

The Private Costs of Living with HIV in the Netherlands – Post-diagnosis Labour Market Outcomes

Andrei Tuiu (University of Amsterdam, SHM)

Esmée Zwiers (University of Amsterdam)

Wendy Janssens (Vrije Universiteit Amsterdam)

Vita Jongen (SHM)

Ard van Sighem (SHM)

Ferdinand Wit (SHM)

Menno Pradhan (University of Amsterdam, Vrije Universiteit Amsterdam)

Marc van der Valk (SHM)

Introduction – Aim and Relevance

What?

Quantifying the impact of disease stage at time of HIV diagnosis on socioeconomic outcomes (income, employment, welfare reliance)

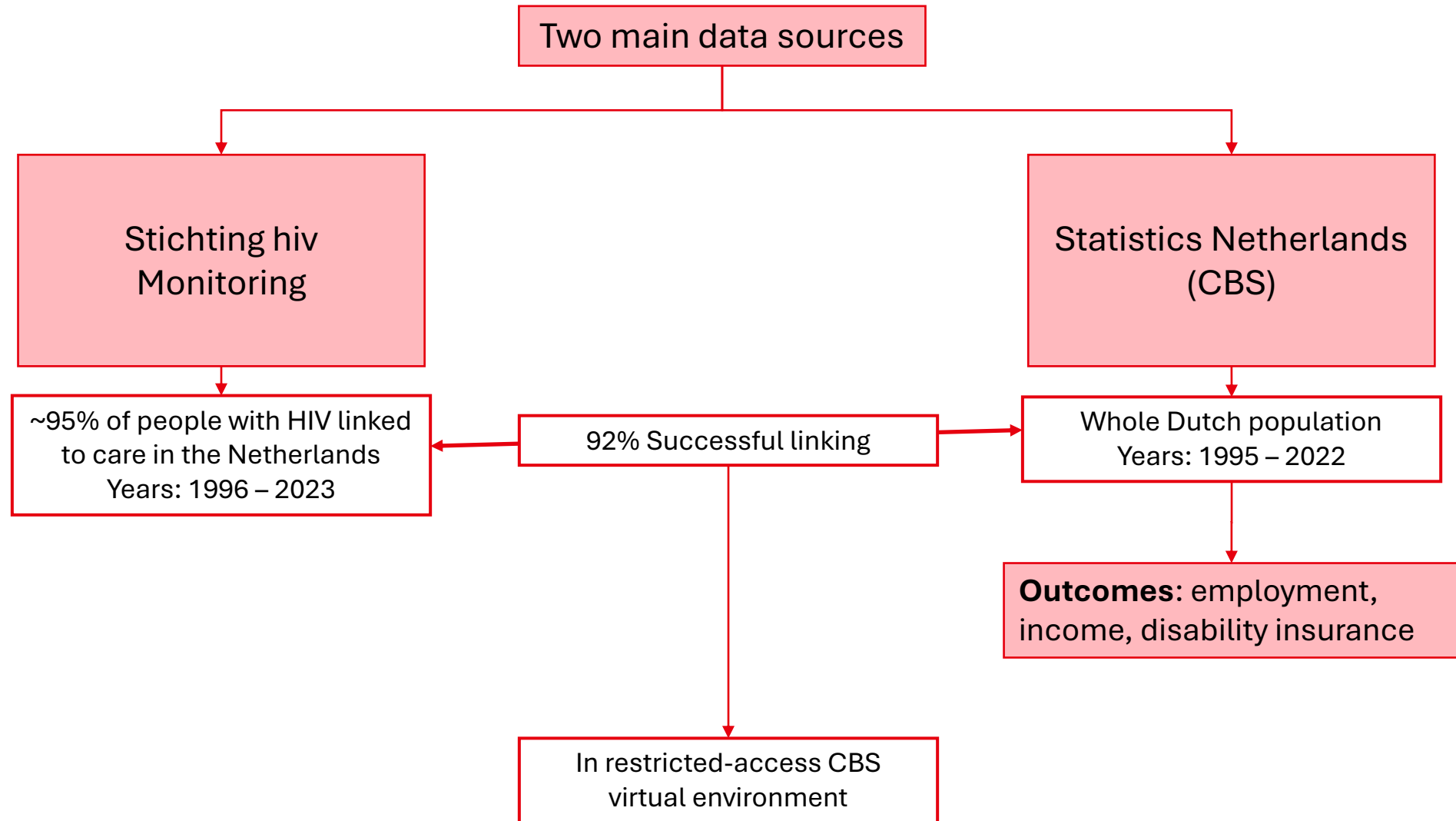
Introduction – Aim and Relevance

Why?

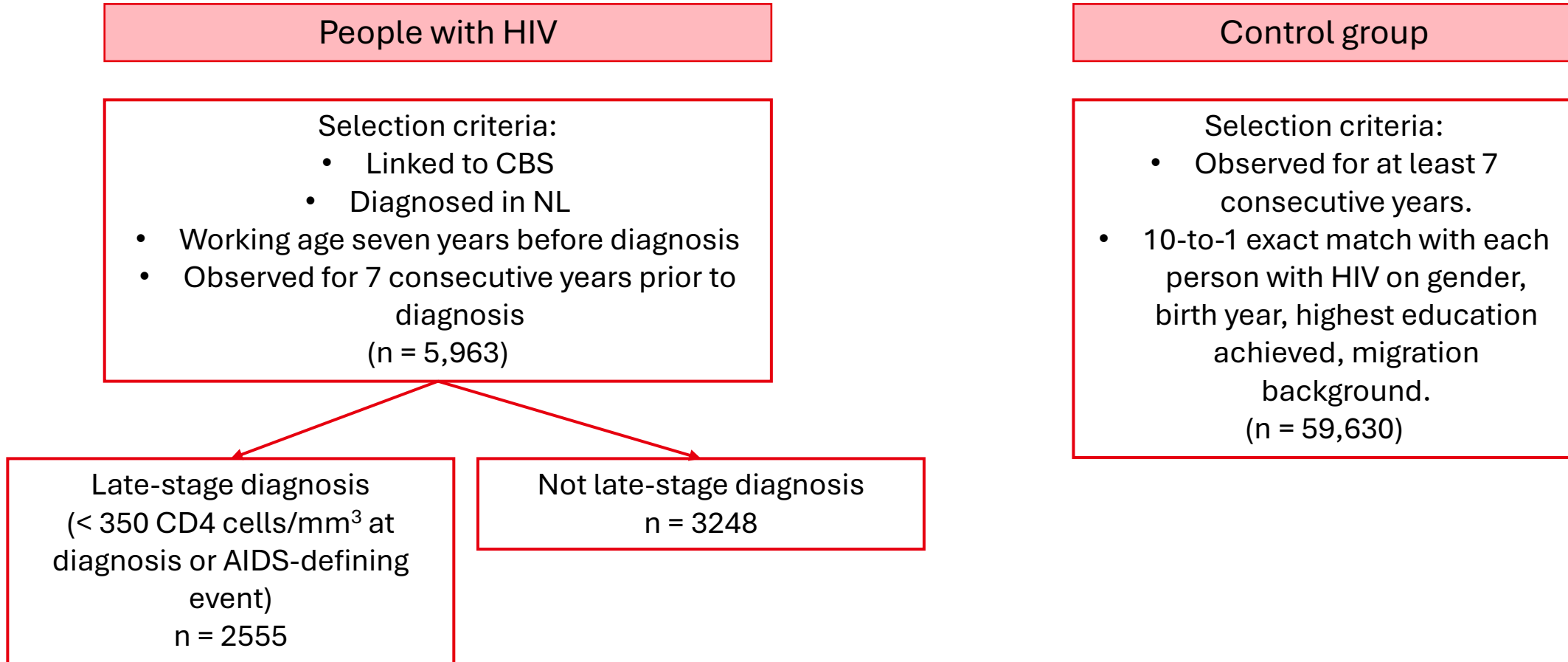
Social inclusion and economic participation are the final steps in ensuring that people with HIV can achieve the same quality of life as people without HIV.

Knowing whose socioeconomic outcomes are most affected, and why, can guide policymaking towards reaching this final step.

Data

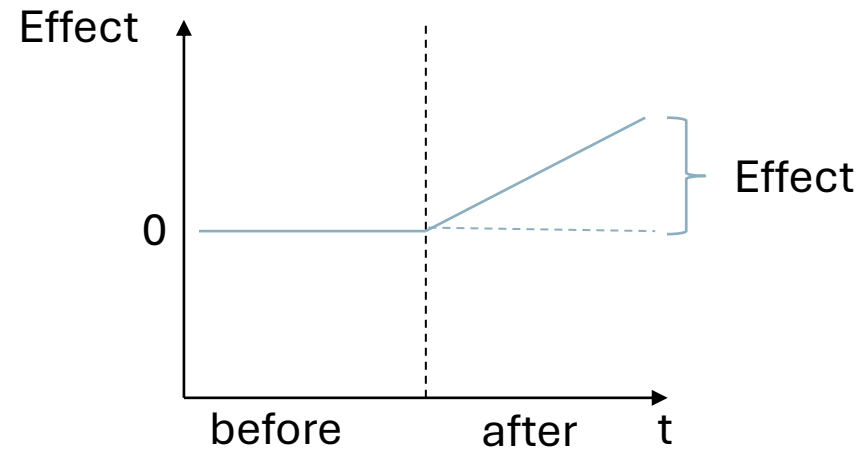
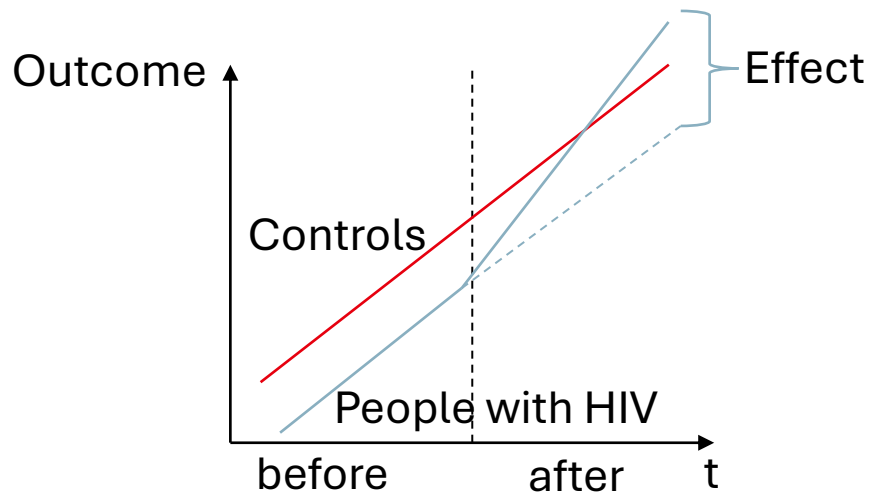
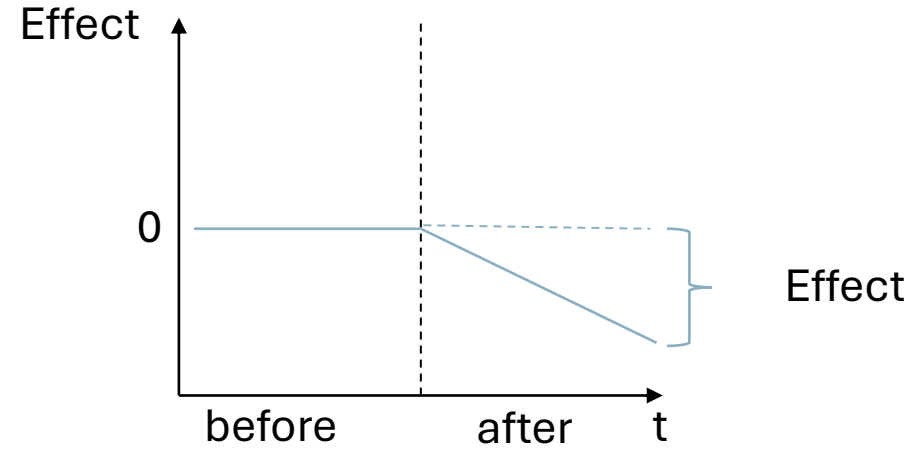
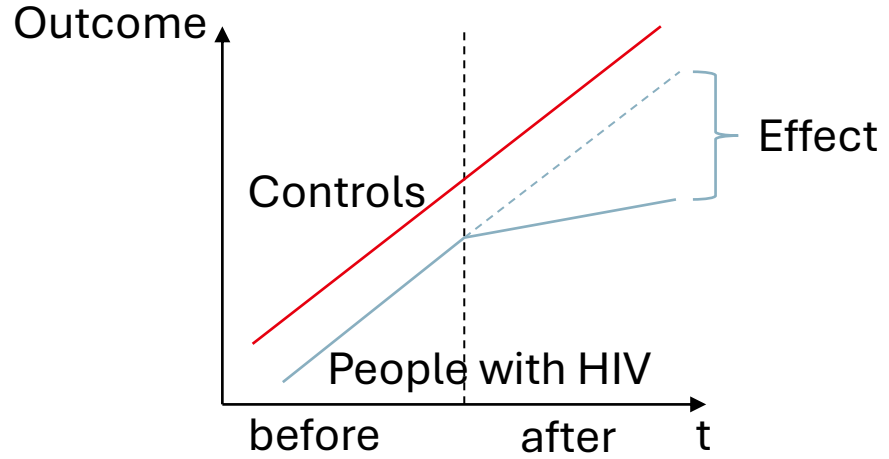


Methodology – Sample selection^[1]

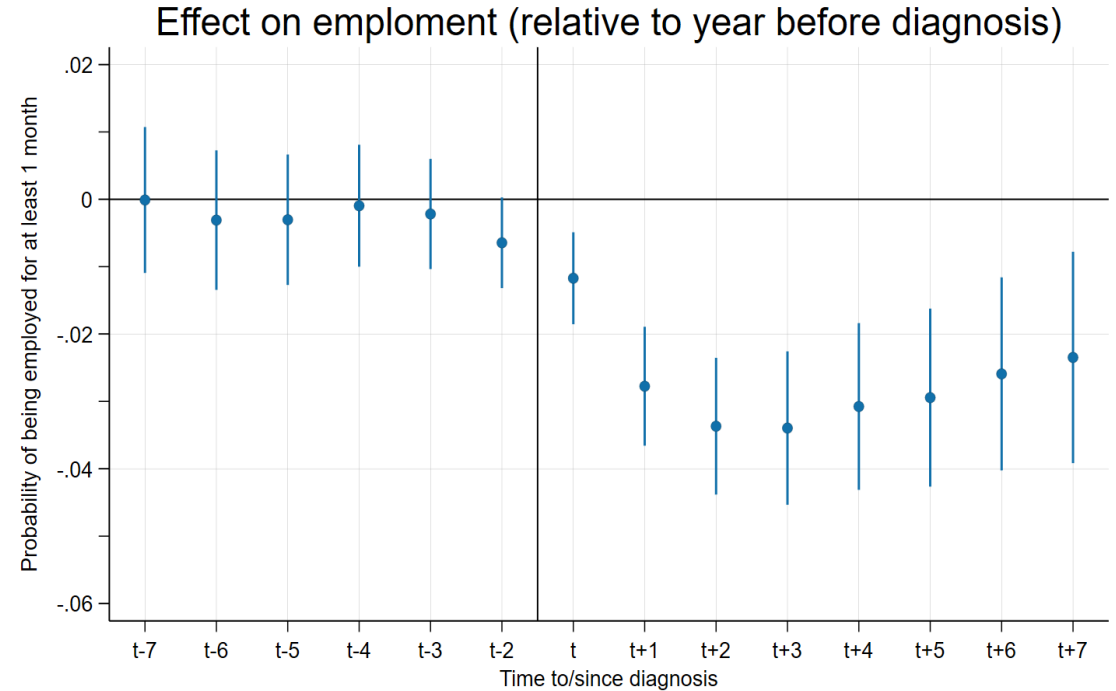
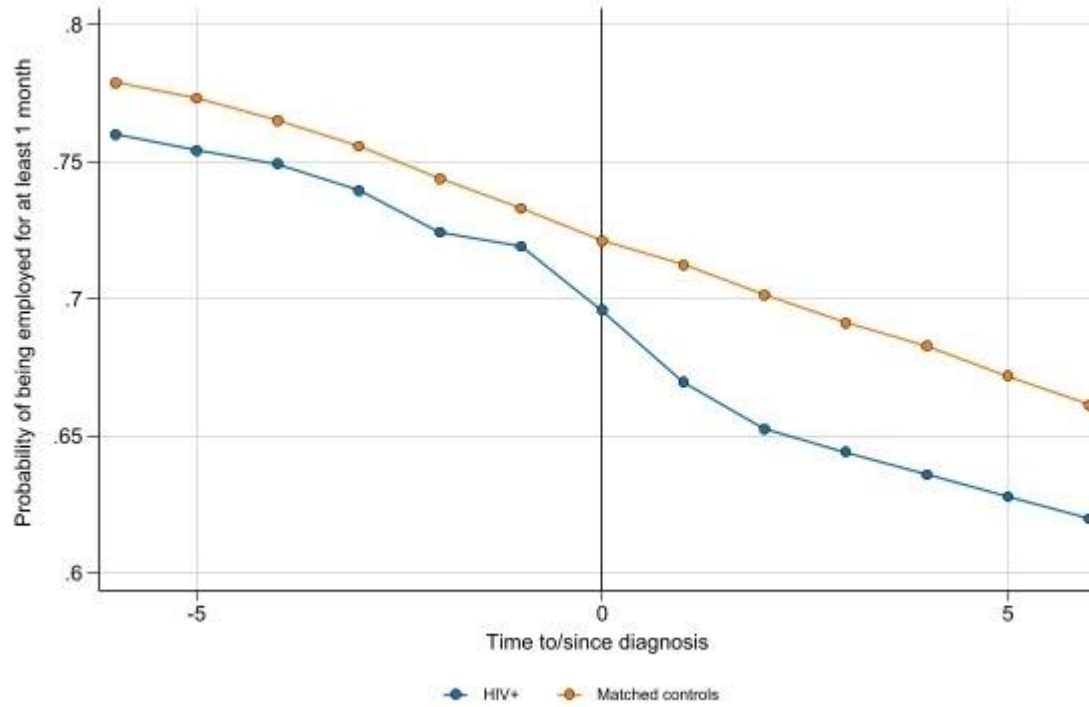


[1] Results based on calculations by Stichting HIV Monitoring using non-public microdata from Statistics Netherlands.

Methodology – Difference-in-differences

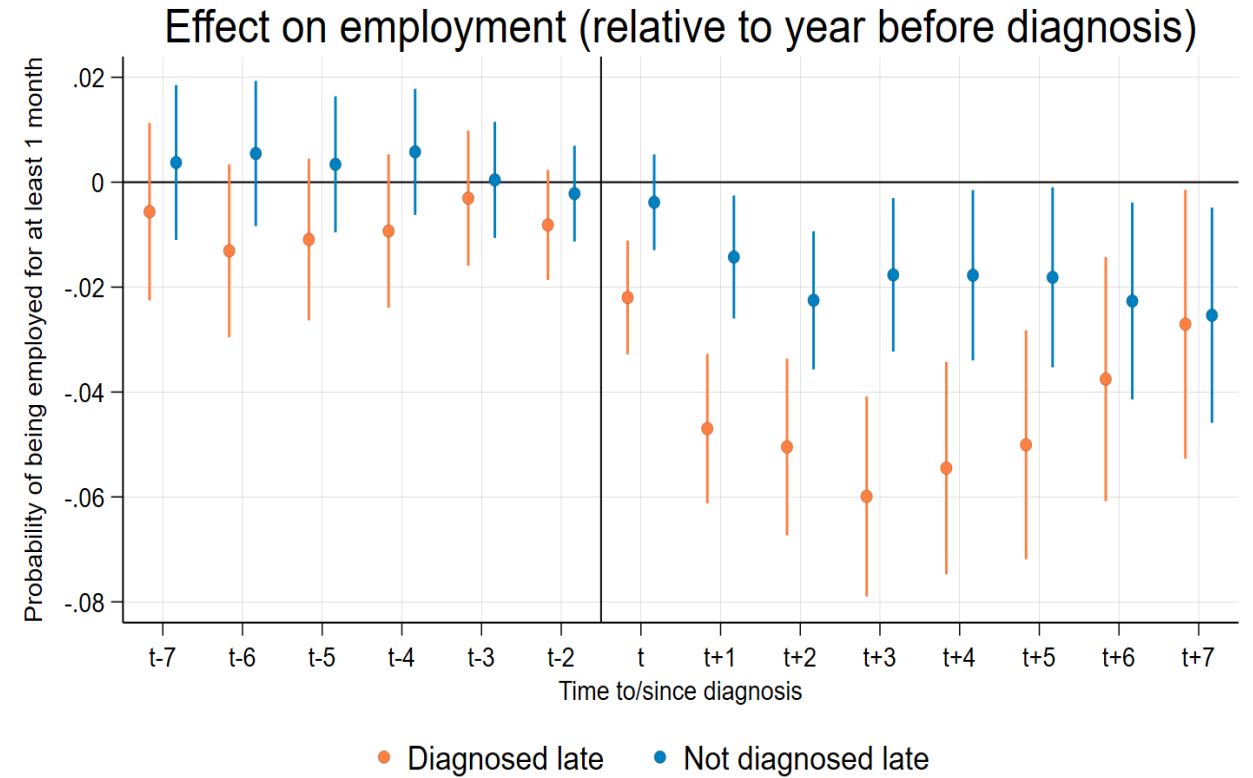
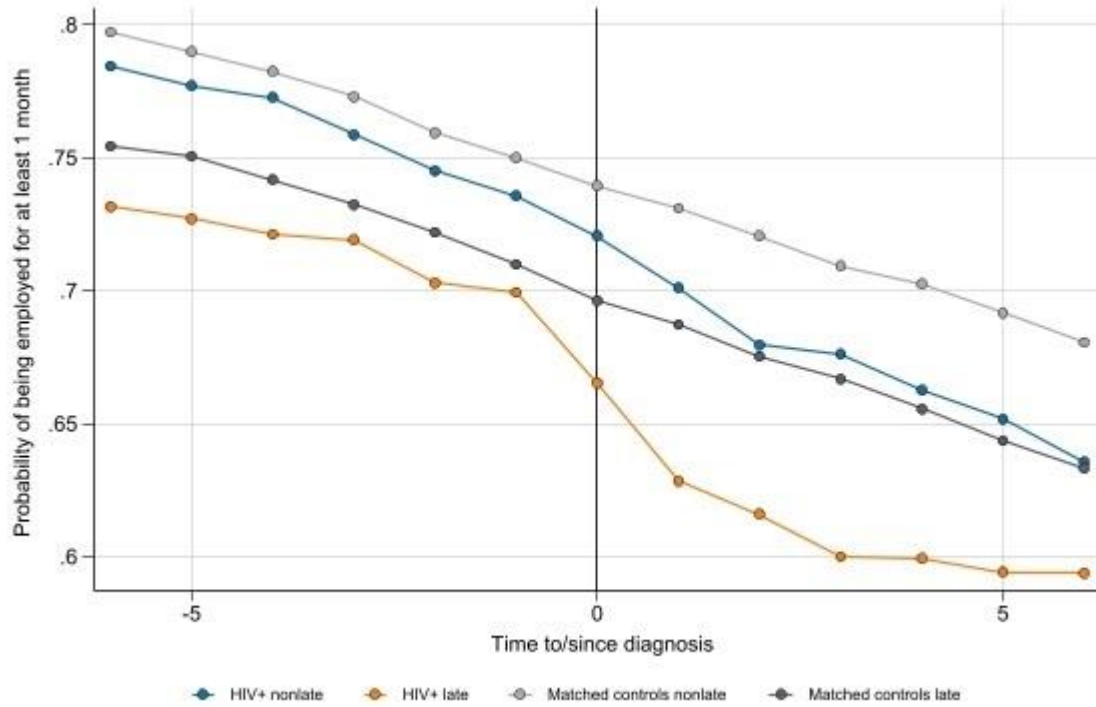


Results – Employment



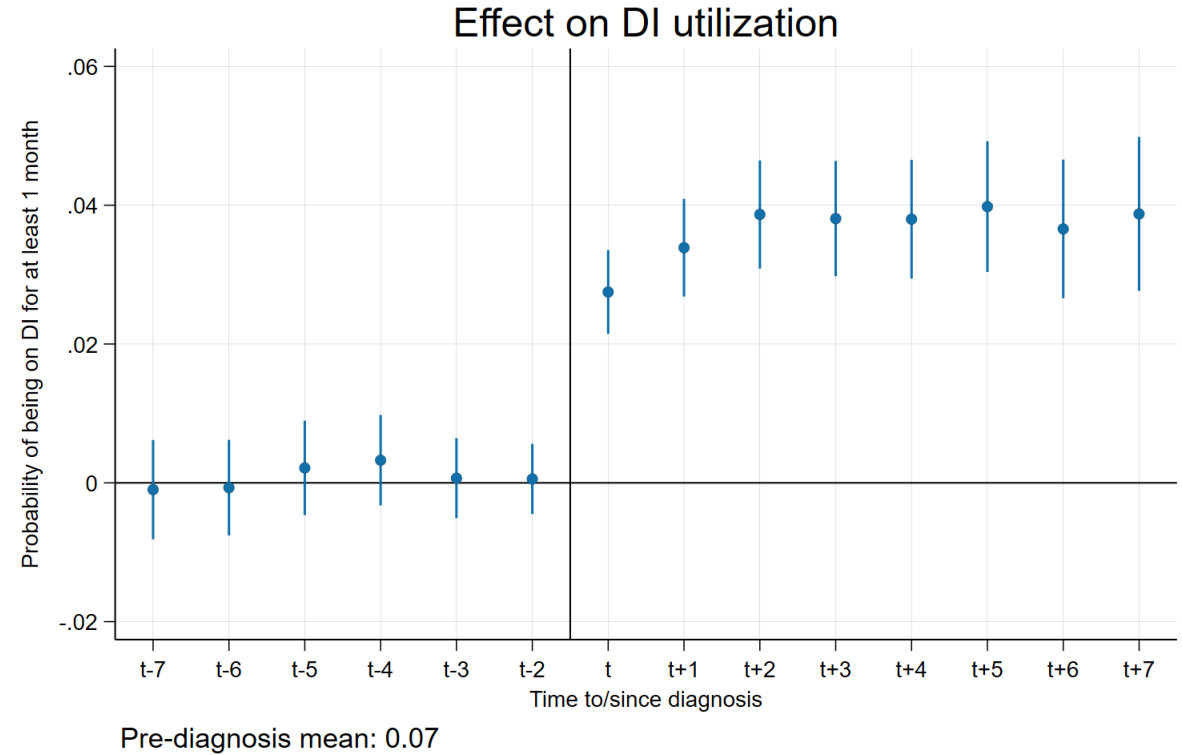
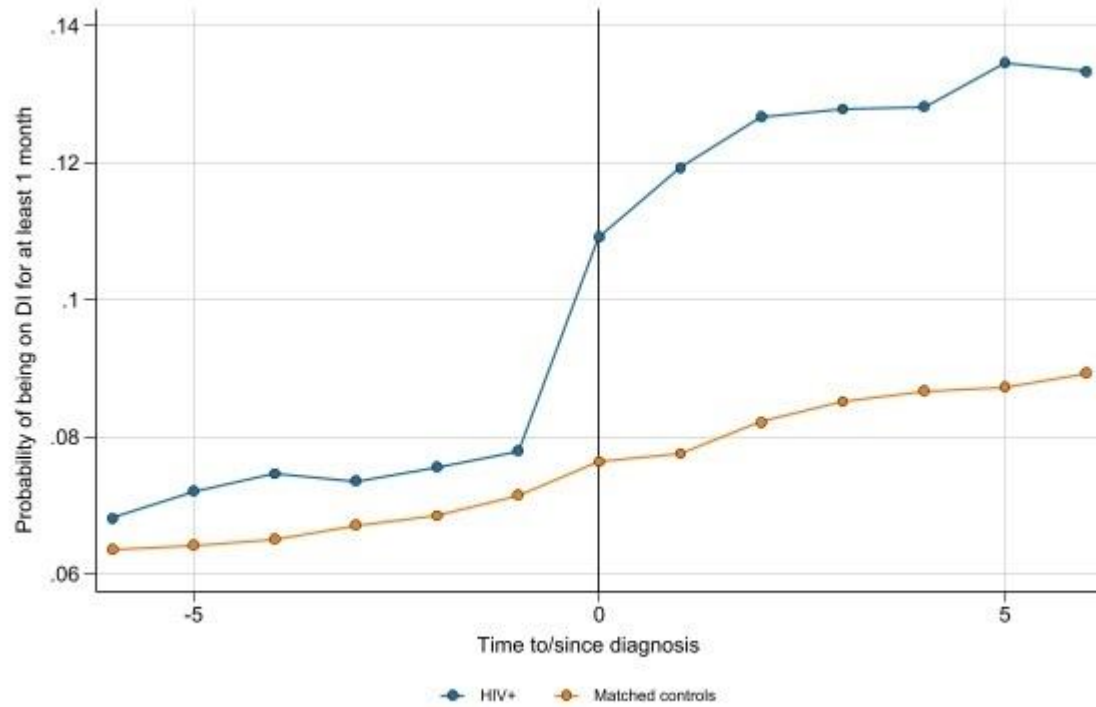
Pre-diagnosis mean: 0.72

Results – Employment

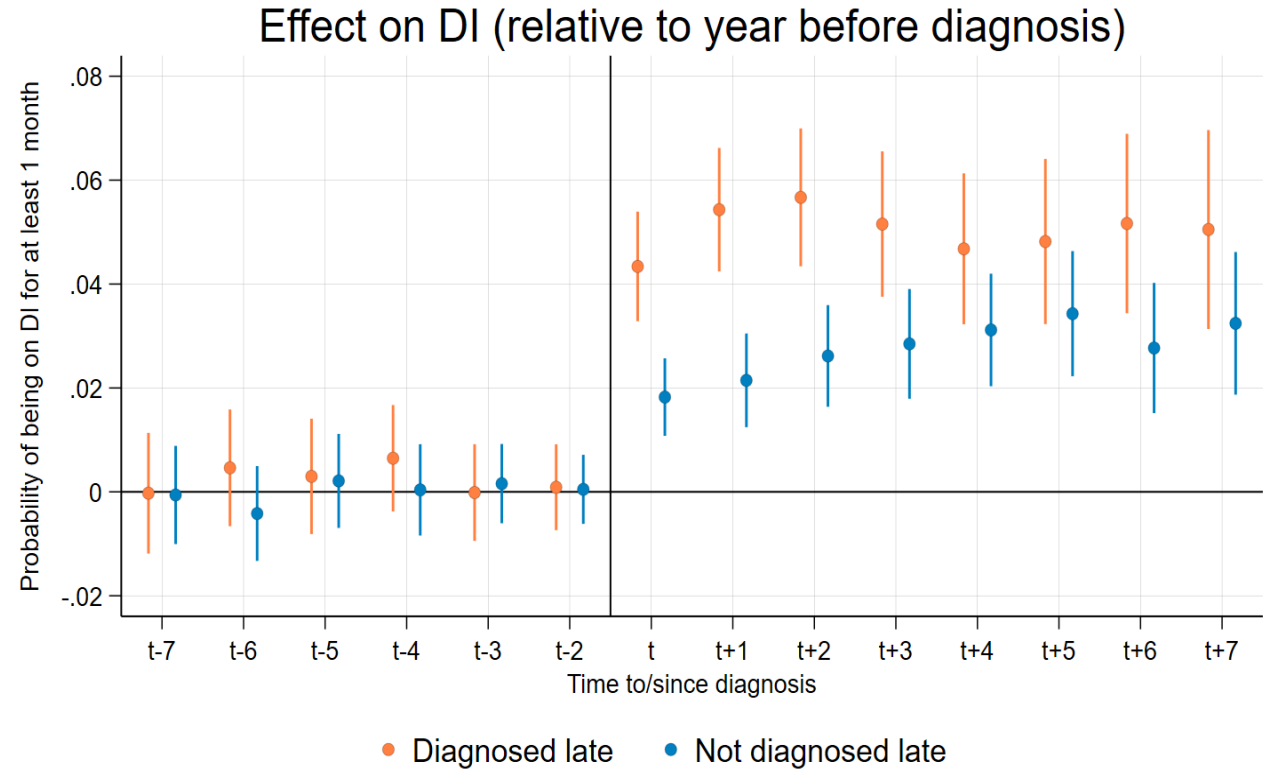
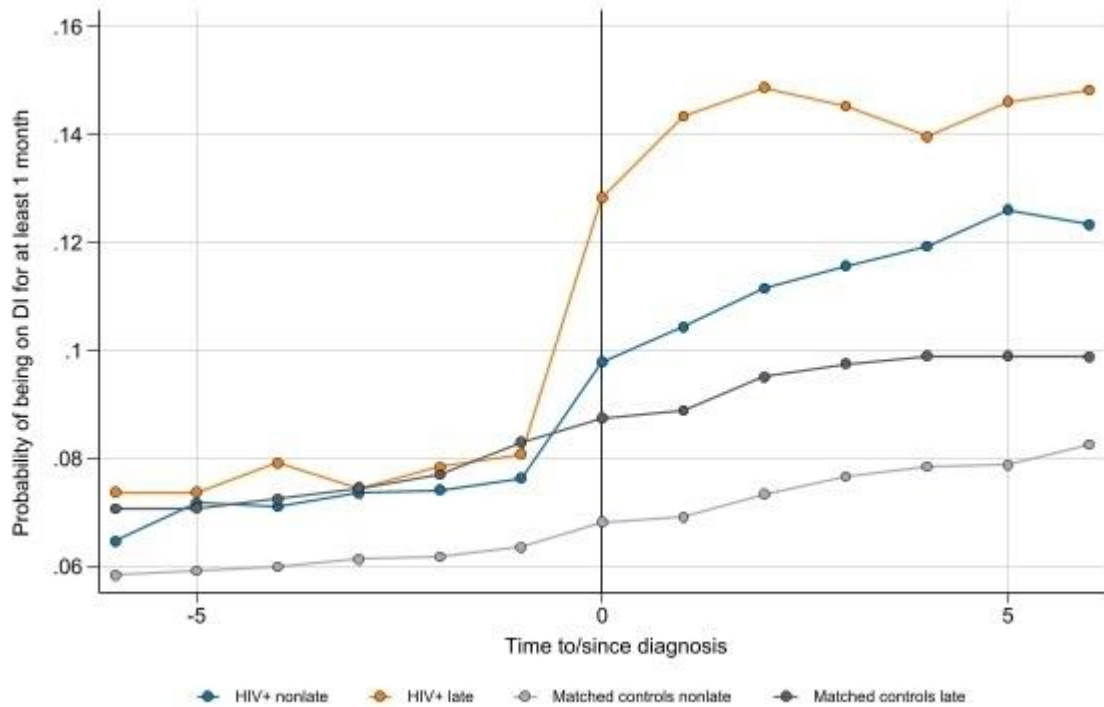


Diagnosed late pre-diagnosis mean: 0.70
 Not diagnosed late pre-diagnosis mean: 0.74

Results – Disability insurance

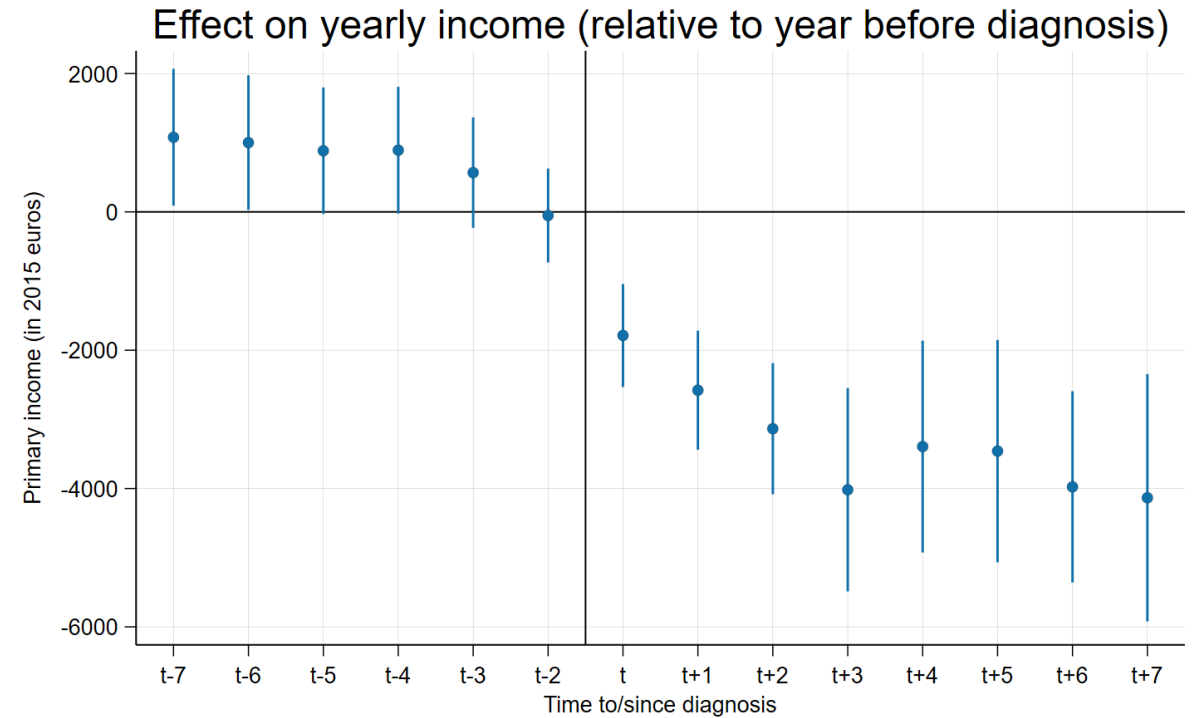
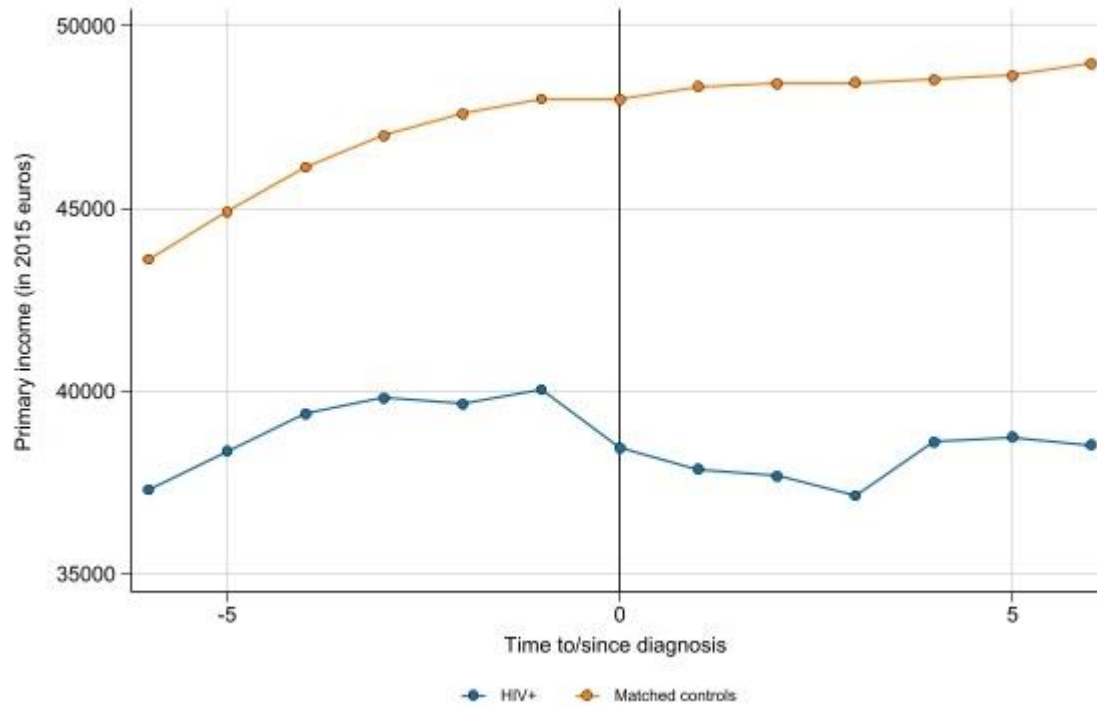


Results – Disability insurance



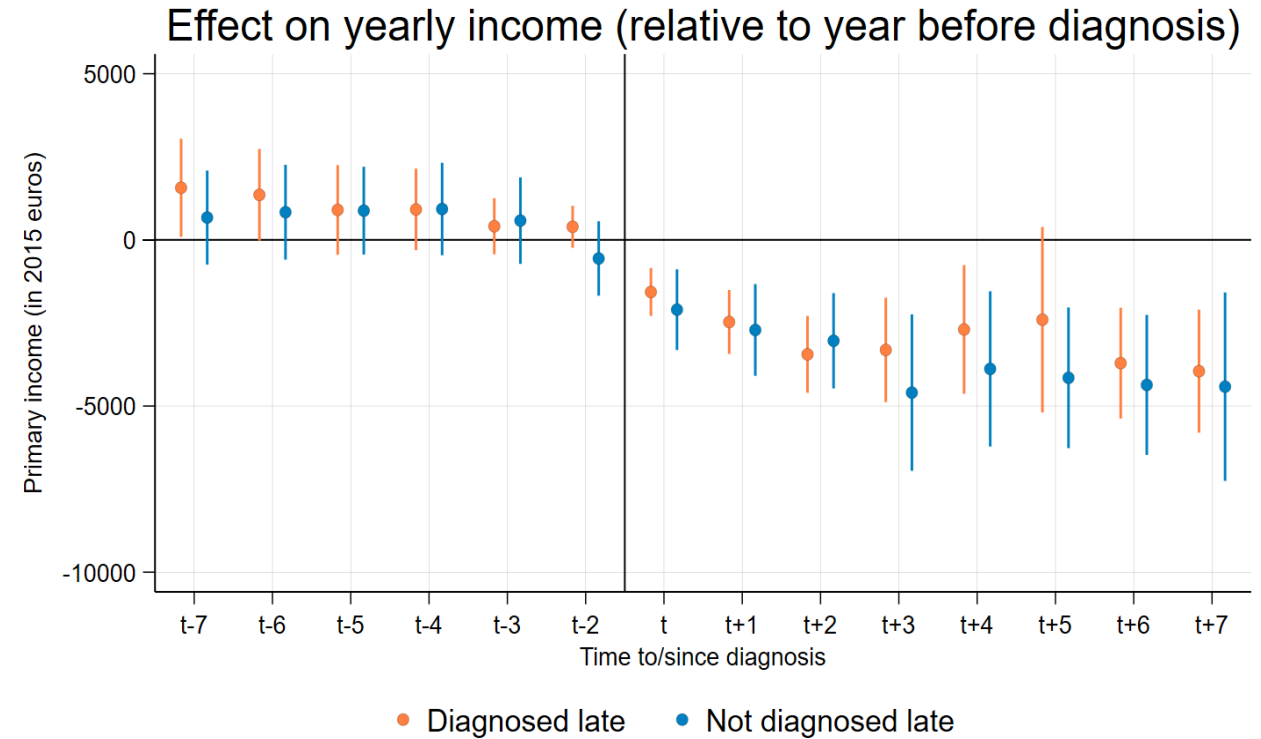
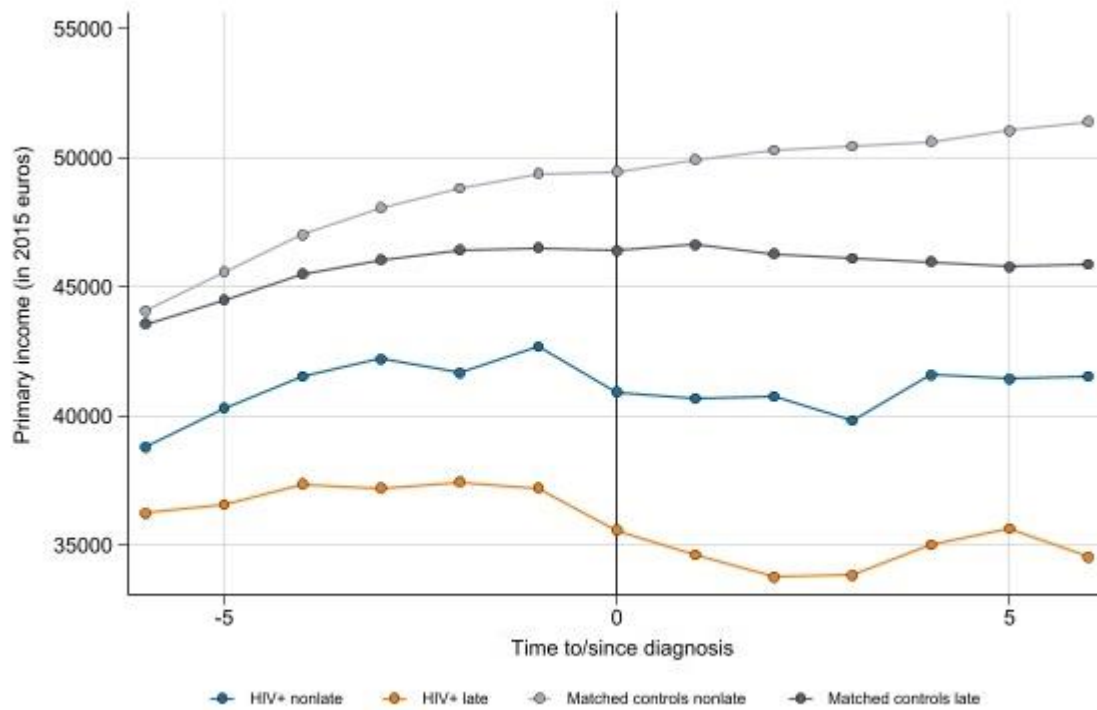
Diagnosed late pre-diagnosis mean: 0.08
 Not diagnosed late pre-diagnosis mean: 0.075

Results – Work income



Pre-diagnosis mean: 41185.35

Results – Work income



Diagnosed late pre-diagnosis mean: 38417.31
 Not diagnosed late pre-diagnosis mean: 43752.78

Conclusions

Non-late diagnosis

- Employment likelihood and disability insurance utilization somewhat affected by an HIV diagnosis
- Income losses comparable to late-stage infection group

Late-stage diagnosis

- Significant and persistent negative effects on all outcomes

Conclusions

Main policy takeaway: Prevention measures should be maintained and strengthened; early detection strategies should be optimized to better reach the population among which a late diagnosis is most common

Acknowledgements

All people with HIV participating in the ATHENA cohort.

SHM Analysis group: Marc van der Valk, Anders Boyd, Sacha Boucherie, Daniela Bezemer, Vita Jongen, Ard van Sighem, Colette Smit, Ferdinand Wit.

AHTI team: Rosan van Zoest, Nina Schat, Lianne Hooijmakers.

Statistics Netherlands.

Acknowledgements

Amsterdam UMC, AMC site, Amsterdam: *HIV treating physicians:* M. van der Valk*, M.A. van Agtmael, M. Bomers, S.E. Geerlings, A. Goorhuis, V.C. Harris, J.W. Hovius, B. Lemkes, F.J.B. Nellen, E.J.G. Peters, T. van der Poll, J.M. Prins, K.C.E. Sigaloff, V. Spoorenberg, M. van Vugt, W.J. Wiersinga, F.W.M.N. Wit. *HIV nurse consultants:* H. Berends, C. Bruins, J. van Eden, I.J. Hylkema-van den Bout, L.M. Laan, F.J.J. Pijnappel, S.Y. Smalhout, M.E. Spelbrink, A.M. Weijzenfeld. *HIV clinical virologists/chemists:* N.K.T. Back, M.T.E. Cornelissen, R. van Houdt, M. Jonges, S. Jurriaans, C.J. Schinkel, M.R.A. Welkers, K.C. Wolthers. **Admiraal De Ruyter Ziekenhuis, Goes:** *HIV treating physicians:* M. van den Berge*, A. Stegeman. *HIV nurse consultants:* S. Baas, L. Hage de Looff. *HIV clinical virologists/chemists:* A. van Arkel, J. Stohr, B. Wintermans. **Catharina Ziekenhuis, Eindhoven:** *HIV treating physicians:* M.J.H. Pronk*, H.S.M. Ammerlaan, C. de Bree. *HIV nurse consultants:* E.S. de Munnik, S. Phaf. *HIV clinical virologists/chemists:* B. Deiman, A.R. Jansz, V. Scharnhorst, J. Tjhie, M.C.A. Wegdam. **DC Klinieken Laresse – Hiv Focus Centrum, Amsterdam:** *HIV treating physicians:* J. Nellen*, A. van Eeden, E. Hoornenborg, S de Stoppelaar. *HIV nurse consultants:* W. Alers, L.J.M. Elsenburg, H. Nobel. *HIV clinical virologists/chemists:* C.J. Schinkel. **ETZ (Elisabeth-TweeSteden Ziekenhuis), Tilburg:** *HIV treating physicians:* M.E.E. van Kasteren*, M.A.H. Berrevoets, A.E. Brouwer. *HIV nurse specialist:* B.A.F.M. de Kruijf-van de Wiel. *HIV nurse consultants:* A. Adams, M. Pawels-van Rijkevoorsel. *HIV data collection:* B.A.F.M. de Kruijf-van de Wiel. *HIV clinical virologists/chemists:* A.G.M. Buiting, J.L. Murck. **Erasmus MC, Rotterdam:** *HIV treating physicians:* C. Rokx*, A.A. Anas, H.I. Bax, E.C.M. van Gorp, M. de Mendonça Melo, E. van Nood, J.L. Nouwen, B.J.A. Rijnders, C.A.M. Schurink, L. Slobbe, T.E.M.S. de Vries-Sluijs. *HIV nurse consultants:* N. Bassant, J.E.A. van Beek, M. Vriesde, L.M. van Zonneveld. *HIV data collection:* J. de Groot. *HIV clinical virologists/chemists:* J.J.A. van Kampen, M.P.G. Koopmans, J.C. Rahamat-Langendoen. **Flevoziekenhuis, Almere:** *HIV treating physicians:* J. Branger*, R.A. Douma. *HIV nurse consultant:* A.S. Cents-Bosma, M.A. Mulder. **HagaZiekenhuis, Den Haag:** *HIV treating physicians:* E.F. Schippers*, C. van Nieuwkoop. *HIV nurse consultants:* J. Geilings, E. van de Ven. *HIV data collection:* G. van der Hut. *HIV clinical virologists/chemists:* N.D. van Burgel. **HMC (Haaglanden Medisch Centrum), Den Haag:** *HIV treating physicians:* E.M.S. Leyten*, L.B.S. Gelinck, F. Mollema. *HIV nurse consultants:* M. Langbein, G.S. Wildenbeest. *HIV clinical virologists/chemists:* T. Nguyen. **Isala, Zwolle:** *HIV treating physicians:* P.H.P. Groeneveld*, J.W. Bouwhuis, A.J.J. Lammers. *HIV nurse consultants:* A.G.W. van Hulzen, S. Kraan, M.S.M. Kruiper. *HIV clinical virologists/chemists:* S.B. Debast, G.H.J. Wagenvoort. **Leids Universitair Medisch Centrum, Leiden:** *HIV treating physicians:* A.H.E. Roukens*, M.G.J. de Boer, H. Jolink, M.M.C. Lambregts, H. Scheper. *HIV nurse consultants:* N. van Holten, D. van der Sluis. *HIV clinical virologists/chemists:* E.C.J. Claas, E. Wessels. **Maasstad Ziekenhuis, Rotterdam:** *HIV treating physicians:* J.G. den Hollander*, R. El Moussaoui, K. Pogany. *HIV nurse consultants:* C.J. Brouwer, D. Heida-Peters, E. Mulder, J.V. Smit, D. Struik-Kalkman. *HIV data collection:* T. van Niekerk. *HIV clinical virologists/chemists:* O. Pontesilli, C. van Tienen. **Maastricht UMC+, Maastricht:** *HIV treating physicians:* S.H. Lowe*, A.M.L. Oude Lashof, D. Posthouwer, A. Stoop, M.E. van Wolfswinkel. *HIV nurse consultants:* R.P. Ackens, M. Elasri, K. Houben-Pintaric, J. Schippers. *HIV clinical virologists/chemists:* T.R.A. Havenith, M. van Loo. **Medisch Centrum Leeuwarden, Leeuwarden:** *HIV treating physicians:* M.G.A. van Vonderen*, L.M. Kampschreur, C. Timmer. *HIV nurse consultants:* M.C. van Broekhuizen, S. Faber. *HIV clinical virologists/chemists:* A. Al Moujahid. **Medisch Spectrum Twente, Enschede:** *HIV treating physicians:* G.J. Kootstra*, C.E. Delsing. *HIV nurse consultants:* M. van der Burg-van de Plas, L. Scheiberlich. **Noordwest Ziekenhuisgroep, Alkmaar:** *HIV treating physicians:* W. Kortmann*, G. van Twillert*, R. Renckens, J. Wagenaar. *HIV nurse consultants & HIV data collection:* D. Ruiter-Pronk, B. Stander. *HIV clinical virologists/chemists:* J.W.T. Cohen Stuart, M. Hoogewerf, W. Rozemeijer, J.C. Sinnige. **OLVG, Amsterdam:** *HIV treating physicians:* K. Brinkman*, G.E.L. van den Berk, K.D. Lettinga, M. de Regt, W.E.M. Schouten, J.E. Stalenhoef, S.M.E. Vrouwenraets. *HIV nurse consultants:* H. Blaauw, G.F. Geerders, M.J. Kleene, M. Knape, M. Kok, I.B. van der Meché, A.J.M. Toonen, S. Wijnands, E. Wttewaal. *HIV clinical virologists:* D. Kwa, T.J.W. van de Laar. **Radboudumc, Nijmegen:** *HIV treating physicians:* R. van Crevel*, K. van Aerde, A.S.M. Dofferhoff, S.S.V. Henriët, H.J.M. ter Hofstede, J. Hoogerwerf, O. Richel. *HIV nurse consultants:* M. Albers, K.J.T. Grintjes-Huisman, M. de Haan, M. Marneef. *HIV clinical virologists/chemists:* M. McCall, J. Rahamat-Langendoen, E. Ruizendaal. *HIV clinical pharmacology consultant:* D. Burger. **Rijnstate, Arnhem:** *HIV treating physicians:* E.H. Gisolf*, M. Claassen, R.J. Hassing,. *HIV nurse consultants:* G. ter Beest, P.H.M. van Bentum, Y. Neijland, M. Valette. *HIV clinical virologists/chemists:* C.M.A. Swanink, M. Klein Velderman. **Spaarne Gasthuis, Haarlem:** *HIV treating physicians:* S.F.L. van Lelyveld*, R. Soetekouw. *HIV nurse consultants:* L.M.M. van der Pijlt, J. van der Swaluw. *HIV clinical virologists/chemists:* J.S. Kalpoe, A. Wagemakers, A. Vahidnia. **Medisch Centrum Jan van Goyen, Amsterdam:** *HIV treating physicians:* F.N. Lauw, D.W.M. Verhagen. *HIV nurse consultants:* M. van Wijk. **Universitair Medisch Centrum Groningen, Groningen:** *HIV treating physicians:* W.F.W. Bierman*, M. Bakker, R.A. van Bentum, M.A. van den Boomgaard, J. Kleinnijenhuis, E. Kloeze, A. Middel, D.F. Postma, H.M. Schenk, Y. Stienstra, M. Wouthuyzen-Bakker. *HIV nurse consultants:* A. Boonstra, M.M.M. Maerman, D.A. de Weerd. *HIV clinical virologists/chemists:* K.J. van Eije, M. Knoester, C.C. van Leer-Buter, H.G.M. Niesters. **Universitair Medisch Centrum Utrecht, Utrecht:** *HIV treating physicians:* T.Mudrikova*, R.E. Barth, A.H.W. Bruns, P.M. Ellerbreek, M.P.M. Hensgens, J.J. Oosterheert, E.M. Schadd, A. Verbon, B.J. van Welzen. *HIV nurse consultants:* B.M.G. Griffioen-van Santen, I. de Kroon. *HIV clinical virologists/chemists:* R. Schuurman, F.M. Verduyn Lunel, A.M.J. Wensing.

Coordinating center Board of directors: M. van der Valk, S. Zaheri. *HIV data analysis:* A.C. Boyd, D.O. Bezemer, V.W. Jongen, A.I. van Sighem, C. Smit, F.W.M.N. Wit. *Data HIV data management and quality control:* M.M.J. Hillebregt, T.J. Woudstra, T. Rutkens. *HIV data monitoring:* D. Bergsma, N.M. Brétin, L.E. Koster, K.J. Lelivelt, L. van de Sande, M.J.C. Schoorl, K.M. Visser, S.T. van der Vliet. *HIV data collection:* F. Paling, M. van den Akker, O.M. Akpomukai, R. Alexander, Y.M. Bakker, L. Bastos Sales, A. El Berkaoui, M. Bezemer-Goedhart, E.A. Djoecho, J.M. Grolleman, I. El Hammoud, M.R. Khouw, C.R.E. Lodewijk, E.G.A. Lucas, S. van Meerveld-Derks, H.W. Mulder, L. Munjshvili, C.M.J. Ree, R. Regtop, A.F. van Rijk, Y.M.C. Ruijs-Tiggelman, P.P. Schnörr, R. van Veen, W.H.G. van Vliet-Klein Gunnewiek, E.C.M Witte. *Patiënt registratie:* D. Bergsma, N.M. Brétin, Y.M.C. Ruijs-Tiggelman.

Disclosure

The authors declare no potential conflicts of interest.