

# The Minimum Legal Drinking Age, Alcohol Use & Injury

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## Abstract

This study provides two new pieces of evidence on effects of reaching the minimum legal drinking age (MLDA), both using a regression discontinuity (RD) framework with publicly available data on age in months for 1997–2014 National Health Interview Survey (NHIS) respondents. First, it examines direct effects on various forms of alcohol use, adding nearly a decade-worth of more recent data and offering new estimates by gender. Second, it reveals new results indicating a sharp increase in the likelihood of recent injury or poisoning requiring medical attention, particularly among females, supplementing the recent finding of effects on hospitalization and emergency room (ER) visits.

## Introduction

- While several studies report RD evidence on how alcohol consumption changes upon becoming legal to drink in the U.S., the most recent year covered is 2007.
  - Moreover, only Crost & Guerrero (2012, CG) report effects by gender, and only for past month alcohol use participation & days using aggregate data.
- Carpenter & Dobkin (2017, CD) are the first to examine effects on injuries that are non-fatal, but these are still relatively severe (hospitalizations & ER visits).
- This study addresses these deficiencies by examining publicly available NHIS data from 1997–2014, allowing for RD analysis of MLDA effects using age in months.
  - Updates CD's (2009) findings for alcohol use with 9 additional years of data, while providing gender-specific estimates.
  - Investigates not only hospitalizations & ER visits, but also injuries with a lower severity threshold along with other less serious but adverse health outcomes potentially resulting from alcohol consumption.

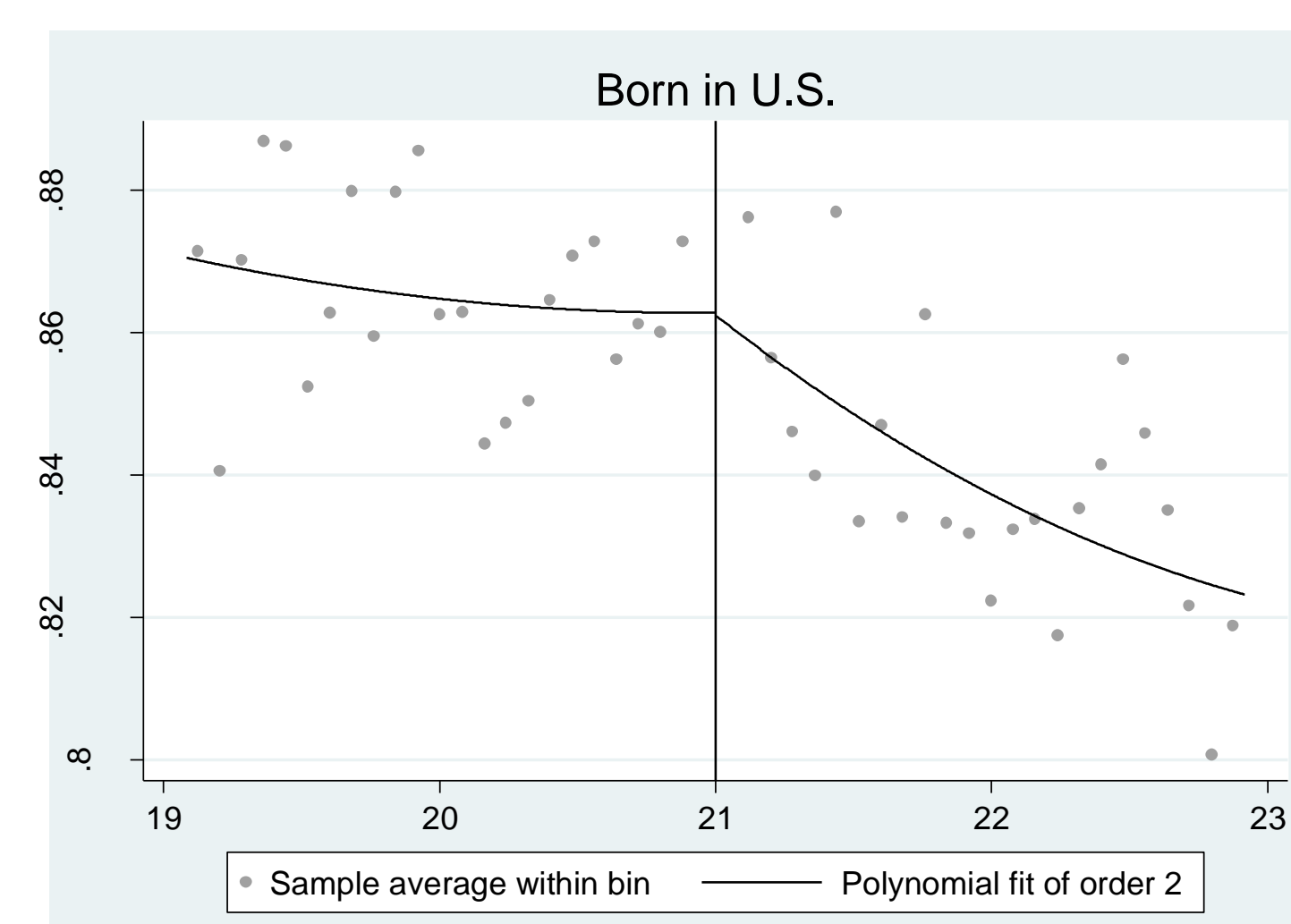
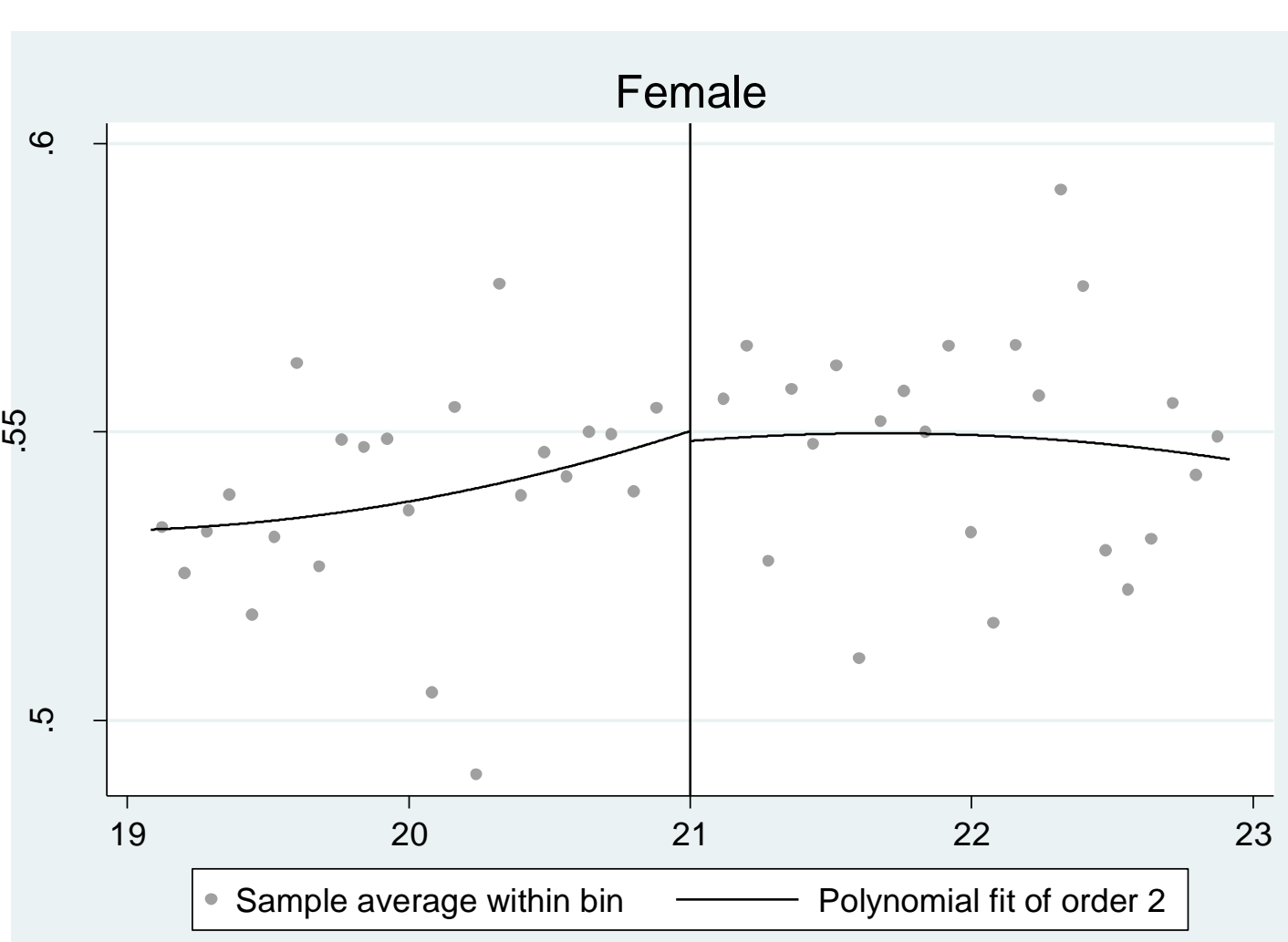
## Empirical Strategy

- Calculate age in months using difference between interview & birth months.
- Follow CD by using a bandwidth of 2 years around MLDA, i.e. including only respondents between their 19<sup>th</sup> & 23<sup>rd</sup> birthdays.
- Also exclude respondents interviewed in the same month as their 21<sup>st</sup> birthdays (to avoid celebration effects), as well as their 19<sup>th</sup> or 23<sup>rd</sup> birthdays.
- Coefficient estimates are from LLRs with a triangular kernel & SEs clustered by age; figures show fitted OLS with separate quadratics on either side of age 21.

## Falsification

- Little effect of crossing the age 21 threshold on predetermined characteristics for either gender [change in P(female) = 0.0012 (0.0084)]:

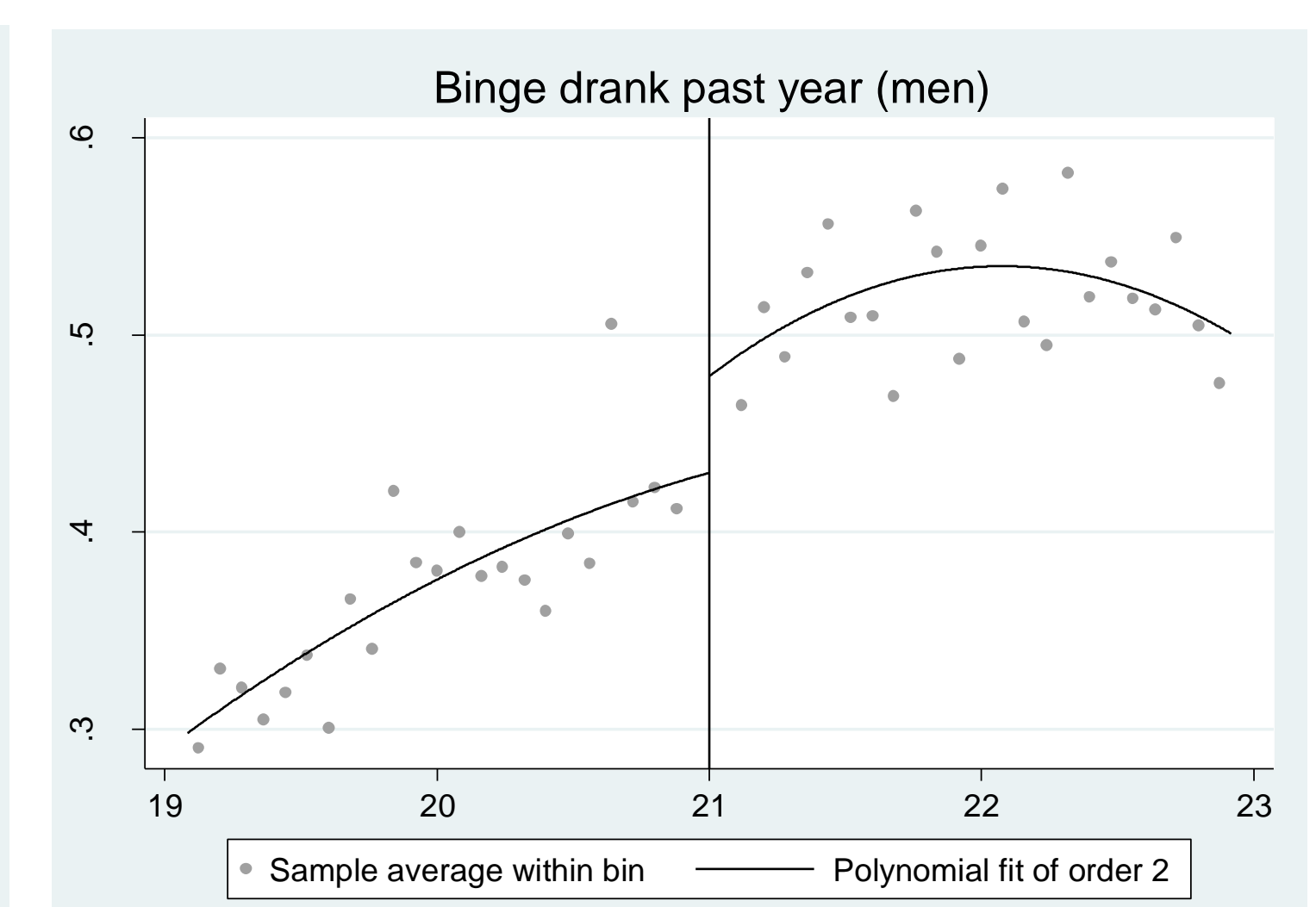
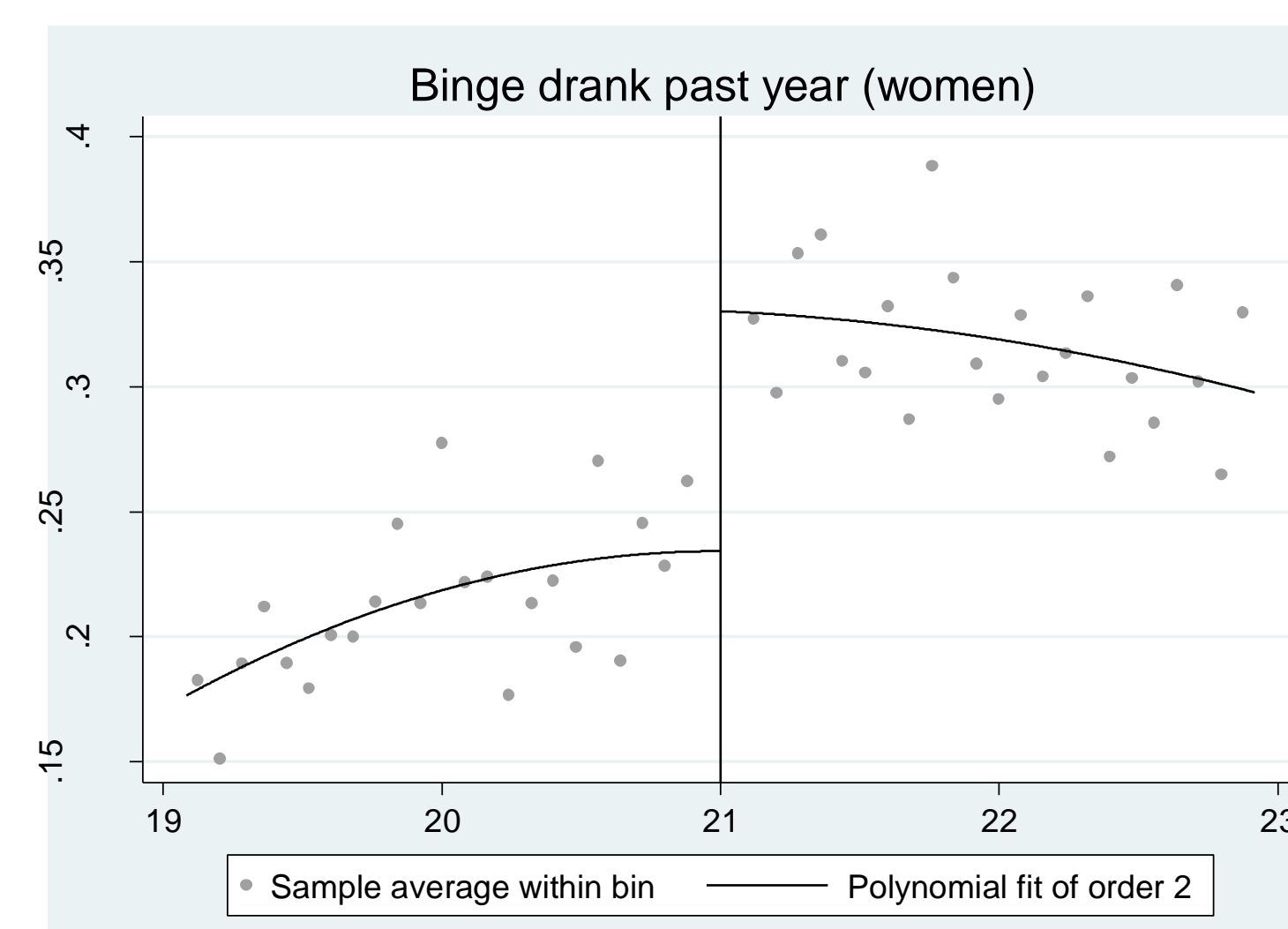
Variable	Overall	Females	Males
Ever married	-0.0120 (0.0101)	-0.0253 (0.0151)	0.0036 (0.0094)
White	0.0150 (0.0130)	0.0127 (0.0146)	0.0178 (0.0181)
Hispanic	-0.0044 (0.0124)	-0.0169 (0.0208)	0.0107 (0.0186)
Born in U.S.	-0.0018 (0.0077)	0.0018 (0.0135)	-0.0061 (0.0137)
Interview English	-0.0023 (0.0092)	0.0062 (0.0129)	-0.0128 (0.0122)
HS graduate	0.0096 (0.0066)	0.0038 (0.0127)	0.0166 (0.0138)
Employed	0.0033 (0.0122)	-0.0064 (0.0128)	0.0151 (0.0215)
Uninsured	-0.0065 (0.0101)	-0.0068 (0.0146)	-0.0057 (0.0153)



## Alcohol Use

- MLDA discontinuities are:
  - Larger than estimated by CD (2009).
  - Often larger for females than males, in contrast to CG (2012).

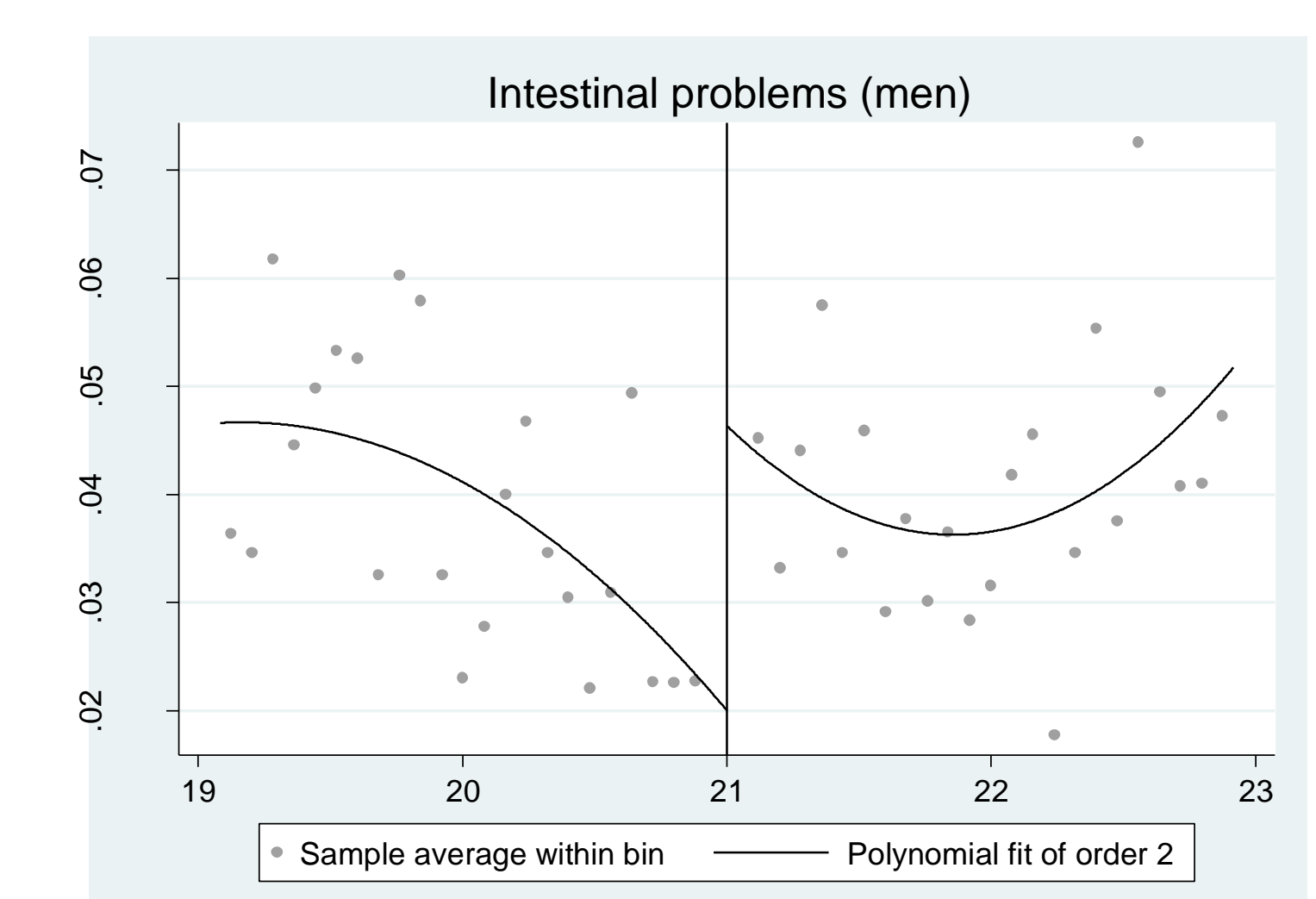
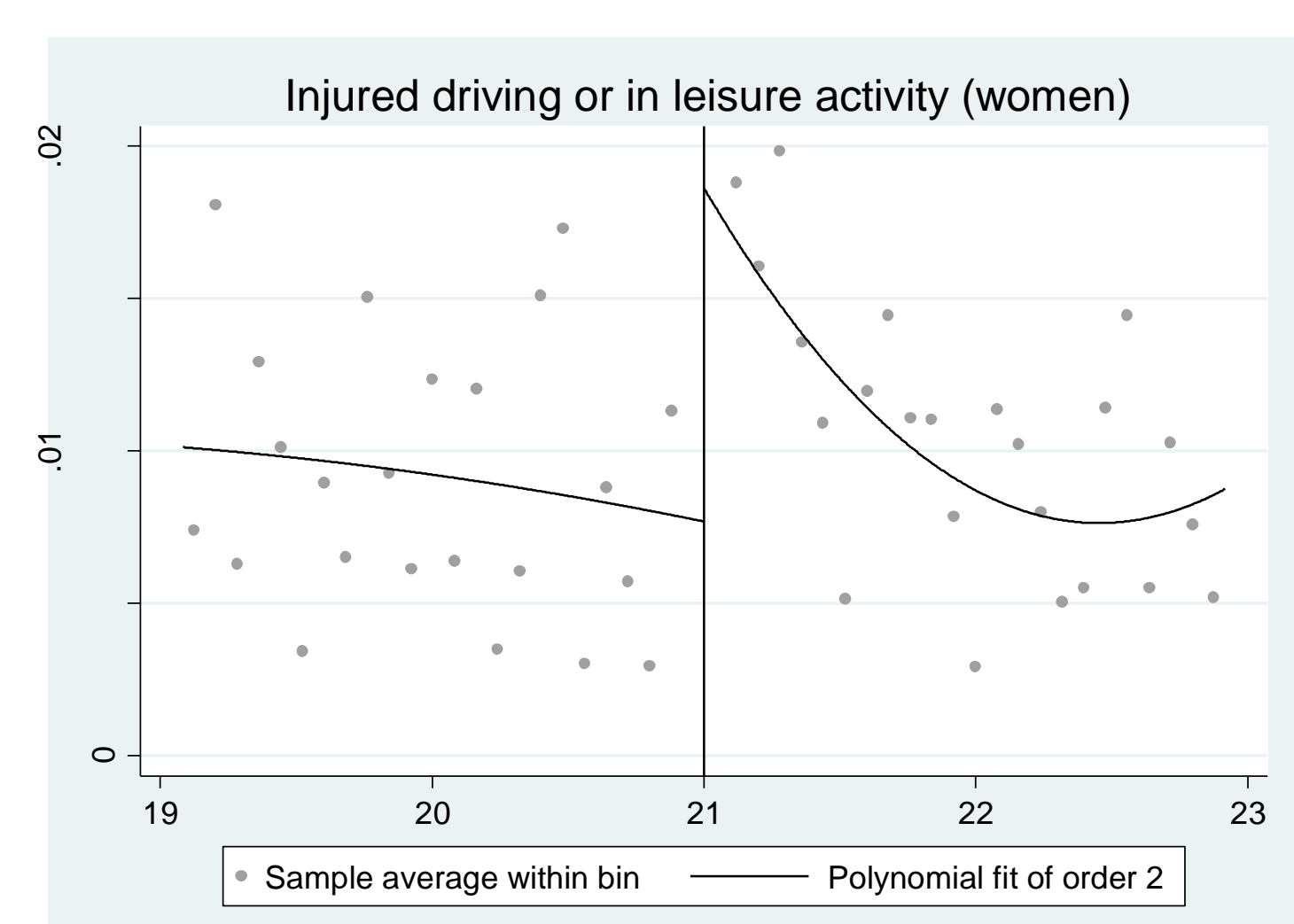
Variable	Overall	Females	Males
12+ drinks ever	0.0474 (0.0104)	0.0613 (0.0197)	0.0311 (0.0183)
12+ drinks any yr	0.0903 (0.0108)	0.1142 (0.0227)	0.0624 (0.0199)
Drank last yr	0.0619 (0.0103)	0.0834 (0.0192)	0.0362 (0.0199)
Drink freq last yr	0.0344 (0.0045)	0.0328 (0.0067)	0.0370 (0.0065)
Log(drinks)	0.0430 (0.0157)	0.0690 (0.0190)	0.0308 (0.0263)
Binge drank last yr	0.0793 (0.0104)	0.0919 (0.0169)	0.0646 (0.0209)
Binge freq last yr	0.0102 (0.0028)	0.0092 (0.0031)	0.0116 (0.0050)



## Injuries

- Females, but not males, become more likely to suffer injuries in the previous 3 months requiring medical attention upon reaching the MLDA.
  - Driving & leisure time injuries increase, but other categories do not.
- Males, but not females, become more likely to suffer intestinal distress in the previous 2 weeks & see a general practitioner in the past year.
  - But office visits & phone consultations in past 2 weeks are not affected.
- Neither gender is more likely to be hospitalized or visit an ER in the last year.

Variable	Overall	Females	Males
Injury, any	0.0099 (0.0039)	0.0124 (0.0052)	0.0068 (0.0077)
Injury, drive/leis.	0.0081 (0.0028)	0.0084 (0.0027)	0.0077 (0.0050)
Injury, other	0.0024 (0.0038)	0.0044 (0.0050)	-0.0001 (0.0061)
Intestinal prob.	0.0039 (0.0044)	-0.0067 (0.0059)	0.0164 (0.0057)
Saw GP	0.0294 (0.0097)	0.0200 (0.0179)	0.0395 (0.0111)
Office visit	-0.0043 (0.0069)	-0.0087 (0.0121)	0.0008 (0.0086)
Phone advice	-0.0013 (0.0046)	-0.0019 (0.0058)	-0.0008 (0.0054)
Hospitalized	-0.0075 (0.0066)	-0.0103 (0.0098)	-0.0044 (0.0059)
ER visit	0.0032 (0.0089)	0.0016 (0.0095)	0.0044 (0.0136)



## Conclusion

- MLDA effects on alcohol use...
  - Continue to be substantial into recent years;
  - Differ somewhat across genders, generally being larger for females.
- Injury/illness costs of excessive drinking might exceed those not only for mortality, but also for the more serious forms of morbidity studied by CD (2017).

## Contact

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## References

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