to identify which messages are harmful in media, and for which populations. Harmful media messages towards certain populations could perpetuate existing and negative violent stereotypes, erode trust in public institutions, and can act as a catalyst for political radicalization. If human beliefs are shaped by violent media consumption, this becomes an issue of public safety and can lead to social disruption. To mitigate the effects of violent media, policymakers should focus on public education campaigns and media regulation. Information and media literacy programs can be used to inform viewers about the effects of violent media. Furthermore, parents should be educated on the importance of monitoring their children's consumption of this content. Media regulation should include improved guidelines for violence depiction, or more accurate rating systems for appropriate audiences. Policies should also focus on increased parental controls or age verification for violent content. Media plays a monumental role in our everyday reality, and media violence is therefore a public problem that should be at the forefront of policy efforts. The complexity of this problem requires collaboration between the public, researchers, and policymakers alike.

This public problem would also benefit from collaboration between various levels of government. At the federal level, Congress can play an important role in advocating for research on the effects of media violence. Congress also has the power to pass regulations limiting the amount or extent of violence depicted in the media. Government agencies can also enact change at the federal level. Specifically, the Federal Communications Commission can address this problem by monitoring media and creating standards for the proportion of violence broadcasted. At the state level, officials can allocate funding for media literacy programs in schools. During public crises, state governments can also provide mental health resources to mitigate the effects of violent media. At the local level, local governments should focus on outreach and information campaigns about limiting violent media consumption. These information campaigns should especially be tailored towards parents to monitor children's viewing. This public problem affects everyone, and should therefore be a policy priority at every level of government.

Conclusion

Ultimately, media cultivation theory has shifted from when it was originally proposed by George Gerbner. At the time of his research, media primarily consisted of a more homogeneous form of television, available at set times of the day. However, this is not the case today, as both the forms and audiences of media are changing rapidly. Instead of being reliant on a collective and non-selective nature of consumption, research on the effects of media should account for the numerous variables that impact the ways in which humans internalize perceptions of violence. Media consumption and its impacts are a multifaceted phenomenon, affected by the amount and type of media, the demographics of viewers, and the specific beliefs and behaviors targeted by mass media.

Future research should incorporate more of an emphasis on the various forms of media aside from television. One notable example is social media, as its prevalence in today's world is approaching, if not overcoming, the prominence of traditional television programs. It may be necessary, however, to concentrate less on the common messages created through media consumption and more so on which forms of media are most influential in shaping beliefs of violence. This research is essential to fully understand how this form of technology impacts our social realities, and in turn our actions concerning violence.

References

Bartholow, B. D., Dill, K. E., Anderson, K. B., & Lindsay, J. J. (2003). The proliferation of media violence and its economic underpinnings. *Media violence and children*, 1-18.

Baumeister, R. F. (2007). *Encyclopedia of social psychology* (Vol. 1). Sage.

Beullens, K., Roe, K., & Van den Bulck, J. (2011). The impact of adolescents' news and action movie viewing on risky driving behavior: A longitudinal study. *Human Communication Research*,

37(4), 488-508. https://doi.org/10.1111/j.1468-2958.2011.01412.x

Cohen, J., & Weimann, G. (2000). Cultivation revisited: Some genres have some effects on some viewers. *Communication reports*, 13(2), 99-114. https://doi.org/10.1080/08934210009367728

Custers, K., & Van den Bulck, J. (2013). The cultivation of fear of sexual violence in women: Processes and moderators of the relationship between television and fear. *Communication Research*, 40(1), 96-124. DOI: 10.1177/0093650212440444

Garfin, D. R., Silver, R. C., & Holman, E. A. (2020). The novel coronavirus (COVID-2019) outbreak: Amplification of public health consequences by media exposure. *Health psychology*, 39(5), 355. http://dx.doi.org/10.1037/hea0000875

Gerbner, G. (1969). Toward "cultural indicators": The analysis of mass mediated public message systems. *AV communication review*, 137-148. https://doi.org/10.1007/bf02769102

Gerbner, G., Gross, L., Eleey, M. F., Jackson-Beeck, M., Jeffries-Fox, S., & Signorielli, N. (1977). TV violence profile no. 8: The highlights. *Journal of Communication*, 27(2), 171-180. https://doi.org/10.1111/j.1460-2466.1977.tb01845.x

Gerbner, G. (1998). Cultivation analysis: An overview. *Mass communication and society*, 1(3-4), 175-194. https://doi.org/10.1080/15205436.1998.9677855

Jöckel, S., & Früh, H. (2016). 'The world ain't all sunshine': Investigating the relationship between mean world beliefs, conservatism and crime TV exposure. https://doi.org/10.1515/commun-2016-0001

Pinker, S. (2012). The better angels of our nature: Why violence has declined. Penguin Books.

Pollock, W., Tapia, N. D., & Sibila, D. (2022). Cultivation theory: The impact of crime media's portrayal of race on the desire to become a US police officer. *International Journal of Police*

Science & Management, 24(1), 42-52.
https://doi.org/10.1177/14613557211036555

Riddle, K., Potter, W. J., Metzger, M. J., Nabi, R. L., & Linz, D. G.
(2011). Beyond cultivation: Exploring the effects of frequency,
recency, and vivid autobiographical memories for violent media.
Media Psychology, 14(2), 168-191.
https://doi.org/10.1080/15213269.2011.573464

The Interaction Between the Uninsured Rate and Demographic Outcomes

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ABSTRACT

This paper seeks to explore a pivotal question at the intersection of public health and social services: What is the relationship between health insurance rates and various demographic measures, specifically unemployment rate, single parent rate, rural rate, life expectancy, income inequality , high school graduation rates, household income (dollars) and race. This inquiry is not only pertinent in understanding the efficacy and reach of the Navigator Program established under the Affordable Care Act , but also crucial in addressing broader socioeconomic and health disparities. By using a fixed-effect model analysis, the relationship between uninsurance rates and socioeconomic status can be tested by an equation. Furthermore, the negative impacts of uninsurance on life expectancy and income quality indicate policy implications, and build a potential topic about the Navigator Program in the future.

BACKGROUND

The Navigator Program was established under the Affordable Care Act (ACA) in 2010 to guide individuals and organizations(small businesses, in particular) regarding health insurance options and help them to find the most affordable coverage to meet their healthcare needs (Centers for Medicare & Medicaid Services, n.d.). This program focuses on populations who have the fewest socioeconomic resources and aims to improve their health and reduce health disparities. While existing research has predominantly focused on the overall effectiveness of the Navigator Program and its operational dynamics, there is a noticeable gap in addressing its nuanced impacts. Furthermore, while the difference-in-differences (DID) model or simple linear regression are frequently used in

evaluating the program's effectiveness, the application of a fixed-effect model presents an alternative and potentially insightful approach. This paper aims to address this gap by examining the intersection between health uninsurance rates and demographic outcomes, contributing to the broader discourse on equitable healthcare access and the effectiveness of healthcare support programs. Moreover, the author hopes the results can be a sign for the Navigator Program's efficacy, and leads to policy recommendations for policy makers.

POLICY MOTIVATION

The ACA's Navigator program is significant in providing assistance to individuals navigating health insurance options. As of early 2023, approximately 30 million people in the United States remain uninsured (U.S. Department of Health & Human Services, 2023). Among them, people of color generally face a higher risk of being uninsured compared to white individuals. Besides, there are other potential barriers for people obtaining health insurance coverage access and comprehending the eligibility requirements for signing up for Marketplace coverage. More than one-third (35%) of those with Marketplace coverage found it very difficult to find a plan that meets their needs (Pestaina, et.al., 2023). The motivation for scrutinizing the intersection of this program with demographic characteristics seeks to comprehend health equity across the United States. This situation is also underscored by the persistent disparities in health insurance coverage and healthcare access among different populations. By investigating the efficiency of the Navigator Program across these demographics, policymakers can identify and address gaps in the current health system.

DATA SOURCE

This study utilizes data source from the County Health Ranking & Roadmaps program's dataset, which is the result of a collaboration between the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute. This dataset provides a comprehensive overview of various health indicators across all U.S. counties, and various sources at different levels, which ensures a broad and accurate representation of health-related factors that this analysis needs.

This paper will cover the period from 2018 to 2022, a period during which there were substantial changes to the Navigator. For example, in 2017, the Trump administration dedcided to reduce funding of the Navigator Program by $26 million dollars , which equates to a cut of approximately 80% (Myerson, et.al, 2022). Besides, 2020 is another turning point for the whole Marketplace due to the Covid-19 pandemic.

To make the dataset appropriate and usable for analysis, I first had to modify the level and scale of the observations and variables. First, the dataset contains different levels analysis and data, this paper will be at a county-level analysis for more observations and samples. Second, 8 variables were selected to serve as the demographic characteristics, and one variable was represented to quantify the Navigator Program. The insurance rate will act as the response variable, which potentially depends on all other explanatory variables. Independent variables here all aim to measure socioeconomic status, including unemployment rate (percentage), single parent rate (percentage), rural rate (percentage), life expectancy (years), income inequality (percentage), high school graduation (percentage), household income (dollars) and race percentage (percentage). By selecting these particular variables, this paper attempts to find a relationship between measures of each county's demographic variables and their uninsured rate. Finding relationships between these variables can lead to inferences about how the Navigator Program has effects on populations, and vice versa, which is crucial to answering the main research question.

After merging these five years together and removingunnecessary data, I create a new data set that combines all the relevant variables. The new data set includes 26 variables and 15,970 observations in total.

Naturally, however, limitations do exist on such an analysis. By conducting a county level analysis of demographic characteristics may overlook some detailed information. Furthermore, health data can change over time while the dataset may not always have this change and limit the ability to track trends and changes in health outcomes.

METHODS

For this paper analysis, a fixed-effect model was used to account for county-specific effects that do not change over time. This model is particularly useful when there are unobserved, time-invariant county-specific factors that could significantly influence the health outcomes. By including county fixed effects in the model, this model ensures that they do not confound the relationships between the independent variables and health outcomes. This also helps isolate the effect of the socioeconomic variables of interest. Stata was used to estimate this model.

The normal fixed effects model is: $Y\_it = \alpha + \beta X\_it + \mu\_i + \epsilon$ In this research, the specific variables are as follows:

$$
\begin{aligned}
Health\ Outcome&(Y\_it) \\
&= \beta\_0 + \beta\_1 \times Unemployment\ Rate(X\_1it) \\
&+ \beta\_2 \times Single\ Parent\ Rate(X\_2it) \\
&+ \beta\_3 \times Rural\ Rate(X\_3it) \\
&+ \beta\_4 \times Life\ Expectancy(X\_4it) \\
&+ \beta\_5 \times Income\ Inequality(X\_5it) \\
&+ \beta\_6 \times High\ School\ Graduation\ Rate(X\_6it) \\
&+ \beta\_7 \times Household\ Income(X\_7it) \\
&+ \beta\_8 \times Race\ Percentage(X\_8it) \\
&+ County\ Fixed\ Effects(\alpha\_i) + \epsilon\_it.
\end{aligned}
$$

Since this paper is analyzing county-level data over multiple time periods, panel data allows to track changes within counties over time, and the inclusion of fixed effects helps capture county-specific variations that remain constant over time, providing a more accurate representation of the data. The socioeconomic variables selected here (unemployment rate, single parent rate, etc.) are characteristics that are likely to vary across counties but are relatively stable within each county over time. Therefore, it's essential to control for these time invariant factors when assessing their impact on health outcomes. ϵ_it represents an error term here, which captures the variation in the dependent variable that cannot be explained by the independent variables. In this research, the collected panel data may also lead to this error here.

RESULTS

Building on the descriptive statistics seen in Table 1 below, unemployment rate and high school graduation rate are generally stable across counties, with minimal variation. Single parenthood rate, life expectancy, and income inequality vary moderately, suggesting differences in family structures, socioeconomic disparities. While rate of rural population and household income display a wide range, reflecting both diverse geographic characteristics and household income levels and significant income disparities. In summary, the descriptive analysis reveals that while certain variables exhibit relatively low variation across counties, others, such as household income, display more significant disparities. These variations reflect the diverse socioeconomic status present in the studied counties.

Table 1: Descriptive Statistics Table

Variable	Observations	Mean	Std.Dev	Min	Max
Rate of Unemployment (%)	15,965	.049482	.020474	.0073801	.2352107
Rate of Single Parenthood (%)	15,964	.292077	.110368	0	1
Rural Rate (%)	15,933	.5805154	.3155029	0	1
Life Expectancy (years)	12,495	77.35023	3.106844	61.05582	113.4621
Income Inequality (%)	15,964	4.51585	.763139	1.04505	11.9706
High School Graduation Rate (%)	5,172	.880303	.0696609	.025	.995
Household Income ($)	15,964	53466.9	14185.36	22045	160305
Uninsurance Rate (%)	15,965	.1158818	.0506168	.020682	.3735371

The fixed-effects model shown in Table 2 (below) explores the associations between these socioeconomic variables and the uninsurance rate at the county level. The result explains a substantial portion of the variance in the insurance rate, with an R-squared of 0.1911 within the model, which means that approximately 19.11% of the variance in the dependent variable is attributable to the socioeconomic variables and the year included in this model. This R-squared of 0.1911 suggests this model provides a reasonable fit to the data. However, it also implies that there are additional factors beyond those included in this model that contribute to variations in insurance rates across counties.

Moving to the coefficient results, there are several findings for each explanatory variable in the model. Since the rural rate will not change dramatically as time goes, it is reasonable to assume why it was taken as the omitted value. Besides, in regression analysis, too many highly correlated independent variables (including races) can lead to multicollinearity issues, which can affect the stability and interpretability of the model. Consequently, this can explain why they did not show in the table above.

In this regression analysis, the year variable was included as a categorical variable, which would be done to account for potential differences in the uninsurance rate across different years. Each year would be represented as a separate category, and a dummy variable was created for year to capture these categories. 2018 was taken as a baseline variable. Nevertheless, only one coefficient, year 2022, can be observed in the final output when all explanatory variables are put in the regression model. When the author replaces the dummy variable with a single X, which is a continuous variable, the number of time periods increases, confirming that there is a gap or missing data for the other years. The coefficient of year 2022 means that, holding all other constant, the uninsurance rate in the year 2022 is 0.4% higher than in the year 2028 (reference year).

For other variables, life expectancy and income inequality are statistically significant. The coefficient of life expectancy suggests that holding all other constant, one year increase in life expectancy is associated with 0.14% decrease in the uninsurance rate. In particular terms, this means that areas with longer life expectancies tend to have lower uninsurance rates. Similarly, the coefficient of income inequality suggests that holding all other variables constant,

one percent increase in income inequality is associated with 1.5% increase in the uninsurance rate. This means that areas with higher income inequality tend to have higher uninsurance rates.

Table 2: Coefficient Table Outcomes

rate_uninsure	Coefficient	Robust std. err.	t	P>|t|	[95% conf. interval]	
rate_unemploy	−.0309435	.0340745	−0.91	0.368	−.0993841	.0374972
rate_singlepar	.0007289	.0071886	0.10	0.920	−.0137098	.0151675
rate_rural	0	(omitted)				
life_expectancy	−.0014073	.0004903	−2.87	0.006	−.0023921	−.0004225
income_inequ	.0015357	.0005732	2.68	0.010	.0003844	.002687
high_school	−.0060906	.0070433	−0.86	0.391	−.0202374	.0080563
household_income	1.90e−08	5.71e−08	0.33	0.740	−9.56e−08	1.34e−07
year						
2022	.00444	.0016313	2.72	0.009	.0011633	.0077166
_cons	.2196745	.0373446	5.88	0.000	.1446656	.2946834
sigma_u	.04860397					
sigma_e	.00660057					
rho	.98189146	(fraction of variance due to u_i)				

DISCUSSION

The findings of this study shed light on the complex interplay between socioeconomic factors and uninsurance rate at the county level. By employing a fixed-effects regression model and considering key variables such as life expectancy, income inequality, and temporal changes, this paper aims to contribute to the healthcare access and disparities.

The analysis revealed several noteworthy insights. Building on the observations above, my findings underscore the importance of health as a determinant of insurance coverage. Also, areas characterized by greater income disparities tend to exhibit higher uninsurance rates, indicating that socioeconomic inequality plays a significant role in access to healthcare services, which underscores the need for policies aimed at reducing income inequality to improve healthcare equity. Thirdly, a substantial increase in the uninsured rate in the year 2022 compared to the reference year (2018) was noted even if the analysis does not prove direct evidence for the reasons behind this increase, it suggests the importance of

examining external factors or policy changes that might have influenced insurance coverage during that year. The author's guesses are as follows. The effects of Covid-19 cannot be overlooked since the Navigator Program focuses on the low-income and most vulnerable populations. Moreover, in 2017, the Trump administration announced that it was reducing grants to the Navigator Program (Pear, 2018). This decision to cut funding reduced financial support to underserved, hard-to-reach populations, people who live in rural areas or have low literacy levels, which may have negative impacts on health insurance coverage.

LIMITATIONS

The fixed-effects model is a powerful tool for addressing this research question, but it also has limitations and weaknesses, especially in specific analytical contexts. There are still some limitations to be considered. The first limitation is time-varying effects. Since fixed-effects models assume that the relationship between the independent variables and the dependent variable is constant over time, the effects of these variables change over time may not be captured by this model. Besides, fixed-effects models require panel data, which means data collected over multiple time periods for the same entities. And intensive data resources are required to support it. This is to say that five years may not be enough.

POLICY IMPLICATIONS

A number of implications can be drawn from the statistical analysis. The main takeaway, however, is that demographic characteristics play a statistically significant role in insurance rates. While it cannot be confirmed with absolute certainty that insurance rates and socioeconomic status are mutually exclusive it can be inferred that policy needs to be passed to support populations to reduce income inequalities and target more with lower life expectancies. Eliminating health disparities is a fundamental, though not always explicit, goal of public health with different extents varying by outcome, time, and geographic location within the United States (Adler, et.al., 2008). Investing in public health initiatives that target communities with lower life expectancies is necessary. Also, timely monitoring of

healthcare coverage trends and quick responses to changes can help prevent potential disruptions in access to care.

CONCLUSION

In conclusion, this study underscores the multidimensional nature of healthcare disparities. Life expectancy and income inequality emerge as pivotal determinants of uninsurance rates at the county level. The increase in the uninsured population in 2022 serves as a reminder of the dynamic nature of healthcare coverage, calling for vigilant monitoring and research.

These findings emphasize the urgency of targeted policy interventions designed to reduce income inequality and enhance access to healthcare services, particularly in regions with longer life expectancies. While this paper's analysis yields valuable insights, it also underscores the intricacies of healthcare disparities, making it necessary ongoing research to unveil the underlying mechanisms and effective policy solutions.

REFERENCES

Adler, N. E., & Rehkopf, D. H. (2008). U.S. disparities in health: descriptions, causes, and mechanisms. *Annual review of public health*, 29, 235–252. https://doi.org/10.1146/annurev.publhealth.29.020907.090852.

Centers for Medicare & Medicaid Services. (n.d.). New funding opportunity announcement for navigators in federally-facilitated marketplaces. Retrieved from https://www.cms.gov/

Myerson, R., Anderson, D. M., Baum, L. M., Fowler, E. F., Gollust, S. E., & Shafer, P. R. (2022). Association of Funding Cuts to the Patient Protection and Affordable Care Act Navigator Program With Privately Sponsored Television Advertising. *JAMA network open*, 5(8), e2224651. https://doi.org/10.1001/jamanetworkopen.2022.24651

November, E. A., Cohen, G. R., Ginsburg, P. B., & Quinn, B. C. (2009). Individual insurance: health insurers try to tap potential market growth. *Research brief*, (14), 1–8.

Pestaina, K., Cox, C., & Wallace, R. (2023, October 30). Signing Up for Marketplace Coverage Remains a Challenge for Many Consumers. *KFF*. https://www.kff.org/policy-watch/signing-up-for-marketplace-coverage-remains-a-challenge-for-many-consumers/

Pear B. (2018). The Trump Administration Takes Another Step to Undermine the Affordable Care Act. *The New York Times*. https://www.nytimes.com/2018/07/10/us/politics/trump-affordable-care-act.html

U.S. Department of Health & Human Services. (2023, August 3). New HHS report shows national uninsured rate reached all-time low in 2023 after record-breaking ACA enrollment period. Retrieved from: https://www.hhs.gov/about/news/2023/08/03/new-hhs-report-shows-national-uninsured-rate-reached-all-time-low-2023-after-record-breaking-aca-enrollment-period.html

Moving to Opportunity or Choosing to Stay? Effectiveness of Housing Choice Vouchers and Choice Neighborhoods Initiative on Demographic Change

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ABSTRACT

The COVID-19 pandemic brought about immense hardship and spotlight the issue of homelessness and affordable housing across the United States. The U.S Department of Housing and Urban Development (HUD), through the Housing Choice Voucher (HCV) program, attempts to address homelessness by giving vouchers to low-income families in need of housing. However, the program's success is hampered by problems such as a lack of landlord participation, housing stock, vouchers, racial discrimination in the screening process, and other problems that prevent families from finding housing in resource-rich neighborhoods. This paper analyzes the HCV program through a literature review that incorporates academic research such as the Moving to Opportunity (MTO) demonstration sponsored by HUD, public HUD resources such as online dashboards on HCVs and ACS data to evaluate the HCV program's effectiveness at promoting housing mobility and affordability. Additionally, this project will examine a potential policy alternative from HUD called the Choice Neighborhood Initiative that takes urban development approach to resolving the housing crisis by revitalizing historically low-income neighborhoods into modern day yet affordable mixed-used neighborhoods that allows families who live there to stay and benefit from development. Overall, this analysis serves to provide policymakers and researchers an initial overview of HUD's flagship program in HCV and an alternative in the Choice program to better the federal response to homelessness across the U.S.

INTRODUCTION AND BACKGROUND

During the height of the Covid-19 pandemic, many American families not only struggled to stay at home but also struggled to keep their homes as well. For decades, structural problems such as weak household income growth and rising housing costs, racial discrimination, devastating global phenomena with the recent Covid-19 pandemic, and stagnating incomes have made it difficult for American families to live day by day. These factors are related to the issue of housing insecurity, which is defined as individuals or families lacking access to safe, stable, and affordable housing (Wong, 2021). According to the Consumer Finance Protection Bureau, as of December 2020, "11 million renter and homeowner households were significantly overdue on their regular housing payments as of December 2020, placing them at heightened risk of losing their homes to foreclosure or eviction over the coming months" (Wong, 2021). Despite the pandemic waning, many Americans are still at extreme risk of losing their housing. As summarized nicely by Conor Dougherty of the New York Times:

> *Take two-plus years of pandemic-fueled eviction anxiety and spiking home prices, add a growing inflation problem that is being increasingly driven by rising rents, and throw in a long run affordable housing shortage that cities seem powerless to solve. Add it up and the 44 million U.S. households who rent a home or apartment have many reasons to be unhappy* (Dougherty, 2022).

The issue of housing insecurity existed long before the pandemic and now has grown to be one of the most pressing issues facing Americans today. Many U.S households are struggling to find affordable housing, struggling to pay rents, their mortgages, and survive the rising costs of inflation, with around one-fifth of American households classified as insecure households (Cai, Fremstad, and Kalkat, 2021).

The U.S Department of Housing and Urban Development (HUD) is in a precarious situation as U.S society begins to transition back into normalcy after the peak of the Covid-19 pandemic. To address this crisis, one of HUD's most prolific programs, the Housing Choice Voucher (HCV), also known as the Section 8 program, provides

affordable housing to Americans and gives them an opportunity to move out of disinvested neighborhoods. Gretchen P. Armstrong, a social science analyst at the Policy Development and Research Office at HUD describes HCV as a program that helps "low-income families access affordable housing in a wider variety of neighborhoods by providing them with a voucher that they can use to rent an apartment in the private market." (Armstrong, 2023). The HCV program has the potential to allow American families to move out of low-income, low opportunity, and dilapidated neighborhoods and into better communities with resources that can have a substantial impact on socioeconomic status. Moreover, it can provide mental health benefits for many disadvantaged groups in the U.S. Vouchers recipients must pay at least 30% of the market rental price while the public housing authority (PHA) will pay the other 70%, this payment standard is determined by the Fair Market Rents in that area or the average price of that unit in the housing market. Generally, PHA's are required by law to issue 75% of its vouchers to families whose incomes do not exceed 30% of the median income level of that area. (U.S Department of Housing and Urban Development, 2022).

However, the HCV program does face numerous challenges that hinder its effectiveness in achieving its goals. Some of the challenges that the HCV faces is a lack of transportation for HCV holders to acquire to new housing, a lack of available housing supply nationwide, discrimination by non HUD affiliated private landlords in the rental screening process due to preconceived biases or racial discrimination against people on housing assistance as unreliable or deviant, and a lack of information/guidance for voucher holders to find housing in affluent neighborhoods who accept vouchers limiting them to select housing in low-income neighborhoods (Armstrong, 2023).

Despite these issues, the HCV program remains one of HUD's the flagship programs and is a focal point of their efforts to address homelessness in the U.S. However, other programs must be considered to address homelessness for all Americans regardless of their zip code. Through a mixed analysis of the HCV program through the Moving to Opportunity demonstration, HUD's online public resources, and a new HUD initiative called Choice Neighborhoods, this paper argues that the HCV program has the

potential to move families out of poverty and into opportunity, but its numerous issues from housing immobility and an insufficient number of available vouchers prevents the program from achieving positive large-scale demographic change for millions of Americans. Specifically, this research project seeks to provide an analysis of how effective the HUD's HCV program has been in relation to bettering the socioeconomic and mental health outcomes of Americans. By comparing the movement of Americans from low-income neighborhoods to high-income neighborhoods, policymakers can see the efficacy of the HCV program, what aspects of the program can be improved. Below, I will also consider the Choice Neighborhoods program, which offers an alternative solution providing for the housing needs of millions of American families.

LITERATURE REVIEW

The process of searching for a house that accepts HCVs must be considered. In a prior study, Barbara Teater (2009) interviewed 12 HCV recipients and sought to learn more about their experiences searching for housing with their HCVs. The interviews were semi-structured in order to learn more about what they valued when looking for housing, the searching process itself, their search criteria when selecting their new home, and their views on past and current housing structures. Teater found that that the study participants often opted to conduct their housing search using their own resources without housing counseling assistance from the public housing authority (PHA) who issued their vouchers. The recipients noted four ways they went about searching for a house; which was to portray themselves in the most positive light along with the HCV program to potential landlords, utilizing informal networks, using search tools such as newspaper ads, driving by neighborhoods to look for housing and informational phone calls, and making compromises of their own housing preferences to find any housing available. Teater finds that a lack of housing counseling significantly hinders HCV holders from finding better housing options. This is another major issue with HCV in that PHAs do not have the bandwidth or resources to give all of their voucher recipients proper housing counseling to find available housing. Therefore, housing mobility is significantly hampered when families do not have access to all of the information-they need to pick houses in higher opportunity neighborhoods. As a result, the effectiveness of HCV's

long-terms benefits such as health or socioeconomics are diminished (Teater, 2009).

In terms of housing mobility, Wang (2018) in her article "Tracking 'Choice' in the Housing Choice Voucher Program: The Relationship Between Neighborhood Preference and Locational Outcome" describes that "nearly 60% of families did not find a home in the neighborhoods that they wanted to live in, with only 4% finding homes that satisfied their location preferences". The level of an area's opportunity is defined with reference to HUD's five Affirmatively Furthering Fair Housing Indices, which consist of school quality, poverty, labor market engagement, access to jobs, and access to transit. Additionally, according to a report from the National Low Income Housing Coalition (2019), 40% of voucher-assisted families were in low-opportunity neighborhoods, while five percent of voucher-assisted families were located in high-opportunity neighborhoods. This statistic illustrates that the HCV program largely settles families in low-opportunity neighborhoods and not in high-opportunity areas to better the lives of their families. (National Low Income Housing Coalition, 2019). This is also coupled with the fact that not all families who need vouchers can get vouchers. Nearly 1 in 4 families who need vouchers do not receive them, with average wait times reaching up to two and a half years (Center on Budget and Policy Priorities, 2021). These statistics illustrate the most pertinent issue with the HCV program, namely that they fail to achieve one of their main goals, which is to improve housing mobility. Moving families from low-income to high-income areas could potentially improve their job/educational opportunities for themselves and their children.

An equally important question to ask with regard to the HCV program is who receives housing choice vouchers. According to Vincent Reina and Claudia Aiken (2022), most HUD subsidized housing tends to be headed by individuals aged 62 years or older and tend to not have children. With older populations making up the most of those in HCV assisted housing, it comes with the demographic problems of an aging population. One such problem is the reliance of elderly populations on welfare programs such as HCV, social security, limited physical mobility, health complications and reliance on caregivers. Specifically, older HCV holders tend to stay in assisted housing for nine years while nonelderly voucher holders stay for four

years which decreases the amount of housing available for young families with children. Overall, these findings from Reina and Aiken pose a complex problem since the common perception amongst the public and policymakers is that voucher holders are single mothers with children. However, the reality is that the elderly population receive the majority of HCVs. Common perceptions of "opportunity" are different between elderly populations who value walkable neighborhoods more than schools or job opportunities that young families prioritize when picking a house to use their voucher on. This study suggests that the housing crisis will only worsen due to many voucher holders staying in their assisted housing for longer periods of time due to their age and lack of supplemental income preventing them from living on their own. With the possibility that current policy interventions may be skewed towards the perception that single mothers with families primarily use HCV, in reality, it is elderly populations who receive most housing choice vouchers (Reina and Aiken, 2022).

POLICY ANALYSIS: HUD PUBLIC RESOURCES OVERVIEW FOR HCVS

HUD makes available a multitude of dashboards and publicly available tools for policymakers, researchers, and the public to utilize in order to see the most up to date statistics and reports on HUD initiatives. This section will explore these resources starting with HUD's Housing Choice Voucher Dashboard seen in Figure 1 below (U.S Department of Housing and Urban Development, "HCV Data Dashboard", 2023). This resource is a simple dashboard that depicts a range of data from budgets, leased units, leasing trends, reserve balances, attrition, admissions, and leasing potential regarding HCVs and their housing units from all of HUD's PHAs across the country at the national to local level. The dashboard can be navigated through a series of arrows that explore several aspects of the voucher program from budgets to unit costs, and filters one can use to get specific information on a specific PHA and states. As of August 2023, nationwide, there are 2,680,008 units under Annual Contributions Contract, or a grant agreement of funding given to PHAs to conduct HUD programs while 2,287,777 units are being leased with 392,231 units not under a lease. Although of those 392,231 units only 123,315 have leasing potential or the ability to be leased by housing authorities they have funding to lease out,

essentially, they are unused vouchers. Every housing authority in the United States has varying levels of efficiency and circumstances that affect their ability to lease which means that, while having an 85% leasing percentage nationwide is adequate, it also means that the HCV program is not as effective as it could be (Acosta and Gartland, 2021). To put this data into perspective, in 2019, around two million households utilized HCVs, but around 16 million cost burdened households do not receive a voucher, which means that those households pay more than 30% of their income into their housing costs making that household cost burdened by HUD standards (U.S Department of Urban Development, 2017). With an average number 2.3 million vouchers being issued to nearly 2.3 million units or nearly 5 million people across the entire country on an annual basis, the HCV program is still underwhelming when it comes to addressing the wide scale impact of homelessness across the country (Center on Budget and Policy Priorities, 2021).

Figure 1: 1: HUD HCV Dashboard
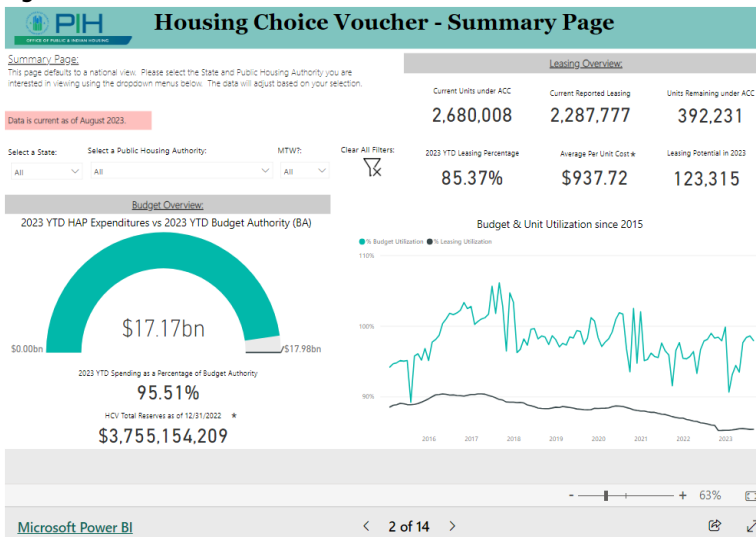
Note: Screenshot of the HUD Housing Choice Dashboard as of December 2023. Reprinted from U.S. Department of Housing and Urban Development. (n.d.). Housing choice voucher (HCV) data Dashboard. HUD.gov / U.S. Department of Housing and Urban Development (HUD). https://www.hud.gov/program_offices/public_indian_housing/programs/hcv/dashboard.

The HUD Income Limits tool on the other hand seen in Figure 2 is a tool that the public and policymakers can utilize to see the minimum income that a family needs to be eligible for HUD programs such as the HCV and public housing programs. This dashboard tool is similar to the housing choice voucher dashboard where users can use drop down menus to select a state that they are interested in. From there, they can either select the specific county they want income limits for or just look at the statewide income limits or the HUD Metropolitan Fair Market Rent/Income Limits Area (HMFA) if they know it. The actual dashboard itself is a simple table that shows median family incomes and the income limit category that is split into three groups of very low (50%), extremely low (60% of very low) and low-income (80%) limits. HUD then has a 'persons in the family' column, which lists the number of people in the family and income limits associated with them (U.S Department of Housing and Urban Development, 2023).

Figure 2: HUD Income Limits Dashboard

FY 2021 Income Limit Area	Median Family Income Click for More Detail	FY 2021 Income Limit Category	Persons in Family							
			1	2	3	4	5	6	7	8
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA	$94,500	Very Low (50%) Income Limits ($) Click for More Detail	33,100	37,800	42,550	**47,250**	51,050	54,850	58,600	62,400
		Extremely Low Income Limits ($)* Click for More Detail	19,850	22,700	25,550	**28,350**	31,040	35,580	40,120	44,660
		Low (80%) Income Limits ($) Click for More Detail	52,950	60,500	68,050	**75,600**	81,650	87,700	93,750	99,800

Note: Screenshot of the HUD Income Limits Dashboard as of December 2023. Reprinted from U.S Department of Housing and Urban Development. (2023). "Income Limits." HUD USER. accessed December 7, 2023. https://www.huduser.gov/portal/datasets/il.html#year2021

Using Philadelphia as a case study, figures 3 and 4 are choropleth maps generated in R-software using ACS five-year estimates from 2017-2021 that show median incomes and monthly gross rents by census tract with the income limit dashboard set for fiscal year 2021. The maps were created using the tidycensus package in R to gather the data and to map it, while Microsoft PowerPoint was used to mark the various Philadelphia neighborhoods on the map based on a map from the Greater Philadelphia Geo History Network. (The Athenaeum of Philadelphia, 2023). North Philadelphia (which includes Kensington, Richmond, and Bridesburg) and West

Philadelphia are commonly known as the poorest areas in Philadelphia. Both histograms on the maps illustrate the distributions of households in Philadelphia according to their gross median monthly rents and median incomes. It appears that the median income histogram is heavily right skewed where most Philadelphia residents have lower incomes while the gross median monthly rent histogram is fairly evenly distributed with most Philadelphians paying rents around $930-$1,185. The median income maps show that most people in the lowest income census tracts make around $11,955 to $37,667 while their rents range from $3,720 to $11,160 annually, which is also the lowest income/rent grouping for both statistics. The HUD income limit for a family of four as of 2021 is either $28,350 for extremely low income or $47,250 for very low-income families. This means that nearly all families in North and West Philadelphia could be eligible for an HCV based on their income. But HCVs are hard to come by with only 19,055 housing units being available in 2023 according to the HCV dashboard, the incomes of the poorest Philadelphia residents just cannot bear the strain of rent, and other life necessities. The HCV as it exists today simply cannot meet the housing demand of Americans and other programs must compensate to address homelessness and affordable housing issues (U.S Department of Housing and Urban Development, 2023).

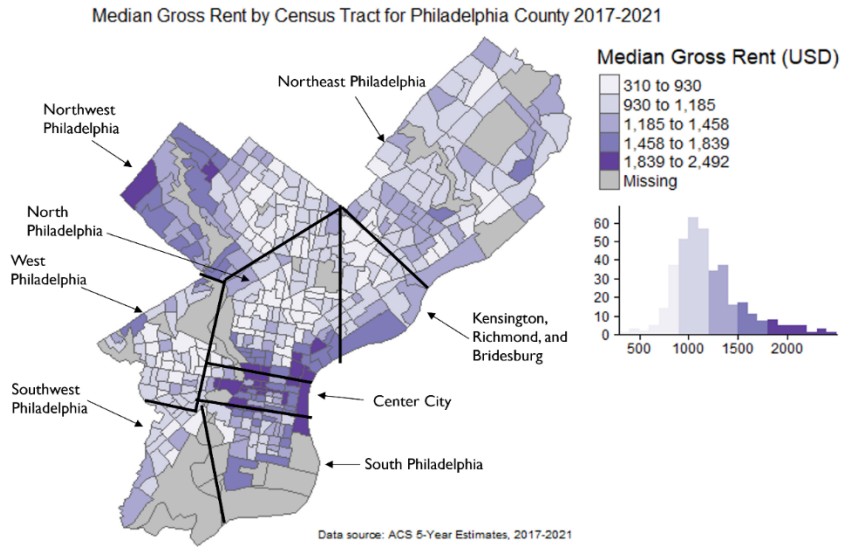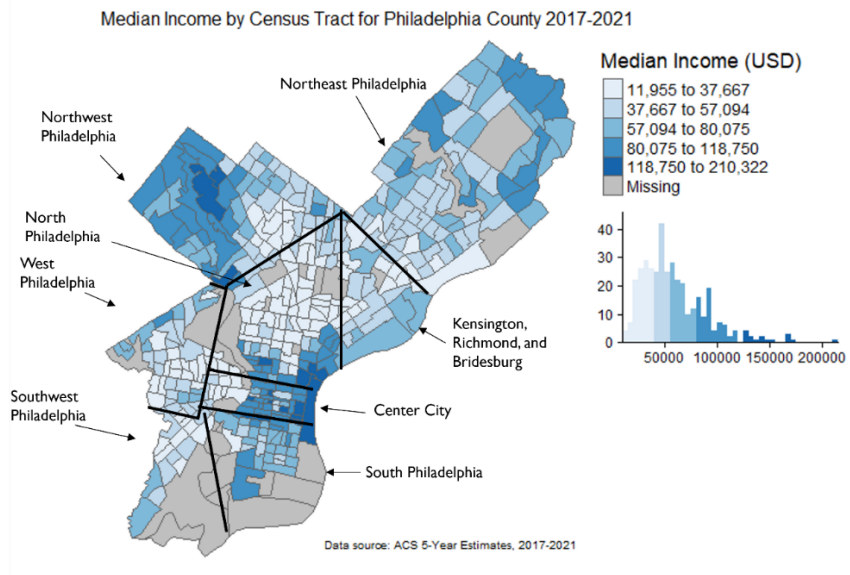**Figure 3: Map of Median Gross Rent in Philadelphia by Census Tract**

Median Gross Rent by Census Tract for Philadelphia County 2017-2021

Figure 4: Map of Median Income in Philadelphia by Census Tract

Median Income by Census Tract for Philadelphia County 2017-2021

POLICY EVALUATION: MOVING TO OPPORTUNITY DEMONSTRATION

The HCV is a life changer for low-income families in getting housed but what of its actual ability to move families to areas of higher

opportunity? The outcomes of interest to look for from the HCV program can be taken from the Moving to Opportunity for Fair Housing demonstration (MTO), which investigated the effects of giving housing vouchers to families who were required to move to neighborhoods that have 10% or less rate of poverty from 1994 to 2007. The MTO demonstration divided participants into three groups. The first group received a voucher with a requirement to move to an area of high opportunity and housing counseling to find housing in an area of high opportunity. The second group receives a voucher but no housing counseling and no restrictions on where they can use it, while the third group received no voucher but could stay in public housing if they chose to. Approximately 4,600 low-income families participated in the study over a 10–15-year period to see the effects of moving from low to high income neighborhoods. The study focused on a variety of economic and social indicators of neighborhood conditions that would affect life outcomes of adults and their children such as mental and physical health; economic self-sufficiency; risky and criminal behavior; and educational achievement (U.S Department of Housing and Urban Development, 2011).

The results of the study indicated that families who moved to more affluent neighborhoods felt safer in their new environments and had better mental and physical outcomes compared to groups who did not receive housing vouchers or did but were not required to move into more affluent neighborhoods. However, in the long-term, additional studies note that the children of families who participated in the MTO program had better incomes, higher credit scores, and were more likely to get married and go to college than other groups (Armstrong, 2023).

The MTO study revealed that there is a substantial positive benefit in terms of long-term health, mental and physical, positive attitudes and economic benefits for children who grow up in high income neighborhoods. With the movement of peoples to the suburbs during and after the Covid-19 pandemic, high rental prices in urban areas and other housing factors it is important to see how the HUD's premier program affects demographic movement amongst America's low-income families. If the HCV program produces results as seen in the MTO demonstration, more efforts should be made to

expand it and improve the program so all Americans can utilize HCVs and provide their families with better life chances.

POLICY ALTERNATIVE: CHOICE NEIGHBORHOODS INITIATIVE

This paper thus far has primarily focused on the pros, cons, and potential effects that the HCV program can have on struggling American families on the verge of homelessness due to high rental costs or chronic homelessness. However, a rather simple alternative to finding or building new housing is to not have to find it all. A new innovative HUD program that focuses not on mobility but on revitalization of historically disadvantaged neighborhoods is the Choice Neighborhoods Initiative (Choice) in 2011 for five sites/projects across the country. Choice "aims to redevelop distressed assisted housing projects and transform the neighborhoods surrounding them into mixed-income, high opportunity communities" (Bostic and Tate, n.d.) The primary advantage of the Choice program is its ability to foster "partnerships among organizations, agencies, and institutions working throughout the neighborhood to build affordable housing, provide social services, care for and educate children and youth, ensure public safety, and revitalize the neighborhood's commercial opportunities and infrastructure." (U.S Department of Housing and Urban Development, 2013). Redeveloping low-income neighborhoods has the potential effect of improving the health and socioeconomic status of families, as well as providing better opportunities for the families who lived there. Rather than see change through mobility, it can spur that same positive change by bringing it to the places and people who need it the most.

The development of impoverished neighborhoods into vibrant and high opportunity neighborhoods poses its own challenges and risks. The fear of gentrification, the potential of urban development projects to displace low-income often minority neighborhoods in favor of affluent interests, is high for neighborhoods who wish to keep the historic legacy of their neighborhoods alive and keep housing costs low so that they may continue to live there. But the Choice program with its focus on fostering private-public partnerships opts for a federal solution to providing housing and development to Americans. These partnerships will produce what Horlings and Padt (2011) call "vital coalitions." Based on a new form of leadership that prioritizes shared-valued driven leaders, the

concept of vital coalitions involves partnerships between private and public actors . According to Horlings and Padt, these coalitions were informal, energizing, and aligned people around a new storyline, thereby creating capacity to act". This concept allows community leaders and the neighborhood itself to work together with federal policymakers on what they envision for their neighborhoods and have an integral part to play in who they engage with to make that happen.

A specific example of the Choice project can be found by looking at the program's five original recipients back in 2011, namely, the Yesler Terrace in Seattle, Washington. Andrew Lofton, the executive director of the Seattle Housing Authority who is managing the Choice initiative for the neighborhood, states that Choice is "really about a broader community revitalization than simply the public housing component," he says. "So, there's a portion of the grant that goes for the physical redevelopment of the property, and then there's a portion of the grant that goes for services" (Black, 2019, para. 9) A holistic approach to addressing the housing crisis and gentrification is needed to show that communities will no longer be forgotten but remembered and are the focus of development in the future (Black, 2019). Moving away from a tough situation simply ignores the root of the problem of structural poverty and gives the notion that these poor neighborhoods are hopeless to fix. Policymakers and the federal government have long been focused on "mobility" as the solution to homelessness, but another solution is making poor neighborhoods better places to live without the threat of gentrification.

CONCLUSION

This paper overviewed the pros and cons of the U.S Department of Housing and Urban Development's Housing Choice Voucher program and its potential policy alternative through the Choice Neighborhoods Program. The HCV program is one of HUD's most popular programs to address homelessness and affordable housing issues across the country. Yet, despite the program's popularity it faces numerous challenges that prevent it from reaching its true potential. The program often has to deal with a lack of landlord participation, a lack of housing stock, discrimination against HCV holders in the rental screening process, and the failure of the

program to promote housing mobility for HCV recipients to higher opportunity neighborhoods that have more resources such as better schools or job opportunities for families. Despite the positive health and socioeconomic outcomes, as evidence   by the MTO demonstration, the HCV program cannot fully address the severity of the homelessness crisis in the present day.

The HCV program may have its fair share of issues but there are various strategies policymakers could implement to address them. Policymakers can look into expanding housing counseling services in order to provide HCV holders with the tools and knowledge needed to pick out housing in higher opportunity areas. Whether this means transportation to their potential new housing, providing detailed lists on what houses they can acquire and knowledge of their housing rights, HUD needs to do more to ensure that all HCV recipients have full information to utilize their HCV effectively (Teater, 2009). Additionally, stigmas against HCV holders must also be addressed by educating landlords of the actual requirements and characteristics of HCV holders. Although many HCV recipients tend to be older childless Americans, there are still many struggling families who genuinely need housing and imposing discriminatory views on all HCV holders for the actions of a few will perpetuate the rampant homelessness as seen during the height of the Covid-19 pandemic.

A new initiative pushed by HUD is the Choice Neighborhoods initiative which aims to promote distressed neighborhoods and transform them into mixed-used high opportunity areas. Rather than move people to opportunity, the Choice program opts to build opportunities in places neglected by the government for decades. The Choice program aims to achieve its goals by focusing on private-public partnerships to build affordable housing and promote economic activity. Under the watchful eye of PHAs, the Choice program helps ensure that neighborhoods can dictate the course of development in their communities and create opportunities for themselves and their future generations.

This paper provides just a preliminary analysis of the HCV program and Choice Neighborhoods Initiative. Future research on this topic should focus on following up on the new variants of the MTO demonstration which are the Community Choice Demonstration, which focuses on how PHAs themselves can promote access into

and keep HCV recipients in high opportunity neighborhoods. Researchers can also highlight the advances of Choice Neighborhoods Initiative and even compare the effectiveness of both the HCV and Choice neighborhoods to see which method is more effective in garnering community support and advancing HUD's goals of eradicating homelessness. (Armstrong, 2023). Regardless of the difficulties, it is evident that housing in America is in its most precarious state due to the Covid-19 pandemic. With the increased awareness of the public and policymakers on housing and homelessness, it is of utmost importance that the federal government take action to improve its response to the housing crisis.

REFERENCES

Armstrong, G. (2023, May 2). Neighborhood mobility: The path toward community choice. Neighborhood Mobility: The Path Toward Community Choice | *HUD USER.* https://www.huduser.gov/portal/pdredge/pdr-edge-pdrat50-050223.html.

Acosta, S., & Gartland, E. (2021, July 22). Families wait years for housing vouchers due to inadequate funding. *Center on Budget and Policy Priorities.* https://www.cbpp.org/research/housing/families-wait-years-for-housing-vouchers-due-to-inadequate-funding.

Black, D. (2019, August 14). Yesler Terrace: Mixed income neighborhoods and the Seattle Housing Authority. *KUOW.* https://www.kuow.org/stories/yesler-terrace-mixed-income-neighborhoods-and-the-seattle-housing-authority.

Bostic, R., & Tate, L. (n.d.-a). Fighting poverty and creating opportunity: The choice neighborhoods initiative. *HUD USER.* https://www.huduser.gov/portal/pdredge/pdr_edge_frm_ast_sec_101911.html.

Cai, J. Y., Fremstad, S., & Kalkat, S. (2021, April 5). Housing insecurity by race and place during the pandemic. *Center for Economic and Policy Research.* https://cepr.net/report/housing-insecurity-by-race-and-place-during-the-pandemic/.

Center on Budget and Policy Priorities. (2021). Policy basics: The Housing Choice Voucher Program. *Center on Budget and Policy Priorities.* https://www.cbpp.org/research/housing/the-housing-choice-voucher-program.

Dougherty, C. (2022, October 15). The Rent Revolution Is Coming. *The New York Times*. https://www.nytimes.com/2022/10/15/business/economy/rent-tenant-activism.html.

Horlings, I. and Padt, F. (2013), Leadership for Sustainable Regional Development in Rural Areas: Bridging Personal and Institutional Aspects. *Sust. Dev*., 21: 413-424. https://doi-org.ezaccess.libraries.psu.edu/10.1002/sd.526.

National Low Income Housing Coalition. (2019, January 7). Report finds large share of voucher-assisted families in lower opportunity and segregated neighborhoods. *National Low Income Housing Coalition.* https://nlihc.org/resource/report-finds-large-share-voucher-assisted-families-lower-opportunity-and-segregated.

Reina, V. J., & Aiken, C. (2022). Moving to Opportunity, or Aging in Place? The Changing Profile of Low Income and Subsidized Households and Where They Live. *Urban Affairs Review*, 58(2), 454-492. https://doi-org.ezaccess.libraries.psu.edu/10.1177/1078087420969895.

Teater, B. (2009). A Place to Call "Home": Exploring the Experiences of Section 8 Housing Choice Voucher Program Recipients in Their Efforts to Find Housing. *Families in Society*, 90(3), 271-278. https://doi-org.ezaccess.libraries.psu.edu/10.1606/1044-3894.3892.

The Athenaeum of Philadelphia (2024). "GeoHistory Resources."
GeoHistory Help: Philadelphia Regions. Accessed December
7, 2023. https://www.philageohistory.org/rdic-
images/common/help/PhilaRegions.cfm.

U.S Department of Housing and Urban Development. (2013,
September 12). Developing Choice Neighborhoods: An Early
Look at Implementation in Five Sites - Interim Report.
https://www.huduser.gov/portal/publications/econdev/choi
ce_neighborhoods_interim_rpt.html.

U.S Department of Housing and Urban Development. (2017, August
14). Defining housing affordability. *Defining Housing
Affordability | HUD USER.*
https://www.huduser.gov/portal/pdredge/pdr-edge-featd-
article-081417.html.

U.S. Department of Housing and Urban Development . (n.d.).
Housing choice voucher (HCV) data Dashboard. HUD.gov /
U.S. Department of Housing and Urban Development (HUD).
https://www.hud.gov/program_offices/public_indian_housi
ng/programs/hcv/dashboard.

U.S. Department of Housing and Urban Development. (2022,
January 11). Housing Choice Voucher Program section 8.
HUD.gov / U.S. Department of Housing and Urban
Development (HUD).
https://www.hud.gov/topics/housing_choice_voucher_prog
ram_section_8.

U.S Department of Housing and Urban Development. (2023).
"Income Limits." *HUD USER*. accessed December 7, 2023.
https://www.huduser.gov/portal/datasets/il.html#year2021

U.S Department of Housing and Urban Development. (2011,
November 8). Moving to Opportunity for Fair Housing
Demonstration Program - *Final Impacts Evaluation Summary*
.https://www.huduser.gov/portal/publications/pubasst/MTO
FHD_summary.html.

Wang, R. (2018). Tracking "Choice" in the Housing Choice Voucher Program: The Relationship Between Neighborhood Preference and Locational Outcome. *Urban Affairs Review*, 54(2), 302-331. https://doi-org.ezaccess.libraries.psu.edu/10.1177/107808741664620 5.

Wong, K. (2021, March 1). Housing insecurity and the COVID-19 pandemic. *Consumer Financial Protection Bureau*. https://www.consumerfinance.gov/data-research/research-reports/housing-insecurity-and-the-covid-19-pandemic/.

Healthcare for All? A Brief Policy Evaluation of Medicaid and Medicare in the United States

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This article was a group effort between the undergraduate and graduate membership of PSPPA. The goal of this article was to expose students to the process of writing for an academic audience and accepting and revising writing based on peer feedback. As a group exercise, we are proud to share the PSPPJ's inaugural 'White Paper'.

ABSTRACT

Healthcare in the United States is one of the most pertinent issues for all Americans. For individuals and families, the costs and distribution of healthcare has long determined whether these groups receive the care they desperately need. This policy brief seeks to explore the creation and evolution of healthcare throughout American history, specifically focusing on two of America's primary healthcare programs with Medicaid and Medicare. From its fiery beginnings at the end of the Civil War to the revolutionary debates over public healthcare with FDR to Lyndon B. Johnson's administration and then the Affordable Care Act's passing in 2010 with the Obama administration, healthcare in America has undergone drastic changes since its inception. This paper will focus on evaluating the two programs in terms of costs, effectiveness, and impact on American families. While both programs provide immense health benefits to Americans, disparities in expansion to all fifty states, coverage, and racial factors play a role that diminish the programs' effectiveness. Alternatives will also be analyzed that can supplement/improve the programs such as H.R. 2474, the Strengthening Medicare for Patients and Providers Act, that was introduced in the 118th Congress. Healthcare is an integral part of American life and while both Medicare and Medicaid provide lifesaving care, these programs still face numerous challenges that prevents them from reaching all corners of American society.

INTRODUCTION

Healthcare is essential. It is an enduring topic of American political debate, disagreement, and economic contention. Throughout the years, private healthcare and pharmaceutical companies have seen record profits in comparison to other business models, all while public healthcare policy options attempt to adapt as a means to meet the ever-changing demands of the American public (Ledley et al., 2020). Through the federal government, the United States has two primary healthcare programs – Medicare, healthcare for the elderly, and Medicaid, healthcare for those in financial need. In the United States, Medicaid is a government program that gives health insurance to millions of people, including children, pregnant women,

adults with low incomes, and people with disabilities. A total of 85 million individuals were insured through Medicaid as of July 2023 (Centers for Medicare & Medicaid Services, 2023). The program is co-funded by the federal government and run by the states in accordance with federal regulations.

For low-income and other resource-constrained individuals, the federal government and state governments work together through Medicaid to subsidize medical care. The Medicaid program also provides nursing home care and personal care services, among other things, that Medicare does not often cover. Medicaid eligibility requirements vary from one state to the next. Covered medical expenses typically do not require payment from Medicaid recipients, however users may be required to pay a small co-payment for certain items or services (Centers for Medicare & Medicaid Services, 2023).

The Medicaid program is an essential component of the American healthcare system, A lot of people with low incomes rely on it as a safety net because they can't afford healthcare otherwise. The program is structured to be adaptable and accommodating to the people living in each state. Within the bounds of federal regulations, each state can determine its own benefits and qualifying requirements. Because of this leeway, Medicaid programs can be customized by states to meet the needs of their populations (Centers for Medicare & Medicaid Services, 2023).

Despite the tremendous opportunity to support, improve, and save the lives of millions of Americans, healthcare policy in the US remains divisive, and there is a n active debate regarding the value and relative merits of implementing a fully public or private healthcare system. This brief will lay out an analysis of the development, impact, and alternatives to Medicaid and Medicare in the US, so readers can have a clearer understanding of the issue and what is in store for the future of healthcare in America (Centers for Medicare & Medicaid Services, 2023).

BACKGROUND

The United States' history of providing individuals benefits to anything health care related, first began with Civil War veterans. In 1862, the US Congress passed the Civil War Pension Program, providing funding to individuals who were made disabled while serving during the US Civil War (Kronenfeld, 2010). In 1890, the qualifications for being eligible for the program changed to allow any Civil War veteran to acquire benefits if they were disabled as a result of their participation in the war (Kronenfeld, 2010). In 1906, this program further evolved to provide benefits to US Civil War veterans once they reached a certain age (Kronenfeld, 2010).

By 1912, this notion of expanding the role of the federal government in providing access to healthcare to the wider populace beyond just veterans was proposed by various political actors. For example, although unsuccessful, President Theodore Roosevelt campaigned on expanding social insurance to include sickness insurance. Correspondingly, organizations such as the American Association for Labor Legislation (AALL) urged the passage of similar legislation. After achieving the enactment of worker's compensation in several states, the AALL with support from the American Medical Association (AMA), was able "to have commissions formed to study health insurance in 10 states" (Kronenfeld, 2010, p. 5). Nevertheless, the idea of establishing health insurance stalled. With the American public beginning to fear "socialized" healthcare and communism, the movement of public healthcare insurance in America was stalled indefinitely. Moreover, through the integration of new conservative figures within the AMA, the Association quickly shifted its perspective on health insurance. Although many still opposed the idea of bridging the gap between the health care systems and individuals, in 1921 the Sheppard-Towner Maternity and Infancy Protection Act was passed. This was the first federally funded social welfare program in U.S. history. Nevertheless, the Act only received funding until 1929 due to disapproval from various entities, despite it cultivating an environment for the betterment of women's and children's health (U.S Capitol Visitor Center, n.d)

Shifting the focus to the earliest implementation of healthcare insurance in the U.S., the early 1900s saw little government regulation on healthcare or the insurance market. The first insurance plans were known as "hospital plans", which started in 1929. These

plans involved families buying a subscription to a single hospital for insurance, which then quickly evolved into a network of hospitals offering their services in exchange for a group fee, a system more akin to the modern health insurance market (Gordon, 2018). In addition, there were also insurance plans to pay physicians' fees in settings outside of hospitals. Some examples of these hospitals and physicians' insurances included Blue Cross and Blue Shield, respectively (Gordon, 2018). Although proposals for a national healthcare plan took shape in this era, that notion was unable to gain traction due to the opposition of powerful interest groups such as the AMA (Oberlander, 2012). Physicians and hospitals opposed a national health care plan both to protect the patient from government interference (Berkowitz, 2005), but also the "hospital insurance" market's profitability. The hospital insurance system incentivized patients to choose specific plans that they wanted, saving themselves money, while hospitals also gained immense profits for this cost-plus basis plan bolstered by lobbying groups that were able to set favorable regulations such as tax exemptions for private insurers once they entered the market as well (Gordon, 2018). All these laid the stage for private insurance to dominate the market.

With the suffering brought about by the Great Depression, in 1934, President Franklin D. Roosevelt established a committee to address the negative effects the Great Depression on individuals. When drafting what is now known as the Social Security Act, there was "a line to authorize the study of health insurance" (Kronenfeld, 2010, pg.6). The AMA was strongly against this line and thus FDR agreed to remove the line in fear that the overall proposal would not be ratified. Nonetheless, the AMA stayed firm to their stance on the issue and addressed that they were pro-private health insurance. However, Blue Cross and Blue Shield plans were then supported by the AMA which was a pre-paid, non-profit, health care plan for American families. (Kronenfeld, 2010). The federal government subsequently passed the Social Security Act in 1935, in an attempt to alleviate financial burden. Through the enactment of the Fair New Deal and the Wagner-Murray-Dingell Bill under the Truman administration, things began to look promising regarding health care. During his second presidency term in 1948, Truman proposed to create a health care plan that would cover "medical, dental, hospitals, and nursing care expenses" (Kronenfeld, 2010, pg.8). However, the bill ultimately did not pass.

During World War II, in order to control inflation, the FDR administration implemented controls on wages (Schumann, 2001). No longer able to advertise higher wages to a workforce already being siphoned by the military, employers began to offer free private health insurance as a condition of employment, further benefiting from the tax benefits acquired by interest groups (Gordon, 2018). It is clear that as a bona fide requirement to attract workers, employer-provided health insurance became the norm. However, this came with its own slate of issues. As Americans aged and retired to live on Social Security benefits, which the government regularly increased throughout the 1950s, they were unable to find health insurance due to a lack of employment. Retired Americans did not have employer-provided coverage, nor did private insurers want to cover them due to the higher healthcare costs associated with old age (Berkowitz, 2005). This created a political impetus in the 1950s to provide health insurance to the elderly, however this concern was still not strong enough to overcome the strength of the American Medical Association and American Hospital Association, which vehemently opposed that notion. Only under the Johnson administration, which came into power in 1963, did there start to be real political will towards a national health insurance system. As part of Johnson's Great Society ideal, he launched a "War on Poverty" (Haveman et al., 2015). Contributed to by his landslide and down-ballot victory in the 1964 elections and the moral impetus brought about by the assassination of former president John F. Kennedy, Congress finally had the mandate to pass the Social Security Amendments of 1965, which established national health insurance coverage for the elderly, known as Medicare, and a variant for low-income families, known as Medicaid. Through the implementation of Title 18 of the Social Security Act, Medicare created the avenue for millions of elderly (ages 65 and over) and disabled Americans to have the chance to receive health care benefits, while Title 19 of the Social Security Act, led to the implementation of Medicaid. Due to Medicaid being both a state and federal health care program, states must cover the health care of groups such as "low-income families, qualified pregnant women and children, and individuals receiving Supplemental Security Income (SSI)" (Daaleman & Newton, 2018).

IMPACTS

Within the intricate landscape of the United States healthcare sector, Medicaid stands as a linchpin for innovative healthcare policy. The

policy's preventative framework produces profound implications for a variety of stakeholders. Direct beneficiaries include vulnerable groups such as children, pregnant people, families with low-income, seniors, and individuals with disabilities. Empirically, Medicaid's direct effects have resulted in a decline in the number of uninsured Americans. The most recent evidence suggests children on Medicaid were more likely to have a usual source of care (USOC), and less likely to face unmet medical needs due to unaffordable costs. Furthermore, insured child beneficiaries' improved health positively impacted their school attendance and performance levels. According to the KFF, adults who participate in the program are 70% more likely to have a USOC and 55% more likely to see a regular doctor (Paradise et al. 2019).

Intergenerational effects of Medicaid can also be observed, as healthier families correlate with an overall improvement in population health, as well as a reduction in future healthcare expenditures in the long run. The implementation of the program has led to a significant increase in levels of preventative care utilization. Within a year of being insured, beneficiaries reported a 60% increase in cancer screenings and a 20% increase in cholesterol checks (Paradise et al. 2019). The catastrophic out-of-pocket cost of healthcare has also been mitigated by the program. Recipients of Medicaid reduced their likelihood of having medical debt by 20%. This reduction of fiscal responsibility prevents medical expenses from pushing at-risk families further into poverty.

ALTERNATIVES

Since its inception, Medicaid has gone through numerous changes and evolvements that changed how American families received their healthcare. One of the more significant developments was the passage of the Affordable Care Act in 2010, which sought to lower healthcare costs for Americans, expand healthcare access to Americans under the poverty line, and support new innovations in healthcare (Donohue, et al., 2022). In 2022, Medicaid provided insurance to estimated 80.6 million individuals per month, which accounted for 24.2% of the U.S. population, and made up approximately $671.2 billion in health spending, up to 16.3% of the country's health spending (Donohue, et al., 2022). This expansion has been completed through various support programs like the

Children's Health Insurance Program and the Navigator program, aiming to extend Medicaid's reach further.

Despite the positive effects of Medicaid on American families, the program still faces lingering challenges, particularly in addressing health disparities and in administration. Though Medicaid is a federal program, each of the 50 states share the responsibility of administering the program individually, determining who gets coverage, how they get coverage, and when they get coverage based on particular federal guidelines. This state-level structure has struggled to keep pace with rising enrollment rates, leading to declining beneficiary experiences and even worsened quality of care among historically discriminated racial groups and rural communities (Martino et al., 2019). Though all 50 states participate in the program, and over 30 states have since expanded or are considering expanding Medicaid, the impact on poverty-related coverage disparities has been insufficient. For those households whose incomes are below 138% of the federal poverty line (FPL), there remains a high risk of being uninsured (Lin et al., 2021). In addition, addressing the geographic disparities that affect health outcomes is crucial. For example, if transportation barriers among impoverished urban areas are driving these disparities, improvements in public transportation and incentivizing healthcare providers to work in these neighborhoods could be effective measures to reduce health disparities (Martino et al., 2019).

Medicaid has made healthcare more accessible for low-income populations and has played a significant role in reducing health disparities. The ACA and Medicaid expansion are fundamental to improve the overall quality of life for U.S. citizens. Nevertheless, there is a need for sustained effort by the government and policymakers to reach the uninsured, vulnerable groups, and marginalized communities, ensuring equitable health access for all.

EVALUATION

COSTS

Medicaid, as an insurance model for lower income households and individuals, has resulted in financial costs on both the federal and state level. According to the Drake et al (2024), it is estimated that

Medicaid represents $1 of every $6 spent on healthcare in the U.S. This represents $728 billion in FY2021 (Williams et al. 2023). Federal Medical Assistance Percentage (FMAP), which is how much the Federal government contributes to a state's medical costs, varies from state to state. In FY2021 states paid 31% of the Medicaid costs while the Federal government paid 69% (William et al. 2023). It is worth noting, however, that between 2014-2016, 100% matching from the federal government was available to states that expanded Medicaid and an offer of 90% matching is still offered to states that expand Medicaid.

EFFECTIVENESS

The Medicaid program has resulted in a range of social and private benefits, depending on which state is being referred to and nationally for health coverage. As of July 2023, over 84.5 million individuals were enrolled in Medicaid services (Medicaid.gov, 2024). According to the Center of Budget and Policy Priorities, adults on Medicaid paid 22% less than adults who utilized private insurance, and between 1987 and 2015 Medicaid beneficiary costs rose 4.1% compared to 6.9% for private insurers (Katch 2017). Since the passage of the Affordable Care Act, 40 states and the District of Columbia have expanded Medicaid to cover the gap. It has been suggested that Medicaid not only helped to offset state costs in other areas such as substance use treatment, but that <1% of state spending increased in the wake of Medicaid expansion (Guth & Ammula 2021).

COVERAGE CAP

The state-to-state variation in Medicaid provision has left gaps in coverage for certain groups of people slightly above the Federal Poverty line (FPL). Through the Affordable Care Act, eligibility for Medicaid was expanded to those making 138% of the FPL, with the FPL being $14,580 as of 2023 and 138% of it being $20,120 (Glied & Weiss 2023). States that decided to follow this ruling are considered "expansion" states. The coverage gap is defined as non-elderly adults who do not qualify for expanded Medicaid eligibility in non-expansion states; 1.9 million people in 10 states fall into the coverage gap (Rudowitz et al., 2023). There are currently 40 states and Washington D.C. that have expanded Medicaid to include those

lower income populations who otherwise would not qualify due to being over the FPL. Within these expansion states, they have seen uninsured rates of 8.1% compared to 15.4% non-expansion states (Rudowitz et al. 2023).

Reccomendations

Potential solutions to address some of these complex healthcare issues could be passing and advocating for legislation in government that would help offset the costs for Medicare and Medicaid. For example, H.R. 2474, the Strengthening Medicare for Patients and Providers Act, modifies payment amounts under the Medicare Physician Fee Schedule. The Medicare Physician Fee Schedule dictates scheduled pricing amounts that reflect practice costs by geographic location. Payments under the Medicare Physician Fee Schedule are based on a service's relative value, a conversion factor, and a geographic adjustment factor. H.R. 2474 would replace these three conversion factors and turn them into one single conversion factor connected to the annual percentage increase from the Medicare Economic Index starting in 2024. Therefore, the Medicare Physician Fee schedule would be based on annual physician cost changes due to inflation (O'Reilly, 2023).

H.R. 2474 has several requirements that will be put in place. This bill requires the amendment of Title XVII of the Social Security Act to provide an update to a single conversion factor under the Medicare Physician Fee schedule. This legislation would help rural communities, low-income patients, and marginalized communities access healthcare services. Costs of running medical practices have increased by 47%, while physicians' payments have declined by 26% when adjusted for inflation. This makes it hard for smaller and low-income-serving practices to stay open. Moreover, with the effects of the COVID pandemic and a 2% cut made across the board to Medicare, physicians have difficulty providing the care patients need. H.R. 2474 would help millions of Americans access high-quality care at an affordable price (O'Reilly, 2023).

Conclusion

The American Healthcare system has gone through numerous challenges and changes that have drastically changed how

Americans receive the care they need. In the policy field, healthcare is a highly contested realm dominated by powerful private interests such as the American Medical Association and others who oppose a federal approach to nationwide public healthcare such as Medicaid and Medicare. President Barack Obama's Medicare for all plan significantly expanded access to Medicare in the U.S and with over 80 million individuals in the U.S enrolled into the program as of 2022. The fact that it is not fully implemented in all fifty states is a significant public health issue for low-income Americans who struggle to stem the tide of rising medical bills and other life necessities. Both Medicaid and Medicare with have benefitted the American public by reducing the costs of healthcare for average Americans, reducing state expenditures on healthcare, and have improved public health.

REFERENCES

Berkowitz, E. (2005). Medicare and Medicaid: The Past as Prologue. *Health Care Financing Review*, *27*(2), 11–23. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4194925/

Centers for Medicare & Medicaid Services. (n.d.). Program history. *Medicaid*. Retrieved from https://www.medicaid.gov/medicaid/eligibility/index.html

Centers for Medicare & Medicaid Services. (2023). *October 2023* Medicaid & Chip Enrollment Data Highlights. *Medicaid.* https://www.medicaid.gov/medicaid/program-information/medicaid-and-chip-enrollment-data/report-highlights/index.html

Daaleman, T. P., & Newton, W. P. (2018). Medicaid. *Springer EBooks*, 493–503. https://doi.org/10.1007/978-3-319-71812-5_40

Drake, P., Tolbert, J., Rudowitz, R., & Damico, A. (2024, February 26). How many uninsured are in the coverage gap and how many could be eligible if all states adopted the Medicaid expansion?. *KFF*. https://www.kff.org/medicaid/issue-

brief/how-many-uninsured-are-in-the-coverage-gap-and-how-many-could-be-eligible-if-all-states-adopted-the-medicaid-expansion/

Donohue, J. M., Cole, E. S., James, C. V., Jarlenski, M., Michener, J. D., & Roberts, E. T. (2022). The US medicaid program: Coverage, financing, reforms, and implications for health equity. JAMA : *The Journal of the American Medical Association*, 328(11), 1085-1099. https://doi.org/10.1001/jama.2022.14791

Gordon, J. S. (2022, June 10). A short history of American Medical Insurance. *Imprimis*. https://imprimis.hillsdale.edu/short-history-american-medical-insurance/

Guth, M., & Published, M. A. (2021, May 6). Building on the Evidence Base: Studies on the Effects of Medicaid Expansion, February 2020 to March 2021 Report - 9709. *KFF*. https://www.kff.org/report-section/building-on-the-evidence-base-studies-on-the-effects-of-medicaid-expansion-february-2020-to-march-2021-report/#EconomicImpacts

Haveman, R., Blank, R., Moffitt, R., Smeeding, T., & Wallace, G. (2015). The War on Poverty: Measurement, trends, and policy. *Journal of Policy Analysis and Management*, *34*(3), 593–638. https://doi.org/10.1002/pam.21846

Katch, H. (2017). Medicaid Works: Millions Benefit from Medicaid's Effective, Efficient Coverage. https://www.cbpp.org/sites/default/files/atoms/files/6-2-17health.pdf

Kronenfeld, J. J. (2010). Medicare. In *Google Books*. *Bloomsbury Publishing USA*. https://books.google.com/books?hl=en&lr=&id=vILDEAAAQBAJ&oi=fnd&pg=PP1&dq=timeline+on+creation+of+medicare+&ots=sLIUBt8vs7&sig=0yglyEiqv3-JemK-xIe66vVpe0c#v=onepage&q=timeline%20on%20creation%20of%20medicare&f=false

Ledley, F. D., McCoy, S. S., Vaughan, G., & Cleary, E. G. (2020). Profitability of large pharmaceutical companies compared with other large public companies. *Jama*, *323*(9), 834-843.

Lin, Y., Monnette, A., & Shi, L. (2021). Effects of medicaid expansion on poverty disparities in health insurance coverage. *International Journal for Equity in Health*, 20(1), 1-171. https://doi.org/10.1186/s12939-021-01486-3

Medicaid.gov. (2023). May 2023 Medicaid & CHIP Enrollment Data Highlights. Medicaid.gov. https://www.medicaid.gov/medicaid/program-information/medicaid-and-chip- enrollment-data/report-highlights/index.html

Martino, S. C., Mathews, M., Agniel, D., Orr, N., Wilson-Frederick, S., Ng, J. H., Ormson, A. E., & Elliott, M. N. (2019). National racial/ethnic and geographic disparities in experiences with health care among adult medicaid beneficiaries. *Health Services Research*, 54(1), 287-296. https://doi.org/10.1111/1475-6773.13106

Oberlander, J. (2012). Unfinished journey — a century of health care reform in the United States. *New England Journal of Medicine*, *367*(7), 585–590. https://doi.org/10.1056/nejmp1202111

Orgera, K., Mar 21, E. H. P., & 2019. (2019, March 21). Medicaid Financing: The Basics. The Henry J. Kaiser Family Foundation. https://www.kff.org/medicaid/issue-brief/medicaid-financing-the-basics

Paradise, J., & Garfield, R. (2019, August 2). What is Medicaid's Impact on Access to Care, Health Outcomes, and Quality of Care? Setting the Record Straight on the Evidence. Kaiser FamilyFoundation.https://www.kff.org/report-section/what-is-medicaids-impact-on-access-to-care-health-outcomes-and-quality-of-care-setting-the-record-straight-on-the-evidence-issue-brief/

Schumann, R. E. (2001). Compensation from World War II through the Great Society. Washington, D.C.; U.S. Bureau of Labor Statistics.

U.S. Capitol Visitor Center. (n.d.). H.R. 12634, a bill to encourage instruction in the hygiene of maternity and infancy, July 1, 1918: U.S. Capitol - Visitor Center. https://www.visitthecapitol.gov/artifact/hr-12634-bill-encourage-instruction-hygiene-maternity-and-infancy-july-1 1918#:~:text=In%201921%20Congress%20passed%20the, prenatal%20and%20infant%20health%20care.

Williams, E., Rudowitz, R., & Burns, A. (2023, April 14). Medicaid financing: The basics. *KFF*. https://www.kff.org/medicaid/issue-brief/medicaid-financing-the-basics/