The Effects of Vietnam-Era Military Service on the Long-Term Health of Veterans: A Bounds Analysis

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1 The findings and conclusions in this paper are those of the author(s) and do not necessarily represent the views of the Research Data Center, the National Center for Health Statistics (NCHS), or the Centers for Disease Control and Prevention.
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Yet, the literature estimating causal impacts of military service on veteran’s health is inconclusive (e.g., Hearst et al., 1986; Angrist et al., 1996; Bedard and Deschenes, 2006; Dobkin and Shabani, 2009; Eisenberg and Rowe, 2009)
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- Several studies exploit exogenous variation in military service due to the U.S. Vietnam-era draft lotteries (e.g., Angrist et al., 1996; Angrist et al., 2010; Davies et al., 2015; Dobkin and Shabani, 2009; Eisenberg and Rowe, 2009):
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  - These studies find weak or no evidence of health effects from military service.
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- These studies find weak or no evidence of health effects from military service
- Since effects are likely heterogeneous, those studies focus on the subpopulation of “compliers” (who comprise about 1/4 of veterans)
We analyze the short- and long-term effects (up to 40 years after the conflict) of Vietnam-era military service on a comprehensive list of health outcomes and behaviors.

- Employ restricted-use data from the US National Health Interview Surveys (NHIS)

While we estimate the effects on compliers, we go beyond and estimate nonparametric bounds on the corresponding effects for volunteers.

- Also estimate nonparametric bounds on the effects for the population of Vietnam-era veterans (the “treated group”)

- We assess the validity of the draft lotteries IV in the context of health outcomes.
1. Find no statistical evidence of invalidity of the draft lotteries IV

IV (point) estimates of the military service effect for complier veterans do not provide consistent evidence of statistically significant effects. Estimated bounds on the same effect for volunteer veterans show clear statistically significant detrimental health effects that appear over time. Meaningful effects: estimated lower bounds for white volunteers indicate military service increases Activity Limitation by at least 7.1 pp (57%) and 5.8 pp (30.1%) up to 24 and 40 yrs. after the conflict, respectively.

Estimated bounds on the same effects for all veterans also show clear statistically significant detrimental health effects that appear over time.
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X. Wang, C. Flores and A. Flores-Lagunes (Slippery Rock University, California Polytechnic University at San Luis Obispo, and Syracuse University, CPR, IZA, and GLO)
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Outline for the Rest of the Presentation

- Vietnam-era draft lotteries and the data
- Econometric approach
- Results
- Discussion
- Conclusion
Vietnam-era draft lotteries
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- Men born in the years 1944-1950 were subjected to the Vietnam-era draft lotteries (1969, 1970, and 1971), implemented using random sequence numbers (RSNs) based on day of birth.
- Conscription happened based on order of those RSNs until manpower requirements met.
- The last lottery numbers called became the ex-post draft eligibility cutoffs.
- **Importantly**, being eligible to draft does not equal military service:
  - Males could volunteer to serve when their lottery numbers were high.
  - Draft-eligible males were subjected to medical, physical, and mental examinations to determine qualifications for military service.
  - Other draft avoidance behaviors existed (e.g., college attendance, marriage/fertility, incarcerations).
Data

- Restricted version of NHIS 1974-2013
  - Main cross-sectional data source on health in the U.S.
- Due to changes in the survey design over time, we focus on survey periods: 1974-1981 (up to 8 yrs after the end of the conflict), 1982-1996 (9 to 23 yrs), 1997-2005 (24 to 32 yrs), and 2006-2013 (up to 40 yrs)
  - Not all outcomes are available in all time periods
- Focus on the 1948 to 1952 birth cohorts (earlier cohorts impacted by local drafts), broken down by white and nonwhite
- Four groups of outcomes: general health (e.g., activity limitations, self-reported health), health behaviors (smoking, drinking), activity-limiting chronic conditions, and other chronic conditions
  - All outcomes are binary: = 1 if condition present
  - Important to use multiple outcomes (testing) procedures
Consider the same setting as in Angrist, Imbens and Rubin (AIR; 1996):

- $D_i$: military service indicator; served ($= 1$) or not ($= 0$)
- $Z_i$: binary draft eligibility status IV; eligible ($= 1$) or not ($= 0$)
- $Y_i$: health outcome (or behavior); has condition ($= 1$) or not ($= 0$)

- $D_i(z)$: potential military service status unit would receive if $Z = z$
- $Y_i(d)$: potential health outcome as a function of $D$; i.e., the health outcome unit would experience if $D = d$
- $Y_i(z, d)$: potential outcome unit would experience if $Z = z$ and $D = d$

Observe $\{Z_i, D_i(Z_i), Y_i(Z_i, D_i(Z_i))\}$

- Today, I will skip the details on how we assess the validity of the draft eligibility status IV (details and references in the paper)
AIR partition the population into groups such that, within each group, individuals have the same values of the vector \( \{D_i(0), D_i(1)\} \).

These groups are called “principal strata” (Frangakis and Rubin, 2002)

The current setting has four (latent) principal strata:

- \( \{D_i(0), D_i(1)\} = \{1, 1\} \): the “always takers” (at) \( \rightarrow \) volunteers
- \( \{D_i(0), D_i(1)\} = \{0, 0\} \): the “never takers” (nt) \( \rightarrow \) draft avoiders
- \( \{D_i(0), D_i(1)\} = \{0, 1\} \): the “compliers” (c)
- \( \{D_i(0), D_i(1)\} = \{1, 0\} \): the “defiers” (d)
Parameters of Interest

- The average effect of military service on the health outcomes and behaviors for compliers ($LATE_c$):
  \[ LATE_c = E[Y(1)|c] - E[Y(0)|c] \]

- The average effect of military service on the health outcomes and behaviors for volunteers ($LATE_{at}$):
  \[ LATE_{at} = E[Y(1)|at] - E[Y(0)|at] \]

- The average effect of military service on the health outcomes and behaviors for all veterans ($ATT$):
  \[ ATT = E[Y(1)|D = 1] - E[Y(0)|D = 1] \]
Standard IV Assumptions (AIR, 1996)

- **Assumption A1** (*Randomized Instrument*)
  \[ \{ Y(0, 0), Y(0, 1), Y(1, 0), Y(1, 1), D(0), D(1) \} \text{ is independent of } Z \]

- **Assumption A2** (*Nonzero Average Effect of $Z$ on $D$*)
  \[ E[D(1) - D(0)] \neq 0 \]

  - Instrument has a non-zero average effect on the treatment:

- **Assumption A3** (*Individual-Level Monotonicity of $Z$ on $D$*)
  \[ D_i(1) \geq D_i(0) \text{ for all } i \]

  - It rules out defiers, so only 3 strata left: always takers ($at$), never takers ($nt$), and compliers ($c$)

- **Assumption A4** (*Exclusion Restriction*)
  \[ Y_i(0, d) = Y_i(1, d) = Y_i(d), d \in \{0, 1\} \text{ for all } i \]

  - Effect of the instrument on the outcome works only through $D$
The Average Treatment Effect for Compliers

- Under A1 to A4, AIR (1996) showed that $LATE_c$ is point-identified—this is what previous work identifies & estimates.
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- Since we find no statistical evidence that the instrument is invalid (details in the paper), we adopt A1 to A4 to point-identify and estimate $LATE_c$. 

The other two parameters of interest, $LATE$ and $ATT$, are not point-identified due to the terms $E[Y(0)|X]$ and $E[Y(0)|D=1]$. We follow Chen et al. (2018) to bound these two parameters.
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The Average Treatment Effect for Volunteers (1)

- We use two additional assumptions to bound the effects for volunteers and veterans, the first of which (A5) is trivially satisfied since all outcomes are binary.

- **Assumption A5 (Bounded Outcome):** $Y(1), Y(0) \in [y^l, y^u]$

- Under A1 to A5 we can partially identify $LATE_{at}$, although these "worst-case" bounds are typically uninformative.

- Let $\overline{Y}^{zd} = E[Y|Z = z, D = d]$ and note $E[Y(1)|at] = \overline{Y}^{01}$, then:

  \[
  \overline{Y}^{01} - y^u \leq LATE_{at} \leq \overline{Y}^{01} - y^l.
  \]
The second assumption is a mean weak monotonicity condition

**Assumption A6**: \( E[Y(0)|nt] \geq E[Y(0)|at] \)

- Implies that, in the absence of military service, the average potential health outcomes of draft avoiders are no better than those of volunteers.
- This assumption tightens the lower bound:

\[
\bar{Y}^{01} - \bar{Y}^{10} \leq LATE_{at} \leq \bar{Y}^{01} - y'.
\]

- I justify A6 below...
Veterans consist of compliers and volunteers: intuitively, can bound the effect for veterans by combining their effects

\[
\text{ATT} = \frac{q_1}{r_1} \left[ q_1 (E[Y|Z=1] - E[Y|Z=0]) + p_{1|0} (Y_{01} - Y_{10}) \right] \]

The worst-case bounds (under A1-A5) are given by:

\[
\frac{q_1}{r_1} \left[ q_1 (E[Y|Z=1] - E[Y|Z=0]) + p_{1|0} (Y_{01} - y_u) \right] \leq \text{ATT} \leq \frac{q_1}{r_1} \left[ q_1 (E[Y|Z=1] - E[Y|Z=0]) + p_{1|0} (Y_{01} - y_l) \right]
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While the bounds that add A6 are:

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The Average Treatment Effect for Veterans ($\text{ATT}$)

- Veterans consist of compliers and volunteers: intuitively, can bound the effect for veterans by combining their effects

- Let $q_1 = Pr(Z = 1)$, $r_1 = Pr(D = 1)$, and $p_{1|0} = Pr(D = 1|Z = 0)$; $\text{ATT}$ can be written as (Angrist, 2004):

\[
\text{ATT} = \frac{1}{r_1} [q_1(E[Y|Z = 1] - E[Y|Z = 0]) + p_{1|0} (Y^{01} - E[Y(0)|at])]
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The Average Treatment Effect for Veterans (\(ATT\))

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  \]
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  \]
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  \]
Results
Discussion of Standard IV Assumptions

- **A1:** RA of draft-eligibility IV holds by design (conditional on birth month-by-year indicators)

- **A2:** Draft-eligibility has a significant average effect on military service (between 0.13 and 0.15 across survey periods)

- **A3:** Nobody serves in the military if ineligible-to-draft but does not serve if eligible-to-draft: no defiers
  - Plausible since individuals who prefer enlistment when ineligible-to-draft would also prefer enlistment when they are eligible-to-draft

- **A4:** Draft-eligibility has an effect on health outcomes only through military service
  - It could fail because of draft-avoidance behaviors (e.g., continued education, paternity, incarcerations)
  - Our assessment of the validity of the IV does not suggest its failure
Preliminary Estimates: Strata Proportions

- Under A1 to A3 the strata proportions can be estimated.
- The largest estimated stratum proportion is draft avoiders: 64-66% of the population across survey periods.
- Estimated proportion of compliers is between 13% to 15%:
  - For whites is 13% to 15% while for nonwhites is 7% to 9%.
- Estimated proportion of volunteers in the population is between 21% to 23%:
  - For nonwhites is 17% to 21%.
- Given that the veteran population proportion is between 27% to 29%, volunteers represent about 75% of all the Vietnam-era veterans.

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## Selected OLS and ITT Estimates

<table>
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<tr>
<th></th>
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<th>Nonwhites</th>
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<tr>
<td><strong>NHIS 1974-1981</strong></td>
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<tr>
<td>Activity Limitation</td>
<td>-0.0036</td>
<td>0.0108***</td>
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<tr>
<td>Fair and Poor Health</td>
<td>0.0007</td>
<td>-0.0011</td>
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<tr>
<td>Current Smoker</td>
<td>0.1310***</td>
<td>-0.0007</td>
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<td><strong>NHIS 1982-1996</strong></td>
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<td>Activity Limitation</td>
<td>0.0111***</td>
<td>0.0063*</td>
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<td>Fair and Poor Health</td>
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<tr>
<td>Work Limit</td>
<td>0.0110</td>
<td>0.0040</td>
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<tr>
<td>Current Smoker</td>
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<td>-0.0036</td>
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<td><strong>NHIS 1997-2005</strong></td>
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<tr>
<td>Activity Limitation</td>
<td>0.0436***</td>
<td>-0.0103**</td>
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<td>Fair and Poor Health</td>
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<td>Work Limit</td>
<td>0.0360***</td>
<td>-0.0111**</td>
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<td><strong>NHIS 2006-2013</strong></td>
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<td>Activity Limitation</td>
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<td>Fair and Poor Health</td>
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<tr>
<td>Work Limit</td>
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<tr>
<td>Current Smoker</td>
<td>0.0677***</td>
<td>-0.0066</td>
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The point-estimated effects for compliers are mostly statistically insignificant.

No consistent pattern: some stat. sig. effects indicate detrimental impacts, others beneficial impacts.

Our results are in line with prior studies focusing on compliers:
- Angrist et al. (2010): no or small effects using Census 1 in 6 file
- Dobkin and Shabani (2009): no effects using NHIS until 2004
- Eisenberg and Rowe (2009): effects on smoking that disappear over time, using NHIS until 2005
Military Service Effect for Compliers (2)

Panel (A) Activity Limitation (White)

Panel (B) Activity Limitation (Nonwhite)

Panel (C) Work Limit (White)

Panel (D) Work Limit (Nonwhite)
Military Service Effect for Compliers (3)

Panel (E) Fair/Poor Health (White)

Panel (F) Fair/Poor Health (Nonwhite)

Panel (K) Current Smoker (White)

Panel (L) Current Smoker (Nonwhite)
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Key fact: anyone reporting for induction undergoes stringent medical, physical, and mental screening examinations (e.g., Shapiro and Striker, 1970; Suttler, 1970).
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- Males not able to pass those examinations become part of the draft avoiders group in the data.
Discussion of Assumption A6 (1)

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“Half of registrants in 1970 failed the pre-induction examinations, and 20% of those who passed were eliminated by physical inspections at induction” (Angrist, 1990, 1991)

“From 1967 to 1973, the failure rate for the pre-induction physical exam was 47%” (Baskir and Strauss, 1978)
The result is a positive health selection into the military, consistent with notions in the literature (e.g., Seltzer and Jablon, 1974; Bedard and Deschênes, 2006; Eisenberg and Rowe, 2009).
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This positive health selection into the military, combined with the high correlation of present and future health (e.g., Banks et al., 2012), makes it plausible that draft avoiders would have lower average health relative to volunteers in the absence of military service.
Discussion of Assumption A6 (2)

- The result is a positive health selection into the military, consistent with notions in the literature (e.g., Seltzer and Jablon, 1974; Bedard and Deschênes, 2006; Eisenberg and Rowe, 2009).
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- Draft avoidance behaviors could also play a role in A6.
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- Important: A6 is imposed at the mean (not individual) level.

We also gather indirect evidence based on two avg. pre-draft characteristics correlated with health outcomes for the two stratum.
### Indirect Evidence on Assumption A6

<table>
<thead>
<tr>
<th>Pre-Draft Characteristics</th>
<th>Draft Avoiders (nt)</th>
<th>Volunteers (at)</th>
<th>Difference at-nt</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NHIS 1974-1981: Whites</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School Incompletion</td>
<td>0.1548</td>
<td>0.1191</td>
<td>-0.0356***</td>
</tr>
<tr>
<td></td>
<td>[0.0033]</td>
<td>[0.0052]</td>
<td>[0.0057]</td>
</tr>
<tr>
<td>Activity limitations before 1965</td>
<td>0.0222</td>
<td>0.0064</td>
<td>-0.0158***</td>
</tr>
<tr>
<td></td>
<td>[0.0012]</td>
<td>[0.0014]</td>
<td>[0.0017]</td>
</tr>
<tr>
<td><strong>NHIS 1974-1981: Nonwhites</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School Incompletion</td>
<td>0.2746</td>
<td>0.1297</td>
<td>-0.1449***</td>
</tr>
<tr>
<td></td>
<td>[0.0088]</td>
<td>[0.0155]</td>
<td>[0.0169]</td>
</tr>
<tr>
<td>Activity limitations before 1965</td>
<td>0.0199</td>
<td>0.0023</td>
<td>-0.0176***</td>
</tr>
<tr>
<td></td>
<td>[0.0027]</td>
<td>[0.0025]</td>
<td>[0.0034]</td>
</tr>
<tr>
<td><strong>NHIS 1982-1996: Whites</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School Incompletion</td>
<td>0.1357</td>
<td>0.0819</td>
<td>-0.0538***</td>
</tr>
<tr>
<td></td>
<td>[0.0022]</td>
<td>[0.0034]</td>
<td>[0.0034]</td>
</tr>
<tr>
<td><strong>NHIS 1982-1996: Nonwhites</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School Incompletion</td>
<td>0.2532</td>
<td>0.0795</td>
<td>-0.1737***</td>
</tr>
<tr>
<td></td>
<td>[0.0057]</td>
<td>[0.0097]</td>
<td>[0.0099]</td>
</tr>
</tbody>
</table>
Clear Pattern:

- For the first survey period (up to 8 years after the conflict), no statistically significant effects: est. bounds and their CIs include zero
- After that, statistically significant and economically important effects
- Illustration using Activity Limitation for whites
  - No stat. sig. effect in 1974-1981
  - 1982-1996: detrimental effect of at least 1.1 pp (9.2% of nonveteran mean)
  - 1997-2005: detrimental effect of at least 7.1 pp (57%)
  - 2006-2013: detrimental effect of at least 5.1 pp (30.1%)

- Recall: a conservative multiple testing procedure is employed for different families of health outcomes
Military Service Effect for Volunteers (2)

Panel (A) Activity Limitation (White)

Panel (B) Activity Limitation (Nonwhite)

Panel (G) Work Limit (White)

Panel (H) Work Limit (Nonwhite)
Other Outcomes with Similar Patterns:

- General health outcomes: Work Unable
- Health behavior: Current Drinker
- Activity-limiting chronic conditions: Musculoskeletal, Arthritis, Back/Neck, Fracture, Diabetes, Heart, Cancer, and Depression
- Other chronic conditions: Emphysema, Hearing, Joints, Liver, Neck Pain, Lower Back Pain, Cancer, Loss of Teeth, Hypertension, Ulcer, Diabetes
- Illustration using Activity-limiting Depression for nonwhites (correlated to PTSD)
  - 1997-2005: detrimental effect of at least 2.3 pp (11%)
  - 2006-2013: detrimental effect of at least 4.5 pp (11.5%)
The results for all veterans show the same patterns as those for volunteers: statistically and economically significant detrimental effects of military service, particularly in the long-run.

- May not be surprising: volunteers account for 3 out of 4 veterans.
- Also, naturally, magnitudes and precision decrease somewhat.

Illustration using Activity Limitation for whites:

- 1982-1996: detrimental effect of at least 1.7 pp (14.6%).
- 1997-2005: detrimental effect of at least 4 pp (32.3%).
- 2006-2013: detrimental effect of at least 4.2 pp (22%).
Military Service Effect for Veterans (2)

Panel (A) Activity Limitation (White)

Panel (B) Activity Limitation (Nonwhite)

Panel (G) Work Limit (White)

Panel (H) Work Limit (Nonwhite)
Military Service Effect for Veterans (3)
Discussion (1)

- **Mortality**
  - Mortality linkage to NHIS—variable used is mortality by 2011 (cohorts aged 59-63 by then)
  - In 1985-1996 survey, stat. sig. mortality effects for volunteers and veterans, but not for compliers—consistent with results above
  - Potential mortality bias renders our long-term results for volunteers and veterans as *conservative*: military service effects likely more detrimental

- **Why different results for compliers & volunteers?**
  - The analysis of pre-draft average characteristics between compliers and volunteers reveal that *compliers* had statistically lower high-school incompletion rate
  - Higher pre-draft high-school completion may have helped compliers attain additional schooling via the GI Bill (e.g., Angrist and Chen, 2011)
  - The increased college attainment may have allowed compliers to offset the detrimental health effects of military service (or adjust better to civilian life)
Discussion (2)

Some Implications

- Results relevant to explain the recent rise in VDC compensations paid to Vietnam-era veterans
- Results consistent with jump in claims for diabetes (Singleton, 2009), PTSD (Autor et al., 2011), musculoskeletal conditions (Angrist et al., 2010)
- Results reconcile the above with prior findings of no detrimental health effects of Vietnam-era military service (*on compliers!*)
- Results for smoking behavior represent a potential mediator for the detrimental effect of military service on some chronic conditions (e.g., emphysema, hypertension)
- Policies aiming to curb smoking in the military (e.g., minimum smoking age; cessation programs) can potentially ameliorate the detrimental health effects of service and their costs
Conclusion

- We analyze the short- and long-term effects of Vietnam-era military service on health outcomes and behaviors.
- Employ the Vietnam-era draft lotteries as exogenous source of variation and conduct stat. inference on compliers, volunteers, and veterans.
- Results for compliers largely indicate no stat. significant effects, in line with prior literature.
- For volunteers and veterans, our estimated bounds indicate stat. and economically significant effects.
  - The bounds rely on the assumption that, in the absence of military service, the *average* potential health outcomes of draft avoiders are no better than those of volunteers.
  - We argue this is easily justified given the stringent medical, physical, and mental examinations that occurred before enlistment.

X. Wang, C. Flores and A. Flores-Lagunes (Slippery Rock University, California Polytechnic University at San Luis Obispo, and Syracuse University, CPR, IZA, and GLO)
## Summary Statistics

### Table 1: Summary Statistics of General Health Outcomes and Health Behaviors

<table>
<thead>
<tr>
<th>Variable</th>
<th>Whites</th>
<th>Nonwhites</th>
<th>Difference</th>
<th>Values</th>
<th>Veterans</th>
<th>Nonveterans</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft-eligible</td>
<td>0.5771</td>
<td>0.3791</td>
<td>0.1980***</td>
<td>[0.0057]</td>
<td>0.5315</td>
<td>0.4108</td>
<td>0.1207***</td>
</tr>
<tr>
<td>Fair or Poor Health</td>
<td>0.0111</td>
<td>0.0111</td>
<td>0.0000</td>
<td>[0.0012]</td>
<td>0.0201</td>
<td>0.0190</td>
<td>0.0011</td>
</tr>
<tr>
<td>Activity Limitation</td>
<td>0.4830</td>
<td>0.0754</td>
<td>0.0087</td>
<td>[0.0032]</td>
<td>0.0115</td>
<td>0.0084</td>
<td>0.0031</td>
</tr>
<tr>
<td>Activity Unable</td>
<td>0.0130</td>
<td>0.0111</td>
<td>0.0019</td>
<td>[0.0034]</td>
<td>0.0294</td>
<td>0.0258</td>
<td>0.0036</td>
</tr>
<tr>
<td>Current Smoker</td>
<td>0.4369</td>
<td>0.3059</td>
<td>0.1310***</td>
<td>[0.0126]</td>
<td>0.4516</td>
<td>0.3074</td>
<td>0.1442***</td>
</tr>
</tbody>
</table>

**NHIS 1988-1996**

<table>
<thead>
<tr>
<th>Sample size</th>
<th>12972</th>
<th>25977</th>
<th>1931</th>
<th>5425</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft-eligible</td>
<td>0.5608</td>
<td>0.3864</td>
<td>0.1744***</td>
<td>[0.0049]</td>
</tr>
<tr>
<td>Fair or Poor Health</td>
<td>0.0689</td>
<td>0.0661</td>
<td>0.0028</td>
<td>[0.0025]</td>
</tr>
<tr>
<td>Activity Limitation</td>
<td>0.1326</td>
<td>0.1188</td>
<td>0.0138***</td>
<td>[0.0033]</td>
</tr>
<tr>
<td>Activity Unable</td>
<td>0.0391</td>
<td>0.0363</td>
<td>0.0028</td>
<td>[0.0019]</td>
</tr>
<tr>
<td>Work Limitation</td>
<td>0.0969</td>
<td>0.0852</td>
<td>0.0117***</td>
<td>[0.0029]</td>
</tr>
<tr>
<td>Work Unable</td>
<td>0.0499</td>
<td>0.0379</td>
<td>0.0030</td>
<td>[0.0020]</td>
</tr>
<tr>
<td>Current Smoker</td>
<td>0.4062</td>
<td>0.3062</td>
<td>0.1000***</td>
<td>[0.0212]</td>
</tr>
</tbody>
</table>

**NHIS 1997-2005**

<table>
<thead>
<tr>
<th>Sample size</th>
<th>5454</th>
<th>14069</th>
<th>989</th>
<th>3280</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft-eligible</td>
<td>0.5575</td>
<td>0.3902</td>
<td>0.1673***</td>
<td>[0.0069]</td>
</tr>
<tr>
<td>Fair or Poor Health</td>
<td>0.1235</td>
<td>0.1019</td>
<td>0.0217***</td>
<td>[0.0051]</td>
</tr>
<tr>
<td>Activity Limitation</td>
<td>0.1726</td>
<td>0.1238</td>
<td>0.0487***</td>
<td>[0.0054]</td>
</tr>
<tr>
<td>Activity Unable</td>
<td>0.0807</td>
<td>0.0613</td>
<td>0.0194***</td>
<td>[0.0038]</td>
</tr>
<tr>
<td>Work Limitation</td>
<td>0.2759</td>
<td>0.1822</td>
<td>0.0936***</td>
<td>[0.0021]</td>
</tr>
<tr>
<td>Work Unable</td>
<td>0.0864</td>
<td>0.0591</td>
<td>0.0273***</td>
<td>[0.0012]</td>
</tr>
<tr>
<td>Current Smoker</td>
<td>0.6249</td>
<td>0.5915</td>
<td>0.0334***</td>
<td>[0.0095]</td>
</tr>
</tbody>
</table>

**NHIS 2006-2013**

<table>
<thead>
<tr>
<th>Sample size</th>
<th>3871</th>
<th>9448</th>
<th>817</th>
<th>2552</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft-eligible</td>
<td>0.5527</td>
<td>0.3850</td>
<td>0.1677***</td>
<td>[0.0084]</td>
</tr>
<tr>
<td>Fair or Poor Health</td>
<td>0.2016</td>
<td>0.1634</td>
<td>0.0382***</td>
<td>[0.0071]</td>
</tr>
<tr>
<td>Activity Limitation</td>
<td>0.2430</td>
<td>0.1915</td>
<td>0.0515***</td>
<td>[0.0075]</td>
</tr>
<tr>
<td>Activity Unable</td>
<td>0.2111</td>
<td>0.1649</td>
<td>0.0462***</td>
<td>[0.0071]</td>
</tr>
<tr>
<td>Work Limitation</td>
<td>0.0865</td>
<td>0.0696</td>
<td>0.0169***</td>
<td>[0.0060]</td>
</tr>
<tr>
<td>Work Unable</td>
<td>0.2191</td>
<td>0.1514</td>
<td>0.0677***</td>
<td>[0.0107]</td>
</tr>
<tr>
<td>Current Smoker</td>
<td>0.0166</td>
<td>0.0261</td>
<td>-0.0145</td>
<td>[0.0123]</td>
</tr>
</tbody>
</table>

Notes: Standard errors are in squared brackets; For standard errors, *significant at 10% level; **significant at 5% level; ***significant at 1% level.