The Economic Costs of Rape

Abi Adams-Prassl[*], Kristiina Huttunen, [†]Emily Nix,[‡] and Ning Zhang[§]

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Abstract

One in four US women have experienced a completed or attempted rape (CDC, 2022). Yet, there is currently no systematic evidence on how sexual violence affects women's economic outcomes. We harness detailed administrative data from Finland to provide new empirical facts on how rape affects the labor market outcomes of victims and their family members. A third of police reports for rape involved victims younger than 21 years old at the time of the assault. We show that the age-25 employment and college completion rates of younger victims are 12.8 p.p and 10 p.p lower respectively than those of other young women with the same (pre-event) GPA and family background. For older victims, we use a matched difference-in-difference design to show that rape has a large and persistent economic impact on women: victims' employment falls by 7.8 percentage points and their labor market earnings decline 16.5% relative to observationally equivalent women in the five years following the assault. These results are robust to controlling for a variety of shocks preceding rape that could make it more likely for a woman to be victimized and independently suppress her economic outcomes. We also document important spillovers of these crimes, with the victim's mother and sisters experiencing significant declines in their earnings. Last, we show that higher clearance rates of rape cases by the courts and police mitigate the negative impacts on victims. Together, these results indicate that preventing and addressing sexual violence is a vital economic issue, as well as a moral one.

[*]University of Oxford, abi.adams-prassl@economics.ox.ac.uk
[†]Aalto University, kristiina.huttunen@aalto.fi
[‡]University of Southern California Marshall School of Business, enix@usc.edu
[§]University of Oxford, ning.zhang@economics.ox.ac.uk

Extended Abstract

Half of all women experience sexual violence over their lifetimes, with one in four experiencing an attempted or completed rape in the United States.[1] Internationally, WHO estimates show that 1 in 3 women around the world are directly impacted by sexual violence.[2] Sexual assault is a deeply traumatic crime;[3] the Office on Violence Against Women recommends that victims are evaluated for suicide risk within days of an assault (Dworkin *et al.*, 2022). If, in addition to emotional costs, sexual violence leads to negative economic outcomes for impacted women, then this could have important implications for female labor force participation, women's earnings, gender income gaps, gendered sorting across occupations, and even global GDP given the prevalence of sexual violence.

Empirical evidence on the labor market and health impacts of rape is scarce. A frequently quoted figure suggesting costs of $122,461 per rape fails to capture the labor market consequences of these crimes (Peterson *et al.*, 2017). Moreover, there is no empirical evidence on how these events might impact the choices and lives of other family members closely related to the victim. One major reason for this lack of evidence is the paucity of data. It is difficult to find data on victims of these crimes linked to their labor market and health outcomes, along with data on other closely connected people to identify spillovers. In this paper, we use unique administrative police data perfectly linked to registry data from Finland to provide such evidence on the impacts of a rape or attempted rape on the victim's labor market outcomes, their families, and the role of the criminal justice system.

The police data includes every rape or attempted rape that occurred in Finland and was reported to the police from 2006-2019. With this data, we identify the victims of these crimes along with their unique identifying numbers, which we use to perfectly link victims to their economic outcomes in administrative tax records. We supplement the economic outcomes with hospital-

[1] https://www.cdc.gov/violenceprevention/sexualviolence/fastfact.html.

[2] https://www.who.int/news/item/09-03-2021-devastatingly-pervasive-1-in-3-women-globally-experience-violence

[3] Author Roxane Gay described her experience stating "So many years past being raped, I tell myself what happened is 'in the past.' This is only partly true. In too many ways, the past is still with me. The past is written on my body. I carry it every single day. The past sometimes feels like it might kill me. It is a very heavy burden."

ization and prescription data to capture the mental health effects of rape. The vast majority of rape victims are female. Thus our analysis focuses on female victims since we are underpowered to examine male victims.

We first provide descriptive evidence on who is victimized including their age, mental health, schooling, and labor market outcomes. We find that 31% of victims are below the age of 21 at the time of the crime. Based on this descriptive fact, we divide our main analysis of the impacts on victims into two groups: older victims for whom we can estimate more rigorous DiD specifications using pre- versus post-crime labor market outcomes, and younger victims for whom identification of labor market effects is more challenging given the absence of pre-event outcomes.

For the older victims, we present impacts using three different but complementary research designs. First, we estimate impacts on employment, earnings, and mental health using a matched control event study approach. We find that rape or attempted rape causes a large drop in both employment and earnings that persist at least 5 years after the incident. Employment falls by 7.8 percentage points and earnings decrease 16.5% relative to matched controls in the five years after the rape or attempted rape. Second, we use a between-sisters research design, comparing outcomes for younger sisters who experience a rape to outcomes of their older sisters when they were the same age. This exercise also demonstrates large drops in both employment and labor market earnings. Third, we estimate a between-victims design, leveraging the timing of victimization. To alleviate concerns that these effects are driven by a separate shock that causes women to be victimized and their economic outcomes to decline, we show that large and significant results remain for women with no change in relationship, employment, and mental health prescriptions in the years before the assault.

For younger victims where we do not observe economic outcomes before the rape, we estimated a matched first differences exercise, comparing outcomes of young girls who experience a rape to young girls with the same (pre-event) GPA and mental health outcomes, who come from observationally similar familiesbut who do not experience a reported rape. We find that young victims who experience rape are 10 percentage points less likely to graduate college, 12.8 percentage points less likely to be employed at age 25, have 21% lower earnings (€3766), and are

6.5 percentage points more likely to appear with a prescription for anti-depressants at age 25 relative to young women with the same (pre-event) GPA with parents with the same employment and earnings levels (in €10,000 bins) at the age before the rape occurred. The decline in college completion rates is especially large for the most academically able teenage victims.

In our second set of results, we examine the potential economic spillovers of these events, focusing on mothers and sisters. Using an event-study design comparing mothers of rape victims to observationally similar mothers whose daughters are not raped, we find that rape, victims' mothers and sisters both experience significant negative impacts on their labor market earnings. These results demonstrate that rape doesn't simply alter the life trajectory of the victim. The repercussions of rape percolate throughout the entire family.

Criminal justice systems around the world are often criticized for their approach to tackling sexual violence and the support given to victims. If victims' experience of the criminal justice system has an impact on their subsequent recovery and labor market outcomes, an economic case could be made for improving the effectiveness of the justice system on this set of crimes. With this in mind, in the third and last part of the paper we investigate the relationship between the efficiency of the criminal justice system and the economic impacts of rape. We find that in municipalities with higher clearance rates in the previous year, the direct economic costs to victims are smaller. This is robust to controlling for other features of the criminal justice system that co-vary with clearance rates (for example, the size and gender composition of the local police force).

This paper is the first to provide estimates of the impact of sexual violence on women's economic choices. There is a small literature in economics examining factors increasing women's exposure to sexual assault in non-conflict settings.[4] Lindo *et al.* (2018) use variation in the timing of Division 1 football games to estimate the effect of a college "party culture" on sexual assault. Bhuller *et al.* (2013) show that access to high-speed internet (and with it better access to online pornography), increases the prevalence of sexual violence. However, the economic impact of these crimes on victims and their families has not yet been studied. Outside of economics,

[4]See Guarnieri and Tur-Prats (2023) for evidence on the use of sexual violence in a conflict setting.

some studies provide detailed qualitative evidence on the impacts of rape. Loya (2015) conducts in-depth interviews with 27 survivors, who describe both immediate and compounding financial impacts following their experience of sexual violence.

This paper also contributes to an emerging literature on the economic causes and consequences of gender-based violence. In related work, we estimate the labor market consequences of between-colleague violence on women's labor market outcomes, finding that female victims suffer large and persistent falls in employment and earnings following these assaults and that these economic costs are larger than those borne by their male perpetrators (Adams-Prassl *et al.*, 2022). In Adams-Prassl *et al.* (2023), we show that economic suppression characterizes relationships in which domestic abuse occurs and that there is evidence that perpetrator suppression of female labor supply is partly strategically motivated to reduce her outside option. In this paper, we show that a prevalent form of gender-based violence, sexual violence, is associated with significant economic costs despite it not being tied directly to a work or family setting in the majority of cases.

Finally, this paper contributes to the large literature on the causes of pervasive gender gaps in labor market outcomes (Goldin, 2014; Bertrand, 2018). We show that sexual violence leads to significant declines in women's labor market outcomes, and is associated with significantly lower college completion rates. More broadly, the experience of trauma may change a wide range of behaviors that impact labor market outcomes such as sorting into occupations (Blau and Kahn, 2013) and willingness to compete or engage risk (Gneezy *et al.*, 2003; Niederle and Vesterlund, 2007; Croson and Gneezy, 2009; Buser *et al.*, 2014; Flory *et al.*, 2015).

References

Adams-Prassl, A., Huttunen, K., Nix, E. and Zhang, N. (2022). Violence against women at work.

—, —, — and — (2023). The dynamics of abusive relationships.

Bertrand, M. (2018). Coase Lecture The Glass Ceiling. *Economica*, **85** (338), 205–231.

Bhuller, M., Havnes, T., Leuven, E. and Mogstad, M. (2013). Broadband internet: An information superhighway to sex crime? *Review of Economic studies*, **80** (4), 1237–1266.

Blau, F. D. and Kahn, L. M. (2013). Female Labor Supply: Why Is the United States Falling Behind? *American Economic Review*, **103** (3), 251–256.

Buser, T., Niederle, M. and Oosterbeek, H. (2014). Gender, Competitiveness, and Career Choices. *The quarterly journal of economics*, **129** (3), 1409–1447.

Croson, R. and Gneezy, U. (2009). Gender Differences in Preferences. *Journal of Economic literature*, **47** (2), 448–474.

Dworkin, E. R., DeCou, C. R. and Fitzpatrick, S. (2022). Associations between sexual assault and suicidal thoughts and behavior: A meta-analysis. *Psychological Trauma: Theory, Research, Practice, and Policy*, **14** (7), 1208.

Flory, J. A., Leibbrandt, A. and List, J. A. (2015). Do Competitive Workplaces Deter Female Workers? A Large-Scale Natural Field Experiment on Job Entry Decisions. *The Review of Economic Studies*, **82** (1), 122–155.

Gneezy, U., Niederle, M. and Rustichini, A. (2003). Performance in competitive environments: Gender differences. *The Quarterly Journal of Economics*, **118** (3), 1049–1074.

Goldin, C. (2014). A grand gender convergence: Its last chapter. *American economic review*, **104** (4), 1091–1119.

Guarnieri, E. and Tur-Prats, A. (2023). Cultural distance and conflict-related sexual violence. *The Quarterly Journal of Economics*, p. qjad015.

Lindo, J. M., Siminski, P. and Swensen, I. D. (2018). College party culture and sexual assault. *American Economic Journal: Applied Economics*, **10** (1), 236–265.

Loya, R. M. (2015). Rape as an Economic Crime: The Impact of Sexual Violence on Survivorsâ Employment and Economic Well-Being. *Journal of interpersonal violence*, **30** (16), 2793–2813.

Niederle, M. and Vesterlund, L. (2007). Do Women Shy Away From Competition? Do Men Compete Too Much? *The quarterly journal of economics*, **122** (3), 1067–1101.

Peterson, C., DeGue, S., Florence, C. and Lokey, C. N. (2017). Lifetime Economic Burden of Rape Among US Adults. *American Journal of Preventive Medicine*, **52** (6), 691–701.