Measuring the age-dependent economic costs and benefits of children and juveniles: Annual auctions of pauper orphans

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**Abstract**

In this paper, the amounts paid by or received from foster-families and employers for caring or employing paupers pauper children in the period 1770-1860 has been analysed for the town of Appingedam and also to a limited extent for the nearby Groningen countryside (the Netherlands). This amount paid/received (corrected for price changes) is shown to be extremely age-dependent from about the age of 10, and even more so after the age of 12. Only on average at the age of 15 teenagers were able to earn enough to provide for board and lodging in the town of Appingedam.

There were also clear differences between town boys and girls with teenage girls costing less and earning more than boys until the age of 17. This difference was shown to be largely the result of a strategy of the poor relief board to invest intensively in the skills of boys by placing them in positions as apprentices which usually went together with considerable learning fees and low wages, but also opened the prospect of a more bright position as an independent artisan later in life. In the countryside pauper children usually became live-in servant at a farm. Rural boys and girls were both already able to earn an income by the age of 13-14 above board and lodging. For these farm servants physical strength mattered most, and as a consequence the reward for rural boys was significantly higher than that of girls of the same age.

In conclusion, juveniles were economically attractive at a lower age in rural agricultural conditions than they were in a more urban setting. Nevertheless, even in a capitalistic countryside, it took such a long period for children to become economically beneficial, that this hardly can have been a rational reason for striving to large families.

**1. Introduction**

Often, it is argued that it could be beneficial for families to raise many children if they become productive already at a young age. The argument can even be that in certain circumstances the potential earnings of children would even create an incentive for marrying young and start reproduction early. However, it is also generally accepted that caring for young children is not without costs. This is reflected in Seebohm Rowntree’s family poverty cycle. The standard-of-living of a family falls shortly after marriage due to the rising number of costly children, while the economic position of the family again starts to improve when the oldest children become capable to work and begin to contribute to the household income.
In this paper I want to investigate the possibilities to measure precisely how large the economic costs and benefits were of younger and older children in the last decades of the eighteenth and the first half of the nineteenth century. How much does it actually cost to care for a child (boy or girl) of a specific age, and around what age are children becoming financially interesting to have as their revenues are becoming higher than their costs? As the average price-level changed considerably during the period 1770-1860, it will be investigated if price developments were also reflected in the change in maintenance costs of young children over the period. Are these costs really an accurate measure of the bare minimum?

Main source will be the annual sums paid or received by the poor relief board of the small town\(^1\) of Appingedam (province of Groningen, the Netherlands) which were the result of public auctions of orphans and half orphans during the period 1770-1860. These amounts give an impression of the perceptions of foster families and potential employees of the costs and benefits of children.

As the pauper children of Appingedam often found work in non-agricultural enterprises, the data is supplemented with more fragmentary data on wages received by rural poor relief boards in some Groningen villages to employ orphans. The pauper children were usually dismissed by the poor relief boards between the age of 16 and 20.

In the next chapter I will discuss the available data and the methods used to analyse them and describe in detail the system of boarding out pauper children. Afterwards, Appingedam and its environments around the first half of the nineteenth century will be briefly introduced, concentrating on the economy and the earning possibilities for young children in the local economy. In the fourth chapter the change in costs and earnings of boys and girls over their first twenty years is analysed, taken especially gender differences into account. In a fifth chapter a closer look will be taken at the earning possibilities in different occupations, especially concentrating on the question, if we can discern investment strategies during the teenage years of children. In what way did the poor relief board invested in the future skills of these children?

2. Sources, methods and the Appingedam system of boarding out pauper children

From 1770 onwards, a lot of detailed information on the costs and revenues of individual children relieved by the local poor relief board is available in the archives of the Dutch Reformed Church of Appingedam. Until the second quarter of the nineteenth century the provision of paupers was nearly completely the task of religiously organised poor relief boards and so the responsibility of the local church in the Dutch province of Groningen. This system existed in most other parts of the Dutch countryside and in a lot of towns as well. However, in the larger cities – but also for instance in the southern part of the Netherlands with its large catholic majority – institutions for all paupers irrespective of denomination were present. In the small town of Appingedam, it was only in the second half of the nineteenth century that the general civil poor relief (organised by the municipality) began to play some role, and only after 1854 that it became of true importance, partly as the unwanted effect of the new Dutch Poor Law proclaimed in that year\(^2\). In 1809 still 87% of the population of the municipality of Appingedam belonged to the Dutch Reformed Church, with as important minorities the Roman-Catholics, the Israelites and the Mennonites (who all three had their own poor-relief board). By 1849 the share of the general Dutch Reformed Church had fallen

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\(^1\) In Dutch officially no difference between towns and cities is being made.

\(^2\) Groninger Archieven, Provinciaal Archief, Gemeenteverslag Appingedam 1854, 1856 and 1860.
to 78%, because of the separation of an orthodox branch, comprising by that time 8% of the population of the municipality (Paping, unpublished).

The Appingedam Reformed poor board was maintaining annually often more than hundred persons. In 1807 a figure of 140 is mentioned, but in 1810 only 93 paupers were relieved (sources: see Paping 1995). Presumably this number increased again in the second quarter of the century as in the whole of the municipality of Appingedam the amount of paupers developed from 168 in 1810, to 126 in 1817/18, to 199 in 1834, and between 265 and 358 in the period 1851-1860. Next to widows, disabled and old-aged, a considerable part of those relieved consisted of adolescents. Especially orphans or half orphans (without a father) formed vulnerable groups. If their parents had occupied lower class positions and did not leave behind enough reserves to raise their children in a proper way, they usually became the responsibility of the local poor relief board.

As an orphanage was missing in Appingedam until 1858, the guardians of the poor relief board had to find a way to get people to take care of these numerous orphans (usually 10 to 20 each year). The solution was an annual auction of children, which usually took place in February or March. A child was allotted to the family that was prepared to take care of him or her for the smallest sums of money. These were usually expressed in weekly, but also often in annual amounts. Orphans who were able to earn some money themselves were auctioned in a similar way. In that case the possible employers were bidding against each other to establish who was prepared to pay the highest wage. This system was apparently seen as so successful that already in 1770 a lot of children who only lost one parent were also auctioned, especially those who could earn some money. It seems to have been a way for the poor relief board to prevent the older children of relieved pauper families to remain idle, and in this way reduce the sums such family cost. In some cases the mother was allowed to keep the money earned by her child.

At first sight this seems a rather cruel and extremely rational system using market forces to provide care for pauper children in the cheapest way possible. However, there are numerous publications showing that a system of orphanages elsewhere could be much worse, with high extremely death rates and a failing caring system (***literature references). Besides, close investigation of the archival information shows that the Appingedam guardians were continuously taking the interests of the pauper children into account too. Several children were year after year allotted to family members as grandparents or uncles and aunts. This might also have been happening because others did not want to bid against family members. Orphans before the age of 12 usually remained with the same foster-family for several years. There is also one example of such a family being outbid by someone else, but afterwards the guardians decided nevertheless that the child should stay with its original foster-family, as the last had become so much attached to it.

Guardians also made provisions that foster-parents should send the children to school. Usually these provisions were relating to children aged 12 or above, as to the opinion of the guardians they still had to attend the special evening school in Appingedam directed to this age group for one to two hours a day. Taking this into account, it might be assumed that pauper children also went to school between the age of 6 and 12. In one case, a regular foster-family explicitly lost their children, because they did not go to the primary school regularly. I will later on also discuss that a considerable part of the teenage boys were not auctioned at all, but the guardians concluded quite expensive long term learning and caring contracts for them with skilled artisans.


In the Groningen poor relief system, officially only parents could be held responsible for the care of children. More distant relatives were not.
Sometimes (older) children ran away (usually half orphans returning to their mother), sometimes they were driven off by their employer, or were dismissed because they became ill. Nevertheless, the poor relief board really expelled children from the dole only rarely. For the rest, the archive does not give much information on the treatment of these children. However, the mortality-rate of them does not seems to have been particularly high, taking into account that it was common in this region that a significant part of the children died between the age of 5 and 20 in this period (Paping and Schansker 2013).

Six books report the results of the annual auctions of pauper children in Appingedam between 1770 and 1860, specifying usually precisely what the conditions were, who was to become the foster-father or the employer, how much money was involved and what was the length of the contract. Changes in contracts were often mentioned in short notes. To a limited extent this information is replenished and sometimes controlled by us using the purely financial information in the account books of the poor relief board stretching from 1771 tot 1860. In some cases extra information was derived from the minutes of the meetings of church council and later of the board of guardians and the letters they have sent.

A main difficulty was finding out who the pauper children mentioned in the books actually were, to establish for instance their exact age (day of birth) and the social position of their parents. Only from 1811 onwards the Netherlands has a national system of registration of births, deaths and marriages. Before 1811, parish baptism, marriage and death (only from 1806 onwards) registers are available, but they give less information on occupations and a lot of people do not have a surname which makes it sometimes difficult to identify a pauper child. Sometimes, guardians used unexpected names for the children as well. A nice example was Jan Arkema, who in the end proved to be an illegitimate son of Aaltje Nagelsmit. Guardians were inventive in corrupting Christian names too, and sometimes made downright mistakes. Most of the pauper children were born in Appingedam or the direct environment, however, some seem to have come from other provinces, making identification again rather difficult. Consequently, not all the pauper children in the books have been identified, especially not those before 1800. However, approximately more than 80% are, resulting in a database with 1,368 annual data on 203 children. For some, there is only information for one year, for others the information stretches over periods of ten years or longer.

Unfortunately part of this information did not prove suitable for a straightforward analysis for several reasons. For some children board and lodging and employer were separated. These children worked on a weekly basis for instance in the shipyard or as thread-twister, but lived at home with their mother. Other juveniles seem to have been too ill to work for years, resulting in increasing costs of caring for them in their teenage years. We restricted our analysis to those younger than 20 year, while some boys and girls remained on the dole until 21 to even 23. Also in some cases the sum paid or earned by the board was not registered, and was not mentioned in the financial administration either. After this elimination process 1,103 annual data were disposable for analysis.

The next problem was that the provisions under which children went to foster-families or employers differed continuously. In the eighteenth century it was usual to give foster-parents next to a weekly sum also one rye bread of four kilogram. The value of bread was estimated using prices of the city of Groningen (Paping 1995, p. 366, 370-371), the value of the peat given was estimated using a price-series for Appingedam (Paping 1995, p. 368, 376-377. Usually the poor relief board paid all the costs of the children related to clothing and footwear, including maintenance (sewing and shoemaking), though in several cases the receiving family paid part of these costs. To correct for this, clothing was reckoned to cost 10

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5 Groninger Archieven, NH Appingedam, inv.nr. 41-46.
6 Groninger Archieven, NH Appingedam, inv.nr. 31-34, 38-40.
7 Groninger Archieven, NH Appingedam, inv.nr. 7, 13-14, 18-19.
guilders annually and footwear 6 guilders, and only the maintenance of cloths 2 guilders, just as much as the maintenance of footwear. For the sake of simplicity we used a fixed amount for the whole period. The rare other expenditures mentioned were also recalculated in money. In this way we reconstructed the amount of costs or earnings of a child, assuming that foster-parents and the employers only supplied board and lodging, while the poor relief board paid all other costs, mainly regarding cloths and footwear.

The last problem to be tackled was that the price level was of course not stable during the long period from 1770 to 1860. Fortunately, we have several price-indices at our disposal to deflate the values. To estimate real values (prices of 1831/1850) a price-index for the development of the price of board and lodging was used (Paping 1995, p. 404-407). The weights of this price-index are rye 6.20%, wheat 1.47%, barley 4.74%, potatoes 7.83%, peas 2.09%, beans 2.59%, butter 9.97%, buttermilk 3.59%, milk 6.54%, beef 7.20%, pork 7.31%, eggs 1.12%, rye bread 6.19%, groats 5.35%, beer 3.16%, gin 3.59%, vinegar 0.71%, sugar 5.12%, salt 1.82%, iron 0.90%, peat 5.6%, lamp oil 3.47%, candles 0.93%, animal fat 1.22%, linen/cotton 0.93% and besoms 0.35%. Costs and earning covering a year from the middle of May onwards have been related to the price index in the year that the contract had been concluded.

Deflating is of course rather anachronistic, as people in the eighteenth and nineteenth century were not exactly aware of the precise price development. On the other hand, foster-parents clearly had some knowledge of long-term price-developments, given the rising amounts they wanted to have for caring for children when average prices had increased or fallen. Graph 1 shows that the higher prices from 1795 onwards resulted in a higher amount of money paid to foster-parents of young children. However, from about 1810 onwards price-developments and costs of pauper children started to diverge, resulting in those costs usually being less than the
value to be expected according to the development of the price index number in the 1840s and 1850s.

This development might seem surprising, though fits perfectly in findings that the quality of the poor relief seriously deteriorated in the Groningen countryside from the end of the eighteenth century onwards (Paping 2013). Around 1790 the real expenditure on poor relief per capita decreased significantly, and the number of paupers was still rather limited in this period. After 1820 the share of paupers in population was increasing rapidly, while in the meantime real expenditure per pauper was falling to slightly more than half the amount it used to be. A rising social distance between the lower class benefiting from poor relief and the more well-to-do middle class and rich farmers financing the poor relief system resulted in the end of a quite generous system of poor relief, especially in the second quarter of the nineteenth century. Although average real per capita income was rising in the Groningen clay area, the real incomes of the growing group of labourer families did not increase at all, while real incomes of the poorest families fell in this period, mainly due to the higher food prices in the 1840s and 1850s (Paping 1995). Presumably, the same kind of developments took also place in other parts of the Netherlands, resulting in a serious fall in the biological standard-of-living nearly everywhere in this period (Paping and Tassenaar 2007).

Nonetheless, these results cast some doubts on the usefulness of the method applied. In the calculations it is assumed that the standard-of-living that foster-parents and employers provided to the pauper children was about the same over the whole period 1770 to 1860. These figures suggest, however, that this standard-of-living was falling significantly in the last decades. The poor relief board stopped shortly after 1813 nearly completely with providing four kilogram of rye bread a week to foster-families (or 204 kilogram a year), which was a quite usual practise before. The amount supplied was much more than a child ate, as average bread consumption per capita was a little more than 100 kilogram until 1790, to decrease to about 90 kilo around 1830. Paying in bread was attractive in the eighteenth century, because poor relief boards were exempted from paying the high excise on the milling of grain.

From the 1815s onwards we see some poor families specializing in taking in foster-children. The first was Aaltje J. Til, married with the barge hand Tonnis B. Bakker. From 1815 until 1827 she always had one or two young children at home. A real small orphanage was the house of Antje H. Wildevuur, widow of the ship’s carpenter Jurjen J. Donselaar. She also started in 1815, accepting a child now and then. However from 1829 onwards, and even more after the death of her husband she housed six to eight paupers, until she suddenly stopped in 1837. Her position was immediately taken over by Trijntje H. Brinkman, widow of the labourer Jan van der Molen, who usually cared for several children in her house until her death in 1855. In the sources she is usually described as being a tradeswoman, although her death certificate calls her a woman worker. Both women usually also had one or more disabled in their house to take care of on behalf of the poor relief board.

An even cheaper solution than these nearly professional caregivers, was to board out children to poor labourers in the countryside, as happened more often from the 1830s onwards. An example is the farm labourer Koert P. Heikema in the nearby village of Krewerd, who took in a young child from 1834 to 1838, and again one or two from 1849 to 1855, always for a relatively low financial compensation. In March 1855 the guardians decided – after several complaints about the treatment of these children – to take them immediately away from him.

In general, it has to be concluded, that the annual costs of caring for pauper children established on the auctions is to some extent influenced by price movements. However, there was certainly no exact one to one relation, as the real costs seemed to have diminished rapidly in the course of the nineteenth century. Consequently, it has to be concluded that the annual
costs of caring for pauper children do not reflect a bare minimum standard-of-living, but were also to a large extent related to what was seen as acceptable in society. Presumably, a lower standard-of-living for pauper children met less resistance around 1850, and consequently the nourishment of pauper children had deteriorated significantly compared to the last decades of the eighteenth century. Notwithstanding this, the mortality under pauper children remained relatively limited, even in this period.

3. The economy of the town of Appingedam and the neighbouring countryside

The province of Groningen comprises the city of Groningen and its agricultural surroundings, all together nearly 200,000 hectares. In the clay half of the province the economy was dominated by a completely market-oriented agriculture conducted by medium and large scale farms already since the sixteenth century. The economy of the Groningen clay soil area, although having its own peculiarities, resembles in many respects the coastal parts of Begian Flanders, the countryside of the coastal Dutch provinces of Holland, Zeeland and Friesland, and the neighbouring German region of Eastern Friesland (Vanhaute, Karel & Paping 2013; Hoppenbrouwers & Van Zanden 2001; Aden 1964). In all these regions rural economic life was dominated by medium and large scale farms on clay soils producing for the market, usually specialising in either mainly arable or livestock production. Also large groups in the countryside (possibly even 40% of the heads of rural households) were active in specialised occupations in services and industry mainly directed to satisfy local needs.

Map of Dutch provinces indicating Appingedam and the clay soil region

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8 Deceased boys: 1830 (aged 2), 1853 (14); deceased girls: 1786 (6), 1800 (0), 1809 (0), 1809 (17), 1809 (18), 1841 (6), 1858 (16). Figures before 1806 are incomplete.
The rest of the province of Groningen had sandy and peat soils, with often small and medium-sized farmers and peasants which were especially in the sandy regions partly directed to self-provision (as in the neighbouring province of Drenthe and elsewhere in the interior of the Netherlands). Farm labourers comprised a far lower share of the population in these regions than in the clay soil area, and were usually partly active as smallholders. The share of those rural people active outside agriculture was less, with the exception of some Dutch regions were an important proto-industry (usually textiles) existed. This economic system resembles more the situation in the rural parts in the rest of Western Europe, although it was still much more market-oriented.

The map shows that Appingedam was situated in the very market-oriented clay soil region of Groningen, although not far away from the border. However, the nearby region of Slochteren, consisting of a combination of sand, peat and clay land, was only gradually different in economic structure. At least from the sixteenth century onwards until the early nineteenth century the Dutch coastal area – where most of the province of Groningen was part of – can be considered to have been one of the wealthiest parts of the world in terms of GDP per capita. The high degree of market-orientation and the large role money played in the economy resulted in expressing nearly everything in money-terms, even most of the costs of children, making this paper possible.

In the whole of the province of Groningen (114,655 inhabitants in 1795), only two ‘real’ cities existed in the early modern period, in the sense that these place had acquired generally recognized town rights in the medieval period. The large city of Groningen (23,770 inhabitants in 1795) in the centre and the tiny town of Appingedam (1,595 inhabitants in 1795) in the north near the coast. Only a few parishes had a slightly larger population size than Appingedam, though usually their population was much less concentrated in one place, but partly scattered over the countryside and in this way they had a less urbanised character. There were a lot of rural villages with 200 to even about 1,000 inhabitants that had accumulated fewer economic functions than Appingedam. Nevertheless, the difference between Appingedam and these larger villages was mainly gradual, except that a system of guilds existed in the small town. However, these guilds were abolished at the end of the eighteenth century.

In the town of Appingedam agriculture was of less importance, and by far the largest majority of people earned a living in the industry and service sector. It was a local trade and shopping centre for the neighbouring countryside and also because of this some more specialized handicrafts could be found here. There were no large factories established in Appingedam. Industry limited itself to some wind mills for sawing wood and pressing oil, small salt-works, a tiny soap factory etc. Also one or two moderate shipyards and for a short period a thread-twisting industry can to be mentioned, as these enterprises employed some of the pauper children. The economic structure was, just as in the larger villages, characterized by small family-owned firms in handicrafts and trade. Numerous artisans like tailors, seamstresses, shoemakers, carpenters, painters, cooperers, blacksmiths, bakers and butchers, next to merchants, shop-keepers, inn-keepers and shippers populated Appingedam. Most of these occupations we also find in the larger rural villages in the coastal half of the Netherlands. A difference is mainly that relatively numerous wealthy civil servants (partly the result of the presence of a legal court) and renters were living in the small town.

Small firms in industry and services employed often, apart from the usually male owner, one or two unmarried apprentices, either sons or hired juveniles living-in. Partly also because the region was characterized by a nuclear family system in which extended and multiple households were rare, most of these apprentices after their marriage started to work for their own account. This was possible while they had acquired the necessary skills and the
costs of starting an enterprise were quite low for a lot of handicrafts (tailor, shoemaker, carpenter).

At the same time, many middle class households (more well-to-do artisans and merchants) occupied living-in maids. Partly these young unmarried girls helped in the household with cleaning or taking care of children, partly they worked in the family-firm, for instance in the shop or the pub. Except for apprentices of seamstresses or tailors, not much specialised work was available for girls. Both boys and girls were usually hired for a whole year, often from May to May for an annual wage and received free board and lodging. The height of the wage depended on their skills and strength.

In 1795 71% of the population of the later municipality of Appingedam lived in the town itself, this share fell to 62% in 1809 and 60% in 1849, a development which is in line with the general Dutch de-urbanisation trend from the eighteenth century until about 1850 onwards (Paping, 2014). In general, the population of the town of Appingedam increased from 1,595 inhabitants in 1795 to 2,001 in 1849, although much more people left than settled in this period. The occupational structure remained more or less the same. However, we only have figures for the heads of households of the municipality as a whole (Paping 1995, p. 327). Around 1810 farmers counted 13%, labourers 21%, industry 33% and services 34% of the heads of households with an occupation, whereas in 1861 farmers counted 14%, labourers 17%, industry 34% and services 36%. In the Groningen clay soil region as a whole (more than half the provinces) the developments were slightly different. In 1810 farmers comprised 24%, labourers 33%, industry 21% and services 22% of the heads of households with an occupation, whereas in 1860 the share of farmers was 16%, labourers 40%, industry 22% and services 22%. The rising share of labourers (in 1770 still only 26%) definitely suggests a rise in proletarianisation (Paping, 1995, p. 66).

In the long run labour demand in agriculture was increasing nearly just as rapid as population growth in the period 1770-1860. High agricultural prices stimulated intensification. This intensification process stagnated during the period of low prices called the first agricultural crisis of the nineteenth century (1819-1835) causing heavy winter unemployment under non-resident farm labourers. After 1835, but especially in the second half of the forties and fifties prices again began to increase, resulting in a new period of welfare for especially the farmers. As the number of farmsteads hardly increased, more and more waged labour was hired in agriculture. Partly, these were married male and female labourers who were employed on a daily basis. The males were usually hired during a large part of the year, but the demand for labour of females was nearly completely restricted to the summer half of the year (Van Nederveen Meerkerk & Paping, 2014). For the other part the work was done by numerous unmarried boys and girls in their tens or twenties who were nearly always living-in, and were also hired for a whole year (Paping 2005).

4. Age-dependent costs and earning of pauper boys and girls in Appingedam

What are the costs of raising young children? Economically speaking costs are related to the consumption of goods. Some costs are quite straightforward, as they concern goods a child consumes individually, especially food items, which are purely private goods. To some extent this is also the case for cloths and footwear, but these products are not destroyed during the consumption and can be used for a longer period, can be bought second hand and can be sold again. Children regularly need other cloths and footwear as they continuously grow physically. Consequently, the more children one has, the lower the costs of clothing and footwear per child (economies of scale).
A third, again slightly different consumption category is shelter and heating (including furniture, cook apparel etc), that partly has a public character within the household. To a certain extent all members within the household profit from heating and from the use of the house and its equipment. Although the quality of the consumption may decrease when more people are living in one household, the costs only rise to a limited extent, so the costs of consumption of this category of goods are also characterized by economies of scale. A fourth category of goods is a rest group comprising luxury goods (toys) and services (for instance medical assistance and school fees). In eighteenth and nineteenth century lower class families these were only of limited importance. A fifth cost relates to the time invested in caring for a child and raising the child within the household. This time – usually spend by the female head of the household – is normally not converted into money. Nevertheless it can definitely be seen as an economic cost, especially for foster-parents who do not have a strong social binding with the child.

If a family accepts to take care of a child, it can be expected – taking a neo-classical economic approach – that they at least want a full compensation that covers the costs they have to make. Next to this, they possibly also want to make a profit on the child. However, if there is enough supply of potential foster-parents this profit will become rather small due to competition. We have already seen, that the poor relief board usually paid for cloths and footwear, but they also covered the costs of medical assistance and school fees of the pauper children. Consequently, the money paid by the poor relief board is nearly only a compensation for 1. food, 2. shelter and heating and 3. caring. In this respect it is not surprising that at the end of the eighteenth century the poor relief board partly paid the foster-parents in bread and peat, especially in the case of young children. A complication is that the different cost categories are not independent of the age of a child. Very young children eat less, but demand much more care. In Appingedam, both the guardians and the foster-parents seem to have assumed that these two effects compensated each other to a large extent, as the amount of money paid by the dole usually did not change for an individual child between the age of zero and nine. The costs of feeding and sheltering teenagers, however, was considered to be considerably higher as we will see later on. Presumably because they needed a more or less separate sleeping place and ate considerably more than younger children.

Caring for foster children also had some clear benefits. One can think of satisfying a desire to do charity, or the need for juvenile companionship. There are, however, little indications that this aspect played a decisive role, taking into account the often quite poor families who took in these pauper children. Only, in the case of family members this aspect might have been relevant, notwithstanding that the amounts they received for caring for their nieces, nephews or grandchildren does not seem to have been considerably less than that of non-related foster-parents.

A much more important benefit one is that the foster-parents had the labour of the children at their disposal and could use this labour for all kind of housekeeping tasks, but also for economically rewarding tasks, for instance in agriculture (gardening). For children until the age of 10 to 12 in Groningen these possibilities were, however, severely hindered by the obligation that those children should go to school during an important part of the day. Consequently, the foster-families who took in children until the age of 12 usually did not have a lot of economic work to do for these children. Often the heads of households were (farm) labourers, ship’s carpenters hands or widows. Between the age of 11 and 15 pauper children usually moved to households were their labour could be used much more fruitfully, as for instance middle class families, like artisans (boys), merchants, reverends or schoolmasters (girls), or else to farmers.

9 In a later version of this paper this proposition will be tested quantitatively.
The amounts paid or received by the poor relief board to take care of, and/or to employ children take all the costs and benefits into account. In this way they give a rather good indication of these economic costs and benefits of children for a household in the opinion of would-be foster-parents. The system of auctioning the children annually will have prevented large deviations from true costs and benefits. It has to be remarked, however, that not all pauper children were auctioned each year. Especially for a lot of the older (teenage) boys, but also sometimes for girls, the guardians concluded contracts of usually three years to learn a handicraft with an artisan. We do not know how the guardians selected these artisans, but because they were quite used to the procedure and they were very keen on not spending too much money, it seems unlikely that these contracts resulted in high windfall profits for the employers.

In graph 2, the general results of the analysis of the costs and revenues of children under the poor relief board of Appingedam are being presented for the whole period. We have to take into account that next to these sums, the poor relief board covered the costs of clothing and footwear, and some special costs like school fees, and sometimes more importantly the costs of a physician and of medicines. Actually, a teenager needed except for board and lodging at least a real wage of about 20 guilders to cover these costs. Those who were capable of earning such sums more structurally, were usually dismissed by the poor relief board, or they ran away. Sometimes this was the case when they were 16/17, and even more often one or two years older. Consequently the revenues of teenagers of the age of 17, but even more of those of 18 or 19, reported in the graph are strongly underestimating the earning power of teenagers in general. Those 18 and 19 year old boys and girls who were still in the accounts of the poor relief board were also those who had the lowest earning capacity.

Graph 2: Average costs of pauper children in Appingedam, 1770-1860 (excluding clothing e.a.)

One of the most surprising results according to graph 2 is that the costs of young teenage girls was far less than of teenage boys. Girls in Appingedam were on average much more
economically attractive to have than boys. When they were 15 their work was valued nearly just as high as the costs of board and lodging\textsuperscript{10}. For boys this was not even the case when they were 16. Only when they were 18 they earned as much as their female counterparts. In general young teenage girls were at least one year in front of boys of the same age. In the next paragraph we will try to represent an explanation for this result, that seems counterintuitive, as boys of 13 to 17 must have been physically much stronger than girls, so it could be expected that they would earn a much higher wage at this age.

Another very interesting conclusion that can be derived from graph 2 is that it took a very long period for children to become really economically attractive. In the town of Appingedam children were an economic burden for a household until the age of 15 or 16. So, it should have been a completely irrational strategy to procreate as much children as possible. Only around the age of 17 costs and benefits were about equal according to these figures (taking the costs of clothing also into account). Even if the costs are somewhat exaggerated by the method used, and the poor relief board’s costs were much higher than of an ordinary lower class family, then the break-even point for a child won’t have become earlier than the age of 15.

Consequently, marrying young and procreating a lot of income resulted in a continuous budget problem for lower class households. In that respect it is not strange that average ages at marriage for both lower class males and females were quite high in the region (Paping & Schansker 2013: males 26-28, females 25-27). Even a relatively favourable guesstimate suggests that the overall costs of one child must have been at least 500 real guilders (prices of 1831/1850)\textsuperscript{11}. This is a very large sum, considering that daily wage of a carpenter or painter was 0.90/1.15 guilders, of a male labourer 0.60/0.70 guilders and of a female labourer 0.33/0.35 guilders (Paping 1995, p. 342, 348-349).

A third conclusion to be derived from graph 2 is that the spread in the age-dependent costs and earnings of children was very high. Part of this spread had to do with differences over time in the real maintenance sums of young children paid, a problem already touched upon in chapter 2. Next to this, a part of the spread is the effect of rising differences between children. From the age of 11 onwards the spread in costs of both boys and girls is increasing. For girls the standard deviation reaches a peak for the ages 13 and 14, which is not surprising as this is exactly the age when some children did not do any work at all and nearly full maintenance costs are paid for them. At the same time other young girls of the same age already earned a small annual wage. When at the age of 15 most girls more or less worked the standard deviation started to fall again.

The standard deviation of the age-dependent costs and revenues of boys – at first a little bit lower than of girls – also started to rise from the age of 11 onwards. However, after reaching a peak around the age of 14, this spread remained high for later years, showing that very large differences in maintenance costs and revenues between individual boys remained usual in the later teenage years. In the next chapter, we will return to this matter.

In graph 3 the data for pauper children is presented again, but now for different time periods. The conclusion of chapter 2 that the real sums paid to foster-parents who care for young children decreased significantly in the first half of the nineteenth century is reaffirmed. For older teenage children, on the other hand, the differences between the periods are more limited and not easy to interpret. The graph suggests that their wages in 1830/1859 were lower, than in the earlier periods. The numbers in the analysis, however, are only very small.

The difference between boys and girls clearly shows up for both first and the last period 1770/1799 and 1830/1859, even young boys being more expensive than young girls. However, the situation for the period 1800/1829 (exactly the period when we have the least

\textsuperscript{10}The annual costs and revenues in a period were related to the average age of a child in the same period.

\textsuperscript{11}The ten first years 40 guilders, and the next five years on average 20 guilders.
data) is more complicated. Boys cost less until the age of 12, though from age 13 to 17 girls are more attractive. In conclusion, in every period girls between 13 and 17 on average cost less or earn more than boys of the same age.

**Graph 3: Age-dependent costs and revenues in Appingedam of boys and girls for different periods**

![Graph 3: Age-dependent costs and revenues in Appingedam of boys and girls for different periods](image)

Until now only descriptive statistics have been used to analyse the findings of the dataset. In the future it is the aim to build a large multiple regression model to explain the individual costs and revenues, taking into account several factors such as gender, age, time period, trend, price level and others including some interaction effects. It will be investigated also if it is possible to model personal factors as the occupations of the paupers parents, the (later) occupation of the child and the presence of a family relation with the foster-parents.

For some boys in Appingedam we know how much board and lodging had cost separately in the period 1830/1859, as they had both an employer and a boarding-house, where they also got their food. Roughly comparing these individual data with the average age-dependent costs and revenue of boys in graph 4, it can be concluded that boarding and lodging for teenage boys were indeed much higher than for young children. They on average had to pay about a double amount. Unfortunately, the data is yet rather scanty, so it is unclear if the amount was consistently increasing between the age of 11 and 19. If this had been the case, it would reflect the rising food-intake of working teenage boys, both in quality and in quantity, but perhaps also a rising need in space and in other services delivered by the landlady and may be even the growing nuisance of having such a boy around.

12 A first simple multiple regression analysis on the real data for boys using a dummy for ages in years (0-9 years =0), a simple trend, and a variable for months above the age used in the dummy resulted in significant coefficients for nearly every variable (except for the dummy’s for age 10, 11 and 12) and a R² of 0.53.
5. The costs of long-term investments in human capital: a rural/urban comparison

The most surprising result of chapter 4 was the high costs and low revenues of teenage boys compared to teenage girls in the town of Appingedam. Also it became clear there were very large differences in costs and revenues within this group of boys. Because of this, a closer look will be taken in this chapter to what work the Appingedam pauper boys actually did. From the database those boys were chosen for which information is available for a relatively long continuous period of time, stretching at least until the age of 16 or 17 (graph 5).

Most of the Appingedam pauper boys became apprentice of an artisan, usually a shoemaker or a tailor, sometimes a baker, a cooper or a ship’s carpenter. Some of them became the hand of a shipper or of a merchant. These were all occupations which fitted into the Appingedam local urban economic system. As an apprentice they accumulated skills and capabilities, that made it possible for them to become an artisan themselves later in life. Especially establishing boys as apprentice of a tailor or shoemaker was popular by the guardians. As mentioned, these were handicrafts for which not much capital was needed to start an enterprise of your own, so they were ideally suited for guaranteeing a good future for pauper children.
Graph 5: Age-dependent costs (excluding clothing) and revenues of Appingedam boys differently occupied (nominal guilders)

Graph 5, however, makes clear that the choice to let a boy become a tailor’s or shoemaker’s apprentice was not without cost as these apprentices were paid extremely badly. In general the guardians made a contract with an artisan in which he promised to learn the pauper boy – usually aged 14 to 16 – their craft in about three years. Every year the poor relief board had to pay a quite considerable sum of money for this learning agreement. The other urban occupations were also usually not rewarded a lot for boys. Placing pauper boys in these working positions was actually very expensive as there was a financially much more attractive alternative. Graph 5 shows clearly that those Appingedam boys which were moved to the surrounding countryside by the poor relief board to become a farm hand were much less costly and earned much more at a much younger age than most of their colleagues who occupied more urban-like jobs. It is the existence next to each other of these two completely different groups that resulted in the high spread in costs and revenues of Appingedam pauper boys from the age of 14 onwards, shown in graph 2.

As can be concluded from table 1, the average social position of artisans like tailors and carpenters was indeed better than of unskilled labourers, who nearly always occupied the lowest positions in the social stratification in society. It is interesting to see that the guardians of the Appingedam poor relief board decided on a such extensive scale to invest in the human capital of their pauper boys, which – taking into account graph 5 – was a very expensive strategy. Instead of earning at the end sometimes quite considerable wages with unskilled work in agriculture, the board had to pay to let the boys learn a trade, and even after that learning period their wages were still relatively low, compared to the well-paid farm hands.
Table 1. Average tax position of several occupations of heads of households in the Groningen clay soil area (1810 and 1829/1850).

<table>
<thead>
<tr>
<th>Occupation</th>
<th>1810</th>
<th>1829/1850</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labourers</td>
<td>27</td>
<td>31</td>
</tr>
<tr>
<td>Tailors</td>
<td>34</td>
<td>44</td>
</tr>
<tr>
<td>Meat cutters</td>
<td>36</td>
<td>44</td>
</tr>
<tr>
<td>Carpenters</td>
<td>40</td>
<td>44</td>
</tr>
<tr>
<td>Weavers</td>
<td>41</td>
<td>44</td>
</tr>
<tr>
<td>Shoemakers</td>
<td>44</td>
<td>45</td>
</tr>
<tr>
<td>Shippers</td>
<td>50</td>
<td>46</td>
</tr>
<tr>
<td>Dyers/glaziers</td>
<td>52</td>
<td>63</td>
</tr>
<tr>
<td>Schoolmasters</td>
<td>59</td>
<td>73</td>
</tr>
<tr>
<td>Coopers</td>
<td>60</td>
<td>59</td>
</tr>
<tr>
<td>Publicans</td>
<td>63</td>
<td>52</td>
</tr>
<tr>
<td>Merchants</td>
<td>65</td>
<td>56</td>
</tr>
<tr>
<td>Shopkeepers</td>
<td>65</td>
<td>60</td>
</tr>
<tr>
<td>Corn millers</td>
<td>66</td>
<td>84</td>
</tr>
<tr>
<td>Blacksmiths</td>
<td>70</td>
<td>69</td>
</tr>
<tr>
<td>Bakers</td>
<td>70</td>
<td>73</td>
</tr>
<tr>
<td>Physicians</td>
<td>70</td>
<td>85</td>
</tr>
<tr>
<td>Clergymen</td>
<td>78</td>
<td>83</td>
</tr>
<tr>
<td>Farmers</td>
<td>81</td>
<td>78</td>
</tr>
<tr>
<td>N (Total counted)</td>
<td>2,139</td>
<td>3,306</td>
</tr>
</tbody>
</table>

Source: Paping (2010). The tax ranges from 0 (lowest) to 100 (highest)

This investment strategy of the poor relief board was the main reason for the finding in chapter 4 that the costs of teenage girls until the age of 17 were less and the rewards were higher than of boys. The board invested far less in the skills of young girls, although there are a few exceptions of teenage girls who were allowed to learn to become a seamstress in two to three years. Again this was an costly strategy as these girls were more expensive than those which became a live-in maid. But even in the putting out of the teenage pauper girls, the guardians showed some urban social awareness, as they rather let them become the maid of a middle-class family, than sending them to a farm to become a farm maid, despite the fact that girls working as a live-in servant on a farm could nearly always already earn a wage at the age of 13 or 14, while maids working in other households often could not (see also graph 6). But again the same kind of argument can be made, farm maids usually married labourers, while other servants had a larger chance to marry an artisan or someone else from the lower middle class. So although to a lesser extent, the decision not to send all the Appingedam pauper girls to farms was in a sense an investment in the future of these girls.

Even more interesting in this respect is the thought that all lower class families must have stood for the same decision regarding the employment of their children as the poor relief board. Shall parents invest in their teenage boys by paying for them to let them become a skilled artisans or not? Not only did such a strategy cost a considerable amount of money as the contracts the Appingedam poor relief board concluded show, but the opportunity costs in the form of forgone wages were also large. To a lesser extent this might also have been the case for the choice of the employer of young girls. Difficult financial times or strategies directed towards maximizing consumption in the short run of parents will have had enormous effects on the prospects of their children. Every lower class and even lower middle class family with boys and girls in their early teens had to decide whether they were capable or
inclined to invest in the future of their children by securing them jobs with the promise of a better future, or that they rather choose or perhaps had to chose for a short term income-maximizing strategy.

**Graph 6: age-dependent annual wages of rural juveniles 1765-1808**

Graph 6 shows some data on annual wages of rural pauper children in the period 1765-1808, collected from different archives of poor-relief boards in the Groningen clay soil region (villages Opwierde, Garsthuizen, Leegkerk, Dorkwerd and Bedum). The numbers are only small, but it is clear that boys earned considerably better as farm hands than girls as farm maids. On the farmstead physical strength seem to have been of most importance, and as young teenage boys are considerably stronger than girls their reward was much better. Of course the difference was also partly the result of the gender division of labour tasks on the farmstead, which usually restricted females to the least rewarding work.

It was already mentioned that both boys and girls often already earned a positive wage next to board and lodging at the age of 13 or else 14. This was on average much earlier than the Appingedam girls and boys. For these youngsters unskilled labour on farms was paid considerably better at an early age. The income prospects on the long run on the other hand were far less, as adult farm labourers earned a much lower daily wage than adult artisan, resulting in a less favourable position in the social structure (see table 1). In contrast with the poor relief board of Appingedam, the village poor relief boards in the selection seemed to have been less inclined to invest in the skills and so in the human capital of the pauper children under their responsibility. A notable exception was the Roman-catholic poor relief board of Bedum, who selected three boys to become an apprentice of a tailor (two sons of a

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13 A difference with the Appingedam data is that there was only limited information on the costs of boarding-out children. For the years the children did not work, the wage was set at 0. Consequently, one has to be careful to directly compare these averages with the information on Appingedam. Sources: Paping (1995) 519-520 (account books).
deceased tailor and one son of a bankrupt farmer). For two of these boys expensive learning contracts were concluded with Roman-catholic tailors. Again, the board would have been much better-off by choosing to send them to a farm, where they could earn a much higher wage as a farm hand as graph 6 shows. Only in one case the boy had to learn the craft from his older brother, what clearly was a much cheaper arrangement.

6. Concluding remarks

In this paper, the amounts paid by or received from foster-families and employers for caring or employing paupers pauper children in the period 1770-1860 has been analysed for the town of Appingedam and also to a limited extent for the nearby Groningen countryside (the Netherlands). This amount paid/received (corrected for price changes) is shown to be extremely age-dependent from about the age of 10, and even more so after the age of 12. Only on average at the age of 15 teenagers were able to earn enough to provide for board and lodging in the town of Appingedam.

There were also clear differences between town boys and girls with teenage girls costing less and earning more than boys until the age of 17. This difference was shown to be largely the result of a strategy of the poor relief board to invest intensively in the skills of boys by placing them in positions as apprentices which usually went together with considerable learning fees and low wages, but also opened the prospect of a more bright position as an independent artisan later in life. In the countryside pauper children usually became live-in servant at a farm. Rural boys and girls were both already able to earn an income by the age of 13-14 above board and lodging. For these farm servants physical strength mattered most, and as a consequence the reward for rural boys was significantly higher than that of girls of the same age.

In conclusion, juveniles were economically attractive at a lower age in rural agricultural conditions than they were in a more urban setting. Nevertheless, even in a capitalistic countryside, it took such a long period for children to become economically beneficial, that this hardly can have been a rational reason for striving to large families.

This paper contains only a first and rather descriptive analysis of the dataset of costs and revenues of pauper children in the town of Appingedam and in the villages of the Groningen clay region. On the one hand it is the aim to refine both datasets and extend especially the rural one. On the other hand it is the intention to build a multiple regression model to explain the age-dependent levels of costs and revenues of the pauper children, taking into account as many factors as possible. A first simple provisional analysis already showed promising results, however, a more elaborate version still demands a better specification of some of the explaining variables in the model, especially relating to the price level and the time period, but also has to include some personal characteristics of the pauper children.

Literature (a very preliminary overview)


-Paping, R., ‘De ontwikkeling van de Damster bevolking 1770-1920’, unpublished manuscript.


