Dynamics in Employment and Income Before and After Transgender Transitioning: Evidence from Dutch Administrative Data

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Motivation

- Transgender individual: gender identity not fully aligned with sex assigned at birth (American Psychological Association, 2015)
- Roughly 1.6% of the population is transgender (Carpenter et al., 2022), and is increasing over time, particularly among youth (Herman et al., 2022)
- Transgender individuals face stigma and discrimination, as well as disparities in health and economic outcomes (Badgett et al., 2023; Leppel, 2021; Carpenter et al., 2020; Shannon, 2022; Carpenter et al., 2022; Lagos, 2018; Kolk et al., 2023)
- Gender transition may be social, medical, and/or legal; in this paper we study legal transitions
- Access to legal and medical transitioning frequent topic of political debate (Human Rights Campaign, 2023; Borah et al., 2023; Betts, 2023)

This Project

RQ: How do important outcomes (employment, income, benefit receipt, mental health) vary before and after legal gender transitions?

Why expect a change?

1. Congruent documentation may decrease the risk of discrimination (Mann, 2021; Campbell et al., 2023a)
2. May reinforce identity and confidence in the work environment (Akerlof and Kranton, 2000)

Related literature

- Dynamics of earnings around a gender transition: Dujeancourt (2023) in Sweden, Geijtenbeek and Plug (2018) and Schilt and Wiswall (2008) in the Netherlands
  - Those who transition male-to-female (MTF) face additional earnings penalty to those who transition female-to-male (FTM)
  - Differences between FTM and MTF also documented in other studies, see e.g.Carpenter et al. (2022); Granberg et al. (2020).
- Use of gender-affrming care (GAC) associated with improvement in mental health (Mann, 2021; Campbell et al., 2023b; De Vries et al., 2011; Bränström and Pachankis, 2020; Drydakis, 2017)

Contributions of this paper

- Explore universe of legal gender transitions in the Netherlands 2014-22 (n=6,447)
  - Statistical power
  - Avoids problems related to sample selection
- Use longitudinal data to explore outcome dynamics over 17 years
- Rich administrative data on numerous outcomes of interest: employment, income, benefit receipt, Rx
- Outcomes measured automatically and nationwide: avoids error from self-reports

Policy Context: The Netherlands

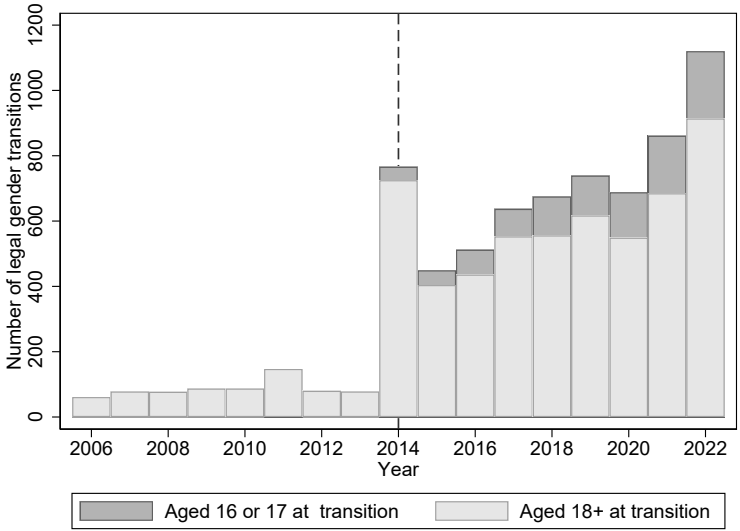
- Relatively progressive stance towards sexual and gender diverse populations (Equaldex, 2023)
  - First country to legalize same-sex marriage
  - One of the first to allow legal gender recognition, and GAC through gender teams (Bakker, 2018)
- Healthcare system ensures broad financial accessibility to GAC

Policy Context: The Netherlands

A legal transition entails an amendment on birth certificate, new identification documents, and a legal first name change.

	Since July 1, 2014
Surgical requirements	No surgical requirements
Administrative requirements	Expert statement Details
Minimum age	16
Procedure Details	Administrative procedure

Table: Requirements to legal transition



Source: De Weerd et al. (2024)

Data

- Dutch administrative data for individuals living in the Netherlands on:
  - Labor market outcomes: *being employed* and *income*
  - Receipt of welfare benefits, or sickness/disability benefits
  - Prescription drugs: *antidepressants* and gender-affirming hormones
  - Presence of cohabiting spouse

  and track outcomes between 2005 and 2021.

- Identify 6,447 individuals legal gender transitions between 2014 and 2022, and include random sample of ≈80,000 general population controls.

	Transitioners			General Pop. Controls		
	Total	FTM	MTF	Total	Male	Female
Age	27.37	23.59	31.62	46.38	46.21	46.57
Has a partner	0.21	0.19	0.22	0.44	0.42	0.47
Has children	0.08	0.04	0.13	0.47	0.43	0.52
College degree	0.30	0.31	0.29	0.37	0.36	0.38
Working	0.54	0.54	0.53	0.78	0.82	0.73
Sickness/disability benefits	0.11	0.11	0.11	0.06	0.06	0.07
Welfare benefits	0.16	0.15	0.17	0.04	0.04	0.05
Annual income (log)	10.17	10.04	10.24	10.54	10.79	10.26
Female dominated sector	0.28	0.36	0.24	0.37	0.18	0.56
Male dominated sector	0.52	0.41	0.57	0.42	0.60	0.21
Antidepressants	0.04	0.05	0.04	0.01	0.01	0.02
Observations	6447	3417	3030	82214	43067	39147

Table: Descriptive Statistics in $t-1$

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Table: Descriptive Statistics in $t-1$

Method: Event Study

$$Y_{ity} = \beta_0 + \sum_{s=-5, s\neq -1}^{5} \beta_{1s} \cdot I[s = t] + \beta_2 \cdot \text{Trans}_i + \beta_3 \cdot \text{Age}_{iy} + \beta_4 \cdot \text{Age}_{iy}^2 + \sum_{x=2006}^{2021} \beta_{5x} \cdot I[x = y] + \varepsilon_{ity}$$

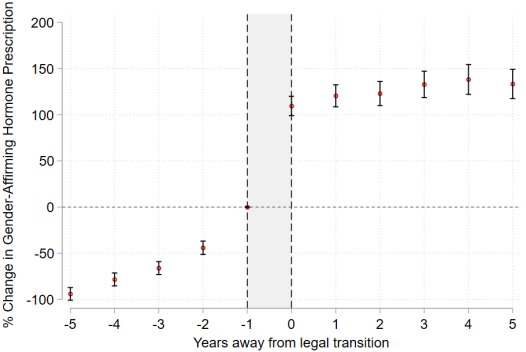
Where:

- Y_{ity}: outcome for individual i at event time t in calendar year y
- β_{1s}: coefficients on the indicator variables for event time t
  - For those transitioning, year of legal gender transition is $t = 0$
  - For those in control group, each event time indicator is set to zero
  - We omit event time $t = -1$ and bin endpoints to $t = -5$ and $t = 5$
- Trans_i is 1 for those transitioning, 0 for those in control group
- Model controls for age and age squared, and indicator variables for calendar year y

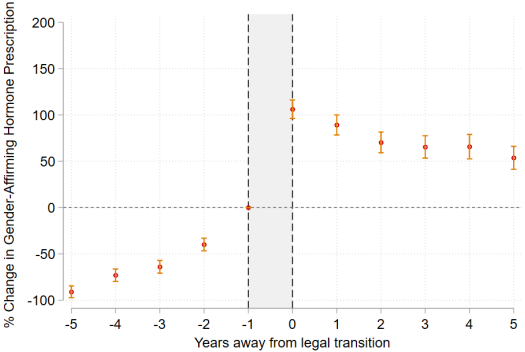
Method

- Estimate separately for FTM and MTF
- Present estimates as percentage changes relative to $t-1$
  - Divide event time dummies β_{1t} by the predicted outcome $\tilde{Y}_{ity}$ when omitting the event dummies See equation
- Transitioning and its time not randomly determined $\rightarrow$ descriptive information about important event

Gender-Affirming Hormone Therapy Rx



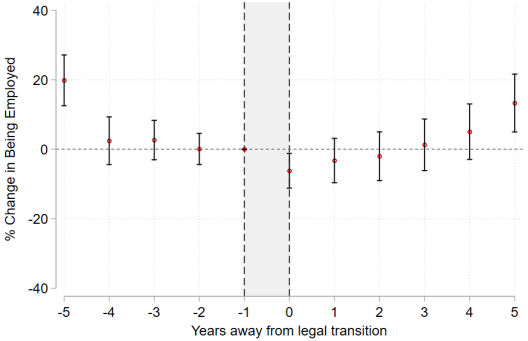
(a) Female-to-male (N = 1,413,339)



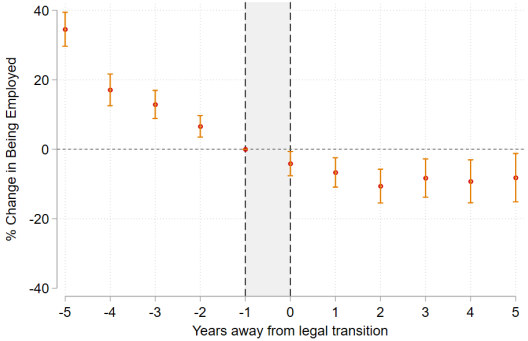
(b) Male-to-female (N = 1,407,149)

Note: Defined as having at least one prescription of androgens (testosterone; ATC-code G03B), estrogens (G03C), antiandrogens (testoserone blockers, L02B) or puberty blockers (by age 18; L02A). Alternative Spec.

Employment



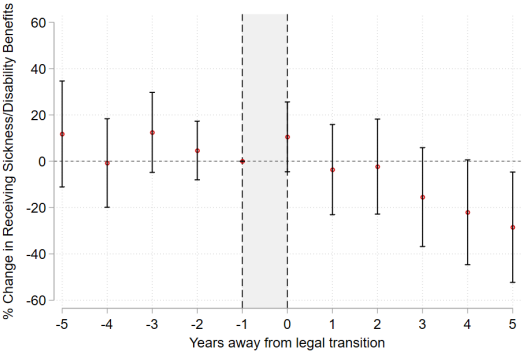
(a) Female-to-Male (N = 715,256)



(b) Male-to-Female (N = 725,776)

Note: Average level at $t = -1$ is 54% for FTM, and 53% for MTF. Outcome includes self-employment. The sample is limited to those aged 25 to 65. Alternative Spec.

Sickness/Disability Benefits



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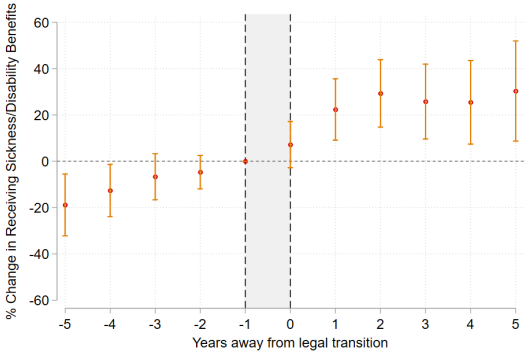
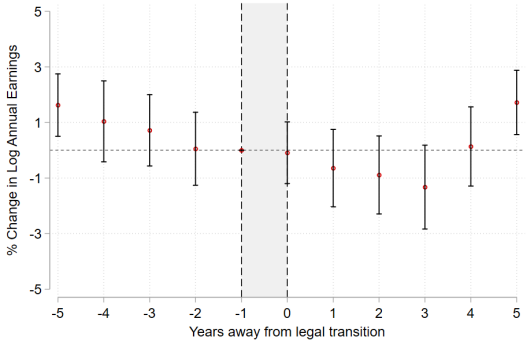


(b) Male-to-Female (N = 725,776)

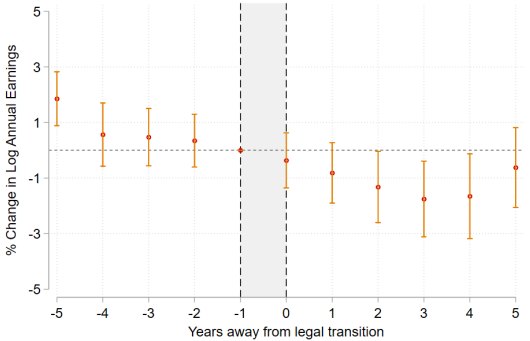
Note: Average level at $t = -1$ is 11% for both FTM and MTF. The sample is limited to those aged 25 to 65.

Alternative Spec. Welfare Ben.

Income from Employment



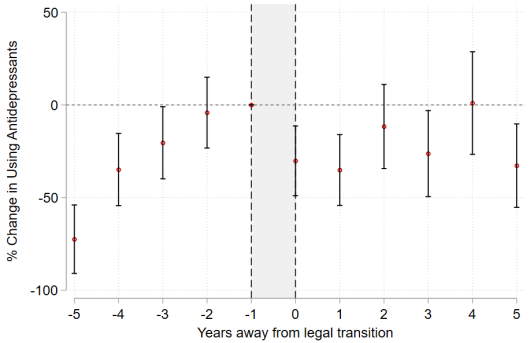
(a) Female-to-Male (N = 516,467)



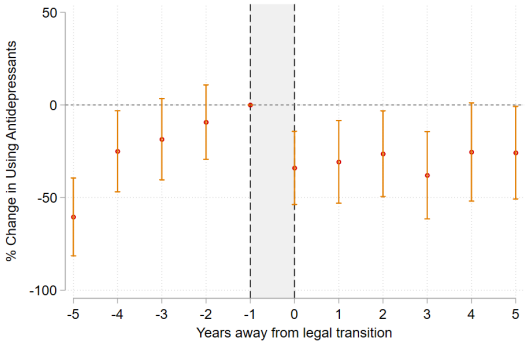
(b) Male-to-Female (N = 522,684)

Note: Income from employment is reported for those employed. Average level at $t = -1$ is 10.04 ($\approx$€23,000) for FTM, and 10.24 ($\approx$€28,000) for MTF. The sample is limited to those aged 25 to 65. Alternative Spec.

Antidepressant Rx



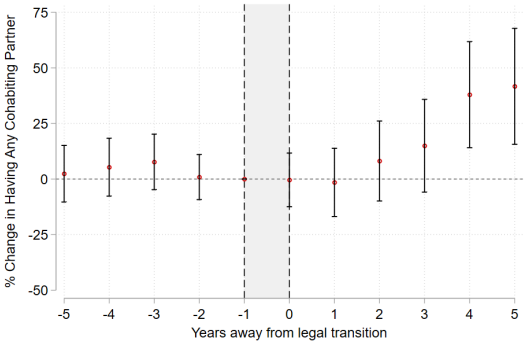
(a) Female-to-Male (N = 1,506,701)



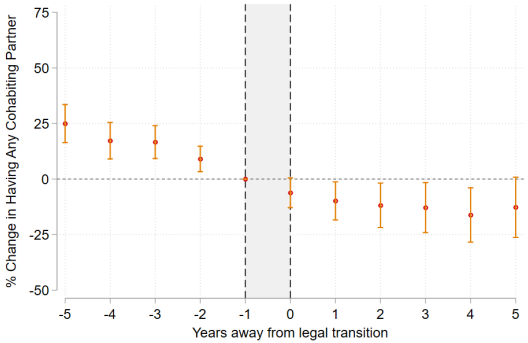
(b) Male-to-Female (N = 1,500,191)

Note: Average level at $t = -1$ is 5% for FTM, and 4% for MTF. Defined as having at least one prescription of antidepressants classified with ATC-code N06A. Alternative Spec.

Potential Mechanism: Having a Partner



(a) Female-to-Male (N = 1,128,803)



(b) Male-to-Female (N = 1,140,408)

Note: Average level at $t = -1$ is 19% for FTM, and 22% for MTF. Individuals are classified as having any cohabiting partner using tax records. The sample is limited to those aged 25 or above. Alternative Spec.

Conclusions

- Economic outcomes tend to decline prior to transition, antidepressant Rx increase tends to increase
- After transition, improvements in economic outcomes for FTM, but not for MTF
  - Employment and income from employment; consistent with earlier findings (Geijtenbeek and Plug, 2018; Dujeancourt, 2023; Schilt and Wiswall, 2008)
  - Receipt of sickness/disability benefits
  - Not explained by probability of cohabiting partner

Discussion

- Possible explanations for differences between FTM and MTF: discrimination against women, discrimination against transgender individuals
- Limitations
  - Legal transitions are not randomly assigned $\rightarrow$ we do not interpret dynamics as causal
  - Only observe transgender individuals who legally transition (subset)
  - Do not observe gender non-conforming individuals
  - Caution in generalizing - Netherlands relatively inclusive and tolerant

Next steps

- Explore declarations data on medical specialized care, allowing us to
  1. Explore additional events, such as diagnosis of gender dysphoria, gender-affirming care, and gender confirmation surgery
  2. Study additional (mental) health outcomes
- Use alternative comparison groups, such as future transitioners, as in Campbell et al. (2023b) and siblings, as in Dujeancourt (2023)

Thank you!

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Appendix

Expert statement

An **expert statement** is provided if it is clear to the expert that:

- one wants to legally transition
- one oversees and understands the consequences of a legal transition

The expert statement can be provided by doctors and psychologists working at any of the transgender care centres or by any of the 27 other psychologists appointed by the Minister of Security and Justice.

Before July 1 2014, the expert statement was provided after a medical transition, and required a diagnosis of gender incongruence. After July 1 2014 it also became possible to obtain an expert statement **outside of the medical transitioning process** and **without a diagnosis** of gender incongruence through the list of appointed psychologists.

Back to Policy

Procedure

Once all requirements to legally transition are fulfilled, individuals can request a birth certificate amendment from their municipality of birth[1]. This change is recorded in the Personal Records Database (BRP).

Before July 1 2014, this request was done through a **legal court procedure**. After July 1 2014, this has been replaced by an **administrative procedure**: one can directly submit this request to the civil registrar in their birth municipality. This change has made the process less expensive and time-consuming.

Back to Policy

[1] Parental approval is not required for 16- and 17-year olds.

Interpretation of Event Study

In presenting the results, we follow Kleven et al. (2019) and present our estimates as percentages instead of levels. We do so by dividing the event time dummies β_{1t} by the counterfactual outcome $\tilde{Y}_{ity}$, where

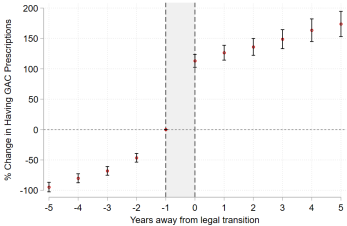
$$\tilde{Y}_{ity} = \beta_0 + \beta_2 \cdot \text{Trans}_i + \beta_3 \cdot \text{Age}_{iy} + \beta_4 \cdot \text{Age}_{iy}^2 + \sum_{x=2006}^{2021} \beta_{5x} \cdot I\left[x = y\right] \tag{1}$$

That is, the counterfactual outcome is the predicted outcome when omitting the event dummies, and we scale the coefficients of the event dummies by this counterfactual to obtain percentage effects.

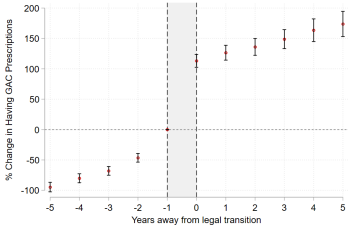
Back to Model Interpretation

Alternative Specifications

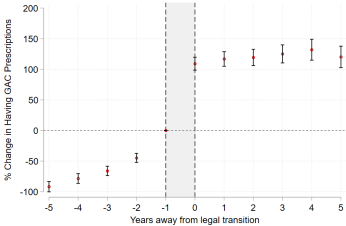
1. Including only transitioners in the sample (no comparison group)
2. Including interactions between transitioning and age and time
3. Controlling for individual fixed effects



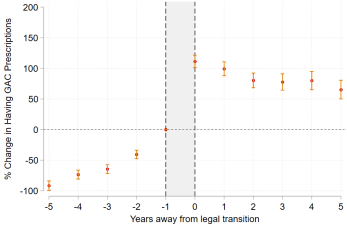
(a) FTM, Spec. A1



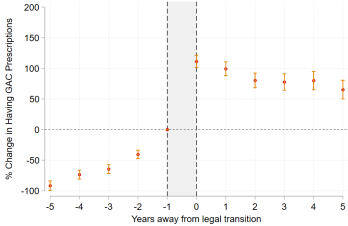
(b) FTM, Spec. A2



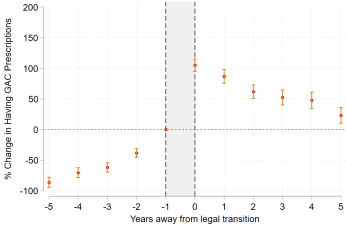
(c) FTM, Spec. A3



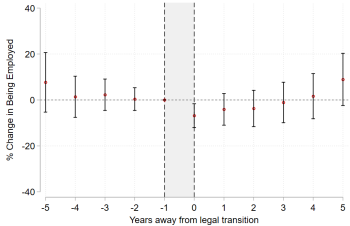
(a) MTF, Spec. A1



(b) MTF, Spec. A2



(c) MTF, Spec. A3 Back to GAC



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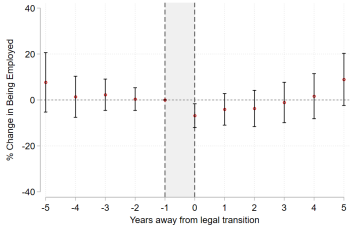
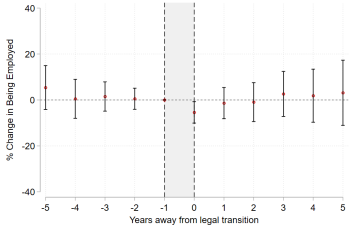
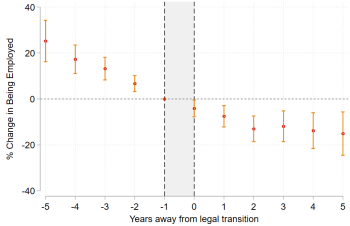


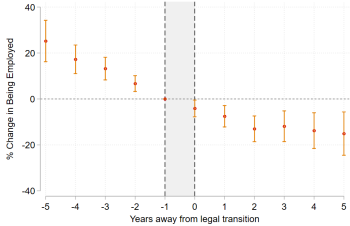
(b) FTM, Spec. A2



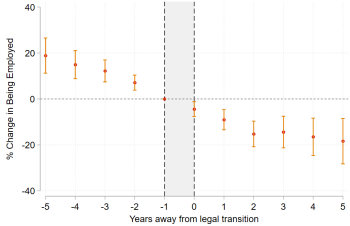
(c) FTM, Spec. A3



(a) MTF, Spec. A1

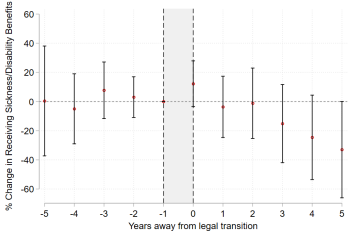


(b) MTF, Spec. A2

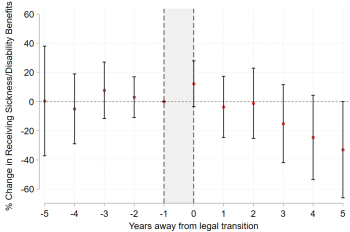


(c) MTF, Spec. A3

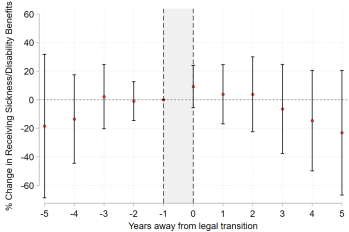
Back to Empl



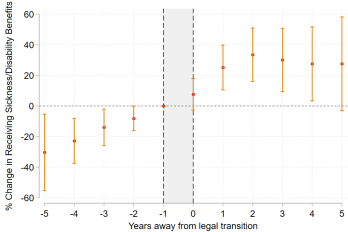
(a) FTM, Spec. A1



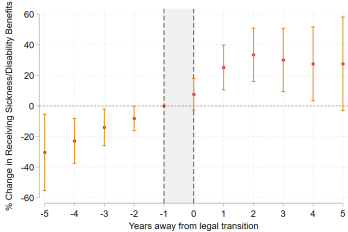
(b) FTM, Spec. A2



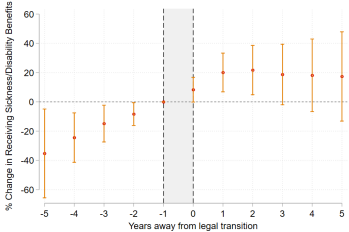
(c) FTM, Spec. A3



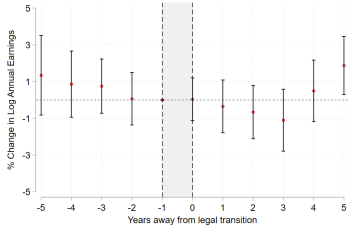
(a) MTF, Spec. A1



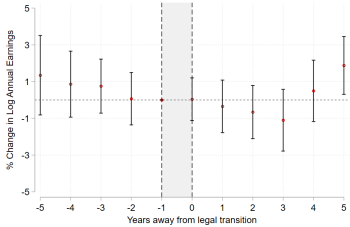
(b) MTF, Spec. A2



(c) MTF, Spec. A3 Back to Sick.



(a) FTM, Spec. A1



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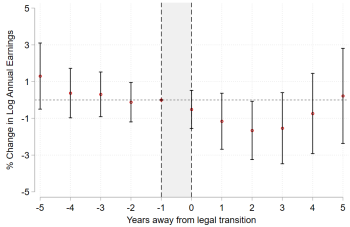
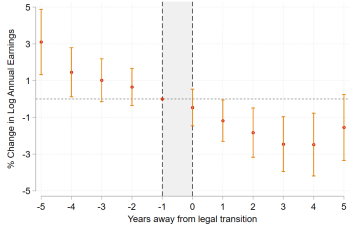
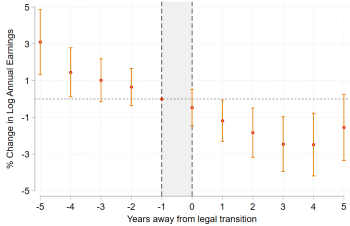


(c) FTM, Spec. A3



(a) MTF, Spec. A1



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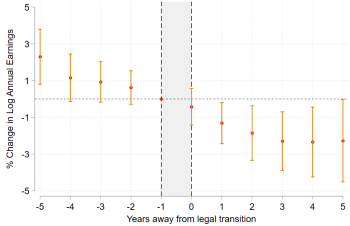
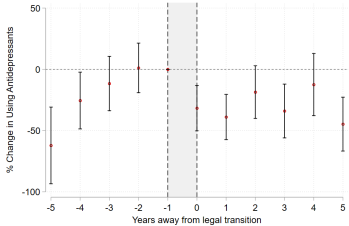
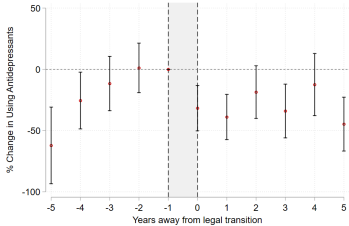


(c) MTF, Spec. A3 Back to Inc.



(a) FTM, Spec. A1



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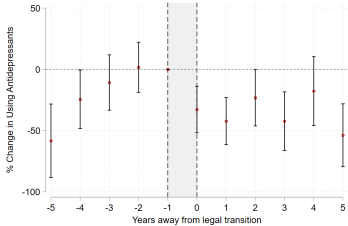

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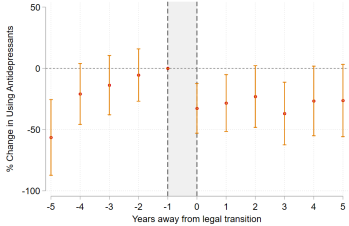
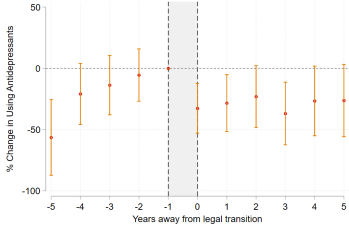
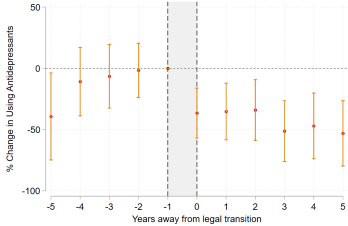


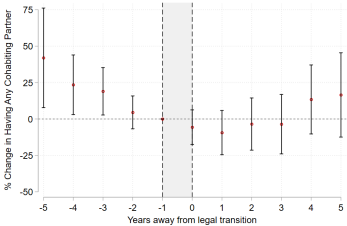
(a) MTF, Spec. A1



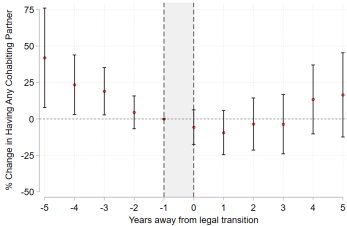
(b) MTF, Spec. A2



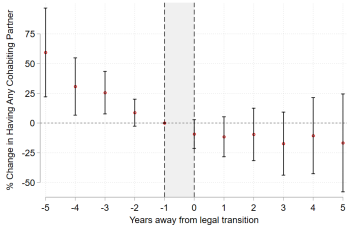
(c) MTF, Spec. A3 Back to Rx



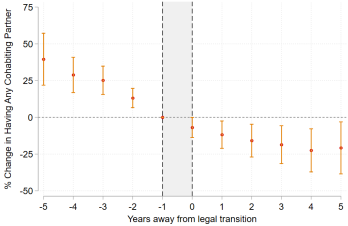
(a) FTM, Spec. A1



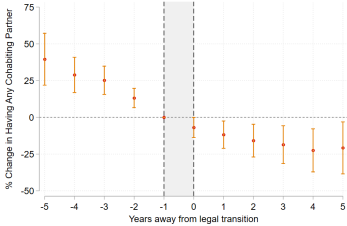
(b) FTM, Spec. A2



(c) FTM, Spec. A3



(a) MTF, Spec. A1



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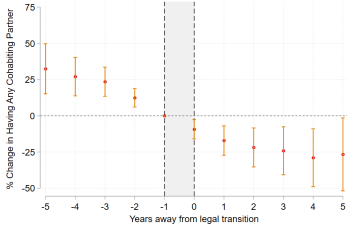
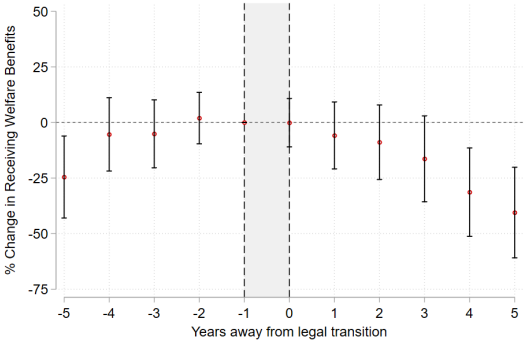
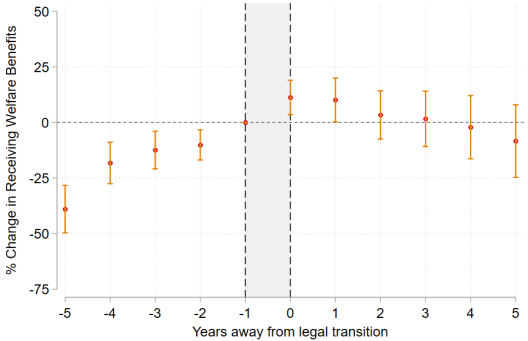


(c) MTF, Spec. A3 Back to Partner

Increase in welfare benefits years prior to transition



(a) Female-to-Male (N = 715,256)



(b) Male-to-Female (N = 725,776)

Note: Average level at $t = -1$ is 15% for FTM, and 17% for MTF. The sample is limited to those aged 25 to 65.

Back to Sick.