## **Online Appendix**

## Transgender Transitioning and Responsiveness to Policy: Evidence from the Netherlands

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## Appendix

TABLE A1—POLICY CHANGE INCREASED ACCESS TO LEGAL TRANSITIONING IN THE NETHERLANDS

	July 1, 1985 – July 1, 2014	After July 1, 2014
Surgical requirements	Gonadectomy, leading to permanent infertility	No surgical requirements
$Administrative\ requirements$	Expert statement, obtained after a diagnosis of gender incongruence	Expert statement
Minimum age	18	16
Procedure	Legal procedure through court	Administrative procedure through civil registrar in birth municipality

*Note:* A gonadectomy is a surgical procedure that removes the reproductive organs (removal of the testes for those assigned male at birth and removal of the ovaries for those assigned female at birth). For individuals opting for a non-binary gender marker (X), the legal procedure through court remained a requirement to legally transition after July 1, 2014.



FIGURE A1. ANNUAL LEGAL TRANSITIONS BY MTF AND FTM

*Note:* The Transgender Law amendment took effect on July 1, 2014. *Source:* Statistics Netherlands

	Female	controls	Male c	ontrols			
Assigned year	'06-'13	'15-'22	'06-'13	'15-'22			
Demographic characteristics							
Age	45.95 (17.50)	46.72 (18.30)	45.36 (17.40)	46.38 (17.98)			
Born in Netherlands	$\begin{array}{c} 0.72 \\ (0.45) \end{array}$	$\begin{array}{c} 0.70 \\ (0.46) \end{array}$	$0.68 \\ (0.47)$	$0.66 \\ (0.47)$			
Has partner	$\begin{array}{c} 0.55 \ (0.50) \end{array}$	$0.46 \\ (0.50)$	$0.48 \\ (0.50)$	$0.41 \\ (0.49)$			
Has children	$0.65 \\ (0.48)$	$\begin{array}{c} 0.52 \\ (0.50) \end{array}$	$\begin{array}{c} 0.54 \\ (0.50) \end{array}$	$0.42 \\ (0.49)$			
Socioeconomic and health characteristics							
College degree	$0.29 \\ (0.45)$	$\begin{array}{c} 0.39 \ (0.49) \end{array}$	$0.29 \\ (0.45)$	$0.36 \\ (0.48)$			
Working	$0.68 \\ (0.47)$	$0.73 \\ (0.44)$	$\begin{array}{c} 0.80 \\ (0.40) \end{array}$	$0.83 \\ (0.38)$			
Disability benefits	$0.06 \\ (0.23)$	$0.07 \\ (0.26)$	$0.07 \\ (0.25)$	$0.06 \\ (0.23)$			
Annual income (log)	$7.30 \\ (4.55)$	7.87 (4.40)	9.25 (3.81)	$9.34 \\ (3.75)$			
Female sector	$\begin{array}{c} 0.54 \\ (0.50) \end{array}$	$0.56 \\ (0.50)$	$0.16 \\ (0.36)$	$0.18 \\ (0.39)$			
Male sector	$\begin{array}{c} 0.23 \\ (0.42) \end{array}$	$0.22 \\ (0.41)$	$0.62 \\ (0.49)$	$0.60 \\ (0.49)$			
Antidepressants	0.01 (0.12)	$0.02 \\ (0.13)$	$0.01 \\ (0.10)$	$0.01 \\ (0.10)$			
Obs	3787	35059	4093	38616			

TABLE A2—DESCRIPTIVE STATISTICS OF CONTROLS

*Note:* Descriptive statistics are displayed for year t - 1, where t is the randomly assigned year. Employment outcomes are only reported for those aged  $\geq 25$  and  $\leq 65$ , and college degree for  $\geq 25$ . See Table A7 for variable descriptions.

	FT	Μ	M	TF			
Control for Age?	No	Yes	No	Yes			
Socioeconomic and health ch	haracteristics						
Down in Nothenlanda	$0.056^{***}$	0.001	0.099***	0.050**			
Born in Netherlands	(0.014)	(0.015)	(0.017)	(0.018)			
II	0.026	0.027	0.022	$0.057^{*}$			
Has a partner	(0.034)	(0.036)	(0.024)	(0.025)			
Ilea shildren	-0.113***	-0.012	-0.134***	0.014			
Has children	(0.014)	(0.013)	(0.017)	(0.015)			
Socioeconomic and health characteristics							
Callere de mar	0.029	0.040	0.107***	$0.116^{***}$			
College degree	(0.044)	(0.046)	(0.030)	(0.032)			
XX7 1 ·	-0.069	-0.078	-0.023	0.020			
Working	(0.044)	(0.047)	(0.030)	(0.031)			
Dischilitze han efter	-0.036	-0.004	-0.081***	-0.069***			
Disability benefits	(0.029)	(0.029)	(0.019)	(0.019)			
	-1.087*	-1.242**	-0.024	0.460			
Annual income (log)	(0.429)	(0.454)	(0.306)	(0.318)			
David la sector	0.000	0.013	0.072	0.060			
remaie sector	(0.067)	(0.077)	(0.045)	(0.048)			
Mala sastar	0.003	-0.008	-0.037	-0.015			
Male sector	(0.070)	(0.078)	(0.051)	(0.055)			
Antidonnoconto	0.008	0.020	0.028**	$0.024^{*}$			
Anudepressants	(0.078)	(0.015)	(0.010)	(0.011)			
Obs	3323	3323	3053	3053			

TABLE A3—DIFFERENCES BETWEEN MOMENT OF TRANSITION, CONTROLLED FOR AGE

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Each value denotes the coefficient of variable Post<sub>i</sub> in the regression 1)  $Y_i = \alpha_0 + \alpha_1 \cdot \text{Post}_i + \epsilon_i$  [No], and 2)  $Y_i = \alpha_0 + \alpha_1 \cdot \text{Post}_i + \alpha_2 \cdot \text{i.Age}_i + \epsilon_i$  [Age], where Post<sub>i</sub> is a dummy variable that is equal to 1 if the individual legally transitioned between 2015 and 2022, and 0 if the individual legally transitioned between 2006 and 2013. Descriptive statistics are measured in year t - 1, where t is the year of transition or assigned year. Employment outcomes are only reported for those aged  $\geq 25$  and  $\leq 65$ , and college degree for  $\geq 25$ . See Table A7 for variable descriptions.

	$\mathbf{FTM}$	MTF	
Demographic characterist	ics		
A	26.33	38.32	
Age at transition	(10.44)	(14.39)	
16 10 1	27.30	38.84	
II 18+	(10.47)	(14.16)	
Down in the Nothenlands	0.97	0.91	
Born in the Netherlands	(0.16)	(0.29)	
Usa s nontron	0.20	0.20	
has a partner	(0.40)	(0.40)	
II hildren	0.05	0.22	
Has children	(0.22)	(0.41)	
Distance to mender alinia	54.99	60.27	
Distance to gender clinic	(41.24)	(39.43)	
Socioeconomic and health	characterist	ics	
College degrees	0.38	0.27	
College degree	(0.49)	(0.44)	
Worlding	0.55	0.47	
WORKING	(0.50)	(0.50)	
Disability bonofits	0.11	0.19	
Disability beliefts	(0.32)	(0.39)	
Ammuel in some (lem)	6.21	5.37	
Annual income (log)	(4.87)	(5.06)	
Female coston	0.35	0.17	
remaie sector	(0.48)	(0.38)	
Male costor	0.34	0.58	
male sector	(0.48)	(0.49)	
Antidoppeganta	0.04	0.05	
Annuepressants	(0.18)	(0.22)	
Oha	3/1	425	

TABLE A4—DESCRIPTIVE STATISTICS OF 2014 TRANSITIONERS

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Descriptive statistics are displayed for year t - 1, where t is the transition year. Employment outcomes are only reported for those aged  $\geq 25$  and  $\leq 65$ , and college degree for  $\geq 25$ . See Table A7 for variable descriptions.

	$\Delta =$	= Transitio	ners – Cont	rols	Δ	= FTM -	Male contro	ols	$\Delta =$	$= \mathbf{FTM} - \mathbf{F}$	Female cont	rols	Δ	= MTF $-$	Male contr	ols	$\Delta =$	= MTF $-$ I	Female cont	rols
	,06	-'13	'15	-'22	·06·	-'13	'15	-'22	,06	-'13	'15	-'22	,06	-'13	'15	-'22	,06	-'13	'15	-'22
Control for Age?	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Demographic chard	Demographic characteristics																			
Age	-7.06***		$-19.93^{***}$		$-11.12^{***}$		-23.09***		$-4.97^{***}$		$-16.12^{***}$		-4.37***		$-15.85^{***}$		-11.71***		-23.43***	
Born in NL	$0.121^{***}$	$0.162^{***}$	$0.241^{***}$	$0.254^{***}$	$0.215^{***}$	$0.295^{***}$	$0.292^{***}$	$0.285^{***}$	$0.059^{**}$	$0.085^{***}$	$0.181^{***}$	$0.218^{***}$	$0.099^{***}$	$0.125^{***}$	0.220***	$0.251^{***}$	$0.174^{***}$	$0.239^{***}$	$0.254^{***}$	$0.262^{***}$
Has partner	$-0.322^{***}$	-0.313***	$-0.225^{***}$	$-0.158^{***}$	-0.307***	$-0.234^{***}$	$-0.217^{***}$	$-0.115^{***}$	$-0.349^{***}$	$-0.374^{***}$	$-0.242^{***}$	-0.203***	$-0.281^{***}$	$-0.272^{***}$	$-0.195^{***}$	$-0.123^{***}$	$-0.374^{***}$	-0.360***	$-0.264^{***}$	$-0.198^{***}$
Has children	$-0.379^{***}$	$-0.319^{***}$	$-0.396^{***}$	$-0.071^{***}$	-0.390***	$-0.257^{***}$	$-0.387^{***}$	-0.032***	$-0.400^{***}$	$-0.383^{***}$	$-0.403^{***}$	$-0.131^{***}$	$-0.292^{***}$	$-0.263^{***}$	$-0.310^{***}$	$-0.059^{***}$	$-0.498^{***}$	$-0.388^{***}$	$-0.480^{***}$	$-0.073^{***}$
Socioeconomic and	health chara	acteristics																		
College degree	-0.072**	$-0.094^{***}$	-0.076***	$-0.105^{***}$	-0.0178	-0.061	-0.063***	$-0.071^{***}$	-0.099***	$-0.112^{***}$	-0.088***	$-0.131^{***}$	-0.098**	$-0.107^{***}$	-0.066***	$-0.075^{***}$	-0.019	-0.059	-0.086***	$-0.146^{***}$
Working	$-0.159^{***}$	$-0.217^{***}$	-0.235***	-0.260***	$-0.187^{***}$	-0.240***	-0.282***	-0.296***	$-0.113^{***}$	$-0.171^{***}$	$-0.186^{***}$	$-0.222^{***}$	$-0.231^{***}$	$-0.283^{***}$	-0.280***	$-0.287^{***}$	-0.069	$-0.149^{***}$	$-0.188^{***}$	$-0.242^{***}$
Disability ben.	$0.106^{***}$	$0.122^{***}$	$0.037^{***}$	$0.059^{***}$	0.080***	$0.108^{***}$	$0.053^{***}$	$0.084^{***}$	$0.120^{***}$	$0.126^{***}$	0.026***	$0.042^{***}$	$0.111^{***}$	$0.132^{***}$	$0.039^{***}$	$0.061^{***}$	$0.089^{***}$	$0.108^{***}$	$0.040^{***}$	$0.063^{***}$
Income (log)	$-1.756^{***}$	$-2.336^{***}$	$-2.464^{***}$	-2.815***	-2.203***	-2.729***	-3.381***	-3.587***	$-1.030^{***}$	$-1.598^{***}$	$-1.631^{***}$	-2.093***	$-2.989^{***}$	$-3.472^{***}$	-3.103***	-3.202***	-0.245	-1.144**	-1.908***	$-2.648^{***}$
Female sector	-0.072*	-0.063*	-0.063*	-0.055	$0.192^{***}$	$0.183^{***}$	$0.165^{***}$	$0.162^{***}$	0.330***	-0.311***	-0.280***	$-0.266^{***}$	0.056	0.068*	$0.100^{***}$	$0.103^{***}$	$-0.194^{***}$	-0.163**	$-0.216^{***}$	$-0.180^{***}$
Male sector	$0.103^{**}$	0.092**	$0.113^{***}$	0.111***	$-0.173^{***}$	-0.180***	-0.146**	-0.137**	$0.369^{***}$	0.363***	$0.345^{***}$	0.336***	-0.022	-0.045	-0.036	-0.036	$0.218^{***}$	$0.198^{***}$	$0.235^{***}$	$0.213^{***}$
Antidepressants	$0.010^{*}$	$0.010^{*}$	$0.031^{***}$	$0.037^{***}$	$0.031^{***}$	$0.032^{***}$	$0.039^{***}$	$0.047^{***}$	-0.003	-0.004	$0.023^{***}$	$0.027^{***}$	0.002	0.001	$0.030^{***}$	$0.033^{***}$	$0.026^{**}$	$0.031^{***}$	$0.031^{***}$	$0.043^{***}$
Observations	8575		79356		4340		41692		4235		37664		4541		41221		4034		38135	

TABLE A5—DIFFERENCES BETWEEN TRANSITIONERS AND CONTROLS, WITH AND WITHOUT CONTROLS FOR AGE

Note: \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. Each value denotes the coefficient of variable Transitioner<sub>i</sub> in the regression 1)  $Y_i = \alpha_0 + \alpha_1 \cdot \text{Transitioner}_i + \epsilon_i$  [No controls], and 2)  $Y_i = \alpha_0 + \alpha_1 \cdot \text{Transitioner}_i + \alpha_2 \cdot i$ . Age<sub>i</sub> +  $\epsilon_i$  [Age controls], where Transitioner<sub>i</sub> is a dummy variable that is equal to 1 if the individual legally transitioned, and 0 if the individual did not. Descriptive statistics are measured in year t - 1, where t is the year of transition or assigned year. Employment outcomes are only reported for those aged > 25 and < 65, and college

degree for  $\geq 25$ . See Table A7 for variable descriptions.

Outcomes	Source	Years	Transitioners observed	Controls observed
Demographic variables	Personal Records Database (BRP)	2005-21	$\approx 100\%$	$\approx 100\%$
Medicine prescriptions	National Health Care Institute	2006-21	$\approx 100\%$	$\approx 100\%$
Income and employment	Tax and Customs Netherlands	2005-21	$\approx 95\%$	$\approx 75\%$
Education	Data from various registers and survey data from the Enquête Beroepsbevolking	2005-21	$\approx 85\%$	$\approx 45\%$

TABLE A6—DATA DESCRIPTION

TABLE A7—VARIABLE DESCRIPTIONS

Variable	Description
Age	Continuous variable that is equal to the individuals age in years.
Age at transition	Continuous variable that is equal to the individuals age in the year of transition in years.
(Age at transition) If 18+	Continuous variable that is equal to the individuals age in the year of transition in years, excluding those aged 16 or 17.
Born in Netherlands	Dummy variable that takes the value 1 if the individual is born in the Netherlands and 0 otherwise.
Has partner	Dummy variable that takes the value 1 if the individual cohabited with a registered partner and 0 otherwise.
Has children	Dummy variable that takes the value 1 if the individual has children and 0 otherwise.
Distance to nearest gender clinic	Continuous variable that is equal to the orthodromic distance from their home address to the nearest gender clinic in kilometers. This includes the Amsterdam UMC, UMC Groningen, LUMC (for adolescents, 2009 - 2016) and Radboudumc (for adolescents, since 2019).
College degree	Dummy variable that takes the value 1 if the individual obtained a college degree or higher (in the Netherlands: HBO or WO degree) and 0 otherwise.
Working	Dummy variable that takes the value 1 if the individual received any positive income from employment (including self-employment) and 0 otherwise.
Sickness/disability benefits	Dummy variable that takes the value 1 if the individual received any sickness and/or disability benefits and 0 otherwise.
Annual income (log)	Continuous variable that is equal to the individuals income from employment in 2021 Euros, presented in logs (negative and null values are recoded to 1 Euro).
Female dominated sector	Dummy variable that takes the value 1 if the individual works at in a sector with $> 60\%$ females and 0 otherwise, as measured by the sector gender ratio in sector x in 2016.
Male dominated sector	Dummy variable that takes the value 1 if the individual works at in a sector with $> 60\%$ males and 0 otherwise, as measured by the sector gender ratio in sector $x$ in 2016.
Antidepressants	Dummy variable that takes the value 1 if the individual had any antidepressant prescriptions (ATC-code N06A) and 0 otherwise.
Androgens	Dummy variable that takes the value 1 if the individual had any androgens prescriptions (ATC-code G03B) and 0 otherwise. Androgens are male sex hormones and induce masculinization. Testosterone is the most used androgen, and can be administered through injections, patches or gels/creams,
Estrogens	Dummy variable that takes the value 1 if the individual had any estrogens prescriptions (ATC-code G03C) and 0 otherwise. Estrogens are female sex hormones and induce feminization.
Antiandrogens	Dummy variable that takes the value 1 if the individual had any antiandrogens prescriptions (ATC-code L02BB, observed on L02B) and 0 otherwise. Antiandrogens suppress testosterone effects in the body (also called testosterone blockers), and are often used in combination with estrogens for transgender women. Transgender women may discontinue the use of antiandrogens after undergoing orchiectomy (removal of testes), which significantly reduces testosterone production.
Puberty blockers	Dummy variable that takes the value 1 if the individual had any puberty blockers prescriptions (ATC-code L02AE, observed on L02A) and 0 otherwise. Puberty blockers, also known as GnRH (Gonadotropin-Releasing Hormone) agonists are medications used to temporarily delay the onset or progression of puberty. The use is reversible; when the medication is discontinued, puberty resumes its natural course.