



Ageing Europe – An Application of  
National Transfer Accounts for Explaining  
and Projecting Trends in Public Finances

*Working Paper 2/2015*

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## **National Transfer Accounts by Education: Austria 2010**



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**Abstract:**

This paper describes the methodology for generating National Transfer Accounts (NTA) by education for Austria 2010 and presents the key results. NTA by education describe important aspects of the economic behaviour such as the generation of income, the use of transfer systems, consumption and saving by age and by education level. Education shifts key stages of the economic life course to higher ages: Higher educated persons enter the labour market later, they have children later in life and on average they retire at a higher age. Persons with higher education have higher average incomes and consequently higher consumption levels. They pay higher contributions to the public transfer systems during working life and receive higher transfers in childhood and old age.

**Keywords:** National Transfer Accounts, Economic Life Course

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## 1 Introduction

The understanding of the relation between the age of individuals and their economic activities is crucial in the evaluation of the economic consequences of population ageing. Standard National Transfer Accounts (NTA) provide age group averages of income, transfer payments and benefits, consumption and saving for the whole population. An overview of NTA for a wide range of countries is given in Lee and Mason (2011). However, there is a considerable individual variation in age-specific economic behaviour, due to differences in preferences and life circumstances. An important factor which is influencing age-specific economic behaviour is education. Population forecasts and economic projections can possibly improve by taking changes in the age- and educational structure of the population into account. In this paper I compile National Transfer Accounts (NTA) by education to give an overview how age-specific economic activities differ between educational groups. The generation of NTA by education constitutes an important step to capture and illustrate the individual variation in the design of the economic life course.

### 1.1 Literature

In the Latin American countries quite some work on NTA by socioeconomic status has been done already, motivated by the high income inequality in these countries. The usual approach is, to calculate economic quantities by characteristics of the household, e.g. education of the household head. For Chile a quick overview of NTA by education of the household head is provided in Miller et al. (2014). Tovar and Urdinola (2014) calculate age-specific economic behaviour by the quartiles of a multidimensional quality of life indicator for Colombia. This indicator includes information on the education of household members, living comfort, quality of the dwelling and access to infrastructure. They also compare this method with the results when the education of the household head is used as indicator of socioeconomic status. And Turra et al. (2011) analyse public transfer flows by income quantiles for Brazil and Chile. The focus in this type of work is inequality and the transfers between households with different socioeconomic characteristics. For Austria the NTA by education are calculated by the characteristics of individuals, i.e. not at household level. The focus is less on inequality but

on the differences in age-specific economic behaviour between educational groups.

## 1.2 Population by Education

Three different levels of education are distinguished: Basic education includes those with only compulsory education, persons with an apprenticeship (Lehre), those who visited an intermediate technical or vocational school (Berufsbildende mittlere Schule), persons with master craftsman examinations (Meisterprüfung) and those who finished a medical and health care school (Krankenpflegeschule). The second group consists of those who completed higher secondary education (Berufsbildende und Allgemeinbildende höhere Schulen), thus a school type which leads to the qualification for university entrance (Matura). The third group consists of those who have tertiary education, thus a university degree, a degree from higher vocational education (Fachhochschule) or an academy (e.g. Pädagogische Akademie). According to the International Standard Classification of Education (ISCED) basic education includes level 2 (compulsory education), part of level 3 as well as part of level 5 (master craftsmen). Higher secondary education consists of education tracks in ISCED 3 (general higher education) and ISCED 4 (vocational higher education, health care schools). Tertiary education includes the largest part of level 5 and 6. The classification different to ISCED levels was motivated by the availability of the information on education in the data sources. In particular the distinction between ISCED level 3 and 4 is difficult in Austria, as the first two years of higher vocational education belong to level 3 and the final three years to level 4. While most of the data provide information on school type, virtually no data source allows the distinction by grade. Even official statistics on expenditure by ISCED level are inconsistent and include total expenditure on higher vocational schools in ISCED 3.<sup>1</sup>

The Austrian NTA by education are generated for the year 2010, because this is also the latest year for which non education-specific NTA data is available. For 2010 I did not find data on the population by education in single years, the register based Labour Force Survey (LFS) 2010 provides data only in 5-year age groups. For getting age- and education-specific data I combine

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<sup>1</sup>Statistics Austria; Public Education Expenditure by ISCED Level

data on highest completed education and enrollment from the census 2011<sup>2</sup> with population data from 2010<sup>3</sup>. I.e. the age-specific rates are calculated from the 2011 census data and applied to the 2010 population data. The use of 2011 census data seems to be a good approach: A comparison of attainment rates in 5-year age groups between the Census 2011 and LFS 2010 shows that the differences are small. The results and a short discussion can be found in Table 6 in the Appendix. It also includes a comparison of population numbers from register based data and estimates based on survey data from the European Union Statistics on Income and Living Conditions (EU-SILC) 2011 and the Consumer Expenditure Survey (CES) 2009/10.

Persons who finished their formal training are assigned to educational groups according to the highest level of education they have completed. Those who are still enrolled in formal training are assigned to the group the current program belongs to. An exception are higher secondary students: About 64 percent of higher secondary students are assigned to the tertiary level. This corresponds to the share of higher secondary students who continue in tertiary education. The approach is motivated by a reasonable estimation of the public education expenditure age profile for tertiary education. The age averages of the expenditure should give us an idea how much is spent on education for a person until it reaches a tertiary degree. However, education expenditure at age 18 for example is considerably lower for tertiary students than for those in higher secondary education. Using the profile of average expenditure only for those who are enrolled in a tertiary programme would ignore the fact that most of those who later go to university are still in higher secondary education at age 18. The transition from basic to higher secondary education is less problematic because the spending per student in these groups is about the same. Table 1 shows the educational composition of the population by age. Well visible is the increasing share of young persons obtaining a tertiary degree. Only about 5 percent of the persons aged 70+ have completed tertiary education, while about 27 percent of persons at age 20-29 have obtained a tertiary degree or are enrolled in a tertiary programme.

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<sup>2</sup>Source: STATcube – Statistical Database of Statistics Austria; Census 2011

<sup>3</sup>Source: EUROSTAT; Population by age and sex

**Table 1:** Educational Composition of the Population by Age in Percent

Age	Basic	Higher Secondary	Tertiary
10-19	72	10	18
20-29	58	15	27
30-39	63	15	22
40-49	72	13	15
50-59	78	9	13
60-69	84	8	9
70-79	89	6	5
80+	89	7	5

*Sources:* Author's own calculations based on  
 STATcube – Statistical Database of  
 STATISTICS AUSTRIA: Census 2011

### 1.3 Adaptations of the NTA Methodology

#### Household Head

For the generation of "traditional" NTA one person in the household is identified as household head. In Austria it is the household member with the highest personal income from work and public transfers. Only the household head is involved in inter-household transfers, holds assets, receives asset income and saves. A special role has the household head in the calculation of intra-household transfers: It is assumed that the household head covers the consumption of other household members if the household income falls short of consumption. The other household members are assumed to transfer an excess of resources to the household head so that he/she can save it. The household head assumptions are made for convenience, assets usually do not belong to a single household member and it is certainly not only one person who receives asset income, pays transfer to other households or finances the deficit. Sensitivity analysis shows, that the overall age profiles are not sensitive to the way how the household head is defined. However, when calculating NTA by socioeconomic groups where the household members differ in their membership to one or the other group, the household head definition can be problematic and influence the results considerably. If the share of household heads differs by socioeconomic groups there are huge differences in asset income, saving and in the transfers they are receiving or paying. With regard to education it is more likely that the household head is the person with the higher education level as higher education goes usually hand in hand with higher income. Instead of assigning the position as head to one single person I treat all adult members of the household in the same

way. Adult persons are all persons age 30 and older, as well as persons of age 19 and older if they have finished their education. If there is not such a household member (e.g. student households) all persons of age 19 and older are treated as adults. In the rare cases that even this rule does not identify an adult in the household (e.g. young student of age 18 living by him/herself) I give the role of being an adult to the oldest member. The most important effect of the change in the methodology is certainly, that asset income is shared by all adult household members instead of being allocated to the person identified as household head.

### **Estimation and Adjustment of Profiles**

Aggregate data are not available by education level. The education specific profiles should of course be consistent with these data and the age profiles which are generated in the core (non-education-specific) NTA. The education- and age-specific averages are therefore adjusted so, that the sum of the education-specific aggregate age profiles (age profile by education multiplied with the population in the corresponding education level) over all education levels is equal to the total aggregate profile (NTA profile times total population). The values are adjusted proportionally: If for example the sum of the education specific aggregate profiles exceeds the NTA aggregate profile in a certain age group by 10 percent, the education specific averages in this age group are reduced by a factor  $100/110$ .

### **Public Transfers in the Category "Family and Children"**

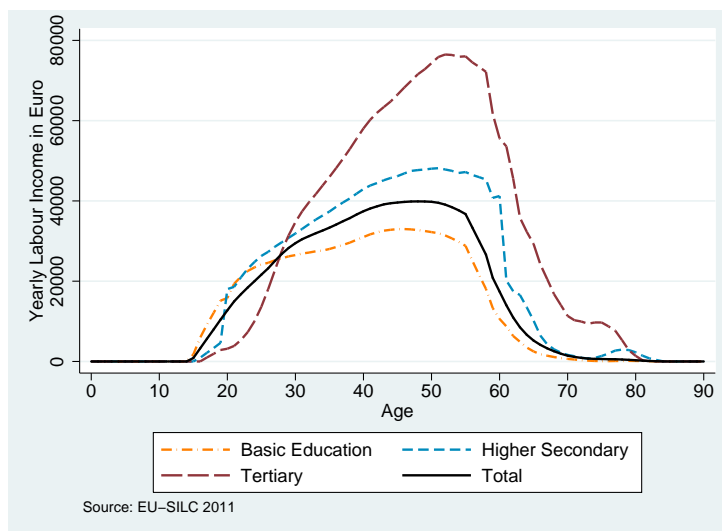
In most countries the transfers received in the category family and children are assigned to the household head. I try a different approach by assigning these transfers to the parents of the children in a ratio inverse to their labour income. These transfers have the purpose of compensating the parents for the reduced labour income and the burden of having children. In this light the approach of assigning these transfers to the parents seems correct. I also tried to assign part of these transfers to the children, as suggested in the NTA manual (UN (2013)). However, a large part of these transfers are care benefits received by the parents of children aged 0-3. Therefore a high public transfer income would be assigned to the children, resulting in a private transfer from children to the parents.



## 2 Income

### 2.1 Labour Income

An important function of education is the enhancement of productivity, which is reflected in the higher average labour income of those with higher education (Figure 1). Persons with a lower education level enter the labour market earlier, they have therefore a higher average labour income at younger age. But those with higher education reach a higher level of labour income later in life. This pattern reflects both, the higher wages per worker and the higher participation rates among the persons with higher education. To get a better idea about the size of these two effects we will have a look at the underlying participation rates and the labour income per employed (incl. selfemployed) person.



**Figure 1:** Labour Income by Age and Education

The share of the population by economic activity status, age and highest completed level of education is shown in Table 2. In the age groups from 30 to 49 the difference in the employment rate (including self-employment) is few percent between those with basic and those with tertiary education. These differences can be mainly explained by differences in the unemployment rate and the share of persons on parental leave. From the age of 40 the employment rate is clearly higher for those with higher education. Particularly high are the differences in older age groups: Of the persons aged 50 to 59 with tertiary education around 89 percent are employed, compared

to around 61 percent of those with only basic education. And in the age group 60 to 69 it is 26 percent of the tertiary group, compared to about 4 percent among those with basic education.

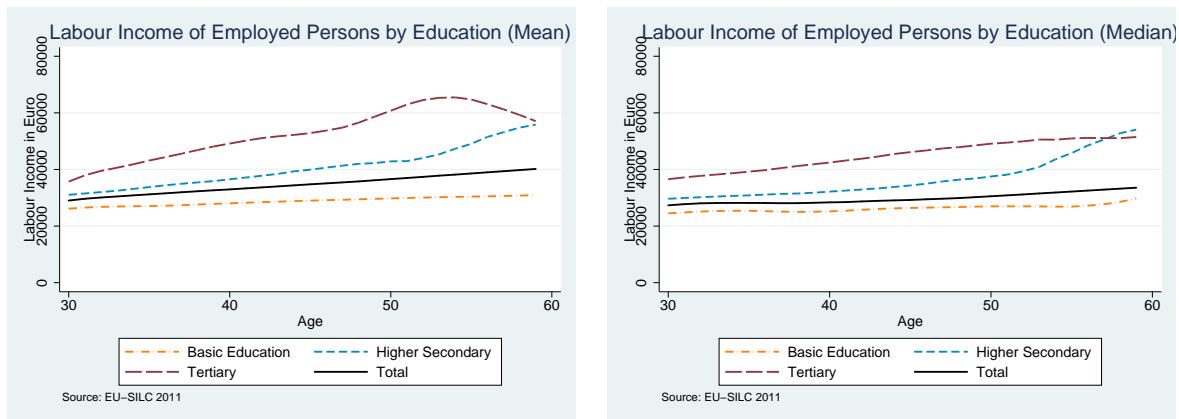
**Table 2:** Activity Status by Age and Education: Percent of Total Population

Age	Education	Empl.	Student	Unempl.	Parent	Domestic	Retired	Other
20-29	Basic	75.4	1.6	10.4	7.9	2.5	0.1	2.2
	Higher S.	67.9	18.9	4.4	4.9	1.8	0.0	2.1
	Tertiary	35.4	60.0	1.0	2.8	0.3	0.0	0.5
30-39	Basic	73.5	0.4	10.5	5.6	7.1	0.9	2.0
	Higher S.	79.5	0.5	5.6	8.4	5.5	0.0	0.5
	Tertiary	77.2	5.9	2.5	9.2	4.2	0.5	0.5
40-49	Basic	83.5	0.2	6.8	0.1	5.5	2.0	1.9
	Higher S.	89.2	0.3	4.0	0.1	4.2	1.1	1.0
	Tertiary	90.9	1.3	1.3	2.0	3.7	0.2	0.5
50-59	Basic	61.4	0.0	9.0	0.0	7.2	19.1	3.4
	Higher S.	78.1	0.0	4.4	0.0	5.5	9.6	2.3
	Tertiary	89.0	0.2	3.6	0.0	1.3	5.6	0.4
60-69	Basic	3.9	0.0	0.9	0.0	7.5	87.3	0.4
	Higher S.	10.7	0.0	0.5	0.0	6.9	80.9	1.0
	Tertiary	26.0	0.7	5.5	0.0	3.7	62.8	1.2

*Source:* Statistics Austria, EU-SILC 2011

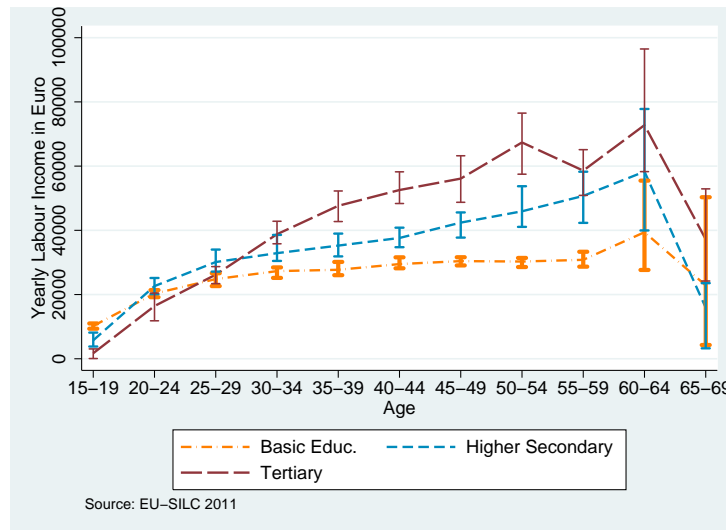
The differences in labour market participation rates explain an important part of the differences in average labour income between educational groups. But clearly also the average labour income by worker differs between educational groups. Figure 2 plots mean (left) and median (right) of the income per active person. Average labour income is about the same in all age-groups for those with basic education. For those with higher secondary education and tertiary education the average and median is clearly higher in older age groups. However, the increase with age is much lower than would be expected from the age-profiles in Figure 1, reflecting the large influence of the employment rates on the age averages of labour income.

Interesting is the age pattern of labour income for those with tertiary education and higher secondary education. While average labour income for those with tertiary education peaks around age 55, there is a pronounced increase for those with higher secondary education after age 55. The peak in the tertiary group seems to be generated by certain observations with very high income, as it is not observable in the graph with the median. What NTA usually do not report is the precision of the estimates, thus something like a confidence interval. For some variables it is simply impossible or very difficult to provide confidence intervals, but for labour income we can get es-



**Figure 2:** Labour Income of Active Persons

timates. The means and confidence intervals of the labour income estimate by 5-year age groups are plotted in Figure 3. These are the bias-corrected confidence intervals calculated by the STATA function bootstrap. With the exception of the beginning and the end of the usual working life (20 to about 60) the age group averages are clearly significant different by educational groups. However, for the age-groups older than 54 it is with our data not possible to say if the averages of those with higher secondary education and those with tertiary education are indeed different. There is a huge variation in the size of the individual labour income and, because a considerable share of the population is retired already, the number of observations is quite small. We of course know that persons with a higher education level earn more. The results for the confidence intervals only show, that our estimates can be reversed simply through the random choice of the (rather small) sample.



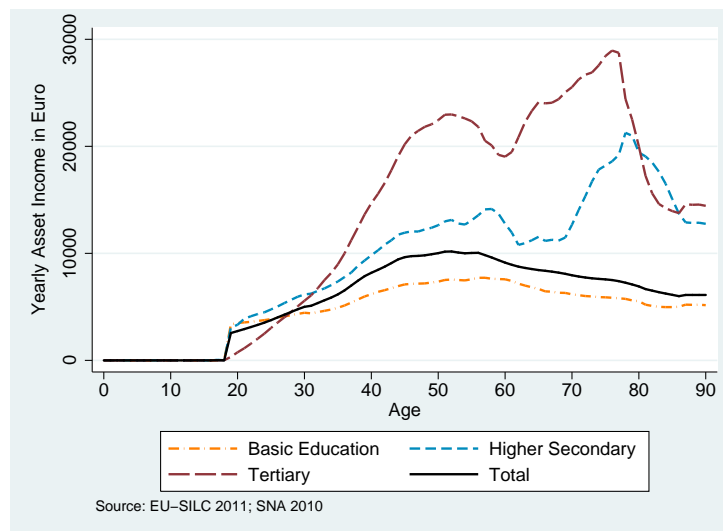
**Figure 3:** Labour Income by Age and Education: Confidence Intervals

## 2.2 Private Asset Income

Private asset income in NTA is the return to private capital input in the production processes. Important parts of asset income are the net operating surplus of corporations, the capital share of mixed income (i.e. the capital income of non-incorporated enterprises), the net operating surplus of households (consisting of the value of housing in owner occupied dwellings) and the interest payment of households (representing negative asset income). The quantitatively most important type of asset income is clearly the net operating surplus of corporations. In NTA it is assumed that the operating surplus of corporations is fully distributed to households in form of dividends and interest payments. As this type of asset income is in surveys (EU-SILC) given only at household level, I distribute it to all adult persons in the household. The age-profiles are then calculated by taking age- and education-specific means. The capital share of mixed income is distributed by age and education according to the age profiles of self-employed labour income. The operating surplus of households is distributed according to the age profile of imputed rents (assigned to the adult persons in the household). And the age profiles of interest payments of households are estimated using data from the Household Finance and Consumption Survey (HFCS).

The smoothed age profiles of asset income are shown in Figure 4. There is clearly a huge difference in the average amount of asset income between educational groups. The average asset income of person with tertiary edu-

cation is much higher than of persons with higher secondary or basic education. The exact shape however is not clear. There is a considerable random variation in the estimates of the age-specific asset income, because there is a huge variance in the size of the reported asset income and there are age groups with only few observations. This is particularly true for higher secondary and tertiary education as the number of observations especially in older age groups is low. It seems that the average asset income decreases in older age groups. The pattern might be, at least partly, a cohort effect: Older generations have been saving less because of their lower real income over the life-cycle. See Börsch-Supan (1995) for German data. But the most likely explanation for the decreasing asset income in older ages is capital transfers to younger generations. It is common practice to transfer assets not in form of bequests but in form of gifts or presents. One reason is to avoid recourse to the assets in case the asset holder needs long-term-care in public institutions or the market; if there are no assets available (i.e. if they have been transferred early enough to the children) long term care is financed by the public sector.



**Figure 4:** Private Asset Income by Age and Education

### 3 Private Consumption

NTA distinguishes private consumption into the subcategories education, health and other private consumption. The estimates are based on the Consumer Expenditure Survey (CES) 2009/10.<sup>4</sup> In Austria health and educa-

<sup>4</sup>Source: Statistics Austria

tion are with around 3.5 and 0.8 percent of total only minor components of private consumption. Private consumption expenditure is measured only at household level. Depending on the type of consumption different methods are used to allocate household expenditure to the individual members. The education-specific age profiles are finally calculated by taking the averages at each age by education level.

### **Private Health Consumption**

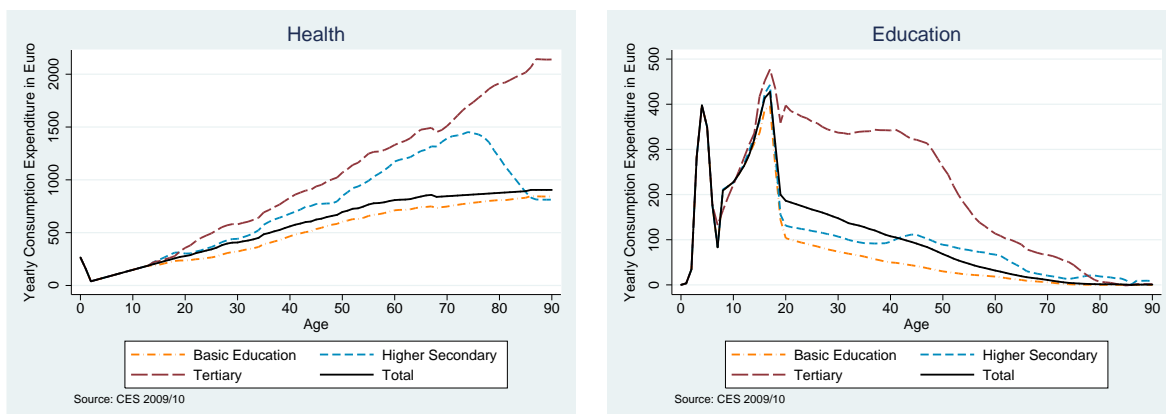
For distributing the households' health expenditure to its members we use weights which are generated with the iteration method suggested in the NTA manual (UN, 2013, p. 100), using information on the households' age-composition and the households' health expenditure. Not surprisingly, the estimated age profiles show a strong increase with age (Figure 5). The differences between educational groups reflect the income differences, with health consumption of higher educated persons increasing more strongly with age. The shape of the profile for higher secondary education is irritating, as there is no explanation for the lower average consumption expenditure in old age. But it has to be kept in mind that there is a high uncertainty in the estimates. It is unfortunately not possible to calculate confidence interval for these estimates, because we do not observe the total individual variation in the expenditure. The "observed" health expenditure of an individual is dependent on the household structure and only means that somebody in the household has bought products and services in the category health in the 2 weeks the households' expenditure was recorded. There is a huge variation in the occurrence of the event "health consumption is observed" as well as in the amount of money spent. The lower consumption of the persons with higher secondary education around the age of 90 as compared to those at age 75 can be regarded as random effect. There is no indicator in other data on health use or health expenditure which would support such a finding.

### **Private Education Consumption**

In the CES education expenditure is very detailed divided into expenditure for preschool, primary school, lower secondary school, upper secondary and tertiary education, school activities, and expenditure for vocational education and courses. Total household expenditure in these categories is

assigned to the enrolled members in the appropriate age group. The expenditure on school activities are allocated in equal shares to all household members who are enrolled in education. Unfortunately there is only one category of upper secondary education, basic and higher secondary education can therefore not be distinguished.

The age profiles cannot be estimated by simply taking age-group averages by educational groups, because there are no children who have a tertiary degree or are enrolled in tertiary education. I assume that education is acquired in consecutive stages, thus that those who pursue tertiary education do so after acquiring higher secondary and basic education. I first calculate a profile of basic education expenditure. This profile is used as basis for all educational groups. Furthermore, the education-level-specific age profile of adult education expenditure (courses of general and vocational education) is estimated and added to the basic profile of education expenditure. Additionally I estimate the private consumption expenditure for tertiary education which is added to the corresponding age profile. The most important component of private education expenditure is expenditure on elementary schooling (kindergarten), reflected in the peak around the age of 4 and 5 in Figure 5. Another peak is in upper secondary education. The average education expenditure is considerably higher for those with tertiary education in all adult age groups, reflecting the fees for the university and their higher expenditure for courses which are not part of the formal education system.



**Figure 5:** Private Consumption by Age and Education: Health and Education

### Other Private Consumption

Consumption expenditure in the category other consumption is distributed to the household members using the NTA consumption equivalence scale: It is assumed that adults of age 20 and older consume the same amount, children aged 0-4 consume 40 percent of an adult and that there is a linear increase between age 4 and age 20. The estimates of total age- and education specific private consumption are shown in Figure 6. It includes education and health but due to the minor importance of these components the profiles reflect mainly other private consumption. Due to their lower labour income the consumption expenditure of those with basic education is much lower than of persons with higher secondary or tertiary education. For higher secondary education and tertiary education the consumption age profiles are quite similar, despite the differences in the level of labour income. This indicates that there are either private transfers from tertiary to higher secondary education, or differences in the saving rates.



Figure 6: Total Private Consumption by Age and Education

## 4 Public consumption

Of the total consumption expenditure about 30 percent are public consumption, with health and education as the most important parts: Around 26 percent of total public consumption expenditure is used for education, 28 percent for health and 46 percent for other public consumption. Most of the components of public consumption are not estimated by education level.



Education-specific public consumption includes education as well as the in-kind services related to unemployment.

### Health Consumption: Evaluating Estimates using Survey Data

We do not have information on public health consumption by education. A possibility to analyse if there are differences in health consumption by education is the European Health Interview Survey (EHIS). It contains question about the state of health and the use of health services. In Austria this survey contains data for 15,382 individuals older than 15. Age is given in 5-year age groups and the education according to the ISCED classification. Table 3 shows the share of the population which has been in hospital as inpatient during the last 12 months by age and education. The standard error (SE) is calculated as standard deviation divided by the square root of the number of observations. The "true" value lies with a probability of 95 percent within about +/- 2 SE. In the age-groups 50-59 and 60-69 it seems that among the higher educated persons less have been in hospital as inpatient. But in the most interesting older age groups the estimates become imprecise due to a low number of observation and we actually cannot say if there is a difference between educational groups.

**Table 3:** Hospitalization in the last 12 Months, Share of Total Population

Age	Basic		Higher Secondary		Tertiary	
	Mean	SE	Mean	SE	Mean	SE
<20	0.10	0.01	0.14	0.05	0.21	0.07
20-29	0.13	0.01	0.08	0.01	0.12	0.02
30-39	0.13	0.01	0.12	0.02	0.15	0.01
40-49	0.14	0.01	0.12	0.02	0.14	0.01
50-59	0.20	0.01	0.17	0.04	0.14	0.02
60-69	0.24	0.01	0.11	0.04	0.19	0.02
70-79	0.27	0.01	0.41	0.08	0.27	0.03
80+	0.36	0.02	0.22	0.08	0.45	0.05

*Source:* Eurostat, European Health Interview Survey

The same is the case for other variables. Although the Austrian survey is quite large we do not recognize a clear pattern in the use of health services. The differences between educational group are too low and the overall variation too high to observe a clear pattern. The non-education-specific data on health expenditure by age is very good for Austria as it actually measures expenditure and covers the whole population. I assume that there are no differences between educational groups and use the same age-profiles for

the whole population independent of the education level.

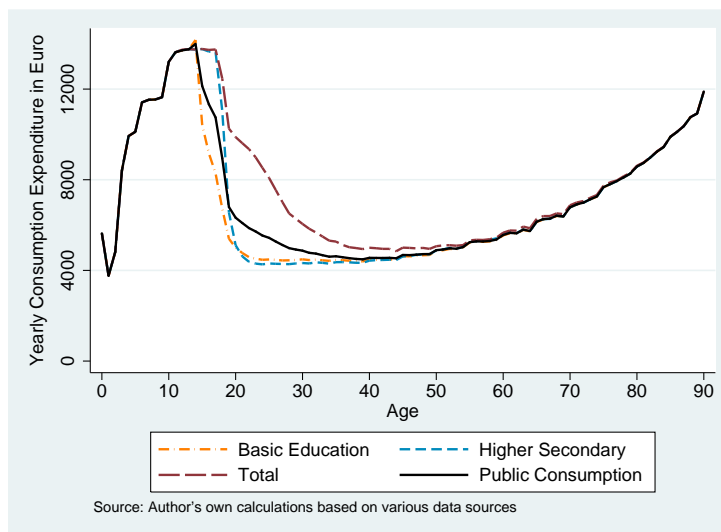
### **Public Education Consumption**

There are of course large differences in the public expenditure on education across different levels of education. For computing the age profiles of public consumption expenditure for education I use data on expenditure according to COFOG groups (which distinguish consumption expenditure for education by education level), data on expenditure from the national report on education (Bruneforth and Lassnigg (2012)) and data on enrollment per age and education level. For compiling the expenditure age profiles in formal education (schools, universities) first the average spending per enrolled person is calculated for each education level. The age-and education-specific averages are then multiplied by the number of students and divided by the total number of persons in the respective educational group. The profile for tertiary education students is calculated as weighted average of higher secondary and tertiary spending as this group includes a share of higher secondary students (as explained in Section 1). As weights I use the share of students in the tertiary group which are enrolled in higher secondary and tertiary education, respectively. Services supporting education (e.g. transport, food, accommodation, medical services), for which we do not have level-specific aggregates, are distributed over age according to the profile of formal education. Non-attributable education expenditure (e.g. education programs for adults) is allocated independent of age in equal shares to the whole population.

### **“Other” Public Consumption**

Most of the public consumption expenditure in the category “other” is collective consumption, such as general public services, defense, internal security or environmental protection. The only part of other public consumption which is allocated education-specific are the in-kind services in the category unemployment. For these services data on course participation and the total number of unemployed persons is used to calculate the age profiles. Of the other consumption expenditure it is assumed that each person consumes the same amount. The public education consumption profiles are plotted in Figure 7. The differences by educational group are clearly determined by the differences in the expenditure on education. The most expensive stu-

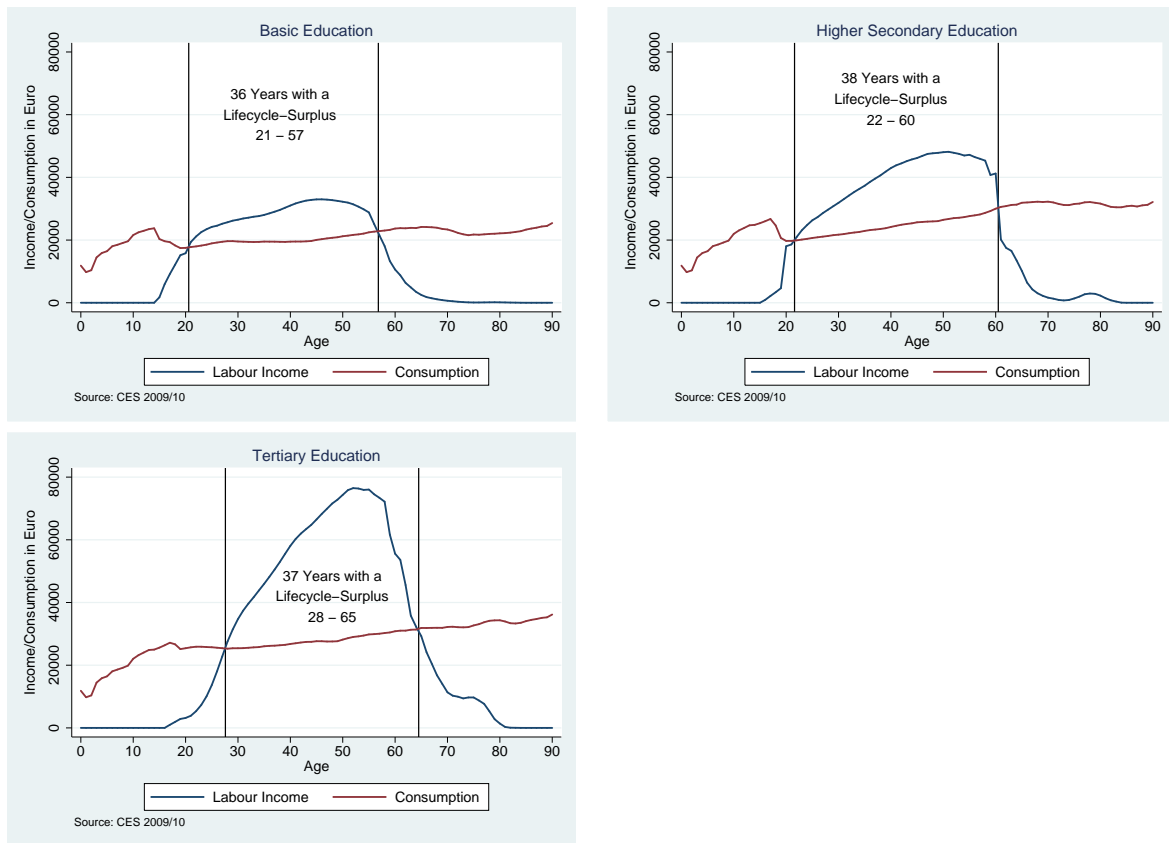
dents are those in secondary schools from age 10 to 15 for those in basic education and from age 10 to 19 for those in higher secondary and tertiary education. The results reflect very well the design of the Austrian education system: The profile of basic education decreases strongly from age 15 onwards as these persons enter the labour market and leave the education system. The same pattern can be observed for the higher secondary group at age 18/19 when the majority of these students finish higher secondary schools. Tertiary students are generally older and the average expenditure for this group remains high until age 30/35.



**Figure 7:** Public Consumption

#### 4.1 Labour Income and Consumption (The Life Cycle Deficit)

As we have now information on total consumption we can plot the most famous curves: the consumption and labour income age profile. Figure 8 shows them for each educational group.

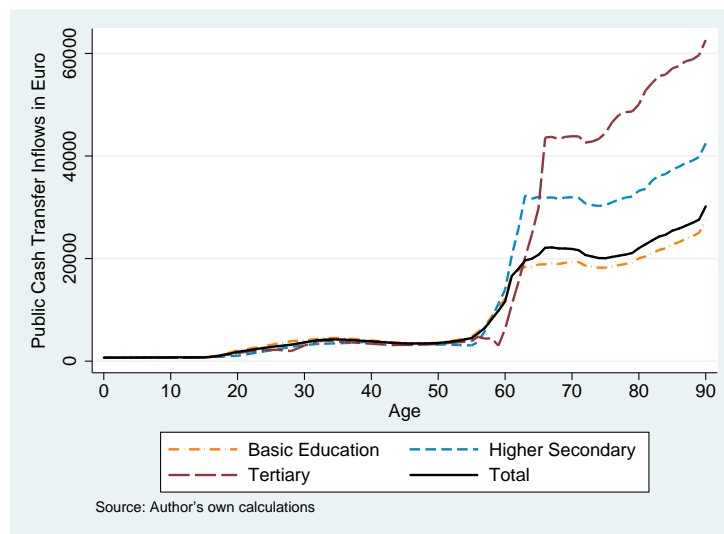


**Figure 8:** Labour Income and Consumption by Age and Education

## 5 Public Cash Transfer Inflows

The most important type of public cash transfers are clearly the transfers to the elderly in form of pensions and long term care allowances, which amount to 70 percent of total public cash transfers. Transfers in the category family and children amount to about 10 percent of total public cash transfers, unemployment benefits to about 6 percent, other social transfers to 5 percent and non-social transfers account for about 9 percent of total public cash transfers. The age-specific estimates of these transfers are mainly based on the data from EU-SILC 2011. Transfers given only at household level are distributed to individual members, then the education and age-specific averages are calculated: The transfers in the category family and children are assigned to the parents of the children which are living in the household in a ratio inverse to the income of the parents; other cash transfers which are only given at household level are distributed in equal shares to the adult persons in the household. Total public cash transfers by age and education level are plotted in Figure 9. The differences between educational groups are

minor during working life. Those with basic education receive on average more unemployment benefits, especially at the beginning of they career. Furthermore, they receive transfers related to family and children earlier in life as they have children earlier than those with tertiary education. These pattern are reflected in the somewhat higher public cash transfer profiles up to the age of about 45 (barely visible in Figure 9). However, there are considerable differences in the level of pensions between educational groups. Pensions are therefore described in more detail in the next section.



**Figure 9:** Public Cash Transfer Inflows by Age and Education

### Cash Transfers to the Elderly Population

The age profiles for pensions are based on data from EU-SILC 2011 and on administrative data from the tax statistics.<sup>5</sup> The variable capturing pensions in EU-SILC does not only contain pensions, but also other transfers such as long-term-care benefits. However, the age profile estimated from these data is very similar to the age profile for pensions which we have from administrative data, suggesting that the long-term-care benefits are seriously underreported in EU-SILC. I use therefore the age averages of long-term-care benefits based on administrative data, unfortunately not education specific.<sup>6</sup> The analysis of data from EHIS for example does not indicate large differences in needs of care between educational groups. The education-specific profiles for pensions are estimated from EU-SILC but adjusted to

<sup>5</sup>Source: Statistics Austria, Lohnsteuerstatistik 2010

<sup>6</sup>Source: Bundesministerium für Arbeit, Soziales und Konsumentenschutz.

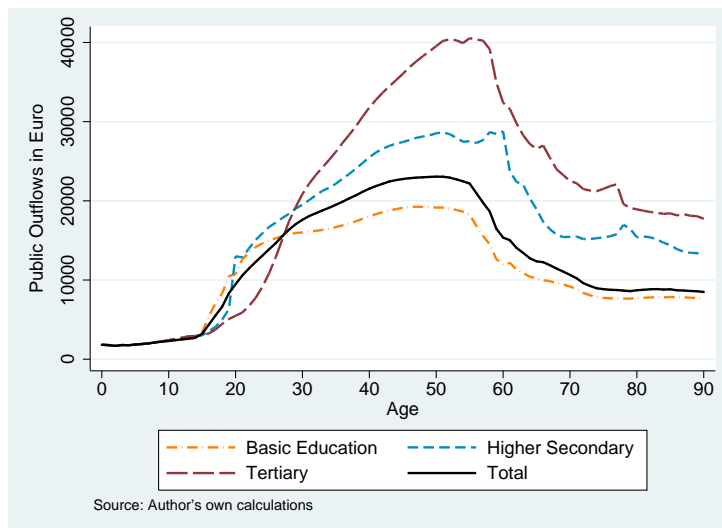
the age profile based on administrative data. I.e. the age specific sums of the aggregate education-specific profiles equal the aggregate pension profile based on administrative data.

The differences in the average size of pensions are due to differences in the size of the average pension per retiree, the share of persons who receive pensions is very similar in all three educational groups (see Table 8 in the Appendix). The average pension of a retiree with tertiary education is about twice as large as an average pension of a person with basic education. This reflects partly the higher income of persons with tertiary education. However, there is one more factor which influences the height of the average pension considerably, namely the higher share of civil servants among the tertiary educated. The public sector in Austria is known to be extremely generous to its former employees in terms of pensions. Furthermore, there is also no upper ceiling regarding the level of pensions for civil servants, such a ceiling exists for employees under the general social insurance law (ASVG). Pensions of civil servants are therefore with an average of about 40,000 Euros considerably higher than for those in the general social insurance with an average of about 20,100 Euros (Table 9 in the Appendix). But while the share of civil servants is only 7 percent among those with basic education, it is 27 percent among those with higher secondary education and 40 percent among the tertiary educated persons. It is now much harder to gain the status as civil servants and due to the higher share of tertiary educated persons the share of civil servants is expected to decrease. With regard to these developments the differences in the size of pensions between educational groups will most likely become smaller in the future.

## **6 Public Outflows**

To provide a complete picture of age reallocations NTA do not only estimate the age-specific averages of the transfer inflows, but also of the outflows, thus the contributions of each age group to the public and private transfers system. Public outflows represent the total flow of resources from individuals to the public sector, consisting mainly of taxes and social contributions. The age profiles of public outflows are based on the sources of these flows, for which we have already education-specific age profiles: The age profile of taxes on payroll and workforce (e.g. wage tax, contribution to the family burden equalization fund) is based on the labour income age profile and

the pension age profile; the age-specific estimates of the income tax payments are based on the age profile of income from self-employment; the age-specific corporation tax payments are estimated using the age profile of asset income; and the payments of taxes on goods and services such as the value added tax are based on the age profile of private consumption. Social contributions are paid by employers and employees, self-employed persons and pensioners. The age-specific estimates for the payment of social contributions are therefore based on the labour income age profile, the profile for income from self-employment and the pension age profile. The age profiles of total public outflows by education are shown in Figure 10. The shape resembles the labour income profiles, since in Austria around 59% of public outflows are paid out of labour income. There are corresponding differences between educational groups, reflecting mainly the large differences in average income.

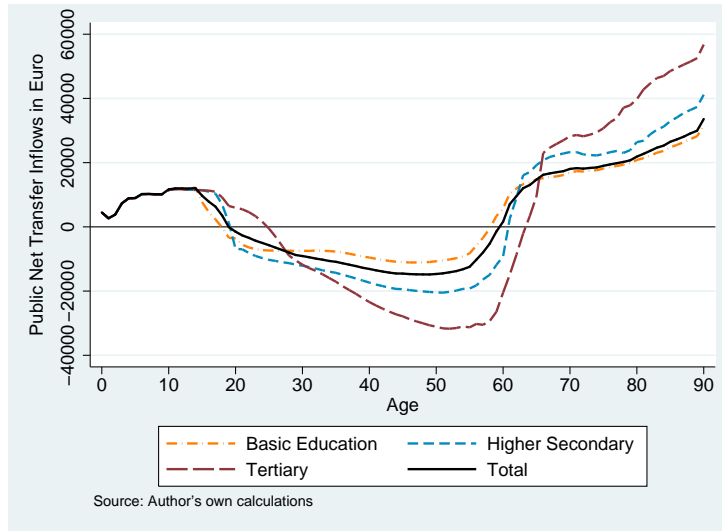


**Figure 10:** Public Outflows

**Total Public Net Transfers**

Figure 11 plots the age profile of the net flows by education. Those with higher secondary or tertiary education are net receiver of public transfers until a higher age than those with only basic education, mainly in form of publicly provided education. During working life the higher educated contribute more to the public transfers system due to their higher average labour income. In old age this pattern reverses again: The average pension of a person with tertiary education is much higher than for a person with higher

secondary or basic education.

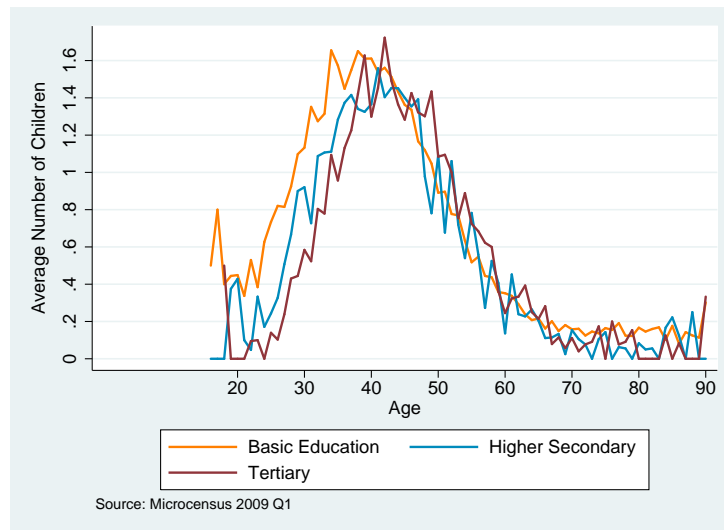


**Figure 11:** Public Net Transfer Inflows

## 7 Private Age Reallocation

The missing components of the private age reallocation are the intra-household and inter-household transfers as well as private saving. The estimation of these age profiles is described in this section. The most important part of private age reallocations are the transfer flows from parents to children. Private transfer flows depend therefore mainly on the household structure, in particular the number and age of the children. Figure 12 shows for each educational group the average number of children who live in the same household. It is clearly the age groups from 30 to about 50 with the highest number of children living in the same household, and it is well visible that persons with higher education have children later in life than those with a lower education level.





**Figure 12:** Average Number of Children by Age and Education

### 7.1 Intra-Household Transfers

To estimate the intra-household transfers we need information on the age-specific inflow and the use of resources. This includes labour income, private consumption, public cash transfer in- and outflows as well as private inter-household transfers. Additionally we need information on the age structure of the households. Unfortunately no single data source includes all this information. The approach which is used in NTA is to use a micro-data source with a representative information on household structure (age composition of households) and combine it with the NTA age averages calculated from the various other data sources. Thus, available income and consumption of the individuals observed in this micro data correspond to the age-specific averages.

#### Traditional NTA Methodology

After generating such a data set the intra-household transfers are usually (traditional NTA methodology) identified in the following way: If for a person consumption exceeds available income in form of labour income and net transfer inflows, this individual deficit is covered through the persons in the household who have an individual surplus (available income exceeds consumption). Each member with a surplus uses the same share of his/her surplus for a transfer to the members with a deficit. If the individual deficit of the household members exceeds the surplus, thus if the households'

total available income falls short of consumption, the remaining individual deficit of the members are covered by a transfer from the household head to the members with a deficit. The household head finances these transfers through asset income and dissaving. If the total income of the household exceeds its consumption and some members remain with a surplus, it is assumed that they transfer their resources to the household head for saving. This approach for estimating intra-household transfers in NTA is very robust and well suited to identify and measure the transfers from the parents to the children. Adaptations and deviations from this methodology hardly influence the estimates. Most households in Austria in which large intra-household transfers are necessary consist of small children and one or two adult persons of about the same age. Three generation households are rather rare and young people leave the household of the parents quite early. It is therefore quite clear who is financing the deficit of the children and the NTA methodology identifies these resource flows very well.

However, while this methodology delivers reasonable results for the flows from parents to small children, there are concerns regarding the age-specific estimates in age-groups with a high variation of labour income, e.g. around the age of 20. A young couple with children around age 20 for example has a large deficit because the average income at this age falls short of average consumption and additionally they have to cover the deficit of the children. In reality this couple has probably a higher income than their mates in the same age group. Almost certainly it does not cover current consumption through dissaving, as assumed in the NTA methodology. So, this methodology delivers highly questionable estimates for saving/dissaving in these age-groups. Also the estimates for the intra-household transfers are biased. Let us assume that there are only two type of 20 year old: Half of them are working, financing their consumption by themselves and living in their own household. The other half of the 20 year old are still students without labour income and financed by parents. By assigning the same average values to both of them the transfers from the parents to the 20 year old students are underestimated, because we assume they receive the average labour income which is higher than the true value. The dissaving of the 20 year old workers is overestimated because labour income is actually higher than the assumed average value.

As it is rare that current consumption is covered through dissaving, this dis-

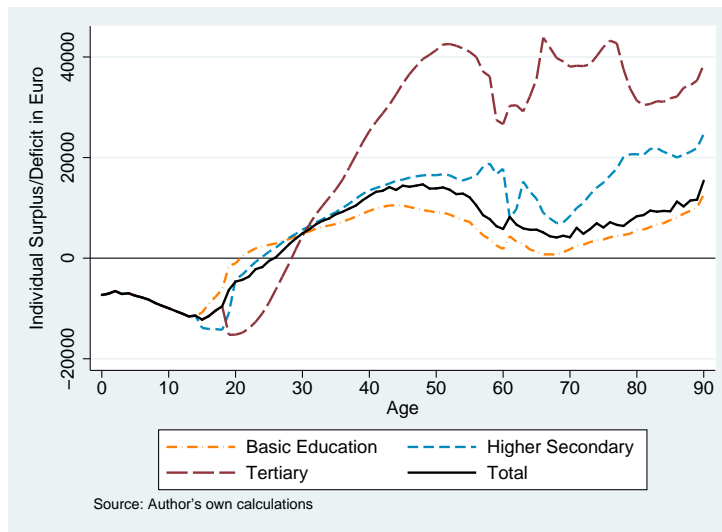
saving residual should disappear in the estimation of private transfers.<sup>7</sup> It certainly makes sense for elderly persons in some countries with a larger emphasis on privately funded pension systems. But most of the elderly in Austria finance their consumption easily through the generous public transfers and even save a considerable part of the surplus. The dissaving assumption is a particular problem for Austria we also do not have reliable measures for inter-household transfers. Students (tertiary education) often live in an own household but are supported by the parents through inter-household transfers which are not observed. Also this non-observed inter-household transfers are captured by the (dis-) saving estimate.

### **Intra-Household Transfers by Education**

As we anyway have to adapt the NTA methodology for getting education-specific estimates of intra-household transfers, I use the opportunity to change the NTA approach in several respects. First, the economic quantities are assigned to persons in the micro data source not only by age but also by education. And now also asset income is regarded as part of available income as it is assigned to all household members. The individual deficit/surplus by age and education is plotted in Figure 13. Persons pursuing a tertiary degree have a deficit until a higher age as they enter the labour market later. But, as their income as well as the average pension is higher, the individual surplus during working life is higher for persons with tertiary education than for those with lower education levels.

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<sup>7</sup>The acquisition of property through credit is not regarded as dissaving as it does not change the household's net wealth. The income in form of housing services (imputed rent) is a type of asset income, as well as the interest payments for the credit (negative asset income).



**Figure 13:** Average Individual Surplus/Deficit by Age and Education

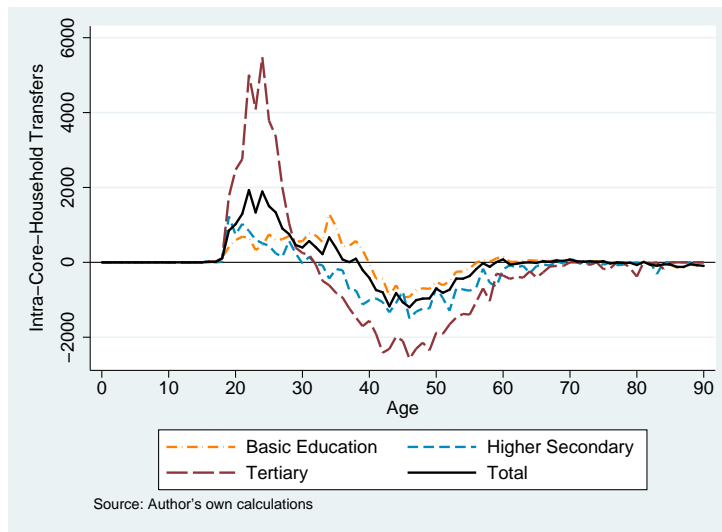
I keep the assumption that the deficit of household members is primarily financed by persons with a surplus. About 85 percent of the individual deficits can be covered by persons with a surplus living in the same household. If there is a deficit remaining for the children in the household, it is assumed to be financed by the adult persons in the household even when they do not have an individual surplus. The resulting net flows are plotted in Figure 14. Intra-household flows are clearly from the age groups with a high share of parents, about age 30-55, to the children and young adults. Those with tertiary education are net-receiver of private transfers until a higher age because they stay dependent until a higher age and also get their own children (which would make them net-givers) at a higher age.



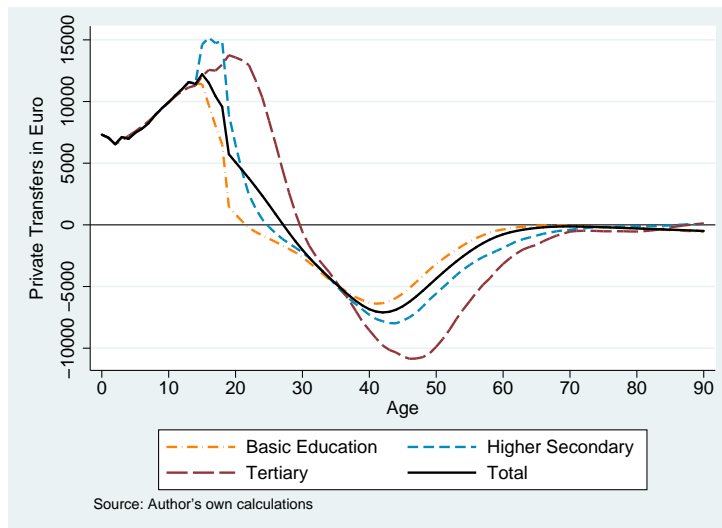
**Figure 14:** Net Intra-Household Transfer Inflows by Age and Education

## 7.2 Inter-Household Transfers

In the NTA methodology the household head is the only household member running a individual deficit after intra-household transfers. He/she finances this deficit through asset income and dissaving. For the education specific NTA it is assumed that the adult persons in the household cover the deficit of the children and, if necessary, run an individual deficit. But rather than assuming that these deficits are financed through dissaving, I let them be financed by transfers from the surplus of persons which are not identified as members of the same household. Of course also these transfers should be dependent on age. Age- and education specific weights are derived from the private transfer age profiles of the flows within the household. These weights are then applied to the remaining surpluses and a share of these surpluses is transferred to the persons with a deficit. The net flows are plotted in Figure 15. Obviously there are quite large transfers to the tertiary group until the age of 30. This is not surprising, because their average labour income at this age is low as part of them is still in education. But often they live already in own households, supported by the parents. The net outflows around age 40 and 50 are also higher for those with tertiary education, reflecting their higher individual surpluses. The smoothed profile of total private transfer flows are plotted in Figure 16. These are a combination of the flows in Figure 15 and Figure 14.



**Figure 15:** Net Inter-Household Transfer Inflows by Age and Education

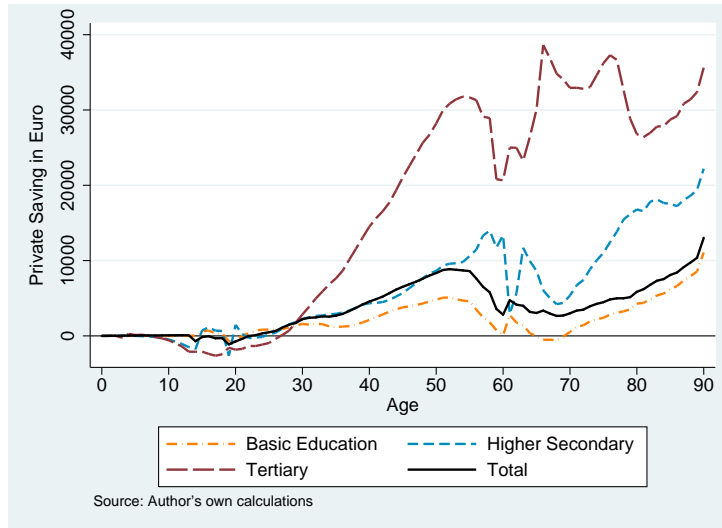


**Figure 16:** Total Private Net Transfer Inflows by Age and Education

### 7.3 Private Saving

Private saving is the difference between the inflow of resources in form of incomes and transfer inflows and the outflows in form of consumption and transfer outflows. The saving estimates are problematic especially for older age-groups. As household surveys do not cover persons living in institutions such as retirement homes, the consumption of these persons is not observed. Their consumption expenditure is most likely higher than the corresponding average of persons living in private households, because a large part of income has to be used for paying the housing service. That is, we take into account their income, but probably not their higher consumption.

This results in high average saving estimates for the elderly (Figure 17). Obviously saving is higher for those with tertiary education as they have the largest inflow in form of wages and pensions while the amount of these resources which is used for consumption is quite similar across educational groups.



**Figure 17:** Private Saving by Age and Education

## 8 Household Production - Time Use

As NTA are consistent with the System of National Accounts, they do not include the production, transfer and consumption of goods and services which are not measured in National Accounts. This includes most of the goods and services which are produced by households for their own final use or which are provided free of charge to other households. Childcare, the preparation of food, cleaning, shopping and doing the laundry are the most time consuming of these activities. But this type of production is of particular importance in the NTA framework, because a large share of these goods and services are provided to other persons and constitute therefore important transfers. There are no market transactions and consequently no market prices for non-SNA production: Production, transfers and use of these resources is measured in form of time which is used to produce these goods and services. In the NTA project separate accounts for non-SNA production have been developed, so called National Time Transfer Accounts (NTTA). The methodology for generating NTTA is described in Donehower (2013), the Austrian NTTA are described in detail in Hammer (2014). In this section

the Austrian NTTA are broken up by educational groups. In NTTA and household satellite accounts a monetary value is derived by valuing the time use for household production with wages rates generated on the market for similar activities. As this transformation is not necessary and rather obscures the results, I present in this paper only the results in terms of time.

### **8.1 The Austrian Time Use Survey**

The information about the time use of the Austrian population is taken from the Time Use Survey (TUS) 2008/09.<sup>8</sup> The TUS 2008/09 has been conducted as special programme of the Austrian microcensus from March 2008 to April 2009. All members aged 10 and older of selected households were asked to fill in time diaries. These diaries have slots of fifteen minutes for the time from 5:00 to 23:00 and half an hour slots from 23:00 to 5:00. In each time slot the respondents had to fill in a range of information, among them the main activity she/he was carrying out and if the activity was carried out also for another household. The TUS 2008/09 contains data for 8,234 individuals from 4,757 households. For the compilation of NTTA it is crucial to have information for all household members. An extended time use data set has been created by taking information about household members which are missing in the time use survey from the microcensus. For the estimation of transfers and consumption the production values for adult household members which did not take part in the time use survey have been imputed (for an explanation why this is necessary see Hammer (2014)). There are especially few observations with higher secondary and tertiary education in older age groups. To account for this I estimate age profiles only until age 70 and include all persons who are older in age 70. But it has to be kept in mind that the estimates for the age-specific means can be also in younger age groups subject to a high random variation. Estimates can be quite imprecise not only due to the low number of observations, but also due to the large variance of the observed time use: The daily time which is devoted to certain activities differs strongly between individuals and for the same individual between different days. Table 4 shows the population estimates from the extended time use survey by age and highest level of education as well as the number of observations in the survey.

The time use for paid work and unpaid household work reflects the gendered

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<sup>8</sup>Source: Statistik Austria, Zeitverwendungserhebung 2008/09



**Table 4:** Population by Age and Highest Level of Education in The Extended Time Use Survey

Age	Population in %			No. of Observations		
	Basic	Higher Secondary	Tertiary	Basic	Higher Secondary	Tertiary
<30	82.7	14.0	3.3	3223	439	115
30-39	66.3	17.4	16.3	1064	274	259
40-49	75.8	13.1	11.1	1378	224	212
50-59	80.9	8.6	10.5	1180	123	148
60-70	85.6	7.4	7.0	1136	92	83
70+	88.3	6.8	4.9	1052	68	55

*Source:* Zeitverwendungserhebung 2008/09; Mikrozensus 2008/09  
Weights adjusted by the author;

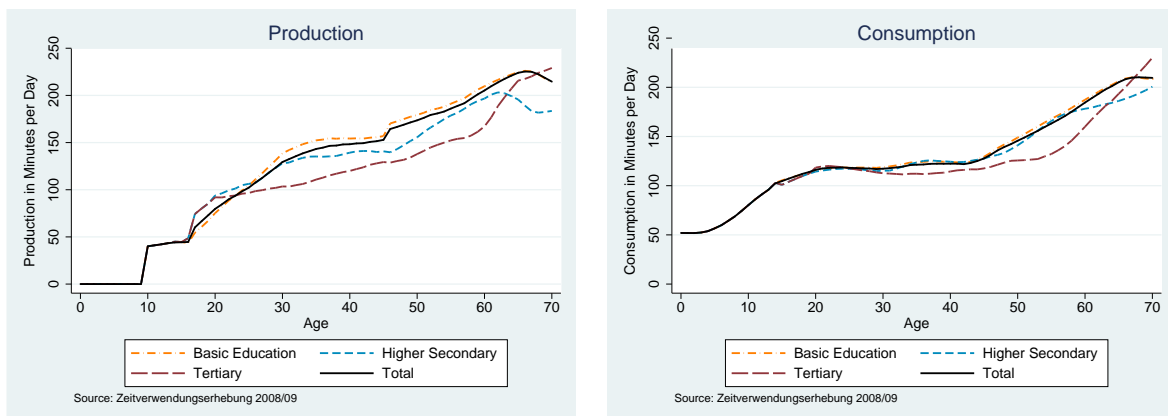
distribution of production activities within the households, with men devoting more time to paid work and women devoting more time to unpaid household work. An overview over the average time which is used for production activities by age, gender and education can be found in Figure 21 in the Appendix. There are common patterns for men and women who have higher education, namely the higher time use for paid work compared to those with basic education, the later entry into the labour market, later parenthood and the higher labour force participation rates in older age groups.

## 8.2 Unpaid Household Work: Production and Consumption by Age and Education

First we have a look at unpaid work other than childcare. The estimation of age and education-specific non-SNA household production is straightforward, these estimates simply consist of the age- and education-specific averages of time use for these production activities. To derive the age- and education-specific estimates for non-SNA consumption, first the total time which is spent to produce these goods and services is summed up within the household. The values for persons who did not take part in the time use survey are imputed. The total amount in the household is then distributed among all household members according to the NTA consumption equivalence scale.<sup>9</sup> Thus, it is assumed that the goods and services produced through unpaid work are shared among all household members, with children consuming somewhat less than adults. Then the age and education-specific averages are calculated. The averages for the consumption are ad-

<sup>9</sup>For details on the estimation of the, in terms of time, less important components adult care and housework carried out for other households see Hammer (2014).

justed so, that aggregate consumption (age averages multiplied by population numbers and added up over all ages) equals aggregate production. For those age groups in which there are no observations with higher secondary education (age  $\leq 14$ ) the averages for basic education are used, and up to the age of 19 the same estimates are used for higher secondary and tertiary education. The results are plotted in Figure 18. Persons in working age with tertiary education use on average more time for paid work and therefore less for unpaid household during working age. This can be partly an effect of specialization by education: While higher educated persons devote more time to paid work, housework is carried out by the household members with lower education. Also preferences and income effects might play a role: Persons with tertiary education carry out less housework, accept lower standards regarding the cleanness of the dwelling and the complexity of prepared meals, and/or buy goods and services on the markets which in other households are produced by the household members themselves. Because of the lower production also the average consumption of tertiary educated persons is smaller from age 30 to age 70. Around age 70 the education-specific averages of production and consumption in form of unpaid household work reach a similar level.

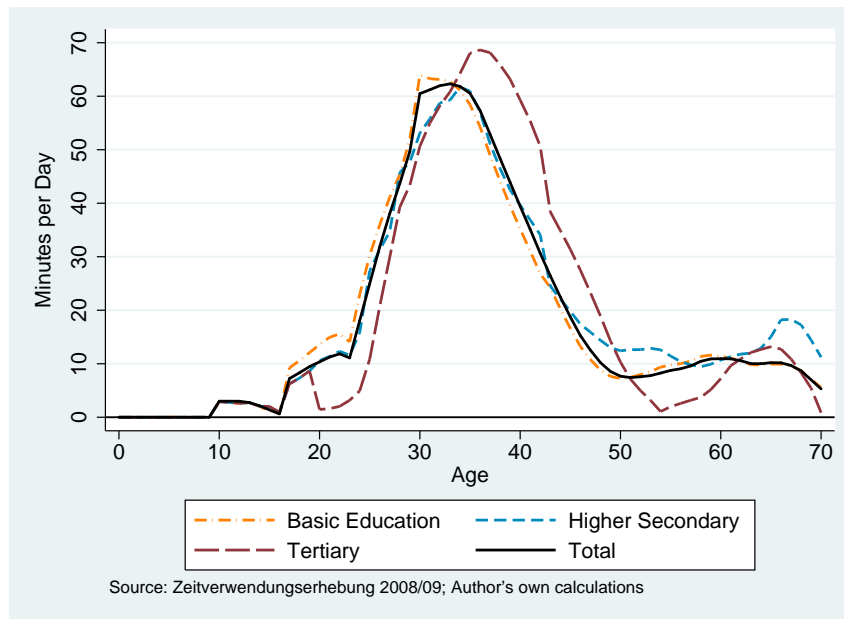


**Figure 18:** Production and Consumption of Unpaid Household Work other than Childcare; Daily Averages in Minutes

## Childcare

Childcare is one of the most important production activities carried out within households. It is the parents of small children who devote the highest amount of time to childcare, child care activities are therefore strongly con-

centrated in the age from 25 to 45 with a peak around the age of 35 (Figure 19). As persons with tertiary education have children later in life, the profile is shifted to the right with a peak around the age of 40. Childcare is by definition consumed only by children below age 15, therefore they are not education-specific. For a detailed description of age specific production and consumption of childcare, see Hammer (2014).



**Figure 19:** Childcare Production by Age and Education

Obviously, the highest average amount of time is devoted to childcare by persons at age 30-35 if they have basic or higher secondary education, and in their late 30s if they have tertiary education. The high average levels for the tertiary group are mainly explained by a high share of persons with small children in this group: In the group aged 18-29 slightly less than 12 percent of the population with basic education have children younger than age 2, compared to less than 7 percent for those with higher secondary education and around 4 percent for those with tertiary education (Table 5). In the age group 30-45 it is about 8 percent for those with basic education, 10 percent for those with higher secondary and almost 17 percent for those with tertiary education. This pattern has been largely confirmed with data from the microcensus. However, it seems that tertiary educated persons with children are additionally overrepresented/overweighted in the TUS; the share of tertiary educated persons aged 30-45 with children below age 2 is only 14 percent in the more representative microcensus. The weights in the TUS have been adjusted to take into account the higher willingness among

those with small children to take part in the survey (in Austria mothers with small children stay at home for one to three years after giving birth), but not separately for each educational level. It seems that the weights are too high for tertiary educated persons with small children.

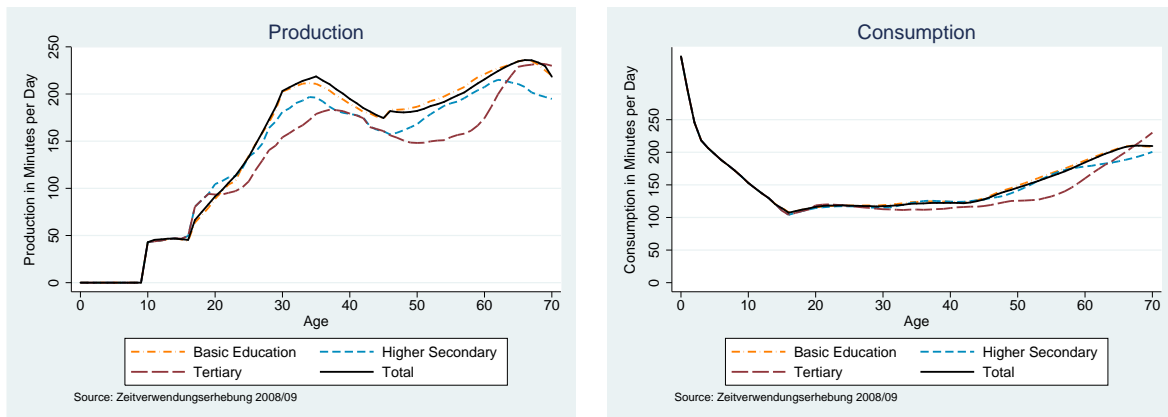
**Table 5:** Share of Persons with Children Below Age 2 in Percent

Education/Age:	Time Use Survey		Microcensus	
	18-29	30-45	18-29	30-45
Basic	11.7	8.4	11.1	8.2
Higher Secondary	6.7	10.2	6.2	10
Tertiary	4.4	16.8	2.6	14.1

*Source:* TUS 2008/09, Microcensus 2009 Q1.  
Weights in the TUS adjusted by the author.

### 8.3 Total Production and Consumption in Form of Unpaid Household Work

Total non-SNA production and consumption are plotted in Figure 20. The age groups 65 and older devote with more than 200 minutes on average the highest amount of time to unpaid work in all educational groups. There is with around 200 minutes of daily unpaid work another peak in the age group 30-35 for those with basic and higher secondary education and in the age group 35-40 for those with tertiary education. This reflects the high average amount of time devoted to childcare in these age groups. Total production is somewhat lower for tertiary educated persons until age 60 because of their lower involvement in housework. The lower production of those with tertiary education is also reflected in the lower average values of consumption up to the age of about 60. The differences between educational groups vanish with retirement.



**Figure 20:** Production and Consumption of Unpaid Household Work; Daily Averages in Minutes

## 9 Conclusion

The generation of NTA by education and other socioeconomic characteristics have long been discussed among NTA researchers and some work has been done, mainly for Latin American countries. Such accounts can give important information how economic activities vary between these socioeconomic groups, but there are also considerable problems in generating and interpreting the data. The biggest problems for the generation of NTA by socioeconomic characteristics are the lack of data for certain categories and the uncertainty in the age-specific estimates due to the high variation in the data and the small number of observations. However, making some deductions in the quality of the data and the precision of the estimates NTA by socioeconomic characteristics are not difficult to generate. The most important variables such as labour- and asset income, private consumption and public cash transfer inflows are based on micro data with plenty of socioeconomic information about individuals and households.

Some adjustments of the NTA standard methodology are necessary and/or desirable: For the creation NTA by education or other socioeconomic variables it is important to give up the assumption that a single person in the household receives all the household level transfers, holds the assets and receives consequently all the asset income. This assumption can seriously influence the results if the household head is more likely to belong to a certain economic group than the other household members (e.g. more likely to be men). Obviously, if the household head is identified to be the main

earner he/she is more likely to belong to the higher educated group. It is no problem to identify several household members that potentially hold assets and distribute asset income between them. For generating NTA by education all adult persons in the household are treated in the same way, allowing them to hold assets, receive asset income, to save and to pay/receive inter-household transfers.

The way of analyzing and interpreting the data cannot be directly taken over from traditional NTA. The NTA age-profiles (averages by age groups) are often interpreted as representing economic activities over the life span of an average individual. This is insofar justified as average age-specific economic behavior does not change very fast and the neighboring older age-groups deliver a good approximation of the behavioural changes of an average individual in the next years. The longer the time horizon or the age difference the more problematic are such interpretations. With regard to education there is an additional problem as also the educational composition of the population is very different across age groups, the life cycle interpretation of the age pattern can be justified only in very rare cases. Also NTA standard measures such as the aggregate Life Cycle Deficit are hardly applicable to education-specific data, as they reflect mainly the changes in educational attainment rates over the age groups.

Until now NTA focused on age averages for the total population, ignoring the variation of economic behaviour within age groups. An analysis of NTA by education is a first step to take the variety in the design of individual life courses into account. There are considerable differences in the duration and the timing of certain life stages: Persons with higher education enter the labour force at a higher age, have children later in life and they also retire later. One of the most surprising results of the NTA by education are certainly the large differences in average labour income between educational groups. Not surprisingly, average income is larger the higher the education level. But the differences in average labour income are also strongly influenced by the differences in the employment rates between educational groups. In the age groups older than 40 the employment rates for persons with tertiary and higher secondary education are considerably higher than for those with basic education.

Variations in the life course of individuals and sub-populations are of particu-

lar importance when NTA results are used to draw policy conclusions. Smart policies are not tailored at an average individual or a “representative” agent, but take differences in preferences and life circumstances of individuals into account. A further break up and deeper analysis of NTA provide valuable information for a deeper and better understanding of age-specific economic behaviour and the life course decisions and -outcomes of individuals.

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## A Appendix

### Population by Education: Comparison of Different Data Sources

While the values from the register based data LFS 2010 and census 2011 as well as the estimates from the two surveys EU-SILC 2011 and the Consumer Expenditure Survey (CES) 2009/10 are similar, there are differences between the register and the survey data: There are fewer persons with basic education in the surveys, but more with higher secondary education (Table 6). Table 7 analyses the differences by school type using data from the register based LFS 2010 and the CES 2009/10. In the CES 2009/10 there are a lower share of persons with compulsory education and apprenticeship and a higher share of persons with higher secondary education and intermediate secondary vocational schools than in the register data. Given the fact that these differences affect several types of education simultaneously, it suggests that the differences in the size of the educational groups are not due to the definition of education but to an over/under-weighting of the different educational groups in the surveys. This should not affect our results if the persons in each educational group are representative for the total population in the respective group.

**Table 6:** Population by Age and Highest Completed Education Level in Percent - Comparison of LFS, Census, EU-SILC and the CES

Age	LFS 2010			Census 2011		
	Basic	Higher Secondary	Tertiary	Basic	Higher Secondary	Tertiary
<30	82.8	12.7	4.4	82.6	12.8	4.6
30-39	63.9	16.9	19.2	63.0	17.0	20.0
40-49	72.4	13.4	14.2	71.8	13.6	14.6
50-59	78.3	9.2	12.5	77.6	9.6	12.8
60-69	84.0	7.6	8.4	83.6	7.6	8.8
70-79	89.6	5.5	4.9	89.0	5.8	5.2
80+	88.7	6.6	4.7	88.8	6.6	4.7
Age	EU-SILC 2011			CES 2009/10		
	Basic	Higher Secondary	Tertiary	Basic	Higher Secondary	Tertiary
<30	86.9	8.6	4.5	86.6	9.0	4.3
30-39	62.5	19.1	18.4	62.3	18.9	18.7
40-49	70.6	16.3	13.1	69.7	16.8	13.5
50-59	74.3	14.0	11.7	73.8	13.5	12.7
60-69	80.3	11.6	8.1	79.9	12.2	7.9
70-79	85.4	8.9	5.7	85.1	9.2	5.7
80+	88.8	7.6	3.6	89.5	5.5	5.0

Sources: STATcube – Statistical Database of STATISTICS AUSTRIA: Register Based Labour Market Statistics 2010; Census 2011 Statistics Austria: Konsumerhebung 2009/10; EU-SILC 2011

**Table 7:** Population by Age and Highest Completed School Type in Percent - Comparison of LFS and CES

<b>LFS 2010</b>						
Age	Compulsory	Lehre	BMS	AHS	BHS	Tertiary
<30	64.7	12.7	5.5	5.9	6.8	4.4
30-39	15.5	34.8	13.6	6.2	10.6	19.2
40-49	17.7	37.5	17.2	5.6	7.8	14.2
50-59	23.4	37.7	17.2	4.4	4.8	12.5
60-69	29.8	37.8	16.4	3.6	4.0	8.4
70-79	47.1	28.4	14.1	2.6	2.9	4.9
80+	54.9	20.9	12.9	3.4	3.2	4.7
<b>CES 2009/10</b>						
Age	Compulsory	Lehre	BMS	AHS	BHS	Tertiary
<30	64.3	12.4	5.0	6.9	7.8	3.6
30-39	10.2	36.2	14.4	8.6	12.4	18.2
40-49	13.8	36.1	19.4	7.7	9.6	13.4
50-59	18.7	34.3	20.7	7.5	6.1	12.7
60-69	26.8	34.9	18.2	5.9	6.3	7.9
70-79	47.9	21.8	15.4	3.0	6.2	5.7
80+	51.0	24.4	14.0	2.9	2.6	5.0

Sources: STATcube – Statistical Database of STATISTICS AUSTRIA:  
 Register Based Labour Market Statistics 2010  
 Statistics Austria: Konsumerhebung 2009/10

## Public Transfers in Old Age

**Table 8:** Elderly 60+: Activity and Avg. Pensions by Age and Education

Age	Education	Activity Status			Avg. Pens./Total		Avg. Pens./Ret	
		Active	Retired	Other	Avg. Pens	Obs.	Avg. Pens	Obs.
60-64	Basic	0.07	0.81	0.12	15,824	710	19,334	597
	Higher Sec.	0.17	0.67	0.16	23,116	98	33,974	69
	Tertiary	0.39	0.40	0.20	15,618	66	37,323	32
65-69	Basic	0.01	0.86	0.13	17,490	608	20,066	526
	Higher Sec.	0.05	0.81	0.14	30,338	99	36,068	83
	Tertiary	0.11	0.76	0.13	41,013	56	50,158	44
70-74	Basic	0.01	0.87	0.13	17,608	559	19,970	478
	Higher Sec.	0.01	0.82	0.17	28,266	64	33,777	52
	Tertiary	0.09	0.77	0.14	41,337	38	50,867	29
75-79	Basic	0.00	0.88	0.12	16,911	371	19,029	324
	Higher Sec.	0.00	0.94	0.06	30,958	42	33,017	39
	Tertiary	0.11	0.84	0.05	43,179	27	44,579	24
80+	Basic	0.00	0.91	0.09	18,487	466	20,050	425
	Higher Sec.	0.00	0.96	0.04	35,751	49	37,236	47
	Tertiary	0.00	0.91	0.09	47,101	21	51,666	19

Source: EU-SILC 2011

A person is counted as retired if the self-defined economic status is retirement and he/she actually received a pension in the income reference year.

**Table 9:** Pensions by Type of Former Employment

		Basic	Higher Secondary	Tertiary
General Insurance	Average Pension	18,719	30,114	41,413
	Share	0.93	0.73	0.60
Civil Servants	Average Pension	33,528	47,654	56,062
	Share	0.07	0.27	0.40

Source: EU-SILC 2011

Time Use by Gender, Age and Education

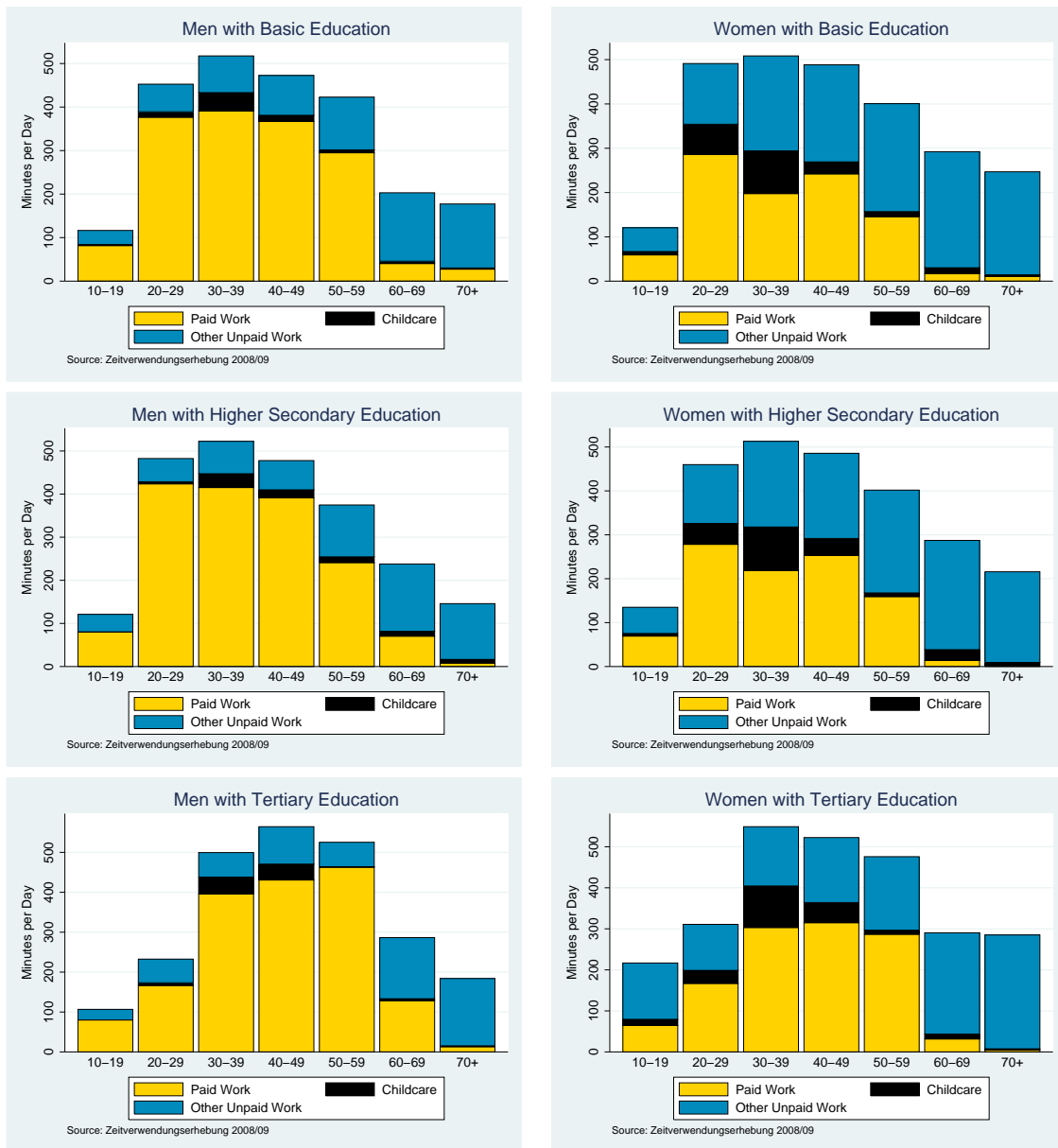


Figure 21: Time Use for Production Activities by Age and Education; Daily Averages