Time to leave

Contextual and individual explanations for the timing of leaving home

van den Berg, L.

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Chapter 5

Student Financial Aid Reforms and Leaving Home[1]

Abstract

To save costs, young adults may delay leaving the parental home in times of welfare cuts. However, although the impact of student financial aid reforms on educational decisions has received considerable attention in previous research, the impact on leaving home has not previously been studied. Using register data, this study investigates how recent student aid reforms in the Netherlands have impacted students' home-leaving decisions. Event-history models suggest that students who started studying after the reforms are substantially less likely to leave the parental home than students who began studying before the reforms. These findings underline the importance of the family for support: The family tends to take over when state support declines. The findings for income patterns are mixed. The decrease is greater for low-income students relative to middle-income students, whereas there is no difference in the effect of the reforms between low-income and high-income students.

5.1 Introduction

Higher education is subsidized by the government in most industrial countries. In recent years, increasingly more countries have implemented reforms that have transferred some of the responsibility for financing higher education from the government to students and their families (Del Rey & Racionero, 2010). Recent changes to the student aid system in the Netherlands serve as one example of such reforms. The Dutch government introduced a new financial aid scheme referred to as the "social loan system" (in Dutch: sociaal leenstelsel) for the cohort that started in September 2015 (Regeerakkoord VVD-PvdA, 2012). Under the social loan system, the monthly study grant that all students received for the nominal duration of their studies has been abolished. This reform has raised concerns among the public about the rising inequality between low- and high-income students.

Previous research has focused on the impact of student aid reforms on enrolment. Early research in the United States demonstrated that higher tuition fees and lower student aid are associated with diminishing enrolment in universities (Dynarski, 2003; Heller, 1997; Kane, 1995; Leslie & Brinkman, 1987). However, later research outside of the United States has indicated only modest or no effects of such reforms on enrolment (Azmat & Simion, 2018; Baier & Helbig, 2014; Bruckmeier & Wigger, 2014; Coelli, 2009; Dearden, Fitzsimons, & Wyness, 2014; Murphy, Scott-Clayton, & Wyness, 2017; Nielsen, Sørensen, & Taber, 2010; Steiner & Wrohlich, 2011). Moreover, a recent meta-analysis concluded that the effect of tuition on enrolment is "close to zero" (Havranek, Irsova, & Zeynalova, 2018, p. 1171). There is also no clear evidence that differences between low- and middle- or high-income students increase after price changes in higher education (Azmat & Simion, 2018; Baier & Helbig, 2014; Chapman & Ryan, 2005; Coelli, 2009; Marks, 2005).

As most students continue in higher education despite increasing costs, they might seek other means to save money in response to these cost increases. Students are at the start of the transition to adulthood, a phase in life that is characterized by steps towards adulthood and maturity (Hogan & Astone, 1986). One of these steps is leaving the parental home to live independently. The literature on leaving home suggests that welfare regulations explain some of the cross-national differences in the age at which young individuals leave home; students leave home earlier in countries with more extensive

welfare state regulations (Aassve et al., 2002; Billari, 2004; Mulder et al., 2002). Student aid is a welfare regulation that provides financial support to young adults to leave the parental home. Following the reforms, students might delay leaving as a means to save money or because they are no longer able to afford to live independently.

In this study, I examine the role of recent student financial aid in decisions to leave home in the Netherlands. This specific reform has not previously been studied in research on the impact of student aid reforms. The implementation of the social loan system provides a natural experiment to evaluate the importance of financial support provided by the state for students' decision-making with respect to leaving home. This natural experiment setting is unique in the literature concerning leaving home. Using register data from Statistics Netherlands, I investigate seven cohorts of students who graduated from high school between 2010 and 2016, before and after the social loan system was implemented. Each cohort is studied over a period of 28 months, starting after graduation from high school. I not only consider the general impact of the reforms on leaving home but also examine differential effects by income. The guiding hypothesis is that the reforms exert the strongest effect on the home-leaving decisions of low-income students, as the parents of these students have less potential to financially support their children.

There are several reasons why it is important to study the link between student aid reforms and leaving home. First, examining the impact of a specific welfare state reform on leaving home yields insights regarding intergenerational support in times of welfare state cuts. Does the family step in when state support declines? Second, student aid reforms might exacerbate differences between low- and high-income students. If students from low-income families are more likely to delay leaving home following the student aid reforms, they might become less active in university life. As a result, student life might become increasingly segregated. Third, the well-being of parents and students might deteriorate if students are not able to leave home. Families might become "overburdened" (Settersten, 2007, p. 252), particularly families with minimal resources. Finally, student aid reforms might affect certain macro-level processes related to leaving home. For example, delayed home leaving could affect the housing market and student numbers at universities in less densely populated areas.

5.2　Theoretical Background and Hypotheses

The student financial aid system in the Netherlands

The Dutch higher education system consists of universities and universities of applied sciences. Both types of institutions are subsidized by the state. Dutch students pay a statutory tuition fee that is established by the government, ranging from €1,672 in 2010 to €1,984 in 2016. In addition to subsidizing higher education institutions, the Dutch government also provides financial aid to the student. The system of financial aid includes grants, a public transportation card, and low-interest loans. The grants are gifts that do not have to be paid back if the student obtains a higher education degree within 10 years after beginning his or her studies.

The Dutch government has implemented reforms to the financial aid system for the cohort that started in 2015. Students who started studying before 2015 received financial aid as specified in the former system throughout the nominal duration of their studies. In the new system, the basic grant that all students received for the nominal duration of their studies has been abolished. The additional means-tested grant for low-income students and the public transportation card have been maintained, and the loan options have been extended. The financial implications of the reforms are different for four types of students depending on their living situation and parental income. Students who do not live at home experience the greatest loss in financial aid after the reforms, as they previously received more money than students who still lived at home. The implications for each type of student can be found in Table 5.1 and are discussed below.

Students whose parents have a combined annual income of greater than €46,000 received only the basic grant in the former system. This grant was €100 per month for students who were still living at home and €279 a month for students who had left home. Under the reforms, students whose parental income is higher than €46,000 no longer receive a grant. Therefore, these students receive €100 or €279 less per month in the new system.

Students whose parents have an income lower than €35,000 per year received a means-tested grant in addition to the basic grant. In total, such students used to receive €339 per month if they were still living at home and €539 per month if they no longer lived at home. In the new system, all students with a low parental income receive only the means-tested grant of €378 per month. Thus, low-income

students who still live at home receive €39 more per month than under the former system, whereas those who live independently receive €161 less per month. In both aid systems, students whose parents have an income between €35,000 and €46,000 receive part of the means-tested grant based on the income of their parents.

Table 5.1: Overview of student financial aid in the old (2014) and new (2015) financial aid systems.

	Live with parents Income < €35,000			Live independently Income < €35,000			Live with parents Income > €46,000			Live independently Income > €46,000		
	Old	New	Dif	Old	New	Dif	Old	New	Dif	Old	New	Dif
Basic grant	100	0		279	0		100	0		279	0	
Means-tested grant	239	378		260	378		0	0		0	0	
Total grant	339	378	+39	539	378	-161	100	0	-100	279	0	-279

Note: Students whose parents had an income between €35,000 and €46,000 received part of the supplementary grant adjusted for parental income.

Student financial aid reforms and enrolment decisions

Most previous research regarding student aid reforms has examined the impact of reforms on educational decision-making, particularly enrolment decisions. Early research and two meta-analyses of student responses to price changes in higher education in the United States have suggested that participation in higher education declined by approximately three to seven percentage points for every US$1000 increase in tuition fees (Dynarski, 2003; Heller, 1997; Kane, 1995; Leslie & Brinkman, 1987). However, a recent meta-analysis concluded that students in the United States are more responsive to prices changes in higher education than European students (Havranek et al., 2018). Moreover, recent studies regarding the effect of specific reforms in tuition fees and student aid on enrolment found only modest or even no effects in Germany, the United Kingdom, and Denmark (Azmat & Simion, 2018; Baier & Helbig, 2014; Baumgartner & Steiner, 2006; Bruckmeier & Wigger, 2014; Dearden et al., 2014; Hübner, 2012; Murphy et al., 2017). Previous research has suggested that enrolment elasticity is rather weak in the Netherlands; there is a modest decrease in enrolment if the price of education increases (Canton & de Jong, 2005; Huijsman, Kloek, Kodde, & Ritzen, 1986). Explanations for the modest to no effect of student aid reforms on enrolment are the relatively low costs of studying relative to the benefits (Boarini & Strauss, 2010) and the role of non-financial factors, such as motivation and parental and societal expectations.

Several previous studies have examined the differences in the effects of student aid reforms between income groups. The guiding hypothesis is that lower-income students experience greater effects of student aid reforms on enrolment relative to middle- or high-income students. Their parents have fewer financial means to support them (Cabrera & Nasa, 2000), they are more likely to be debt averse (Callender & Jackson, 2008; Field, 2006), and they are more likely to overestimate the costs of studying (Grodsky & Jones, 2004). However, evidence for the role of income as a moderator of student aid effects is mixed. One explanation for these mixed findings is that most reforms have maintained a means-tested grant for low-income students, as is also the case with the recent Dutch reforms. In Australia, the introduction of the Higher Education Contribution Scheme initially had a stronger effect on low-income students than on middle- or high-income students. However, this difference disappeared once additional means-tested grants were introduced (Chapman & Ryan, 2005; Marks, 2005). In Canada, low-income students reacted more strongly to increases in tuition fees relative to students from middle- and high-income groups (Coelli, 2009). The implementation of tuition fees in Germany did not exert stronger effects on low-SES students (Baier & Helbig, 2014). In the United Kingdom, the increases in tuition fees had stronger effects on high-SES students, which suggests that means-tested grants protected low-SES students (Azmat & Simion, 2018).

Student financial aid reforms and decisions to leave home

Although reforms to the student aid system might have minimal or even no effects on enrolment in higher education, they might have an impact on other decisions that students make during this life phase. One of these decisions is the decision to leave the parental home. In some countries, such as the United States, it is common to live on campus while studying. Many students in these countries make the decision to leave home when they make the decision to attend a university. In the Netherlands, short distances between college and the parental home enable nearly all students to commute to college, and there is no on-campus housing tradition. However, leaving home is also quite common among students in the Netherlands; it is often regarded as a component of student life and a necessary step towards adulthood. In 2013, 36 percent of Dutch students were living at home (Hauschildt, 2015). Differences with countries such as the US and the UK are that most students leave the

parental home during their studies rather than when they start studying, and most students do not transition to on-campus living but to student or private housing throughout the city and neighbouring cities.

When making the decision to leave the parental home, it is expected that young adults weigh the financial and nonfinancial costs of independent living against the benefits of independent living (e.g., Avery, Goldscheider, & Speare, 1992; De Jong-Gierveld, Liefbroer, & Beekink, 1991). Some students might not be able to move out of the parental home as a result of a lack of financial resources. Welfare policies, such as student financial aid, could provide young adults with more financial resources to sustain their independent living situation and enable them to have greater financial security. The grants in the former financial aid system were substantially higher for students who had left home than for students who still lived at home. In this way, they provided students with financial means to cover (some of) the financial costs of independent living. In the new system, all students receive the same (or no) grant regardless of whether they live with their parents. One way to substitute the loss in financial resources could be by taking out a loan. However, while enrolment in higher education might be regarded as an investment in future earnings, this is not the case for leaving home. Therefore, students might not be willing to take out a loan to live independently and instead decide to stay home.

Previous research suggests that leaving home is more common in countries with a more elaborate welfare system (e.g., Aassve et al., 2002; Billari, 2004; Billari, Philipov, & Baizán, 2001; Mulder et al., 2002). These previous studies have examined welfare provisions more generally rather than focusing on changes to specific welfare regulations. Research in the Netherlands prior to the implementation of the social loan system has demonstrated that both prospective students and their parents perceived living in the parental home as a means to save money (Sociaal Cultureel Planbureau, 2013). Similarly, a qualitative study from the United Kingdom suggests that students considered methods of saving costs, such as attending college in a less expensive city than London, in response to rising tuition fees (Foskett, Roberts, & Maringe, 2009). Findings from Belgium illustrate that travel costs do not affect enrolment decisions but do affect where students study (Kelchtermans & Verboven, 2010). Based on these considerations, I expect the following: *After the implementation of the social loan system, students are less likely to leave the parental home (Hypothesis 1).*

Many Dutch students are dependent on their parents for financial support after leaving home (Druta et al., 2019). Whereas some parents in middle- or high-income families replace state support for independent living using their own financial resources, not all parents in low-income families are able to do so. Instead, low-income parents might replace state support by allowing their children to prolong their stay in the parental home. Following the reforms, low-income students whose parents are not able to support them financially may have to find a side job or take out a loan to fulfil their living costs. However, as this group of young adults is more debt averse, they are not likely to take out a loan (Callender & Jackson, 2008; Cunningham & Santiago, 2008). Therefore, particularly low-income students might stay home after the reforms are implemented. Indeed, previous qualitative studies have demonstrated that low-income families perceive staying at home as an economically pragmatic solution to reduce the financial costs and risks of studying (Christie, 2007; Davies, Slack, Hughes, Mangan, & Vigurs, 2008; Holdsworth, 2009b; Patiniotis & Holdsworth, 2005). In the United Kingdom, receiving a grant had the strongest effect on decisions regarding where to study among low-income students (Davies et al., 2008). This finding prompts the following expectation: *The decline in leaving home after the implementation of the social loan system is stronger among students whose parents have a low income than among students whose parents have a middle or high income (Hypothesis 2).*

5.3   Method

Data and sample
The analyses are based on administrative register data from the system of social statistical datasets of Statistics Netherlands (Bakker et al., 2014). The data for the students have been matched to the data for their parental household(s). The datasets contain information concerning the young adults' demographics and their secondary and higher education history, the economic characteristics of the parental household(s), and the parental family structure.

The population of this study consists of students at applied universities and those at universities who graduated from secondary education between 2010 and 2016. The students are divided into seven cohorts based on the year in which they graduated from secondary education. Two cohorts began studying after the reforms were implemented (cohorts 2015 and 2016), and the

other cohorts received financial aid as specified in the old system (cohorts 2010 to 2014). The individuals were observed for a period of 28 months (cohorts up to 2016) or 16 months (cohort 2016). The observation period began in June of the students' final year in secondary education and ended in October of the year in which they were in their third year of higher education.

The starting sample for the leaving home analyses consists of 40,783 applied university and 25,312 university students who graduated from high school between 2010 and 2016 and directly enrolled in higher education. This is a random sample of 15 percent of the population of interest. Students at applied universities ($n = 417$) and universities ($n = 236$) who moved away from their parents' home before graduation from high school have been excluded from the analysis. I also excluded applied university ($n = 172$) and university ($n = 217$) students who were younger than 16 or older than 20 years following graduation from high school. This approach was employed because only part of the risk period could be observed for these students. The final sample after excluding applied university ($n = 59$) and university ($n = 47$) students with missing values consists of 40,135 applied university and 24,812 university students.

Measures

The dependent variable is the timing of leaving home. This variable is based on household information from the students and their parents. Students are coded as home leavers if they are no longer registered as a resident of the same household as at least one of their parents. Moves are coded as "leaving home" only if the student has lived independently for at least 3 months. This measure is similar to measures in previous studies, such as the measure for leaving home in the Generations and Gender Survey (Gauthier, Cabaço, & Emery, 2018). By restricting moves to those of at least 3 months, I account for potential irregularities in the administrative data. In total, 21 percent of the applied university students and 56 percent of the university students left home.

The main independent variable is the financial aid system, measured by the year the student graduated from secondary education. The cohorts are separated into two groups: the old financial aid system (2010 to 2014) and the new financial aid system (2015 to 2016). In the descriptive analyses, I used year dummies to examine whether there is a structural break in the trend after the implementation of the new student financial aid system.

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Table 5.2: Descriptive statistics per study population.

Variables	Applied university students		University students	
	M	SD	M	SD
Leaving home	0.206		0.557	
New financial aid system	0.287		0.290	
Parental income				
Lowest tertile	0.131		0.094	
Middle tertile	0.378		0.273	
Highest tertile	0.491		0.633	
Youth unemployment rate	16.097	2.023	16.139	2.019
Man	0.477		0.486	
Age (centered)	17.808	0.709	18.318	0.542
Average grade in high school	6.566	0.436	6.882	0.577
Natural sciences in high school	0.390		0.575	
Migration background				
None	0.853		0.850	
Non-western	0.094		0.084	
Western	0.053		0.067	
Living situation				
With both parents	0.776		0.814	
With single parent	0.160		0.141	
With parent and stepparent	0.064		0.045	
Number of children in the household	2.230	0.952	2.130	0.892
Urbanity level				
Very high	0.130		0.169	
High	0.302		0.313	
Average	0.206		0.211	
Low	0.251		0.219	
Very low	0.112		0.086	
N individuals	40,135		24,812	

Note: Leaving home refers to the percentage leaving in the whole period. All other variables pertain to the first observation.
Source: System of social statistical datasets, Statistics Netherlands, own calculations

Parental income is the other independent variable of interest. It is based on the relative position of the standardized annual income of the parental household in the total distribution of private households in the Netherlands, as measured in January of the year of graduation. If the parents do not live together in the same household, the average position of the two parental

households is used. The income percentiles are divided into three tertiles across the entire Dutch population. The relative position is year-specific, and the actual income in a tertile differs per year. On average, the lowest tertile has a standardized yearly income of up to €20,000, a middle income of €20,000 to €35,000, and the highest income of more than €35,000. The descriptive statistics (Table 5.2) suggest that 13 percent of the applied university students and 9 percent of the university students belong to the lowest income tertile.

I have included several control variables. The youth unemployment rate serves as a control for macro-level economic conditions that could explain a change in home leaving during the period studied. The youth unemployment rate is time-varying, month-specific, and lagged by one month. The other control variables are individual characteristics that have been included to correctly estimate the effect of income and the interactions between income and the student aid system. The controls include demographic characteristics (sex, migration background, age, and urbanity level), characteristics regarding secondary education background (average grade final exam and field of study), and family characteristics (family structure and number of children in the household). I have used month-specific measures for family structure, number of children, and age. All other characteristics have been measured in January of the year when the student graduated from high school. Table 5.2 presents the descriptive statistics for these variables.

Analytical strategy

I have estimated discrete-time logit event-history models for the process of leaving home using person-month data covering a period of 28 months. By using event-history models, I have been able to estimate the timing rather than merely the occurrence of leaving home. The analyses have been performed separately for applied university and university students because applied universities and universities differ in terms of two aspects that are relevant for leaving home. First, students at applied universities are typically younger than those at universities, as the secondary school track required for enrolment in applied universities is 1 year shorter than that required for university education. Second, there are applied universities in 67 cities in the Netherlands, relative to only 12 cities with universities. Therefore, the average distance between the parental home and the higher education institution is smaller among applied university students.

Students started being "at risk" of leaving home 3 months prior to beginning their studies; as a result, moves in anticipation of the start of their studies have also been observed. The focus is only on young adults who have begun studying in the first year after they graduated from high school. Otherwise, left censoring could have occurred, as young adults who took a gap year after high school were already at risk of leaving home before they started studying. The risk period ended when the student left home, stopped studying, or the observation period ended (October of year three of higher education). Students left the risk set when they stopped studying because they could no longer leave home as a student. Students who terminated their studies in the last months of the academic year (between June and August) and who were again studying in September of the next academic year did not leave the risk set, as they had not adopted a different role than students during the academic year. For the same reason, students who switched fields of study were not dropped from the risk set.

The first model estimated the main effects of the financial aid system and parental income, conditioned for the control variables. In the second model, parental income and the financial aid system were interacted with each other to estimate whether the implementation of the social loan system has a stronger effect on the home-leaving decision of students from the lowest income group. The third model added a two-way interaction between the financial aid system and elapsed time since the student started studying and a three-way interaction among the financial aid system, parental income, and time. The two-way interaction between the financial aid system and time was included to determine whether the social loan system had a weaker effect over time; did it lead to a change over the entire period or a delay that recovered after a while? The three-way interaction was added to examine whether a different effect over time pertained to specific parental income groups.

5.4   Results

Descriptive results

First, I examined the trend in enrolment in higher education to determine whether enrolment has changed following the implementation of the social loan system. Figure 5.1 illustrates the trends in enrolment in applied universities (left-hand panel) and universities (right-hand panel) among

graduates of the high school tracks preparing students for applied universities or universities. The figure suggests that students were more likely to enroll in higher education in 2013 and 2014, which are referred to as the "bow-wave" years, the two years in which students believed that they had the last chance to study under the old student aid system. This increase in the bow-wave years is the strongest in the trend of enrolment within one year after graduation, which suggests that students in the bow-wave years were less likely to take a gap year than students in the other years. Enrolment in applied universities decreased slightly after the implementation of the social loan system. The percentage of students who enrolled within 2 years after graduation decreased from approximately 88 percent between 2010 and 2012 to 86.5 percent after the reforms. There was no decrease in enrolment in universities. Instead, there appears to be a stable trend towards increasing enrolment between 2010 and 2016. These findings of a minimal or no change in enrolment are consistent with previous research. Additional analyses by income groups (not presented here) suggest that the effects of the reforms did not depend on parental income.

Figure 5.1: Enrolment in applied universities (left-hand panel) and universities (right-hand panel) in 1 year, 2 years, or 3 years after graduation from high school.
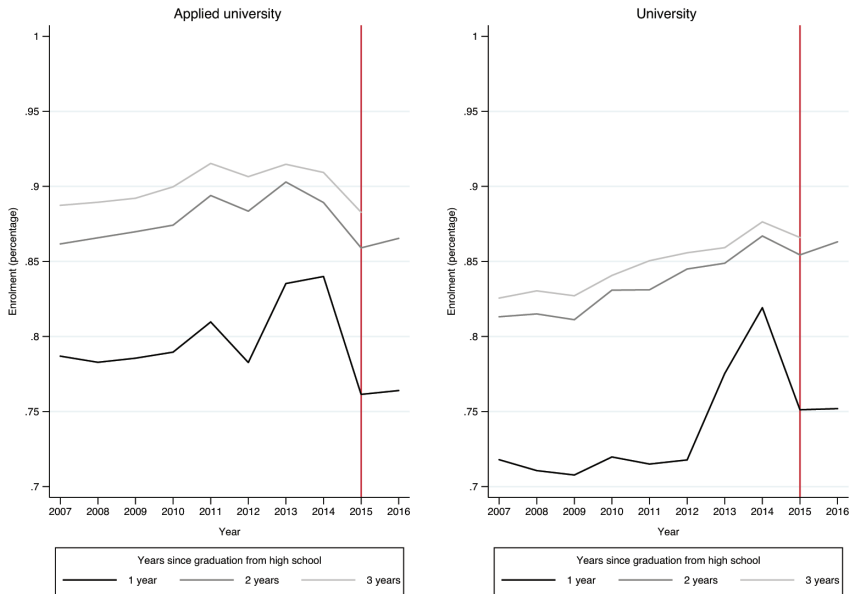
Note: The red vertical line shows the year the student aid reforms were implemented. Source: System of social statistical datasets, Statistics Netherlands, own calculations

I subsequently examined whether the implementation of the social loan system has had an impact on home-leaving decisions. Figure 5.2 illustrates the trend in leaving home measured at the beginning of the second year of higher education, 15 months after graduation from high school. The figure clearly indicates that for both applied university (left-hand panel) and university (right-hand panel) students, the likelihood of leaving home was quite stable between 2010 and 2014. During this period, approximately 18 percent of the applied university students and 49 percent of the university students had left home by the beginning of the second year of studying. After the implementation of the social loan system, the percentage of students leaving home declined to 8 percent of the applied university students and 33 percent of the university students. These findings suggest that the social loan system has had a substantial influence on home-leaving decisions.

Figure 5.2: Percentages of applied university (left-hand panel) and university (right-hand panel) students who have left home by the start of the second year of higher education, by year.
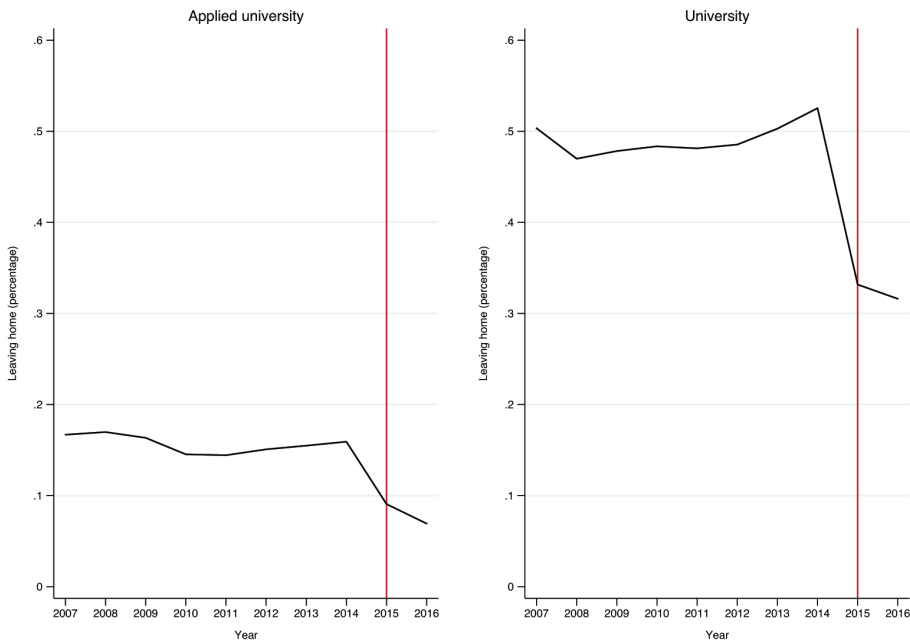
Note: The red vertical line shows the year the student aid reforms were implemented. Source: System of social statistical datasets, Statistics Netherlands, own calculations

Discrete-time event-history models

The discrete-time event-history analyses on leaving home are presented in Table 5.3 (applied university) and Table 5.4 (university). In line with Figure 5.2, students were less likely to leave home after the implementation of the loan system. Model 1 indicates that the odds of leaving home were 46 percent lower for applied university students (Table 5.3) and 45 percent lower for university students (Table 5.4) after the reforms. These findings support Hypothesis 1. Model 1 also suggests that low-income students were less likely to leave home than high-income students. There was no difference in the likelihood of leaving home between low- and middle-income students. The chance of leaving home diminished with time (negative linear time term). For applied university students, this effect weakened as time increased (positive quadratic time term), whereas for university students, this effect increased as time passed (negative quadratic time term).

Model 2 adds interactions between the income tertiles and the student aid system to the model to test Hypothesis 2, which predicts that the decrease in the odds of leaving home was stronger among low-income students than among middle- and high-income students. The findings for the income patterns are mixed. Low-income students experienced a greater decrease in their likelihood to leave home after the reforms than middle-income students. Whereas the odds of leaving home decreased by 54 percent for low-income applied university students and 49 percent for low-income university students, the odds decreased by 44 percent for middle-income applied university students and 39 percent for middle-income university students. There was no significant difference in the effect of the reforms on leaving home between low- and high-income students. Figure 5.3 illustrates the impact of the financial aid reforms on leaving home per income group for applied university students (left-hand panel) and university students (right-hand panel).

Model 3 adds a two-way interaction between the financial aid system and time, a two-way interaction between time and parental income, and a three-way interaction among time, parental income, and the financial aid system. These interactions have been included to examine whether the impact of the reforms and parental income differ over time since the students started studying. The two-way interaction between the financial aid system and time is not significant. This finding suggests that the effect of the financial aid reforms has not weakened over time. The two-way interactions between the parental

income groups and time are also not significant for applied university students. However, among university students, the decline in the likelihood of leaving home as time passes was weaker for high-income students than for low-income students. This finding suggests that the gap in the likelihood of leaving home between low- and high-income university students increases over time. The three-way interactions among income, the financial aid system, and time are not significant for applied university or university students. Overall, these findings suggest that there was no differential effect of the social loan system over time for the different income groups. In Model 3, the interaction between belonging to the middle-income tertile and the financial aid reforms is no longer significant for applied university and university students.

Figure 5.3: Survival curve for living at home for applied university and university.
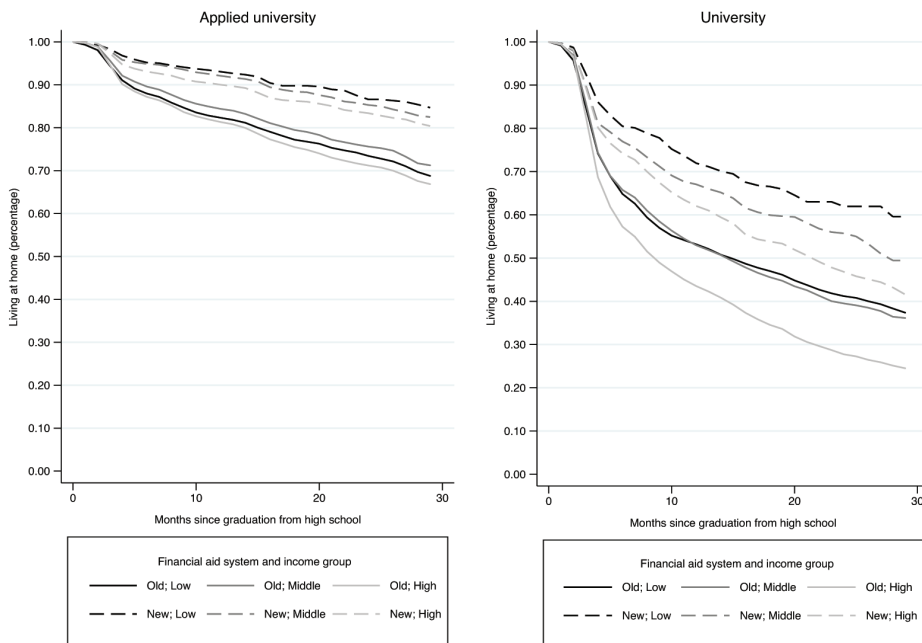
Note: The curve is split by financial student aid system and income group for applied university (left-hand panel) and university (right-hand panel) students. Source: System of social statistical datasets, Statistics Netherlands, own calculations

Table 5.3: Event-history models for the timing of leaving home among applied university students.

Variables	Model 1 HR	Model 1 SE	Model 2 HR	Model 2 SE	Model 3 HR	Model 3 SE
New financial aid system	0.537***	0.016	0.461***	0.040	0.476***	0.043
Parental income (ref. lowest tertile)						
Middle tertile	0.956	0.037	0.923	0.039	0.930	0.040
Highest tertile	1.252***	0.048	1.220***	0.050	1.219***	0.051
Time (centered)	0.943***	0.002	0.943***	0.002	0.940***	0.004
Time quadratic (centered)	1.002***	0.000	1.002 ***	0.000	1.002***	0.000
Financial aid system * income						
New system * middle tertile			1.223*	0.122	1.216	0.123
New system * highest tertile			1.167	0.111	1.143	0.112
Financial aid system * time					1.018	0.021
Time * parental income						
Time * middle tertile					1.006	0.005
Time * highest tertile					0.999	0.005
Financial aid system * parental income * time						
New system * middle tertile * time					0.996	0.013
New system * highest tertile * time					0.987	0.013
Youth unemployment (centered)	1.118**	0.005	1.018**	0.005	1.022***	0.006
Man	0.538***	0.013	0.538***	0.013	0.538***	0.013
Age (centered)	1.576***	0.027	1.576***	0.027	1.577***	0.027
Migration background (ref. none)						
Non-western	0.941	0.045	0.942	0.045	0.942	0.045
Western	1.154**	0.056	1.154**	0.056	1.154**	0.056
Urbanity level (ref. average)						
Very high	0.743***	0.034	0.743***	0.034	0.743***	0.034
High	0.952	0.032	0.952	0.032	0.952	0.032
Low	1.374***	0.045	1.374***	0.045	1.374***	0.045
Very low	1.528***	0.060	1.528***	0.060	1.528***	0.060
Average grade high school	1.232***	0.031	1.233***	0.031	1.232***	0.031
Natural sciences in high school	1.051*	0.024	1.051*	0.024	1.051*	0.024
Living situation (ref. both parents)						
With single parent	1.303***	0.041	1.303***	0.041	1.304***	0.041
With parent and stepparent	1.442***	0.061	1.441***	0.061	1.442***	0.061
Number of children in the household	0.877***	0.012	0.877***	0.012	0.877***	0.012
Constant	0.012***	0.001	0.013***	0.001	0.013***	0.001

Notes: ref. = reference. *** p < .001, ** p < .01, * p < .05. Number of observations: 697,508, number of individuals: 40,135

Source: System of social statistical datasets, Statistics Netherlands, own calculations

Table 5.4: Event-history models for the timing of leaving home among university students.

Variables	Model 1 HR	SE	Model 2 HR	SE	Model 3 HR	SE
New financial aid system	0.549***	0.012	0.505***	0.041	0.519***	0.044
Parental income (ref. lowest tertile)						
Middle tertile	0.960	0.036	0.923	0.039	0.941	0.042
Highest tertile	1.304***	0.046	1.291***	0.051	1.348***	0.057
Time (centered)	0.954***	0.002	0.954***	0.002	0.937***	0.006
Time quadratic (centered)	0.997***	0.000	0.997***	0.000	0.997***	0.000
Financial aid system * income						
New system * middle tertile			1.204*	0.110	1.183	0.113
New system * highest tertile			1.058	0.089	1.035	0.092
Financial aid system * time					1.010	0.015
Time * parental income						
Time * middle tertile					1.008	0.007
Time * highest tertile					1.022**	0.007
Financial aid system * parental income * time						
New system * middle tertile * time					0.993	0.017
New system * highest tertile * time					0.994	0.015
Youth unemployment (centered)	1.022***	0.004	1.022***	0.004	1.024***	0.004
Man	0.725***	0.022	0.725***	0.013	0.725***	0.013
Age (centered)	1.117**	0.040	1.118**	0.040	1.115**	0.039
Migration background (ref. none)						
Non-western	0.684***	0.027	0.684***	0.027	0.686***	0.027
Western	1.098**	0.038	1.100**	0.038	1.101**	0.038
Urbanity level (ref. average)						
Very high	0.726***	0.022	0.726***	0.022	0.726***	0.022
High	0.955	0.024	0.955	0.024	0.954	0.024
Low	1.345***	0.036	1.346***	0.036	1.346***	0.036
Very low	1.411***	0.050	1.410***	0.050	1.412***	0.050
Average grade high school	1.210***	0.019	1.211***	0.019	1.211***	0.019
Natural sciences in high school	1.153*	0.021	1.152***	0.021	1.152***	0.021
Living situation (ref. both parents)						
With single parent	1.129***	0.030	1.129***	0.030	1.126***	0.030
With parent and stepparent	1.169***	0.049	1.170***	0.049	1.169***	0.049
Number of children in the household	1.024	0.031	1.024	0.031	1.024	0.031
Constant	0.034***	0.017	0.035***	0.017	0.033***	0.017

Notes: ref. = reference. *** p < .001, ** p < .01, * p < .05. Number of observations: 284,702, number of individuals: 24,812

Source: System of social statistical datasets, Statistics Netherlands, own calculations

Additional analyses and robustness checks

I performed several additional analyses and robustness checks. First, I examined a two-way interaction between urbanity level and the financial aid system and a three-way interaction among the financial aid system, urbanity level, and parental income. These interaction analyses did not yield significant results. These findings suggest that the reforms did not have stronger effects on the home-leaving decisions of students from urban areas and that these effects were not stronger for students from certain income groups. An explanation for these findings could be that most students must commute relatively short distances between the parental home and university in the Netherlands. After the reforms, students from more rural areas might have more often enrolled at a university close to home, thus enabling them to commute to the university and stay at home. Second, I tested linear probability models that predict the probability of leaving home within 2 or 3 years after starting studying. The findings for these analyses are consistent with the findings of the discrete-time event-history models. Third, I conducted analyses that included young adults who enrolled in higher education 1 year after graduation from secondary education. The findings from these analyses reflect the findings reported in the paper. Finally, I performed all analyses separately for men and women. As indicated in the main analyses, women are more likely to leave home. The odds of leaving home are approximately 46 percent (applied university students) and 28 percent (university students) lower for men than for women. However, the main findings concerning the social loan system, income differences, and interactions were the same for men and women.

5.5 Discussion

In recent years, several countries have implemented cost-sharing reforms that transfer some responsibility for the financial costs of studying from the state to students and their parents. Although many previous studies have examined how such reforms have impacted enrolment in higher education, the impact on other decisions that students make during this phase in their lives has been ignored. Using register data from Statistics Netherlands, this study examined how recent student financial aid reforms in the Netherlands have affected students' home-leaving decisions.

The main finding of this research is that the student financial aid reforms have had a strong impact on students' decisions to leave home. After the reforms, the

odds of leaving home decreased by approximately 45 percent. This impact did not weaken over time; instead, it remained substantial across the entire period analysed, namely, the first 28 months after graduation from high school. These findings are consistent with previous qualitative research that shows students select a local university and prolong their stay in the parental home as a pragmatic solution to reduce the financial costs and risks of studying (Christie, 2007; Davies et al., 2008; Holdsworth, 2009b, 2009a; Patiniotis & Holdsworth, 2005). The findings also support previous research concerning differences in leaving home between welfare states, which suggest that the family can adopt the role of the state by offering a prolonged stay in the parental home (Aassve et al., 2002; Billari, 2004; Mulder et al., 2002). The present paper contributes to these previous studies by examining the impact of a change in a specific welfare regulation regarding leaving home in a natural experiment setting rather than comparing leaving home between societies with different welfare regulations, societies that also differ on other grounds.

Another goal of this research was to investigate whether the reforms have had a stronger impact on low-income students than on middle- or high-income students, as students are now more dependent on their parents' and their own income to fulfil their living costs. The results of the interaction analyses between income and the student aid system suggest that the reforms had a weaker effect on middle-income students than on low-income students, whereas there was no significant difference between low-income and high-income students. These findings are somewhat surprising because the interaction effect between income and the student aid system was expected to be linear. An ad hoc explanation could be that before the reforms, high-income students were substantially more likely to leave home than low- and middle-income students; there was more "room for change" among high-income students. The findings of modest and no differences in the effect of the reforms by parental income align with previous research that suggests that parental income has a more complex and smaller effect on leaving home than young adults' own income (Bayrakdar & Coulter, 2018; Iacovou, 2010). Moreover, among high-income students, parents might not be willing to fully replace the financial support of the state and instead prefer to support their child while living at home.

It is important to reflect on how these findings relate to the context of this study, namely, the Netherlands. In the Netherlands, studying at university is less intertwined with home leaving than in other countries, such as the United States and United Kingdom. Most Dutch students are able to commute to college from the parental home (Hauschildt, 2015). As a result, Dutch students might

be more likely to perceive staying home as an option to save costs than students in countries where leaving home is regarded as a critical aspect of attending a university. In these countries, delaying the move out of the home might be considered only by students from low-income groups. Qualitative research suggests that in the United Kingdom, primarily students with minimal financial resources considered living at home (Davies et al., 2008).

Overall, my findings underline the importance of the state and the family in the transition to adulthood. The family takes over when state support declines; the family offers more intergenerational support through co-residence in times of welfare state cuts (Heady & Kohli, 2010). Via leaving home, the student financial aid reforms may have had some (unintended) consequences.

First, the reforms might have impacted students' decisions regarding *where* to study. Students might increasingly "stay local" and study close to home at a distance from which it is possible to commute (Davies et al., 2008). Previous studies suggest that where (rather than *if*) students choose to study is impacted by student aid (Davies et al., 2008; Foskett et al., 2009; Kelchtermans & Verboven, 2010). If this is the case, universities outside of the most densely populated area in the Netherlands will face more difficulties attracting students after the reforms. Another result of remaining local could be that students less frequently opt for fields of studies that are offered only at specialized universities outside of the area near their home. Future research could examine whether students' decisions regarding the location of the university and field of study are impacted by the reforms and whether this translates into difficulties for certain universities to attract students. Second, the housing market may also be impacted. The demand for housing might decline as a result of delays in leaving home. In particular, this could impact the housing market in what are known as university cities. Students who leave home might more often seek cheap housing options to save costs and move to less expensive neighbourhoods (Hochstenbach, 2018). Third, the increasing dependency on the family might have consequences for the well-being of students and their families. The family could become "overburdened," and the well-being of students and their parents might deteriorate if students are not able to gain independence. Previous research suggests that parents' quality of life declines when a child returns home (Tosi & Grundy, 2018). Students who remain at home may be less active in student life and feel that they are missing out on the student experience (Davies et al., 2008). These issues represent areas for future research.