RICE JOURNAL OF PUBLIC POLICY

SPRING 2025 • VOLUME VIII

ACKNOWLEDGMENTS

The Rice Journal of Public Policy would not have been possible without the support of the James A. Baker III Institute for Public Policy. Thank you to all teh writers, editing team, and design team for working to publish our eighth edition, and special thanks to all our colleagues at the Baker Institute Student Forum for their assistance. As always, we hope to continue working with our peers at Rice University to bring your future editions of the RJPP

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Adopting Canada's Safe Supply Framework: A Public Health Approach to the U.S. Opioid Crisis

Navya Dronamraju

Abstract

The United States faces a worsening opioid crisis, with over 80,000 deaths in 2022 largely driven by synthetic opioids such as fentanyl, underscoring the failure of punitive, enforcement-based policies to reduce overdose mortality (Focus on Opioids - Connect2Health FCC). This article examines the potential for adopting and adapting Canada's "safe supply" framework – an evidence-based harm reduction model providing pharmaceutical-grade alternatives to illicit drugs under medical supervision – to the US context. Through analysis of Canada's outcomes and domestic pilot programs, the paper proposes a federally supported safe supply initiative grounded in three principles: integration with existing harm reduction services, collaboration across healthcare and community systems, and robust federal oversight and evaluation. The proposed framework emphasizes federal-state partnerships, sustainable funding mechanisms through agencies such as SAMHSA and the CDC, and a phased implementation strategy beginning with pilot programs in high-need areas. Anticipated benefits include reductions in overdose deaths, healthcare utilization, and incarceration rates, alongside improvements in public health equity and social stability. Ultimately, the article argues that a national safe supply program represents a viable, evidence-based alternative to criminalization, positioning harm reduction as a cornerstone of modern U.S. drug policy.

1. Introduction

The United States continues to grapple with an unprecedented opioid crisis that has devastated communities across the nation. In 2022, over 81,000 Americans lost their lives to synthetic opioid overdoses, representing a tragic milestone in a crisis that shows no signs of abating (Focus on Opioids - Connect2Health FCC). This statistic does not include the number of lives lost to methadone, a medication used to treat opioid use disorder. Despite allocating billions of dollars towards law enforcement and drug interdiction efforts, current policies emphasizing criminalization have failed to stop the rising tide of overdose deaths.

As the U.S. searches for effective solutions, Canada's innovative "safe supply" programs have emerged as a promising model. These programs, which provide controlled, pharmaceutical-grade drugs to individuals with substance use disorders under medical supervision, have demonstrated significant success in reducing overdose deaths and improving public health outcomes (Government of Canada). This paper examines methods to adopt and adapt Canada's safe supply framework to transform the United States' approach to addressing the opioid crisis. This analysis explores the potential implementation of a federally supported safe supply program in the United States, examining both the challenges and opportunities presented by such a fundamental shift in drug policy. Building upon Canada's precedent while accounting for the unique context of the domestic healthcare system and political landscape will allow the United States to develop an evidence-based approach to reducing overdose deaths and improving outcomes for individuals struggling with substance use disorders.

2. Background

The Opioid Crisis in the U.S.

The scale and severity of the opioid crisis in the United States represents a public health emergency of historic proportions. With 73,838 overdose deaths recorded in 2022, deaths involving synthetic opioids other than methadone–mostly illegally produced fentanyl–have dramatically risen in the past decade. Synthetic opioids make up a disproportionate amount of drug-related deaths (National Institute on Drug Abuse). The crisis has been particularly exacerbated by the proliferation of fentanyl, a synthetic opioid up to 50 times more potent than heroin, which has increasingly contaminated the illegal drug supply (Drug Enforcement Administration).

Current approaches focusing on criminalization have proven not only ineffective but potentially counterproductive. According to a 2020 report from the Federal Bureau of Prisons, 43.8% of the American prison population was incarcerated due to drug offense convictions. This statistic underscores the scale at which our current system prioritizes punishment over treatment for drug-related issues. However, formerly incarcerated individuals are more likely to experience drug abuse and ultimately fatal overdoses than the non-incarcerated population (Mital, Wolff, and Carroll). The correlation between incarceration and overdose rates indicates that effective drug policy is more rehabilitation-based than the current system which aims to "lock up" as many offenders as possible. Despite increased funding for enforcement and interdiction, overdose deaths have continued to rise, suggesting the failure of punitive approaches to address what is fundamentally a public health issue. The UN Human Rights Council explains, "militarization of law enforcement in the so-called war on drugs contributes to severe human rights violations." Such violations demonstrate criminalization's ineffectiveness in ensuring a better life for those suffering from substance use

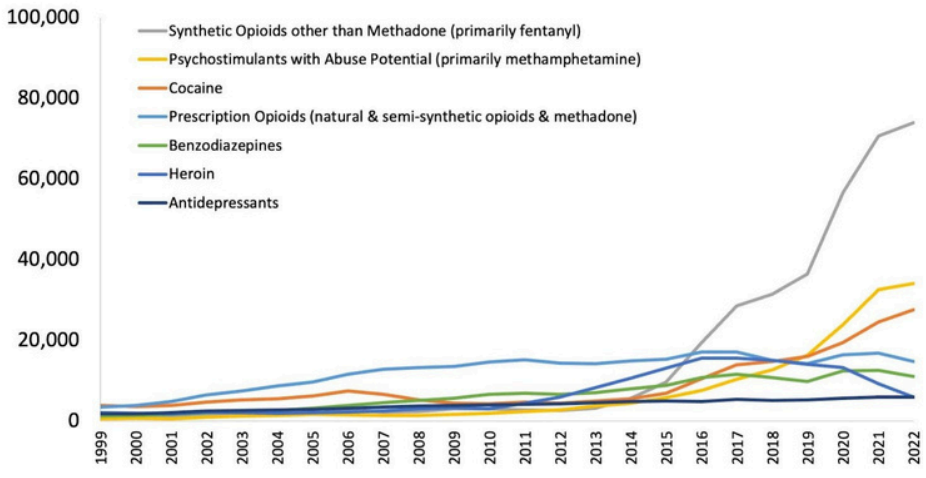

Figure 1. U.S. Overdose Deaths, Select Drugs or Drug Categories, 1999-2022. (National Institute on Drug Abuse)

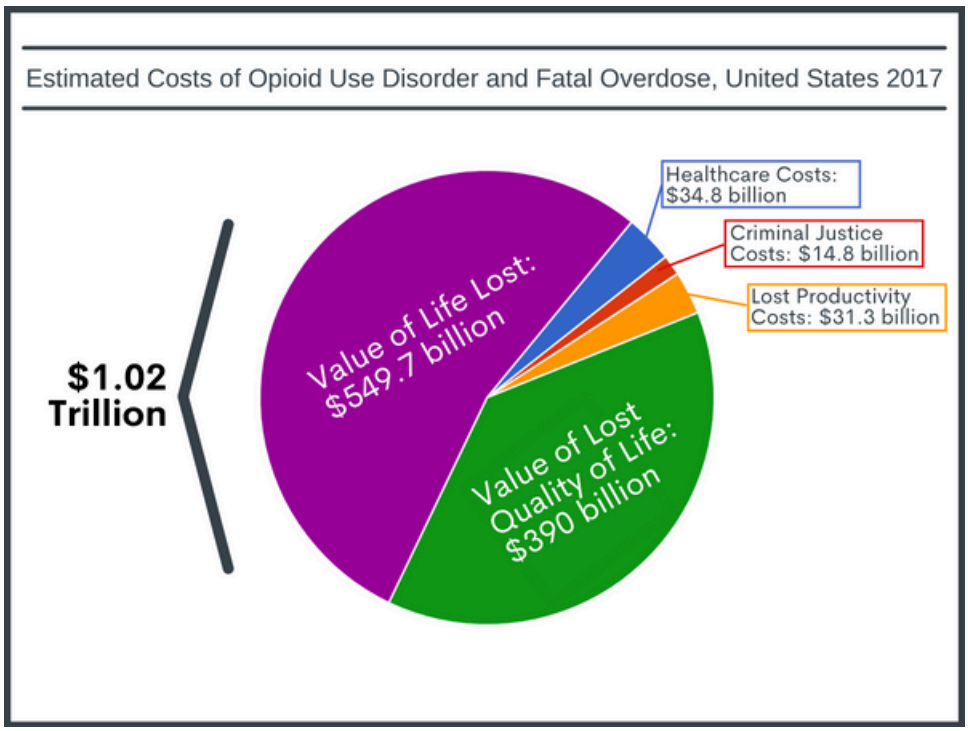

Figure 2. Estimated Costs of Opioid Use Disorder and Fatal Overdose, United States 2017. (Recovery Research Institute).

disorders and their communities.

Furthermore, the financial burden of the crisis extends far beyond law enforcement costs. In the last decade, the U.S. has spent over $1 trillion managing the opioid epidemic (Kuehn). Figure 2 shows a breakdown of the cost allocation.

Despite significant spending on managing the crisis, the U.S. government's efforts prove to be ineffective in preventing opioid abuse and death. These figures underscore the urgent need for alternative approaches that prioritize harm reduction and public health programs over criminalization.

Canada's Safe Supply Framework

Canada's safe supply programs represent a revolutionary approach to harm reduction in substance use treatment. These programs provide individuals with substance use disorders access to pharmaceutical-grade alternatives to street drugs, ensuring a known potency and eliminating the risks associated with contaminated supply. The framework operates through several interconnected mechanisms. Licensed healthcare providers oversee the prescription of pharmaceutical-grade opioids and other substances to eligible participants, while comprehensive support services integrate addiction treatment, mental health services, and social support. The programs are delivered through existing healthcare infrastructure, often in conjunction with other harm reduction initiatives, ensuring seamless integration with community health services (Nguyen et al.). Beneficiaries receive sterilized injection supplies and other drug use equipment, are shielded from arrest and prosecution, and are monitored by medical personnel equipped to reverse overdoses using oxygen and naloxone – a medicine that rapidly reverses an opioid overdose – as necessary. This program has successfully reversed nearly 5000 overdoses, with no fatalities reported (Bowers and Abrahamson). Early results from Canadian pilot programs have been promising. Opening these centers in Vancouver have reduced fatal overdoses by 35% within 500m of the treatment facility (Marshall et al.). This suggests that safe supply programs can effectively reduce overdose risk while creating opportunities for engagement with healthcare and social services.

3. Proposed Policy Solution

A U.S. safe supply program would adapt Canada's successful framework while accounting for the unique characteristics of the American healthcare system and regulatory environment. The program would be implemented through a comprehensive approach to harm reduction and healthcare delivery and operate under three core principles: integration, collaboration, and oversight.

Integration with Harm Reduction

The safe supply initiative would complement and enhance existing harm reduction services through a coordinated approach to care delivery. The program would work in close coordination with needle exchange programs and supervised consumption sites, while incorporating peer support services and community outreach efforts. These services would be linked to comprehensive healthcare services, creating a seamless continuum of care for program participants. For example, this approach has already been tested: New York City authorized two overdose prevention centers, providing hygienic spaces for supervised drug use and immediate assistance in case of overdose. These centers aim to reduce overdose deaths and connect individuals to health services. While a study assessing their impact is ongoing, early indications suggest potential benefits in preventing fatal overdoses (Broadhead et al.). Similarly, Project Longevity, launched in Waterbury, Connecticut, focuses on aiding reintegration and reducing recidivism by addressing critical needs

such as behavioral health crisis intervention, job training, and housing assistance for formerly incarcerated individuals. The Health Department's harm reduction unit also provides resources like naloxone and clean needles, contributing to community safety and well-being (Backus). Initiatives such as this provide holistic reformation of the punitive system, both preventing incarceration and aiding those who have already been marginalized because of it.

Healthcare Collaboration

Success would require robust partnerships across the healthcare system, with multiple stakeholders working in concert to deliver effective services. Public health departments would provide oversight and coordination of services, while addiction specialists would develop clinical guidance and treatment protocols. Community health clinics would serve as primary care integration points and service delivery hubs, working in close coordination with emergency services to ensure comprehensive care coverage. These partnerships have already been implemented in some parts of the US; the Illinois Harm Reduction and Recovery Coalition (IHRRC) collaborates with various community health organizations, such as Shawnee Health Services and the West Side Heroin and Opioid Task Force, to advocate for and implement overdose prevention sites. These partnerships focus on providing medical assistance, connecting individuals to treatment, and offering supervised spaces to reduce the risks associated with drug use (Illinois Harm Reduction & Recovery Coalition). This program demonstrates the potential of collaborative efforts between community health clinics and supervised consumption sites to address substance use issues effectively, prioritizing public health and safety.

Furthermore, the U.S. healthcare system relies heavily on pharmacies for distribution of any materials and can make the addition of safe needle sites with little to no physical capital costs. Large corporations such as CVS and Walgreens already offer in-store clinics where patients can receive physical examinations, vaccines, and basic care (CVSHealth, Walgreens). If provided with the medical equipment, these spaces could also be used for safe injection sites. Pharmacies are already involved in recreational drug-related care, making this transition more realistic. According to the Centers for Disease Control and Prevention, 2.1 million naloxone prescriptions were dispensed from retail pharmacies in 2023 (CDC Program Evaluation Framework 2024). However, the efficacy of pharmaceutical involvement varies on a state-by-state basis. Figure 3 shows a map of state naloxone dispensing rates. However, this volatility can be reduced by establishing safe supply partnerships with pharmacies through federal-level implementation.

Federal Funding and Oversight

The program would require substantial federal support while maintaining state flexibility in implementation approaches. This would include dedicated funding streams through federal grants, supported by technical assistance and program guidance to ensure consistent service delivery. A standardized monitoring and evaluation framework would track outcomes while allowing for state-level customization to meet local needs. Historical data provides insight into potential funding needs. For instance, the Substance Abuse and Mental Health Services Administration (SAMHSA) announced the Harm Reduction Program Grant with an estimated total funding of up to $9.75 million per year, totaling $29.25 million over three years. Each award was up to $400,000 annually, supporting approximately 25 organizations (Department of Health and Human Services 2022). Similarly, the American Rescue Plan Act (ARPA) allocated $30 million specifically for community-based harm reduction services, including syringe services programs (SSPs) (NASTAD 2021). Considering the escalating opioid crisis, a scaled-up investment is prudent. An estimated annual federal investment of $500 million to $1 billion could significantly enhance harm reduction efforts nationwide.

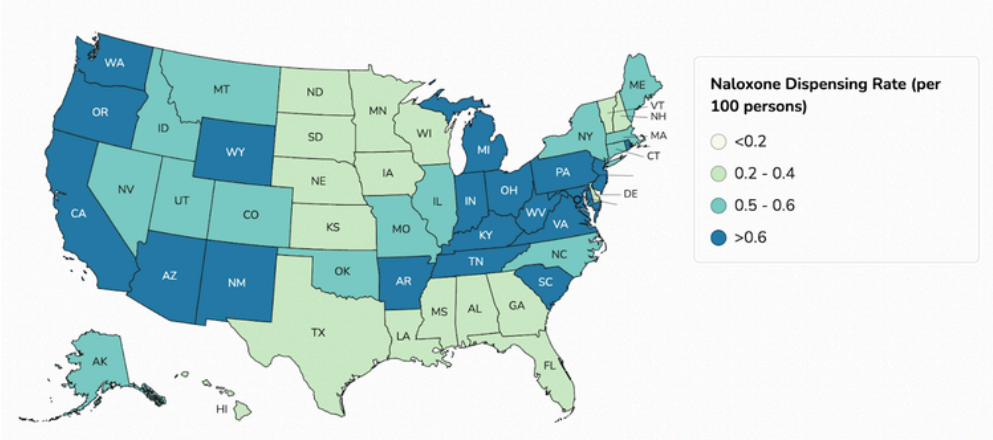

Figure 2. Estimated Costs of Opioid Use Disorder and Fatal Overdose, United States 2017. (Recovery Research Institute).

This projection aligns with recommendations from public health experts advocating for substantial increases in funding to effectively address the crisis.

There are several potential sources of funding for these programs. Establishing specific grant programs through Substance Abuse and Mental Health Services (SAMHSA) and the Centers for Disease Control and Prevention (CDC) would provide targeted funding for harm reduction initiatives. These grants should prioritize evidence-based practices and support a wide range of services, from overdose prevention to linkage to care. Additionally, allocating funds to states via block grants allows for flexibility in addressing unique local challenges. States can tailor programs to their specific demographics and substance use trends while adhering to federal guidelines. Public-private partnerships can also be an asset to implementation of a federal safe supply program. Encouraging collaborations between government entities and private organizations can leverage additional resources. Incentivizing private investment through tax credits or matching fund programs can amplify the impact of federal funding. Lastly, the American insurance system can also be employed towards this goal. For instance, expanding Medicaid coverage to include harm reduction services ensures sustainable funding. This approach integrates harm reduction into standard healthcare services, promoting long-term program viability. Implementing these funding mechanisms, supported by a standardized monitoring and evaluation framework, will facilitate effective harm reduction programs that are responsive to both federal objectives and state-specific needs.

Public Health and Economic Benefits

Implementation of a safe supply program would generate significant immediate and long-term benefits across multiple domains. In the short term, the program would lead to a substantial reduction in overdose deaths. For instance, research has shown that such programs have the potential to reduce overdose risk by limiting exposure to illicit opioids. One study reported no opioid-related deaths among program participants (Ledlie et al. 2024). Engagement in safer supply initiatives also correlates with a reduction in emergency healthcare utilization. A study evaluating a program in Ontario found that participants had 32% fewer hospital emergency visits and 54% fewer inpatient visits after joining the program (CATIE 2022). These findings suggest that implementing safer supply programs can lead to substantial public health benefits, including fewer overdose deaths and reduced strain on emergency medical services.

Long-term outcomes would include increased engagement with addiction treatment services, improved social determinants of health for participants, and reduced healthcare costs. Studies show that harm reduction programs, such as supervised consumption sites and safer supply initiatives, lead to greater uptake of addiction treatment services. A 2018 cost-benefit analysis of supervised consumption services in Canada estimated savings of $5 million annually in healthcare costs related to overdoses and hospitalizations (Schmidt et al. 2024). The economic benefits would extend beyond direct healthcare savings to include decreased incarceration rates and associated costs, reduced emergency healthcare spending, and improved workforce participation among program participants.

Research indicates that harm reduction approaches reduce interactions with the criminal justice system. A study on syringe service programs in the U.S. found a 47% decrease in arrests among participants (Bartholomew et al. 2021). Furthermore, engaging individuals in harm reduction programs enables better health and stability, translating into higher workforce re-entry rates. A RAND Corporation study estimated potential annual economic gains of $1.4 billion from improved workforce productivity linked to harm reduction efforts (Pardo and Luckey 2022).

The implications of a federal safe supply program extend beyond health outcomes and stretch into social impact as well. The program would advance social equity goals by reducing racial disparities in drug-related arrests, improving healthcare access for marginalized communities, and enhancing community stability in high-impact areas. A New York City initiative combining harm reduction with criminal justice reform led to a 22% reduction in drug-related arrests in Black and Latino communities (Drug Policy Alliance 2022). Metrics such as reduced homelessness and increased community engagement highlight the stabilizing effects of harm reduction programs. Vancouver's Insite facility reported a 20% reduction in neighborhood public drug use, contributing to improved community cohesion (Vancouver Coastal Health). These metrics and outcomes provide a strong foundation for demonstrating the transformative potential of harm reduction programs on individuals, communities, and broader societal systems.

4. Implementation Steps

Phase 1: Pilot Programs (Months 0-12)

The initial phase of implementation would focus on establishing the

foundation for successful program delivery. Site selection would involve identifying high-need urban and rural locations, assessing existing healthcare infrastructure, and evaluating community readiness. Site selection for harm reduction programs should prioritize areas with high overdose rates, underserved healthcare needs, and accessible infrastructure, such as proximity to public transit. Community support and safety are essential, with secure locations that minimize disruption to surrounding neighborhoods. Potential pilot locations include San Antonio, TX, which already benefits from the Corazón Harm Reduction program and Connecticut, where overdose prevention sites have been proposed (Dimmick 2022, Backus 2025). These sites target areas with significant opioid-related challenges and leverage existing community resources.

Concurrent with site selection, the development of a regulatory framework would establish necessary federal guidance, create state-level regulatory frameworks, and establish prescribing protocols. Implementing harm reduction programs, such as supervised consumption sites (SCS), in the United States necessitates addressing specific regulatory requirements and enacting legislative changes. Currently, no sanctioned SCS exists in the U.S., and efforts to establish them face legal challenges due to federal laws like the "crack house statute," which prohibits operating facilities for illicit drug use (Kennedy-Hendricks et al.). Establishing comprehensive safety measures, including staff training, facility standards, and robust reporting mechanisms, is essential to monitor program outcomes effectively. Similar to opioid treatment programs governed by Federal Regulation 42 CFR Part 8, SCS may require an accreditation and certification-based system to ensure compliance with federal standards (SAMHSA 2023). This program would also require legislative developments. To authorize SCS, Congress could amend existing federal statutes that currently prohibit the operation of such facilities. This legislative action would provide legal protections for SCS operators and participants. Several states, including Maryland, California, Colorado, Massachusetts, New York, and Vermont, have introduced bills to establish SCS (Kennedy-Hendricks et al.). These legislative efforts aim to create legal frameworks at the state level, facilitating the operation of SCS within their jurisdictions.

Infrastructure development for supervised consumption sites (SCS) involves building or modifying facilities to meet safety, accessibility, and operational standards. Facilities need designated consumption areas with sanitized booths or stations, medical support spaces for overdose management, waiting or aftercare rooms, and staff offices. Essential components include ventilation systems, sterilization equipment, and secure disposal units for used paraphernalia. Establishing reliable supply chains is crucial to ensure a consistent provision of harm reduction materials such as syringes, naloxone, and sterile equipment. Additionally, IT systems must be developed to manage program data, track outcomes, and integrate with public health reporting frameworks securely and efficiently. Costs for SCS setup and operation are estimated at $1.5–$2.5 million annually, with significant start-up expenses for construction, equipment, supply chain establishment, and IT system development (Rubin and Suran 2022). For instance, Vancouver's Insite reports operational costs of approximately $1.5 million annually while achieving substantial healthcare savings by reducing overdose deaths and disease transmission (Andresen and Boyd).

Phase 2: Initial Implementation (Months 12-24)

The second phase focuses on launching the program and establishing quality assurance mechanisms. Program launch would include beginning participant enrollment, initiating prescribing programs, and implementing monitoring systems. The goal would be to enroll 1,000 participants in the first year, scaling up to 5,000 by the end of the third year, contingent upon pilot site capacities (Substance Abuse and Mental Health Services Administration). This phase includes a six-month enrollment period for the initial cohort, followed by quarterly evaluations to refine outreach and program delivery based on participant feedback and engagement (National Harm Reduction Coalition). At the end of phase two, comprehensive tracking mechanisms would be implemented to monitor program quality and participant outcomes, ensuring data-driven adjustments and continuous improvement (“SSP Indicators Implementation Guide | Supporting Harm Reduction Programs” 2024).

Phase 3: Evaluation and Expansion (Months 24-36)

The final phase would focus on program assessment and planning for expansion. This would include analyzing initial outcomes, identifying areas for improvement, and documenting best practices. The program assessment phase would use a comprehensive evaluation framework focusing on metrics such as reductions in overdose deaths, emergency room visits, and the transmission rates of blood-borne infections (e.g., HIV, hepatitis C). Additional metrics would

include participant engagement rates in addiction treatment services, cost savings in healthcare and criminal justice systems, and improved social determinants of health for participants. Evaluation would rely on quantitative data analysis and qualitative feedback from stakeholders, guided by frameworks like the CDC's Program Performance and Evaluation Office model (CDC 2024).

Scale-up planning would involve developing an expansion strategy, identifying additional sites, and securing additional funding sources. Scaling up would involve identifying sites in regions with high overdose rates and gaps in harm reduction services, prioritizing areas with strong local partnerships and community support. Criteria would include the availability of healthcare infrastructure, the presence of marginalized populations at risk, and state-level readiness for program adoption. The expansion strategy would aim to double the number of sites every two years, contingent upon securing additional federal and state funding through mechanisms like Substance Abuse and Mental Health Services Administration (SAMHSA) grants.

5. Anticipated Challenges

Political and Public Resistance

The implementation of safe supply programs will likely face significant opposition from multiple sectors of society. General stigma around substance use disorders represent a significant barrier to implementation, including persistent myths about enabling addiction, concerns about community safety, and religious and moral objections to harm reduction approaches. Addressing these misconceptions will require a comprehensive communication strategy that emphasizes evidence-based outcomes and community benefits. Specific strategies include targeted public awareness campaigns that highlight reductions in overdose deaths, disease transmission, and healthcare costs observed in existing harm reduction programs. Messaging frameworks should focus on the humanitarian and community safety benefits of harm reduction, leveraging testimonials from healthcare professionals, participants, and community leaders. Partnering with local media, faith-based organizations, and advocacy groups can amplify positive narratives and address moral objections (Karamouzian et al. 2023).

Political hurdles present a significant challenge to implementing harm reduction programs, such as safe supply and supervised consumption sites, in the United States. These challenges stem from federal and state legislative barriers, potential jurisdictional conflicts, and opposition from law enforcement agencies. Successfully navigating these obstacles requires targeted advocacy and strategic engagement with stakeholders. Existing federal statutes, such as the Controlled Substances Act, prohibit safe supply programs and create significant legal risks for supervised consumption sites. Legislative changes at the federal level are required to resolve these conflicts. However, states vary in their openness to harm reduction strategies, with some explicitly banning services like needle exchanges or supervised consumption (Nadelmann and LaSalle 2017). Overcoming these barriers requires state-specific legislative initiatives tailored to local political climates. Additionally, concerns about enabling drug use or undermining public safety can lead to opposition from law enforcement agencies, posing a barrier to community and political support (White et al. 2023). Obstacles to i implementing safe supply programs at a federal level extend beyond legislative challenges; politics and perspectives also prove to be barriers to these programs.

Operational Hurdles

The practical implementation of safe supply programs faces several significant operational challenges that must be addressed for successful program delivery. Resource allocation represents a primary concern, encompassing issues of funding sustainability, equipment and supply procurement, and staffing requirements. Long-term program sustainability will depend on establishing reliable funding streams and efficient resource management systems. Initial and sustained program funding would require a combination of federal grants (e.g., through the Substance Abuse and Mental Health Services Administration), state contributions, and private philanthropy. For example, the Substance Abuse Prevention and Treatment Block Grant could serve as a potential funding source ("Substance Use Prevention, Treatment, and Recovery Services Block Grant"). Essential items also include secure storage facilities for controlled substances, IT infrastructure for tracking prescriptions and monitoring outcomes, and medical supplies for on-site use. A report from the Canadian Centre on Substance Use and Addiction highlights the need for electronic prescription monitoring systems to ensure compliance and safety (2025). In order to maintain daily operations, programs would require clinical staff (e.g., doctors, nurses, and addiction specialists), administrative personnel for enrollment and monitoring, and security staff to ensure safe operations. A typical program could need ten to twenty full-time staff members per site, depending

n the scale (Olding et al.). All of these aspects pose significant operational costs that must be adequately funded; sources of capital include the potential funding opportunities discussed in section III.

Access and equity considerations present another set of operational challenges. Geographic distribution of services must be carefully planned to ensure equitable access, while transportation barriers and cultural competency needs must be addressed to ensure program effectiveness for all communities. These challenges require comprehensive solutions that consider both physical and cultural access barriers. Programs are often concentrated in urban centers, leaving rural and underserved areas without access. To address this, mobile harm reduction units and telehealth services could expand reach in remote regions (Yeo et al. 2024). Accessibility can also be improved by providing transportation vouchers or locating facilities near public transit hubs can improve access, mitigating the effects of a lack of reliable transportation (Syed, Gerber, and Sharp 2013). Lastly, language barriers, stigma, and mistrust of healthcare systems can deter marginalized communities from seeking services. Solutions include hiring staff from diverse backgrounds, offering services in multiple languages, and partnering with trusted community organizations to build relationships (Bell et al. 2022). Thus, through specialized hiring practices and careful geographical considerations, safe supply programs can be made accessible to a diverse population with distinct needs.

Healthcare Infrastructure

The success of safe supply programs depends heavily on addressing several fundamental healthcare system challenges. Workforce development represents a critical concern, encompassing training requirements, addressing staffing shortages, and ensuring ongoing professional development opportunities. The specialized nature of safe supply programs requires a well-trained workforce with specific expertise in harm reduction and addiction medicine. Programs require addiction specialists, primary care providers, nurses, pharmacists, and peer support workers. For example, the Canadian Safe Supply pilot programs reported needing one to two addiction specialists and three to five nursing staff per site to operate effectively (Atif et al. 2023). Staff training must focus on harm reduction principles, prescribing controlled substances safely, and trauma-informed care. Organizations like the National Harm Reduction Coalition and SAMHSA offer training modules tailored to these needs ("Online Training Institute" 2020).

System integration presents another significant challenge, particularly regarding electronic health records, care coordination, and data sharing across providers and institutions. Successful implementation requires seamless integration with existing healthcare systems while maintaining appropriate privacy and security measures. Safe supply programs must integrate with existing EHRs to ensure continuity of care and avoid duplicative efforts. This includes customizing EHR templates for controlled substance prescribing and tracking outcomes (Assistant Secretary for Technology Policy 2025). It is also essential that these electronic operations comply with HIPAA and other privacy laws, necessitating secure data-sharing protocols between stakeholders. A centralized monitoring system, similar to Prescription Drug Monitoring Programs (PDMPs), could facilitate compliance and transparency (CDC 2024).

6. Broader Implications for U.S. Policy

Decriminalization Synergies

Safe supply programs have the potential to complement and enhance existing drug policy reforms across the United States. At the state level, these programs could work in concert with ongoing decriminalization efforts, supporting criminal justice reform initiatives while enhancing public health approaches to substance use disorders. The integration of safe supply programs with existing reform efforts could accelerate the shift toward more effective, health-centered drug policies. In 2020, Oregon decriminalized possession of small amounts of drugs and redirected funds from marijuana tax revenue to expand access to addiction treatment and harm reduction services. Initial results indicate increased funding for harm reduction programs and an uptick in individuals seeking treatment (Oregon Judicial Department Measure 110). In California, proposed bills, such as AB 186, aim to legalize safe injection sites to provide supervised drug use and connect individuals to treatment services, though they have faced legal challenges (Department of Health Care Services 2019). These proposals underscore the role of state legislation in advancing harm reduction.

The evolution of drug policy frameworks represents another important consideration. The implementation of safe supply programs could help catalyze a broader shift from criminal justice to public health approaches, while strengthening harm reduction infrastructure and reforming addiction treatment approaches. This evolution could lead to more effective and humane responses to substance use disorders.

Advocating for federal decriminalization of low-level drug possession could reduce incarceration rates and foster a public health-centered approach to drug policy. Federal funding should prioritize harm reduction initiatives, including syringe service programs, safe injection sites, and safe supply programs, diverting a portion of the funding used to maintain the prison industrial complex to these establishments (U.S. Department of Justice 2016). These services have been shown to reduce overdose deaths and transmission of infectious diseases.

Potential for National Scaling

The long-term success of safe supply programs requires a clear vision for national implementation. Framework development must address the need for national standards while maintaining state flexibility in program delivery. Quality assurance mechanisms must be established to ensure consistent service delivery across different jurisdictions and healthcare settings. This engenders development of comprehensive guidelines for safe supply programs, including eligibility criteria, monitoring protocols, and outcome evaluation metrics, to ensure consistency. Implementation of these standards could begin within 12 months of program authorization (Haines and O'Byrne 2023). States should be careful to tailor programs to local needs, such as integrating with existing harm reduction services or addressing specific community health disparities. Pilot programs could be scaled nationally within five to seven years, contingent upon successful pilot evaluations and funding (Foreman-Mackey et al. 2022).

Resource requirements for national scaling present significant challenges that must be carefully addressed. This includes establishing sustainable funding mechanisms, developing necessary infrastructure, and ensuring adequate workforce development to support program expansion. Careful planning and resource allocation are essential for successful national implementation. The resources cost an estimated $10-$15 billion annually, sourced through federal grants, Medicaid expansions, and private partnerships. Funding would cover operating costs, workforce salaries, supply procurement, and other costs needed to successfully implement these programs (Justification of Estimates for Appropriations Committees 2024). Building or retrofitting facilities would cost approximately $2 million per site, including space for clinical services, data systems, and community outreach (Institute for Clinical and Economic Review 2021). In regard to workforce development, training an estimated 20,000 healthcare workers over 5 years, costing approximately $500 million (U.S. Department of Health and Human Services 2024). Scaling these programs to a national level proves to be a costly endeavor but is achievable through the funding options discussed in section III. With robust planning, clear standards, and strategic resource allocation, safe supply programs could achieve national scale while effectively addressing diverse community needs.

Global Leadership

The implementation of safe supply programs presents an opportunity for the United States to emerge as a global leader in innovative drug policy approaches. International collaboration opportunities could facilitate knowledge sharing, best practices development, and research partnerships with other nations implementing similar programs. This collaboration could accelerate the development of effective harm reduction strategies worldwide. Engaging with nations like Canada and Switzerland, which have well-established safe supply and supervised consumption programs, to exchange ideas and develop joint research initiatives would offer insights into successful strategies and ones that should be avoided (Csete 2010). Further, hosting or participating in international harm reduction conferences, such as those organized by the International Harm Reduction Association, to share findings and influence global policy frameworks would foster a collaborative atmosphere and allow for effective international communication of standards (Harm Reduction International Conference - Harm Reduction International). These discussions could lead to collaboration on comparative research studies to assess the outcomes and scalability of harm reduction interventions in varying contexts to improve the quality of safe supply programs worldwide.

Policy innovation represents another important aspect of potential U.S. leadership in this area. By developing evidence-based approaches and establishing mechanisms for continuous improvement, the United States could create models for other nations to follow in addressing substance use disorders. This leadership role could help drive global progress in addressing substance use disorders and reducing overdose deaths. Advanced data analytics and predictive modeling prove to be valuable in optimizing resource allocation and improving program outcomes, creating replicable frameworks for other nations (Bharat et al. 2021). In addition, the United States would becompelled to establish a dedicated federal task force to advance the country's leadership in harm reduction, influencing international norms and encouraging the adoption of evidence-based strategies globally.

Doing so would advance evidence-based policies, standardize best practices, reduce stigma, and drive global progress in innovative substance use strategies.

7. Conclusion

The opioid crisis demands bold, evidence-based solutions that prioritize saving lives and improving public health outcomes. Canada's safe supply programs have demonstrated the potential of providing pharmaceutical-grade alternatives to reduce overdose deaths and create pathways to recovery. While implementing such programs in the United States would face significant challenges, the potential benefits–including reduced overdose deaths, decreased healthcare costs, and improved social outcomes–make this approach worthy of serious consideration. The evidence supporting safe supply as an effective harm reduction strategy is compelling, and the time has come for the United States to move beyond failed criminalization-based approaches. By carefully implementing and evaluating pilot programs, addressing challenges proactively, and building on existing harm reduction infrastructure, the U.S. can develop a comprehensive safe supply framework that saves lives and transforms our approach to substance use disorders. The stakes could not be higher. Every day of delay means more lives lost to preventable overdoses. Policymakers, public health officials, and communities must work together to implement evidence-based solutions that prioritize harm reduction and public health over punishment and stigma. Safe supply programs represent a promising path forward in addressing one of our nation's most pressing public health crises.

REFERENCES

Andresen, Martin, and Neil Boyd. A Cost -Benefit and Cost -Effectiveness Analysis of Vancouver's Supervised Injection Facility a Cost -Benefit and Cost -Effectiveness Analysis of Vancouver's Supervised Injection Facility. open.library.ubc.ca/media/stream/pdf/52387/1.0314913/5.

Assistant Secretary for Technology Policy . "Improved Patient Care Using EHRs | HealthIT.gov." Healthit.gov, 2025, www.healthit.gov/topic/health-it-and-health-information-exchange-basics/improved-patient-care-using-ehrs. Accessed 22 Feb. 2025.

Atif, S., Edalati, H., Bate, E., & Salazar, N. (2023). In-patient treatment for substance use in Canada. Ottawa, Ont.: Canadian Centre on Substance Use and Addiction.

Backus, Lisa. "CT Committee Proposes Pilot Program for Overdose Prevention Sites." CT Insider, 21 Feb. 2025, www.ctinsider.com/news/article/ct-overdose-prevention-sites-proposed-law-20179681.php?utm_source=chatgpt.com. Accessed 22 Feb. 2025.

Bowers, Josh, and Daniel Abrahamson. "Kicking the Habit: The Opioid Crisis, America's Addiction to Punitive Prohibition, and the Promise of Free Heroin." Ohio State Law Journal, vol. 80, no. 4, 2019, pp. 787-824. HeinOnline.

---. "Waterbury 'Partnerships' Are Helping City Fight Crime, Chief Says." CT Insider, 18 Feb. 2025, www.ctinsider.com/waterbury/article/waterbury-crime-stats-2024-project-longevity-20148839.php. Accessed 21 Feb. 2025.

Bartholomew, Tyler S., et al. "Reduction in Injection Risk Behaviors after Implementation of a Syringe Services Program, Miami, Florida." Journal of Substance Abuse Treatment, vol. 127, Aug. 2021, p. 108344, https://doi.org/10.1016/j.jsat.2021.108344.

Bell, Jasmine, et al. "Using a Multicultural and Multilingual Awareness-Raising Strategy to Enhance Enrollment of Racially Underrepresented Minoritized Communities – the PassITON Trial." Journal of Clinical and Translational Science, vol. 7, no. 1, Cambridge University Press, Dec. 2022, https://doi.org/10.1017/cts.2022.506. Accessed 22 Feb. 2025.

Bharat, Chrianna, et al. "Big Data and Predictive Modelling for the Opioid Crisis: Existing Research and Future Potential." The Lancet Digital Health, vol. 3, no. 6, Elsevier BV, May 2021, pp. e397–407, https://doi.org/10.1016/s2589-7500(21)00058-3. Accessed 23 Feb. 2025.

Broadhead, Robert S., et al. "Safer Injection Sites in New York City: A Utilization Survey of Injection Drug Users." Journal of Drug Issues, vol. 33, no. 3, SAGE Publications, July 2003, pp. 733–50, https://doi.org/10.1177/002204260303300311. Accessed 21 Feb. 2025.

Canadian Centre on Substance Use and Addiction. “Statement: Public Health and Safety Key to Addressing Fentanyl Crisis | Canadian Centre on Substance Use and Addiction.” Ccsa.ca, 2025, www.ccsa.ca/statement-public-health-and-safety-key-addressing-fentanyl-crisis. Accessed 22 Feb. 2025.

CDC. “CDC Program Evaluation Framework.” CDC Approach to Program Evaluation, 20 Dec. 2024, www.cdc.gov/evaluation/php/evaluation-framework/index.html. Accessed 22 Feb. 2025.

---. “Naloxone Dispensing Rate Maps.” Overdose Prevention, 7 Nov. 2024, www.cdc.gov/overdose-prevention/data-research/facts-stats/naloxone-dispensing-rate-maps.html?utm_source=chatgpt.com. Accessed 22 Feb. 2025.

---. “Prescription Drug Monitoring Programs (PDMPs).” Overdose Prevention, 21 May 2024, www.cdc.gov/overdose-prevention/php/interventions/prescription-drug-monitoring-programs.html. Accessed 22 Feb. 2025.

Csete, Joanne. From the Mountaintops: What the World Can Learn from Drug Policy Change in Switzerland. Open Society Foundations, 2010.

DEA. What Is Fentanyl? DEA, Apr. 2020, www.dea.gov/sites/default/files/2020-06/Fentanyl-2020_0.pdf.

Department of Health and Human Services. Department of Health and Human Services Substance Abuse and Mental Health Services Administration FY 2022 Harm Reduction Program Grant (Short Title: Harm Reduction) Notice of Funding Opportunity (NOFO) No. SP-22-001. www.samhsa.gov/sites/default/files/grants/pdf/fy22-harm-reduction-nofo.pdf?utm_source=chatgpt.com. Accessed 22 Feb. 2025.

Department of Health and Human Services Substance Abuse and Mental Health Services Administration FY 2022 Harm Reduction Program Grant (Short Title: Harm Reduction) Notice of Funding Opportunity (NOFO) No. SP-22-001. www.samhsa.gov/sites/default/files/grants/pdf/fy22-harm-reduction-nofo.pdf?utm_source=chatgpt.com. Accessed 22 Feb. 2025.

Department of Health Care Services. “Nursing Facility Financing Reform AB 186.” Ca.gov, 2019, www.dhcs.ca.gov/services/medical/Pages/Nursing-Facility-Financing-Reform-AB-186.aspx. Accessed 22 Feb. 2025.

Dimmick, Iris. “Needle Exchange Programs Are Rare in Texas. A San Antonio Group Is Proving They Can Work.” *San Antonio Report*, 23 Jan. 2022, sanantonioreport.org/needle-exchange-program-harm-reduction-san-antonio/?utm_source=chatgpt.com. Accessed 22 Feb. 2025.

Drug Policy Alliance. “Ending Drug War Civil Punishment.” Drug Policy Alliance, 27 June 2024, drugpolicy.org/issue/ending-civil-punishment/. Accessed 22 Feb. 2025.

Federal Bureau of Prisons. “BOP Statistics: Inmate Offenses.” Bop.gov, 2025, www.bop.gov/about/statistics/statistics_inmate_offenses.jsp. Accessed 21 Feb. 2025.

“Focus on Opioids - Connect2Health FCC.” Fcc.gov, 2017, www.fcc.gov/reports-research/maps/connect2health/focus-on-opioids.html#:~:text=The%20number%20of%20annual%20opioid,opioids%20other%20than%20methadone%3B%20and. Accessed 21 Feb. 2025.

Foreman-Mackey, Annie, et al. “Moving towards a Continuum of Safer Supply Options for People Who Use Drugs: A Qualitative Study Exploring National Perspectives on Safer Supply among Professional Stakeholders in Canada.” Substance Abuse Treatment Prevention and Policy, vol. 17, no. 1, BioMed Central, Oct. 2022, https://doi.org/10.1186/s13011-022-00494-y. Accessed 22 Feb. 2025.

Government of Canada. “Safer Supply: Prescribed Medications as a Safer Alternative to Toxic Illegal Drugs - Canada.ca.” Canada.ca, 2020, www.canada.ca/en/health-canada/services/opioids/responding-canada-opioid-crisis/safer-supply.html. Accessed 21 Feb. 2025.

Haines, Marlene, and Patrick O’Byrne. “Safer Opioid Supply: Qualitative Program Evaluation.” Harm Reduction Journal, vol. 20, no. 1, BioMed Central, Apr. 2023, https://doi.org/10.1186/s12954-023-00776-z. Accessed 22 Feb. 2025.

"Harm Reduction International Conference - Harm Reduction International." Harm Reduction International, 20 Aug. 2024, hri.global/conferences/harm-reduction-international/. Accessed 22 Feb. 2025.

Illinois Harm Reduction & Recovery Coalition. "Overdose Prevention Sites | Illinois Harm Reduction and Recovery Coalition." IHRRC, 2022, www.illinoisharmreduction.org/ops-toolkit?utm_source=chatgpt.com. Accessed 21 Feb. 2025.

Institute for Clinical and Economic Review. Supervised Injection Facilities and Other Supervised Consumption Sites: Effectiveness and Value Final Report. 2021, icer.org/wp-content/uploads/2020/10/ICER_SIF_Final-Evidence-Report_010821.pdf. Accessed 21 Feb. 2025.

Justification of Estimates for Appropriations Committees. 2024, www.samhsa.gov/sites/default/files/samhsa-fy-2024-cj.pdf.

Karamouzian, Mohammad, et al. "Challenges of Implementing Safer Supply Programs in Canada during the COVID-19 Pandemic: A Qualitative Analysis." International Journal of Drug Policy, vol. 120, Elsevier BV, Oct. 2023, pp. 104157–57, https://doi.org/10.1016/j.drugpo.2023.104157.

Kennedy-Hendricks, Alene, et al. "Safe Consumption Sites: Study Identifies Policy Change Strategies and Challenges | Johns Hopkins Bloomberg School of Public Health." Johns Hopkins Bloomberg School of Public Health, 13 Feb. 2019, publichealth.jhu.edu/2019/safe-consumption-sites-study-identifies-policy-change-strategies-and-challenges?utm_source=chatgpt.com. Accessed 22 Feb. 2025.

Kuehn, Bridget M. "Massive Costs of the US Opioid Epidemic in Lives and Dollars." JAMA, vol. 325, no. 20, American Medical Association (AMA), May 2021, p. 2040, https://doi.org/10.1001/jama.2021.7464. Accessed 21 Feb. 2025.

Ledlie, Shaleesa, et al. "Prescribed Safer Opioid Supply: A Scoping Review of the Evidence." International Journal of Drug Policy, vol. 125, Elsevier BV, Mar. 2024, pp. 104339–39, https://doi.org/10.1016/j.drugpo.2024.104339.

Marshall, Brandon DL, et al. "Reduction in Overdose Mortality after the Opening of North America's First Medically Supervised Safer Injecting Facility: A Retrospective Population-Based Study." The Lancet, vol. 377, no. 9775, Apr. 2011, pp. 1429–37, https://doi.org/10.1016/s0140-6736(10)62353-7. Accessed 28 Feb. 2019.

Mital, Sasha, et al. "The Relationship between Incarceration History and Overdose in North America: A Scoping Review of the Evidence." Drug and Alcohol Dependence, vol. 213, Elsevier BV, May 2020, pp. 108088–88, https://doi.org/10.1016/j.drugalcdep.2020.108088. Accessed 21 Feb. 2025.

Nadelmann, Ethan, and Lindsay LaSalle. "Two Steps Forward, One Step Back: Current Harm Reduction Policy and Politics in the United States." Harm Reduction Journal, vol. 14, no. 1, BioMed Central, June 2017, https://doi.org/10.1186/s12954-017-0157-y. Accessed 22 Feb. 2025.

NASTAD. "Federal Funding for Harm Reduction in the American Rescue Plan Act: Recommendations for Federal, State, and Local Agencies and Partners." NASTAD, 10 May 2021, nastad.org/resources/federal-funding-harm-reduction-american-rescue-plan-act-recommendations-federal-state-and?utm_source=chatgpt.com. Accessed 22 Feb. 2025.

National Harm Reduction Coalition. "Module 2: Operational Issues - National Harm Reduction Coalition." National Harm Reduction Coalition, 5 Oct. 2020, harmreduction.org/issues/syringe-access/guide-to-managing-programs/module-2-operational-issues/?utm_source=chatgpt.com. Accessed 22 Feb. 2025.

National Institute on Drug Abuse. "Drug Overdose Deaths: Facts and Figures | National Institute on Drug Abuse." National Institute on Drug Abuse, 21 Aug. 2024, nida.nih.gov/research-topics/trends-statistics/overdose-death-rates#Fig2. Accessed 21 Feb. 2025.

Nguyen, Hai V., et al. "British Columbia's Safer Opioid Supply Policy and Opioid Outcomes." JAMA Internal Medicine, vol. 184, no. 3, American Medical Association, Jan. 2024, pp. 256–56, https://doi.org/10.1001/jamainternmed.2023.7570. Accessed 21 Feb. 2025.

Office of the High Commissioner for Human Rights. "End Overreliance on Punitive Measures to Address Drugs Problem – UN Report." OHCHR, 2023, www.ohchr.org/en/press-releases/2023/09/end-overreliance-punitive-measures-address-drugs-problem-un-report?utm_source=chatgpt.com. Accessed 21 Feb. 2025.

Olding, Michelle, et al. "'And We Just Have to Keep Going': Task Shifting and the Production of Burnout among Overdose Response Workers with Lived Experience." Social Science & Medicine, vol. 270, Elsevier BV, Feb. 2021, p. 113631, https://doi.org/10.1016/j.socscimed.2020.113631. Accessed 22 Feb. 2025.

"Online Training Institute." National Harm Reduction Coalition, 5 Aug. 2020, harmreduction.org/our-work/training-capacity-building/online-training-institute/. Accessed 22 Feb. 2025.

Oregon Judicial Department Measure 110.www.courts.oregon.gov/about/Documents/BM110Statistics.pdf.

Pardo, Bryce, and David Luckey. "A Greater Focus on Harm Reduction Will Save Lives." Rand.org, Health Affairs Blog, 29 Apr. 2022, www.rand.org/pubs/commentary/2022/04/a-greater-focus-on-harm-reduction-will-save-lives.html. Accessed 22 Feb. 2025.

Recovery Research Institute . "The Societal Burden of the Opioid Crisis Estimated at $1 Trillion in 2017." Recovery Research Institute, 26 Feb. 2021, www.recoveryanswers.org/research-post/societal-burden-opioid-crisis-estimated-1-trillion-2017/?utm_source=chatgpt.com. Accessed 21 Feb. 2025.

Rubin, Rita, and Melissa Suran. "Supervised Consumption Sites—a Tool for Reducing Risk of Overdose Deaths and Infectious Diseases in People Who Use Illicit Drugs." JAMA, vol. 327, no. 16, American Medical Association (AMA), Apr. 2022, p. 1532, https://doi.org/10.1001/jama.2022.4017. Accessed 22 Feb. 2025.

SAMHSA. "Laws, Regulations, and Policies." Samhsa.gov, 2023, www.samhsa.gov/about/laws-regulations-policies?utm_source=chatgpt.com. Accessed 22 Feb. 2025.

Schmidt, Rose A., et al. "Safer Opioid Supply Programs: Hydromorphone Prescribing in Ontario as a Harm Reduction Intervention to Combat the Drug Poisoning Crisis." Canadian Journal of Public Health = Revue Canadienne de Sante Publique, Oct. 2024, pp. 10.17269/s41997-02400979-2, https://doi.org/10.17269/s41997-024-00979-2.

"SSP Indicators Implementation Guide | Supporting Harm Reduction Programs." Uw.edu, 2024, www.sharpta.uw.edu/syringe-services-program-monitoring-and-evaluation-resources/ssp-indicators-implementation-guide/?utm_source=chatgpt.com. Accessed 22 Feb. 2025.

Substance Abuse and Mental Health Services Administration. *Harm Reduction Grant Program Harm Reduction Annual Targets and Quarterly Progress Report Substance Abuse and Mental Health Services Administration Center for Substance Abuse Prevention*. 2025, spars.samhsa.gov/sites/default/files/2023-01/Harm-Reduction-Annual-Targets.pdf?utm_source=chatgpt.com. Accessed 22 Feb. 2025.

Substance Use Prevention, Treatment, and Recovery Services Block Grant." Samhsa.gov, 2023, www.samhsa.gov/grants/block-grants/subg. Accessed 22 Feb. 2025.

"Syed, Samina T., et al. "Traveling towards Disease: Transportation Barriers to Health Care Access." Journal of Community Health, vol. 38, no. 5, Springer Science+Business Media, Mar. 2013, pp. 976–93, https://doi.org/10.1007/s10900-013-9681-1. Accessed 22 Feb. 2025.

U.S. Department of Health and Human Services. FISCAL YEAR 2024 BUDGET in BRIEF. 2024, www.hhs.gov/sites/default/files/fy-2024-budget-in-brief.pdf.

U.S. Department of Justice. "Prison Reform: Reducing Recidivism by Strengthening the Federal Bureau of Prisons." Justice.gov, 29 Nov. 2016, www.justice.gov/archives/prison-reform. Accessed 22 Feb. 2025.

Vancouver Coastal Health. "Healthy Lives in Healthy Communities | Vancouver Coastal Health." Www.vch.ca, 2024, www.vch.ca/en. Accessed 22 Feb. 2025.

Vancouver Coastal Health . "Healthy Lives in Healthy Communities | Vancouver Coastal Health." Www.vch.ca, 2024, www.vch.ca/en. Accessed 22 Feb. 2025.

White, Sarah A., et al. "Perspectives of U.S. Harm Reduction Advocates on Persuasive Message Strategies." Harm Reduction Journal, vol. 20, no. 1, BioMed Central, Aug. 2023, https://doi.org/10.1186/s12954-023-00849-z. Accessed 22 Feb. 2025.

Yeo, Ellis J., et al. "Evaluating Mobile Harm Reduction Services for Youth and Young Adults." Frontiers in Public Health, vol. 12, Frontiers Media, May 2024, https://doi.org/10.3389/fpubh.2024.1375323. Accessed 22 Feb. 2025.

Crash Diet:
A Policy Framework for Reducing American Automotive Bloat

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Abstract

American cars have a weight problem. Cars in the United States are bigger and heavier than their peers in the developed world. Compared to their lighter counterparts, heavier cars are more dangerous to pedestrians, cause more fatal crashes, burn more fuel, produce more tire wear, cost more to buy, and reduce the efficiency of electric vehicles. The drivers of these cars largely do not bear the full costs of these negative externalities. Many policies, including emissions regulations, crash safety standards, and tax structures indirectly subsidize large vehicles. This paper proposes a policy framework to correct these distortions in three areas. Index gas taxes to inflation to ensure fuel prices reflect environmental costs. Impose weight-based vehicle registration fees that internalize the safety and environmental risks of heavier cars. Reform emissions and safety regulations that currently favor large vehicles over smaller, more efficient ones.

I. Introduction

American cars have a weight problem. The average new car sold in the U.S. weighs nearly 20% more than the average new car sold in Europe ("Why American cars are so big"). In 2023, a whopping 31% of new vehicles sold weighed more than 5,000lb, up from 22% in 2018. ("Americans' love affair with big cars is killing them"). As of 2022, more than 80% of the new cars sold in the U.S. are trucks or SUVs, a sharp increase from 55% in 2014 (Shilling). Not only are SUVs and trucks being purchased more frequently, but their average weight has also increased by 12% since 1990 (Shaffer et al.). Trucks and SUVs have never been heavier, or more popular. This shift toward larger vehicles is not just a consumer preference; it is a policy choice.

A series of critical federal regulations since the 1970s have incentivized automakers to manufacture ever larger vehicles and fuel consumer demand for them. David Zipper, Senior Fellow at the MIT Mobility Initiative, has dubbed this phenomenon 'car bloat,' and it has caused a cascade of negative consequences. (Zipper, "Why are cars in the US so big?").

Compared to their lighter counterparts, heavier cars are more dangerous to pedestrians, cause more fatal crashes, burn more fuel, produce more tire wear, cost more to buy, and reduce the efficiency of electric vehicles. The drivers of these cars largely do not bear the full costs of these negative externalities. Many policies, including emissions regulations, crash safety standards, and tax structures indirectly subsidize large vehicles. To correct these distortions, federal and state governments should make policy changes in three areas. Index gas taxes to inflation to ensure fuel prices reflect environmental costs. Impose weight-based vehicle registration fees that internalize the safety and environmental risks of heavier cars. Reform emissions and safety regulations that currently favor large vehicles over smaller, more efficient ones.

II. Consequences of Car Bloat

Car bloat is a serious environmental and public safety issue. The consequences of extra weight can manifest in a variety of ways. One of the most intuitive is pedestrian safety. Vehicles with a hood height greater than 40 inches are about 45% more likely to cause fatalities in pedestrian crashes than cars with a hood height of 30 inches or less and a sloping profile (IIHS). For this reason, if all light trucks were replaced with passenger cars between 2000 and 2019, over 8,000 pedestrian deaths could have been averted—more than one preventable death every day for two decades (Tyndall).

While larger vehicles offer marginally more protection to their occupants, this safety comes at the expense of everyone else on the road. For every life the heaviest 1% of SUVs or trucks save, more than a dozen lives are lost in smaller vehicles ("Americans' love affair with big cars is killing them"). Data from 7.5 million crashes across 14 states between 2013 and 2023, shows that in every 10,000 collisions, the heaviest vehicles caused 37 deaths in the other vehicle, compared to 5.7 for median-weight cars and just 2.6 for the lightest. ("Americans' love affair with big cars is killing them"). The physics are simple: more mass means more force, resulting in longer braking distances and deadlier collisions.

Excess weight also drags down fuel efficiency. The 2024 EPA Automotive Trends Report shows that sedans and wagons –just 21% of new car sales– averaged 34 mpg. In contrast, SUVs and pickups comprised 77% of new cars sold and averaged 21 mpg ("The EPA Automotive Trends Report "). In a nation that drives nearly 3.2 trillion miles annually, shifting preferences back toward lighter vehicles would save billions of gallons of gasoline and significantly reduce carbon emissions (U.S. Department of Energy). Car bloat directly undermines climate goals.

The environmental damage doesn't stop at tailpipes. Heavier vehicles put more stress on roads and wear down tires faster. Tire wear releases microplastics—tiny, toxic particles that settle on land and wash into waterways. All vehicles shed these particles, but heavier ones shed more (Zipper, "How Cars Turned into Giant Killers"). Tire wear is responsible for an estimated 28% of all microplastics in the ocean, second only to synthetic textiles (IUCN, 21). Marine microplastics accumulate as they move through the food chain, threatening fragile ecosystems and even human health (Lee).

Increased weight also accelerates road wear. Roadway erosion grows at the fourth power of vehicle weight per axle, so the added weight of pickups and SUVs is highly consequential (Uz, Volkan, et al., 961). The damage isn't just from personal vehicles but also from auto haulers that transport them. As infrastructure deteriorates, taxpayers foot the bill through higher maintenance costs.

Road wear isn't the only place where there are extra costs for massive vehicles. There are financial costs for consumers, too. Despite modest differences in manufacturing costs, large SUVs and trucks are far more expensive to buy. The result is profit margins 10–20% higher than those of smaller vehicles, encouraging automakers to prioritize larger models. ("The rise of the SUVs."). Today, the average new car sold in the U.S. is over $47,000, largely because

automakers have often abandoned affordable models in favor of high-margin SUVs and pickups, particularly those laden with luxury features (Krisher, 2024). For example, Ford no longer sells any sedan or hatchback models in the U.S. (Atiyeh, 2018). Owning a car is a necessity in most of the country, and the shift towards large SUVs and pickups has reduced the number of options for budget-conscious consumers.

Car bloat also threatens the environmental promise of electric vehicles (EVs). While EVs don't emit carbon directly, their batteries are heavy and require immense energy to produce. These batteries have a lower energy density than gasoline (Melito). As a result, for EVs to achieve a comparable range to internal combustion vehicles, they tend to be much heavier. Consider the most popular vehicle in the US, the Ford F-150. The traditional gas-powered pickup weighs 4,465 lbs (Ford). The electric F-150 Lightning weighs 6,015 lbs – 33% more than its gas-powered sibling (Ford). If car buying habits remain the same in the U.S. as we transition to EVs over the next decade, the average weight of cars will balloon, even if their dimensions remain the same.

Heavier EVs are also less efficient. The EPA rates the Ford F-150 Lightning at 77 MPGe, while the significantly lighter (by nearly 2,500 lbs) Tesla Model 3 Standard Range gets 132 MPGe (EPA). The Lightning requires a 131 kWh battery to travel 320 miles, while the Tesla covers 363 miles using just a 57.5 kWh battery (Ford; EVbox; Tesla). While neither of these vehicles has tailpipe emissions, the Tesla is almost twice as energy efficient as the much heavier Ford. Because around 60% of U.S. electricity comes from fossil fuels, even EVs can deliver environmental benefits by being more energy efficient. (U.S. Energy Information Administration).

Additionally, EVs demand significantly more energy to manufacture. The intensive battery manufacturing process, including refining minerals such as lithium, cobalt, and nickel, means building a new EV can produce around 80% more emissions than a comparable gas-powered car (Moseman & Paltsev). Electric cars are still cleaner in the long term, though. In the US, on average, a Tesla Model 3 hits the emissions 'breakeven point' at around 13,500 miles, or about a year of driving (Leinert, 2021). However, the larger an EV's battery is, the longer it takes to reach this breakeven point. A Ford F-150 Lightning has a battery that is more than twice the size of a Model 3, so while the Tesla could become an emissions net positive within a year, the Ford will take more than twice as long. Extrapolate this gulf across the entire car-buying public, and the environmental cost of car bloat, even for EVs, becomes clear.

III. Current Policy

The U.S.'s current infatuation with SUVs can be traced back to the 1970s oil crisis. In response to the OPEC embargo, the federal government created the Corporate Average Fuel Economy (CAFE) standards to improve vehicle fuel efficiency. These standards require automakers to meet a minimum average miles-per-gallon (mpg) target across the vehicles they sell. But these regulations came with a truck-sized loophole. The American Motors Corporation (AMC), now defunct, lobbied the federal government to apply different standards to a category called "light trucks." At the time, most light trucks were pickups used for commercial and agricultural purposes, making up less than a quarter of new cars sold (Zipper, "Why are cars in the US so big?"). High gas prices in the 1970s also made driving a large SUV as a family car impractical. However, in the 1980s, gas prices came down, and automakers now had a powerful new incentive to sell more trucks and SUVs in the "light truck" category and fewer sedans and wagons.

In the 2000s, the CAFE incentive structure worsened. Presidents Bush and Obama loosened CAFE rules by tying efficiency standards to a car's footprint or the area between its four wheels (PEW; Green Car Congress). Predictably, automakers respond by making bigger vehicles. Between 2008 and 2023, the average vehicle footprint grew 6%, reaching a historic high (EPA). Today, the carbon emission limit for light trucks is 71% higher than that for standard passenger cars ("Why American cars are so big"). When the light truck exemption was created, it was justified as a way to help American business owners and tradespeople contribute to economic growth. Instead, it has fueled the proliferation of 6,000-lb SUVs that never haul anything heavier than a bag of groceries. If the federal government was unwitting, automakers certainly were not. "We made damn sure [Jeeps] were classified as trucks, and we lobbied like hell," Gerald Meyers, AMC's former chairman, said in an interview (Zipper, "Why are cars in the US so big?"). The Jeep Grand Wagoneer—classified as a truck thanks to AMC's lobbying—became the blueprint for the modern luxury SUV. (Printz).

Tax laws also arbitrarily favor heavy vehicles. The 1978 Gas Guzzler Tax, assessed on new cars that do not meet required fuel economy levels, was designed to discourage inefficient vehicles. But it only applies to passenger cars, not SUVs, trucks, or minivans. At the time, those vehicles

weren't widely used as daily transportation by the general public, but today, they make up the vast majority of new sales (EPA). As a result, the tax punishes the segment least responsible for poor fuel economy while letting the worst offenders off the hook.

In 1984, Congress eliminated a tax deduction for most work vehicles—but left a key carveout for "heavy" vehicles. Section 179 of the tax code allows businesses to deduct up to $30,500 for vehicles weighing over 6,000 pounds when fully loaded (Dupic). Originally intended to support farmers and construction workers, this provision—often dubbed the "Hummer Loophole" or "G-Wagon Write-Off"—now subsidizes luxury SUVs that happen to be heavy enough to qualify. It is just as ridiculous as it sounds. 6,000-lb vehicles may have been rare in 1984, but they are not today. Businesses can now receive bigger tax breaks for buying massive vehicles.

The federal gas tax, which funds road maintenance through the Highway Trust Fund (HTF), also subtly favors bloated vehicles. The federal gas tax rate is $0.184 per gallon, which has remained frozen since 1993 (FHWA). The revenue generated by the gas tax is a key source of funding for HTF road maintenance and mass transit projects (Tax Policy Center). The HTF faces serious shortfalls, and due to inflation, the gas tax is less than half as valuable as it was in 1993 (Schrode, 2023). According to the Tax Foundation, the U.S. has the lowest gas tax rate among wealthy nations, less than a quarter of the average (Watson). Our unusually low gasoline tax makes it cheaper to drive an inefficient vehicle, and these savings come at the expense of the HTF's ability to maintain transportation infrastructure and expand transit options for those who cannot or do not drive.

One of the strangest yet most consequential ways federal policy favors large trucks is through the 'Chicken Tax.' "In the early 1960s, Europe imposed a 50 percent tariff on chicken exported from the United States. In retaliation, the U.S. enacted a 25 percent tax on pickup trucks imported from abroad. The dispute is long forgotten, but the "Chicken Tax" lives on" (Zipper, "Why are cars in the US so big?"). The tariff was originally aimed at Germany but also applies to automakers outside of Europe, including Japan and South Korea, nations known for their smaller cars. The result of the 'Chicken Tax' is that American truck manufacturers have largely been shielded from competition from foreign automakers, whose smaller, cheaper trucks would rival American offerings. Medium-sized pickups like the Toyota Hilux, Volkswagen Amarok, Mercedes-Benz X-Class, and more are not sold in the U.S. because the 25% tariff would make them uncompetitive. John Krafcik, who previously led Hyundai, has called the Chicken Tax "one of the most important determinants of how the [auto] industry looks today and how it operates today in the US" (Glinton).

The NHTSA conducts crash tests and releases safety ratings for cars sold in the US. These safety ratings feature prominently in advertisements and are a high priority for many buyers. There is just one problem: the NHTSA does not consider other cars, pedestrians, or cyclists when assigning a safety rating (Zipper, "Why are cars in the US so big?"). By this logic, the safest car to drive is a tank. Automakers have been engaging in exactly this kind of size arms race. The fact that American cars are so much bigger and heavier than those in our peer nations is partly because our federal government has decided to reward massive vehicles for making their occupants safer at the expense of everyone else.

No single policy created the dominance of today's oversized pickups and SUVs. But together, they form a regulatory environment that heavily incentivizes both automakers and consumers to favor large, heavy vehicles. These laws distort the market, harm the environment, endanger road users, and impose hidden costs on society. Auto bloat is not simply the result of consumer preference—it's the consequence of deliberate policy choices. And with targeted reforms, it can be reduced.

IV. Proposed Reforms

To address car bloat, the first step is to reform the federal regulations that created distorted incentives to buy massive vehicles. In June 2024, the National Highway Traffic Safety Administration finalized new CAFE standards that would have been a step in the right direction. It included raising the average fleet fuel economy standard from 37 mpg to 50 mpg, narrowing the definition of 'light truck,' and reducing the gap in emission limits between passenger cars and light trucks by more than a third (NHTSA). However, in January 2025, a memorandum from President Trump's transportation secretary, Sean Duffy, announced the end of this rule (U.S. Department of Transportation). This is a lost opportunity to improve fuel efficiency and disincentivize heavy cars.

The National Highway Traffic Safety Administration (NHTSA) should also revise its crash safety standards to account for the increased risk that large vehicles pose to other drivers and pedestrians. In 2024, 20% of all vehicles with 5-star crash safety ratings from the NHTSA weighed more than 5,000 lbs (NHTSA). The fact that such massive vehicles can receive the

highest safety rating while posing an outsized risk to all other drivers on the road highlights the need for reform.

Congress should also correct distortions in tax structures that favor large vehicles. Expanding the tax deduction for small business owners to apply to all work vehicles, not just those weighing more than 6,000 lbs, would close the 'Hummer loophole.' The 'gas guzzler' tax should apply to all vehicles, not just passenger cars. The original rationale for this exemption, that trucks and SUVs are not widely used for non-commercial purposes, is laughably untrue today.

Beyond unwinding existing policies that tilt the car market in favor of bloated vehicles, new policy tools should also be introduced. Car bloat is a classic example of an externalized cost, when the negative consequences of a product are not captured in its price (Helbling). Heavier cars produce more carbon emissions, are more dangerous to other drivers, and wear out infrastructure faster than lighter cars. These extra costs are distributed across all drivers. To correct this discrepancy, gasoline should be taxed at a higher rate. The federal gas tax is currently $0.184 per gallon, where it has been frozen 1993 (U.S. Federal Highway Administration). If the federal gas tax were indexed to inflation, it would be $0.40 today (Federal Reserve Bank of Minneapolis). The erosion of buying power has damaged the Highway Trust Fund's ability to fund the construction of essential infrastructure. Combined with the average state gas tax of $0.34 per gallon, Americans pay a minimal gas tax compared to the $2.12 per gallon average of nations with advanced economies (Wilson).

A 2011 study by the National Bureau of Economic Research (NBER) attempted to quantify the gas tax rate that would internalize the increased fatality risk posed by driving a heavier car. It found that a 1,000-pound increase in striking vehicle weight increases the probability of a fatality in the struck vehicle by 47%, and that this higher probability of causing a fatality translates into external costs (relative to a small baseline vehicle), of $130 billion (in 2024 dollars) annually (NBER; Federal Reserve Bank of Minneapolis). Divide this figure by the roughly 138 billion gallons of gas consumed in the US in 2024, and the optimal gas tax rate for internalizing fatality risk comes out to roughly $0.94 per gallon (U.S. Energy Information Administration). This calculation doesn't include other externalities such as pedestrian and cyclist fatalities, carbon emissions, or infrastructure wear. Still, a total gas tax rate target between state and federal governments of about $1 per gallon is a useful figure for describing just how underpriced gasoline is in the US.

A higher gas tax, particularly one indexed to a measure of inflation, is ideal for combating car bloat for several reasons. Gasoline consumption is highly correlated with miles driven and vehicle weight (NBER). Driving a smaller car and driving less is good for reducing carbon emissions and crash fatalities; a higher gas tax incentivizes this. Gas tax revenue would also cover current shortfalls in state and federal road maintenance budgets and subsidize the creation of a more robust EV charging infrastructure (Ryckman).

Further, there is potential for reform in vehicle registration fees. 39 states require a special registration fee for EVs. Of those, 32 states also assess a registration fee for hybrid electric vehicles. These fees are typically in addition to traditional registration fees and range from a low of $50 in Colorado to a high of $290 in New Jersey (Shinkel et al.). These EV and hybrid fees are spurred by falling gas tax revenue, but they are a mistake. Instead, states should combine a higher gas tax rate with a vehicle registration fee schedule based on weight. 14 states already have some version of this weight-based registration fee, and more should follow suit. (World Population Review). This approach is preferable because it penalizes consumer choices that are harmful to infrastructure and other drivers (driving a heavy car) instead of penalizing consumer choices that are better for the environment (driving an EV). Additionally, as mentioned earlier, EVs typically weigh more than ICE vehicles, so many would still pay the higher weight-based registration fees.

These policy recommendations could be a tough sell. Americans are uniquely sensitive to gas prices, especially when they are rising (Desilver). Gas prices are posted on illuminated signs, and Americans buy an average of 570 gallons annually, typically in separate trips from groceries and other necessities. In an ideal world, Congress would increase the gas tax to compensate for the lost value since it was frozen in 1993. However, to hedge against blowback, Congress could adopt a more incremental approach by tying the current federal gas tax rate of $0.184 to the consumer price index and letting the gas increase by roughly 3% annually alongside inflation. Additionally, nine states and DC already use inflation in their gas tax calculations (Tax Policy Center). Other states and the federal government should follow their lead.

V. Conclusion

Large pickups and SUVs are quintessentially American, and it is unreasonable to expect that tweaking a few regulatory policies will eliminate demand. There are plenty of legitimate reasons why an SUV or pickup would

be the best choice for a consumer. However, these consumer choices are not made in a vacuum. The current regulatory and tax environment obscures and subsidizes the costs imposed on society by choosing to drive a heavy vehicle.

The runaway growth in size and weight of American vehicles is dangerous and unsustainable. Federal and state governments should make policy changes to correct this problem. To internalize the costs of owning a bloated vehicle, they should index gas taxes to inflation, impose weight-based vehicle registration fees, and reform emissions and safety regulations. Without policy changes, America's killer cars will continue to reign.

REFERENCES

"Americans' love affair with big cars is killing them." The Economist, 31 August 2024, https://www.economist.com/interactive/united-states/2024/08/31/americans-love-affair-with-big-cars-is-killing-them. Accessed 14 March 2025.

Anderson, Michael, and Maximillian Auffhammer. "Pounds That Kill: The External Costs of Vehicle Weight." National Bureau of Economic Research, https://www.nber.org/papers/w17170.

Atiyeh, Clifford. "Abandon Car! Ford Dropping All Passenger-Car Models Except Mustang." Car and Driver, 25 April 208, https://www.caranddriver.com/news/a20067725/abandon-car-ford-dropping-all-passenger-car-models-except-mustang/. Accessed 17 February 2025.

Boucher, Julien, and Damien Froit. "Primary microplastics in the oceans." IUCN, 2017, https://iucn.org/resources/publication/primary-microplastics-oceans. Accessed 14 March 2025.

"Car Registration Fees By State 2025." World Population Review, https://worldpopulationreview.com/state-rankings/car-registration-fees-by-state#title. Accessed 14 3 2025.

Desilver, Drew. "Gasoline costs more these days, but price spikes have a long history and happen for a host of reasons." Pew Research Center, 9 December 2021, https://www.pewresearch.org/short-reads/2021/12/09/gasoline-costs-more-these-days-but-price-spikes-have-a-long-history-and-happen-for-a-host-of-reasons/. Accessed 31 March 2025.

"Dimensions and Weights." Tesla, 2025, https://www.tesla.com/ownersmanual/model3/en_cn/GUID-56562137-FC31-4110-A13C-9A9FC6657BF0.html. Accessed 16 February 2025.

"Driving to 54.5 MPG: The History of Fuel Economy." The Pew Charitable Trusts, 20 April 2011, https://www.pewtrusts.org/en/research-and-analysis/fact sheets/2011/04/20/driving-to-545-mpg-the-history-of-fuel-economy. Accessed 31 March 2025.

Dupic, Carrie. "The SUV Tax Loophole: Today's Quintessential Suburban Passenger Vehicle Becomes Small Businesses' Quintessential Tax Break." Lewis & Clark Law School, 2005, https://law.lclark.edu/law_reviews/lewis_and_clark_law_review/past_issues/volume_09/number_3.php. Accessed 31 March 2025.

EPA. "2022 - 2025 Tesla Model 3." www.fueleconomy.gov, 2024, https://www.fueleconomy.gov/feg/PowerSearch.do?action=noform&path=1&year1=2022&year2=2025&make=Tesla&baseModel=Model%203&srchtyp=ymm&pageno=1&rowLimit=50. Accessed 14 March 2025.

"The EPA Automotive Trends Report | US EPA." Environmental Protection Agency (EPA), 19 January 2025, https://www.epa.gov/automotive-trends. Accessed 16 February 2025.

Ford. "2024 Ford Expedition Limited." Ford, https://www.ford.com/suvs/expedition/2024/models/expedition-limited/. Accessed 14 March 2025.

"Ford F150 Weight Specs & Guide | Quick Facts." Rob Sight Ford, 30 April 2024, https://www.robsightford.com/ford-f150-weight/. Accessed 16 February 2025.

"Frequently Asked Questions (FAQs) - U.S. Energy Information Administration." Frequently Asked Questions (FAQs) - U.S. Energy Information Administration (EIA), February 2024, https://www.eia.gov/tools/faqs/faq.php?id=23&t=10. Accessed 14 April 2025.

"Gas Guzzler Tax | US EPA." Environmental Protection Agency (EPA), 16 October 2024, https://www.epa.gov/fueleconomy/gas-guzzler-tax. Accessed 17 February 2025.

Glinton, Sonari. "How A Tax On Chicken Changed The Playing Field For U.S. Automakers." NPR, 19 June 2015 ,https://www.npr.org/2015/06/19/415671756/how-a-tax-on-chicken-changed-the-playing-field-for-u-s-automakers. Accessed 31 March 2025.

Helbling, Thomas. "Externalities: Prices Do Not Capture All Costs." International Monetary Fund, https://www.imf.org/external/pubs/ft/fandd/basics/38-externalities.htm. Accessed 14 March 2025.

"How do state and local motor fuel taxes work?" Tax Policy Center, Urban Institute & Brookings Institution, January 2024, https://taxpolicycenter.org/briefing-book/how-do-state-and-local-motor-fuel-taxes-work. Accessed 31 March 2025.

"Inflation Calculator." Federal Reserve Bank of Minneapolis, https://www.minneapolisfed.org/about-us/monetary-policy/inflation-calculator. Accessed 14 March 2025.

"June 7, 2024: NHTSA Announces Final Rule for CAFE and HDPUV Standards." NHTS, 7 June 2025, https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy. Accessed 14 March 2025.

Krisher, Tom, et al. "How much does it cost to buy a car?" Fortune, 28 February 2024, https://fortune.com/2024/02/28/how-expensive-new-used-cars-outlook-forecast/. Accessed 17 February 2025.

Lee, Yongjin, et al. "Health Effects of Microplastic Exposures: Current Issues and Perspectives in South Korea." Yonsei Medical Journal, 2023. National Library of Medicine, https://pmc.ncbi.nlm.nih.gov/articles/PMC10151227/. Accessed 14 March 2025.

Lienert, Paul. "When do electric vehicles become cleaner than gasoline cars?" Reuters, 29 June 2021, https://www.reuters.com/business/autos-transportation/when-do-electric-vehicles-become-cleaner-than-gasoline-cars-2021-06-29/. Accessed 17 February 2025.

Manescu, Larisa. "Sean Duffy Seeks to Make Vehicles Less Efficient, More Expensive." Sierra Club, 29 January 2024, https://www.sierraclub.org/press-releases/2025/01/sean-duffy-seeks-make-vehicles-less-efficient-more-expensive. Accessed 14 March 2025.

Melito, Steve. "ICE Vehicles vs. Electric Vehicles." Elasto Proxy, 12 March 2022, https://www.elastoproxy.com/ice-vehicles-vs-electric-vehicles/. Accessed 16 February 2025.

Moseman, Andrew, and Sergey Paltsev. "Are electric vehicles definitely better for the climate than gas-powered cars?" MIT Climate Portal, 13 October 2022, https://climate.mit.edu/ask-mit/are-electric-vehicles-definitely-better-climate-gas-powered-cars. Accessed 17 February 2025.

NHTSA. "Ford Expedition." NHTSA, https://www.nhtsa.gov/vehicle/2021/FORD/EXPEDITION. Accessed 14 March 2025.

"Obama Announces New National Fuel Policy; Two Harmonized Standards, with Fleet Average of 35.5 mpg, 250 gCO2/mile by 2016." Green Congress, 19 May 2009, https://www.greencarcongress.com/2009/05/obama-announces-new-national-fuel-policy-two-harmonized-standards-with-fleet-average-of-355-mpg-250-.html. Accessed 31 March 2025.

Printz, Larry. "The first luxury SUV? It wasn't the Range Rover." Hagerty, 1 October 2020, https://www.hagerty.com/media/car-profiles/the-first-luxury-suv-it-wasnt-the-range-rover/. Accessed 17 February 2025.

"The rise of the SUVs." The Week, 6 January 2024, https://theweek.com/culture-life/cars/the-rise-of-the-suvs. Accessed 17 February 2025.

Ryckman, Lisa. "Running on Empty: Refilling the Gas Tax Tank." NCSL, 10 September 2024, https://www.ncsl.org/state-legislatures-news/details/running-on-empty-refilling-the-gas-tax-tank. Accessed 14 March 2025.

Schrode, Garett. "Running on Empty: The Highway Trust Fund." Eno Center for Transportation, 9 October 2023, https://enotrans.org/article/running-on-empty-the-highway-trust-fund/. Accessed 17 February 2025.

Shaffer, Blake, et al. "Make electric vehicles lighter to maximize climate and safety benefits." Nature, 12 October 2021, https://www.nature.com/articles/d41586-021-02760-8. Accessed 15 February 2025.

Shilling, Erik. “Trucks And SUVs Are Now Over 80 Percent Of New Car Sales In The U.S.” Jalopnik, 27 January 2022, https://jalopnik.com/trucks-and-suvs-are-now-over-80-percent-of-new-car-sale-1848427797. Accessed 15 February 2025.

Shinkle, Doug, and Matt Wicks. “Special Registration Fees for Electric and Hybrid Vehicles.” NCSL, 25 February 2025, https://www.ncsl.org/transportation/special-registration-fees-for-electric-and-hybrid-vehicles. Accessed 14 March 2025.

“Tesla Model 3 charging time, range, and cost.” EVBox, 2025, https://evbox.com/en/electric-cars/tesla/tesla-model-3. Accessed 16 February 2025.

“2024 Ford Lightning® XLT | Electric Truck | Model Details & Specs.” Ford, 2025, https://www.ford.com/trucks/f150/f150-lightning/models/f150-xlt/. Accessed 16 February 2025.

Tyndall, Justin. “Pedestrian deaths and large vehicles.” Economics of Transportation, vol. 26-27, no. 100219, 2021. Science Direct, https://www.sciencedirect.com/science/article/abs/pii/S2212012221000241?via%3Dihub. Accessed 17 2 2025.

“US Department of Energy.” Annual Vehicle Miles Traveled in the United States, October 2024, https://afdc.energy.gov/data/10315. Accessed 16 February 2025.

U.S. Energy Information Administration. “What is U.S. electricity generation by energy source?” U.S. Energy Information Administration, 29 February 2024, https://www.eia.gov/tools/faqs/faq.php?id=427&t=3. Accessed 14 March 2025.

U.S. Federal Highway Administration. “When did the Federal Government begin collecting the gas tax?” U.S. Federal Highway Administration, 27 June 2017. Accessed 14 September 2025.

Uz, Volkan, et al. “Feasibility of Using 4th Power Law in Design of Plastic Deformation Resistant Low Volume Roads.” Procedia Engineering, vol. 143, 2016, pp. 961-970. Science Direct, https://www.sciencedirect.com/science/article/pii/S1877705816305240?ref=pdf_download&fr=RR-2&rr=91fe4ba45a8e4678#section-cited-by. Accessed 14 March 2025.

“Vehicles with higher, more vertical front ends pose greater risk to pedestrians.” IIHS, 14 November 2023, https://www.iihs.org/news/detail/vehicles-with-higher-more-vertical-front-ends-pose-greater-risk-to-pedestrians. Accessed 15 February 2025.

Watson, Garrett. “How High are Other Nations’ Gas Taxes?” Tax Foundation, 2 May 2019, https://taxfoundation.org/data/all/federal/oecd-gas-tax/. Accessed 17 February 2025.

“What is the Highway Trust Fund, and how is it financed?” Tax Policy Center, January 2024, https://taxpolicycenter.org/briefing-book/what-highway-trust-fund-and-how-it-financed. Accessed 17 February 2025.

“What to do about America’s killer cars.” The Economist, 5 September 2024, https://www.economist.com/leaders/2024/09/05/what-to-do-about-americas-killer-cars. Accessed 15 2 2025.

“Why American cars are so big.” The Economist, 11 March 2024, https://www.economist.com/the-economist-explains/2024/03/11/why-american-cars-are-so-big. Accessed 15 February 2025.

Wilson, Garrett. “How High are Other Nations’ Gas Taxes?” Tax Foundation, 2 May 2019, https://taxfoundation.org/data/all/federal/oecd-gas-tax/. Accessed 14 March 2025.

Zipper, David. “How Cars Turned Into Giant Killers.” Slate, 17 December 2023, https://slate.com/business/2023/12/cars-trucks-suv-sales-electric-safety-risk.html. Accessed 17 February 2025.
Zipper, David. “Why are cars in the US so big? The policies that ruined American cars, explained.” Vox, 28 April 2024, https://www.vox.com/future-perfect/24139147/suvs-trucks-popularity-federal-policy-pollution. Accessed 15 February 2025.

Powering Resilience: Lessons from Puerto Rican Microgrids for Houston's Energy Future

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Abstract

Blackouts have become more frequent across Texas in recent years, impacting homes, businesses, and critical infrastructure. Most notable was the outage experienced by millions during Winter Storm Uri in 2021, which revealed deep vulnerabilities in Texas's isolated power grid. This paper examines how an approach to grid resilience used in Puerto Rico in the wake of Hurricane María and other hurricanes can help inform Houston's response to aging infrastructure and increasing climate risk. Drawing on case studies of Puerto Rican microgrid usage and the policy frameworks that have enabled their success, it argues that Houston can strengthen its electric grid reliability through similar strategies that incentivize and support microgrid development. These include leveraging federal funding, incentivizing public-private microgrid partnerships, reforming local energy ordinances, and developing a skilled workforce for energy innovation. By targeting these areas, the proposed policy approach aims to provide Houston a path forward to modernize its power distribution for sustained reliability in the face of natural disasters, aging infrastructure, and increased load.

I . Introduction

Houston, home to over 3,700 energy-related firms and the headquarters of nearly every major American oil and gas company, has long declared itself the "Energy Capital of the World" ("The Energy Industry in Houston." 2024). Yet after the Texas power grid came dangerously close to complete failure during Winter Storm Uri in 2021 (Douglas 2021) and subsequent storms knocked out power for millions of customers in the Houston area alone (Lavandera and Killough 2024), it is apparent the city might have to reexamine its own energy competency.

The stakes for energy infrastructure improvements are high. During Uri, an estimated 100 to 700 people lost their lives (Aldhous et. al. 2021), and estimated damages of $295 billion were produced (Stipes 2021). Beyond this catastrophic toll, the grid's vulnerability exposed fundamental weaknesses in how Houston is managing its power needs.

In the U.S. territory of Puerto Rico, a similar story has played out, marked by recent struggles with centralized grid issues and climate-related disasters. Hurricane María in 2017 caused the longest blackout in U.S. history (Laughland 2018), with some communities remaining without power for nearly a year (Levenson 2017)

In response to this crisis and local events, a potential solution emerged that could serve as a model for Houston: microgrids. These localized energy systems that can each operate independently from the main grid have become lifelines for many Puerto Rican communities and are proving themselves to be a model for resilience in disaster-prone areas. A policy approach informed by Puerto Rico's model could pave the way for more reliable energy in Houston, minimizing the impact of future outages.

II. Houston's Energy Vulnerabilities

Houston's energy infrastructure faces critical challenges that mirror those experienced in Puerto Rico. The Texas grid, operated by the Electric Reliability Council of Texas (ERCOT), is isolated by choice from the Eastern and Western interconnected grid systems, making it unable to import power from other regions during emergencies (Hao 2024). This energy island approach, originally designed to avoid federal regulation, may have become a significant liability in an era of increasing climate instability.

Despite ample power generation capabilities in typical times, the Texas grid has struggled to maintain reliable service due to insufficient preparedness for extreme weather conditions and transmission vulnerabilities (Douglas 2021). The consequences of the failure of this centralized system have been severe. During Winter Storm Uri, more than 10 million Texans lost power, exposing the fragility of the state's energy infrastructure (Busby et. al. 2021).

More recently, the summer of 2024 once again exposed Texas' energy vulnerabilities, this time due to a hurricane rather than a winter storm. Hurricane Beryl caused the collapse of major transmission systems and left more than 2.6 million customers without power, some for over a week (Martinez and Foxhall 2024). Houston alone faced costs of damage of between $2.5 and $4.5 billion (Hagerty 2024). The financial consequences of these grid failures and weaknesses are becoming more pronounced, with customer bills predicted to increase due to both the costs of resilience investments and necessary repairs (Martinez and Foxhall 2024).

As natural disasters increase in both frequency and severity, Houston's vulnerability continues to grow, making the need for a more resilient energy strategy increasingly urgent.

III. Learning from Puerto Rico's Experience

Puerto Rico's 3.2 million residents have historically paid for "some of the most expensive and least reliable electricity" in the entire country (Wyss 2022), and their experience is particularly relevant to Houston's challenges.

With only one unified power grid energizing the whole island, electricity must travel over great distances from power plants to population centers. This centralized system is particularly vulnerable to disruption – a tropical storm, a fallen tree, or even a mechanical failure can knock out power lines and leave entire communities in the dark.

In Puerto Rico, these transmission issues, rather than a lack of generation capacity, are the primary source of energy instability. Despite having sufficient generation resources, the island's power grid has struggled with reliability due to its vulnerability to natural disasters and poor maintenance over decades. This became starkly evident following Hurricane María in 2017, when 100% of the island lost electricity and households were left without power for an average of 84 days, or almost 3 months ("The Facts" 2025).

In response to this persistent vulnerability, a myriad of Puerto Rican organizations, communities, and officials have turned to microgrids as a promising solution to energy resilience. These localized energy systems are capable of operating independently from the centralized grid, providing continuity of power during outages. Microgrids can combine renewable energy sources, such as solar and wind, with traditional backup generation methods, like diesel, and include storage systems like batteries. These

systems offer a blend of energy production options tailored to local conditions, ensuring that even when the broader grid fails, communities connected to microgrids retain their power. This decentralized approach has become vital in a region repeatedly hit by tropical storms.

A notable example is the mountain town of Adjuntas, where a community microgrid powers 14 local businesses using solar panels and battery storage. During power outages, these businesses remained operational, becoming essential hubs for the community. Similarly, the University of Puerto Rico's Mayagüez campus operates a microgrid that integrates solar, wind, and conventional backup systems to keep critical research facilities running during grid disruptions. These success stories highlight the immense potential of microgrids for maintaining energy access, particularly in disaster-prone areas.

These systems not only provide reliable energy during disruptions but can also integrate seamlessly with other strategies, such as the diversification of energy sources with renewables. As the U.S. Department of Energy's National Renewable Energy Laboratory highlights, Puerto Rico has vast renewable energy potential that could, if properly harnessed, power the entire island (Bentley 2023). Similarly, Houston could leverage its own renewable resources to enhance energy resilience, reducing dependence on the central grid during emergencies.

IV. Policy Landmarks in PR

Puerto Rico's energy policy fosters public-private investment and community-led initiatives, providing a roadmap for Houston to enhance its energy resilience by focusing on decentralized systems.

The federal government has allocated significant resources to fund Puerto Rican microgrid initiatives, such as the $1.3 billion from the Department of Housing and Urban Development's Community Development Block Grant Disaster Recovery (CDBG-DR) funds in 2022 (Wyss 2022). The Federal Emergency Management Agency (FEMA) also approved a $97 million project for solar microgrids in the municipalities of Culebra and Vieques, further solidifying the role of both governmental agencies and private energy development companies in advancing resilient energy systems (FEMA 2023). These federal funding initiatives have proven pivotal in mobilizing large-scale, long-term microgrid projects, helping offset the costs of system installation and contracts with private companies.

Puerto Rico's policy approach has also emphasized community-based energy solutions. The Solar Access Program, launched by the Department of Energy, aims to provide low-cost solar energy resources and storage systems for up to 30,000 low-income households in communities prone to frequent power outages (Kamoji 2024). Additionally, the Community Energy Resilience Initiative works alongside local organizations to identify and develop microgrid projects that prioritize community engagement and needs. Workforce development programs have been integrated into these initiatives to equip local residents with the skills to install and maintain solar energy systems and microgrids, ensuring long-term sustainability and resilience.

These strategies are not only creating energy security but also fostering economic development and equity in underserved communities. By aligning policy with community needs and federal support, Puerto Rico has made ignificant strides in building energy resilience.

V. Proposal for Houston

As Houston faces increasing challenges from extreme weather events, including hurricanes and power outages, the city has an opportunity to build a more resilient energy infrastructure through microgrid implementation. Drawing from initiatives like the federal investments and other recent policies in Puerto Rico, Houston can develop towards urban energy resilience and innovation.

With continued investment of federal funds towards similar initiatives enabling community organizations and businesses to launch microgrid projects, Houston will best be able to support its residents as climate disasters intensify and the traditional grid ages. The City of Houston's Housing and Community Development department has recently allocated $6 million of CDBG-DR funds to install backup microgrid systems for three health centers in low to middle income areas (Nichols 2024). Houston should continue to leverage CDBG-DR funds and other sources of funding to support microgrid initiatives in vulnerable communities, as Puerto Rico has done. These initiatives might target underserved neighborhoods, ensuring that low-income communities and their essential public services, such as hospitals, are equipped with reliable energy. At the state level, Texas has already allocated $1.8 billion in microgrid grant allocation; however, the risk of uneven implementation, insufficient funding, and changing political will indicate that local-level policy remains critical for Houston.

Additionally, to further stimulate private investment in microgrids, Houston should establish tax incentives for businesses, universities, and organizations implementing solar-powered microgrids or other distributed energy resources (DERs). Over recent years, the grocery store

chain H-E-B has become a high-profile customer for microgrid operator Enchanted Rock. After Hurricane Beryl, H-E-B stores served as "ad hoc emergency cooling and supply centers" across the state (St. John 2024), demonstrating the key role that private actors could play. While Enchanted Rock microgrids run on natural gas, incentivizing projects that integrate solar plus storage systems would also make sense, as these technologies are not reliant on fuel availability and have proven their potential for resilience in disaster-prone areas like Puerto Rico. Houston is uniquely positioned to harness the capabilities of countless local companies with the needed expertise and should do so by creating a conducive regulatory environment for resilience investments.

Houston can also establish training programs in partnership with local community colleges and universities to develop a workforce skilled in microgrid technology, solar installation, and maintenance. This will not only create job opportunities but also foster long-term sustainability for Houston's energy infrastructure.

In terms of regulatory reforms, Houston would need to revise its ordinance codes to allow for the development of community microgrids, ensuring that these projects are compatible with the city's existing infrastructure and community needs. This could involve designating specific zones where community microgrids can be integrated and expanded upon, particularly in neighborhoods with frequent outages. Streamlining interconnection standards for distributed energy resources would also be essential, as it would reduce barriers to the integration of microgrids into the broader grid. These policy proposals aim to enhance energy resilience, reduce vulnerabilities, and position Houston as a leader in the energy transition.

VI. Conclusion

The parallels between Houston and Puerto Rico's energy challenges present an opportunity for learning and adaptation. By implementing policies that support microgrid development, Houston can transform its energy landscape to become more resilient, equitable, and sustainable. As climate-related challenges intensify, the time for action is now – Houston must lead the way in demonstrating how cities can adapt their energy systems to meet the demands of an uncertain future.

Puerto Rico's experience shows that microgrids are not just a theoretical solution but a practical path forward for communities facing grid vulnerability. Houston, with its resources, expertise, and commitment to energy innovation, is uniquely positioned to take these lessons and implement them on a larger scale.

The success of this transition will require sustained commitment from city leadership, active participation from the private sector, and strong community support. However, the potential benefits of enhanced resilience, improved equity, environmental progress, and economic growth make this investment not just worthwhile but essential for Houston's future as an energy leader in the twenty-first century.

REFERENCES

Aldhous, Peter, et al. "The Texas Winter Storm And Power Outages Killed Hundreds More People Than The State Says." BuzzFeed News, BuzzFeed News, 26 May 2021, www.buzzfeednews.com/article/peteraldhous/texas-winter-storm-power-outage-death-toll

Bentley, Chris. "How Puerto Rico Is Preparing Its Electric Grid for Future Hurricanes." Here & Now, WBUR, 28 June 2023, www.wbur.org/hereandnow/2023/06/28/puerto-rico-electric-grid-hurricanes.

"Biden-Harris Administration, FEMA Approve over $10.2 Million for Phase 1 of Solar Microgrids in Puerto Rico." FEMA.Gov, www.fema.gov/press-release/20230329/biden-harris-administration-fema-approve-over-102-million-phase-1-solar. Accessed 29 Oct. 2024.

Busby, Joshua W., et al. "Cascading risks: Understanding the 2021 Winter Blackout in Texas." Energy Research & Social Science, vol. 77, July 2021, p. 102106,https://doi.org/10.1016/j.erss.2021.102106.

Douglas, Erin. "Texas Leaders Failed to Heed Warnings That Left the State's Power Grid Vulnerable to Winter Extremes, Experts Say." The Texas Tribune, The Texas Tribune, 18 Feb. 2021,www.texastribune.org/2021/02/17/texas-power-grid-failures/.

Douglas, Erin. "Texas Was 'Seconds and Minutes' Away from Catastrophic Monthslong Blackouts, Officials Say." The Texas Tribune, The Texas Tribune, 18 Feb. 2021, www.texastribune.org/2021/02/18/texas-power-outages-ercot/.

Hagerty, Michael. "Beryl Cost Houston Billions, but Was a Fraction of Ike or Harvey's Impact." Houston Public Media, 13 Aug. 2024, www.houstonpublicmedia.org/articles/news/hurricane/2024/08/13/496407/beryl-cost-houston-billions-but-was-a-fraction-of-ike-or-harveys-impact/#:~:text=Moody's%20places%20the%20overall%20costs,%242.5%20billion%20and%20%244.5%20billion.

Hao, Claire. “Why Does Texas Have Its Own Power Grid? ERCOT Independence and Possible New Connections Explained.” Houston Chronicle, Houston Chronicle, 3 Mar. 2024, www.houstonchronicle.com/business/energy/article/ercot-texas-own-power-grid-interconnection-18693934.php.

Kamoji, Jerusha. “Puerto Rico Program to Bring Low-Cost Solar and Batteries to 30,000 Households” Pv Magazine USA, 16 Feb. 2024, pv-magazine-usa.com/2024/02/15/puerto-rico-program-to-bring-low-cost-solar-and-batteries-to-30000-households/.

Laughland, Oliver. “Ten Months without Power: The Puerto Ricans Still without Electricity.” The Guardian, Guardian News and Media, 8 Aug. 2018, www.theguardian.com/world/2018/aug/08/puerto-rico-hurricane-maria-electricity-ten-months.

Lavandera, Ed, and Ashley Killough. “Centerpoint Energy Officials Apologize after Lengthy Houston Power Outages from Hurricane Beryl.” CNN, Cable News Network, 25 July 2024, www.cnn.com/2024/07/25/us/centerpoint-houston-power-outages-apologize/index.html.

Levenson, Eric. “Puerto Rico’s Power Outages Are the Largest in US History, Report Says.” CNN, 26 Oct. 2017, www.cnn.com/2017/10/26/us/puerto-rico-power-outage/index.html.

Martinez, Alejandra, and Emily Foxhall. “Why Texas’ Mass Power Outages Continue to Happen.” The Texas Tribune, The Texas Tribune, 18 July 2024, www.texastribune.org/2024/07/18/texas-energy-grid-power-outages-climate-change-infrastructure/.

Nichols, Michael. “Housing and Affordable Committee.” City of Houston, 15 Oct. 2024.

St. John, Jeff. “Houston’s Post-Beryl Outages Highlight Benefits of Distributed Energy.” Canary Media, 18 July 2024, www.canarymedia.com/articles/distributed-energy-resources/houstons-post-beryl-outages-highlight-benefits-of-distributed-energy.

Stipes, Chris. “New Report Details Impact of Winter Storm Uri on Texans.” University of Houston, 29 Mar. 2021, uh.edu/news-events/stories/2021/march-2021/03292021-hobby-winter-storm.php.

“The Energy Industry in Houston.” Greater Houston Partnership, 2024, www.houston.org/why-houston/industries/energy.

“The Facts: Hurricane Maria’s Effect on Puerto Rico.” Mercy Corps, 28 Jan. 2025, www.mercycorps.org/blog/facts-hurricane-maria-puerto-rico.

Wyss, Jim. “How a Solar Microgrid Became a Town’s Lifeline in Blackout-Prone Puerto Rico.” The Independent, Independent Digital News and Media, 18 Dec. 2022, www.independent.co.uk/news/long_reads/solar-power-grid-puerto-rico-b2246699.html.

Why Tariffs Won't Solve the U.S. Fentanyl Crisis—And What Actually Might

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Abstract

In the United States, the fentanyl crisis has steadily grown into a severe public health emergency, with countries like China, Mexico, and India accused of trafficking both fentanyl and precursor chemicals. In an attempt to curb the flow of these products, the U.S. has turned to tariffs as a deterrent, but these measures have proven ineffective due to the adaptability of transnational supply chains. Drug producers and cartels quickly adapt to enforcement efforts, resulting in even more potent and dangerous synthetic opioids entering the market. Thus, research from "Misguided Tariffs Will Not Solve The United States' Overdose Crisis" and street drug expert Dr. Dasgupta suggests that expanding over-the-counter naloxone availability offers a more practical and immediate solution to preventing overdose deaths. Although cost and distribution barriers persist, initiatives in states such as California demonstrate how working with pharmaceutical companies can lower prices, making naloxone more accessible for individuals who may want to store it in case of emergencies.

I. Background

Origins of the Fentanyl Crisis

Since the mid-1990s, the U.S. has faced an escalating opioid crisis, which has since become the deadliest drug epidemic in history. The crisis' origins can be traced back to a combination of regulatory failures, corporate misconduct, and shifts in medical practice. The first failure was Purdue Pharma's approval and aggressive marketing of OxyContin in an attempt to make profits, coupled with the widespread adoption of the "Pain as the 5th Vital Sign" campaign, which aimed to spread awareness on assessing and treating pain (Koh 2022; SHADAC). Secondly, Purdue Pharma's misrepresentation of the drug's addictiveness and a general lack of regulatory oversight allowed for minimal safeguards on legal opioid medications (Koh 2022). Since physicians often relied on information provided by the pharmaceutical industry, they believed that opioids were both safe and effective for long-term pain management, leading to unprecedented prescription rates (SHADAC). Despite mounting evidence of opioid-related harms, public authorities failed to intervene for over a decade (Koh 2022; SHADAC).

By 2011, the crisis had escalated to the point that the CDC officially classified deaths from prescription painkillers as an epidemic, prompting new guidelines and legal restrictions aimed at reducing high-risk prescriptions (SHADAC). Although these measures slowed the rise in prescription opioid-related deaths, they did not fully resolve the crisis. Many individuals who had developed a dependence on prescription opioids suddenly found themselves completely cut off and turned to illegal alternatives, specifically heroin. This shift expanded the scope of opioid-related harm beyond prescription misuse, introducing new risks associated with illegal drug markets. As the demand for opioids grew, traffickers shifted to fentanyl, a synthetic opioid that is more potent, cheaper to produce, and easier to smuggle than heroin (SHADAC).

The rise of synthetic opioids, particularly fentanyl and its analogs, has driven overdose deaths to devastating levels. The Drug Enforcement Administration reports that fentanyl is now the leading cause of death among Americans aged 18-45, with overdose fatalities surpassing 100,000 annually since 2012 (Felbab-Brown 2024). By 2022, an estimated 2.7 million Americans were diagnosed with an opioid use disorder, though experts suggest this figure underestimates the true scope of the crisis (Felbab-Brown 2024). The situation has worsened as fentanyl has been increasingly mixed into other illicit substances, including stimulants, heightening the risk for users unaware of its presence (Karamouzian and Werb 2025). Between 2001 and 2022, opioid-related death rates in the U.S. surged from 3.3 to 25.0 per 100,000 persons, with fentanyl alone accounting for 73,838 of the 107,941 overdose deaths recorded in 2022 (Karamouzian and Werb 2025). The crisis has also expanded beyond younger demographics; overdose deaths among Americans over 65 have quadrupled since 2002 (Felbab-Brown 2024).

The Role of Supply Chains

Transnational supply chains play a central role in the U.S. fentanyl crisis, with China, Mexico, and India serving as key suppliers and transit hubs. One of the strongest examples of this is Mexico, which remains a dominant source of fentanyl production and transportation with over 21,000 pounds entering through the southern border last year (Mann 2025).

Mexican drug trafficking organizations (TCOs), primarily the Sinaloa Cartel and Cártel de Jalisco Nueva Generación (CJNG), are suspected of controlling fentanyl production and smuggling into the U.S. (DEA 2020). These cartels operate covert labs that manufacture fentanyl and fentanyl-laced counterfeit pills, which are then trafficked in high-volume, low-concentration shipments (DEA 2020). While cartel influence expanded under former Mexican President Andrés Manuel López Obrador's "hugs not bullets" approach, current President Claudia Sheinbaum has intensified enforcement through an anti-fentanyl campaign. Her policies have contributed to a reported 20% decline in fentanyl seizures at the U.S. southern border (Mann 2025).

Since 2019, China has been the primary supplier of fentanyl precursor chemicals, which are shipped to Mexican cartels for production or directly exported through international mail (DEA 2020). While Chinese authorities implemented stricter regulations in 2019, including classifying fentanyl as a controlled substance, production and trafficking have persisted. In response to U.S. pressure, the Chinese government intensified efforts in 2024 by cracking down on money laundering networks and further restricting precursor shipments (Mann 2025). The long-term impact of these drastic policy measures on global fentanyl supply chains, however, remains uncertain.

India has also emerged as an alternative source for fentanyl precursors and, in some cases, finished fentanyl. DEA investigations have linked Indian suppliers to the Sinaloa cartel, as precursor shipments seem to be deliberately mislabeled and routed through Mexico (DEA 2020). With

China tightening its controls, India's role in the global fentanyl trade is likely to expand, further complicating enforcement efforts.

II. Current Policy Measure: Tariffs

Historically, tariffs have been used to protect countries' domestic industries and reduce reliance on foreign goods. However, following World War II, global trade liberalization became a priority, prompting advanced economies to reduce their reliance on tariffs (Siripurapu and Berman 2025). In fact, the U.S. is one of the most open economies in this regard, with over 70% of all products entering duty-free (CRS 2025). In the U.S., tariffs have only accounted for around 2% of total federal revenue over the past 70 years (CRS 2025). In fiscal year 2024, U.S. Customs and Border Protection collected $77 billion in tariffs, accounting for approximately 1.57% of total federal revenue (CRS 2025). But the recent economic policies of the Trump administration have deviated from this trend, reviving tariffs as a central tool of economic and foreign policy. In his first term, President Trump cited unfair trade practices and national security concerns as reasons to impose extensive tariffs on Chinese imports, leading to the start of the U.S.-China trade war (Siripurapu and Berman 2025).

In his second term, which began in January of this year, President Trump has expanded the use of tariffs under the International Emergency Economic Powers Act (IEEPA), framing them as a response to a national emergency. According to his administration, the influx of deadly drugs—such as fentanyl—and illegal immigration into the U.S. is an ongoing crisis that previous administrations have failed to resolve (White House 2025). Thus, Trump has imposed a 25% additional tariff on imports from Canada and Mexico, a 10% additional tariff on imports from China, and a lower 10% tariff on energy resources from Canada (White House 2025).

These measures are presented as a necessary response to hold neighboring countries accountable for their roles in the manufacturing and transportation of narcotics. For example, the administration has raised concerns that the Mexican government's relationship with drug cartels allows these organizations to operate with impunity, facilitating narcotics trafficking (White House 2025). Additionally, the policy highlights Canada's growing domestic production of fentanyl and its increasing role in the spread of illicit narcotics. The tariff on Canada aims to push Canadian government officials to strengthen regulatory enforcement against fentanyl and nitazene synthesis labs reportedly operated by Mexican cartels (White House 2025). Lastly, Trump's administration argues that Chinese officials have failed to control the flow of fentanyl precursor chemicals and address money laundering by criminal cartels, implying potential government complicity in these operations (White House 2025). The administration asserts that these governments' inaction, combined with the U.S.' extremely open economy and low average tariff rates, poses a threat to Americans' safety and national security (White House 2025).

What are Tariffs?

A tariff is a tax placed on imported goods that is then paid by the importing business to its home country's government (Siripurapu and Berman 2025). The tax increases the price of foreign-made products and makes them less competitive compared to domestically produced goods. The most common type of tariff is an ad valorem tariff, which is calculated as a percentage of the imported item's value (Siripurapu and Berman 2025). For example, if an ad valorem tariff is set at 10%, a product valued at $100 would incur a $10 tariff. In contrast, specific tariffs impose a fixed dollar amount per unit, such as $2 per imported shirt, regardless of the item's total value (Siripurapu and Berman 2025). The third type of tariff is a tariff-rate quota, which introduces higher tariffs once a predetermined quantity of a product has been imported (Siripurapu and Berman 2025).

When Are Tariffs Used?

Historically, tariffs have been a significant source of government revenue. While their significance has declined in wealthier nations, they remain essential in developing economies with weaker tax infrastructure and lower tax compliance (Siripurapu and Berman 2025). In the U.S., tariffs have long protected key industries, such as sugar production since 1789 and the auto industry since 1964, due to their political and economic sensitivity (Siripurapu and Berman 2025). By raising the cost of foreign goods, tariffs allow local businesses to grow and establish themselves. This function is especially crucial for developing countries as they need time to strengthen their own industries before competing with larger and more efficient foreign firms.

Tariffs are also used to counter perceived unfair trade practices. For instance, when foreign governments subsidize their industries and enable them to sell products in the global market at artificially low prices, U.S. producers can suffer economic harm (Siripurapu and Berman 2025). In such cases, tariffs help raise the cost of such imports and neutralize the competitive edge created by subsidies, which

restores fair competition for local businesses. This approach is usually seen in "antidumping" measures, which prevent foreign firms from overwhelming domestic markets with cheap goods designed to drive local companies out of business (Siripurapu and Berman 2025).

In 2018, a U.S. Trade Representative report claimed that under Section 301 of the Trade Act of 1974, China was engaging in "unreasonable or discriminatory" intellectual property practices, which they ultimately claimed would "burden or restrict U.S. commerce" since companies were being forced to provide their IP to operate in China (USTR 2018). The Trump administration used this report to justify tariffs on approximately $360 billion of Chinese imports (Siripurapu and Berman 2025). The Biden administration maintained these tariffs and introduced additional measures under Section 301 in 2024. These tariffs, which targeted Chinese steel, aluminium, semiconductors, and green technologies, were reportedly used to protect U.S. industries from subsidized foreign competition and assist in selling AI technology to China (Siripurapu and Berman 2025).

Tariffs also play a significant role in national security policy by ensuring that the country does not depend on foreign trade for critical goods, especially those with military applications. This is applied through Section 232 of the Trade Expansion Act of 1962, which grants the president authority to impose tariffs on goods critical to national security (Siripurapu and Berman 2025). The Trump administration invoked this provision when imposing steel and aluminium tariffs on China, Canada, and the EU. However, this controversial move resulted in accusations against the administration of attempts to limit China's rising steel production by using national security as a pseudo-justification for protectionist measures (Siripurapu and Berman 2025). While tariffs on Canada and Mexico were later lifted under the U.S.-Mexico-Canada Agreement, and Biden removed tariffs on EU countries, Section 232 remains controversial due to its exploitation of a World Trade Organization (WTO) exception for national security-related trade actions (Siripurapu and Berman 2025). Additionally, by declaring immigration at the southern border an emergency, Trump can leverage tariffs in immigration policy under the aforementioned International Emergency Economic Powers Act (IEEPA) of 1977. This authority allows the president to regulate international commerce, pressuring countries such as Mexico and Colombia into accepting deported migrants under the threat of tariffs (Siripurapu and Berman 2025). Trump has even suggested imposing tariffs on Denmark to advance his interest in acquiring Greenland, illustrating how deceitful national security justifications for tariffs can extend beyond traditional economic concerns (Siripurapu and Berman 2025).

III. The Impact of Tariffs

How Effective Have Tariffs Been?

Unfortunately, tariffs have proven largely ineffective when it comes to addressing the fentanyl crisis. Although designed to pressure foreign governments by making imports more expensive, the reality is that most of the financial burden falls on domestic consumers rather than the exporting countries. When the U.S. imposes tariffs, importers pay these taxes to their government and then pass the costs to consumers through higher prices, particularly in industries with low profit margins (Siripurapu and Berman 2025). These higher prices have disproportionately impacted lower-income American households as they end up bearing the brunt of rising costs (Fajgelbaum and Khandelwal 2021). In addition, tariffs on foreign companies allow domestic producers to increase prices, reducing market competition and creating unfair costs for consumers domestically (Siripurapu and Berman 2025).

Thus, regarding the fentanyl crisis, tariffs have become an outdated tool that fail to target drug producers and smugglers. The ability to rapidly change routes and the growing role of Mexican cartels in the transportation of precursor chemicals and finished synthetic opioids has turned fentanyl trafficking into a transnational problem that tariffs cannot address (Fashola and Greenwood 2021). Since 2019, Chinese suppliers have adapted their supply chains in an effort to evade both Chinese and American authorities. Rather than shipping directly to the U.S., these suppliers choose to ship to Canada or Europe and then either sell or traffic drugs into the U.S. (Fashola and Greenwood 2021). Recent patterns have shown that the production of precursor chemicals is also shifting from China to countries such as India, Myanmar, and other parts of Southeast Asia, creating new hubs of synthetic opioid manufacturing that maintain drug availability (Singer 2025). In fact, reports indicate that even Canadian "superlabs" are distributing fentanyl and other opioids, such as nitazenes, to Australia and New Zealand, emphasizing the vast reach of these production networks (Singer 2025). Further, traffickers are increasingly adopting digital platforms and sophisticated techniques for money laundering to circumvent traditional enforcement mechanisms, including tariffs. Thus, rather than curbing the fentanyl crisis, tariffs risk giving a

false sense of control while supply chains simply adapt to the slew of trade policies.

Unintended Consequences

The Iron Law of prohibition, which suggests that stricter enforcement tends to push traffickers to more potent and dangerous drugs, has been one of the leading arguments against tariffs (Singer 2025). As previously stated, when supply chains are disrupted, criminal networks adapt by sourcing chemicals from new locations or creating more potent alternatives. In the U.S., this has played out almost exactly as theorized, leading to the rise of synthetic drugs, including fentanyl and carfentanil, over the years (Karamouzian and Werb 2025). As a result of tougher enforcement from the drug war policies, new substances are entering the market with even higher risks and fueling, rather than preventing, the crisis (Singer 2025).

The introduction of these deadlier substances as a result of tariffs could ultimately worsen a crisis that is finally beginning to show signs of improvement. Data from the CDC shows that before Trump announced tariffs on China, Mexico, and Canada in his second term, overdose deaths from fentanyl and other street drugs had already declined by more than 21% since June of 2023. For the first time in almost 6 years, the number of deaths from street drug overdose over a 12-month period dropped below 90,000 (Mann 2025). The DEA has further supported these findings, noting a rare reduction in the potency of newer fentanyl pills. The percentage of tested pills containing potentially lethal doses of fentanyl declined from 60% in 2022 and 70% in 2023 to just 50% in 2024 (Milgram 2024). This reduction in potency, combined with fewer overdose deaths, has led to a "14.5% decrease in poisonings," or over 14,000 lives saved (Milgram 2024).

Although it might seem that President Trump's 2018 tariffs could explain the drop in fentanyl overdoses, expert analysis suggests otherwise. According to street drug researcher and expert Dr. Dasgupta, the timing and pattern of this decline do not align with what would be expected from border interventions or economic pressure on precursor chemicals. Given the vast amounts of fentanyl already in the supply chain, any real impact from trade policies would take months to materialize, as opposed to the gradual, continuous improvement seen across the country (Dasgupta et al. 2024). Additionally, federal operations such as Apollo and Plaza, which were aimed at disrupting fentanyl and methamphetamine trafficking at the U.S.-Mexico border, have not shown a clear correlation with the steady reduction in overdose deaths. Operation Apollo, for instance, launched in California in October 2023 and expanded to Arizona in April 2024 —long after overdose rates had already begun declining (Dasgupta et al. 2024). The minimal and potentially negative effects of the U.S.'s current policy raise the question: How can the country effectively address the fentanyl crisis while considering its existing trade policies?

IV. Policy Proposal

Re-evaluating Tariffs in Favor of Diplomacy

To effectively address the fentanyl crisis, it is imperative that the Trump administration prioritize rolling back its tariffs. With nearly $2 billion in goods crossing their borders daily, the economies of the U.S., Mexico, and Canada are heavily intertwined (Murphy et al. 2025). Using tariffs to combat drug trafficking has already provoked retaliation, with both Mexico and Canada preparing a 25% tariff on U.S. goods. Mexican President Claudia Sheinbaum has rejected allegations that her government is complicit with drug cartels, emphasizing that cooperation—not economic confrontation—is essential for stability. She has expressed Mexico's willingness to cooperate with the U.S. to resolve the crisis through diplomatic channels rather than punitive measures (Murphy et al. 2025).

Diplomatic coordination on this specific crisis has been successful in the past. In 2017, a cooperative effort between the U.S. and India led to authorities seizing over one billion tablets of tramadol, a drug that was illegally trafficked. Similarly, in 2020, Operation Broadsword, involving the U.S. FDA, Customs and Border Protection, and India's Office of Criminal Investigations, successfully prevented millions of counterfeit and illicit opioids from entering the U.S. through targeted inspections (Fashola and Greenwood 2021).

Some skepticism remains regarding diplomatic engagement with China due to ongoing tensions. Accusations from the current U.S. administration that Chinese officials are complicit in drug trafficking has strained relations, leading to distrust and confrontational policy approaches rather than a collaborative solution. However, given that both China and Mexico are part of the 1988 UN Drug Convention, they are required to take action against fentanyl trafficking (Fashola and Greenwood 2021). In 2018, due to U.S. pressure and a UN mandate, China scheduled two major fentanyl precursors, 4-ANPP and NPP, restricting their production and export (Fashola and Greenwood 2021). Given the success of past multilateral efforts, engaging China through global organizations rather than isolating it through trade measures could account

for more accountability and progress, facilitating a more coordinated response to the fentanyl crisis.

Adopting a Public Health Approach

While sources seem to disagree on most other public health approaches, the most widely agreed upon solution to the fentanyl crisis is expanding accessibility to naloxone. Naloxone, a recently approved opioid antagonist medication, has been proven to prevent overdose in the case of an emergency by reversing effects such as falling unconscious, choking on vomit, or slowing heart rate, allowing the individual to regain consciousness within one to three minutes (Miller and Lovelace Jr 2024). The most compelling argument for the medication is that there is no potential for misuse or dependence (FDA 2024). Since it is safe and easy to administer, individuals without medical training, such as family members or peers, can administer naloxone in an emergency. In March of 2023, the FDA approved the first over-the-counter (OTC) naloxone hydrochloride nasal spray, also known as Narcan (FDA 2023).

Despite its proven effectiveness in both community-based and pharmacy-initiated distribution programs, there has been a limited supply of naloxone available to the public due to cost barriers, reflecting a disconnect between policy advancements and practical implementation (Karamouzian and Werb 2025). Expanding access to naloxone, as demonstrated by North Carolina's early efforts, can help address this gap. After naloxone was available over-the-counter, same-day availability rose from 42.2% to 57.8%, while the average out-of-pocket cost fell from nearly $91 to a little under $63 (Karamouzian and Werb 2025). Offering naloxone without requiring a prescription and reducing the financial burden on those seeking the medication could significantly mitigate overdose deaths by allowing individuals to store for future emergencies or purchase immediately in urgent cases.

On a larger scale, national efforts to expand naloxone distribution have been gaining momentum through a combination of government and non-profit initiatives. In August of 2022, Remedy Alliance, a major non-profit organization, began providing bulk naloxone at little to no cost to harm reduction programs, increasing accessibility in vulnerable communities (Dasgupta et al. 2025). The Substance Abuse and Mental Health Services Administration (SAMHSA) followed in September of 2022 with naloxone saturation plans, coordinating with state health departments to further expand distribution efforts (Dasgupta et al. 2025). By mid-2023, overdose rates had noticeably declined, coinciding with the implementation of these saturation plans and thereby suggesting that expanding naloxone access was making a tangible difference (Dasgupta et al. 2025).

Market forces have also contributed to improved naloxone accessibility, especially after the introduction of generic competitors in the spring of 2023. Their arrival ended a decade-long high-price monopoly, significantly lowering the cost of naloxone nasal sprays (Dasgupta et al. 2025). By July of 2023, over-the-counter naloxone became widely available in pharmacies, theoretically creating a uniform distribution channel. Even though OTC pharmacy sales may have a limited effect compared to the free distribution programs that target high-risk populations directly, there has been a positive overall effect of greater accessibility, with the timing of the decline in overdose deaths aligning with the expansion of OTC naloxone (Dasgupta et al. 2025).

Despite these advancements, the cost of over-the-counter naloxone remains a significant barrier. Some reports indicate that large chains such as Walgreens and Publix price Narcan around $45 to $50 per two-dose pack, a cost that is out of reach for many people who use opioids (Miller and Lovelace Jr 2024). Independent pharmacies tend to charge even higher, further limiting accessibility for those who need the medication most (Miller and Lovelace Jr 2024). While large pharmacies have made efforts to standardize pricing, there are still some inconsistencies between states. One suggestion claimed that for naloxone to truly reach its audience and save lives, the price would need to drop to around $5 per pack, a figure far removed from its current market rate (Miller and Lovelace Jr 2024).

However, some states are already taking meaningful steps to reduce the cost barrier and ensure more consistent access. In July of 2023, California launched an initiative through CalRx to develop a low-cost naloxone nasal spray by partnering with manufacturers committed to transparent and affordable pricing (Estus et al. 2025). By May of 2024, California's Health Care Access and Information Department announced a collaboration with Amneal Pharmaceuticals to produce a generic OTC naloxone at $24 per twin pack, which would be 40% savings off the state's previously contracted rate (Estus et al. 2025). This agreement generated immediate savings and allowed California to redirect over $2.6 million toward purchasing more than 108,000 additional units of naloxone within months (Estus et al. 2025). By the end of the partnership's first year, projected savings are expected to exceed $12.8 million, helping sustain California's Naloxone Distribution Project (NDP) despite anticipated budget cuts (Estus

et al. 2025). If other states follow California's lead in securing lower-cost naloxone, achieving the $5 target price may be more feasible in the near future.

V. Conclusion

Despite encouraging signs of progress, the fentanyl crisis remains one of the most urgent public health challenges in the U.S., and it has been furthered by transnational supply chains spanning China, Mexico, and India. Although there is a clear need for decisive action, the current strategy of placing tariffs on all suspected countries has proven largely ineffective at curbing the flow of fentanyl into the country. While tariffs are often seen as a tool to pressure foreign governments into compliance, in this case, they have done little to disrupt the production and trafficking of synthetic opioids. The unintended consequences of this approach, as illustrated by the "Iron Law of Prohibition," have only worsened the crisis, pushing suppliers towards more potent and deadly forms of fentanyl.

Given this reality, it is essential to roll back these tariffs and ease current trade tensions, opening the door to more meaningful diplomatic coordination with countries involved in fentanyl production. A collaborative approach could strengthen cross-border enforcement and intelligence-sharing efforts, addressing the root causes of the crisis more effectively. Simultaneously, expanding access to over-the-counter naloxone offers a promising and immediate solution. While naloxone distribution has improved, it remains inconsistent and financially burdensome, preventing many individuals from obtaining it. Achieving ultra-low prices for naloxone may currently seem unattainable, but some states are already taking significant steps to reduce costs and ensure consistent access. By partnering with pharmaceutical companies to secure affordable medication, states can make naloxone more widely available without imposing a financial burden on individuals, leading to more equitable access to life-saving medication nationwide.

REFERENCES

Brewer, Stephanie, et al. "Trump's Threats of Tariffs as a Response to Migration and the Fentanyl Overdose Crisis." *WOLA*, 5 Dec. 2024, www.wola.org/analysis/trumps-threats-of-tariffs-as-a-response-to-migration-and-the-fentanyl-overdose-crisis/.

Dasgupta, Nabarun, et al. "Are Overdoses down and Why?" *Opioid Data Lab*, 18 Sept. 2024, opioiddatalab.ghost.io/are-overdoses-down-and-why/.

"DEA's Third Annual National Family Summit on Fentanyl Highlights Progress in Fight to Save Lives." *DEA*, United States Drug Enforcement Administration, 15 Nov. 2024, www.dea.gov/press-releases/2024/11/15/deas-third-annual-national-family-summit-fentanyl-highlights-progress.

Estus, Emily, et al. "Increasing Competition, Improving Access, and Lowering the Cost of Naloxone in California." *Health Affair Scholar*, Oxford Academic, 16 Jan. 2025, academic.oup.com/healthaffairsscholar/article/3/2/qxaf007/7958293.

"Fact Sheet: President Donald J. Trump Imposes Tariffs on Imports from Canada, Mexico and China." The White House, 1 Feb. 2025, www.whitehouse.gov/fact-sheets/2025/02/fact-sheet-president-donald-j-trump-imposes-tariffs-on-imports-from-canada-mexico-and-china/.

Fajgelbaum, Pablo, and Amit Khandelwal. "The Economic Impacts of the US-China Trade War." National Bureau of Economic Research, Dec. 2021, www.nber.org/system/files/working_papers/w29315/w29315.pdf.

Fashola, Kevin, and Lauren Greenwood. "Illicit Fentanyl from China: An Evolving Global Operation." U.S.-China Economic and Security Review Commission, 24 Aug. 2021, www.uscc.gov/sites/default/files/2021-08/Illicit_Fentanyl_from_China-An_Evolving_Global_Operation.pdf.

"FDA Approves First Over-the-Counter Naloxone Nasal Spray." *U.S. Food and Drug Administration*, FDA, 29 Mar. 2023, www.fda.gov/news-events/press-announcements/fda-approves-first-over-counter-naloxone-nasal-spray.

"Fentanyl Flow To the United States." *DEA*, Jan. 2020, www.dea.gov/sites/default/files/2020-03/DEA_GOV_DIR-008-20 Fentanyl Flow in the United States_0.pdf.

"Findings of the Investigation Into China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation Under Section 301 of the Trade Act of 1974." Office of the United States Trade Representative Executive Office of the President , USTR, 22 Mar. 2018, ustr.gov/sites/default/files/Section%20301%20Modifications%20Determination%20FRN%20(Sept%2012%202024)%20(FINAL).pdf.

"Information about Naloxone and Nalmefene." U.S. Food and Drug Administration, FDA, 8 Aug. 2024, www.fda.gov/drugs/postmarket-drug-safety-information-patients-and-providers/information-about-naloxone-and-nalmefene.

Karamouzian, Mohammad, and Dan Werb. "Misguided Tariffs Will Not Solve the United States' Overdose Crisis." The Lancet Regional Health - Americas, 17 Jan. 2025, www.thelancet.com/journals/lanam/article/PIIS2667-193X(25)00007-9/fulltext.

Koh, Howard. "What Led To the Opioid Crisis—and How To Fix It." Harvard T.H. Chan School of Public Health, 9 Feb. 2022, hsph.harvard.edu/news/what-led-to-the-opioid-crisis-and-how-to-fix-it/.

Mann, Brian. "Trump Used Fentanyl to Justify Tariffs, But the Crisis Was Already Easing." NPR, 2 Feb. 2025, www.npr.org/2025/02/02/nx-s1-5283957/fentanyl-trump-tariffs-china-canada-mexico.

Milgram, Anne. "National Drug Threat Assessment 2024." DEA, May 2024, www.dea.gov/documents/2024/2024-05/2024-05-24/national-drug-threat-assessment-2024.

Miller, Sara G., and Berkeley Lovelace. "Where's the Narcan? At Pharmacies Across the U.S., the OTC Antidote Can Be Hard to Find." NBC News, NBCUniversal News Group, 11 Mar. 2024, www.nbcnews.com/health/health-news/narcan-opioid-overdose-drug-otc-access-varies-us-stores-rcna135324.

Murphy, Jessica, et al. "China, Canada and Mexico Vow Swift Response to Trump Tariffs." BBC News, BBC, 2 Feb. 2025, www.bbc.com/news/articles/c627nx42xelo.

"The Opioid Epidemic in the United States." SHADAC, www.shadac.org/opioid-epidemic-united-states#:~:text=As%20noted%20in%20SHADAC%27s%20most,Purdue%20Pharma%27s%20blockbuster%20OxyContin%E2%80%94led. Accessed 18 Feb. 2025.

Singer, Jeffrey. "Cato Scholar Debunks Trump's Fentanyl Figures amid Tariff Talk." CATO Institute, 29 Jan. 2025, www.cato.org/news-releases/cato-scholar-debunks-trumps-fentanyl-figures-amid-tariff-talk.

Siripurapu, Anshu, and Noah Berman. "What Are Tariffs?" Council on Foreign Relations, 3 Feb. 2025, www.cfr.org/backgrounder/what-are-tariffs.

"Why Fentanyl Is at the Center of New US-China Trade Fight." Bloomberg News, Bloomberg, 9 Feb. 2025, www.bloomberg.com/news/articles/2025-02-10/us-china-trade-war-why-fentanyl-is-at-the-center-of-tariffs-fight.

From Transparency to Accountability: Regulating the American Data Brokerage Industry.

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Abstract

The United States' data brokerage industry operates with vast influence yet minimal oversight, posing profound risks to privacy, equality, and national security. Data brokers collect, aggregate, and sell personal information on millions of Americans, often without consent, fueling exploitation by criminals, discriminatory corporate practices, and foreign adversaries. While states like California and Vermont have pioneered transparency-based regulatory models, these efforts remain limited in scope, emphasizing disclosure rather than substantive restrictions on harmful data practices. At the federal level, legislative attempts such as the American Data Privacy and Protection Act and the DELETE Act have sought to establish privacy protections but have faltered amid political disagreement and weak enforcement mechanisms. Meanwhile, agencies like the FTC, CFPB, and DOJ have made incremental progress under constrained authority. This policy proposal argues that transparency alone is insufficient to safeguard privacy and advocates for a comprehensive federal framework prioritizing data minimization, stronger enforcement, and clearer definitions of data brokers. It recommends a federal baseline law that empowers both regulators and individuals through private rights of action, robust oversight, and a national data broker registry. By moving beyond transparency toward proactive regulation, the United States can close dangerous loopholes, protect vulnerable populations, and prevent the erosion of fundamental rights.

I. Introduction & Context

In today's digital age, data brokers have emerged as powerful yet largely unregulated entities that impact individual privacy and national security. These companies aggregate data sets on individuals by collecting data directly from mobile applications or through the purchase of existing data sets (Sherman, 2023a). By compiling comprehensive individual profiles, data brokers create vast marketplaces where personal information is sold or licensed (Sherman, 2023a).

The scale of this industry is substantial but difficult to precisely quantify due to a variety of definitions and registration requirements across jurisdictions. As of 2024, approximately 500 data brokers are registered in California, and nationwide over 540 unique brokers have been identified. Some of these are likely the same entities registered both within and outside of California, but the precise extent of overlap remains unclear (Kloczko, 2024). However, many more likely operate outside the registry—either illegally refusing to comply with California's requirements or legally exempt under state broker laws despite functioning as data brokers. Among these companies, large firms like Acxiom wield remarkable influence, boasting access to over 965 million consumer records, with the ability to link emails and names to postal addresses (Sherman et al., 2021).

Despite their extensive reach, data brokers operate with minimal accountability due to the absence of comprehensive federal oversight. This regulatory gap has led to significant societal consequences. Recent data breaches illustrate the severity of these risks: in April 2024, a breach at National Public Data exposed millions of Social Security numbers, and in December 2024, Gravy Analytics suffered a leak of individual location data (Whittaker, 2025; Collier, 2025). Data breaches exposing personally identifiable information, such as Social Security numbers, enable crimes like identity theft and financial fraud, potentially causing financial losses for millions. Additionally, the exposure of location data threatens physical safety by allowing bad actors to track individuals' movements. However, even without such breaches, the industry's routine operations pose major threats to individual safety and security.

Many firms fail to implement robust verification processes when selling data to another entity, enabling criminal enterprises to purchase sensitive and personal data. Vulnerable populations bear the brunt of these risks. Elderly Americans have been targeted through curated lists identifying individuals most likely to fall prey to scams sold by data brokers, as demonstrated by U.S. Department of Justice prosecutions of firms like Epsilon LLC, Macromark Inc., and KBM (Simmons & Sherman, 2022). Similarly, victims of domestic violence and stalking face heightened dangers when their personal information is made readily accessible via people search websites (Sherman, 2023d). Medically marginalized communities also experience discrimination, as insurers and healthcare companies use broker-supplied data to adjust premiums and coverage decisions without oversight (Kim, 2023; Hill, 2024).

Perhaps most alarming is the national security threat. Research shows that foreign actors can easily purchase detailed information on U.S. military personnel, veterans, and government officials, including movement and location data (Sherman, 2023a). The Protecting Americans Against Foreign

The growing misalignment between rapid technological advancements and outdated regulatory frameworks has enabled data brokers to operate without sufficient accountability. As digital data becomes an increasingly valuable commodity, it is imperative to implement targeted policy interventions that regulate this industry while preserving legitimate business practices.

II. Policy Options: State Level

States have emerged as early laboratories for data broker regulation, with varying approaches offering important lessons for federal policy. However, many of these "privacy" bills considered—or even enacted—by state legislatures in recent years were drafted by industry actors like Amazon and Microsoft, which profit from invasive commercial surveillance. As investigative journalists at The Markup uncovered (Fitzgerald, 2023), these corporations have played a direct role in shaping legislation to serve their interests. These efforts reveal both the potential and limitations of different regulatory frameworks.

California's data broker legislation, first enacted in 2018, established a basic regulatory framework focused on transparency. The state defines data brokers narrowly as "businesses that knowingly collect and sell to third parties the personal information of consumers with whom they do not have a direct relationship" (Sherman, 2023b). Its registry requirements mandate only minimal disclosures, such as company name, website, and contact details, without imposing substantive restrictions on data collection or sales (Sherman, 2023b). While this law marked an important first step, it does not grant consumers direct rights beyond transparency through the registry (Sherman, 2023b). However, California has since

strengthened its regulatory approach with the passage of the Delete Act (SB 362) in 2023, which introduces a centralized mechanism for consumers to request deletion of their data from all registered brokers and requires independent audits to enhance compliance (Quinlan, 2024; Lawfare, 2024). Despite these advancements, California's framework primarily focuses on transparency and consumer control rather than imposing broad limitations on data brokerage practices (Quinlan, 2024).

Vermont builds upon California's foundation with slightly expanded oversight. The state maintains a similar core definition of data brokers but extends it to include licensing of data alongside sales (Sherman, 2023b). This is an important recognition that enables Vermont also to target complex data broker relationships that aren't legally sales. Vermont's registry requirements go further than California's, requiring companies to disclose their opt-out mechanisms, data breach history, buyer verification processes, and whether they handle minors' data (Sherman, 2023b). However, like California, the law focuses primarily on transparency rather than establishing meaningful restrictions on data broker practices, and consumer protections remain limited to information access through the registry.

Oregon's House Bill 4017 takes an innovative but potentially problematic approach. The state defines data brokers broadly as entities that "collect, store, or transfer personal data" without a direct relationship with individuals (Sherman, 2023b). While registration requirements mirror those of Vermont, Oregon introduces an alternative compliance pathway allowing companies to submit a legal declaration that they only handle deidentified or aggregated data. This could enable companies to avoid full compliance obligations, potentially creating loopholes where businesses claim to use de-identified data while still engaging in practices that pose privacy risks, such as reidentification which isn't explicitly banned. Although this flexibility appears progressive, it may inadvertently legitimize problematic industry practices, as supposedly anonymized data can often be re-identified and used harmfully (Sherman, 2023b).

Massachusetts' Information Privacy and Security Act proposes more robust consumer protections. The state expands the definition of data brokers to include companies handling sensitive data on 10,000 or more individuals, including those selling their own customer data (Sherman, 2023b). Beyond standard registry requirements, the law mandates that brokers notify individuals before selling their data and provide meaningful opt-out opportunities (Sherman, 2023b). While this represents a significant advance in consumer rights, the effectiveness of opt-out mechanisms remains questionable, as they place substantial burden on individuals to monitor and manage their data across numerous brokers. It also requires a high degree of citizen education on the process of opting out.

Delaware's House Bill 262 currently stands as the most comprehensive state-level approach. The state reframes the industry entirely by using the term "data market participant" and includes any business maintaining data on 500 or more consumers, regardless of direct relationships (Sherman, 2023b). Delaware requires extensive disclosures including specific data categories being sold, customer types, post-sale usage restrictions, and buyer vetting procedures (Sherman, 2023b). Though the bill still focuses on registration rather than restriction, its broader scope and enhanced transparency requirements provide a stronger foundation for meaningful oversight.

Analysis of these state approaches reveals several critical lessons for effective data broker regulation. First, narrow definitions of data brokers often fail to capture the full scope of entities engaged in data trading. Second, simple registration requirements, while important for transparency, do not adequately address the fundamental privacy and security risks posed by data brokers. Although registration requirements make it easier for enforcement agencies to investigate law violations, they are extremely limited in their ability to prevent the mass data accumulation that endangers people. Restrictions on data broker practices require stronger qualifications, as mechanisms like opting out and de-identification often fail to protect consumers. Opt-out systems place unrealistic burdens on individuals while leaving systemic data exploitation intact, particularly given brokers' business models. Similarly, de-identification measures are often ineffective, as companies can easily circumvent them, reidentifying individuals through data correlations. The limitations of state laws suggest that effective regulation must combine comprehensive definitions, substantial restrictions on data collection and sale, proactive consumer protections, and robust enforcement mechanisms rather than relying primarily on transparency measures.

III. Policy Options: Federal Congress Level

At the federal level, Congress has pursued several legislative approaches to regulate data brokers, each with distinct focuses and limitations. These efforts demonstrate an evolving

understanding of the challenges posed by the data brokerage industry and highlight the ongoing debate about how best to protect consumer privacy while maintaining legitimate business practices.

The American Data Privacy and Protection Act (ADPPA), introduced in 2022, emerged as a bipartisan effort to establish comprehensive federal data privacy standards amid growing concerns about unregulated data collection practices. The bill aimed to create a unified national framework that would preempt state laws while providing clear guidelines for data collection, processing, and protection. Its scope was notably broad, applying to all U.S. residents and encompassing companies engaged in large-scale data collection, even when data sales were not their primary business. The ADPPA proposed a robust enforcement mechanism combining Federal Trade Commission oversight, state attorney general authority, and a private right of action for individuals ("American Data Privacy and Protection Act (ADPPA): An Overview", 2025; Linebaugh et al., 2024). While the bill's comprehensive approach and strong privacy protections represented significant strengths, including bans on collecting geolocation and biometric data without explicit consent, it ultimately failed to advance beyond committee discussions (An, 2023; Sherman, 2023c). This failure stemmed from fundamental disagreements over federal preemption of state laws, particularly opposition from states like California that feared losing their ability to adapt, expand, or maintain stricter state-level protections in certain aspects, despite the ADPPA's otherwise robust national standards. (An, 2023).

The Data Elimination and Transparency Enhancement (DELETE) Act of 2023 took a more focused approach to data broker regulation. Introduced in response to growing public concern about personal data control, the bill sought to empower consumers by establishing a mechanism for requesting deletion of their information from data broker databases. Its scope extended to all Americans and broadly defined data brokers to include companies collecting and selling data regardless of their primary business function. However, the DELETE Act's enforcement framework proved to be its primary weakness, as it relied heavily on voluntary compliance without establishing strong regulatory oversight or clear penalties for violations (Sherman, 2023c). The bill failed to gain sufficient support, facing opposition from both directions: industry groups concerned about compliance costs and privacy advocates who argued it didn't adequately address fundamental issues in data broker practices.

The Health and Location Data Protection Act, introduced in 2023 following the Dobbs v. Jackson Women's Health Organization decision, specifically targeted the protection of sensitive health and location data. The bill emerged from concerns that law enforcement or malicious actors could exploit such data to track individuals, particularly in states with restrictive abortion laws ("Warren, Wyden, Murray, Whitehouse, Sanders Introduce Legislation to Ban Data Brokers From Selling Americans' Location and Health Data", 2022). Its scope encompasses all individuals and extends to various entities handling sensitive data, including mobile app providers and first-party collectors (Brangham & Hartman, 2023). While the bill proposes strict limitations on data handling, its enforcement mechanism remains undefined, raising questions about implementation effectiveness by agencies like the FTC or Department of Justice.

The Protecting Americans' Data from Foreign Adversaries Act (PADFA), enacted in April 2024, represents the most recent and only successful federal legislation addressing data broker practices. Motivated by national security concerns, particularly the threat of foreign exploitation of Americans' data, the law restricts the transfer of sensitive personal data to designated foreign adversaries including China, Russia, Iran, and North Korea. PADFA's scope is comprehensive, covering all U.S. individuals and broadly defining data brokers to include mobile app brokers and first-party collectors. The law assigns enforcement authority to the FTC but notably does not provide additional enforcement resources (Kohne et al., 2024). While PADFA successfully passed due to strong bipartisan support for national security measures, its primary limitation lies in its narrow focus on data transfers to foreign actors like companies or government entities, leaving domestic privacy concerns largely unaddressed.

These legislative efforts reveal an evolution in federal approaches to data broker regulation, from comprehensive privacy frameworks to targeted interventions addressing specific concerns. Each successive bill has contributed valuable insights about the challenges of balancing effective regulation with practical implementation, though only national security concerns have thus far generated sufficient consensus for successful legislation.

IV. Policy Options: Federal Agency Level

Federal agencies have been actively addressing the challenges posed by data brokers, employing existing legal frameworks to regulate the collection, sale, and misuse of personal data. The

Federal Trade Commission (FTC), Consumer Financial Protection Bureau (CFPB), and Department of Justice (DOJ) have each undertaken significant actions, achieving notable progress while also encountering persistent challenges.

Federal Trade Commission (FTC)

The FTC has leveraged its authority under the Federal Trade Commission Act to pursue data brokers engaging in deceptive or unfair practices. In December 2024, the FTC reached settlements with data brokers Mobilewalla and Gravy Analytics, which were found to have sold sensitive information—including data on individuals' religious beliefs, political affiliations, and pregnancy statuses—without proper consent (Collier, 2025). These settlements prohibit the companies from using sensitive location data and mandate the provision of opt-out options for consumers, reinforcing the FTC's role in preventing unauthorized data sales that pose risks such as stalking and unlawful surveillance (Godoy, 2024).

In another significant case, the FTC settled with location data broker X-Mode Social (now Outlogic) in March 2024. X-Mode was accused of selling precise geolocation data, allowing third parties to track individuals at reproductive health clinics, places of worship, and other sensitive locations. The settlement prohibits X-Mode from selling data related to sensitive locations and requires the implementation of a comprehensive privacy program to prevent further violations (Lawfare, Sherman, 2024a).

Despite these actions, the FTC faces significant challenges, particularly resource limitations and an unclear legal mandate to address the evolving data brokerage landscape effectively. The agency's enforcement powers depend heavily on existing consumer protection laws, which are not explicitly designed for modern data brokerage practices (Lawfare, Sherman, 2023e).

Consumer Financial Protection Bureau (CFPB)

The CFPB has taken a proactive approach by proposing new regulatory rules to extend its oversight to data brokers under the Fair Credit Reporting Act (FCRA). In December 2024, the CFPB proposed a rule that would classify data brokers selling sensitive personal information as consumer reporting agencies. This classification would subject them to stricter regulations, including accuracy requirements, consumer access to their data, and opt-out mechanisms. The proposal aims to prevent the sale of personal identifiers—such as Social Security numbers and phone numbers—to unauthorized entities, which could help protect consumers from scams, stalking, and illegal surveillance ((*CFPB Proposes Rule to Stop Data Brokers From Selling Sensitive Personal Data to Scammers, Stalkers, and Spies | Consumer Financial Protection Bureau*, 2024)).

However, the CFPB's efforts have been hindered by political opposition. In February 2025, the Trump administration ordered the CFPB to halt nearly all operations, effectively suspending its rulemaking and enforcement activities. This move has raised concerns about the future of consumer protections against predatory data practices and the potential resurgence of unregulated data sales (Rugaber, 2025). Without congressional support or a change in administration, the CFPB's ability to regulate data brokers remains uncertain.

Department of Justice (DOJ)

The DOJ has focused on prosecuting data brokers involved in fraudulent schemes. In 2020 and 2021, the DOJ brought criminal charges against data brokers Epsilon, Macromark, and KBM for knowingly selling personal data of elderly and vulnerable individuals to scammers. These cases highlighted the role of data brokers in enabling fraud and led to significant financial penalties and settlements (Simmons & Sherman, 2022).

However, the DOJ faces challenges in proactively regulating data brokers. Most of its actions are reactive, targeting fraud after it has occurred rather than preventing data brokers from selling consumer data to bad actors in the first place. This underscores the need for stronger regulatory frameworks and enhanced collaboration with agencies like the FTC and CFPB to monitor and regulate data brokerage activities effectively (Principal Deputy Assistant Attorney General Brian Boynton Delivers Remarks at White House Roundtable on Protecting Americans From Harmful Data Broker Practices, 2023).

Federal agencies have made significant progress in tackling data brokers within the constraints of existing laws. The FTC has actively pursued deceptive practices, the CFPB has sought to expand regulatory oversight, and the DOJ has targeted fraudulent data sales. However, political opposition, resource limitations, and enforcement challenges continue to impede a comprehensive regulatory response. Addressing these challenges may require legislative action to provide clearer legal authority and additional resources for these agencies to effectively oversee and regulate data brokers.

V. Policy Recommendation

In light of the challenges posed by data brokers and the lessons learned from state and federal actions, a comprehensive federal data privacy law is necessary. Such legislation must effectively protect individuals from harm and discrimination while safeguarding national security interests. This policy proposal outlines the essential components of such a law, focusing on data minimization, the definition of data brokers, state law preemption, enforcement mechanisms, and the role of a data broker registry. These recommendations are based on precedent, legal analysis, and ongoing efforts by federal agencies and advocacy groups.

A central debate in crafting privacy legislation is whether to prioritize data minimization or broker transparency. Transparency is important but not enough to prevent data misuse. Even with mandatory reporting, data brokers can exploit loopholes to misreport their activities, and transparency measures often leave regulators in a reactive position, addressing harm only after it has occurred rather than preventing it. Instead, the proposed law should prioritize data minimization, ensuring that personal data collection and retention are strictly limited to what is necessary for legitimate purposes. This proactive approach reduces the risk of unauthorized access, misuse, and discrimination, particularly in areas where data brokers have historically exploited sensitive personal information for profit. The effectiveness of this approach is evident in the European Union's General Data Protection Regulation (GDPR), which prioritizes data minimization as a core safeguard against privacy risks ("The EU General Data Protection Regulation," 2020). By restricting data collection to what is strictly necessary, the GDPR reduces opportunities for misuse, making it harder for companies to exploit personal information, regardless of transparency measures. This proactive model highlights how limiting data collection is a stronger, more enforceable protection than relying solely on disclosure requirements.

A robust federal data privacy law must include a comprehensive definition of data brokers to ensure regulatory oversight is not circumvented. A data broker should be defined as any entity that collects, assembles, or maintains personal information about individuals who are not customers or employees for the purposes of selling, sharing, or licensing that information. This definition must encompass first-party collectors, mobile application providers, and companies whose primary business is not data brokerage but who engage in large-scale data monetization. This is critical because first-party data brokers play an essential role in introducing consumer data into the market, often without individuals' awareness or meaningful consent. A broad, inclusive definition prevents companies from evading regulation by claiming they are not traditional data brokers (Fitzgerald, 2023).

Because state law preemption remains a contentious issue in federal privacy legislation, the proposed law should establish a baseline national standard for data privacy while allowing states to enact stronger protections if they choose. A strict preemption clause that overrides all state laws could undermine existing robust state privacy laws, such as California's Consumer Privacy Act (CCPA)and its update to the original law, and prevent future advancements in privacy protections. Instead, a flexible approach that sets a minimum federal standard while allowing states to enhance protections ensures consistency across the country while preserving states' ability to address emerging threats and vulnerabilities in data privacy (EPIC Background).

A major shortcoming of current regulations is weak enforcement mechanisms. Relying solely on agencies like the Federal Trade Commission (FTC), Department of Justice (DOJ), or Consumer Financial Protection Bureau (CFPB) has proven ineffective due to resource constraints and slow litigation processes. To address this, the proposed law must empower state attorney generals to enforce federal privacy protections, allowing for quicker and more localized responses to violations. Additionally, establishing a private right of action—which allows individuals to sue companies that violate their privacy rights—provides a strong deterrent against non-compliance. Finally, increasing the FTC's budget and staffing is crucial for ensuring it has the resources needed to investigate and act against bad actors effectively (Godlasky, 2022).

A national data broker registry should be implemented to enhance transparency and accountability. Requiring data brokers to register and disclose their data collection, aggregation, and sales practices would allow regulators, researchers, and the public to track how personal data is being bought and sold. This registry should be maintained by the FTC and made accessible to consumers who wish to know which companies hold their data. A registry alone is ineffective without strict limits on data collection and sales. It should be part of a broader framework with strong privacy and security protections (Sherman, 2023c).

To effectively safeguard privacy and national security, the proposed law must include several key provisions. It must apply universally to all

individuals in the U.S., preventing companies from exploiting loopholes related to specific demographic groups. It should also include provisions that prevent brokers from targeting individuals indirectly—for example, by collecting data on people who are tangentially connected to vulnerable groups, a common practice used to circumvent legal protections (Sherman 2023a). Additionally, the law must strike a balance regarding publicly available information by restricting the aggregation and resale of personal data that could facilitate stalking, harassment, or identity theft.

Another critical component is a ban on the sale of geolocation and biometric data. Numerous cases have demonstrated the risks posed by unrestricted access to geolocation data, including threats to reproductive rights, domestic violence survivors, and national security. The FTC's recent enforcement actions against location data brokers highlight the urgency of this issue (Sherman, 2024a). Similarly, biometric data—such as facial recognition and fingerprint scans—should be protected from sale or commercial exploitation to prevent misuse by foreign adversaries and identity thieves.

Companies that handle personal data must be required to implement robust privacy, security, and compliance programs. This includes encryption standards, strict data retention policies, and internal audits to ensure compliance with regulations. Many data breaches and abuses occur due to lax security measures and poor data governance, demonstrating the need for mandatory security practices (Lewis et al., 2023).

For this law to be truly effective, the government must transition from a reactive to a proactive enforcement strategy. Currently, regulatory action against data brokers is largely reactive, addressing violations only after harm has occurred. Strengthening preventative oversight—through better funding for enforcement agencies, stronger consumer rights, and stringent compliance requirements—can help prevent harm before it happens, rather than simply punishing violators after the fact (Quinlan, 2024).

In conclusion, a comprehensive federal data privacy law must be inclusive, enforceable, and forward-looking. It must prioritize data minimization over mere transparency, define data brokers comprehensively, avoid overreaching state preemption, ensure strong enforcement mechanisms, and implement a national standard for registering data brokers. Additionally, the law must prohibit the sale of geolocation and biometric data and require companies to maintain strict privacy and security controls. By learning from the shortcomings of state laws and previous federal attempts, this proposal offers a pathway to protect individuals from harm, prevent national security vulnerabilities, and establish a strong foundation for privacy rights in the digital age.

VI. Conclusion

The regulation of data brokers is not just a matter of consumer privacy—it is a fundamental issue of public safety, national security, and digital autonomy. Without comprehensive protections, individuals remain vulnerable to financial fraud, identity theft, stalking, and discrimination, while foreign adversaries and bad actors exploit weak regulations for their own gain. A strong federal framework must move beyond reactive enforcement and transparency measures to proactively limit the collection and sale of sensitive data. By implementing meaningful data minimization policies, strengthening enforcement mechanisms, and closing regulatory loopholes, policymakers can safeguard not only personal privacy but also broader societal interests, ensuring that digital advancements serve the public good rather than eroding fundamental rights.

REFERENCES

American Data Privacy and Protection Act (ADPPA): An overview. (2025, January 31). Consent Management Platform (CMP) Usercentrics. https://usercentrics.com/knowledge-hub/american-data-privacy-and-protection-act-adppa/

An, E. J. (2023). It's Finally Time for A National Data Privacy Law: A Discussion of the American Data Privacy And Protection Act (ADPPA). Brooklyn Journal of Corporate, Financial, & Commercial Law, 18(1), 12.https://brooklynworks.brooklaw.edu/cgi/viewcontent.cgi?article=1418&context=bjcfcl

Brangham, W., & Hartman, S. C. (2023, February 20). Personal user data from mental health apps being sold, report finds. PBS News. https://www.pbs.org/newshour/show/personal-user-data-from-mental-health-apps-being-sold-report-finds

California, S. O. (n.d.). Data Broker Registry - California Privacy Protection Agency (CPPA). https://cppa.ca.gov/data_broker_registry/

CFPB Proposes Rule to Stop Data Brokers from Selling Sensitive Personal Data to Scammers, Stalkers, and Spies | Consumer Financial Protection Bureau. (2024, December 3). Consumer Financial Protection Bureau. https://www.consumerfinance.gov/about-us/newsroom/cfpb-proposes-rule-to-stop-data-brokers-from-selling-sensitive-personal-data-to-scammers-stalkers-and-spies/

Collier, K. (2025, January 10). A company that tracks and sells Americans' location data has seemingly been hacked. NBC News. https://www.nbcnews.com/tech/security/location-data-broker-gravy-analytics-was-seemingly-hacked-experts-say-rcna187038

Fitzgerald, C. (2023). A Proposed Compromise: the State Data Privacy and Protection Act. Electronic Privacy Information Center (EPIC). https://epic.org/a-proposed-compromise-the-state-data-privacy-and-protection-act/

Godlasky, A. (2022, December 28). Data Privacy Act has bipartisan support. but . . . - National Press Foundation. National Press Foundation. https://nationalpress.org/topic/data-privacy-act-adppa-us-lacks-law-eu-standard/

Godoy, J. (2024, December 3). FTC settles with data brokers that sold political, pregnancy info. Reuters. https://www.reuters.com/technology/cybersecurity/ftc-settles-with-data-brokers-that-sold-political-pregnancy-info-2024-12-03/

Hill, K. (2024, March 11). Automakers Are Sharing Consumers' Driving Behavior With Insurance Companies. The New York Times. https://www.nytimes.com/2024/03/11/technology/carmakers-driver-tracking-insurance.html

Kim, J. (2023). Data brokers and the sale of Americans' mental health data. https://techpolicy.sanford.duke.edu/wp-content/uploads/sites/4/2023/02/Kim-2023-Data-Brokers-and-the-Sale-of-Americans-Mental-Health-Data.pdf

Kloczko, J. (2024, September 12). Report Shows That Less Than 1% of Californians Exercise Privacy Rights with Data Brokers. Consumer Watchdog. https://consumerwatchdog.org/privacy/news-release-under-1-of-californians-exercise-privacy-rights-with-data-brokers-new-report-shows/#:~:text=In%20California%2C%20close%20to%20500%20data%20brokers,collect%2C%20and%20where%20to%20delete%20personal%20information.

Kohne, N. G., Davis, C. C., Black, L., Dowell, R., & Padgett, K. P. (2024, June 21). *Protecting Americans' Data from Foreign Adversaries Act of 2024*. Akin Gump Strauss Hauer & Feld LLP - Protecting Americans' Data From Foreign Adversaries Act of 2024. https://www.akingump.com/en/insights/alerts/protecting-americans-data-from-foreign-adversaries-act-of-2024

Lewis, A., Cooper, B., Sistla, M., & Cole, J. (2023, November). *Data Brokers: a call to action - Aspen Tech Policy Hub*. Aspen Tech Policy Hub. https://aspenpolicyacademy.org/wp-content/uploads/2024/11/asp-20-data-brokers-v5.pdf

Linebaugh, C., Benson, P., Trout, M., Wild, C., & Gaffney, J. (2024). The American Privacy Rights Act. In Congressional Research Service (No. LSB11161). Congressional Research Service. https://crsreports.congress.gov/product/pdf/LSB/LSB11161

Principal Deputy Assistant Attorney General Brian Boynton delivers remarks at White House roundtable on protecting Americans from harmful data broker practices. (2023, August 15). https://www.justice.gov/archives/opa/speech/principal-deputy-assistant-attorney-general-brian-boynton-delivers-remarks-white-house

Quinlan, K. (2024, February 2). State privacy laws largely fail to protect consumer data, report shows. StateScoop. https://statescoop.com/state-privacy-laws-fail-protect-consumer-data-2024/

Rugaber, C. (2025, February 9). Trump administration orders consumer protection agency to stop work, closes building | AP News. AP News. https://apnews.com/article/trump-consumer-protection-cease-1b93c60a773b6b5ee629e769ae6850e9

Sherman, J. (2021, April 8). Federal privacy rules must get "Data broker" definitions right. Default. https://www.lawfaremedia.org/article/federal-privacy-rules-must-get-data-broker-definitions-right

Sherman, J. (2023a, January 18). Data brokers are advertising data on U.S. military personnel. Default. https://www.lawfaremedia.org/article/data-brokers-are-advertising-data-us-military-personnel

Sherman, J. (2023b, January 18). Examining state bills on data brokers. Default. https://www.lawfaremedia.org/article/examining-state-bills-data-brokers

Sherman, J. (2023c, June 6). Data Broker Registries in Bills: the ADPPA and the DELETE Act. Default. https://www.lawfaremedia.org/article/data-broker-registries-in-bills-the-adppa-and-the-delete-act

Sherman, J. (2023d, October 30). People search data brokers, stalking, and 'Publicly Available Information' Carve-Outs. Default. https://www.lawfaremedia.org/article/people-search-data-brokers-stalking-and-publicly-available-information-carve-outs

Sherman, J. (2023e, December 26). The FTC's amended Kochava complaint and the harms of selling geolocation data. Default. https://www.lawfaremedia.org/article/the-ftc-s-amended-kochava-complaint-and-the-harms-of-selling-geolocation-data

Sherman, J. (2024a, March 12). *Location data broker X-Mode and the FTC's unprecedented settlement*. Default. https://www.lawfaremedia.org/article/location-data-broker-x-mode-and-the-ftc-s-unprecedented-settlement

Sherman, J. (2024b, March 14). *Using 'Sensitive locations lists' to address data broker harm*. Default. https://www.lawfaremedia.org/article/using-sensitive-locations-lists-to-address-data-broker-harm

Sherman, J. (2024c, August 29). Hard lessons from the National Public Data Hack. Default. https://www.lawfaremedia.org/article/hard-lessons-from-the-national-public-data-hack

Sherman, J., & Desai, D. (2024, January 8). The most critical elements of the FTC's health breach rulemaking. Default. https://www.lawfaremedia.org/article/the-most-critical-elements-of-the-ftc-s-health-breach-rulemaking

Sherman, J., Duke University Sanford Cyber Policy Program, & Duke University Privacy & Democracy Project. (2021). Data brokers and sensitive data on U.S. individuals. https://techpolicy.sanford.duke.edu/wp-content/uploads/sites/4/2021/08/Data-Brokers-and-Sensitive-Data-on-US-Individuals-Sherman-2021.pdf

Simmons, A., & Sherman, J. (2022, July 25). Data brokers, elder fraud, and Justice Department investigations. Default. https://www.lawfaremedia.org/article/data-brokers-elder-fraud-and-justice-department-investigations

The EU General Data Protection Regulation. (2020, October 28). *Human Rights Watch*. https://www.hrw.org/news/2018/06/06/eu-general-data-protection-regulation

Warren, Wyden, Murray, Whitehouse, Sanders Introduce Legislation to Ban Data Brokers from Selling Americans' Location and Health Data. (2022, June 15). https://www.warren.senate.gov/newsroom/press-releases/warren-wyden-murray-whitehouse-sanders-introduce-legislation-to-ban-data-brokers-from-selling-americans-location-and-health-data

Whittaker, Z. (2025, January 13). A breach of Gravy Analytics' huge trove of location data threatens the privacy of millions. TechCrunch. https://techcrunch.com/2025/01/13/gravy-analytics-data-broker-breach-trove-of-location-data-threatens-privacy-millions/

A Comprehensive Policy Framework to Address U.S. Infant Mortality Disparities

Adhira Tippur

Abstract

The United States continues to face significant challenges in reducing infant mortality rates compared to other developed nations. This paper examines current disparities in U.S. infant healthcare outcomes and proposes a comprehensive policy framework to address these challenges. Through an analysis of successful models from Finland and Japan, this plan outlines a technological, four-pillar approach to reducing infant mortality rates and improving healthcare access for infants and their mothers across socioeconomic groups. The framework encompasses universal prenatal care, enhanced postpartum support, advanced risk identification, and technology-enabled monitoring systems.

I. Introduction

Despite being a global leader in medical technology and research, the United States struggles with persistently high infant mortality rates. As of 2024, the U.S. reports 5.342 deaths per 1,000 live births, significantly higher than other developed nations such as Finland (1.381) and Japan (1.530) (MACROTRENDS). Infant mortality is universally defined as the death of an infant before reaching one year of age; however, some countries vary in how they record extremely premature births and stillbirths, consequentially affecting comparative statistics. This disparity highlights a critical public health challenge that requires immediate attention and comprehensive policy solutions. In recent years, the U.S. has additionally struggled to lower its numbers in infant mortality rates compared to other countries. While there have been modest improvements, with a 2.52% decline from 2023 to 2024, the U.S.'s rate of progress lags behind other nations. This research aims to identify effective policy interventions by examining successful international models and proposing adaptable solutions for the U.S. healthcare system.

II. Current State of U.S. Infant Healthcare

The U.S. healthcare system faces several structural challenges that contribute to comparatively high infant mortality rates. The current system fails to provide equal healthcare access, and despite expansions in Medicaid coverage for prenatal care since 2014, many pregnant individuals still face barriers to accessing comprehensive healthcare services (Lyon, 2014). Significant disparities in infant mortality rates persist across different racial and socioeconomic groups, highlighting systemic inequities in healthcare access and quality (Ndugga & Artiga, 2021). These disparities are stark: Black infants have an infant mortality rate of 10.9 deaths per 1,000 live births, more than twice the rate for White infants at 4.6 per 1,000. Native American and Alaska Native infants have a rate of 9.1 per 1,000, while Hispanic infants face a rate of 4.9 per 1,000 (Ely & Driscoll, 2023). Additionally, infants born to mothers with less than a high school education have nearly twice the mortality rate compared to those born to college-educated mothers.

Additionally, current support systems, including federal programs such as the Women, Infants, and Children (WIC) nutrition program, which provides federal grants to states for supplemental foods, healthcare referrals, and nutrition education for low-income pregnant women, breastfeeding mothers, and young children, fail to provide comprehensive coverage for all families in need due to funding limitations, strict eligibility requirements, and geographic disparities in program availability (Community Bridges, 2025). These home visitation programs, which provide critical services such as nurse check-ins, parenting education, developmental screenings, and connection to community resources, reach only a few of the families who could benefit from them.

The United States has shown gradual improvement in infant mortality rates over recent years. In 2024, the rate decreased to 5.342 deaths per 1,000 live births, representing a 2.52% decline from the previous year. This pattern of gradual decline followed a consistent pattern, with 2023 showing a rate of 5.480 (a 1.21% decline), 2022 reporting 5.547 (a 1.19% decline), and 2021 recording 5.614 deaths per 1,000 live births (a 1.18% decline) (MACROTRENDS). While these improvements demonstrate progress, they also highlight a slower rate of improvement compared to other developed nations.

III. International Best Practices

Finland's approach to infant healthcare has produced remarkable results, with an infant mortality rate of just 1.381 deaths per 1,000 live births in 2024 (MACROTRENDS). The Finnish system centers around several key programs and policies. For example, the innovative "Baby Box" Program provides new parents with essential care items and healthcare information (Stiefvater, 2015). This comprehensive initiative, a free box available to all new parents, includes essential baby supplies such as clothing and bedding, functions as a safe sleeping space, provides detailed health and childcare information, and encourages early prenatal care through program participation requirements (Redirecting). These requirements include mandatory attendance at prenatal clinic appointments before the fourth month of pregnancy, ensuring mothers receive early and consistent care.

The Finnish healthcare system ensures universal coverage, with 100% coverage for prenatal care services, effectively eliminating financial barriers to essential healthcare (Pregnancy and Childbirth in Finland). Their comprehensive social support system establishes robust parental benefits through Finland's Social Insurance Institution, Kela, including pregnancy allowance, parental allowance, risk-based work accommodation support, and extended family leave policies (Parental Benefits in Finland).

Japan also maintains consistently low infant mortality rates, reporting 1.530 deaths per 1,000 live births in 2024 (MACROTRENDS). Their success stems from a combination of advanced medical infrastructure and strong cultural support systems (Isayama, 2019). The Japanese healthcare system features state-of-the-art neonatal intensive care units and comprehensive genetic screening programs for newborns (Tajima, 2022). Additionally, Japanese society emphasizes strong postpartum maternal support, including extended family involvement and community assistance. In line with Japanese cultural values, the government provides extensive subsidized maternal leave benefits, including extended maternity leave periods, financial aid programs, and flexible work arrangements for new parents (Yani, 2024; Parental Leave in Japan, 2025).

IV. Proposed Policy Framework

Drawing from international best practices and U.S. healthcare system needs, this paper proposes a comprehensive four-pillar policy framework. The first pillar, the Universal Prenatal Care Initiative, aims to ensure accessible, high-quality prenatal care for all pregnant individuals. As the foundation of the framework, this policy would eliminate financial barriers to prenatal care by integrating funding streams from existing federal, state, and private insurance systems with existing Medicaid systems and comprehensive coverage of essential services. The implementation strategy involves federal funding allocation through expanded healthcare programs, state grants for administration, and integration with existing healthcare infrastructure. This initiative would directly address current gaps in prenatal care access, particularly for underserved communities, resulting in earlier intervention for at-risk pregnancies and improved birth outcomes.

The second pillar is to develop an Enhanced Postpartum Support System, addressing critical needs during the postpartum period. This system would establish mandatory paid parental leave with a minimum 12-week requirement, job protection guarantees, and flexible return-to-work options. The support services would include a universal home visitation program for first-time parents, mental health support services, nutritional guidance and resources, and development monitoring and support. These services would be delivered by trained healthcare professionals and family support specialists through in-home visits, telehealth consultations, and community resource centers. Unlike current fragmented services, these would be universally available regardless of income, centrally coordinated through state health departments, and include continuous care rather than the current episodic approach. This system would substantially improve current fragmented postpartum care by providing constant support during the critical early months, reducing postpartum complications, and promoting healthier infant development.

The Advanced Neonatal Risk Identification Program is established within the third pillar, taking a proactive approach to early identification and intervention. This program would implement comprehensive screening, including genetic health assessments, risk factor identification, and targeted intervention planning. This research would be conducted through a partnership between the CDC, NIH, and academic medical centers, with findings regularly integrated into clinical practice. This program would enhance current screening practices by implementing standardized, comprehensive risk assessment protocols, enabling earlier interventions for high-risk infants and reducing preventable infant mortality. Funding would be secured through expanded NIH research grants, Medicaid allocations for preventive services, and public-private partnerships with health foundations and insurance providers.

The fourth pillar consists of a Technology-Enabled Monitoring System that leverages modern technology to enhance healthcare delivery. This system would involve digital health infrastructure, including continuous health monitoring platforms, AI-powered early warning systems, and integrated healthcare communications. The data integration component would create unified health records, cross-provider communication systems, and real-time health status monitoring capabilities. This system would overcome healthcare fragmentation by creating a seamless flow of information between providers, which would enable coordinated care delivery and rapid response to emerging health concerns.

V. Implementation Considerations

A gradual rollout of the improved program will ensure its effectiveness. The initial phase would focus on establishing pilot programs in select states, targeting high-need populations, and allowing for system testing and refinement. This phased implementation approach would be followed by an expansion phase featuring gradual program scaling, integration with existing systems, and continuous evaluation and adjustment.

While the initial investment required for these programs is substantial, the long-term benefits significantly outweigh the costs. Reductions in emergency interventions, long-term health complications, and overall healthcare expenditures would offset implementation costs. Initial funding would be secured through a dedicated congressional appropriation, similar to other major healthcare initiatives, such as the Children's Health Insurance Program (CHIP) expansion or the Affordable Care Act's Medicaid expansion, with ongoing support from a combination of federal budget allocations, state matching funds, and healthcare system reinvestment from demonstrated savings. The funding structure would mirror successful federal-state partnership models, where federal contributions cover a significant portion of program costs with states providing matching funds based on their fiscal capacity. As the program demonstrates cost savings through reduced emergency interventions and improved health outcomes, a portion of these savings would be reinvested to ensure program sustainability. This approach has proven effective in other public health initiatives, where initial federal investment gradually shifts toward self-sustaining models funded by documented healthcare cost reductions. Beyond direct healthcare savings, the economic benefits of this framework extend throughout society. When parents have access to paid leave and comprehensive support services, they are more likely to remain in the workforce and maintain stable employment, increasing overall workforce participation rates. Reduced infant mortality and improved child health outcomes decrease long-term productivity losses associated with chronic health conditions and developmental delays that often stem from inadequate early care. Furthermore, when families are not burdened by catastrophic medical expenses or forced to choose between employment and caring for a sick infant, they achieve greater financial stability, which has multigenerational economic benefits. Studies of similar programs in other countries have shown that every dollar invested in early childhood health and family support generates returns of $3-7 through these economic pathways.

The administrative framework requires careful attention to coordination systems and quality assurance measures. Interstate program alignment, provider network development, and data-sharing protocols must be established and maintained. Successful implementation requires careful coordination across state lines to ensure consistent care quality and seamless transitions for families who relocate. Provider networks must be developed to ensure adequate geographic coverage, particularly in rural and underserved areas where healthcare access is most limited. This may require incentive programs to encourage healthcare providers to participate in underserved regions, as well as investment in telehealth infrastructure to bridge geographic gaps. Data-sharing protocols must balance the need for comprehensive, real-time health information with strict privacy protections, requiring robust cybersecurity measures and clear regulatory frameworks.

However, implementation will face significant challenges. Critics may argue that the substantial upfront costs are prohibitive, particularly given existing federal budget constraints. There are also concerns about federal overreach into what some view as state-level healthcare decisions, and questions about whether a one-size-fits-all approach can address the diverse needs of different regions and populations. Additionally, the healthcare workforce may require significant expansion and training to meet increased demand for services, which could take years to accomplish. Addressing these concerns will require flexible implementation frameworks that allow for state-level customization while maintaining core program standards, as well as clear demonstration of cost-effectiveness through rigorous pilot program evaluation before full-scale rollout.

VI. Expected Outcomes

The proposed framework is projected to yield significant improvements across multiple dimensions. Health outcomes would improve through reduced infant mortality rates, decreased health disparities, and enhanced maternal health indicators. System efficiency would increase through enhanced healthcare coordination, improved resource utilization, and reduced administrative burden. By streamlining fragmented services into coordinated systems with unified digital infrastructure and standardized protocols, the framework eliminates duplicative administrative processes that currently plague the healthcare system. Healthcare providers would spend less time navigating complex, disconnected systems and more time delivering care, while families would experience simplified access to services through single points of contact rather than managing relationships with multiple, uncoordinated programs. The social impact would include greater healthcare equity, improved family support, and strengthened community health resources.

VII. Conclusion

The persistent disparity in U.S. infant mortality rates compared to other developed nations is a critical public health challenge that requires comprehensive policy intervention. By implementing this four-pillar framework, the United States can work toward achieving parity with international leaders in infant healthcare outcomes. Success will require sustained commitment, adequate resource allocation, and careful execution. The proposed framework offers a practical pathway to significant improvements in U.S. infant healthcare outcomes. While challenges exist, particularly regarding funding and administrative complexity, the substantial long-term health and economic benefits make this framework a worthwhile and necessary investment in our nation's future. Continued research, evaluation, and adjustment of these programs will be essential to ensure their effectiveness and sustainability.

VIII. Future Research Recommendations

Future research should examine implementation effectiveness across diverse geographic and demographic contexts, along with a detailed cost-benefit analysis of specific program components. Additional study areas should include technology integration strategies and outcomes, impact on healthcare workforce needs and development, and long-term population health outcomes and economic effects. These research efforts will be crucial for optimizing program effectiveness and ensuring sustainable improvements in infant healthcare outcomes.

REFERENCES

[MACROTRENDS. (n.d.). U.S. infant mortality rate 1950-2025. https://www.macrotrends.net/global-metrics/countries/usa/united-states/infant-mortality-rate#:~:text=The%20current%20infant%20mortality%20rate,a%201.21%25%20decline%20from%202022

MACROTRENDS. (n.d.-a). Finland Infant mortality rate 1950-2025. https://www.macrotrends.net/global-metrics/countries/FIN/finland/infant-mortality-rate#:~:text=The%20infant%20mortality%20rate%20for%20Finland%20in%202021%20was%201.535,a%203.58%25%20decline%20from%202020

MACROTRENDS. (n.d.-b). Japan infant mortality rate 1950-2025. https://www.macrotrends.net/global-metrics/countries/JPN/japan/infant-mortality-rate

Community Bridges. (2025, February 5). Women, Infants and Children (WIC) - Community Bridges. https://communitybridges.org/wic/?utm_source=google_cpc&utm_medium=ad_grant&utm_campaign=cbc_ggrant_awareness_family_programs&gad_source=1&gclid=CjwKCAiAxqC6BhBcEiwAlXp459Xs_3cyB6H4Z61cvh5KvWsYIMBBI2spQfG_9RMtUgv4LuvkdkkSnBoCRjYQAvD_BwE

CDC/NCHS National Vital Statistics System, & Stiefvater, A. (2015). Finnish Baby Boxes: What are they, and what do we know? In Oregon Vital Statistics [Report]. https://www.oregon.gov/oha/PH/HEALTHYPEOPLEFAMILIES/BABIES/Documents/Baby-Box-Brief-2017.pdf

Näsi, Ella, and Karoliina Koskenvuo. “The Finnish Baby Box.” Successful Public Policy in the Nordic Countries, 22 Sept. 2022, pp. 411–431, doi:10.1093/oso/9780192856296.003.0020.

Pregnancy and Childbirth in Finland | Nordic Cooperation, www.norden.org/en/info-norden/pregnancy-and-childbirth-finland. Accessed 18 Nov. 2025.

Parental Benefits in Finland | Nordic Cooperation, www.norden.org/en/info-norden/parental-benefits-finland. Accessed 18 Nov. 2025.
v. 2025.

Isayama T. (2019). The clinical management and outcomes of extremely preterm infants in Japan: past, present, and future. Translational pediatrics, 8(3), 199–211. https://doi.org/10.21037/tp.2019.07.10

Tajima T. (2022). Newborn Screening in Japan-2021. International journal of neonatal screening, 8(1), 3. https://doi.org/10.3390/ijns8010003

Yani A. L. (2024, September 30). Maternity, paternity, and childcare leave in Japan. Tokhimo. https://www.tokhimo.com/post/maternity-paternity-and-childcare-leave-in-japan-1#:~:text=In%20conclusion%2C%20parental%20leave%20is,14%20months%20of%20parental%20leave

“Parental Leave in Japan.” Global People Strategist, 25 Apr. 2025, globalpeoplestrategist.com/parental-leave-in-japan/#:~:text=Wrapping%20Up,or%20growing%20their%20own%20families. Accessed 18 Nov. 2025.

Lyon, S. M., Douglas, I. S., & Cooke, C. R. (2014). Medicaid expansion under the Affordable Care Act. Implications for insurance-related disparities in pulmonary, critical care, and sleep. Annals of the American Thoracic Society, 11(4), 661-667.

Ndugga, N., & Artiga, S. (2021). Disparities in health and health care: 5 key questions and answers. Kaiser Family Foundation, 11(1), 4.

Ely, D. M., & Driscoll, A. K. (2023). Infant mortality in the United States: Provisional data from the 2022 period linked birth/infant death file.

Reconfiguring Malaria Intervention Strategies in Congolese Refugees in Tanzania and Uganda

Ayra Matondang and Aleena Ahmad

Abstract

In 1973, the United States successfully eradicated malaria, a fatal infectious disease caused by mosquito bites—yet, many countries in sub-Saharan Africa and elsewhere are still suffering deaths from this wholly preventable disease. Acknowledging this, the United States established the President's Malaria Initiative (PMI), which assists malaria-endemic countries through prevention, treatment, and eradication. PMI is funded by the United States Agency for International Development (USAID), which has entered limbo due to the reorganization of President-elect Trump's priorities. This policy proposal suggests strategies to reallocate the USAID budget while ensuring that the agency's life-saving initiatives are maintained.

Tanzania and Uganda host large quantities of refugees from the Democratic Republic of Congo (DRC), who also make up high numbers of United States immigrants. Considering the flow of Congolese refugees hosted by Tanzania and Uganda to the United States, the administration should take an interest in improving malaria in refugee settlements.

There are four steps that the United States can take in order to control malaria outbreaks among refugee populations: 1) supporting localization of malaria intervention; 2) donations to Doctors Without Borders for volunteer programs in refugee settlements; 3) establishing Fulbright-Fogarty Public Health Fellowships focused on malaria control research; and 4) increased domestic screening and prevention for incoming refugees.

This policy proposal was developed with information released to the public on Friday, February 7th, 2025. Acknowledging the rapidly changing situation in the field of international development, we cannot anticipate the future of foreign aid, but the proposals detailed here are meant to be scalable and flexible.

I. Background

Between 2011 and 2023, nearly 100,000 refugees arrived in the United States from the DRC (USAFacts Team). In 2022, almost 8,000 refugees out of 25,400 total were from the DRC (Korhonen). However, most refugees displaced in the conflict disperse into the surrounding countries around the DRC—namely Uganda and Tanzania. Refugees hosted in Uganda and Tanzania may then resettle to the United States following their initial migration. The United Nations Higher Commission for Refugees (UNHCR) has reported that Uganda has welcomed around 1.7 million refugees, of whom 518,373 fled from the DRC. The districts of Adjumani and Yumbe in the northern part of Uganda host a third of all refugees in the country (Hujale) (Galal). Adjumani, for example, hosts several settlements and refugee camps, including Pagarinya and Aiyla (Bouscaren). A 2023 annual report on Tanzania from the UNHCR revealed that the country hosts 89,320 Congolese refugees out of almost a quarter million total. Of all these refugees, around 81% live in the Nduta and Nyarugusu Camps in the northwestern region of Kigoma (UNHCR[1]).

The ongoing and escalating violence in the DRC has caused a steady influx of refugees into neighboring countries and the United States for over 17 years (UNHCR[2]). They are considered to be protracted refugees, which the UNHCR defines as "(a situation) in which 25,000 or more refugees from the same nationality have been in exile for five or more years in a given asylum country" (Dept. State). Protracted refugees suffer from a precarious position due to the prolonged limbo on their status as a refugee/asylee/citizen, and there are many cases of waning funding due to donor fatigue (Lamarche). With that being said, it becomes more pressing to provide federally authorized, consistent aid for populations that cannot rely on private or individual donors.

As aforementioned, the lack of policies regarding immigrant rights has dire consequences for the refugee population of both countries. Health infrastructures in both Tanzania and Uganda are still developing, and the conditions are much worse in these refugee settlements where permanent structures are not allowed (Abrahamsen) (World Bank). Additionally, due to poor sanitation, overcrowding, substandard housing, and lack of clean water, these settlements and those like it around the world have higher rates of communicable diseases than the rest of their host country (Altare et al.). The rates of these communicable diseases are even more dramatic when compared to the United States.

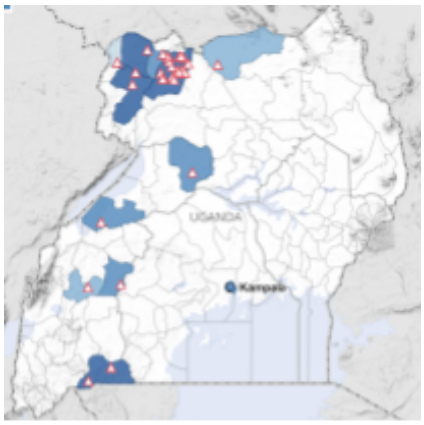
Malaria is chief among them—a disease spread by bites of infected mosquitoes that can be life-threatening when untreated. Though the US eradicated the disease in 1973, it remains widespread in Tanzania and Uganda (CDC). Worldwide, there are 500 million cases of malaria and 1 million deaths per year—the majority of cases coming from sub-Saharan Africa (Yeka et al.). In Tanzania, "93 percent of people on the mainland are residing in malaria-endemic areas," with 4.4 million malaria cases per year (USAID[3]) . In Uganda alone, there are 8–13 million cases per year, and malaria "accounts for 34 percent of outpatient visits and 37 percent of hospital admissions" (PMI). However, these numbers may be even higher due to survey constraints. Even if refugees may not outwardly have malaria, they may still harbor asymptomatic parasitemia (Tukwasibwe et al.). Furthermore, the resource-constraint health infrastructure in refugee settlements does not have the capacity to enact comprehensive malaria prevention strategies (UNHCR[4]).

II. Current Initiatives

President's Malaria Initiative (PMI)

The foremost malaria prevention program conducted by the United States is the PMI, led by USAID and implemented together with the United States Centers for Disease Control and Prevention (CDC). Some key interventions that PMI employs include indoor residual spraying, long-lasting insecticidal nets (LLITNs), monitoring, and malaria diagnosis and treatment (USAID). In the fiscal year of 2024, Congress appropriated $795 million for PMI, making the United States the largest donor to the global malaria fight (PMI). Currently, PMI is working with

Map of refugee settlements in Tanzania and refugee population by district (Mallya)



Map of refugee settlements in Uganda and refugee population by district (Yildiz and Muriisa)

Source: UNHCR Operational Data Portal

27 partner countries in sub-Saharan Africa and three programs in the Great Mekong region. Each year, PMI releases a Malaria Operational Plan (MOP) for each country, detailing the malaria prevention and treatment strategies that they will employ and the associated budget. Despite benefiting millions and earning stakeholder praise, PMI has yet to eradicate malaria in any partner country, falling short of its goal.

Intergovernmental and non-profit organizations support

Refugees often lack access to host country health programs due to their non-citizen status. Consequently, healthcare in refugee settlements typically relies on clinics and volunteer healthcare workers provided by organizations such as the United Nations High Commissioner for Refugees (UNHCR), Médecins Sans Frontières, regional Red Cross societies, and local non-profits. However, this decentralized, donor-dependent model results in unstable healthcare infrastructures that cannot support advanced medical interventions like surgery (Blum and Onumah). While malaria prevention and treatment have historically been incorporated into the health systems of refugee settlements in Tanzania and Uganda, limited budgets prevent enough delivery of key malaria interventions such as LLITNs, indoor residual spraying, and robust monitoring across every refugee in a settlement.

Uganda

The United States' support for malaria intervention in Uganda has primarily come in the form of assistance from PMI, which has successfully caused a 500% increase in children who sleep under a net and a 550% increase in pregnant women who sleep under a net (President's Malaria Initiative). Tens of millions of tests and medication doses have been administered, strengthening health systems and health workers. More than 6 million lives have been saved since Uganda partnered with PMI (WHO).

The brunt of Uganda's efforts to combat malaria has come from their Malaria Reduction Strategic Plan (UMRSP) for 2014-2020, administered by the Ugandan Ministry of Health. Its main theme is to provide "accelerated nationwide scale up to achieve universal coverage of cost effective malaria prevention and treatment interventions" (Republic of Uganda Ministry of Health). The Ministry of Health counts over 16 million cases of malaria in just 2013, along with over 10,500 deaths at health facilities

UMRSP focused on fighting malaria through preventative measures, but the program struggled with controlling its spread in the first place. Additionally, the number one anticipated risk for the program was inadequate funding to properly implement their interventions, with the total estimated cost being 1.361 billion USD (Republic of Uganda Ministry of Health).

Part of the UMRSP is to provide universal coverage for all populations at risk, including refugees, though the plan does not explain how these at-risk populations will be targeted and customized to their needs. Rather, it looks at Uganda as a whole—but there were differences in malaria reduction. The North-East and East-Central regions of Uganda saw the lowest reduction in parasitemia odds, while the highest reduction was in the capital, Kampala (Ssempiira et al.). Historically speaking, nearly half of all physical health conditions diagnosed in refugee camps in Uganda include fever or malaria (Roberts et al.).

Tanzania

Tanzania was among the first three countries to receive funding from PMI in 2006. So far, the country has received more than $747 million to fight malaria on both the mainland and Zanzibar. In Tanzania, PMI's highest priority in terms of malaria interventions is vector control, which is done by distributing LLITNs to households and primary schools. PMI particularly focuses on vulnerable groups, such as children under five and pregnant women. Another area that PMI has focused on is strengthening malaria diagnostic capabilities by providing rapid diagnostic tests (RDTs) and enhancing laboratory services to ensure accurate and timely malaria diagnosis. PMI efforts in Tanzania have resulted in a substantial reduction in malaria prevalence from 18% in 2015 to 7% in 2022, according to the latest available data (U.S. Embassy Dar Es Saalam). However, Tanzania is only projected to eradicate malaria by 2050, that is, with sustained commitment from the United States through PMI (Prosper).

The UNHCR has substantially assisted in ensuring the provision of basic healthcare services in refugee settlements in Tanzania, alongside Médecins Sans Frontières (Doctors without Borders) and the Tanzania Red Cross Society. These efforts are concentrated in the country's biggest refugee settlements, including Nyarugusu and Nduta, which host around 81% of the country's total refugee population (UNHCR[5]). These settlements offer multiple hospitals and health posts with inpatient and outpatient services on top of nutrition, HIV, and reproductive health services. In terms of malaria, MSF Switzerland currently operates 3 malaria health posts to test, treat, and refer complicated cases in the Nyarugusu refugee camp. They have also

distributed LLITNs and engaged in health promotion to fight against malaria. Despite the various interventions employed, malaria is still responsible for 26% of all health consultations and the number one cause of deaths in these settlements (UNICEF). This strongly suggests that while various strategies are in place, they fall short of achieving malaria eradication for Tanzania's refugee population.

III. Policy Proposals

On his first day in office, president-elect Trump signed an executive order called "Reevaluating and Realigning United States Foreign Aid" (Trump, Reevaluating and Realigning United States Foreign Aid). It instructed a "90-day pause in United States foreign development assistance for assessment of programmatic efficiencies and consistency with United States foreign policy," which means a freeze in the budget disbursement and activities of the United States Agency for International Development (USAID). If a USAID program is reviewed within the 90-day period and approved by the Secretary of State and the Office of Management and Budget (OMB), disbursement may proceed. USAID only utilized 0.7% of the $6.1 trillion federal budget, dispersing about $48.3 billion to developing countries through various economic, health, humanitarian aid programs, and more (McDonough). However, financial resources directed to international development and humanitarian assistance have historically been scrutinized based on the idea that federal funds should only be funneled into American citizens. An "America first" perspective has been the platform on which President Trump stands throughout his past presidency and campaigns, making the curtailment and defunding of USAID a possibility. As PMI is a program under USAID, the freeze puts uncertainty on its current activities and future endeavors after the 90-day period. Given the upcoming assessments, it is likely that the administration will scale back or liquidate programs it deems unnecessary. Additionally, budget cuts would threaten the progress that PMI has been making so far; thus, it is strategic to plan which initiatives to focus on if such a situation occurs. The policy proposal below details the approach and priorities that PMI should have during this transition.

Furthermore, President Trump withdrew from the World Health Organization (WHO) on his first day of office this year (Trump, Withdrawing the United States from the World). Per year, the US would donate at least $1.3 billion to the organization to support global health (Richter). The withdrawal means that the US has additional funds to be redistributed to federal organizations such as USAID. President Trump's executive order explained the withdrawal as "due to the organization's mishandling of the COVID-19 pandemic that arose out of Wuhan, China, and other global health crises" (Trump, Withdrawing the United States from the World). The administration's intent is to put global health initiative funding back into the hands of the United States government, and so these funds should be redirected and redistributed among US agencies dedicated to be leaders of global health. For $5,140,000, or just 0.395% of the saved funds from WHO, the United States could impart significant benefits for Congolese refugees (Richter).

Focusing on Localization

With a reduced spending budget, PMI should look into directing its resources into the localization of malaria interventions. PMI has always set some budget into these initiatives, but fully transitioning the technical knowledge they have into government entities and local organizations in Uganda and Tanzania would provide the most stable outcomes amidst the rapid changes happening to USAID. In doing so, the United States can assist, rather than lead, efforts to strengthen existing infrastructure in these countries, allowing Uganda and Tanzania to support themselves in fighting malaria. For example, in 2021, PMI transitioned leadership to the local Ministry of Health staff in Tanzania, known as District IRS Technical Teams (DITTs), to lead spraying within the three refugee camps. PMI provided support through the provision of supervisory tools and assistance with the recruitment process (USAID).

To implement localization, the US would work with the existing plans and organizations within each country to identify weaknesses and strengthen the infrastructure. For example, the UMRSP program in Uganda worked primarily through country- and regional-level interventions, such as the distribution of LLITNs and Artemisinin Combination Therapies (ACTs) (Ssempiira et al.). However, these supplies and treatments are being distributed nationwide, and there are certain areas that need a more directed focus on their specific needs, such as additional LLITNs or vaccines in these refugee camps.

Focusing on localization would strengthen the technical skills of communities in Tanzania and Uganda in their path to be self-reliant but still allow for collaboration of all stakeholders involved. No substantial funding would be required for this allocation; rather, the funding already in place for these community-led programs and training from experts would continue and should not be decreased relative to other parts of PMI.

Creation of Volunteer Programs for American Healthcare Workers

In order to implement this transition, the United States can fund volunteer initiatives to bring healthcare workers to these refugee camps. American healthcare workers have and will continue volunteering with Doctors Without Borders. However, creating a specific program will incentivize them to work in countries with underserved refugee populations living in malaria-endemic areas and ensure that there is enough support for these countries in the transition of USAID.

The logistical expertise and costs associated with relocating American healthcare workers to different countries will be mostly funded and managed by Doctors Without Borders, with support from USAID. The incentive could come in the form of additional need-based stipends on top of the monthly Doctors Without Borders stipend, which is paid out in the country's currency (Doctors Without Borders, "Compensation and Benefits | Doctors without Borders APAC") and partially based on work experience (Doctors Without Borders, "Recruitment Frequently Asked Questions | Doctors without Borders APAC"). The vast majority of funds, 89%, from Doctors Without Borders is sourced through millions of individual donors, with the remaining stemming from institutional donors (Doctors Without Borders, "Reports & Financials"). The United States would fall into the latter category. In 2023, Doctors Without Borders spent a total of $8,533,987.24 for programming in Tanzania and $768,234.64 in Uganda (Medecins Sans Frontieres). Therefore, a donation of approximately $1,000,000 per year per country would be enough to cover the cost of a new malaria-focused program in Tanzania and Uganda.

The creation of the Doctors Without Borders program will ensure more mobility for those who are seeking learning experiences in a resource-constrained setting. Furthermore, as Doctors Without Borders volunteers serve a set term, they will come back to the United States equipped with stronger technical and communication skills. An initiative like this would ensure that citizens of the United States can still serve and be part of global health initiatives at a personal level.

From a practical standpoint, however, the volunteer aspect of Doctors Without Borders may create some level of instability in the labor structure. Nonprofit organizations based on volunteers can sometimes experience difficulties in receiving feedback due to the variable commitment (Garner and Garner). However, simply having these workers in place may still be an improvement from the current systems that lack labor altogether.

Creation of Fulbright Public Health Research Grants

Looking outside of direct funding and the use of USAID as a resource, making way for researchers to study public health in Tanzania and Uganda can create a reciprocal relationship that elevates the understanding of refugee health and preventative measures in these countries and fosters cross-cultural understanding in American scholars. In particular, the Fulbright Fellowship, administered by the Bureau of Educational and Cultural Affairs within the Department of State, can be used to establish public health research positions at universities in Tanzania and Uganda. While aiding the development of Americans, our brightest scholars can focus efforts on evaluating how these public health measures are impacting refugee help and can conduct important research to understand and increase the efficiency of these interventions.

Currently, the program offers Fulbright-Fogarty Fellowships in Public Health, with several placements in Uganda and other parts of sub-Saharan Africa (Victor). The Uganda placements revolve around HIV/AIDS, non-communicable diseases, reproductive health, tuberculosis, cancer, implementation, environmental science, neuropsychology, and nutrition; however, there are no placements in Tanzania with these focuses (Victor). Thus, a separate program should be created in Uganda and Tanzania that focuses specifically on the spread of malaria and its prevention implementation. The cost per fellowship varies depending on the exact placement, the applicant's level of education, and the particular research proposal, but the maximum amount for a Master's student is $35,000 per year (US Department of State). The creation of two research positions in Tanzania and Uganda each would total up to $140,000 if these were to be brand-new positions.

Alternatively, existing programs in Uganda could be repurposed and restructured to focus on the issue of malaria. Uganda has several Fulbright-Fogarty Fellowships, and to be flexible and financially efficient, positions tailored for communicable diseases or other categories could be specified for malaria research. In Tanzania, there are currently no existing Fulbright-Fogarty Fellowships, but creating them can fill this gap in public health research. A potential drawback is the lack of long-term research projects, as each Fellow only serves for one year, and it may be difficult to sustain projects that look at Uganda and Tanzania's long-term status. The inclusion of additional researchers in any capacity, however, is likely to be a net positive for these countries.

In addition to evaluating the effectiveness of public health

programs, these fellowships would broaden the worldview of American researchers. Geared toward Master's, MD, and PhD students, the Fulbright-Fogarty Fellowships will strengthen the public health workforce and encourage the Fellows to learn and grow as professionals by increasing mutual understanding between themselves and people of other countries. In the pursuit of improving refugee health conditions in Uganda and Tanzania, the Fellows can take these tangible lessons and apply them in their careers to better support the American people and create a more inclusive and understanding medical environment.

Improving Disease Screening and Prevention for Refugees

With the instability of foreign aid and immigration policies, there are uncertainties regarding welcoming refugees and asylum seekers. It is fairly possible that these channels of entry with the United States will be substantially minimized in the near future. Even so, the United States should strengthen disease screening, prevention, and treatment for incoming refugees and asylum seekers from malaria-endemic countries like Tanzania and Uganda, as their refugee health infrastructure becomes increasingly unstable due to the transition of USAID.

The CDC offers a guideline for domestic medical screening of new refugees, which has been made possible by the research and programming of the Minnesota Department of Health's Center of Excellence in Newcomer Health (MN COE) with the agency's funding. MN COE provides a comprehensive model to minimize the risks that new refugees can pose to themselves and the rest of the American population (Minnesota Health Department). In particular, they complete initiatives organized into four pillars: surveillance and epidemiology, guidance, clinician training, and newcomer health orientation and education. They have developed a clinical assessment tool for refugees, CareRef, developed population-specific guidance and hosted regular training for healthcare providers working with refugees. They also work together with another CCD-funded establishment, Colorado COE, which mostly works with data, epidemiology, and public health navigation initiatives. MN COE has been shown to be a leader and innovator of domestic refugee health, posing to be an important stakeholder in shaping similar initiatives in other states.

Since 2015, the CDC has funded a yearly average of $10.5 million into PMI (CDC). In the event that the agency fully removes itself from PMI, the CDC can use a percentage of this budget to create a multi-year grant focusing on refugee health. For five 5-year grants, setting aside $3,000,000 would greatly support local health departments around the country to be trained by MN COE or even establish their own COE if they can be self-sufficient at the end of the grant. The CDC should focus the grant on states with high levels of refugee arrivals per capita. As it is a significant investment to make, the CDC can also look into doing a pilot program with one or a few specific states to gauge the initiative's efficacy. MN COE has a number of partnerships with departments and institutes around the country, so collaborating with one of them for a pilot program can help ensure a smooth transition and onboarding process. This reallocation of the CDC's PMI budget into domestic refugee health initiatives would allow the funds to still be dedicated to protecting a vulnerable population. However, this diversion in focus of a strained healthcare force in the United States might cause instability in the provision of quality care for everyone. The CDC should look to supporting states such as Nebraska, North Dakota, Idaho, and Kentucky that have a growing influx of refugee populations to ensure that the training would be effectively utilized (Dyssegaard Kallick).

As we look to the future of the United States foreign aid policy, it is important to keep in mind both the costs associated with the aid but also the great impact that the United States can have on developing countries. USAID has done invaluable work to support refugees abroad and has played an important part in establishing the United States' position in the world as a leader in international relations.

FOOTNOTES

1. (UNHCR, Annual Results Report 2023 United Republic of Tanzania)

2. (UNHCR, " GUIDANCE NOTE on MALARIA PROGRAMMES in REFUGEE OPERATIONS ")

3. All information sourced from USAID (and, in extension, PMI) webpages and reports does not always have a correlating citation on the bibliography section due to its removal from the net by the current administration.

4. (UNHCR, " GUIDANCE NOTE on MALARIA PROGRAMMES in REFUGEE OPERATIONS ")

5. UNHCR Operation Data Portal

REFERENCES

Abrahamsen , Anne Christine. Challenges of Health System Delivery in Refugee Affected Environments: A Qualitative Study from the Perspective of Humanitarian Health Workers in Western Uganda. June 2019, ntnuopen.ntnu.no/ntnu-xmlui/bitstream/handle/11250/2616842/no.ntnu:inspera:2447007.pdf?sequence=1. Accessed 13 Feb. 2025.

Altare, Chiara, et al. "Infectious Disease Epidemics in Refugee Camps: A Retrospective Analysis of UNHCR Data (2009-2017)." Journal of Global Health Reports, vol. 3, 22 Oct. 2019, www.joghr.org/documents/volume3/joghr-03-e2019064.pdf, https://doi.org/10.29392/joghr.3.e2019064.

Blum, Alexander J. , and Zachary Ebinna Onumah. "Socialized for Scarcity: Surgical Care in Tanzania's Remote Refugee Camps." Global Health NOW, 2024, globalhealthnow.org/2024-06/socialized-scarcity-surgical-care-tanzanias-remote-refugee-camps. Accessed 13 Feb. 2025.

Bouscaren, Durrie. "A Peek at Daily Life in Northern Uganda's Refugee Camps - IWMF." Iwmf.org, 2017, www.iwmf.org/stories-from-the-field/a-peek-at-daily-life-in-northern-ugandas-refugee/. Accessed 13 Feb. 2025.

CDC. "Strategies for Reducing Malaria's Global Impact." Malaria, 9 May 2024, www.cdc.gov/malaria/php/public-health-strategy/index.html.

CDC. "CDC's Global Malaria Activities." Malaria, 2024, www.cdc.gov/malaria/php/public-health-strategy/global-activities.html.

Doctors Without Borders. "Compensation and Benefits | Doctors without Borders APAC." Doctorswithoutborders-Apac.org, 2025, doctorswithoutborders-apac.org/en/careers/compensation-and-benefits. Accessed 13 Feb. 2025.

Dept. State. "Protracted Refugee Situations." State.gov, 2017, 2009-2017.state.gov/j/prm/policyissues/issues/protracted/index.htm.

Galal, Saifaddin . "Uganda: Number of Refugees by Origin 2021." Statista, 15 May 2024, www.statista.com/statistics/1241293/refugees-in-uganda-by-origin/.

Hujale, Moulid. "Uganda's Welcome Allows Congolese Refugees to Thrive | UNHCR." UNHCR, 2024, www.unhcr.org/news/stories/uganda-s-welcome-allows-congolese-refugees-thrive.

Joint World Bank-UNHCR Mapping: Humanitarian and Development Responses in Refugee-Hosting Regions of Tanzania. 2018.

---. "Recruitment Frequently Asked Questions | Doctors without Borders APAC." Doctorswithoutborders-Apac.org, 2025, doctorswithoutborders-apac.org/en/careers/recruitment-frequently-asked-questions.

---. "Reports & Financials." Médecins sans Frontières(MSF)/Doctors without Borders, 2025, msfsouthasia.org/reports-financials/.

Dyssegaard Kallick, David. Refugee Resettlement per Capita: Which States Do the Most? Immigration Research Initiative.

Garner, Johny T., and Lindsey T. Garner. "Volunteering an Opinion." Nonprofit and Voluntary Sector Quarterly, vol. 40, no. 5, 7 May 2010, pp. 813–828, https://doi.org/10.1177/0899764010366181.

Mallya, Deograsias. Country - Tanzania. 31 Dec. 2024. United Nations High Commissioner for Refugees, data.unhcr.org/en/country/tza.

McDonough, Siobhan. "The US Spends Billions on Foreign Aid. But It Doesn't Know How Much Good Our Money Is Doing." Vox, 1 Aug. 2022, www.vox.com/future-perfect/23274306/usaid-foreign-aid-effectiveness-evidence-grants. Accessed 17 Nov. 2022.

Medecins Sans Frontieres. International Financial Report 2023. Medecins Sans Frontieres, 2024.

Minnesota Health Department. "About: Center of Excellence in Newcomer Health - MN Dept. Of Health." State.mn.us, 2015, www.health.state.mn.us/communities/rih/coe/about.html.

Republic of Uganda Ministry of Health. Ra the UGANDA MALARIA REDUCTION STRATEGIC. Ministry of Health, 2014.

President's Malaria Initiative. Prosper Africa. President's Malaria Initiative, 2024.

Richter, Felix. The U.S. Is the Largest Contributor to the WHO. 25 Jan. 2025. Statista.

Ssempiira, Julius, et al. “The Contribution of Malaria Control Interventions on Spatio-Temporal Changes of Parasitaemia Risk in Uganda during 2009–2014.” Parasites & Vectors, vol. 10, no. 1, 30 Sept. 2017, https://doi.org/10.1186/s13071-017-2393-0.

Trump, Donald. Reevaluating and Realigning United States Foreign Aid. 20 Jan. 2025, www.whitehouse.gov/presidential-actions/2025/01/reevaluating-and-realigning-united-states-foreign-aid/.

---. Withdrawing the United States from the World. 20 Jan. 2025, www.whitehouse.gov/presidential-actions/2025/01/withdrawing-the-united-states-from-the-worldhealth-organization/. Accessed 13 Feb. 2025.

US Department of State. “Fulbright Scholarship.” EducationUSA, 24 Mar. 2020,educationusa.state.gov/scholarships/fulbright-scholarship-0. Accessed 13 Feb. 2025.

USAID. “At Tanzania’s Refugee Camps, Local Health Teams.” US Agency for International Development, 2024,pdf.usaid.gov/pdf_docs/PA00ZDNX.pdf.

Victor, Jason. “US Fulbright Program - Fulbright-Fogarty Fellowships in Public Health.” Fulbrightonline.org, 2025, us.fulbrightonline.org/applicants/types-of-awards/fulbright-fogarty-fellowships-in-public-health. Accessed 13 Feb. 2025.

Yildiz, Bekir, and Festo Muriisa. Country - Uganda. 2024. United Nations High Commissioner for Refugees.

Korhonen, Veera. “U.S. Immigration - Refugee Arrival, by Country of Nationality FY 2021.” Statista, 5 July 2024, www.statista.com/statistics/247061/number-of-refugees-arriving-in-the-us-by-country-of-nationality/.

Lamarche, Alexandra . “Leaving Millions Behind: The Harmful Consequences of Donor Fatigue in the DRC.” Refugees International, 22 Aug. 2018, www.refugeesinternational.org/reports-briefs/leaving-millions-behind-the-harmful-consequences-of-donor-fatigue-in-the-drc/.

Prosper, Joseph. “U.S. President’s Malaria Initiatives Supports Interventions to Combat, Eliminate the Disease | the Guardian.” Ippmedia.com, 2025, www.ippmedia.com/the-guardian/features/read/us-presidents-malaria-initiatives-supports-interventions-to-combat-eliminate-the-disease-2024-08-05-180834. Accessed 13 Feb. 2025.

Roberts, B, et al. “Factors Associated with the Health Status of Internally Displaced Persons in Northern Uganda.” Journal of Epidemiology & Community Health, vol. 63, no. 3, 1 Mar. 2009, pp. 227–232, www.ncbi.nlm.nih.gov/pmc/articles/PMC2635937/, https://doi.org/10.1136/jech.2008.076356.

Ssempiira, Julius, et al. “The Contribution of Malaria Control Interventions on Spatio-Temporal Changes of Parasitaemia Risk in Uganda during 2009–2014.” Parasites & Vectors, vol. 10, no. 1, 30 Sept. 2017, https://doi.org/10.1186/s13071-017-2393-0.

Tukwasibwe, Stephen, et al. “Varied Prevalence of Antimalarial Drug Resistance Markers in Different Populations of Newly Arrived Refugees in Uganda.” The Journal of Infectious Diseases, vol. 230, no. 2, 12 June 2024, pp. 497–504, academic.oup.com/jid/article-abstract/230/2/497/7693370, https://doi.org/10.1093/infdis/jiae288. Accessed 18 Dec. 2024.

U.S. Embassy Dar Es Saalam. “U.S., Tanzania Celebrate Achievements in Fight against Malaria.” U.S. Embassy in Tanzania, 20 Oct. 2022, tz.usembassy.gov/united-states-and-tanzania-celebrate-impact-of-malaria-activities/?utm_source=chatgpt.com. Accessed 13 Feb. 2025.

UNHCR. “ GUIDANCE NOTE on MALARIA PROGRAMMES in REFUGEE OPERATIONS .” June 2022.

---. Annual Results Report 2023 United Republic of Tanzania. 30 May 2024.

---. Congolese Refugees a Protracted Situation.

USAFacts Team. “How Many Refugees Are Entering the US?” USAFacts, 12 July 2023, usafacts.org/articles/how-many-refugees-are-entering-the-us/.

Yeka, Adoke, et al. “Malaria in Uganda: Challenges to Control on the Long Road to Elimination.” Acta Tropica, vol. 121, no. 3, Mar. 2012, pp. 184–195, www.ncbi.nlm.nih.gov/pmc/articles/PMC3156969/, https://doi.org/10.1016/j.actatropica.2011.03.004.

A U.S. Carbon Border Adjustment: Aligning Trade and Climate for a Sustainable Future

Calla Doh and Divya Saikuma

Abstract

Anthropogenic climate change, driven largely by excessive concentrations of greenhouse gases from widespread fossil fuel consumption, poses grave threats to communities worldwide, with as many as 3.6 billion people living in areas of high vulnerability to climate change-related impacts (Hoesung and ROmero, 2023). However, the current global climate policy landscape has been insufficient in reducing global greenhouse gas emissions to manageable levels. One emerging policy instrument to effectively address global emissions is a carbon border adjustment mechanism (CBAM), a fee on selected imported materials based on their emissions intensity. CBAMs provide strong incentives for nations to adopt domestic carbon pricing policies and for producers to transition to less carbon-intensive manufacturing: the recent introduction of the world's first carbon tariff from the European Union has already stimulated the introduction and adoption of more domestic carbon policies worldwide (Cornago and Berg, 2024). Given the U.S.'s positioning as a global superpower and comparatively greener manufacturing and production industries compared to many countries, introducing a U.S. carbon tariff can accelerate global decarbonization efforts while supporting domestic manufacturing on the global stage. Out of the currently proposed bills for a U.S. CBAM, we argue that the Clean Competition Act is the strongest policy prescription to address the high emissions intensities of both U.S. and foreign producers and U.S. carbon leakage. We propose the implementation of the Clean Competition Act with three key amendments to reduce global carbon emissions while simultaneously restoring the global competitiveness, sustainability, and strength of U.S. manufacturing.

I. Introduction

Marked as the hottest year in over 150 years, 2024 represented a grave milestone in human history, surpassing the 1.5ºC warming threshold established by the Paris Agreement relative to preindustrial levels (Thompson 2025). Despite decades of forewarning by scientists and growing global efforts to limit its effects, human-induced climate change has only worsened: each of the last ten years has been the hottest on record, and atmospheric CO2 levels have been at a record high since the preindustrial period (Thompson, n.d.).

However, as of 2023, existing climate policies are failing to adequately address global climate change. A recent UN report warns that, under current measures, global temperatures could rise by more than 5.4ºF (3ºC) above pre-industrial levels by the end of the century (Olhoff, 2024). Despite ongoing global initiatives such as the Conference of the Parties (COP) to reduce emissions and transition to clean energy, global greenhouse gas (GHG) emissions rose 1.3% between 2022-23, and global fossil fuel investment increased by 10% in 2022 (Olhoff 2023). These continued difficulties in organizing effective and binding global action amidst the worsening climate highlight the urgent need for global coordination toward scaling and deploying decarbonization technologies to substantially reduce GHG emissions.

This paper will focus on the implementation of a U.S. carbon border adjustment mechanism (CBAM), which levies a fee on imported goods based on their carbon emissions to reduce global GHG emissions by incentivizing the adoption of domestic carbon pricing mechanisms worldwide. While the U.S. currently lacks a federal carbon pricing scheme, several bills proposing different forms of a U.S. CBAM have been introduced in Congress over the past 2-3 years. Our proposed policy prescription focuses on an amended version of the Clean Competition Act (CCA), a U.S. CBAM that aims to simultaneously strengthen America's comparatively greener economy on the world stage and incentivize the decarbonization of emissions-intensive industries globally.

II. Background

Climate Change Impacts

In the face of rising temperatures, unprecedented climate shocks, and devastating natural disasters, climate change continues accelerating massive social, economic, and environmental losses worldwide. A study from Nature demonstrated that the world economy will suffer an income reduction of 19% until 2050 due to climate change, with global yearly damages totaling $38 trillion USD, highlighting the need for urgent global climate action (Kotz et al., 2024)

Manufacturing Sectors

We isolate one particular sector of global emissions: global manufacturing and production. Industrial production —especially steel and cement— accounts for 20% of global carbon emissions and 54% of energy consumption (Ge et al., 2024). These emissions continue to rise rapidly: industrial GHG output increased by 225% between 1990 and 2021 (Ge et al., n.d.). Additionally, 22% of global carbon emissions stem from imported goods, highlighting the carbon intensity of global trade (Hasanbeigi and Darwili, 2022).

Due to the outsized impact of the manufacturing and production sectors on global climate change, reducing the carbon intensity of these sectors will be critical to reducing global emissions. Manufacturing and production have been key focus areas of global decarbonization efforts: between 2018 and 2023, annual investments in industrial decarbonization efforts tripled, exceeding $48 billion in 2023 ("Industry Decarbonization Market Outlook 1H 2024", 2024). However, there needs to be an even greater move towards low-carbon processes, especially in industrialized, high-emitting countries such as the U.S. and China. According to a World Economic Forum report, $13.5 trillion in investments largely concentrated in the production and energy sectors will be needed by 2050 to transition to a more carbon-neutral future (Bocca and Ashraf, 2023). Given the massive impact of global manufacturing and production sectors on global climate change, aligning climate and trade policies at the global level holds a significant opportunity to catalyze the transition towards a greener global economy.

The Role of Carbon Pricing Policies

Carbon pricing is a key tool for addressing market failures and shifting the cost of pollution onto emitters, reducing GHG emissions while incentivizing greener production instead of leaving the public to bear the full social, economic, and health impacts of climate change. The two main approaches are emissions trading systems (ETS)—which cap emissions and allow permit trading—and carbon taxes, which are a government-set fee per ton of GHG emissions. These taxes set a stable, rising price trajectory to prompt significant emissions reductions using clean energy as a more attractive alternative. Many countries, including Japan, Canada, and Mexico, have implemented carbon taxes, with more considering adoption. This policy proposal will focus specifically on CBAMs, or border-

adjusted carbon taxes. This policy instrument ensures that foreign manufacturers with lower carbon prices who import into a nation with stricter climate policies face similar fees as domestic manufacturers: leveling the playing field in this way allows for nations with ambitious carbon pricing policies to remain competitive in global trade markets (van Asselt and Biermann 2007) . Another primary objective of a CBAM is to limit "carbon leakage" - a process in which energy-intensive firms relocate to nations without carbon controls ("The Promise and Perils of Carbon Tariffs", 2022). Extensive literature has supported CBAM's efficacy in reducing carbon leakage by restoring competitiveness for domestic industries that get lost due to unilateral carbon policies in the implementing country (Zhong and Pei, 2023).

Existing Policies and Inadequacies

The European Union began to phase in the world's first carbon emissions tariff in 2023. By levying extra costs on manufacturers importing carbon-intensive goods, the CBAM aims to reduce carbon leakage and the emissions embedded in EU imports. From 2026, importers must purchase and surrender "CBAM certificates" from the EU ETS to cover the cost of GHG emissions embodied in imports. The fee is calculated based on the tons of CO_2e per ton of covered product at the average annual price of the ETS allowance.

Major exporters of CBAM-covered products, such as Brazil, India, and China, have raised concerns over the CBAM's compliance with World Trade Organization (WTO) policies, citing the measure as unfairly favoring EU manufacturers and violating the "most favored nation" requirement that requires states to give equal treatment to exports from other nations (Cornago and Berg, n.d.). Other countries have criticized the policy for ignoring the "common but differentiated responsibilities" principle, as it imposes the same standards on high and low-income countries without exemptions, despite industrialized nations being overwhelmingly responsible for climate change (Bacchus, 2021). The EU CBAM highlights the importance of constructive cooperation between the imposing nation and its trading partners regarding implementing a CBAM, particularly in low-income countries.

Honing in on the U.S.

The U.S. currently lacks a CBAM, failing to capitalize on several interconnected advantages of such a measure for climate and geopolitics. The first advantage of a U.S. CBAM would be a leveling of the playing field for American manufacturers, who are 40% more carbon efficient than the world average and possess a three and four-fold carbon emissions efficiency advantage over key industry competitors China and Russia, respectively (Rorke and Bertelsen, 2020). Furthermore, given the U.S. imported 75% of its goods from less carbon-efficient countries as of 2020, a CBAM would strengthen the competitiveness of U.S. industries compared to foreign producers and create more domestic employment opportunities in the U.S.'s green economy (Rorke and Bertelsen, 2020). Bolstering America's domestic manufacturing sectors would also reduce U.S. reliance on international supply chains vulnerable to high volatility due to geopolitical tensions and conflict.

Importantly, given the current administration's anti-climate stance, a U.S. CBAM would align with the administration's policy priorities of strengthening national security, U.S. industries, and positioning against geopolitical adversaries like China and Russia while simultaneously incentivizing global decarbonization.

One proposed U.S. CBAM is the Foreign Pollution Fee Act (S.3198), introduced in 2023 by Senator Bill Cassidy [R-LA], which proposes a border carbon fee on imports that are more GHG-intensive than their American-produced counterparts. The National Laboratories would calculate the fee based on the difference between the pollution intensity of each specific product made abroad versus in the U.S. Fifteen broad categories of products are covered, from energy products to industrial products.

However, data that can be disaggregated at this scale to assign a carbon intensity value for each of hundreds of products simply does not exist (Cosbey, 2023) Moreover, several factors of the FPFA point to a greater interest in protecting American producers over its stated primary objectives of preventing carbon leakage and accelerating global decarbonization. For example, it lacks meaningful guidance for setting the variable rate charges (meaning any rate could be justified and unfairly favor U.S. manufacturers) and a new carbon fee for domestic producers, making it particularly vulnerable to WTO violations and trade retaliation from affected countries as well (Cosbey, 2023). All of these factors make it an ineffective weak model for fostering international cooperation toward decarbonization while restoring the carbon competitiveness of the U.S. industry.

The other major proposal of a U.S. CBAM is the Clean Competition Act (S.3422), first introduced to the Senate in 2022 by Senator Sheldon Whitehouse [D-RI]. We argue for the implementation of the CCA with three

key amendments due to its potential to facilitate urgently needed international climate cooperation around decarbonization in the form of carbon pricing policies and give significant climate, manufacturing, and geopolitical benefits to the U.S. We will first describe the features and benefits of the current CCA proposal, then explain our proposed modifications to the bill.

The CCA proposes a narrow-based border-adjusted carbon tax that aims to reduce U.S. emissions while maintaining domestic competitiveness in global trade markets. The bill targets 25 different sectors, including substantial energy-intensive and trade-exposed industries like fossil fuel extractions, steel, cement, aluminum, and fertilizers.

Carbon Pricing Design of the CCA

The CCA carbon price is set to $55 per ton of GHG in the initial year and increases by the consumer price index plus five percent each following year. The Department of the Treasury would establish national industry benchmarks for each national covered industry, where the baseline is equivalent to the mean GHG intensity (measured as tons of GHG per ton of product) of each industry. For foreign producers, each imported covered product falls within a national industry, and the fee levied on importers is calculated based on the difference between a country's emissions intensity of the covered national industry and the U.S. baseline for emissions intensity established by the U.S. industry average. For imports created in countries without accurate emissions data, the levy would instead be calculated based on the ratio of the country's economy-wide carbon intensity to the U.S. economy's emissions intensity. Any imports that exceed these thresholds are subject to fees, whereas producers are exempt from the carbon price if their emissions intensity falls below the specific U.S. industry benchmark.

Whereas importers are levied taxes on product types, American producers are charged facility-level fees. Notably, to progressively incentivize American producers and importers to decarbonize, the national industry benchmarks decrease by 2.5% annually from 2026-2029 and 5% each year thereafter until it reaches zero. Another aspect of the domestic regulatory program is export rebates: U.S. manufacturers producing covered goods that are solely for exporting internationally are exempt from the carbon price. These rebates are designed to prevent carbon leakage out of the U.S. in response to a CBAM, helping maintain the integrity of the domestic industrial job market and retain the global competitiveness of U.S. manufacturing.

III. PROPOSAL

Analysis of a U.S. CBAM

The CCA's CBAM is positioned to be effective at addressing emissions embedded in carbon-intensive imports, complementing the EU CBAM's ongoing positive policy spillover effects. Since the EU CBAM was first discussed in 2019, the number of implemented carbon-pricing initiatives has risen from 57 to 75 globally, covering roughly 24% of global emissions (Cornago and Berg, n.d.). As the CCA would deepen and broaden the scope of CBAMs implemented worldwide, countries that export large quantities of carbon-intensive goods into the U.S. with few incentives to adopt carbon pricing policies in the current CBAM landscape would be more incentivized to implement such policies (Clausing et al., 2024). What's more, compared to the FPFA's administrative complexity and arbitrary pricing that make it less effective in reducing emissions, the CCA offers a fair carbon pricing system to both domestic and foreign manufacturers, incentivizing and accelerating decarbonization efforts worldwide.

Notably, the EU CBAM is projected to cause reductions in the embodied carbon emissions in steel exports worldwide by 625.9 million tons annually (Li et al. 2024). Given the similarities in the EU CBAM and CCA's industry coverage and industrial benchmark pricing approach, the CCA can be projected to have similar impacts on the global emissions of carbon-intensive industries such as steel (Li et al., 2024). What's more, studies consistently support the strong carbon-leakage mitigation effect of CBAM policies containing specific policy elements that align with the CCA, such as a high carbon price and broad product coverage, highlighting the strong potential of the CCA to reduce carbon leakage and strengthen the green manufacturing practices of the U.S. (Zhong and Pei, n.d.).

Another major strength of the CCA is its "carbon clubs" to help restore competitive advantages to foreign competitors pursuing ambitious climate action while encouraging less ambitious countries to accelerate the transition to greener economies. If foreign nations have internal carbon prices themselves, the charge or a percentage of the charge equivalent to the foreign nation's emissions costs will be waived. The CCA is a strong policy tool to hold the world's largest emitters accountable by escalating the worldwide adoption of domestic carbon pricing policies, given it has taken countries on average between 5-18 years to move from other climate policies to carbon pricing (Cuming and Godemer, 2024).

The CCA is also positioned to significantly bolster American

manufacturing. A Global Efficiency Intelligence report found that a U.S. CBAM implemented in 2024 with an identical pricing structure to the CCA would reduce total U.S. steel imports by 55% in 2030, making U.S.-produced steel more cost-competitive (Hasanbeigi, 2022). In response to the resulting demand shift, US producers would increase their cleaner steel production, boosting revenue by a projected $8.5 billion and reducing the total embodied carbon of steel imports by 27% in 2030. The study found more promising results for the aluminum industry, with a 55% reduction of aluminum imports by 2030, slashing the total embodied carbon of aluminum imports by 59% in 2030 and increasing revenue for American companies by a projected $3.4 to $6 billion annually between 2024 and 2030 (Milko, 2023).

Proposed Changes to the CCA

The CCA is a strong U.S. CBAM policy option, particularly compared to the FPFA. However, the CCA fails to account for indirect Scope 2 emissions and the potential domestic distributional impacts of a CBAM. We propose the following changes to the CCA to strengthen its efficacy and acceptance domestically and globally, especially given the turbulent geopolitics around tariffs under the current administration.

One area for reform in the current CCA design is to include indirect emissions from the consumption of purchased electricity, steam, heating, and cooling in the CBAM calculation for domestic and foreign industries. Capturing the scope 2 emissions emitted worldwide through industrial processes would help accelerate the transition to greener energy sources for manufacturing, as electricity and heat generation accounts for at least a third of global GHG emissions, and as of 2018, industry was the largest consumer of energy worldwide (Brander et al., 2018). Additionally, given the EU CBAM assesses Scope 2 emissions for certain industries, integrating them into the CCA would better align it with the EU CBAM, reducing affected countries' administrative complexities in navigating both CBAMs. We recommend the locational grid average (LGA) method for GHG accounting of indirect emissions, whereby the average emissions intensity of the local electricity grid is reported based on publicly available regional or national emissions factors (Brander et al. 2018). While the GHG Protocol Scope 2 Guidance recommends using both the LGA and market-based method (companies apply an emission factor linked with electricity from a specific generation source), studies suggest that the market-based method fails to yield accurate and relevant GHG values to decision-makers (Brander et al., 2018).

Another flaw in the current design of the CCA is its failure to account for higher costs of imported goods that rely on carbon-intensive processes that would be passed down to American consumers, disproportionately affecting lower-income populations. We argue for a portion of the tax revenue to be returned to consumers through a temporary dividend to help low-income households offset the higher costs of goods as the CCA is phased in. A study modeling the short-term distributional impacts of a $50 domestic tax per ton of CO2 found that rebating revenues to the public in equal, lump-sum payments would increase the income of 98% of people in the poorest decile, highlighting the strong potential of a carbon dividend in reducing the distributional impacts of a CBAM on the poorest households (Fremstad and Paul, 2019). While income tax cuts have been proposed as an alternative, studies modeling a carbon pricing policy similar to the CCA suggest they would be ineffective in maintaining the purchasing power of vulnerable communities. Instead, research supports a carbon dividend as the superior approach to mitigating the distributional impacts of a carbon tax (Fremstad and Paul, 2019). However, an increase in goods and services costs will be temporary as U.S. manufacturers fill the resulting shift in demand caused by falling import levels and move towards adopting greener processes with the portion of the CCA's revenue allocated towards financing U.S. industrial decarbonization efforts (Morris, 2022).

Finally, we acknowledge that implementing a U.S. CBAM will likely have unavoidable implications on global trade flows and production patterns, with countries experiencing the effects differently (Larch and Wanner, 2017). Given the current CCA lacks explicit mechanisms to gauge the CBAM's effects on trade, industry, and emissions, we propose the establishment of a joint EPA-Department of Commerce Task Force to annually review the CCA's impact on global trade flows, emission reductions in each exporting nation, and shifts in foreign investment and adoption of carbon pricing policies. Given the recent U.S. tariffs on China, Canada, and Mexico, which have prompted threats of retaliation and sparked concerns about global trade disruptions, establishing a task force to evaluate the CBAM's global impact and strengthen cooperation with trading partners is essential for maintaining diplomatic relations and maximizing the policy's effectiveness ("How Have Canada, China and Mexico Responded to Trump's Tariffs", 2025). We also argue for the requirement of a formalized review process to track how foreign producers adjust their climate policies. A rigorous

monitoring and assessment system to evaluate the CBAM's effects on global supply networks, manufacturing patterns, and U.S. trade partnerships is critical to support necessary modifications that maintain the CCA's efficacy in reducing global emissions through accelerating international carbon pricing policies and reducing U.S. carbon leakage.

Addressing Concerns Regarding a U.S. CBAM

With increased global discourse around the economic and geopolitical ramifications of a carbon tariff following the EU CBAM, there are important international and domestic implications of a U.S. CBAM to consider.

International Implications

Countries potentially set to be affected by a U.S. CBAM raise concerns that it would indiscriminately affect developing nations with less capacity to decarbonize as quickly as developed nations like the U.S. However, unlike the EU CBAM, the CCA exempts Least Developed Countries included in the Foreign Assistance Act from these charges. Likewise, the other 25% of the revenue would be given to the Department of State for multilateral assistance to support clean energy transitions in developing countries. We recommend that the DOS implement programs such as grants, subsidies, and tax breaks to promote low-carbon technologies to emerging countries, helping further catalyze global decarbonization (Choudhury et al., 2024)

Another concern relates to potential trade retaliations from low and middle-income countries like Mexico and Vietnam, which import large amounts of CCA-covered products but lack domestic carbon pricing that would exempt them from the CBAM. We argue that the CCA's strength as a climate and trade policy lies in stimulating greater investments in clean technologies and the adoption of domestic carbon pricing policies in less climate-ambitious countries. Moreover, the CCA's gradual implementation allows industries to adjust and increase green investments, with opportunities for international discussion with trading partners during this transitional period through our proposed joint EPA-Department of Commerce Task Force.

In regards to keeping compliance with WTO rules and addressing concerns of protectionism and unfairly favoring U.S. manufacturers relative to foreign producers, scholars point out that the CCA's carbon intensity charges would qualify as allowed border adjustments rather than illegal tariffs, as the WTO permits the levying of indirect taxes on imports and export rebates for domestically produced products (Porterfield, 2023). Additionally, the CCA would align with the WTO's exceptions that allow for various approaches to CBAs, unlike the FPFA and potential aspects of the EU CBAM (Porterfield, 2023).

Domestic Implications

Domestic industries argue that measures like the CCA burden firms with administrative complexities and additional compliance costs (Rasool et al., 2024). Within the U.S., significant investments in corporate ESG reporting are indeed necessary to transition to low-carbon practices nationwide, given the administrative costs of carbon accounting and emissions reporting (Ramseur et al. , 2024). However, ESG reporting is quickly becoming commonplace across industries: the CCA merely accelerates this global trend towards greater corporate accountability regarding their environmental impacts. Likewise, importantly, more revenue would be generated from the CCA and given as grants to support industrial decarbonization efforts than is extracted from American producers, as 75% of the CCA's revenue is allocated towards reinvestments in domestic industries.

Stakeholders who oppose U.S. CBAMs also often cite carbon leakage as a concern. With the proposed carbon pricing system, companies may find it more expensive to produce their goods in the U.S., leading them to transfer their manufacturing to less climate-ambitious countries. However, the CCA tactfully addresses this concern through its export rebates given to U.S.-based manufacturers who only export goods to prevent them from relocating due to the CCA's increased domestic regulatory structures.

IV. Conclusion

Ultimately, the CCA is a strong policy tool for accelerating the worldwide transition to low-carbon production practices needed in the face of worsening global climate change. Unlike the current global climate policy landscape that fails to hold the most polluting economies accountable, by targeting less climate-ambitious countries while rewarding innovations in emerging foreign carbon policies, the CCA incentivizes carbon pricing in high-emission countries while rewarding climate-ambitious countries, fostering international cooperation in decarbonization efforts. Given the unequal burden of climate change on emerging nations that emit significantly less carbon than developed countries, the CCA also provides urgently needed climate financing to assist developing countries in shifting to low-carbon economies and adapting to climate change. Importantly, this CBAM simultaneously strengthens the

competitiveness of U.S. green industries by leveraging America's carbon advantage over more polluting countries while protecting low-income U.S. communities from the potential distributional impacts of a CBAM. The U.S.'s reduced reliance on foreign imports through the CCA also helps advance national security and geopolitical positioning, which remain key policy priorities of the U.S. given increasing geopolitical conflict.

REFERENCES

Bacchus, James. "Legal Issues with the European Carbon Border Adjustment Mechanism." CATO Institute. Last modified August 9, 2021. https://doi.org/10.1080/14693062.2023.2190074.

Bocca, Roberto, and Muqsit Ashraf. Net-Zero Industry Tracker 2023. November 28, 2023.

Brander, Matthew, Michael Gillenwater, and Francisco Ascui. "Creative Accounting: A Critical Perspective on the Market-based Method for Reporting Purchased Electricity (scope 2) Emissions." Energy Policy 112 (January 2018): 29-33.https://doi.org/10.1016/j.enpol.2017.09.051.

Buylova, Alexandra, and Naghmeh Nasiritousi. CBAM: Bending the Carbon Curve or Breaking International Trade? March 2024.

Choudhury, Taniya, Anupam Tiwari, and Rakshit Jakhar. "Beyond Borders: CBAM's Revolutionary Potential and Challenges in Achieving Carbon Neutrality." International Journal of Innovative Technology and Exploring Engineering 13, no. 4 (2024): 7-16. https://doi.org/10.35940/ijitee.d9818.13040324.

Clausing, Kimberly, Milan Elkerbout, Katarina Nehrkorn, and Catherine Wolfram. How Carbon Border Adjustments Might Drive Global Climate Policy Momentum. October 10, 2024.

"Climate Change." World Health Organization. Last modified October 12, 2023. https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health.

Cornago, Elisabetta, and Aslak Berg. Learning from CBAM's Transitional Phase: Early Impacts on Trade and Climate Efforts. December 3, 2024.

Cosbey, Aaron. The Proposed Foreign Pollution Fee Act. November 2023.

Cuming, Victoria, and Maia Godemer. "Fossil-Fuel Subsidies Stay High but G-20 Inch Forward on Carbon Pricing and Climate-Risk Policy." BloombergNEF. Last modified November 7, 2024. https://about.bnef.com/blog/fossil-fuel-subsidies-stay-high-but-g-20-inch-forward-on-carbon-pricing-and-climate-risk-policy/.

Durant, Isabelle. A European Union Carbon Border Adjustment Mechanism: Implications for Developing Countries. 2021.

Fremstad, Anders, and Mark Paul. "The Impact of a Carbon Tax on Inequality." Ecological Economics 163 (September 2019): 88-97. https://doi.org/10.1016/j.ecolecon.2019.04.016.

Fried, Stephie, Kevin Novan, and William B. Peterman. "The Distributional Effects of a Carbon Tax on Current and Future Generations." Review of Economic Dynamics 30 (October 2018): 30-46. https://doi.org/10.1016/j.red.2018.02.001.

Friedrich, Johannes, Mengpin Ge, Andrew Pickens, and Leandro Vigna. "This Interactive Chart Shows Changes in the World's Top 10 Emitters." World Resources Institute. Last modified March 2, 2023. http://UNCTAD, 'A European Union carbon border adjustment mechanism: Implications for developing countries', 2021).

Ge, Mengpin, Johannes Friedrich, and Leandro Vigna. "Where Do Emissions Come From? 4 Charts Explain Greenhouse Gas Emissions by Sector." World Resources Institute. Last modified December 5, 2024. https://www.wri.org/insights/4-charts-explain-greenhouse-gas-emissions-countries-and-sectors.

Hasanbeigi, Ali. U.S. Border Carbon Adjustment for Steel and Aluminum. December 2022.

Hasanbeigi, Ali, and Aldy Darwili. Embodied Carbon in Trade: Carbon Loophole. November 2022.

"How Have Canada, China and Mexico Responded to Trump's Tariffs?" Aljazeera. Last modified February 2, 2025. https://www.aljazeera.com/news/2025/2/2/how-have-canada-china-and-mexico-responded-to-trumps-tariffs.

"Industry Decarbonization Market Outlook 1H 2024." BloombergNEF. Last modified June 26, 2024. https://about.bnef.com/blog/industry-decarbonization-market-outlook-1h-2024/.

Kotz, Maximilian, Anders Levermann, and Leonie Wenz. "The Economic Commitment of Climate Change." Nature 628, no. 8008 (2024): 551-57. https://doi.org/10.1038/s41586-024-07219-0.

Larch, Mario, and Joschka Wanner. "Carbon Tariffs: An Analysis of the Trade, Welfare, and Emission Effects." Journal of International Economics 109 (November 2017): 195-213. https://doi.org/10.1016/j.jinteco.2017.09.003.

Lee, Hoesung, and Jose Romero. AR6 Synthesis Report: Climate Change 2023.

Li, Wei, Xing Liu, Xiue Yuan, and Can Lu. "Impact of CBAM on Carbon Emission Reduction in Global Steel Foreign Trade: Projections Based on the Embodied Carbon Emission Intensity of Major Countries." Energy Sources, Part B: Economics, Planning, and Policy 19, no. 1 (2024). https://doi.org/10.1080/15567249.2024.2360443.

Milko, John. How a Carbon Border Adjustment Mechanism Can Strengthen US Competitiveness, Workers, and Climate Efforts. February 2, 2023.

Morris, Jennifer. "Carbon Pricing." MIT Climate Portal. Last modified January 11, 2022. https://climate.mit.edu/explainers/carbon-pricing.

Moseman, Andrew, and Christopher Knittel. "Will Companies Pass on the Cost of a Carbon Tax to Consumers?" MIT Climate Portal. Last modified January 11, 2022. https://doi.org/10.1016/j.red.2018.02.001.

Olhoff, Anne, ed. United Nations Environment Programme Emissions Gap Report 2024. 2024.

Poterfield, Matt. "The Clean Competition Act: No (WTO) Exceptions Necessary?" Climate Leadership Council. Last modified December 6, 2023. https://clcouncil.org/blog/the-clean-competition-act-no-wto-exceptions-necessary/.

"The Promise and Perils of Carbon Tariffs." Harvard Law Review 135, no. 6 (2022).

Ramseur, Jonathan L., Kristen Hite, and Christopher A. Casey. Border Carbon Adjustments: Policy Considerations, Legislation, and Developments in the European Union. October 28, 2024.

Rasool, Sanam, William Alan Reinsch, and Thibault Denamiel. Crafting a Robust U.S. Carbon Border Adjustment Mechanism. August 8, 2024.https://www.csis.org/analysis/crafting-robust-us-carbon-border-adjustment-mechanism.

Romanello, Marina, Claudia di Napoli, Carole Green, Harry Kennard, Pete Lampard, and Daniel Scamman. The 2023 Report of the Lancet Countdown on Health and Climate Change: The Imperative for a Health-Centred Response in a World Facing Irreversible Harms.

Rorke, Catrina, and Greg Bertelsen. America's Carbon Advantage. September 2020.

Rufo, Lorie, Benoit Laplante, David Alexandar Clary, and Steven Ceglia Smith. The Cost of Inaction: Quantifying the Impact of Climate Change on Health in Low and Middle-Income Countries. 2024.

Sotos, Mary. GHG Protocol Scope 2 Guidance. 2020.

Thompson, Andrea. "Earth Surpasses 1.5 Degrees C in Hottest Year on Record." Edited by Dean Visser. Scientific American. Last modified January 9, 2025. https://www.scientificamerican.com/article/2024-is-officially-the-hottest-year-on-record/.

van Asselt, Harro, and Frank Biermann. "European Emissions Trading and the International Competitiveness of Energy-intensive Industries: A Legal and Political Evaluation of Possible Supporting Measures." Energy Policy 35, no. 1 (2007): 497-506. https://doi.org/10.1016/j.enpol.2005.12.013.

Worland, Justin. "As Climate and Trade Become Intertwined, a Bipartisan Push for Carbon Tariffs Is Emerging." Time. Last modified September 15, 2023. https://time.com/6314461/bipartisan-support-carbon-tariffs/.

Zhong, Jiarui, and Jiansuo Pei. "Carbon Border Adjustment Mechanism: A Systematic Literature Review of the Latest Developments." Climate Policy 24, no. 2 (2023): 228-42.https://doi.org/10.1080/14693062.2023.2190074.

Damming the Iron River: Fighting the Flow of American Crime Guns South of the Border

Jasir Rahman

Abstract

The persistent flow of firearms from the United States into Mexico, known as the “Iron River,” exacerbates violence and instability on both sides of the border. Despite Mexico’s strict gun laws, the country faces high firearm-related homicide rates, largely due to the unchecked trafficking of American weapons into cartel hands. While recent U.S. policies, such as the Bipartisan Safer Communities Act and the ATF’s enhanced oversight, have sought to curb illegal gun flows, political resistance and legal constraints—such as the Tiahrt Amendment—have weakened enforcement. This paper proposes two key policy solutions to dam the Iron River. First, expanding cooperation with Mexican authorities through improved firearms tracing and data-sharing agreements, and second, revising the interpretation of the Tiahrt Amendment to allow public accountability of firearm dealers who disproportionately supply crime guns. By addressing gun trafficking at its source, these measures aim to align U.S. security interests with border enforcement efforts, ultimately reducing violence and its downstream effects, including mass migration.

I. Introduction

In the American 2024 Vice Presidential Election Debate, Republican candidate JD Vance said, "We know that thanks to Kamala Harris's open border, we've seen a massive influx in the number of illegal guns run by the Mexican drug cartel" (NPR Staff, 2024). Vance alleges that there is a pipeline of guns from Mexico to America, but the "Iron River" runs in reverse.

While Mexico has just two gun stores, the United States has over 130,000 active Federal Firearms Licensees (FFLs) – more than three times the number of McDonalds that exist in the world (Elinson and McWhirter, 2025; Brown 2025). Given the sheer mass of dealers and the proximity of American border states with permissive gun policy – Texas, Arizona, New Mexico – gun trafficking runs rampant across the Southern border. Mexico's Secretariat of Foreign Relations reported that 70-90% of guns in Mexico originate or pass through the US, with the Government Accountability Office (GAO) and the Bureau of Alcohol, Tobacco, and Firearms (ATF) reporting that 68% of Mexican guns directly originate in the US (Secretaría de Relaciones Exteriores, 2021; GAO, 2021). In recent years over 20 million guns have been produced in the US annually, and over 500,000 guns are trafficked to Mexico every year (National Shooting Sports Foundation, 2024; "American Guns in Mexico, 2024).

America's uniquely permissive gun policy is often considered a domestic issue, but the Iron River has created many problems for both nations. Despite Mexico's heavy gun restrictions and the United States' lax laws, Mexico's per capita firearm homicide rate is three times that of the United States (Weigend et al., 2024). Access to means of violence is critical for cartels to maintain their hold on the state. Guns are used to intimidate local officials and eliminate law enforcement as a means of securing distribution rights, market access, and legal protection in the drug trade (Felbab-Brown, 2023). Alejandro Celorio, lead attorney in the Mexican lawsuit against American gun dealers put it this way: "A cartel without firearm[s] is just a gang" ("Damming the 'Iron River'", 2024). Illicit opioids are escorted by American arms into the United States, which kill over 80,000 Americans annually (National Institute on Drug Abuse, 2024). Cartel violence is a significant driver of immigration to the United States, with upwards of 90% of migrants fleeing into the United States citing threats of violence (Solomon and Gottesdiener, 2023). There is a bipartisan effort to curb immigration into the United States, as both Republican and Democratic administrations pay hundreds of billions of dollars annually to support agencies and infrastructure meant to target, deter, and deport immigrants from the Southern border.

There is thus incongruency with our foreign policy to Mexico. On the one hand, the United States unflinchingly supports mass armament among our citizenry and provides little oversight of firearms trafficking. At the same time, it maligns Mexico for violent crime, floods of fentanyl, and thousands of immigrants who seek asylum from violence exported there by the United States itself. I propose two policies aimed at truly aligning American ambitions to secure the border by focusing on the flow of firearms South of the border.

II. Current Policy

The Bureau of Alcohol, Tobacco, and Firearms (ATF) is responsible for overseeing gun dealers and manufacturers, ensuring safe business procedures for the furnishing of dangerous weapons. Since the mid-1980s, considerable pressure has been placed on ATF from the gun lobby and fringe 2nd Amendment rights groups. In 1986, President Reagan signed the Firearm Owners Protection Act (FOPA) into law, which hampered ATF's ability to investigate FFLs and dealers by removing record-keeping on non-armor piercing ammunition, mandating that ATF is only allowed to inspect FFLs once per year, and banning any federal registry of firearms (Congress.gov, 1986). That last provision has been interpreted to preclude digitizing records, severely slowing ATF tracing operations such that there is a 14-month gun tracing backlog (Williams, 2022).

ATF has long been underfunded and now its very existence is under threat, with two House bills having been filed to abolish the agency (H.R. 129, 2025; H.R. 221, 2025). In 2006, the PATRIOT Act required that the ATF Director be confirmed by the Senate. Since then, ATF has had just two permanent directors – serving for a total of just five years – due to political obstructions ("Why the Federal Firearms Agency Can't Find a Permanent Director", 2021). President Trump recently appointed former federal prosecutor Kash Patel to serve as Director of the Federal Bureau of Investigation and as Acting Director for ATF. Patel has been an avid opponent of ATF, calling it a part of the "deep state" at the Gun Owners of America Conference in 2024, leaving the direction of the agency in much uncertainty.

In the past few years, the role of firearms in violence South of the border has gained greater recognition. After calls from Mexico to curb gun trafficking, the U.S. and Mexico initiated Operation Frozen to improve inspections of vehicles moving

southbound, which historically are not heavily monitored (Rivlin-Nadler, 2019). Operation Frozen appears to have been a toothless effort, as the Trump Administration installed more booths at certain transit checkpoints but left them unmanned. More robust action would come in 2022 with the passage of the Bipartisan Safer Communities Act (BSCA), enhancing background checks and making firearms trafficking a federal crime for the first time (Bureau of Alcohol, Tobacco, Firearms, and Explosives, 2024). In 2021, the United States and Mexico agreed to the Bicentennial Framework for Security, Public Health, and Safe Communities (Bicentennial Framework), adding U.S. commitments to reduce drug demand and illegal firearms trafficking to Mexico. The Biden Administration's ATF subsequently instituted a "zero tolerance" policy for dangerous conduct by FFLs, such as willful allowance of gun trafficking, reaching the highest revocation rate (2 revocations per of 100 inspections) in nearly two decades (Barton, 2024; Bureau of Alcohol, Tobacco, Firearms, and Explosives, 2024). On October 1st, 2024, ATF implemented a new rule requiring FFLs to report multiple sales of high caliber semi automatic rifles22 – favorites of the cartel – sold in Southwest Border[1] states.

The new Trump Administration has caused a whirlwind of confusion with its swift action that rolls back many of the Biden Administrations previous policies in a number of policy areas, and gun violence is no different. On his first day in office the website of the newly created White House Office of Gun Violence Prevention was shut down, subsequently rolled back "zero tolerance", and signed an executive order which mandated that the Attorney General conduct a Constitutional review of all the Biden Administration's and ATF's actions regulating firearms in the past four years (Business Insider, 2025; Trump, 2025)

The Trump Administration initially promised swift tariffs against Mexico for its role in the American fentanyl crisis. Negotiations between the two countries put a pause to the tariffs, with Mexican President Claudia Sheinbaum publicly announcing on February 3rd, 2025 that both countries will take action regarding the border. President Sheinbaum pledged to send 10,000 troops to secure the border and prevent drug trafficking, while allegedly securing a promise from the United States to put more resources into preventing firearm trafficking to Mexico (Stevenson, 2025). Given the nascent nature of these talks, details of this agreement are scant, but it provides a glimmer of hope regarding the future of border politics. These policies aim to set a path forward, aligning the values of border security and government efficiency of the new administration with the procedures needed to tackle firearm violence enabled by U.S. law.

Proposal 1: Supporting Mexican Gun Tracing

Background

Given the role of illicit firearms in violence in Mexico, strategies tracing down American weapons that are recovered by Mexican law enforcement are vital to dam the iron river. When law enforcement officials retrieve a weapon used in crime, ATF matches the serial number of the firearm with data submitted by FFLs to track the source of the firearm. From 2017-2021, 33% of all firearms trafficking cases were initiated with trace data, including over 1,000 cases in the Southwest Region (Bureau of Alcohol, Tobacco, Firearms, and Explosives, 2024) To provide Mexican law enforcement authorities with direct access to gun tracing, ATF developed eTrace 4.0, also known as Spanish eTrace, which receives and provides trace results in Spanish (U.S. Department of Justice, 2010). In December 2009, ATF piloted a program to deploy Spanish eTrace to, and to train Mexican officials in, the system's use. In 2012, then-President Enrique Peña Nieto, initiated a policy known as Ventanilla Unica, which was meant to consolidate government services to promote government efficiency. This policy vested the sole authority to conduct firearms tracing with the Fiscalia General de la Republica (FGR), but in doing so retracted access to eTrace for Mexican law enforcement agencies at the state and local level. Federal authority over Mexican gun tracing is further consolidated by legislation requiring that crime guns be surrendered to the Mexican Secretariat of National Defense (SEDENA) within 48 hours, severely limiting the amount of time for trace data to be accessed and submitted by Mexican law enforcement. A report from the Office of the Inspector General found that a majority of crime guns recovered by Mexico go untraced because of an inability of ATF agents to acquire access to the firearms from SEDENA, when all they need are serial numbers and a gun description (U.S. Department of Justice, 2010). In 2009 Mexico reportedly possessed over 300,000 seized firearms, but submitted just 60,000 for tracing (U.S. Department of Justice, 2010). The centralization of eTrace has also limited the extent to which Mexican law enforcement prioritizes gun tracing during investigations, as it reduced the visibility of the firearm tracing process and thus understaffed offices opt to put their time towards other issues.

Clerical errors by investigators and have stifled tracing of American guns in Mexico. The Government Accountability Office found that a significant portion of these gun traces failed because "Data supplied by the law enforcement agency requesting the trace, such as the firearm model or serial number, were missing or invalid (43 percent of incomplete traces)"[2] (U.S. Government Accountability Office).

Proposal

I propose a memorandum of understanding (MOU) between the United States and Mexico to expand crime gun tracing efforts in Mexico, focusing on two initiatives. First, expanding investments in eTrace training for Mexican officials. Second, negotiating an agreement to share serial numbers of crime guns possessed by the Mexican military with ATF. Nearly two decades removed from the initial investment in eTrace training for Mexican officials, it is time to revisit our initial training strategy and improve upon past mistakes. A Department of Justice Report found that in training Mexican officials, ATF agents failed to communicate the importance of tracing operations as a tool to reduce upstream trafficking activity. Because trace reports do not by themselves provide information regarding individuals who are potentially trafficking, many Mexican officials viewed tracing activities as unnecessary, with some even calling it "some kind of bad joke." Historically, if hits were found and traffickers were prosecuted, ATF would follow up with the trace requesting agency to provide information, which would serve to reduce some of the institutional suspicion against tracing. Unfortunately, federal prosecutors often opted not to pursue potential trafficking cases because there was no federal law against gun trafficking and because many traced guns had long times-to-crime, which make it more difficult for trafficking allegations to hold up in court. With the passage of a new anti-trafficking law under BSCA in 2022, there is more of an incentive to pursue trafficking cases. Indeed as of 2024 over 500 defendants have been prosecuted under the new trafficking law (U.S. Department of Justice, 2024). A new round of training by ATF officials is long overdue, and with the official recognition of the gun trafficking problem by the new Sheinbaum Administration, the United States would be able to further align themselves with Mexican actors and encourage heightened tracing efforts.

Even if recent anti-trafficking laws make the act of tracing more meaningful to Mexican officials, there are still inefficiencies which may preclude the timely tracing of firearms required to solidify confidence in the tracing system and to secure criminal convictions. Namely, the centralization of tracing and requirements for military acquisition of crime guns severely hamper the ability for timely tracing. I recommend that as part of a new MOU, ATF and SEDENA outline a shared interest in tracking firearms for U.S. and Mexican national security. SEDENA ought to provide ATF with serial numbers and descriptions of seized firearms for use in gun tracing. Historically SEDENA has not recognized a responsibility to assist ATF in tracing efforts, but given President Sheinbaum's position on U.S. assistance with firearms trafficking, a mutually beneficial partnership facilitated by data sharing would be a great step forward in this partnership.

Policy Implications

Investments in Mexican crime gun tracing capabilities are vital to identify trafficking pipelines. Fortunately, much of the groundwork for such investments has been laid out for us through prior action by ATF and the Biden Administration. The 2009 rollout of Spanish eTrace included training Mexican law enforcement, and we are well aware of the deficiencies from that first attempt. Now we have the advantage of more robust laws against traffickers, incentivizing federal prosecutors to take action against criminals who are tracked down by Mexican firearms traces. Such a training investment will require roughly $10 million based on funding estimates for rolling out eTrace from 2009-2011, including onboarding new ATF employees and providing training to Mexican officials (Bureau of Alcohol, Tobacco, Firearms and Explosives, 2010). Such a cost pales in comparison to the potential benefits of disrupting trafficking pipelines, which fuels immigration and a ballooning DHS budget which reached nearly $10 billion in 2024. The American Immigration Council estimates that mass deportation plans by the Trump Administration will cost upwards of $1 trillion over the course of a decade, with detainment and removal costs being extremely high-cost items. Between the options, stemming the tools of violence which cause immigrants to flee to the United States for safety inevitably is a more cost-effective and ethical option than forceful removal.

A data sharing agreement between SEDENA and ATF would not alter existing Mexican law regarding SEDENA's authority over recovered crime guns, nor would it necessitate SEDENA forfeiting those guns to ATF. It would ask little more of SEDENA than transmitting firearm serial numbers and descriptions to the ATF field office in Mexico as they are recovered, allowing for consistent

tracing of crime guns. This would provide more accurate information regarding recovery date of firearms – which is often unknown or unrecorded – and provide more timely traces, which are in turn are more likely to provide leads in investigations or be used in prosecutions against potential traffickers.

Proposal II: Tailoring Tiahrt

Background

In 2003, the year before the expiration of the Federal Assault Weapons Ban, Representative Todd Tiahrt of Kansas added an amendment to the 2003 federal appropriations bill that prohibited ATF from releasing firearm trace data to anyone other than law enforcement agencies or prosecutors in connection to a criminal investigation (Webster, 2012). Firearm traces can tell when, where, and from whom a firearm that was used in a crime was originally purchased by matching up a firearm's unique serial number to sale records recorded by FFLs. In 2004, Tiahrt introduced amendments further restricting crime gun-trace data by limiting access to government officials, prohibiting ATF from requiring gun dealers to do a physical inventory of their firearms for compliance inspections, and requiring the FBI to destroy data from background checks of gun purchasers within 24 hours. Crucially, however, there is a carveout for the publication of aggregate data which was upheld in the 2nd Circuit Court of Appeals in 2020 (*Everytown for Gun Safety Support Fund v. Bureau of Alcohol, Tobacco, Firearms and Explosives*, 2020). However, ATF has broadly interpreted Tiahrt limiting even the publication of aggregate data, chilling research efforts, public campaigns against negligent dealers, and limiting information sharing between law enforcement agencies that would aid in identifying trafficking pathways (Webster, 2012)

Proposal

I propose narrowing the Tiahrt Amendment's interpretation to attack trafficking from a supply and demand side. First, on the supply-side, I propose that Tiahrt be interpreted to allow for the publication of information regarding firearms dealers potentially engaging in firearms trafficking with transnational criminal actors. Second, on the demand-side, I propose that the Department of Homeland Security (DHS) agents gain access to gun trace data to align ATF and DHS operations with regards to cross border trafficking.

DL2 Data Release

First, I propose an alteration of ATF's interpretation of the Tiahrt Amendment, narrowly tailored towards targeting transnational traffickers. The ATF Demand Letter 2 Program was created to identify dealers that are prone to selling guns that are later used in crimes, thus aiding law enforcement with investigations. The program includes dealers "who have sold at least 25 guns that were recovered in crime during the past year that were found to have taken less than three years to make it from point of sale to being recovered in that crime." (Brady, 2024). This amounts to roughly two percent of gun dealers, constituting 1,323 dealers in 2023. While making the DL2 list is not inherently problematic, consistent traces of guns with short "times-to-crime" indicate that a store is furnishing firearms to traffickers or criminals regardless of their actual business practices. Isolating these dealers is critical, as the latest available data[3] indicates that 90% of crime guns are sold by 5% of dealers (Brady, 2024).

The ATF's broad interpretation of Tiahrt generally prohibits the public sharing of dealers on the DL2 list. After ATF honored a limited FOIA request of the DL2 list from Brady United and USA Today, Republican Congressman Jeff Duncan wrote, "The Tiahrt Amendment protects FFLs from unnecessary reputational damage... USA TODAY and Brady United are now using this information to negatively influence public opinion of FFLs by releasing 'name and shame' lists of honest businesses." ("ATF's Demand Letter 2 Program Includes Kentucky, Louisville Gun Dealers", 2024). No other industry has such protection from the court of public opinion, and it has created a culture of impunity that has perpetuated bad practices by gun dealers.

I recommend that ATF narrowly interpret the Tiahrt Amendment and publish the DL2 list to the public as it did prior to 2003. There are two justifications. First, on principle, no industry factors should be shielded from the court of public opinion. Observers have noted that this sort of liability shield is actually uncompetitive, as dealers with more negligent business practices are rewarded with greater sales to bad actors, while dealers that do it the right way are punished. We ought to promote a competitive environment of safety first. Second, "name and shame" actually works to improve business practices. In 1999, "Badger Guns and Ammo" was announced to have been a top dealer of guns that were later found to have been used in crimes. Within days of the announcement, Badger changed its policies to stop selling small pistols (also known as "junk guns") which were the top choice for criminals at the time (Webster, 2006). Following this policy change, the share of crime guns traced back to Badger decreased by 66% (Webster, 2006).

Johns Hopkins researchers found that after the Tiahrt Amendment passed in 2003, the share of crime guns traced back to Badger shot up 203%, indicating that transparency was the genesis of the decrease in the share of crime guns (Webster, 2006).

Thus, the "name and shame" strategy provides a low-cost way to hold dealers accountable without clogging up the courts. The DL2 list is already available to ATF, it just needs to be released as it was prior to Tiahrt. The primary limitations of the efficacy of this strategy is the extent to which it relies on the public seizing upon the data. There is a chance that dealers are inflexible in the face of public pressure. However, when ATF released a limited amount of DL2 information to USA Today earlier this year, a number of local media outlets from across the country covered the story, alerting their readers to the gun dealers that were furnishing the most crime guns in their communities (Diedrich and Penzenstadler, 2024). One strength of this approach is that it is not carrots or sticks offered by the government as incentives, but market forces that may sustain more long-lasting change even as administrations change. Publishing the DL2 list may promote a business culture of greater safety for dealers who serve as the gatekeepers of dangerous weapons.

ATF and DHS Trace Data Sharing

Domestic firearms tracing efforts are often complicated by the conflicting jurisdictions of different national security agencies. ATF, DHS, and the State Department have varying responsibilities when it comes to firearms trafficking on the border, which has caused confusion among agency officials and duplication of efforts to combat firearms trafficking (U.S. Government Accountability Office). In 2009, DHS's Immigration and Customs Enforcement (ICE) and ATF signed an MOU to align their efforts at preventing trafficking, but the MOU has been largely ineffective at clarifying roles.47 For example, the MOU states that "the regulation and inspection of the firearms industry is within the sole purview of ATF" and that "all investigative activities at the port of entry, borders and their functional equivalents must be coordinated through ICE." (U.S. Department of Justice, 2009). These jurisdictions compete in simple situations such as ICE finding illegal firearms, leading to confusion between agencies and inefficiencies in the investigative process (GAO).

The lack of inter-agency cooperation creates gaps in knowledge across agencies which obfuscates the most effective strategies. For example, in 2017 HSI found that the majority of firearms smuggled into Mexico were long guns, but this is inconsistent with ATF findings that the majority of firearms traced back to the US are handguns (U.S. Government Accountability Office). Additionally, HSI found that cartels typically use straw purchases from FFLs to obtain weapons, but ATF found that they most often use secondary purchases.

ATF's interpretation of Tiahrt serves as the primary barrier preventing ATF from sharing trace data with other law enforcement agencies (U.S. Government Accountability Office; International Association of Chiefs of Police, 2014). I propose that the 2009 MOU between ATF and ICE be reworked to facilitate access to trace data, predicated upon a more expansive interpretation of Tiahrt. As of August of 2020 the agencies were in conversation regarding enhanced data sharing, but these discussions seem to have stalled under the weight of data constraints (U.S. Government Accountability Office) I recommend a resumption of such negotiations, which would be revitalized by lightening the burden of Tiahrt. This MOU would include enhanced trace data sharing agreements between ATF and ICE, explicitly authorizing the sharing of aggregated data to align the agencies on general trafficking pathways to assist investigations. Additionally, leveraging inter-agency task forces that exist in border states would provide opportunities to share individual gun traces as they relate to investigations, providing individualized trace data more readily without ICE having to go through the cumbersome process of requesting trace reports. Such an agreement would have a limited cost given ATF's capabilities to share data across agencies, but would greatly reduce misalignment between these agencies and support investigations by ICE regarding instances of gun trafficking to Mexico.

V. Conclusion

The gun trafficking crisis between the United States and Mexico is a fundamental contradiction in U.S. border policy—prioritizing immigration enforcement while neglecting the firearm supply that fuels violence and displacement. The "Iron River" of American firearms into Mexico strengthens cartels, exacerbates migration pressures, and undermines both U.S. and Mexican security. Current regulatory frameworks, constrained by political and legislative barriers, fail to hold negligent gun dealers accountable, perpetuating illicit trafficking networks. Implementing a memorandum of understanding with Mexico to expand eTrace access and improve data-sharing would provide crucial intelligence for dismantling trafficking networks. Additionally, revising ATF's interpretation of the Tiahrt Amendment to allow for the

publication of crime gun dealer data and enhancement of tracing data access for DHS would hold negligent actors accountable and deter illicit sales. These solutions offer a pragmatic approach to border security—one that prioritizes efficiency, accountability, and cross-border cooperation. Without meaningful reform, the cycle of violence, displacement, and ineffective enforcement will persist, leaving both nations vulnerable to the consequences of inaction.

FOOTNOTES

1.Arizona, California, New Mexico, and Texas

2.It should be noted that an ATF estimate found that just 5% of firearms recovered in Mexico had their serial numbers obliterated, and just 9% of firearms submitted for tracing were Personally Made Firearms without serial numbers, meaning that these discrepancies are largely due to clerical error.

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REFERENCES

Americans for Gun Safety Foundation. The Enforcement Gap: Federal Gun Laws Ignored. Washington, D.C.: Americans for Gun Safety Foundation, 2003.https://thirdway.imgix.net/downloads/the-enforcement-gap-federal-gun-laws-ignored/AGS_Report_-The_Enforcement_Gap-_Federal_Gun_Laws_Ignored.pdf.

"ATF's Demand Letter 2 Program Includes Kentucky, Louisville Gun Dealers." Courier-Journal, September 15, 2024. https://www.courier-journal.com/story/news/investigations/2024/09/15/atf-demand-2-program-includes-kentucky-louisville-gun-dealers/74504602007/.

Barton, Champe. "ATF Steps Up Policing of Lawbreaking Gun Dealers, Revoking Highest Number of Licenses in Two Decades." The Trace, October 23, 2024. https://www.thetrace.org/2024/10/atf-gun-dealer-licenses-revoked-biden/.

Brady. The Suppliers of America's Gun Violence Epidemic. Washington, D.C.: Brady, 2024. https://assets.bradyunited.org/production/files/Demand-Letter-2-Report_031324.pdf.

Bureau of Alcohol, Tobacco, Firearms, and Explosives. "27 CFR § 478.125: Record of Receipt and Disposition." ATF eRegulations. Last modified July 18, 2024. https://regulations.atf.gov/478-125/2024-13699#478-125.

Bureau of Alcohol, Tobacco, Firearms, and Explosives. "ATF Releases Comprehensive Firearms Trafficking Report." Last modified April 8, 2024. https://www.atf.gov/news/press-releases/atf-releases-comprehensive-firearms-trafficking-report.

Bureau of Alcohol, Tobacco, Firearms, and Explosives. "Enhanced Regulatory Enforcement Policy." Last modified December 2024. https://www.atf.gov/rules-and-regulations/enhanced-regulatory-enforcement-policy.

Bureau of Alcohol, Tobacco, Firearms, and Explosives. "Fact Sheet - Facts and Figures for Fiscal Year 2023." Last modified July 2024. https://www.atf.gov/resource-center/fact-sheet/fact-sheet-facts-and-figures-fiscal-year-2023.

Bureau of Alcohol, Tobacco, Firearms and Explosives. Fiscal Year 2011 Congressional Budget Submission. Washington, DC: U.S. Department of Justice, February 2010. https://www.atf.gov/resource-center/docs/2011-atf-justificationpdf/download.

Bureau of Alcohol, Tobacco, Firearms, and Explosives. National Firearms Commerce and Trafficking Assessment (NFCTA): Volume IV, Part VII – Firearm Commerce, Crime Guns, and the Southwest Border. Washington, D.C.: U.S. Department of Justice, 2025. https://www.atf.gov/firearms/docs/report/nfcta-volume-iv-part-vii-%E2%80%93-firearm-commerce-crime-guns-and-southwest-border/download.

Bureau of Alcohol, Tobacco, Firearms, and Explosives. "Reporting Multiple Firearms Sales or Other Dispositions." Last modified June 2024. https://www.atf.gov/firearms/reporting-multiple-firearms-sales-or-other-dispositions.

Business Insider. "Government Websites Suddenly Went Down This Week. Here's What the White House Has Said About It." Business Insider, January 22, 2025. https://www.businessinsider.com/government-websites-dei-reproductive-rights-went-down-trump-office-2025-1.

"Damming the 'Iron River': Mexico's Legal Battle to Stop Gun Trafficking From U.S." CBS News, December 23, 2024. https://www.cbsnews.com/news/damming-the-iron-river-mexico-legal-battle-to-stop-gun-trafficking-from-us-60-minutes-transcript/.

Diedrich, John, and Nick Penzenstadler. "Shops Selling Most Crime Guns Revealed: ATF." USA Today, February 15, 2024. https://www.usatoday.com/story/news/investigations/2024/02/15/shops-selling-most-crime-guns-revealed-atf/72581120007/.

Elinson, Zusha, and Cameron McWhirter. "As America Battles Fentanyl, Mexico Fights Flow of American Guns." The Wall Street Journal, February 6, 2025. https://www.wsj.com/us-news/us-mexico-gun-weapon-smuggling-ecddf964.

Everytown for Gun Safety Support Fund v. Bureau of Alcohol, Tobacco, Firearms and Explosives, No. 19-3438 (2d Cir. Dec. 23, 2020).https://everytownlaw.org/wp-content/uploads/sites/5/2021/03/Second-Circuit-Opinion.pdf.

Felbab-Brown, Vanda. "Mexico's Long War: Drugs, Crime, and the Cartels." Council on Foreign Relations, March 16, 2023. https://www.cfr.org/backgrounder/mexicos-long-war-drugs-crime-and-cartels.

International Association of Chiefs of Police. Crime Gun Information Sharing: The ATF i-Trafficking Project. Alexandria, VA: International Association of Chiefs of Police, 2014.https://www.theiacp.org/sites/default/files/all/c/Crime_Gun_Info_Sharing.pdf.

Kris Brown. "The U.S. Has More Gun Dealers Than McDonald's, Starbucks Combined; Project 2025 Will Make It Worse, Says Brady President." Interview by Ali Velshi. MSNBC, February 16, 2025. https://www.msnbc.com/ali-velshi/watch/-the-u-s-has-more-gun-dealers-than-mcdonald-s-starbucks-combined-project-2025-will-make-it-worse-says-brady-president-218824773745.

National Institute on Drug Abuse. "Drug Overdose Death Rates." National Institutes of Health, July 2024. https://nida.nih.gov/research-topics/trends-statistics/overdose-death-rates.

National Shooting Sports Foundation. "NSSF Releases Most Recent Firearm Production Figures." NSSF, January 15, 2025. https://www.nssf.org/articles/nssf-releases-most-recent-firearm-production-figures-2/.

NPR Staff. "NPR Fact Checked the Vance-Walz Vice Presidential Debate. Here's What They Found." NPR, October 2, 2024. https://www.npr.org/2024/10/02/nx-s1-5135675/jd-vance-tim-walz-vp-debate-fact-check.

Secretaría de Relaciones Exteriores. "Foreign Ministry Information Note No. 16." Gobierno de México, August 4, 2021. https://www.gob.mx/sre/documentos/foreign-ministry-information-note-no-16.

Solomon, Daina Beth, and Laura Gottesdiener. "Rise in Mexican Cartel Violence Drives Record Migration to the US." Reuters, December 15, 2023. https://www.reuters.com/world/americas/rise-mexican-cartel-violence-drives-record-migration-us-2023-12-15/.

Stevenson, Mark. "Mexican Troops Deployed to Border as Part of Deal to Pause U.S. Tariffs." Reuters, February 4, 2025. https://www.reuters.com/world/americas/mexican-troops-deployed-border-part-deal-paus e-us-tariffs-2025-02-04/.

Trump, Donald J. "Protecting Second Amendment Rights." The White House, February 7, 2025. https://www.whitehouse.gov/presidential-actions/2025/02/protecting-second-amendment-rights/.

U.S. Congress. Bipartisan Safer Communities Act. Public Law 117-159, 117th Cong., June 25, 2022.https://www.congress.gov/bill/117th-congress/senate-bill/2938.

U.S. Congress, House. Abolish the ATF Act. 119th Cong., 1st sess., H.R. 129. Introduced in House January 3, 2025. https://www.congress.gov/bill/119th-congress/house-bill/129.

U.S. Congress, House. Abolish the ATF Act. 119th Cong., 1st sess., H.R. 221. Introduced in House January 7, 2025. https://www.congress.gov/bill/119th-congress/house-bill/221.

U.S. Department of Justice. “Fact Sheet: Two Years of the Bipartisan Safer Communities Act.” Last modified June 25, 2024. https://www.justice.gov/archives/opa/pr/fact-sheet-two-years-bipartisan-safer-communities-act.

U.S. Department of Justice. “ICE and DOJ Sign Agreements to Share Information on Drug Trafficking and Organized Crime.” Press release, August 10, 2009. https://www.justice.gov/archives/opa/pr/ice-and-doj-sign-agreements-share-information-drug-trafficking-and-organized-crime.

U.S. Department of Justice, Office of the Inspector General. Review of ATF’s Project Gunrunner. November 2010. https://oig.justice.gov/reports/ATF/e1101.pdf.

U.S. Government Accountability Office. U.S. Efforts to Combat Firearms Trafficking to Mexico Have Improved, but Some Collaboration Challenges Remain. GAO-16-223. Washington, D.C.: U.S. Government Accountability Office, 2016. https://www.gao.gov/assets/gao-16-223.pdf.

U.S. Government Accountability Office. Firearms Trafficking: U.S. Efforts to Disrupt Gun Smuggling into Mexico Would Benefit from Additional Data and Analysis. GAO-21-322. Washington, D.C.: U.S. Government Accountability Office, 2021. https://www.gao.gov/assets/gao-21-322.pdf.

U.S. House of Representatives. “Reps. Castro, Goldman, and Thompson Introduce Bill to Curb Trafficking of American Guns into Mexico.” Press release, July 20, 2024. https://castro.house.gov/media-center/press-releases/reps-castro-goldman-and-thompson-introduce-bill-to-curb-trafficking-of-american-guns-into-mexico.

Webster, Benjamin. “Study Finds Federal Amendments Increased Gun Sales Diverted to Criminals.” Johns Hopkins Bloomberg School of Public Health, January 9, 2012. https://publichealth.jhu.edu/2012/webster_milwaukee.

Webster, Daniel. Effects of a gun dealer's change in sales practices on the supply of guns to criminals. J Urban Health. 2006 Sep;83(5):778-87. doi: 10.1007/s11524-006-9073-2. PMID: 16937085; PMCID: PMC2438583.

Weigend Vargas, E., Degli Esposti, M., Hargarten, S. et al. Examining firearm-related deaths in Mexico, 2015–2022. Inj. Epidemiol. 11, 33 (2024). https://doi.org/10.1186/s40621-024-00519-z

Williams, Pete. “‘It’s Just Insanity’: ATF Now Needs 2 Weeks to Perform Routine Gun Trace.” NBC News, July 20, 2022.