Tell me where you live :

How parents' location influences the education choices of French students

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Preliminary version

Prepared for the G. Becker Conference, Paris, Oct. 2011

Higher education choices are not independent from residential choices, and the former could be compelled by the latter. Studying in a big city or in Paris when the parents don't live there often involves taking separate accommodation. We relate the residential choices of students to their choice of type of study. We first show that independent living is the preferred choice of students who are not financially constrained, then comes the parental home, and after only living in a student residence. A student's choice of study is not only function of their personal characteristics and academic achievement, but also depends on their parents' characteristics, among which the home location is essential. We rely on gender differences in the supply of students' accommodation to identify potential constraints. Children whose parents live in big cities or in the Paris region are less constrained in their choice of higher education.

1. Introduction

The issue of the intergenerational transmission of human capital is of the utmost importance in societies that are concerned with income inequality and that spend a large part of national income on education. Becker and Tomes (1986) were among the first to formalize a model of human capital investment and transmission in the presence of credit constraints. Haveman and Wolfe (1995) review methods and findings on the determinants of children's attainments. They point that parents make a variety of choices such as fertility, location, and family stability that influence the returns to productive efforts. They mentioned that only a few studies such as Behrman, Rosenzweig, and Taubman(1994) attempt to estimate a structural model of the choices of post secondary education of adolescent youths. Even among studies of educational achievement or other life outcomes most relate them to parental income, employment (Ermish and Francesconi, 2000), home ownership (Boehm and Schlottmann, 1999), or to family structure or family disruption (Jonsson and Gähler, 1997, Bernhardt et al. 2005). Few have been interested in geography. Exceptions are Duncan (1994) or Durlauf (1996). The latter considers that families affect the conditional distribution of their children income through their neighbourhood choice. The "community" and peer mechanisms that are put forward are valid for primary and secondary local education. Conditional on those childhood choices,

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we want to study the choice of post-secondary education. We rely on the last survey of French students run by the *Observatoire de la Vie Etudiante* in 2010. Students provided detailed account of their studies and some new specific information on where they live and where their parents live. In France, a majority of 1st year students live with their parents. Since the supply of various types of higher education does not coincide with the students' location, and since housing costs are important we hypothesize that even when higher education *per se* is free, as is generally the case in France, housing constraints may influence the choice of education type, through the family budget constraint. Laferrère (2005) has shown that parental income influences the probability that an adult child is independent. Parents who are rich can help their child to leave, but those who are poor might be forced to push them out. This non linear income effect is compounded by housing, which is most suitable among the richest, where a pull back force keeps at home, and less adapted among the poor, where a centrifugal force is added to that income to push the child out. She questioned the disparity between students arising from the parental choice of accommodation. Laferrère and le Blanc (2004) stressed the importance of housing costs in the decision of student independence, relying on the history of the introduction of housing subsidy for identification. Angelini et al. (2011) from the European survey SHARE put forward the importance of context in the housing market on the history of leaving home in Europe, and also highlight the positive link between early nest-leaving and the level of studies finally reached. We want to check whether the choice of higher education, which is not independent from residential choice, could even be compelled by it. In section 2, we briefly present the data. Section 3 relates the accommodation choices of students to their choice of type of study. We find that independent living is the preferred choice of students who are not financially constrained, then comes the parental home, and only after a student residence. Then in section 4, we show that a student's choice of study is not only function of her personal characteristics and academic achievement, but also depends on her parents' characteristics, among which home location is essential. We rely on gender differences in the supply of students' accommodation to identify potential constraints. Children whose parents live in cities or in the Paris region appear less constrained in their choice of higher education.

2. The data

We use a new survey on French students to study how the location of the parents' home influences the choice of French students. The 6th survey of French students, *Conditions de vie des étudiants*, run by the *Observatoire de la Vie Etudiante* between March and June 2010, is part of a European Eurostudent program. It provides a sample of more than 33,000 students. The response rate is 25 percent; the students were contacted by mail and the questionnaire was on the internet. Calibrated weights are provided, making the survey representative of 85 percent of all students.

We extensively use two specific sections of the questionnaire, in which the student describes where she lives and with whom (at her parents, in a student accommodation, independently alone, or with partner or friends), and her family: parents accommodation (location, number of rooms, number of persons, siblings, income brackets and occupation for both her parents). Trimming the sample for item non responses to the questions on the student's accommodation or parental income, accommodation or location, and excluding foreign students or those whose parents live abroad or outside metropolitan France we use a sample of 26,142 observations.

3. What influences the residential choices of students

Contrary to what happens in the UK or in the US, half of French undergraduates (Bac+1 or Bac+2, meaning first and second year after the baccalaureate which marks the end of High School in France) still live with their parents. Going into higher education does not always coincide with nest leaving. The proportion of coresiding students declines with age as they pursue higher level of studies. A third coreside at level Bac+3, 22 percent at Bac+5 and only 13 percent at higher levels (Fig.1 and 2). Living in a so-called collective residence (*Cité universitaire* or *internat*, University or School provided accommodation) only concerns 11 percent of students. The proportion declines with age. At a given age an increase can be spotted at level Bac + 2 and Bac +3 when some students enter a *Grande Ecole* and live on a campus in the accommodation that goes with it. Living in an independent private dwelling increases with age and with the length of the studies. Hence a majority (51 percent) of students live in private independent accommodation that they (or their family) have to find. Most of them are renting (43 percent of all students), alone in most cases (22 percent), less frequently with a partner (11 percent) or with co-renters (10 percent). Students who own their home are 2.3 percent, those whose parents own the home are 4.3 percent.

All students are not born equal when facing residential choices, because the places where they live with their parents when in high school do not coincide with the location of the supply of higher education. Some have to leave the nest (the supply does not exist where their parents live), others have the choice (supply is large close by to where their parents live), others still could be constrained by the cost of living and choose their studies according to local supply, even renounce because of housing problem. There are important economies of scale in housing consumption, i.e. it is not much more expensive to house *n+1* persons rather than *n* in the same dwelling (Nelson, 1988). Hence the departure of a child to pursue higher education is expensive for parents, even when education itself is free or close to free. Most of the time the parents do not reduce the size of their own dwelling[2], and they must pay for the student who move to a smaller, hence comparatively more expensive

[2] Indeed in France the time of children departure from the nest is a time where residential mobility of parents is less likely (Debrand and Taffin, 2005).

dwelling. Our data exclude those who might have renounced to study because of housing prices, since only students are included in the sample. We hope to shed some light on potential constraints by looking at what is influencing the residential choices of students. We expect to find an influence of the location of the parents' home, and also of their income, controlling for location. The dwelling size and degree of crowding might also influence the propensity of students to leave the parental nest. Since most students do not work while studying, at least as undergraduates, we do not expect to find a push out effect of parental income at a low level of income, but more than rich parents are those who are able to help the student move out (Laferrère, 2005)

We first estimate descriptive multinomial Logit models of students' housing choices. Either they co-reside, or they live in collective dwellings, or they live independently (control group). Indeed, after age, and for a given age and level of studies, the parents' location (as measured by the size of the urban unit) is an important factor of the students' residential choice. The larger the size of town, the more likely the student is to live with his parents, which can be interpreted as a supply effect. The supply of higher education is concentrated in large cities : 64 percent of the places where students live are cities with more than de 500 000 inhabitants or in the Paris region, when only 34 percent of the students' parents live in such places. The effect is identical and remains significant when controlling for the place where the student studies. It shows that the supply effect is reinforced by the housing cost effect: more urban locations are more expensive, and makes it more likely *cet.par*. that the child stays home (Fig. 3). For a median student (level Bac +1, aged 20, whose parents earn between 3000 and 3500€ per month, and have another younger child) whose parents would leave Paris for a town of less than 100,000 inhabitants, the chance to coreside with them would drop from 64 percent to 33 percent. The chance to live independently would go from 30 to 55 percent The probability to live in student accommodation would go from 6 to 12 percent (this difference however is not significant).

In a second model we also introduced a dummy for the region where the parent live. France is divided into 22 regions. Introducing regions does not change the main result, but adds a significant regional effect. For a given urbanization level, students originating from Nord-Pas de Calais, from Haute-Normandie and from Alsace-Lorraine are more likely to live with their parents. The latter are also more likely to live in student accommodation. Note that once we control for region, the location effect on the choice of a collective accommodation changes. Students whose parents live in the Paris region are more likely to live in a collective student accommodation. More precise work is needed to identify what is a cultural effect or what stems from unequal student residence supply and transportation facilities.

After the parents' location, their income also has an important effect. When students are ordered by increasing decile of parental income[3], the higher the income, the less likely they are to co-reside, and also the less likely they are to live in a collective accommodation, hence the more they are living independently. The difference in the estimated probability of independence between a student whose parents belong to the 1st decile and one whose they belong to the 10th decile is 21 percentage points. The corresponding income spread in coresidence and collective housing are -12 and -9 percentage points (Fig. 4).

Girls co-reside less than boys but also live less in student accommodation. They are 6 percentage points more likely to be independent. It is a well known result that young females leave the nest earlier than males. They might be more prepared to lead an autonomous life by the various home duties they have performed (say, they are more likely to know how to cook), or be sexually more precocious, or choose different types of studies (more on this later). The gender effect on independence disappear for graduate studies (*2d cycle*), but it does not for the choice of student accommodation which is always less likely for young women than for young men.

The parental occupation have some significant effect on the top of the income effect. When the parents are self-employed the student is more likely to live independently (+6 points) . It might be cultural traits, and also come from the fact that the income of a self-employed is harder to measure than for salaried parents, and then occupation acts as an income proxy. Having a self-employed parent also makes it less likely to live in a student accommodation (-0.7 points), a public servant father makes it more likely. A student whose parents are executive, is also (+5 points) more likely to have an independent home, and less to live in students accommodation.

The housing conditions in the parents' home also play a role. Firstly the level of privacy seems important: cet.par. to have a step-parent induces to co-reside less (-2 points for a step-mother -7 points for a step-father); it is the same when one parent is deceased, especially in case of a remarriage. The divorce of the parents induces to live more in student accommodation (+3 points), but the parent's remarriage does not enhance the effect. An overcrowded home (defined as belonging to the top quartile of the distribution of number of persons per room) does *not* induce to move out. Curiously, it induces to co-reside more, not less. We interpret it as an income effect (housing conditions acting as a proxy for income) where the low income that goes with overcrowding pulls in the child more than the bad housing conditions push her out. The global positive effect come from the pure negative effect compensated by a positive income proxy effect. We interacted the overcrowding conditions with the dummy for divorced parents ; then indeed living in overcrowding

[3] The student was asked to provide her father's and mother's income in nine brackets. From the centers of those brackets and taking into account the number of parents we built ten income groups, which roughly correspond to deciles of parental income.

conditions has a negative effect on the probability to live with the parents when they are divorced. Then overcrowding goes with less coresidence, a clear privacy effect in the choice of leaving the parental home. When asked if they live at their parents by choice, a majority of students (68 percent) answer positively. They are less likely to do so if the parents are divorced, the home is overcrowded, there are more young siblings, and the time spent in commuting is larger. They are cases when the child would like to move about but is prevented by the cost.

The more younger siblings (under 18, under the responsibility of the parents) the more the student lives in a collective residence (+2 points if one or two siblings, + 7 points if more than 2) rather than be independent. It can be interpreted as a cost effect, for a given total family income the collective residence is less expensive than individual independent housing. The number of younger siblings has no effect on co-residence versus independence. It means the cost effect we just mentioned is also a privacy effect. The more younger siblings, the higher the incentive to live in a collective residence, rather than co-reside: the housing effect adds up to the income effect. Having more older siblings increases the chances of independence (3 to 4 points) while having no impact on the probability of living in a collective residence. It might be that some younger students live with their older siblings.

Where the student studies, also influences the choice (adding this control variable does not modify the previous results). Living in student accommodation is more likely is one studies in the Parisian outskirts *Grande Couronne*, a probable effect of the many *Grandes écoles* located there and of the supply of collective residences; co-residing is less likely when one studies in a big city or in Paris, a mechanical effect of the large supply of tertiary education which attracts students from further away. When we check for robustness by isolating the first year students all effects are unchanged except this Parisian outskirts effect. It is when studying in province that one is more likely both to live independently and in a student residence (Table 1).

To summarize : at a given age and level of studies, the location of the parents' dwelling commands co-residence. Then, the higher the parental income, the less co-residence, and the less collective residence, for a given parental location. To live independently is the choice of non-constraints students ; then comes the parental home, and finally living in a students' accommodation. Studying in a large city or in Paris often implies taking an independent dwelling « ceteris paribus ». It is then probable that the choice of studies is not independent from the choice of a dwelling.

4. Links between residential choice and the choice of studies at level Bac + 1

This section is interested in the link between residential choice and the choice of studies. The starting intuition is that the parental dwelling, in all its dimensions but mainly by its location, could command partly the choice of the type of further education, as some education choices go with leaving home.

The choice of which type of higher education to follow is a complex process in France. We concentrate on the choice made on leaving high school, immediately after the baccalaureate (those under 23 year olds, at level Bac + 1), in order to minimize statistical selection problems. As we do not have a sample of all young people, students or non students, we cannot study the choice to pursue higher education. If we assume, as is observed, that a majority of those who get a baccalaureate go on into higher education, since the baccalaureate itself does not provide a job qualification, we can study, not the choice to study, but the choice of which study to pursue. After the first or second year the data are censored, as only those who pursue are sampled. According to official statistics, 78 percent of all *bacheliers* go for higher education: 99 percent of those who have a general baccalaureate, 79 percent of those who get a technical baccalaureate, and only 25 percent of those who have a professional one[4] (Péan, 2010). Contrary to some other countries where the first undergraduate years of higher education are an orientation period where the student freely chooses major and minor subjects, more or less independently of what he or she plans to do in the future, the French student chooses a track from which it will be difficult to diverge. Moreover the system is dual. The baccalaureate opens the door to higher education, which can then be seen as an entitlement. But only to part of it, say "university education", is, in that sense, "comprehensive". Another brand of higher education is selective (*Ecoles, IUT*, medical school),and some students go through a selective preparation system to get in (*classes préparatoires aux grandes écoles*, 1st year of medical studies). If they fail, they go back to the non selective « *filières* ». Also most of 1st year studies are free, even if some prep school are not and some students might complement a free education with private tutorial (no information on this is provided in our data). The commonly used word *filière* of education, which can be translated by sector, but also by track, is an indication of the power of the commitment involved by the process of choices, even if bridges (the so-called *passerelles)* have been created from one *filière* to another. We postulate that a selective *filière* is more sought after (it will be more productive in terms of future income) than a non selective one, and this is the choice we study here.

In a world where all types of education are provided locally and free, we have the following relationships.

(1)Choice of type of education= f(type of baccalaureate, honor (*mention*), age, gender),

(2) Choice of residence= r(quality/location of parents' dwelling, parents' resources, supply of student's residence)

In a world where all types of education are not provided locally, but with no resource constraints on accommodation, the type of education interferes with residential choices:

[4] They make only 3 percent of those who get a baccalaureate.

(2 bis) Choice of residence= r(quality/location of parents' dwelling, parents' resources, supply of student's residence, type of education)

In a world where all types of education are not provided locally, and with added resource constraints on accommodation, not only the type of education interferes with residential choices (2 bis), but residential choices might interfere with the choice of education:

(1 bis) Choice of type of education= f(type of baccalaureate, honour (mention), age, gender, Choice of residence),

In this version of the paper we neglect colinearity and endogeneity questions and conduct a preliminary descriptive analysis of the following form (3):

(3) Choice of type of education= f(type of baccalaureate, honour (*mention*), age, gender, choice of residence, quality/location of parents' dwelling, parents' resources).

Is the choice of the type of education only a function of the student's own capacity as measured by *mention* (getting the baccalaureate with honours or not), type of baccalaureate (sciences or not, general or technical, or professional), or does it also depend on where your parents live, or even on their income ? The capability variables are but a few, and imperfect. This leads to interpret the results with caution. If for example the parents' income is found to influence choice ; it might be correlated with their IQ, and if IQ is transmitted from parents to children, the parents' characteristics may proxy the capacity of the child (Black et al. 2008, Lindahl, 2008). Conversely the parents' characteristics may have influenced the child before the baccalaureate.

We estimate a multinomial Logit model, on 1st year French students, where the five choices are STS (*Section de Techniciens Supérieurs* /technical college), IUT (*Institut Universitaires de Technologie* /technical university), CPGE (*classes préparatoires aux grandes écoles*), medical school (all 4 selective tracks) or university. Our independent variables are:

bac series, *mention (passable, assez bien, bien, très bien)*, age, sex, education level of father/mother in 3 classes, primary level or BEPC (before high school), high school, university, income deciles, father/mother's occupation (self-employed, executive, public servant), father/mother's death/divorce, location of the parental dwelling in nine urban unit sizes, residential choice of the student (co-residence or collective dwelling), location of her studies (8 urban unit sizes), dummy for a location in the same *département* as the parents. Robustness checks are conducted by introducing the variables one at a time, and by conducting the analyses on a sub sample excluding professional bac students.

The student's capability characteristics are of primary importance. On average 48 percent of French students choose a selective track after the baccalaureate ; they are 67 percent when they got mention *Bien* and 72 percent when they got mention *Très Bien*, and only 21 percent when they just passed (mention *Passable*). Similarly the type of baccalaureate shapes the choices. Getting a general

bac S (Sciences, 21 percent of all *bacheliers*) or ES (Economic and social sciences, 41 percent) increases the chances to get into a CPGE; a technical bac STI or STL increases the chances to get into STS, while S is good for medical students, and the palette is larger (with the exception of a L bac, the 20 percent who chose humanities) for IUT.

Compared to the student's own characteristics, the student's family have less explanatory power, but they do play a role. It is an indication that our no constraints model (1) is not supported (Fig. 5 and 6). The parents' characteristics play through income, location, occupation and number of siblings. We separated male and female students when necessary.

When the reference is the choice of a non selective university track, the STS are chosen by children whose parents live in rural areas, of cities of less than 100,000 inhabitants, have no higher education. Their income or occupation has no effect, except if the child's characteristics are not introduced in the model. Then having a high income (top quintile) or self-employed or executive father has a negative effect.

The probability to choose an IUT is increased by having parents outside the Paris region, of middle level of education (high school), not in the public sector, and in the top income quintile.

The more the parents are in a large urban unit or in the Paris region, the higher their income, the higher the likelihood to be in CGPE. Having executives parents, or a self-employed father also influence the choice positively. Note that having a university level father only plays significantly when we do not control for the child's characteristics. Having lost a father has a negative effect on the choice of a CPGE and that of a STS.

Choosing medical school is more likely if the parents live in a large city, outside the Paris area, if they have a high income; but it is not influenced by their occupation, nor by their level of education. Once again, the a low education level of the parent plays a negative role only if we do not control for the student's characteristics. We thus prove that parental education, and sometimes their income, play a role before higher education and determined to a certain extent the type of baccalaureate chosen and the *mention* obtained, especially for STS (negatively for top income), CGPE (positively for high education) and medical preparatory school (negatively for low education).

Summarizing, for a given observed baccalaureate level, the children of the popular classes go to university or STS, the middle class go to IUT and the upper class go to CPGE or medical school. Youths in rural areas or small town go to STS (more than university), those in the province go to IUT, those in large cities choose medical school and Parisians choose CPGE.

Taking into account gender allows to refine the picture. Being a boy makes it more likely to choose a CPGE or an IUT, being a girl, to choose medical school. This is in line of what is known of gender bias in sciences. But we also find that parental income or residence choices do not play in the same fashion by gender. Globally coresiding goes with being a STS students; IUT, CPGE go with living in a

collective residence. If we separate by gender, the picture is slightly different. Even if we cannot interpret the residential choice a the cause of the choice, it is an indicator of the constraints facing the education choice, an indicator of the local availability of the various type of higher education and student accommodation.

Choosing a section of STS allows more stay in the parents' home (Table 1). In contrast, other selective courses are accompanied by a lower likelihood of coresidence, in IUT and especially in medicine and CPGE for girls. It is accompanied by more living in a student residence for IUT and CPGE, for boys and girls than the choice of university.

Given the strong effect of the location of the parental home on education choice, the possibility of life in *internat* (the collective accommodation provided by *lycées* along with CPGE) or student residence has a positive independent effect on the probability of selecting an IUT or CPGE, at least this is how we can interpret positive effect of the variable "living in collective accommodation". Boarding partly offset the effect of location. The effect is enhanced (only for girls in CPGE) when the *internat* is in the same *département* as the home of the parents. This proximity reduces transportation costs. Co-residing with the parents has a negative effect *cet.par*.. This can be interpreted as a constraint : some student have to be able to leave the parents in order to choose a CPGE or another selective course. The interpretation is delicate, but girls in preparatory classes and independent living have longer transport times than their male counterparts (Table 1, last 3 columns).

A girl has a lower probability of choosing some selective courses (CPGE or IUT). There might be many reasons for that, but here when we focus on the choice of preparatory classes we suggest the cost, and especially housing costs, may be higher for them than for boys. We rely on the difference in parental income effect to identify the channel of the income constraints. The parental income has a strong positive effect for girls, while it has no significant effect for boys. The girls in CPGE are more often independent than boys, more often live with their parents, and less likely than boys to live in collective dwellings (Fig. 7). These differences are only weakly significant, but it could be that the effect of parental income comes from the fact that there are fewer *internat*s for girls. In fact in the first year of preparatory class 25% of boys are in *internat* against 14% of girls. The cost of housing is mechanically higher for them because it costs an average of 236 € per month in a collective dwelling (183 € for an *internat*) against 416 € in independent housing. It might therefore be useful to increase the supply of collective residences suitable for demand of women. It is possible that co-ed residences do not provide them with enough *privacy*.

A question on what motivated the choice of studies shows that 16.8 percent of 1st year students mention proximity as a reason for their choice, the third reason after their interest in the subject (66.2 percent) and having a professional or career project (63.8 percent). Choosing because of

proximity is less likely for those whose parents are in the top income decile or self employed, more likely for those who live in towns 100 000 to 300 000 inhabitants, and *cet. par*. For those who chose STS or IUT. They may be those who are censored in their choice of higher education. The effect differs for males and females (table 3). Overall girls are less likely to mention this reason for their choice, but more likely than boys to mention it when they choose Medical School or a class prep. This is in line with our previous findings.

Conclusion

This paper shows that the higher education choices of French students are not independent from their residential choices, and are sometimes constrained by them. We first showed that independent living is the preferred choice of students who are not financially constrained, then comes the parental home, and after only living in a student residence. The students' choice of study is a function of their personal characteristics and academic achievement, but also depends on their parents' characteristics, among which the home location is essential. Children of richer parents are more likely to choose a selective track, which will be more professionally rewarding, and for a given level of academic achievement and parental income, those who live in small provincial town are less likely to do so. We relied on gender differences in the supply of students' accommodation to identify potential constraints. It seems that enlarging the supply of student's residences for women and adapting them to their taste might induce them to choose more selective tracks. Children whose parents live in big cities or in the Paris region are less constrained in their choice of higher education.

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Figure. 1. Students residential choices by age

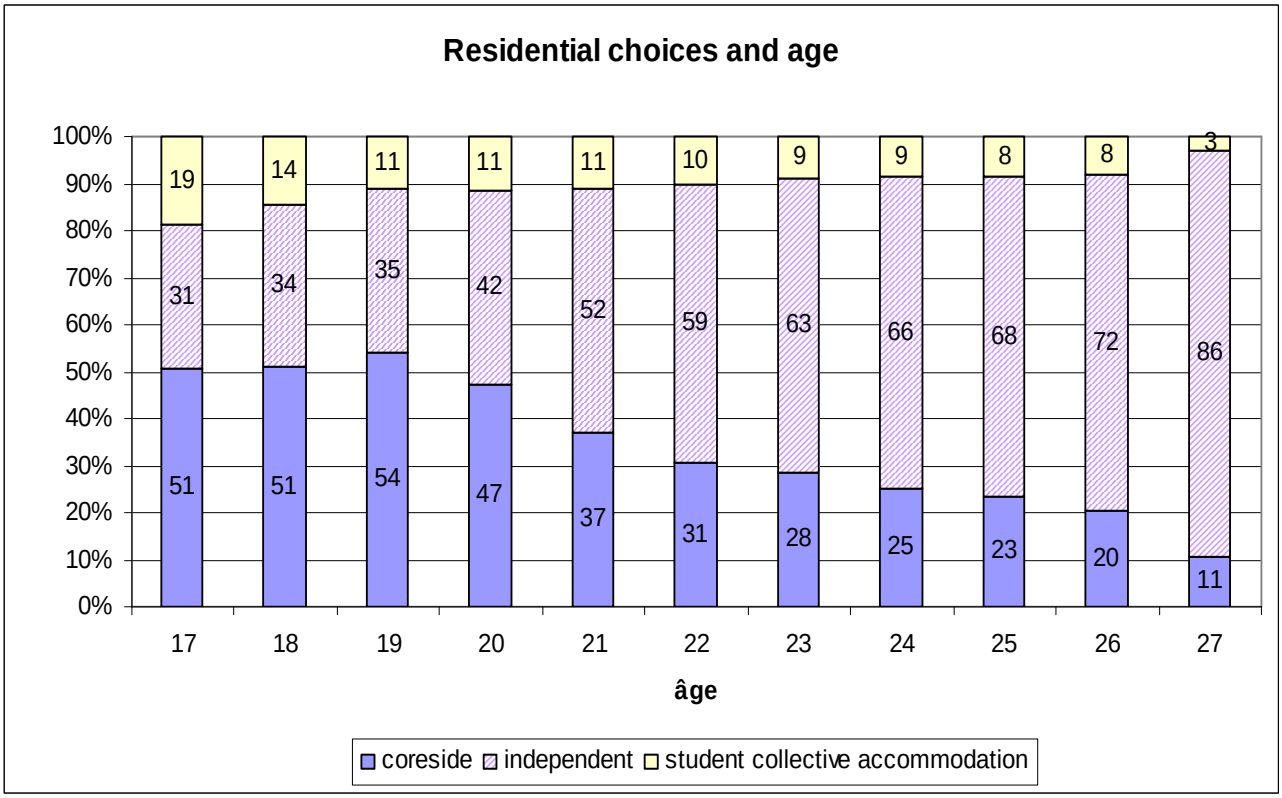
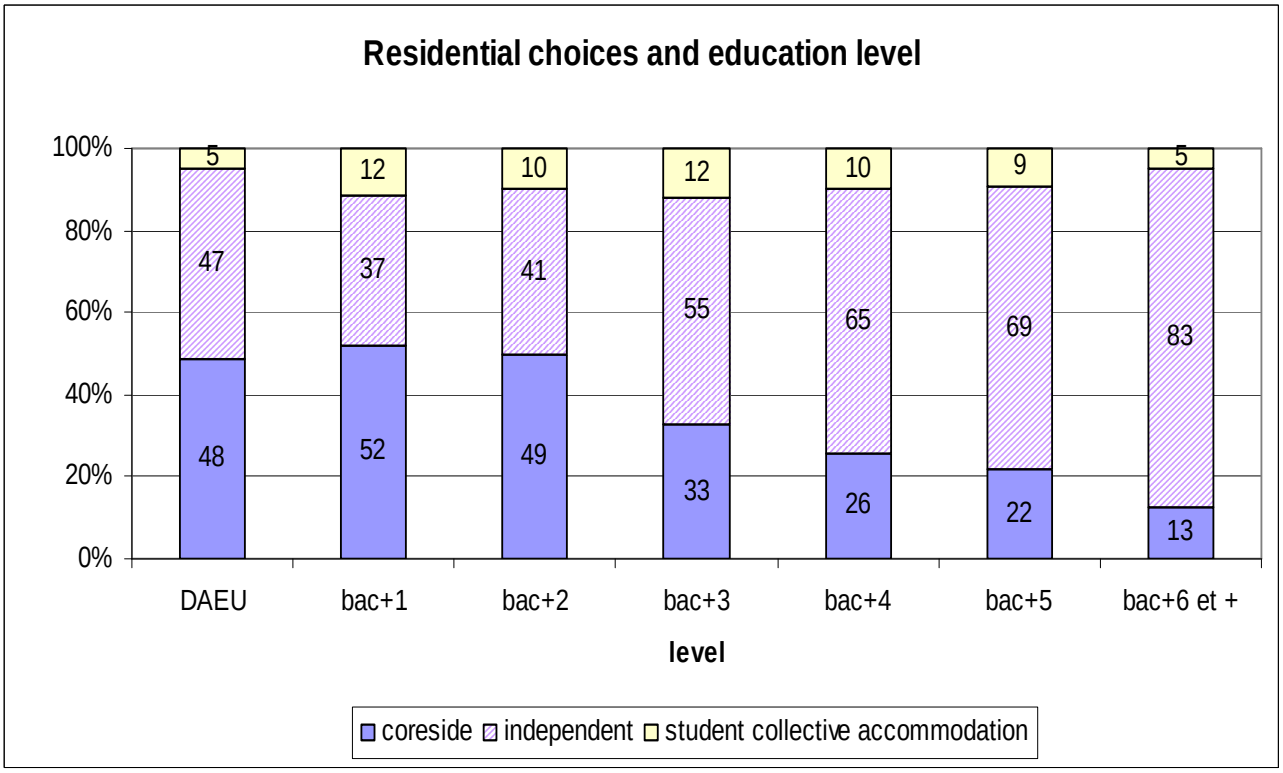
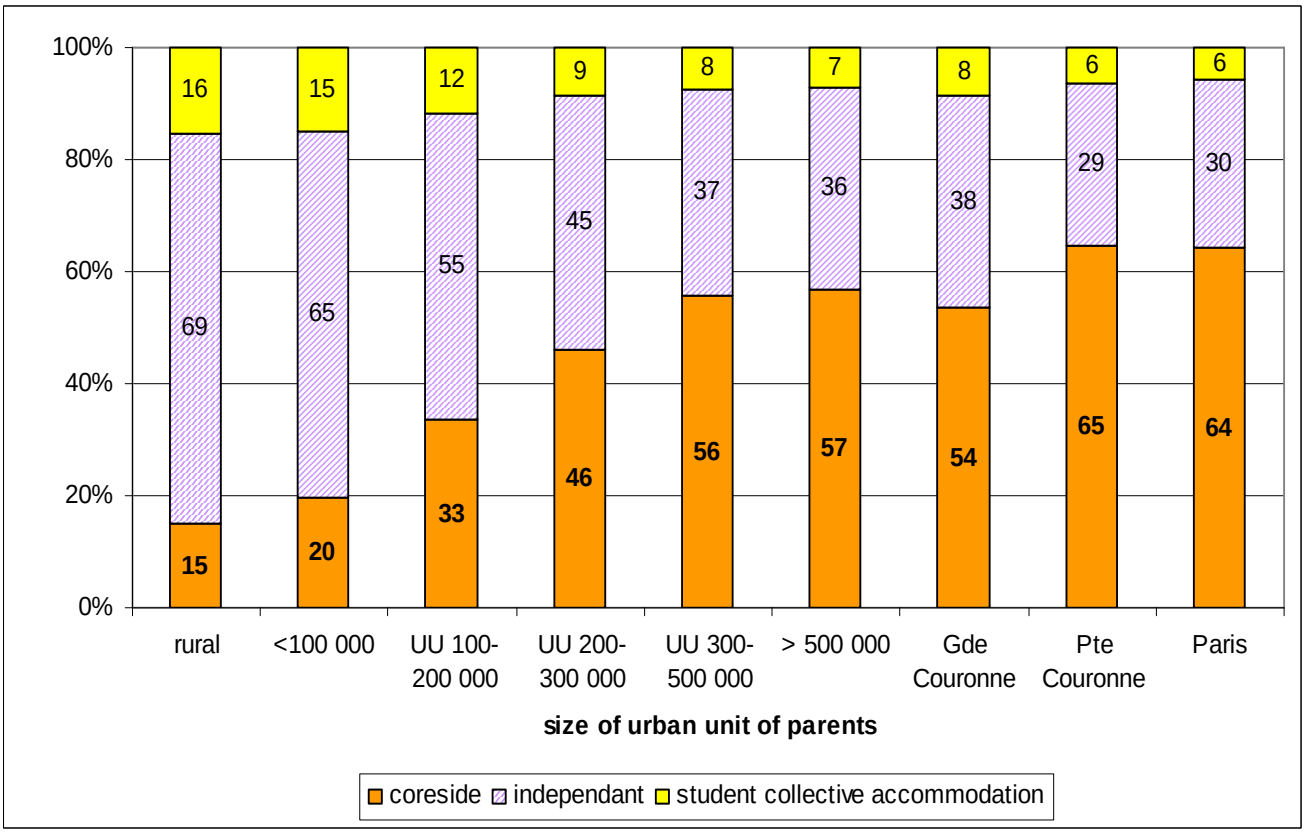


Figure. 2. Students residential choices by level of studies



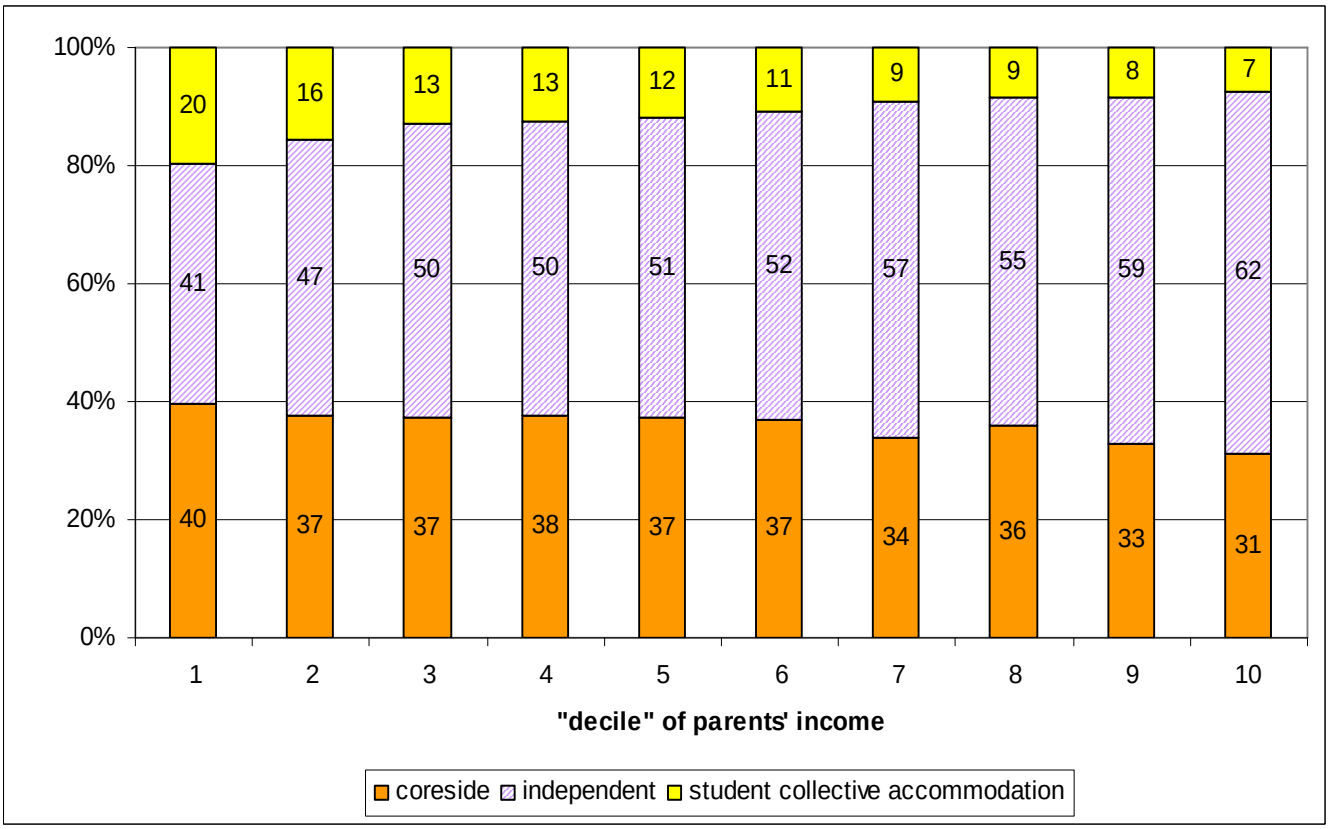
DAEU: *Diplôme d'accès aux études universitaires* (parallel admission to higher education)

Figure. 3. Estimated probabilities of housing choices: co-residence, community life or independence, as a function of the location of the parents.



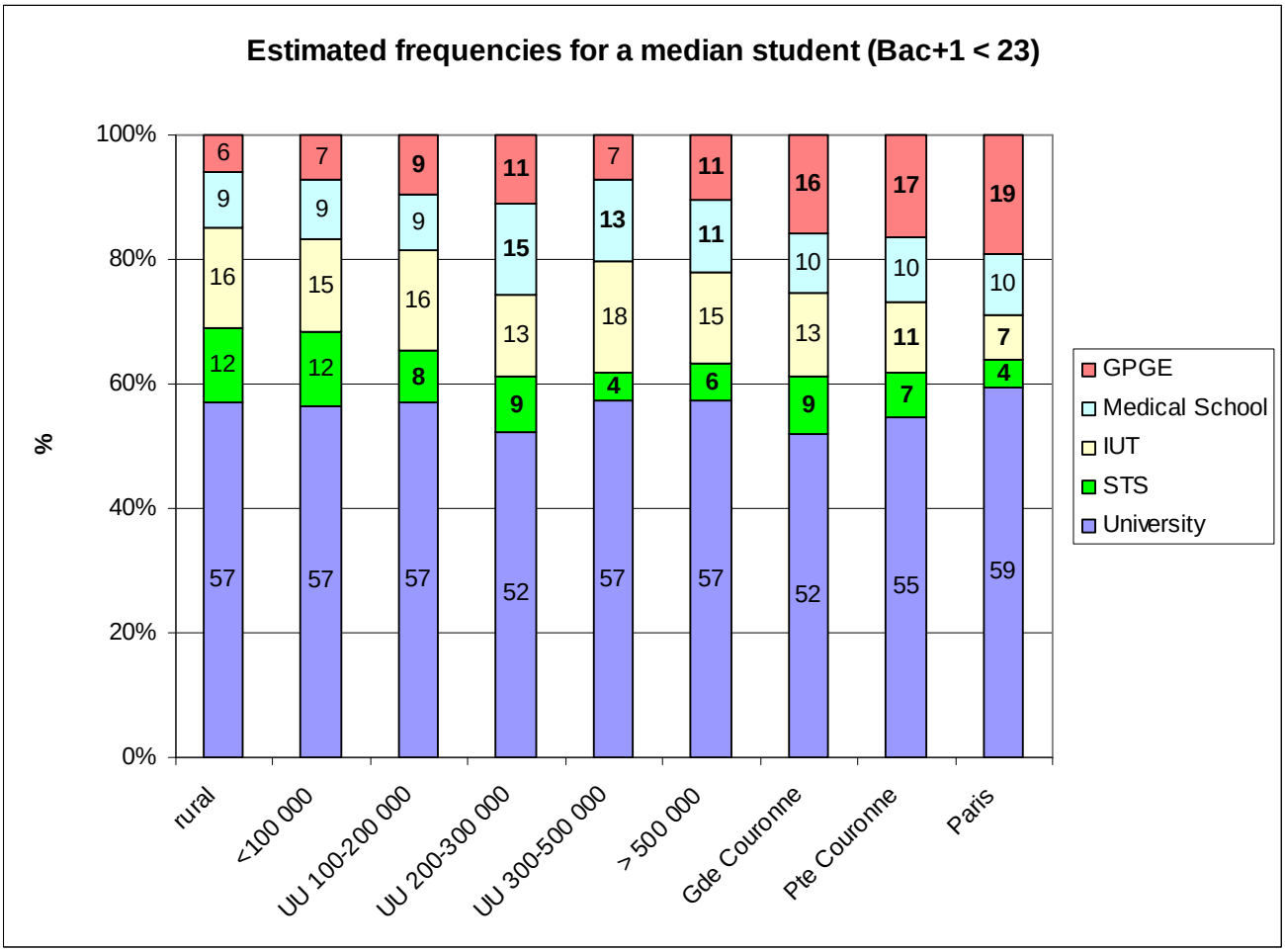
Note : Estimated probabilities from a multinomial Logit model for each of the 9 size classes of urban unit of residence of his parents, other student characteristics are fixed at their median value (see note 2).

Figure. 4. Estimated probabilities of housing choices: co-residence, community life or independence, as a function of the parents' income.



Note : Estimated probabilities from a multinomial Logit model for each of the 10 classes of parents' income, other student characteristics are fixed at their median value (see note 2).

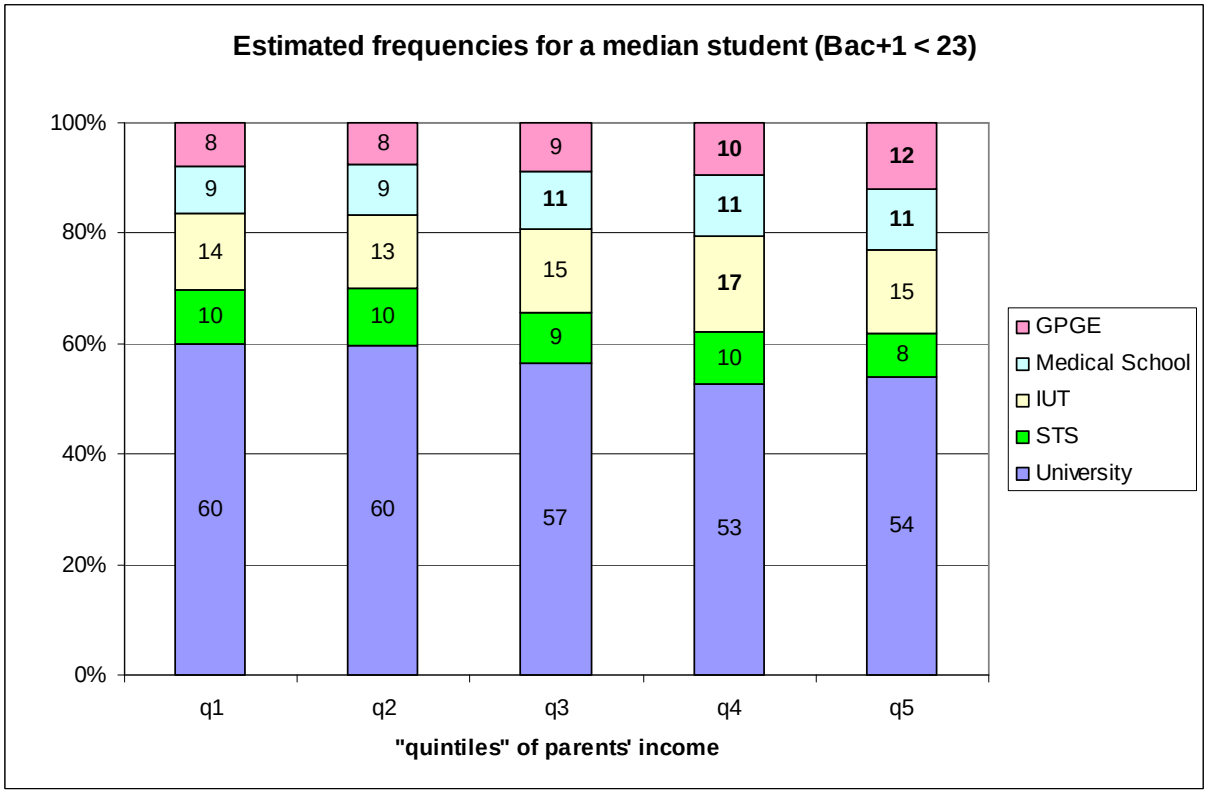
Figure. 5. Estimated probabilities of education choices (CGPE, Medical school, IUT, STS, other university) as a function of the location of the parents



Note : Estimated probabilities from a multinomial Logit model for each of the 9 groups of urban unit size of parents, other student characteristics are fixed at their median value.

Frequencies appear in bold when their difference with the reference modality (parents in a rural area) is significant. The omitted category is that of university. Differences are to be interpreted by comparison to all other possible choices. IUT are significantly less chosen if the parents live in Paris (7 percent is significantly different); and CPGE are more (19 percent). Below 100,000 inhabitants the likelihood to choose STS is the highest (12 percent, significantly different from all other places). The higher the urbanisation the higher the likelihood to choose CPGE (with the exception of cities 300-500,000 inhabitants). A student whose parents live in a large city (> 300 000 inhabitants) is more likely to have chosen a medical school.

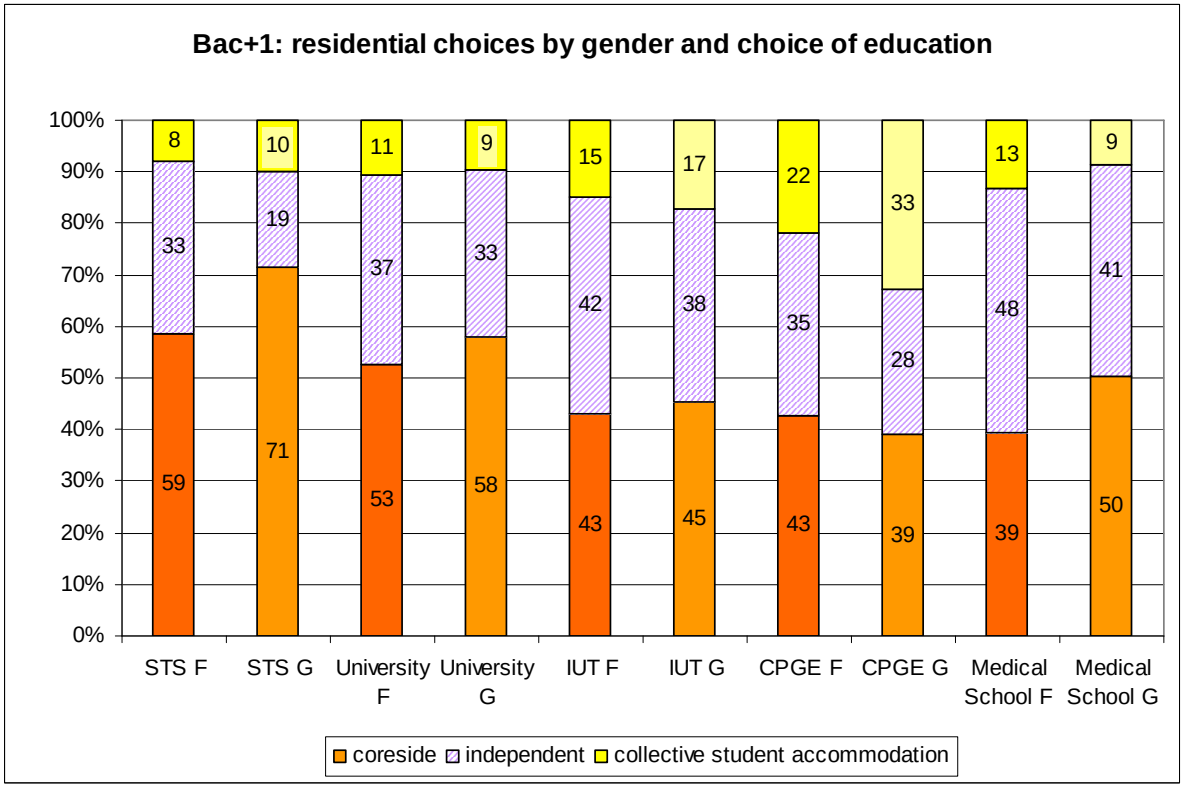
Figure. 6. Estimated probabilities of education choices (CGPE, Medical school, IUT, STS, other university) by quintile of parents' income



Note : Estimated probabilities from a multinomial Logit model for each of the 5 quintiles of parents' income, other student characteristics are fixed at their median value.

Frequencies appear in bold when their difference with the reference modality (parents in the 1er quintile) is significant. The omitted category is that of university. Differences are to be interpreted by comparison to all other possible choices. IUT are significantly more chosen if the parents belong to the 4th income quintile(17 percent is significantly different); it also the case for CPGE (10 percent) and medical school. In the two top quintile one is more likely to choose CPGE ; in the three top, medical school. Income does not play a different role in the choice of STS from that of other university choices.

Figure. 7. Choice of education and residence at level bac+1 by gender



Note : At level Bac +1 39 percent of young women (F) in medical school coreside with their parents, while 50 percent of young men (G) do so.

Table 1. Students housing choices at level Bac +1: multinomial logit

```
First inscription in 2007 or 2008
Multinomial logistic regression                 Number of obs   =       8755
                                                LR chi2(118)    =    2806.30
                                                Prob > chi2     =     0.0000
Log likelihood = -7182.9615                     Pseudo R2       =     0.1634
------------------------------------------------------------------------------
      g01bis |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
2   indep    |
       female|   .1244567   .0558014     2.23   0.026      .015088    .2338253
Parent_Inc_1 |     ref
Parent_Inc_2 |   .3872161   .1316551     2.94   0.003     .1291768    .6452554
Parent_Inc_3 |   .3903647   .1354968     2.88   0.004     .1247958    .6559336
Parent_Inc_4 |   .3712256   .1304882     2.84   0.004     .1154734    .6269778
Parent_Inc_5 |   .3049473   .1303244     2.34   0.019     .0495162    .5603783
Parent_Inc_6 |   .5250588    .136623     3.84   0.000     .2572827    .7928349
Parent_Inc_7 |    .496972   .1303264     3.81   0.000     .2415371     .752407
Parent_Inc_8 |   .5254239   .1488812     3.53   0.000      .233622    .8172257
Parent_Inc_9 |   .8013854   .1424948     5.62   0.000     .5221008     1.08067
Parent_Inc10 |   .9361927   .1446527     6.47   0.000     .6526786    1.219707
 Father
self employed|    .397782   .0772453     5.15   0.000     .2463839    .5491801
      public |  -.0275047   .0635762    -0.43   0.665    -.1521118    .0971023
      pcadre |   .2282426   .0711896     3.21   0.001     .0887134    .3677717
       pchom |   -.122807   .1683853    -0.73   0.466    -.4528361     .207222
      pfoyer |  -.1646117   .2840422    -0.58   0.562    -.7213241    .3921008
Mother
self employed|   .3331827   .0918616     3.63   0.000     .1531373    .5132281
     mpublic |   .0744466   .0607722     1.23   0.221    -.0446646    .1935579
      mcadre |   .2591776   .0765065     3.39   0.001     .1092276    .4091276
       mchom |   .1192797   .1817614     0.66   0.512     -.236966    .4755254
      mfoyer |   .3687019   .1588794     2.32   0.020     .0573039    .6800998
location of parents
UU<100000    |  -.3855112   .0966093    -3.99   0.000     -.574862   -.1961604
UU 100-200000|  -1.125524    .134889    -8.34   0.000    -1.389902   -.8611469
UU 200-300000|  -1.968783   .1410126   -13.96   0.000    -2.245162   -1.692403
UU 300-500000|  -2.428397   .1445678   -16.80   0.000    -2.711745   -2.145049
  UU >500 000|  -2.458936   .1180723   -20.83   0.000    -2.690353   -2.227518
  GCouronne  |  -2.136745   .1545758   -13.82   0.000    -2.439708   -1.833782
  PCouronne  |  -2.824267   .1821316   -15.51   0.000    -3.181238   -2.467295
  Paris      |  -2.920177   .2145259   -13.61   0.000     -3.34064   -2.499714
    nbaine_1 |   .2044302   .0678813     3.01   0.003     .0713853    .3374751
    nbaine_2 |   .2311919   .0901224     2.57   0.010     .0545552    .4078286
    nbaine_3 |   .0226979   .1174813     0.19   0.847    -.2075613    .2529571
  sibachar~1 |   .0181859   .0689751     0.26   0.792    -.1170028    .1533747
  sibachar~2 |   .0232462   .0873507     0.27   0.790     -.147958    .1944504
  sibachar~3 |  -.1078391   .1200203    -0.90   0.369    -.3430746    .1273964
   overcrowd |  -.3293198   .0768574    -4.28   0.000    -.4799575   -.1786821
     par div |   .1566924    .101605     1.54   0.123    -.0424498    .3558345
overcr. pdiv |   .8132936   .1571496     5.18   0.000      .505286    1.121301
location of studies
 UU < 100 000|   .6245293   .3105878     2.01   0.044     .0157884     1.23327
UU 100-200000|   1.211506   .3141052     3.86   0.000     .5958711    1.827141
UU 200-300000|   1.355857   .3132839     4.33   0.000     .7418322    1.969882
  UU >300 000|   1.589048    .308737     5.15   0.000     .9839342    2.194161
  GCouronne  |   .1182774   .3460354     0.34   0.732    -.5599394    .7964943
  PCouronne  |   .3514275   .3491425     1.01   0.314    -.3328792    1.035734
  Paris      |   1.105592   .3265603     3.39   0.001     .4655456    1.745638
  Step father|   .3477357    .119841     2.90   0.004     .1128516    .5826197
  Step mother|  -.1587192   .1158561    -1.37   0.171     -.385793    .0683547
        pdcd |   .0648485   .2046709     0.32   0.751    -.3362991    .4659961
  beaXpdcd_1 |  -.0366875   .3620907    -0.10   0.919    -.7463721    .6729972
        mdcd |   .6628542   .3595213     1.84   0.065    -.0417946    1.367503
  beaXmdcd_1 |   .0789433   .5140398     0.15   0.878    -.9285563    1.086443
       _cons |  -17.09467   .7738128   -22.09   0.000    -18.61131   -15.57802
-------------+----------------------------------------------------------------
3  collect   |
       female|  -.3888715   .0764378    -5.09   0.000    -.5386869   -.2390561
Parent_Inc_1 |     ref
Parent_Inc_2 |   .0123989    .161927     0.08   0.939    -.3049722    .3297699
Parent_Inc_3 |  -.3216546   .1746935    -1.84   0.066    -.6640477    .0207384
Parent_Inc_4 |  -.2767062    .164127    -1.69   0.092    -.5983892    .0449768
Parent_Inc_5 |    -.47384   .1674416    -2.83   0.005    -.8020194   -.1456605
Parent_Inc_6 |   -.436666   .1804929    -2.42   0.016    -.7904255   -.0829065
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Parent_Inc_7 |  -.5904304   .1728126    -3.42   0.001    -.9291368    -.251724
Parent_Inc_8 |  -.5815938    .200776    -2.90   0.004    -.9751076   -.1880801
Parent_Inc_9 |  -.5528395   .1968502    -2.81   0.005    -.9386588   -.1670201
Parent_Inc 10|  -.4714325   .2023641    -2.33   0.020    -.8680589   -.0748061
Father
self employed|   .1554575   .1111175     1.40   0.162    -.0623288    .3732438
     ppublic |   .0251024   .0886379     0.28   0.777    -.1486246    .1988294
      pcadre |   .3688315   .0997129     3.70   0.000     .1733978    .5642651
       pchom |  -.1687625   .2275579    -0.74   0.458    -.6147678    .2772429
      pfoyer |  -.4559274   .4031194    -1.13   0.258    -1.246027     .334172
Mother
self employed|  -.1843053    .144184    -1.28   0.201    -.4669006    .0982901
     mpublic |   .1364938   .0853395     1.60   0.110    -.0307685    .3037561
      mcadre |   .1234725   .1111824     1.11   0.267     -.094441    .3413861
       mchom |    .333032   .2314827     1.44   0.150    -.1206658    .7867298
      mfoyer |   .4271528   .2066295     2.07   0.039     .0221664    .8321392
location of parents
UU<100000    |   -.425698    .122246    -3.48   0.000    -.6652957   -.1861003
UU 100-200000|  -1.410821   .1953114    -7.22   0.000    -1.793624   -1.028017
UU 200-300000|  -1.932887   .1976582    -9.78   0.000     -2.32029   -1.545484
UU 300-500000|  -2.471529   .2111405   -11.71   0.000    -2.885357   -2.057701
  UU >500 000|  -2.609222   .1675932   -15.57   0.000    -2.937698   -2.280745
  GCouronne  |  -2.079898   .2202437    -9.44   0.000    -2.511567   -1.648228
  PCouronne  |  -2.435339   .2627971    -9.27   0.000    -2.950412   -1.920266
  Paris      |  -2.837712   .3544921    -8.01   0.000    -3.532504    -2.14292
    nbaine_1 |   .0738775    .096537     0.77   0.444    -.1153316    .2630866
    nbaine_2 |   .1905851   .1272458     1.50   0.134     -.058812    .4399822
    nbaine_3 |   .0614909   .1625762     0.38   0.705    -.2571526    .3801344
  sibachar~1 |   .2658129   .0989015     2.69   0.007     .0719695    .4596563
  sibachar~2 |   .2057137   .1256941     1.64   0.102    -.0406422    .4520696
  sibachar~3 |   .6318607   .1554318     4.07   0.000     .3272201    .9365013
   overcrowd |  -.2547635   .1084475    -2.35   0.019    -.4673167   -.0422103
   parent div|   .3239305   .1397299     2.32   0.020      .050065    .5977961
  oveXpdiv_1 |    .437239   .2134351     2.05   0.041     .0189139    .8555641
location of studies
UU < 100 000 |   .1090139   .3978061     0.27   0.784    -.6706718    .8886995
UU 100-200000|    .410473   .4034679     1.02   0.309    -.3803096    1.201256
UU 200-300000|   .7278145   .3994536     1.82   0.068    -.0551002    1.510729
  UU >300 000|   1.049656   .3927805     2.67   0.008     .2798206    1.819492
  GCouronne  |   .2716995   .4431953     0.61   0.540    -.5969474    1.140346
  PCouronne  |  -.1522873   .4673949    -0.33   0.745    -1.068365    .7637899
  Paris      |   .3211009    .429553     0.75   0.455    -.5208075    1.163009
   Step fat  |   .3021627   .1625287     1.86   0.063    -.0163876    .6207131
   Step moth |  -.1281679   .1578603    -0.81   0.417    -.4375684    .1812327
        pdcd |   -.206329   .2751623    -0.75   0.453    -.7456372    .3329791
  beaXpdcd_1 |   .1850052   .4706401     0.39   0.694    -.7374325    1.107443
        mdcd |  -.4029451   .6016319    -0.67   0.503    -1.582122    .7762318
  beaXmdcd_1 |   .7529901    .793438     0.95   0.343    -.8021197      2.3081
       _cons |   3.442104   1.165964     2.95   0.003     1.156856    5.727351
------------------------------------------------------------------------------
(g01bis==1 cores is the base outcome)
```

Other controls not shown, age and level of studies dummies.

Table 2. Link between the choice of mode of residence and type of study chosen (bac+1)

	The student lives…				Transportation time one way in minutes		
	Live with parents	In Student Accom-modation	Same départe-ment as parents	Same dé--part. and Student Accom modation.	Live with parents	In Student Accom-modation	Inde -pendent (ref)
STS F	**+**	ns	ns	ns	36	**30**	21
STS G	**+++**	ns	ns	ns	36	**18**	18
IUT F	**-**	**+**	ns	ns	44	15	22
IUT G	ns	**+**	ns	ns	38	14	16
CPGE F	**- -**	**+++**	ns	**++**	40	9	**19**
GPGE G	ns	**+++**	ns	ns	39	9	**13**
Medical Sc. F	**- - -**	ns	ns	ns	36	17	18
Medical Sc. G	ns	ns	ns	ns	37	16	16
University F	réf	réf	réf	réf	45	17	22
University G	réf	réf	réf	réf	42	19	20

Note : A sign + (resp. -) corresponds to a positive (resp. negative) coefficient in the multinomial logistic models (one per gender) linking choice of studies to the characteristics of the student and her parents. The choice of reference is that of the university, and the omitted modality independent living.

+++/- - -: 1 percent significance. + + / - -, Significance at 5 percent. + / - Significance at 10 percent. ns: not significant. F: Female; G: Male.

Table 3. Probit model of choosing the type of studies because of their proximity (marginal effects)

	dF/dx
STS	0.048**
IUT	0.040**
Medical School	-0.096***
Class prep	-0.042***
University	reference
Female	-0.066***
Female STS	0.036
Female IUT	0.001
Female Medical School	0.071*
Female Class prep	0.053**
Par. top income decile	-0.053***
Parental location	
UU 100 000 -200 000	0.040**
UU 200 000-300 000	0.058***
Paris	-0.055**
Number of obs	8901
Pseudo R2	0.0315

French students aged less than 23, whose first year is 2007 or 2008, level bac+1.

Other controls: parental income decile dummies, parental occupation, age, level of studies,

* 10 percent significant, ** 5 percent significant; *** 1 percent significant.