Johannes Bracht, M.A.
Westfälische-Wilhelms-Universität Münster
Institut für Wirtschafts- und Sozialgeschichte
Domplatz 20-22
48 143 Münster
Germany
E-mail: jbracht@uni-muenster.de

Bequest motivation, investments and old-age pocketmoney

– but no transition in life-cycle strategies.

Saving in a 19th century northwestern German municipality*

Paper presented at the Workshop
"Asset Management of Households, 1300-1800"
Utrecht, 18 January 2012

Münster, January 2012

Abstract:

The paper deals with the two most influential concepts of savings behaviour: the life-cycle hypothesis and the concept of bequest-motivated saving. Main aspects of both concepts are to be operationalized and tested on basis of 19th century Westphalian micro-level data. Methodically the approach is characterized by a reconstruction of the savings accounts of inhabitants of a rural parish and record linkage to biographical and economic data.

The life-cycle hypothesis is shown to be inadequate to explain both the savings behaviour of the rural population and the function of the savings bank in a rural context. Accounts did not provide old-age-security. Not until the End of the 19th century few account holders started to retain savings even after handing over the farm and stipulating a retirement benefit. Since maintenance was ensured, these savings were probably used as additional "pocket-money" for individual purposes. This can be interpreted as a nucleus of individual asset management in combination with a continuing transfer system.

1.   Introduction: individualism and old-age security

In most European countries public or public-private systems of old age pensions were established in the late 19th century and the following decades. In Germany the Bismarckian Reforms resulted in the system of a public pension scheme. It is the predominant provision for old age, followed by corporate pension schemes. In the current debate most actors emphasize the question how to increase the part of individual old age security. As individual saving for old age security has always been more important in Great Britain and particularly in the USA, it is not surprising that Anglo-American research in economic and economic history has analysed the roots of individual savings long since. The transition from a "traditional" transfer system to a "modern" system of savings and the role of financial institutions is a core issue in this process. In the eyes of Douglass North, who started his academic career with research on pension systems, the provision for old-age-security is a good example for institutional

change. "The activities … have shifted from households to markets to government" (NORTH 1977, p. 709).

Thus, concerning the European continent we have to ask whether there was a transition towards old age security driven individual saving before the institutionalization of a public annuity system at the end of the 19th century. This article examines the saving behaviour and focuses on the rural population in northwestern Germany (farmers, smallholders and rural servants), which was not integrated into the public pension system until 1957.

The theories on savings behaviour (Keynes, Friedman, Modigliani et al.) assess savings mainly as an aggregative counterpart of consumption and aim to explain changes in the national product. In contrast historians are more interested in understanding savings behaviour as an expression of managing the own lifecourse. The core of Friedman's and Modigliani's theories is consumption smoothing in anticipation of future earnings losses. Two periods in the lifecourse were subject to specific historical research: Income losses when children were young and needed support on the one hand and the old age provision when labour capability decreased on the other hand. Most of them indicate life-course effects on saving and asset allocation strategies for both purposes.[1] Since the hypothesis of saving for income losses during child education has already been rejected in a previous study (BRACHT/ FERTIG 2008 and 2011), this paper is dedicated to the specific aim of saving for old age purposes which is called "life-cycle saving" in the following.

The most pointed concept of a development of life-cycle saving in 19th century is given by Susan Carter, Roger Ransom and Richard Sutch. They found evidence for a transition from a system of intergenerational transfers to a system of individual life-cycle saving during the middle of the century among rural American households and showed a connection to the issue of fertility decline. Both the transition in retirement financing and the fertility decline in the American hinterland in the first half of the century they trace back to the emigration of young rural Americans (age 25 to 35) to the west of the US.[2] They sketch a transition from bequest saving to individualistic life-cycle saving. In the "traditional" transfer system bequest-saving had a specific function: saving and

---

[1] On labourer households: DI MATTEO, Determinants; LILJA, Marknad 2004; COMBS, 2005, Evidence; ADAMS 1980; SCHOMERUS 1977; SCHOMERUS 1979; SCHULZ 1981. On proto-industrial households in a region of partible heritance PFISTER 2007.

accumulating respectively served for promising children a rich bequest and thus motivating them to stay at home and work on the farmstead. Having many children was a second aim to achieve old-age-security (CARTER/ RANSOM/ SUTCH 2004, 275-277[3]) These aims became obsolete in the course of the 19ᵗʰ century, when the young left home for a job in industry or an urban agglomeration or when the migrated to the west. Thus children lost their "value' to their parents and the old generation in general. The traditional system was replaced by individual strategies, in which saving played a central part.[4] On the other hand the new "spirit of individualism and independence' (CARTER/ RANSOM/ SUTCH 2004). promoted the process of having less, but better educated children. Parents only saved for themselves and their retirement. They needed institutions which guaranteed (and even enabled) secure accumulation and interest, with other words: banks. Carter, Ransom and Sutch call this transition the '*life-cycle revolution*'.

A more altruistic interpretation of bequest-saving gives Richard Easterlin.[5] According to him, American farmers primarily wanted to hand over the farm undivided. They also intended to support all of their children equally in achieving the same social status as their parents (EASTERLIN 1976, 65). Both aims were incentives for saving (even though Eastelin does not call it 'saving'). The author's central argument is a model saying that saving was not a function of the number of children. The number of children, instead, resulted from the economic circumstances and the ability to accumulate sufficient bequests. A lack of income opportunities in the 'overpopulated' East of the United States led to a strategy of reducing the number of children being born and resulted in fertility decline (a Malthusian hypothesis). However, Carter, Ransom and Sutch deem the saving strategy a function of demography. Since actors can indeed change saving strategies easier than demographic behaviour, it promises to explain structural change better than Easterlin's model. Yet it can be argued that urban and industrial workers had much more incentives to develop a life-cycle saving strategy than the rural population (DI MATTEO 1997; COMBS 2005). Mindful of this objection my article will test the hypothesis that life-cycle saving accompanied the increase of financial institutions.

---

[2]   Carter, Ransom und Sutch did statistical research on fertility as a function of emigration, labour market and education. Wealth accumulation and the use of financial intermediaries were not considered.

[3]   They thereby follow the thesis of 'intergenerational bargaining' by SUNDSTROM/ DAVID 1988.

[4]   Similar SUTCH 1991.

[5]   EASTERLIN 1976, 65: "What motivates him [the American farmer] most is concern about loss of status for his children". The bequest motive has a less functional character even in the economic research on savings behaviour: Bequething is seen as an altruistic action of child care.

Carters, Ransoms and Sutchs thesis of a 'life-cycle revolution' is influenced by the seminal 'life-cycle hypothesis' of Albert Ando, Franco Modigliani and his colleagues, with many modifications and adjustments of this theory coming from the international research.[6] In Germany a discussion on current life-cycle saving and research on saving behaviour has just begun.[7] In this paper I will focus on Modigliani's concept, because it shows us an ideal individual saving strategy, which is independent from the family or the state and administration; it is a counterpart to the traditional rural transfer systems[8] and it includes some of the mechanisms of saving in a modern public pension systems. Life-cycle saving could have been an adequate strategy in particular for landless, day labourer's and working class households as well as for those, who were leaving the parental farm.

The main argument of the life-cycle hypothesis (see figure 1) is: expecting their retirement, households do not consume as much as they are financially able to. They save a part of their income in order to have accumulated wealth once they will have retired. As stated above, the model suggests a very individualistic perspective. It is based on the assumption of strategic rational economic behaviour. In the following I do not intend to assess the life-cycle hypothesis right or wrong by taking the model's hypotheses literally. Central hypotheses shall rather help analysing and understanding historical savings behaviour.

First we notice that lifelong saving is one of the major statements of the model. This implies very long durations of accumulation. Moreover it implies that the young were opening more accounts than the old.

Second, the life-cycle hypotheses implies increasing wealth during the working age, a defined peak of wealth right before retireing and a decrease of wealth in this period of retirement. The aim of this chapter is to test the balances of savings accounts with several independent variables. This section will include aspects of testing both the life-cycle strategy and bequeath motives. Bequests motives are the best alternative

---

6   MODIGLIANI 1986; MODIGLIANI 1988; SHEFRIN/ THALER 1988. For the life-cycle hypothesis in historical research see SUTCH 1991.
7   BÖRSCH-SUPAN/ ESSIG 2002. Concerning German research we have to point out that studies often are financed by life insurance companies.
8   SABEAN 1990, 258-259; FERTIG 2007, 161-171. We can interpret the findings of Sabean and Fertig, who show land accumulation in younger years, as the tranfer system using modern instruments. Purchases and sales on the land market often occurred between family members, in particular between parents and an heir. See also HOFFMAN/ POSTEL-VINAY/ ROSENTHAL 2000, 157-162: they describe a credit market in which different instruments promoted life-cycle saving. Childless people chose life-annuities without principal repayment, but high annuities. People with children chose rents with repayment of principal, indicating bequest motives.

indicator to test life-cycle saving, because one who is willing to bequeath does not consume or dissave the money (however, one who is not intending to bequeath will not necessarily dissave the money).

The third chapter sheds light on the period of realisation of dissaving. This last phase is crucial for interpreting the realisation of life-cycle saving. It is expected to be longer than just a month or a year. This phase of dissaving is ideally characterised by frequent withdrawals of money, just amounting as much as a household needs for consumption. This section will show us how many savers depended on the savings.

In the second part I intend to detect saving strategies inductively. It includes a statistical analysis of withdrawing in connection with other financial transactions, lifecourse events and fixed effects. The independent variables serve to differentiate *savings capacity*, *bequest motive* and *life-cycle saving*. The results show that withdrawals were highly correlated with land investments in the same year. I conclude the article with a qualitative analysis of heritage and handing over contracts, which show that the accumulation of land on the other hand could be a strategy to achieve a form of retirement called "*Leibzucht*", which was traditionally contracted and strongly demanded, but not available on the market at that time. This section also shows that a specific and individualistic use of savings did not appear until the late decades of the 19th century.

Figure 1: Simple model of Modigliani's life-cycle hypothesis
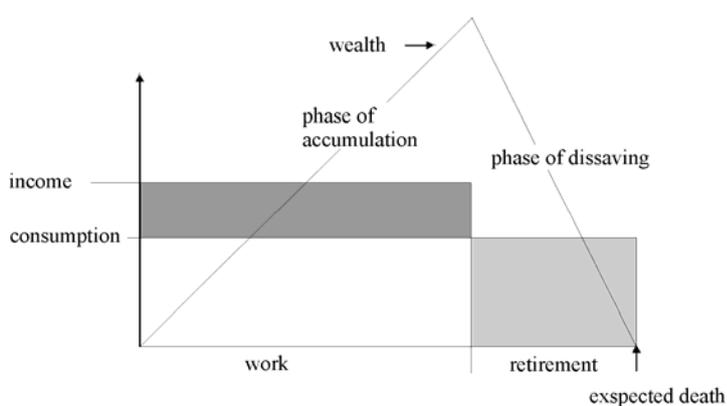
From MANKIW 1998, p. 467.

Figure 2: Geographical setting of the study (borders of 1815)

2.   Data, method and context

In this article I will analyse saving in the municipality of Borgeln in Northwest Germany (figure 2). In the 19th century Borgeln was situated in a crop exporting region and benefitted from the crop demand of the Ruhr-area already in the time of early industrialisation. This parish allows us to analyse transactions of the savings bank of Soest, a city nearby. Borgeln had some very 'modern' aspects in comparison with other rural regions. First the rural financial markets were well-developed, including both many private creditors and a savings bank in the town of Soest, established in 1825/ 26 and one of the first savings banks in this province at all (SCHOEL 1999). Second the labour market (with a high demand especially for farm girls and milkmaids) was well-developed too. This could indicate a small relevance of children providing old-age security as well.

Up to now only few studies analyse savings transactions on a micro-level of single accounts, allthough this is a central condition for an analysis of individual financial behaviour and financial decisions (ADAMS 1980; SCHULZ 1981; PAYNE/LESTER/DAVIS 1956; ALTER/GOLDIN 1994; WYSOCKI 1980; LILJA 2004). Moreover there are very few examples for a record linkage approach dealing with the historical background of savers or at least households. The innovative approach analysing savings behaviour in this article was to link transactions, deposits and withdrawals with biographical and economic information referring to the savers. During my research, I created a database which comprised the

cash administration of the savings bank (journals), in particular on account-transactions. Our research group registered all accounts and loans of people from Borgeln between 1830 and 1867 (600 savings accounts and about 100 loans of Borgeln's inhabitants, including more than 2.000 deposit transactions and about 1.000 withdrawals). Using these transactions we were able to reconstruct savings and loan accounts. We connected these accounts with both databases of land transactions, mortgage credits and family reconstitutions. Thus we were able to reconstruct the individual familial background of the savings bank customers from Borgeln.[9]

3.1   Hypothesis 1: long-term saving during working age

Life-cycle saving is a long-term strategy implying long durations of accounts. Moreover we can infer that account openings of young people were rather frequent and those of old peple, who were already facing the retirement, were rather scarce.

Table 1 presents the age distribution of account openings of inhabitants of Borgeln in the period under research. The distribution shows that more openings were done by young savers. Moreover accounts openings by young people occurred significantly more frequent than they were represented in the population (X^2 is significant on a 0,1%-level). This can be taken as evidence for life-cycle purposes. However, the numbers are not overwhelming different from those of the population at risk (of saving). And actually 32 out of 443 account holders were older than 54 when opening the account.

---

[9]   Stadtarchiv Soest, Abt. C: Akten der Stadtverwaltung Soest (1870-1933), Nr. 999-1055: Journals of the Stadtsparkasse Soest, 1830-1916 [here 1830-1867]; Landesarchiv Nordrhein-Westfalen, Staatsarchiv Münster, Grafschaft Mark, Gerichte, Großgericht Soest, 20,1: Hypothekenbuch der Soester Börde: Borgeln [land titel registers] and Grundakten Soest [land title files]; Landeskrichenarchiv Bielefeld, Kirchenbücher der evangel. Kirchengemeinde Borgeln [family reconstitution].

Table 1: Age distribution of account openings (municipality Borgeln, 1830-1867)

Age classification*	Number of accounts opend by Borgeler inhabitants 1830-67	Population of Borgeln**	Expected number of accounts***
15-24	146	5,262	127
25-34	126	4,254	103
35-44	82	3,090	75
45-54	57	2,442	59
55-64	22	1,805	44
65 and older	10	1,467	35
Total	443	18,320	443

All accounts opend by persons below the age of 15 excluded due to the probability of being trustee savings.
* Age of the account holder when opening the account.
** Years of life of all inhabitants 1830-67 spent in a specific class of age
*** Assuming the account number distribution is a perfect sample of the age class distribution of the total population.
Having a X^2 value of 37.77 it is on a level of significance of 0.1%, thus it is very probable that the age distribution of account openers is different from the distribution of the total population.

Figure 3 shows the "survival" of accounts after opening.[10] It is surprising, how many accounts were closed after comparatively short terms. After five years less than a quarter of newly opened savings accounts were still active. This holds independend from the class of the account holder. [11] Day labourers and artificians held their accounts very short, probably due to economic fluctuations. Rural servants like farm-hands and maids held their accounts little longer, because service did not depend that much on economic trends. The numerous servants give also an explanation for the phaenomenon of many young account openers. Right from the beginning of the savings bank many servants deposited their servant wage or parts of it once or twice a year.

Peasants (here "*Kolone*") had the best abilities of continuous saving, because agriculture in this region was comparatively well-off due to good soils and a growing demand from the Ruhr-area nearby. The ammounts deposed were higher. However, the peasants did not hold accounts decisively longer than the other classes. The average duration of a savings account was too short to transfer income portions across different stages of the life course. At this stage we can conclude that savings were probably used for short-term purposes.

---

[10] Censored data are included, because the using not-censored data only yields even shorter account durations.

Figure 3: Duration of accounts and social classes (Borgeln, 1830-1867)
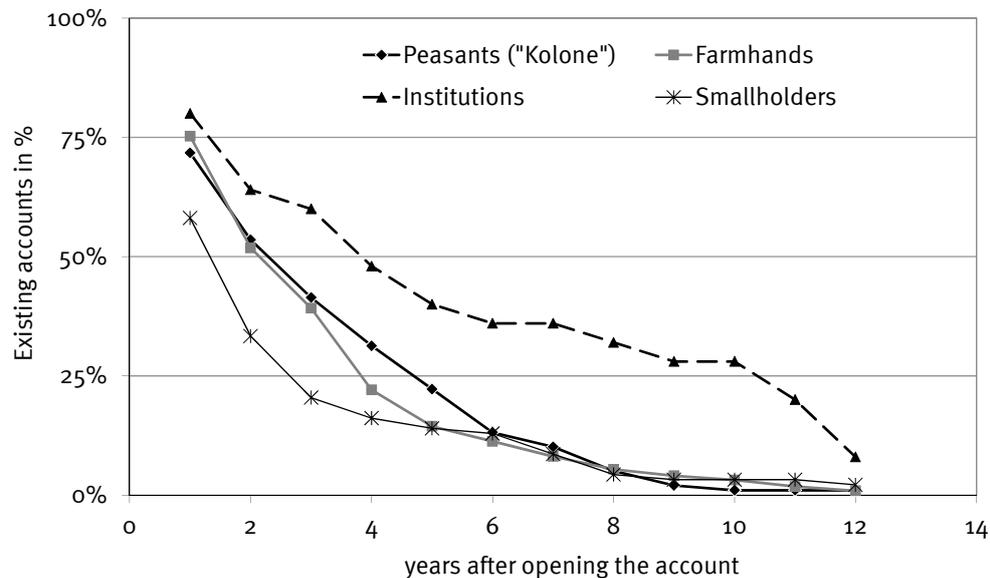
3.2   Hypothesis 2: savings balances depending on age

In perspective of Carter, Ransom and Sutch the number of children is supposed to have had a negative impact on the wealth, whereas age had a positive one. Mary Beth Combs tested this in a regression analysis on data of 19th century British retail merchants. It was based on the notes about wealth in probate inventories. She found the number of children at home to have a positive impact on the entire wealth, including immobilia. She concluded that the intention to bequeath wealth must have been very strong particularly in this stratum. Age, however, was not relevant. Livio Di Matteo came to a similar result studying the structure of wealth of Canadian households in 1892: more children at home meant a bigger family fortune. But this time the age of the head had a positive effect on the wealth. Rural households had smaller fortunes, but a higher part of it was landed property. They had less fixed interest securities and cash, but higher account savings. Di Matteo even showed the typical hump-saving climax, yet as a whole he interpreted the saving strategies as intended bequest (DI MATTEO 1997, p. 929). Both studies show the problem to assess whether wealth resulted from an own strategy of accumulating or from transfers.

---

[11]   Results confirm LILJA 2004, p. 109, and Ó GRÁDA 2003, p. 8.

Can landed property be regarded as wealth accumulated for life-course purposes? Accumulating land was formally possible in a developing land market, but not often done, because the total amount of land was restricted (in particular the land at an economically sensible distance from the household) and very seldom available (FERTIG 2004). Comparing the most common forms of assets of peasant households—land, a savings bank account and granted credits—savings were most liquid. Savings accounts seem to be cut off for life-cycle purposes, whereas land sale and purchase may be restricted by family or manorial constraints. Therefore, in the following I will analyse the factors influencing the pure amount of saving in the accounts.

Table 1 shows results of an Ordinary Least Square-regression analysis of the amount of savings deposits of 90 account holders from Borgeln at the end of 1865 as a cross-section. 36 account holders were current or former owners of a farm, 54 persons have not possessed a house or farm until 1865. Both groups were analysed separately because of presumable higher propensity for life-cycle saving among the houseless.

The main variables of the argumentation are *Number of children* and *Age*. The life-cycle hypothesis suggests high savings when children are few, the bequest saving hypothesis implies the opposite. Age is included twice, as *Age* and *Age²*. The squared age makes the difference, because the life-cycle hypothesis implies decreasing savings in the old age, whereas saving for bequest purposes means accumulation till death. Thus a negative coeffizient of squared age indicates life-cycle saving wheras a positive one indicates bequest motivation.

Supplementing variables are: (1) the *size of a farm*, the main indicator of landed property. This indicator has two meanings: first, the performance of a rural economy and the possibility of accumulating savings depends on the quantity of landed property as does, secondly, the value of the landed property. (2) The *duration of farm owning* is a variable which catches the opportunities of accumulation. (3) The marital status of *widowed* and *married* (only model B). Especially *widowed* is a relevant variable. Assuming that the death of the spouse reduces both the income opportunities and the family wealth due to inheritance, widowed is expected to result a negative coefficient.

Among the owners (model A) the variables age and age² turn out to be without influence on the savings balances. Neither old account holders owned higher deposits than the young, nor did holders without children own more than those with a large family. Decisive and statistically significant is the size of the land owned, however the

duration of farm ownership is not. Thus the decisive factor for the amount of savings was the size of income, not the duration of accumulation. The argument that widows and widowers had lower savings than unwidowed (married or unmarried) account holders proofs to be true. The fact of the number of children being irrelevant in this analysis shows that it was neither a factor reducing the income nor a factor of strategic savings behaviour among the house and land owners.

The picture given by the analysis of account holders without a farm or house (model B) is a bit different. The age-variables are now statistically highly significant. This means that we can find life-cycle saving at best among the non-owners. This is in line with the argumentation, that non-owners lacked provision for old-age, whereas owners could achieve security by transferring the farm to the children. The fact that a high number of children influences the account balance negatively can be taken as evidence for the consideration of individualistic life-cycle saving among the childless. On the other hand the number of children is also a proxy for income due to the cost of bringing up children. Yet this factor shows no statistical significance.

Overall this analysis confirms the hypothesis of life-cycle saving among the account holders without property. Among the owners were the quantity and the productiveness of landed property most important for saving. It must be noticed, of course, that both regressions leave the most parts of the variation of account balances unexplained (R^2 corr. 0.26 and 0.13).

Table 2: Factors influencing the savings balances 1865 (OLS-regression)

	1 N= Account holders with a house or farm		2 N= Account holders without a house	
	regressioncoefficient	Sign.	regressioncoefficient	Sign.
Dependent variable:				
Savings balance (nat. Log.) 1865				
Independent variables:				
Age of the account holder	3.31		**6.99**	*******
Age of the account holder ²	0.19		**-3.06**	*******
Sex	0.58		-0.07	
Children alive 1865	0.08		-0.09	
Farm size	**0.56**	*****		
Duration of farm possession	-1.01			
Married			-0.02	
Widowed	**-2.78**	*******	-0.34	
Constant	1.67		0.70	
N	36		54	
R²	0.40		0.23	
R² corr.	0.26		0.13	

Method: linear regression (OLS)

Sources: savings bank accounts; family reconstitution; land title registers; databases „Borgeln" (tables Familien, Personen, Eigentumswechsel) and „Konten".

Level of significance: + 10%, * 5%, ** 1%, *** 0.1%.

Kontostand: natural logarithm of the total deposits of a person in the savings bank of Soest 1865. Min. 0.032, max. 7.68, arithm. mean: 4.56 (equals without log. min. 1, max. 2,173, arithm. mean: 218

Age: Age of an account holder in 1865, values normalized by dividing by the arithm. mean of 47.5 (model A) or 38.6 (model B)

Age²: squared age, values normalized by dividing by the arith. mean of 2,380 (model A) or 1,650 (model B).

Sex: Dummy-variable. 0 = male, 1 = female (regression A: 1 case female, 35 cases male; regression B: 25 cases female, 30-cases male).

Farm size: Net proceeds oft the land estimated by the tax administration (only in regression A) in Taler (currency): min. 0.13, max. 615.04, here normalized by dividing by the arithm. mean of 122.99 (model A).

Married, widowed: Dummy-variables, specific marital status of the account holder 1865. 1 = yes, 0 = no (regr. A: 4 cases widowed, 32 cases not widowed; Regr. B: 3 cases widowed, 51 cases not widowed; 19 cases married, 35 unmarried). Due to multikollinearity *married* excluded from model A.

Duration of farm possession: (only in regr. A): duration of the possession of the farm (including already handed over farms), until 1865. min. 1, max. 51, here normalized by dividing by the arith. mean of 17.97 (model A).

Children alive: children oft he account holder alive in the year 1865. In regr. A values from 0-7, arithm. mittel 2.6. In regr. B values von 0-5, arithm. mean of 0.75.

3.3   Hypothesis 3: continuos dissaving during retirement

One crucial element of any life-course interpretation is the appearance of dissaving in connection with certain events or constraints. So far we know that account holders preferred short-term saving of a couple of years account duration. The underlying question is, for what purposes the account holders withdrew the money or closed the

account. We do not know. But we can approach to the problem by describing the duration of dissaving (table 3) and the frequency of withdrawals (table 4).

Table 3 strengthens the impression of short account durations in general. Methodically every account history was described as a phase of accumulation and a phase of dissaving, separated by the peak of the account balances. These peak values amount on average 316 Taler (median) or 461 Taler respectively (arithmetic mean) among the peasants, but only 41 Taler (median) or 99 Taler (arithm. mean) among the smallholders and 57 Taler (median) or 102 Taler (arithmetic mean) among the rural servants. Whereas 300 Talers are sufficient to finance a low-standard livelihood for one or two years years, the maximum values of smallholders and servants are too low.[12]

There is only little difference in the mean durations of accumulation between different social classes. In contrast, the duration of dissaving was on average remarkably shorter. Though this is in line with the life-cycle hypothesis, dissaving took on average between one and two years. This is by far too short for old age purposes, assuming a phase of retirement of a couple of years. The frequency of withdrawals raises more doubts about the use of saving for life-cycle purposes. Frequent withdrawals are assumed to be part of an active dissaving strategy, whereas few withdrawals indicate onetime payments probably for investment purposes. Both deposits and withdrawals were comparatively few transactions. Withdrawals were made once or twice a year, but not periodically and frequently. One reason for this is the distance between Borgeln and Soest of approximately 7 kilometres. Nevertheless the frequency appears to low for a pure retirement finance strategy. The contribution of savings to old age provison can at best be considered additional to a decreasing labour capability.

---

[12] See BÖRSCH-SUPAN/STAHL, p. 248, for similar findings on current societies.

Table 3: Duration of accumulating and dissaving in Borgeln

	Peasants (Kolone)	Rural servants	Small-holders	others	total
Accumulation/ Saving					
Number of cases (N)	96	212	79	173	**560**
Duration of accumulation in years (arithm. mean)	5.44	5.27	4.57	6.68	**5.63**
Dissaving					
Number of cases (N)	70	153	68	132	**423**
Duration of dissaving in years (arithm. mean)	1.79	1.67	1.59	2.30	**1.87**

Sources: Savings banks accounts Soest; database „Konten".

Table 4: Frequency of deposits and withdrawals (Borgeln, 1830-67)

	Frequency of transactions Arithmetic Mean (standard deviation)				
	Accounts of…				
	Peasants (Kolone)	Rural servants	Small-holders	others	total
Deposits/ year	1.39 (1.80)	1.55 (6.33)	1.75 (2.72)	0.93 (1.92)	**1.37** **(4.23)**
Withdrawals/ year	0.88 (1.26)	1.30 (6.46)	1.67 (3.14)	0.71 1.94)	**1.11** **(4.32)**

Sources: Savings banks accounts Soest; database „Konten".
Account closed after the end of the period under research the closing was assumed to be on 31th December 1867.
The resulting bias is neglectable.

4.   Asset allocation chains and the purpose of saving: investments

We have found some rather weak indications for both life-cyclic and bequest motivated saving stratgeies so far. Yet, the short average duration of accounts, the low withdrawal frequency and the low peak amounts are not compatible both with strong bequest motivated and life-cyclic saving strategies. At most additional and secondary strategic motives can be assumed.

The subsequent analysis changes the perspective and tries to focus on transactions as parts of asset allocation chains. It includes both variables of life course periods, life course events and economic events like sales and purchases. Table 5 presents the determinants of the probability that in a year under risk the client withdrew part or all of his or her deposits. The underlying question was: Which event, which structural

circumstance or which economic transaction increased probability of withdrawing savings?

The method used is the Logistic Regression, implying that the dependend variable is a dummy (neither 1 or 0). *Net withdrawals of savings* is representing the direction of the net flow of deposits and withdrawals. Observations refer to farms and years: each year that an owner of a farm or a house held an account with the bank yields one observation. This approach is not capable of detecting a bequest motivated saving strategy, because bequests are inheritated to the young. Thus it is methodically hard to differentiate the young savers from young heirs. Yet, the life-cycle hypothesis can be tested with a set of *age-variables.* Suggesting that withdrawals are mostly made in old age the coefficient of *age 60-69* is expected to be positive and those of *age 30-39* and *age 40-49* to be negative.

A second set of variables representing events of the family cycle is constructed as dummy variables. The years when the *account holder married* or a *child was born* both eventually resulted in withdrawals due to household building or costly celebrations. *Period of child education* is a dummy proxy constructed as an indicator for the Chayanovian consumer/labourer-relationship, assuming that in this period labourers in the household are few and consumers many and available savings are withdrawn. If the Chayanov argument is right, the coefficient is expected to be (significantly) positive. The variables *child attained majority* (in the age of 24) and *child married* both represent crucial moments, when contracted obligations like compensations to children became due. The year the *spouse has died* and the year of handing over the farm both are supposed to have positive effects on withdrawals due to an increased demand of liquidity for heritage portions and compensations.

A third set of variables represents economic events. Land purchases are supposed to have a positive effect on withdrawals, whereas land sales should have none at all. The variable *redemption payment* is modeling a special event in the rural history of Germany, the redemption of the feudal dues by paying a lump sum of capital. Detailed analysis shows that some of these redemption payments were indeed financed by withdrawn savings (BRACHT 2006).

A final set of variables is included due to control for structural features like the status quo of the farm in the respective year (*size of the farm* and the *debt level*) and the price level of *wheat.* The values of these variables are decimal numbers.

Two models are estimated. Model A is a complete model including all variables described, B is a reduced model including only the variables, which have proven significant in model A.

Again, we find evidence that savings account did not fulfil functions with respect to the life course, namely, the transfer of income portions from phases with high working capacity and little time for consumption to phases with low working capacity and need for additional resources to sustain consumption. This holds for both old age provision purposes and for periods of income losses during a unfavourable consumer/labourer-relationship, because dissaving in old age and in the period of child education was – if at all – even less probable than in earlier periods of the life course. A complementary analysis of the determinants of making a new deposit shows an age effect neither (BRACHT, 2009: 399).

Some relation between saving behaviour and the family cycle is visible in the effects of a child marrying: Children did not claim an inheritance compensation at the moment they were formally entitled to—that is, when they reached the age of 24—but when they married, which was mostly later. Withdrawals also frequently occurred when a farm was handed over by means of sales contracts, which suggests joint liquidation of assets in moments of crisis or familial transition. Savings could help to finance these transfers. In some sense, then, financial development aided the family related wealth strategies of peasants.

The results suggest however that balances were mainly run down to finance the purchase of land. This totally fits into the picture of rational economic behaviour, because arable land yielded in an average year revenues of at least 6% of its market value (BRACHT 2009, 393-395). It thus generated higher returns than both savings and granted loans. Obviously, peasants used financial markets only to store liquidity in the short or middle run, that is, to wait for the opportunity to buy land or to have cash at hand for their own or their children's marriage.

Table 5: Logistic regression on the hazard of withdrawal from bank account, clients of the savings bank in Soest living in Borgeln, 1830–1866 (owners of farms or houses)

	A Entire model		B Reduced model	
	Regression coefficient	Significance level	Regression coefficient	Significance level
Dependent variable: Net withdrawal per year				
Independent variables:				
Age of account-holder 20-29	1.292			
Age 30-39	0.391			
Age 40-49	0.146			
Age 60-69	-0.741			
Accountholder has married	0.944			
Child was born	0.151			
Period of child education	-0.180			
Child attained majority	-0.940	+	-1.0315	*
Child has married	1.128	+	0.7532	+
Spouse has died	1.033			
Farm was handed over	0.117			
Redemption payment	-0.001			
Purchase of land	1.749	***	1.2317	***
Sale of land	1.285	+	1.447	*
1830s	-1.741			
1840s	-0.913	*	-0.7826	+
1850s	1.000		(reference)	
1860s	0.299			
Size of the farm	-0.005			
Debt level	-0.001	+	-0.0002	+
Price of wheat	-0.066			
Fixed variables				
Constant	-0.076		-0.961	***
N	478		478	
McFadden-R²	0.159		0.077	
Likelihood-ratio-test, Chi²	87.184	*	42.76	***
Number of correct classified cases	364 (=76%)		358 (75%)	

Source: BRACHT (2009: 402), Land title registers Borgeln, familyreconstitution Borgeln, land title files Borgeln, journals of the savings bank Soest; databases "Bor", "KONTEN" and "Bor Abloes". — The 478 cases include 102 cases of net withdrawals (=1) and 365 cases with an increase of the overall balance or in which no flows took place. *Purchases* and *sales* also refer to net flows. All other variables refer to events (modelled as dummy variables) or the status quo of the farm in the specific year.
Period of child education is. Fixed effects are included in model A for every account holding farm (43 in total), in model B for seven farms, which in model A proved to be positive and significant. 8 farms and the variable "taken out a loan" are excluded for reasons of multicollinearity.

Level of significance: + 10%, * 5%, ** 1%, *** 0.1%
Redemption payment: redemption of feudal dues by a payment of principal. in Taler (currency), min: 0, mx: 2843, arithm. mean: 14.1, median: 0.

Purchase of land: dummy-variable, 1 indicates positive saldo of purchases and sales. 258 observations with value 1.

Sales of land: dummy variable, 1 indicates negative saldo of purchases and sales, 110 Hof-Jahre mit Werten >0. Max: 14,794 Taler, Min: 14 Taler

Period of child education: dummy-variable. 1 if the household included more children below the age of 14 than children above that age, 2,708 1-values, 2,753 0-values.

Farm was handed over: dummy-variable. 1 indicates the handing over in the specific year, 32 1-values.

Accountholder has married: dummy-variable. 1 (8 observations) indicates marriage of the account holder in the specific year.

Child was born: dummy-variable. 1 (61 observations) indicates a birth in the specific year.

Child attained majority: dummy-variable. 1 (42 obs.) indicates the marriage of a child in the specific year.

Spouse has died: dummy-variable. 1 (6 obs.) indicates the death of the spouse oft he accountholder, if married, in the specific year.

Child has married: dummy-variable. 1 indicates the marriage of a child (28 obs.) in the spec. year.

Age: dummy-variables. *20-29*: 12 1-values; *30-39*: 116 1-values; *40-49* 170 1-values; *60-69*: 47 1-values.

1830s, 1840s, 1850s: dummy-variable for decades. *1830s*: 18 1-values; *1840s*: 98 1-values; *1850er*: 179 1-values (reference); *1860s*: 183 1-values.

Size of the farm: Net proceeds estimated by the tax authorities in Taler (prevailing currency). min: 0; max: 620.38, arithm. mean: 125, median: 84.4.

Debt level: sum of mortgaged credits including compensations to heirs, in Taler. min: 0; max: 3,759, arithm. mean: 430.3. median: 0.

Price of Wheat: price of wheat in Soest in october, in Taler/ Scheffel (prevailing measure). min: 1.42; max: 4.9; arithm. mean: 2.84, median: 2.63.

Fixe farm variables: see above.

5.   Usufruct – "Leibzucht" – pocket-money. The practice of rural old age provision

Since succession contracts, in which the head or the old peasant or couple bequeathed their farm, wealth and future being, usually include the formula that the 'entire wealth' should be transferred to the successor, savings could be expected to be part of such contractual dispositions. Formally, in the existing transfer contracts of the period 1830-67 the retiring persons or couples did not retain any separate property after the handing-over. Indeed no savings accounts were mentioned in the retirement contract of the period of registered savings accounts til 1867 at all.

This picture changed towards the end of the 19th century. Due to the lack of serial data after 1867 further conclusions must be drawn from transfer contracts passed down. We find some evidence of a different assessment of savings bank deposits in retirement contracts of the late 19th and the beginning 20th century. Since the analysed retirement contracts are no representative sample of all contracts ever concluded in Borgeln, we cannot quantify the phaenomenon, but only explain examples which show evidence of a

new and specified use of savings. The earliest example is the contract of the widow Catharina Risse handing over her property and household in 1876.[13] Her husband had died in 1870. In the contract she disposed to retain "the claim to the savings bank of Soest, the personally used immoblia, clothing ... [they] remain at the widow's exlusive disposal"[14] This was related to the savings account no. 19083, established by her 58-year-old husband in 1863. It is unlikely that this account was meant to serve retirement purposes, because there were several withdrawals and new deposits since its opening. In 1867, at the end of our savings data period the account had a value of 310 taler, approximately the value of a peasant household's one or two year net income. Although the widow maintained some independence from her successing son, she did not reduce his obligation to pay for her retirement. She stipulated an own furnished cabin for herself and board throughout the year as she had been used before retirement. The son was also obliged to give her 20 taler four times a year and a piece of linen.

The couple Karje acted very similarly, when they handed over their farm to their son. They stated: "The couple reserves the right of usufruct and adminstration of the entire wealth and excludes the capital deposited at the urban and rural savings banks from handing over to their son".[15] The day labourer Georg Röttger and his wife provide another example; in 1899 they reserved the savings bank account as their "own poperty".[16]

Formally the usufruct allowed the old couple to continue the whole administration and usage of the farm. However, it was not allowed to change the cultivation and was obliged to consolidate or increase the value of the farm as well as to repair things if necessary. We can summarize that the old peasants worked and managed the houseold and farm as they had done before their retirement. This can also be found in the contract of the farmer couple Wilhelm and Maria Mettner, who bequeathed their property to their daughter in 1903. However, they reserved "the dominium [*Herrschaft*] in form of the usufruct. The old peasants are allowed to renounce the usufruct and retire (*auf die Leibzucht ziehen*), whenever they want to. Moreover all deposits at the savings bank and all savings being made in the time of the usufruct are excluded from transferring and reserved for full personal use".[17] Friedrich und Wilhelmine Schiller stipulated similar

---

[13] KonID 456, OFBID 289.
[14] Landesarchiv Nordrhein-Westfalen, STA Münster, Grundakten Soest, No. A 8904, p. 40.
[15] KonID 381, 8.2.1879.
[16] KonID 274.
[17] KonID 425.

claims in 1907. Moreover they reserved the entire cash and all claims to debtors.[18] There are five more contracts with similar passages in the period 1899-1910,[19] which is less than one third of all retirement contracts. The most frequently contracted condition was the usufruct. In fact, the old peasants waited with the real handing-over of the farm and its administration until they were not able to manage it any longer.

We notice that usufruct was a very common form of delaying retirement, which usually was contracted as *Leibzucht*. Leibzucht included a room or even a separate house, food and health care supported by the young peasant. Among smallholders this was also the common intergenerational form of old age provison. For servants and landless day labourers the most common way of maintenance was to work till death. But we also have few indications for accumulated assets exchanged for a *Leibzucht*. In order to understand the whole prozess, I will finish this argumentation with a detailed example.

The account of Margaretha Wortmann is extraordinary. She held her account extraordinary long from the age of 42 until the age of 76 (1855-1889). The account attained an extreme high peak value of 7,200 Mark in 1889 (equals 2,400 Taler). Thus the example serves not as a example for the rule, but for the empirical evidence for account holders shaping life-cycle saving.

Margaretha Wortmann held a first account since the age of 24 until 40 (1837-1853). A second account was active from 1855 until 1889.[20] She was an unmarried mother of a son, owner of a single plot of arable land and worked probably most of her life as a maid. In 1889 she contracted a *Leibzucht* for herself and her 38-year-old and sickly [*kränklich*] son with her brother Caspar.

> "Margaretha Wortmann an her son lived nearly for their whole lifetime in the household of [her half brother] Caspar Wortmann. He provided them entire vital requirements. The wealth of Margaretha Wortmann includes 1. the plot no. 2-224..., 2. the savings deposited with the Savings bank of Soest amounting 5,801.23 Mark ... and with the Rural Savings Bank of Soest [*Ländliche Sparkasse zu Soest*] amounting 1,393.95 Mark... 3. Moreover M. Worthmann is the owner of a coffer, a complete bed and a stock of linen.
>
> Margaretha Worthmann is transfering all of her wealth to her half brother Caspar to his entire property, but she is retaining usufruct for her lifetime.

---

18   KonID 488
19   KonIDs 522, 355, 394, 457, 414.
20   BOR OFBID 10743; KontoIDs 8 (Hauptbuchnr. 2039) and 325 (Hauptbuch 11858).

> Caspar Wortmann is accepting this transfer. He is commiting himself to housing Margretha and her son for their lifetime und to provide all future vital requirements as he did before. If the return of the usufruct [*Früchte des Nießbrauchs*] is not sufficient to cover the maintainance of Margaretha and her son, Caspar is obliged to finance from his own resources. If, however, the return of the usufruct is exceeding maintenance, the exceeding amount is supposed to be the property of Caspar."[21]

The maid Margaretha Worthmann had shown extraordinary discipline in saving. Probably there was a connection between this determination to accumulate and the requirement of providing old age security. When her parents handed over the farm to Caspar, Margaretha was not secured by a lifelong right to live on the parently farm. Her life was exposed to huge risks and she reacted with saving.

The exchange of real estate—mostly a house—for a Leibzucht was a common pattern of economic decision.[22] Smallholders transferred their houses to the young on farreaching conditions. The exchange value of a single plot was comparatively little and resulting in a not very comfortable *Leibzucht*, for example housing and the occupation as a farmhand.[23]

On basis of these documents, we can conclude that the traditional form of retirement, the *Leibzucht*, remained to be the most prefered way of old age provision. Transferring a farm and stipulating care seems to be a family affair, but as a form of exchange it was also practised among non-kin. The *Leibzucht*, including the use of a cabin or even a house, food, clothing and medical care, eventully a social adequate burial, was supposed to be adjusted to the standard of living. It is noteworthy that the *Leibzucht* was not replaced by saving and dissaving. Saving accounts were—if at all—used for a means of accumulation in order to have a good negotiation position when contracting a *Leibzucht*.

The idea of saving and dissaving as a separate form of old-age-security arose around 1900. However, the deposits were only additional to the ordinary form of retirement, which primarily took place within the transfer contracts. A savings account gave retired people more freedeom and flexibility in old age. Moreover the words given in

---

[21] BOR KonID 412.
[22] Moreover BOR KonID 98, 302, 43, 265, 29, 254, 349, 302.
[23] BOR KonID 302.

the Mettner-contract indicate that people had developed a certain idea of savings. Savings now appeared as an indicator of success or failure in the management of the farm. They were the achievement of an individual and as such the individualistic peasant retained them for himself. Of course, we have to be aware of the normative character of such passages, since the aim was to give clear-cut and definite dispositions. Some conditions may have been registered, which have never became a problem in reality. However, the special use of savings accounts at the end of the 19ᵗʰ century marks an extended scope for action in the "third age of living".

6.   Conclusion

This study has linked the evolution of individual savings banks accounts with information on life courses of their peasant owners. The central aim was to investigate the savings behavior on the background of the 'life-cycle revolution' hypothesis by Carter, Ransom and Sutch and the "life-cycle hypothesis" of Modigliani, Brumberg and Ando. This investigation has produced the following results:

- We have no evidence of strategies in the sense of a rational strategy of accumulation and disinvestment for consumption purposes in and during old age.

- When an old peasant or a couple handed over the farm to a child, this did not entail giving up its management. By usufruct they could take up loans, purchase land and therefore continue saving in a broader sense. This is confirmed by 13 savings accounts, which were established by the old peasant even after the formal handing-over.Usufruct provided a transitional time before the retirement. It is not known exactly at what time a peasant actually gave up his management of the farm.

- Only a few accounts were kept even after the date of the formal handing-over of the farm. However, we can assume that the management was continued in a form of usufruct. Most accounts were closed by one single withdrawal, because the account holder was not only consuming, as he is supposed to do during retirement, but also investing and managing the farm.

- The actual handing-over was the transfer of the entire property, including savings accounts. Therefore we have to assume that a disposition of deposits was only possible by an arrangement with the successor. Separate dispositions of savings accounts occur

not until the end of the 19th century and show that there was a demand for supplemental individual security and care.

There was no fundamental transition towards individual old-age-security among the rural society. Among peasants there was no need of old-age-saving, because even smallholders just owning a house hardly exceeding a value of 250 taler had a basic social security. They handed over property to a child or another person and stipulated care and board during their retirement. Persons owning property did not feel the direct necessity of saving for old-age. Care and board could only be secured within a *Leibzucht*-relationship, because there was no market-solution for this purpose. Therefore the market-solution of saving and dissaving was only appliable in promoting to achieve the "traditional" old-age provision.

The supply of institutional saving—of course enriching each person's liquidity and flexibility—did not change the behaviour concerning the retirement. At best it enriched the opportunities of well-situated peasants. Previous research emphasized that savers mostly were motivated by either life-cycle- or bequest-purposes. Obviously, concerning the population of 19th century rural Westphalia this is not the right question. Those who did save mostly were peasants with landed property. Landed property was their old-age-security by means of the traditional transfer system. Saving was done for periods of a few years apparently for investitious purposes. Accumulated real estate property however could have been used as a means for exchange against a *Leibzucht*. Saving and Leibzucht, the "modern" and the "traditional" way of old age provision, were not alternatives but links of asset allocation chains.

At the end of the 19th century more and more peasants used savings a supplemental 'pocket-money'. Those inhabitants without or only with little landed property, did not have enough land to produce surplus. Therefore they did not realize life-cycle saving as well. A house and a garden were enough to stipulate a retirement contract. Those without any property did also have no savings. They probably experienced relief from family members or welfare institutions, or simply they did not retire at all.

References

Stadtarchiv Soest, Abt. C: Akten der Stadtverwaltung Soest (1870-1933), Nr. 999-1055: Journals of the Stadtsparkasse Soest, 1830-1916

Landesarchiv Nordrhein-Westfalen, Staatsarchiv Münster,

- Grafschaft Mark, Gerichte, Großgericht Soest, 20,1: Hypothekenbuch der Soester Börde: Borgeln [land titel registers]

- Grundakten Soest [land title files]

Landeskrichenarchiv Bielefeld, Kirchenbücher der evangel. Kirchengemeinde Borgeln [family reconstitution]

ADAMS, Donald. "Earnings and savings in the early 19th century". *Explorations in Economic History,* n° 17, 1980, 118-134.

ALTER, George, Claudia GOLDIN, Elyse ROTELLA. "The savings of ordinary Americans: the Philadelphia Saving Fund Society in the mid-nineteenth century". *Journal of Economic History*, n° 54/4, 1994, 735-767.

ANDO, Albert, Franco MODIGLIANI. "The 'life-cycle' hypothesis of saving: aggregate implications and tests", *American Economic Review,* 53, 1963, 55-84.

BÖRSCH-SUPAN, Axel, Lothar ESSIG. *Sparen in Deutschland. Ergebnisse der ersten SAVE-Studie.* Köln, 2002.

BÖRSCH-SUPAN, Axel/ STAHL, Konrad. "Life Cycle Savings and Consumption Constraints. Theory, empirical evidence, and fiscal implications". *Journal of Population Economics* , 1991, 233-255.

BOURDIEU, Jérôme, Lionel KESZTENBAUM, Gilles POSTEL-VINAY. "Thrifty Pensioners. Pensions and Savings in France at the Turn of the Twentieth Century". *The Journal of Economic History*, 71, 2011, 383-412.

BRACHT, Johannes. "Reform auf Kredit: Grundlastenablösung in Westfalen und ihre Finanzierung durch Rentenbank, Sparkasse und privaten Kredit (1830–1866)". *Zeischrift für Agrargeschichte und Agrarsoziologie*, n° 54/2, 2006, 55–76.

BRACHT, Johannes. "Criteri formali, esperiena personale e conoscenza delle istituzioni. La concessione di crediti in una cassa di risparmio di una piccola città tedesca, 1830-1866". *Quaderni storici, No.* 66/2, 2011.

BRACHT, Johannes. *Geldlose Zeiten und überfüllte Kassen – Vermögenstransaktionen westfälischer Bauern auf frühen Kapitalmärkten (1830-1866)*, Dissertation Münster 2009 (forthcoming Stuttgart 2012).

BRACHT, Johannes, Georg FERTIG. „Wann sich verschulden, wann sparen? Vermögensstrategien und Lebenslauf im ländlichen Westfalen des 19. Jahrhunderts". In CLEMENS, Gabriele B. (ed.). *Schuldenlast und Schuldenwert. Kreditnetzwerke in der europäischen Geschichte 1300-1900.* Trier, 2008, 177-192.

BRACHT, Johannes/ FERTIG, Georg. „Lebenszyklus, Alterssparen und Familie in der liberalen Marktgesellschaft des 19. Jahrhunderts: ein ländliches Beispiel". In SOKOLL, Thomas (ed.). *Soziale Sicherungssysteme und demographische Wechsellagen. Historisch-vergleichende Perspektiven (1500-2000)*, Berlin 2011, 198-220. [Slightly complemented version of Bracht/ Fertig 2008]

CARTER, Susan B., Roger L. RANSOM, Richard SUTCH. "Family Matters: The Life-Cycle Transition and the Antebellum American Fertility Decline." In GUINNANE, Tim, W. SUNDSTROM, W. WHATLEY (eds.). *History Matters: Essays on Economic Growth, Technology, and Demographic Change.* Stanford, 2004, 271-327.

COMBS, Mary Beth. "They lived and saved. Evidence of the bequest motive for saving among small shopkeepers in late nineteenth century Britain" [paper presented at Colgate University 23 September 2005, http://ebookbrowse.com/combs-colgate-paper-pdf-d166081334 (January 2012).

DI MATTEO, Livio. "The Determinants of Wealth and Asset Holding in Nineteenth-Century Canada. Evidence from Microdata". *Journal of Economic History,* n° 57, 1997, 907-934.

EASTERLIN, Richard A. "Population Change and Farm Settlement in the Northern United States". *Journal of Economic History*, n° 36, 1976, 45-75.

FERTIG, Georg. "'Der Acker wandert zum besseren Wirt'? Agrarwachstum ohne preisbildenden Bodenmarkt im Westfalen des 19. Jahrhunderts". *Zeitschrift für Agrargeschichte und Agrarsoziologie,* n° 52/1, 2004, 44-63.

FERTIG, Georg. *Äcker, Wirte, Gaben: ländlicher Bodenmarkt und liberale Eigentumsordnung im Westfalen des 19. Jahrhunderts*, forthcoming Berlin, 2007.

HOFFMAN, Philip T., Gilles POSTEL-VINAY, Jean-Laurent ROSENTHAL. *Priceless Markets: The Political Economy of Credit in Paris, 1660-1870.* Chicago, 2000.

KOPSIDIS, Michael: *Agrarentwicklung: Historische Agrarrevolutionen und Entwicklungsökonomie.* Stuttgart, 2006.

LILJA, Kristina. Marknad och hushåll: Sparande och krediter i Falun 1820–1910 utifrån ett livscykelperspektiv. Uppsala, 2004.

LORENZEN-SCHMIDT, Klaus-J. "Bäuerliches Kreditverhalten in der Krempermarsch im 19.Jahrhundert". In LORENZEN-SCHMIDT, Klaus-J. (ed.), *Geld und Kredit in der Geschichte Norddeutschlands*. Neumünster, 1986, 261-276.

MANKIW, Gregory. *Makroökonomik*, 3rd, revised and extended ed. Stuttgart, 1998.

MODIGLIANI, Franco. "Life Cycle, Individual Thrift, and the Wealth of Nations". *American Economic Review*, n° 76, 1986, 297-313.

MODIGLIANI, Franco. "The Role of Intergenerational Transfers and Life Cycle Saving in the Accumulation of Wealth". *Journal of Economic Perspectives*, n° 2:2, 1988, 15-40.

MODIGLIANI, Franco, Richard H. BRUMBERG. "Utility analysis and the consumption function: an interpretation of cross-section data". In KURIHARA, Kenneth K. (ed.), *Post-Keynesian Economics.* New Brunswick, 1954, 388–436.

NORTH, Douglass C. "Markets and Other Allocation Systems in History: The Challenge of Karl Polanyi". *Journal of European Economic History,* 6, 1977, 703-716.

PAYNE, Peter Lester, Lance Edwin DAVIS. *The savings Bank of Baltimore, 1818-1866: A Historical and Analytical Study.* Baltimore, 1956.

PFISTER, Ulrich. "Rural land and credit markets, the permanent income hypothesis and proto-industry: evidence from early modern Zurich", *Continuity and Change,* 22, 2007, pp. 489-518.

SABEAN, David W. *Property, production and family in Neckarhausen, 1700-1870.* Cambridge, 1990.

SCHOEL, Thomas. *Mitten im Leben. 175 Jahre Sparkasse Soest*. Stuttgart, 1999.

SCHOMERUS, Heilwig. *Die Arbeiter der Maschinenfabrik Esslingen. Forschungen zur Lage der Arbeiterschaft im 19. Jahrhundert.* Stuttgart, 1977

SCHOMERUS, Heilwig. „Lebenszyklus und Lebenshaltung in Arbeiterhaushalten des 19. Jahrhunderts". In CONZE, Werner , Ulrich ENGELHARDT (eds.). *Arbeiter im Industriali-sierungsprozeß: Herkunft, Lage und Verhalten.* Stuttgart, 1979, 195-200.

SCHULZ, Günther. "'Der konnte freilich ganz anders sparen als ich'. Untersuchungen zum Sparverhalten industrieller Arbeiter im 19. Jahrhundert." In CONZE, Werner, Ulrich ENGELHARDT (eds.). *Arbeiterexistenz im 19. Jahrhundert. Lebensstandard und Lebensgestaltung deutscher Arbeiter und Handwerker*. Stuttgart, 1981, 487-515.

SHEFRIN, Hersh M., Richard THALER. "The behavioral life-cycle hypothesis". *Economic Inquiry,* n° 26, 1988, 609-643.

SUNDSTROM, William A., Paul A. DAVID. "Old-Age Security Motives, Labor Markets, and Farm Family Fertility in Antebellum America". *Explorations in Economic History*, n° 25, 1988, 164-197.

SUTCH, Richard. "All Things Reconsidered: The Life Cycle Perspective and the Third Task of Economic History". *Journal of Economic History*, n° 51, 1991, 271-288.

TSCHAJANOW (Čajanov, Chayanov), Alexander V. *The theory of peasant economy*. Homewood (Illinois) 1966.

WYSOCKI, Josef. *Untersuchungen zur Wirtschafts- und Sozialgeschichte der deutschen Sparkassen im 19. Jahrhundert*. Stuttgart, 1980.