Was there an urban–rural consumption gap? The standard of living of workers in southern Sweden, 1914–1920

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Christer Lundh
Unit for Economic History, University of Gothenburg

ABSTRACT: The aim of the paper is to qualify the meaning of an urban-rural wage gap by taking a household approach to the issue of standard of living, using household surveys for five worker groups in urban or rural Sweden in 1914/1920. The urban-rural gap in terms of total household real earnings is estimated by including all the household income and using controls for household size and composition, deflated by separate urban and rural costs-of-living indices. To further assess the results, levels of household expenditure and the nutritional value of food are compared between the worker groups. The results indicate that the urban-rural earnings gaps were small or moderate, due to the higher cost of living in urban areas and the practice of payments in kind and home production in rural areas. Some differences between urban and rural workers in terms of patterns of consumption and the nutritional value of food consumed can be attributed to differences in earnings, but a substantial part depended on the nature of the working loads, employment terms and housing conditions. These results thus modify the picture usually given in the literature on urban-rural wage gaps and income elasticity of food items.

1. Introduction

Comparisons of the standard of living of workers in urban and rural areas, or in industry and agriculture, have long been made by economic historians and other social science researchers. In general, large differences have been found in employment terms and wages; one common result across periods and regions being that there is a substantial urban–rural wage gap.[1] Even after control for urban–rural

[1] See for instance Squire, *Employment* (1981), 102; Clark, *Conditions* (1957), 526–31; Williamson, 'British' (1987), 641–78; Williamson, 'Structure' (1982), 1–54; Williamson, 'British' (1987); Hatton/Williamson, 'Wage' (1991), 381–408; Hatton/Williamson, 'Integrated' (1991), 413–425; Hatton/Williamson, 'Explains' (1992), 267–294; Hatton/Williamson, 'Labour' (1993), 89–109; Heikkinen, *Labour* (1997); Margo, *North-South* (Feb. 2002); Mora-Sitja, 'Labour' (2007), i156–i177; Borodkin et al, 'Rural/Urban' (2008), 67–95.

differences in terms of cost of living, a substantial and persistent wage gap tends to remain.[2] Since economic theory predicts that workers will move from lower paid jobs in the countryside to better paid jobs in the city, which tends to level out wage differentials, the existence of an urban–rural wage gap has been interpreted as the result of a market failure, implying unbalanced economic growth and segmented labour markets, or an equilibrium wage gap in accordance with the Todaro model.[3] An alternative perspective is that the urban–rural wage gap would shrink even more, or even disappear, if it were measured more effectively. Hatton and Williamson claim, for instance, that comparisons of urban–rural differences in regard to standard of living should include all the income of the various household members and control for the size and composition of their households.[4] This paper is influenced by this view, taking a household approach to the issue of an urban–rural earnings gap. Furthermore, it tries to qualify the meaning of such a gap by comparing the consumption of urban and rural households.

Economic and social science history reveals a connection between earnings/socioeconomic status, consumption and health. One strand of literature deals with the association between income, prices and distribution of household expenditure. Engel's law states that the proportion of income spent on food tends to decrease as income increases; other factors remaining constant.[5] This does not imply that food spending remains unchanged or decreases in absolute terms as income increases, but that consumers increase their expenditure on food products by a relatively smaller amount. One interpretation of Engel's law is that a larger proportion of income spent on food indicates a lower level of standard of living, and vice versa. In a similar way, gradually increasing earnings have been associated with improvements in food standards, implying higher consumption of expensive items like animal products, fruit and vegetables and lower consumption of cheaper staple food like cereals and potatoes.[6]

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[2] Williamson, 'British' (1987), 60; Alston/Hatton, 'Earnings' (1991), 91–95; Hatton/Williamson, 'Wage' (1991), 401; Sicsic, 'City–Farm' (1992), 685–686; Heikkinen, *Labour* (1997), 124; Mora-Sitja, 'Labour' (2007), i163–i164.

[3] Hatton/Williamson, 'Integrated' (1991), 413–415; Hatton/Williamson, 'What Explains' (1992), 267–268.

[4] Hatton/Williamson, 'Wage' (1991), 383.

[5] Engel, *Die Productions- und Consumptionsverhältnisse* (1857); Engel 1895, *Die Lebenskosten* (1895); Prais and Houthakker, *The Analysis of Family Budgets* (1955); Stigler, *The Early History* (1954); Working, *Statistical Laws of Family Expenditures* (1943); Houthakker, *An International Comparison* (1957); Allen and Bowley, *Family Expenditures* (1935); Den Hartog, 'Dietary change and industrialization' (1992).

[6] Jureen, 'Long-term trends' (1956), 17–19.

Another strand of the literature deals with socioeconomic differences in the intake of food and nutrition and its consequences for well-being.[7] While some studies of economic history deal with the direct consequences of hunger, other studies concern well-being in a longer timeframe, e.g. the influence on stature of the net nutrition during the growing years, or the influence of under-nourishment early in life on health later in life.[8] Studies of contemporary and historical diets reveal that individuals from low socioeconomic/income groups tend to eat more energy dense food, while individuals from high socioeconomic/income groups tend to eat food that is less energy dense and more nutrient-rich.[9] The energy elasticity thus could be seen as a measure of the 'hunger' in a given population, based on the logic that a hungry person is prepared to spend more of an income increase on calories.[10] One specific debate between economic historians and anthropometric historians concerns whether the increase in income in the late 19th century caused workers' diets to shift from energy dense cereal to sugar and meats or whether they merely were consuming higher amounts of the same nutrients as before.[11] Choice of diet could be attributed to physical needs (bmi, activity), food prices (nutrient-rich diets being more costly than nutrient-poor diets at a given amount of energy intake and density), household budget restrictions, knowledge, attitudes and lifestyle.[12]

The aim of this paper is to qualify the meaning of the urban–rural wage gap by taking a household approach to the issue of standard of living, using data for five worker groups in southern Sweden in 1914/1920. The research question is: was there an urban–rural gap in total real earnings of *households*, and to the extent that there was,

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[7] James et al, 'Socioeconomic determinants' (1997); Martikainen, Brunner and Marmot, 'Socioeconomic differences' (2003); Drewnowski and Darmon, 'The economics of obesity' (2005); Groth, Fagt and Brondsted, 'Social determinants of dietary habits' (2001); Den Hartog, 'Dietary change and industrialization' (1992); Gazeley/Horrel, 'Nutrition in the English' (2012); Gazeley/Newell, 'Urban Working-Class' (2012).

[8] Walter/Schofield, *Famine, Disease* (1989); Gráda, 'Making Famine' (2007); Steckel/Floud, *Health and Welfare* (1997); Floud/Fogel/Harris/Hong, *The Changing Body* (2011); Ulizzi/Terranato 'A Comparison' (1982); Martínez-Carrión/Moreno-Lázaro, 'Was there an urban' (2007); Horell/Oxeley, 'Bringing home the bacon' (2012); Cinnirella, 'Optimists or pessimists' (2008); Barker/Osmond, 'Infant mortality' (1986); Bengtsson/Lindström, 'Childhood misery' (2000).

[9] Darmon, Ferguson and Briend, 'A Cost Constraint', 3764 (2002); Darmon and Drewnowski, 'Does social class predict', 1107 (2008); Darmon and Mailot, 'In foods, energy is cheap' (2010), 1068.

[10] Logan, 'Nutrition and Well-Being' (2006), 313, 321; Subramanian/Deaton, 'The Demand for Food' (1996).

[11] Fogel, Economic Growth (1994), 24; Riley, Rising Life Expectancy (2001); Logan, 'Food, nutrition, and substitution' (2006). See Oddy, 'Food, drink and nutrition' (1990), 270–271.

[12] Irala-Estévez et al, 'A systematic review' (2000), 706; Sterner, 'The Standard of Living' (1938), 14–16.

did it correspond to an urban–rural gap in terms of *consumption* with regard to the distribution of expenditure and the nutritional value of food consumption? The study is based on state surveys of cost of living in urban and rural areas in 1914 and 1920 respectively, including household books with detailed notes on household size and composition, the consumed quantities of different types of foodstuff and other consumption goods, as well as information on prices and rents and different kinds of household income.[13]

The design of the paper includes three parts. Part 1 estimates the urban–rural gap in terms of total household real income. The point of departure is the finding in a previous study of the real wages of unskilled male farm and city workers in southern Sweden that, compared to agrarian workers, urban workers earned 10–50% more in 1910–1920 (estimations include wages in kind, unemployment risks, and urban–rural cost of living).[14] Similar results have been found in other studies.[15] To the traditional wages of male breadwinners are added supplementary earnings from home production, wives' and children's employment, and other activities, while the influence on the maintenance burden of the size and composition of the household is controlled for. Part 2 compares the household expenditures between worker groups, including the relative importance of food for the total household budget and of food of different energy density for the total household food consumption. Part 3 explores the socioeconomic differences in terms of the nutritional value of the food consumed.

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[13] Historical sources include three types of consumption studies: Firstly, macro level studies of the average levels of consumption in general or of a specific good, e.g. food. (Clark, Huberman and Lindert, 'A British Food Puzzle', 215–237; Heikkinen, 'Finnish food' (1997)). This approach cannot, however, say very much about the difference in consumption between occupational groups or urban and rural areas, which is the main focus of this paper. Secondly, studies based on the dietary lists of medical, military or welfare institutions are studied in order to establish the level of nourishment of an average meal (Morell, *Den svenska* (1988); Schmid Neset, 'Reconstructing Swedish food' (2012); Essemyr, *Bruksarbetarnas livsmedelskonsumtion* (1988)). To some extent, such sources make it possible to illustrate social differences; e.g. by comparing meals for soldiers with those in the poor houses; but it would be quite difficult to make conclusions about urban–rural differences in consumption. Thirdly, surveys of household consumption have been used to study the composition of expenditure and the average nutrition value of an average daily meal (Heikkinen, 'Finnish food' (1997); Toivonen, 'Classes, Countries and Consumption' (1992); Juréen, 'Long-term trends' (1956); Adrian and Daniel, 'Impact of Socioeconomic factors' (1976). This type of source makes it is possible to relate consumption to socioeconomic status and urban/rural contexts.

[14] Lundh, 'Wage forms' (2012), 123–145.

[15] Heikkinen finds that the real wages of urban workers exceeded those of rural workers by 18% in Finland in 1860–1913 (Heikkinen, *Labour* (1997), 124), Hatton and Williamson find a similar difference, 6–19%, for Michigan in the 1890s (Hatton/Williamson, 'Wage' (1991), 401), and Alston and Hatton find a real wage gap of 2–7% and 25–43% in the US in 1925–1932 and 1933–1941 respectively (Alston/Hatton, 'Earnings' (1991), 91–95).

The main contribution of the paper is that it qualifies the meaning of the urban–rural differences. Measured at the household level, the urban–rural earnings differences decrease substantially and are quite small for unskilled worker groups. Socioeconomic differences in food consumption were partly due to income differences per se, but could to a large extent also be related to other differences in the urban or rural context (in kind wages, home production, cost of living). The implications for the debates on urban–rural differences in earnings and the connection between earnings/socioeconomic status, consumption and nutrition are discussed.

2. Data and Design

The study compares the income and consumption of agrarian and urban worker households in southern Sweden in the period 1914–1920. The main sources of the study are two surveys of the cost of living of urban and rural workers respectively made by the Social Board ('Socialstyrelsen') in 1913/14 and 1920.[16]

Five worker groups were selected for the study: contract workers, crofters and day labourers in agriculture from the 1920 survey, and urban blue-collar workers and lower white-collar workers from the 1913/14 survey. Contract workers ('statare') were married farmhands with yearly employment and a large part of the wages paid in kind (food, housing).[17] Crofters ('torpare') leased their houses and some land in exchange for labouring duties or rents in money for the landlord, in the area of study; usually a manor. A large part of their income was from sales of their own products.[18] Day labourers were modern agrarian workers with cash pay, who were hired by day or increasingly for longer periods. Industrialisation made it possible to supplement work as a day labourer in agriculture in summer and during the harvest season with work in sugar mills, distilleries, starch factories and the like.[19]

Urban 'blue-collar workers' ('arbetare') includes workers in manufacturing industry and construction, typically paid in cash per day or hour and

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[16] *Levnadskostnaderna i Sverige 1913–1914* (1921); *Levnadskostnaderna på landsbygden 1920* (1923).
[17] Lundh and Olsson, 'Contract-Workers' (2011), 298–329; Lundh, 'Wage forms' (2012), 129–131; Eriksson and Rogers, *Rural Labour and Population Change* (1978), 26–36.
[18] Wohlin, *Torpare* (1908); Granlund, 'De obesuttna' (1943).
[19] Sommarin, *Det skånska jordbrukets* (1939), 95–96; *Lantarbetarnas* (1915), 52–53; *Till belysning* (1911), 17–20.

employed with shorter periods of notice.[20] Urban 'lower white-collar workers' ('lägre tjänstemän') includes lower civil servants in public administration or military service, workers employed by the state railroad or telegraph/telephone companies, and those employed as clerks, engineers or foremen by private corporations. Their employment terms were generally more secure than blue-collar workers, and the pay was on a monthly basis.[21]

The area of study is Malmö County ('Malmöhus län'), the southernmost county of Sweden. Urban workers included in the study were living in the cities of Malmö and Helsingborg, the two most important cities in the county, comprising about 70% of the urban population during the period of study. Malmö County was at the time more urbanized and industrialized than the average for Sweden as a whole.[22]

The design of the paper includes four steps. Firstly, the urban–rural gap in income is established. Not only the differences in male breadwinner earnings but also the urban–rural gap in total household income are calculated, including earnings of the wife and children and from sales, and inclusive of the value of production for the household's own consumption. For the agrarian worker groups, the part of the household income that was used for investments in future production is subtracted from the value of the total household income. The urban–rural gap in total household income is then evaluated against what is known from previous studies on price differences between the city and the countryside in the area. Secondly, the possible difference between urban and rural worker groups in the distribution of household expenditures is investigated. The distribution is calculated from the cost side. The value of expenditures in the 1913/14 survey is adjusted to the 1920 price level, with the use of available per-item indices. Step number three includes a similar comparison of the distribution of the costs for different types of food. Finally, the fourth step includes a study of the quantities of food consumed, controlling for household size and composition. As a comparison to the relative distribution of household expenditures on different types of food, the factual consumption of kilos, litres and pieces of food items is charted, and the nutrition value of an average daily meal of an adult male worker is calculated for the different worker groups.

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[20] *Levnadskostnaderna i Sverige 1913–1914* (1921), *20*–22*;* Adlercreutz, *Kollektivavtalet* (1954), 152–153; Gårdlund, 'Industrins arbetstillfällen' (1966), 315–324; Lundh, *Spelets regler* (2010), 49–50, 65–66, 86–87.
[21] *Levnadskostnaderna i Sverige 1913–1914* (1921), *20*–22*;* Lundh, *Spelets regler* (2010), 101–107.
22 *Historisk statistik*, Tables 6, 7, 12, 13.

The households that were included in the Social Board's cost of living surveys kept records of their household income and expenditures and of the consumed quantities of food and beverages during the survey period. The first survey was conducted in 1913/14 based on household books kept by working households in urban areas over a whole year.[23] The surveys included the cities Malmö and Helsingborg, for which the statistical basis was processed and published in separate local monographs. Malmö was represented by 225 households and Helsingborg by 98 households.[24] In 1920 there was a similar survey of the cost of living of people of small means in the countryside, filled in by contract workers, crofters and day labourers, for example.[25] About 50 of the books were filled in by households in Malmö County.[26]

The early household surveys are not fully representative of the Swedish population since nuclear households including children are overrepresented, and as a consequence one- or two-person households are underrepresented.[27] This deficiency of the source biases estimates of averages per capita, such as income per person or residential area per person, which makes it hard to make comparisons with later surveys when survey populations are representative of the total population. For the purpose of this paper, however, the deficiency is of minor importance since the overrepresentation of nuclear families is similar for both urban and rural worker groups included in the surveys 1913/14 and 1920. Nuclear families with children accounted for about 90% of the populations of both the rural and urban surveys, and the average household size was 4.4, ranging from 4.2 to 4.8 for both urban and rural worker groups.[28] Thus, the results of this paper are valid for the vast majority of nuclear households with children, while the

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23 *Levnadskostnaderna 1913–1914* (1921).
24 *Levnadskostnaderna 1913–1914 Malmö* (1917); *Levnadskostnaderna 1913–1914 Hälsingborg* (1918).
25 *Levnadskostnaderna 1920* (1923).
26 The source does not report statistics separately for Malmö County, which were only grouped together with Kristianstad and Blekinge counties under the label 'Southern Sweden'. Of a total of 50 households from 'Southern Sweden' 44 were from Malmö county. Here the analysis is based on records for 'Southern Sweden' as a proxy for Malmö County.
27 The proportions of single or two-person households was 6–11% in the surveys, and 20–35% according to the censuses. (*Folkräkningen 1910*, Table 2, 4; *Folkräkningen 1920*, Table 13, 198. See also Johansson, *Levebrödet* (1996), 52–55; *Levnadskostnaderna 1923* (1929), 58–61; Simonsson, *Bidrag till familjens* (2005), 36–38.
28 *Levnadskostnaderna 1913–1914 Malmö* (1917), 9, 12–13; *Levnadskostnaderna 1913–1914 Hälsingborg* (1918), 9, 12–13.

pattern would be slightly different if more single or two-person households were included in the surveys.

Since the Social Board's surveys aimed at investigating the average food consumption for different worker groups, some kind of control for household size and composition had to be made. In the 1920 rural survey, the Board attached American research in the field of social medicine on the necessary calorie intake per person by sex and age. An adult man was considered to be a 1.0 consumption unit, an adult woman a 0.9 consumption unit. Children of 0–3 years were set to 0.15 consumption units, 4–6 years to 0.40 units, 7–10 years to 0.75 units, and 11–14 years to 0.90 units.[29] Consequently, a family consisting of a man, a woman, a twelve year old boy and a five year old girl constituted 3.2 consumption units.[30] In the 1913/14 survey, however, a German index that was different was used.[31] In order to make calculations comparative, the American index is used for the 1913/14 survey data in this paper. The average consumption units for the worker groups included were 3.28, ranging from 3.23 to 3.36.

Since the surveys include information on household size and composition, and the average units of consumption for the different worker groups, it is possible to reconstruct total household income and expenditures and calculate earnings, expenditures and consumed quantities of food per unit of consumption. In this paper, both types of estimates are made.

In order to make a comparison of household income and expenditures between the 1913/14 and 1920 surveys, the prices and earnings of the first survey are inflated to the level of 1920. The prices for 1913/14 are adjusted separately for each good to the 1920 levels, using available per-item indices for urban areas in Sweden.[32] Income is inflated by a factor which includes the average price increase, which was almost the same as the factor of the wage increase in industry.[33] A sensitivity check was made, comparing the

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[29] *Livsmedelsförbrukningen* (1922), 92–99; *Levnadskostnaderna 1920* (1923), 14*.
[30] This classification of calorie need by sex and age is roughly confirmed by the later findings of social medicine. (See e.g. *Energy and protein requirements* (1985).)
[31] *Livsmedelsförbrukningen* 1914–1918 (1922), 92–99; *Levnadskostnaderna 1920* (1923), 14*.
[32] *Levnadskostnaderna 1920* (1923), Table HH, 113* and Table II, 115*. *Local* price statistics from Malmö and Helsingborg exist for some food items, but not for all expenditures included in the survey. Therefore the choice was made to use the *national* price statistics that are uniform for all kinds of expenditures. (*Detaljpriser (1933)*, Table 2, 146–147).
[33] The decision to use the same type of inflator for household expenditures and income was made in order to keep the household's income and expenditures in balance. A sensitivity

method used in this study, i.e. adjusting the urban prices of 1914 to its 1920 level with the result of adjusting the urban prices of 1923 to the 1920 price level.[34] For most food items the difference was small between the two ways of calculating: less than plus/minus 5%.[35] Thus, the analysis is of aggregates (foodstuff) rather than single food item (see Tables 2 and 3), I conclude that the method used causes no serious bias to the estimations.[36]

3. Results

3.1. Household income

Table 1 displays the relative household income of the different worker groups by type of income (see also Appendix 1). As could be expected from previous research, there was a substantial wage gap between workers in the agrarian and urban sectors. Contract workers earned about 2,000 kronor a year from employment (whereof more than half in kind), crofters 400 kronor less and day labourers 800 kronor more. Urban blue-collar workers earned 3, 800 kronor and lower white-collar workers earned about 4,700 kronor, which makes the nominal urban–rural wage gap 40–140% (blue-collar) or 70–190% (white-collar) (see Panel A). Compared to the cash payments of contract workers, an urban worker thus earned three or four times more.

--- Table 1

In addition to male earnings from employment, agrarian workers had income from their own production, which could be sold or consumed by the household. This was an opportunity that urban workers usually lacked. If the

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check was made, comparing with an inflator based on wages of male adult (18+) workers in industry for the same period. While prices grew by 13% per year in 1914–1920, wages increased by 14% per year. In total, the income of urban workers is underestimated by 1% in 1920 in this paper, compared to having used a wage-based inflator.

[34] Data were taken from *Levnadskostnaderna 1913–1914* (1921) and *Levnadskostnaderna 1923* (1929).

[35] The compared food items are the same that are used in Table 4 in Lundh, 'Wage forms' (2012), showing estimations from 1923 to 1920 of urban prices: fresh meat and pork, milk and cream, butter, margarine, cheese, eggs, bread, flour, grain, potatoes, and sugar. For single food items like bread and meat differences were larger though. Urban prices for Sweden are used in the estimations.

[36] It should be noted that the 1923 survey cannot replace the 1913–14 survey as a basic source for this paper since it does not contain information on quantities consumed distributed by blue collar and white collar workers.

earnings from production are added, and the necessary investments in future production (e.g. costs of servants, running expenditures) are subtracted, urban–rural earnings gaps become substantially smaller (Panel B).[37]

Further adjustments can also be made in order to qualify the urban–rural income gap. Panel C displays all household income. Agrarian workers' wives contributed more to the total household income than urban workers' wives. On the other hand, urban workers had more extra income and their children contributed more to the total household income. Also, urban workers typically had more income of other types, for instance from renting out a room, or from sickness allowance and pensions. Altogether, there was an urban–rural income gap ranging from 30 to 50% (blue collar) or 60 to 80% (white collar). Including controls for the average household size and composition and estimating the total household income per consumption unit does not change the picture much (Panel D); the gap widens by about 5 percentage points.

The standard of living of a household is not only dependent on its total amount of income and its size and composition. When worker groups in different economic sectors are compared, the purchasing power of households is particularly important. A previous study has shown large differences in the cost of living between urban and rural areas in southern Sweden.[38] Based on data for 1920–1923, it was estimated that the overall cost of living was 28% higher in urban areas. Using this result, and calculating the total real income of the households based on the separate urban and rural cost of living indices, the urban–rural income gap was strongly reduced (Panel E). The real household income of urban blue-collar workers exceeded that of contract workers and crofters by 15–20% and was only 6% more of agrarian day labourers. The urban–rural income gap was more pronounced in relation to urban white-collar workers though, ranging from 25–45%.

In conclusion, two factors accounted for the reduction of a fairly large urban–rural gap in nominal wages to a more moderate gap in real household income. Firstly, in kind payments and income from their own production were of great importance for the living standard of agrarian workers, and, secondly, a higher urban cost of living evened out conditions even more.

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[37] Crofters, for instance, sometimes hired servants to help out during harvest seasons or similar periods. 'Running expenditures' include the costs for grinding, and buying cattle, fodder, tools and equipment, material etc. that was necessary for running the jobs of all three agrarian worker groups.
[38] Lundh, 'Wage forms' (2012), 135–136.

Thus there was a small or moderate urban real income surplus that hypothetically could be spent on consuming larger quantities of the same goods or which could be used to buy other goods and services. These are options that will be explored in the following two sections.

3.2 Household expenditures

When it comes to the relative distribution of different posts in the household budget, there were number of common features but also some marked differences between urban and rural areas. Table 2 displays the distribution of household expenditures by worker groups. As is clear from the table, all worker groups spent half of their income or more on food, but the expenditure was relatively larger for the agrarian households: 60% for contract workers and crofters, and 55% for day labourers, compared to 50 and 45% for urban workers.

--- Table 2

Since they spent relatively less on food, urban workers had larger expenses for housing, furniture, clothes, laundry, hygiene, intellectual pursuits, and memberships and insurances. With regard to the expenses on clothing, union membership and insurances, the consumption pattern of the agrarian day labourer was somewhere in between urban workers on the one hand, and contract workers and crofters on the other hand. The larger share of this type of expenditure in urban household budgets could hypothetically be associated with a higher urban household income, there being more access in the city to some products and service, and urban–rural differences in relation to home production and market solutions (e.g. laundry).

Table 2 provides overall support for the idea that the proportion of income spent on food falls as income rises and individuals and households demand other goods relatively more often (Engel's law). A larger proportion spent on food thus indicates a lower standard of living and vice versa. The hierarchy indicated in the table with crofters and contract workers at the lower end and urban white-collar workers at the top reflects basic income differentials.

The fact that urban households spent about 30% more on food can largely be attributed to the higher urban price level. Controlling for urban–rural differences in food prices in the area, urban workers consumed 6% more

food and beverages.[39] Having paid for food and housing, urban worker households had twice (blue collar) or three times (white collar) as much left for other consumption as agrarian workers. Under the assumption that prices were, on average, 28% higher in urban areas, urban workers could still consume 30–90% more than agrarian workers of refreshments outside the household, entertainment and leisure, and furniture, laundry, hygiene, intellectual purposes, memberships and insurance.

In principle, urban–rural differences in household expenditures depend on differences in price levels, quality and quantity. While the urban–rural price difference has been estimated for food and housing in the region, this has not been done for other types of items.[40] Furthermore, it is difficult to judge the quality of specific goods from the descriptions of items given in the cost of living surveys. Industrial products were most likely to be of the same quality whether they were bought in the city or in rural areas, while the quality probably varied more for handicraft products and services. Urban–rural difference in quantities consumed is not only a matter of income levels, but is also dependent on the relative availability of products and services in the city and the countryside. Goods and services of a higher quality, such as furniture, clothes, and hygiene products were more available in urban areas. Also facilities for amusement and leisure, restaurants and bars, and organizations were more frequent in the city, and the quality of such services more variable.

Housing is a quite heterogeneous good. In the countryside, buildings were of a lower value and rents were also lower, while heating costs were relatively high. In the city the buildings were of greater value and the rents were higher. According to a previous study of Malmö County in the early 1920s, the urban cost for rent and heating/lighting was on average about 90% more than the rural cost.[41] According to the household books used in this study, the difference was smaller but still substantial.[42]

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[39] Urban prices were on average 28% higher than rural wages; food prices 27%. (Lundh, 'Wage form' (2012), 135.)
[40] Lundh, 'Wage form' (2012), 135.
[41] Lundh, 'Wage form' (2012), 134–135.
[42] The shortage of fuel during and after WWI led to a sharp rises in the price of fuel. The price doubled three or four times between 1914 and 1919, and it remained at a very high level until 1921. Since heating and lighting was a larger share of the total housing budget for rural than for urban workers, and recalling that the urban survey was carried out in 1914 and the rural in 1920, the relative rural costs of housing is biased upwards. Therefore, 90% is a likely estimate of the urban rent surplus in 1920 (Lundh, 'Wage forms', 136).

Tenure varied between the studied worker groups. Urban workers typically rented an apartment, crofters leased a croft, and for contract workers and some day labourers a house or an apartment was part of the in kind payment. Other day labourers owned their house or rented an apartment.[43] Housing in the agrarian sector typically included a garden plot or a parcel of land, which made it possible for the household to produce food for sale or its own consumption and even to keep a pig.[44]

On average, the households studied had two rooms and a kitchen which averages out at about 1.6 persons per room (including kitchens).[45] The quality of the buildings varied considerably, especially in the countryside, and was highly dependent on the age of the house.[46] Facilities varied also but were generally more developed in the city. In the 1913/14 survey, about 20% of the urban households had electric light, 70% had a gas stove, and over 95% had water facilities, a larder, a food cellar, and a laundry. In the urban survey of 1923, the proportion of households with electric lighting was 97%. Among the rural households, only 1% had water facilities (getting water from a well was typical), and considerably fewer than in the city had a food cellar (40%) or a larder (60%). The proportion of households with electricity was about half.[47]

To sum up, there is no indication in the surveys that urban workers lived in larger apartments or houses counted in square metres per person. However, they paid more for housing because urban buildings were generally of a higher standard and household facilities were more frequent, but also because the demand for rented properties was higher in the city.

3.3 Food consumption

This far it has been shown that there was indeed a difference in the urban–rural total household real income, and a partly resultant difference in the general consumption pattern. Interestingly, there was also a difference between urban and rural areas in terms of food consumption. Table 3

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[43] *Levnadskostnaderna 1913–1914* (1921), 28–29; *Levnadskostnaderna 1920* (1923), 24*.
[44] *Levnadskostnaderna 1920*, 31*–37*.
[45] *Levnadskostnaderna 1913–1914 Malmö* (1917), 23; *Levnadskostnaderna 1913–1914 Hälsingborg* (1918), 23; *Levnadskostnaderna 1920* (1923), Table F, 28*.
[46] Lundh and Olsson, 'Contract-workers' (2011), 309–313.
[47] *Levnadskostnaderna 1913–1914 Malmö* (1917), 23; *Levnadskostnaderna 1913–1914 Hälsingborg* (1918), 23; *Levnadskostnaderna 1920* (1923), 26*; *Levnadskostnaderna 1923* (1929), 53. The latter two sources are referring to Sweden as a whole.

compares the sums that urban and rural worker households were spending on food. As can be seen from Panel A in the table, urban worker households spent 20–40% more on food than agrarian households. Controlling for household size and composition, Panel B indicates similar or even somewhat larger urban–rural differences in food consumption. Linking up with the result of a previous study that food prices were on average 27% higher in the cities of Malmö and Helsingborg than in rural areas in Malmö County in 1920[48], and deflating urban food expenditures by this factor gives a more moderate consumption gap (see Panel C). Urban blue-collar workers were spending similar amounts on food as contract workers and day labourers, and urban white-collar workers about 5% more. Crofters were the agrarian group that spent the least on food, and for this group the urban–rural gap in food consumption was larger, 10–15%.

---- Table 3

---- Table 4

Turning to the *quantities* of food consumed, it is obvious that there was some variation between worker categories and urban and rural areas. With regard to staple foods, contract workers and crofters had more milk, flour and potatoes, while day labourers and urban workers consumed more bread. (See Table 4.) In relation to other food, the dividing line was different: rural workers consumed more fish, urban workers more butter, margarine and cheese; crofters were at the top in relation to eggs, and contract workers to fresh meat and pork.[49] Such differences in food consumption could be associated with employment terms, variations in real income and the availability of products.

Interestingly contract workers had the largest level of consumption when it came to several important staple foods such as pork, milk and potatoes. These, together with flour-based food (porridge and bread) constituted the basic intake of calories, carbohydrates, protein and fat. This result contradicts the way that contract workers were seen in the public eye of the time, as being poor, exploited by the employers, and living under obsolete employment terms with a large proportion of in-kind payments.[50] In fact, the

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[48] Lundh, 'Wage form' (2012), 133–135.

[49] During WWI there was a shortage of margarine, which influenced the consumption pattern. The big difference in consumption of margarine may be due to the fact that the urban survey was conducted before the war and the rural survey was held in 1920. (*Levnadskostnaderna 1920* (1923), 51*.)

50 For this discussion, see Lundh and Ohlsson, 'Contract-workers' (2011), 298–299.

in kind wage form seems to have guaranteed supplies of the fundamental foods.

--- Table 5

Table 5 displays the distribution of consumed food quantities per unit of consumption for the included worker groups. The different food items are ordered from highest to lowest price per 1,000 calories (Kcal). It is clear from the table that the difference in urban–rural food consumption was to a large extent a matter of earnings. Agrarian workers spent relatively more on cheaper high calorie food like potatoes, milk and rye flour, while urban workers bought more bread and meat. For most of food items, but not for all, there was a social gradient. In some cases, the exceptions are associated with the employment terms of agrarian workers, e.g. crofters keeping hens and pigs and contract workers keeping pigs. In other cases it was a matter of differences in pre-conditions for home production and life style; e.g. that baking bread was typical in rural areas while buying baked bread was common in the city.

The overall picture given by Table 5 is that worker groups with lower earnings tend to consume relatively more food, including cheap high calorie items, and worker groups with higher earnings tend to choose relatively more food that represents a higher price per calorie. One explanation for this may be that once the target of sufficient calorie intake per unit of consumption was reached, household consumption was directed towards more expensive food of higher social status (e.g. animal products) or that was more refined (e.g. bread).

Since we know the quantities being consumed of the different households and the household size and composition, the nutrition contained in an average daily meal of a male worker (one consumption unit) may be calculated more precisely. In this way, the consumption levels of the different worker categories may be compared and related to what is considered a good diet, taking into account the type of work. This calculation is based on the consumed quantities reported in the Social Board's surveys of 1913/14 and 1920 and the nutrition table that was used by the Social Board in its household budget survey of 1940/42.[51] (See Appendix 2 for details).

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51 *Hushållsbudgetar och livsmedelskonsumtion* (1943), Appendix 2, 108–109. The reason for using an older nutrition table is that it supposedly reflected the quality of the different food items in a better way than a table of today.

-- Table 6

As shown in Table 6, the difference between rural and urban workers in terms of the nutritional content of their food was smaller than the within-group difference in agriculture. Contract workers had the most calorie-rich daily meals and day labourers the least calorie-rich, while crofters and the urban workers lay somewhere in between. In practice, the urban-rural difference was somewhat smaller though, since urban workers consumed rather more food outside the household, and this is not included in the calculation in Table 6.[52]

An average daily meal of a contract worker contained a little over 4,000 Kcal; about a third of which came from animal products. The higher calorie value of the contract worker's food was due to the larger consumption of carbohydrate-rich milk products and milk, and to a lesser degree potatoes. The higher share of fat and protein in the contract worker's food was largely due to a higher consumption of pork, which also contributed to a more calorie-rich diet. As was previously mentioned, unlike the city workers, all the worker groups in the countryside were able to produce food for their own consumption including, in the case of crofters and contract workers, raising pigs.

Typically, modern diet and social medicine literature see calorie need as being dependant on gender, age, body size and composition and physical activity. The FOA/WHO report of 1985, *Energy and Protein Requirements*, includes an equation for the estimation of the energy required depending on those factors.[53] The following estimation is for a 30 year old man with a stature of 1.72 metres (which was the average for Swedish soldiers in 1916–1925), and a weight of 65.1 kilograms (and consequently a body mass index of 22).[54] By the time of the surveys; i.e. 1913/14 for urban workers and 1920 for agrarian workers; the yearly number of working hours was typically 2,800, which corresponds to 7.7 hours per day.[55] In addition to working hours, the average day is assumed to have included 8 hours of

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[52] Including food consumption outside the household, and under the assumption that this food was of similar nourishment that the within-household consumption, urban workers' daily intake should be upgraded by 50–70 Kcal and rural workers' intake by about 5 Kcal.
[53] The equation used here is "BMR = 15.4*Weight – 27.0 *Height + 717". BMR (Basal Metabolic Rate) is then multiplied by an activity factor. (*Energy and protein requirements* (1985), Annex 1.)
[54] *Historisk statistik* (1969), Table 56, 141.
[55] Johansson, *Den effektiva* (1977), Tables B3–6, 172–175; Isidorsson, *Striden* (2001), 51–57; Nyström, *Arbetarfrågan* (1932), 59–69.

sleep, 4.3 hours of sitting, 2 hours of standing and 2 hours of walking.[56] Since working tasks varied depending on activities at work, three ideal types of work were calculated: hard/medium work, medium work and medium/light work.[57]

Estimations based on such pre-conditions indicate that about 4,000 calories per day should be sufficient for a worker engaged in hard/medium work, while the corresponding amount of calories required for a worker in medium work is 3,500, and for a worker in medium/light work it is 3,200. Workers with the heaviest workload among the studied groups were involved in construction or agrarian outdoor summer work. Crofters had an extra workload since they worked their own land after having finished working loads for the landlord, while day labourers often worked in industry for a part of the year with various working tasks. In conclusion, it seems like all worker groups consumed a sufficient amount of calories, and that, considering their working activities over a year, crofters and day labourers were at the lower end of the scale. Also, lower white-collar workers seem to have consumed a somewhat richer food than the other groups, given their level of working activity.

-- Table 8 about here

Two-thirds of the total calorie intake came from vegetable foods, and one third from animal food; milk being particularly important. Meat products were important for the fat and protein intake. Modern diet research advocates a protein share of 10–15% of the total energy intake and a corresponding share of carbohydrates of 50–60%; of which a maximum of 10% is from refined or industrially produced sugar. Fat should not fall below 25% of the total energy intake but should not exceed 35%.[58]

Table 8 shows the distribution of the energy-giving nutritious substances in the average daily meal of a male worker. Crofters were below the lower limit and contract workers and urban unskilled workers were at the limit in terms of fat consumption and all groups except day labourers were above the upper limit for carbohydrates. With the possible exception of crofters, this cannot be said to have been threatening to their health, however. Once again, it is striking that the agricultural workers did not differ much from

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[56] *Energy and protein requirements* (1985), Annex 5.
[57] A typical working day in ‘hard/medium work’ is set at 50% hard work and 50% medium work, while ‘medium work’ is set to 100% medium work, and ‘medium/light work’ is set to 50% medium work and 50% light work. (*Energy and protein requirements* (1985), Annex 5.
58 Becker, *Svensk kost* (1982), 63–64.

their urban counterparts in the nourishment they were gaining from food consumption, given their typical workloads.

-- Figure 1 about here

Figure 1 plots the relationship between (ln) income and (ln) calorie intake per consumption unit for the five worker groups. Studies of developing countries and historical populations have found a positive but U-shaped association between income and the calorie intake.[59] It is, however, obvious from the figure that there is no general positive correlation between the two variables. It is possible that that crofters and day labourers would have increased their calorie intake had they earned the same as contract workers and urban blue collar workers respectively. Also, it seems plausible that worker group-specific characteristics like the need for energy derived from the workload and the capacity to produce additional food within a household derived from employment terms, explain a great deal about the combinations of income and calorie intake.

4. Discussion

The point of departure of this paper is the discovery in previous studies of an urban–rural wage gap, whereby city workers were generally earning substantially more than workers in agriculture. In order to qualify the urban–rural differences, the design of this paper implies the use of separate cost of living indices for those in urban and rural areas and the inclusion of all household income and controls for household size and composition. Thus, the total real household earnings per consumption unit were estimated for five agrarian and urban worker groups. Just as might be assumed, the urban–rural earnings gap shrank considerably. While the nominal wages of urban blue collar workers exceeded the wages of contract workers by 90% and day labourers by 40%, the difference decreased to 15 and 6% respectively when the cost of living and the household context were controlled for. Most important for this result was the fact that in kind wages and home production were more common in rural areas and the cost of living was

[59] This is the relationship that development economists refer to when estimating calorie elasticity; the percentage increase of calories in the diet given a one per cent increase in income. A positive association can be hypothesized for those with lower earnings, while the elasticity can be expected to reach zero for those who have reached their calorie goal. Logan finds a positive correlation between income per capita and calorie consumption per capita for the British and American populations in 1888–1890 (Logan, ‘Nutrition and Well-Being’, 322–223).

higher in urban areas. Urban–rural differences were, of course, larger when comparisons were made in relation to urban white collar workers.

In a previous study, I found that using the separate urban–rural cost of living indices reduced the urban–rural wage gap by 60% in 1881–1920.[60] Studies of other populations indicate about the same reduction when using separate deflators: 40% for France in 1892 (Sicsic), 50% for Finland in 1860–1913 (Heikkinen), 50/65% in the US in the 1890s (Hatton/Williamson), and over 70% in Britain 1925–1932 (Alston/Hatton).[61]

Even though the urban–rural gap in the total real earnings of households was small or modest, there were clear differences in consumption patterns. The *real* expenditure on food per consumption unit was similar for urban blue collar workers, contract workers and day labourers, but since urban workers earned more they spent relatively less on food and more on other expenditures (which is in accordance with Engel's law). This was partly because urban prices were higher; e.g. for housing and light; and partly because they bought larger quantities or goods of higher qualities that were more expensive (clothes, furniture), or goods and services that were more easily available in the city (memberships, leisure). Some of the difference between urban and rural consumption could also be due to the different preconditions for home production (e.g. laundry).

Turning to food consumption and the nutritional value of food, there were both similarities and differences between urban and rural households. Given the workload, all worker groups seems to have had a daily amount of calories that met the requirements of modern diet research; crofters and day labourers being at the lower end of the scale. As for the intake of protein and fat, it was rather low for some urban and rural groups, but mostly in the recommended intervals.

Income and prices influenced the structure of food consumption. Rural worker groups with lower earnings tended to consume more energy-dense food (e.g. potatoes, milk, rye flour) while urban worker groups with higher earnings tended to consume less energy-rich and more food of higher social status that was more expensive (e.g. animal products). However, there is no perfect correlation between total household real income per capita and the calorie intake per capita across occupational groups was generally as might

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[60] Lundh, 'Wage form' (2012), 140.

[61] Heikkinen, *Labour* (1997), 124; Sicsic, 'City-Farm' (1992), 685–686; Hatton/Williamson, 'Wage' (1991), 401; Alston/Hatton, 'Earnings' (1991), 91–95.

be expected from the modified Engel curve. There are two probable reasons for this. Firstly, the average working load of a particular worker group sets an energy goal that drives the household consumption, including substitution of one food item for another. Households where the breadwinner was engaged in hard physical work aimed at more energy-rich food, given their limited budgets. Secondly, the context of employment and housing influenced the opportunities the household had to produce its own food. Rural households that were able to keep hens or pigs could have egg or pork more cheaply. Also, if they had access to ovens for bakeries, they could buy flour instead of readymade bread that was more expensive.

Previous research on the socioeconomic aspects of consumption and nutrition placed considerable emphasis on income and the income elasticity of energy and food items.[62] The results of this study support the importance of earnings for the consumption level and pattern, but indicate that the occupational and urban–rural context also played an important role.

Two main conclusions may be drawn from this paper. First, comparing agrarian day labourers and unskilled urban workers, the urban–rural earnings gap becomes very small when taking all household income into account and controlling for household size and composition. The most important factors behind the shrinking gap were the wages in kind, home production in rural areas and a higher cost of living in urban areas. Also, when checking differences in consumption and nutrition, the differences seem to have been quite small. This may explain way rural people did not move to the city more frequently than they did, but not why those who actually moved did so. This suggests the need for more research into the context of urbanization in the early 20th century. One possible conclusion from the study is that the urban–rural gap in consumption could only partly be understood as a difference in the material standard of living. To a great extent it represented a difference in market-orientation and lifestyle.

Secondly, the socioeconomic gradient in consumption should not only be related to income levels and measured by income elasticity of food items. Institutions and context also need to be taken into account. Not least for periods when a large part of the production was off market and part of the payments were in kind, total household food consumption and its composition depended largely on the employment terms and housing conditions of the households. This suggests the need for the inclusion of

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[62] Jureen, ‘Long-term trends’ (1956), 17–19; Subramanian/Deaton, ‘The Demand for Food’ (1996); Logan, ‘Nutrition and Well-Being’ (2006); Logan, ‘Food, nutrition, and substitution’ (2006).

figures for in kind payments and home production of food when comparing the food consumption and nutritional intakes of urban and rural worker groups.

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Table 1: Urban-rural household income

Type of income		Blue-collar worker	Lower white-collar worker
A. Husband's earnings from employment			
- Contract worker (cash)	(=1.00)	4.48	5.40
- Contract worker (cash, in kind)	(=1.00)	1.93	2.37
- Crofter	(=1.00)	2.38	2.93
- Day labourer	(=1.00)	1.39	1.71
B. Husband's earnings from employment and own production (adjusted)			
- Contract worker	(=1.00)	1.51	1.67
- Crofter	(=1.00)	1.41	1.72
- Day labourer	(=1.00)	1.31	1.60
C. Total household income (adjusted)			
- Contract worker	(=1.00)	1.47	1.77
- Crofter	(=1.00)	1.49	1.80
- Day labourer	(=1.00)	1.30	1.57
D. Total household income (adjusted) per consumption unit			
- Contract worker	(=1.00)	1.47	1.77
- Crofter	(=1.00)	1.55	1.87
- Day labourer	(=1.00)	1.35	1.63
E. Total real household income (adjusted) per consumption unit			
- Contract worker	(=1.00)	1.15	1.38
- Crofter	(=1.00)	1.21	1.46
- Day laboure	(=1.00)	1.06	1.27

Note: Adjusted = investment costs have been subtracted from the revenues.
Source: *Levnadskostnaderna i Sverige 1913–1914. Del II. Lokalmonografier. 3. Malmö.* (Stockholm. 1917). and *6. Hälsingborg.* (Stockholm. 1918). *Levnadskostnaderna på landsbygden i Sverige vid år 1920.*

Table 2: Distribution of household expenditures by worker group (%)

Type of expenditure	Contract worker	Crofter	Day labourer	Blue-collar worker	Lower white-collar worker
Foodstuff	59.8	61.7	55.8	50.3	46.0
Beverages	2.1	1.9	2.2	2.0	1.5
Tobacco	0.9	0.9	0.6	0.8	0.7
Refreshments out of home	0.2	0.2	0.2	2.0	1.5
Housing	4.9	4.8	5.1	6.4	6.9
Fuel and lighting	9.4	6.8	8.7	5.7	5.9
Furniture	2.2	1.7	2.1	3.7	4.3
Clothes	12.2	12.2	13.3	13.5	15.7
Laundery	1.2	1.2	1.1	1.5	1.6
Hygiene	1.2	0.3	0.8	1.2	1.4
Intellectual purposes	0.7	1.1	0.7	1.2	1.4
Memberships and insurances	1.6	1.3	2.2	3.3	3.1
Gifts, benefits for relatives	0.3	1.0	1.2	0.8	1.1
Taxes	1.7	1.7	4.2	3.8	5.0
Entertainment and leisure	0.2	0.3	0.7	1.3	1.4
Travles	1.0	1.3	0.9	1.2	1.4
Interest	0.0	0.3	0.0	0.1	0.1
Telephone, post and writing utensils	0.1	0.2	0.1	0.2	0.2
Lottery tickets	0.2	0.0	0.1	0.3	0.2
Other expenditures	0.1	0.9	0.2	0.7	0.7
Total	100.0	100.0	100.0	100.0	100.0

Note: Investments in future production of agrarian households (‘running expenditures’. ‘payment of servants’ in crofter households) have been excluded. Payment of domestic servants in urban households is included in ‘Other expenditures’.
Source: See Table 1.

Table 3: Urban-rural household expenditure on food

Type of expenditure		Blue-collar worker	Lower white-collar worker
A. Total household expenditure			
- Contract worker	(=1.00)	1.25	1.35
- Crofter	(=1.00)	1.32	1.43
- Day labourer	(=1.00)	1.18	1.28
B. Total household expenditure per consumption unit			
- Contract worker	(=1.00)	1.25	1.36
- Crofter	(=1.00)	1.38	1.49
- Day labourer	(=1.00)	1.24	1.34
C. Total real household expenditure per consumption unit			
- Contract worker	(=1.00)	0.99	1.07
- Crofter	(=1.00)	1.08	1.17
- Day labourer	(=1.00)	0.97	1.06

Source: See Table 1.

Table 4. Average consumed quantity of food and beverage per year and unit of consumption by worker group

Type of food and beverage		Contract worker	Crofter	Day labourer	Blue-collar worker	Lower white-collar worker
Animal food						
fresh meat and pork, delicatessen	kg.	35.9	26.5	30.9	31.1	31.9
canned meat/pork	kg.	4.2	2.2	4.9	5.3	5.6
fish	kg.	18.4	21.8	32.2	3.5	2.9
milk and cream	litre	374.1	346.8	237.2	230.9	249.2
butter	kg.	6.2	10.2	10.1	10.0	11.1
margarine	kg.	4.1	2.0	4.6	10.6	10.4
fat and dripping	kg.	1.1	0.1	0.6	**	**
cheese	kg.	1.1	1.8	2.5	4.9	5.3
eggs	piece	109.0	190.0	141.0	160.2	184.4
Vegitable food						
bread	kg.	6.5	5.2	54.8	165.7	152.1
flour	kg.	173.8	152.8	86.4	19.8	22.2
grain and macaronis	kg.	3.8	11.9	2.9	6.1	7.9
potatoes	kg.	191.2	186.8	170.1	182.9	174.0
pees	kg.	0.8	1.7	1.3	1.9	1.7
brown beans	kg.	2.0	0.0	1.2	1.6	1.4
sugar and sirup	kg.	26.2	28.2	27.1	29.8	31.8
Beverages						
coffee	kg.	5.1	4.6	6.0	7.5	6.8
beer, small beer	litre	0.8	0.8	0.9	8.1	10.2
wine	litre	**	**	**	0.1	0.1
vodka	litre	4.4	3.6	4.2	5.5	3.8

Note: ** = item not included in the survey.

Source: See Table 1.

Table 5. Distribution of the consumed food quantity (in kilograms) per unit of consumption by worker group (%)

Type of food	Price per 1,000 calories Kronor	Contract worker	Crofter	Day labourer	Blue-collar worker	Lower white-collar worker
Fresh veal	4.07	0.0	0.0	0.1	0.5	0.7
Eggs	3.59	0.8	1.6	1.2	1.4	1.5
Fresh sheep meat	3.14	0.0	0.1	0.1	0.2	0.2
Fresh meat	2.83	0.3	0.4	0.7	1.7	1.6
Cheese	1.50	0.1	0.3	0.4	0.7	0.8
Fresh pork	0.92	4.2	3.5	3.8	2.1	2.2
Butter, average	0.80	0.8	1.6	1.6	1.5	1.5
Other grain or macaronis	0.50	0.2	0.3	0.1	0.2	0.3
Cracker, rusk	0.49	0.1	0.0	0.1	0.7	0.6
Wheatmeal bread	0.45	0.2	0.0	1.1	1.3	1.1
Margarine	0.45	0.5	0.3	0.7	1.6	1.7
Sugar	0.41	3.1	4.2	4.2	4.6	4.9
Ryemeal loaf, sweet	0.31	0.3	0.4	4.3	14.3	13.2
Ryemeal bread, hard	0.26	0.0	0.0	0.0	0.1	0.2
Wheat flour	0.25	5.4	6.1	5.5	2.8	2.8
Rolled oats	0.25	0.2	1.5	0.2	0.6	0.8
Ryemeal loaf, souer	0.19	0.3	0.3	3.3	8.3	7.3
Rye flour	0.17	16.9	17.8	8.2	0.1	0.4
Unskimmed milk	0.06	42.1	32.0	36.9	30.0	32.7
Potatoes, average	0.02	24.6	29.4	27.3	27.2	25.5
Total		100.0	100.0	100.0	100.0	100.0

Note: Prices are from Malmö in 1920. Nutrition value for fully fat cheese (31%) is taken from Livsmedelsverkets Livsmedelsdatabas. 1 litre of milk = 1 kg; 20 eggs = 1 kg.

Source: *Levnadskostnaderna i Sverige 1913–1914. Del II. Lokalmonografier. 3. Malmö.* (Stockholm. 1917). and *6. Hälsingborg.* (Stockholm. 1918); *Levnadskostnaderna på landsbygden i Sverige vid år 1920; Hushållsbudgeter och livsmedelskonsumtion i städer och tätorter 1940–1942.* Appendix 2.

Table 6. Nutrition value of the average daily meal of one consumption unit by worker group

Worker group	Calories Kcal	Fat grams	Carbohydrates Grams	Protein grams
Contract worker	4,045	117	593	122
Crofter	3,670	95	561	114
Day labourer	3,339	110	458	102
Blue-collar worker	3,549	107	509	106
Lower white-collar worker	3,549	112	501	106

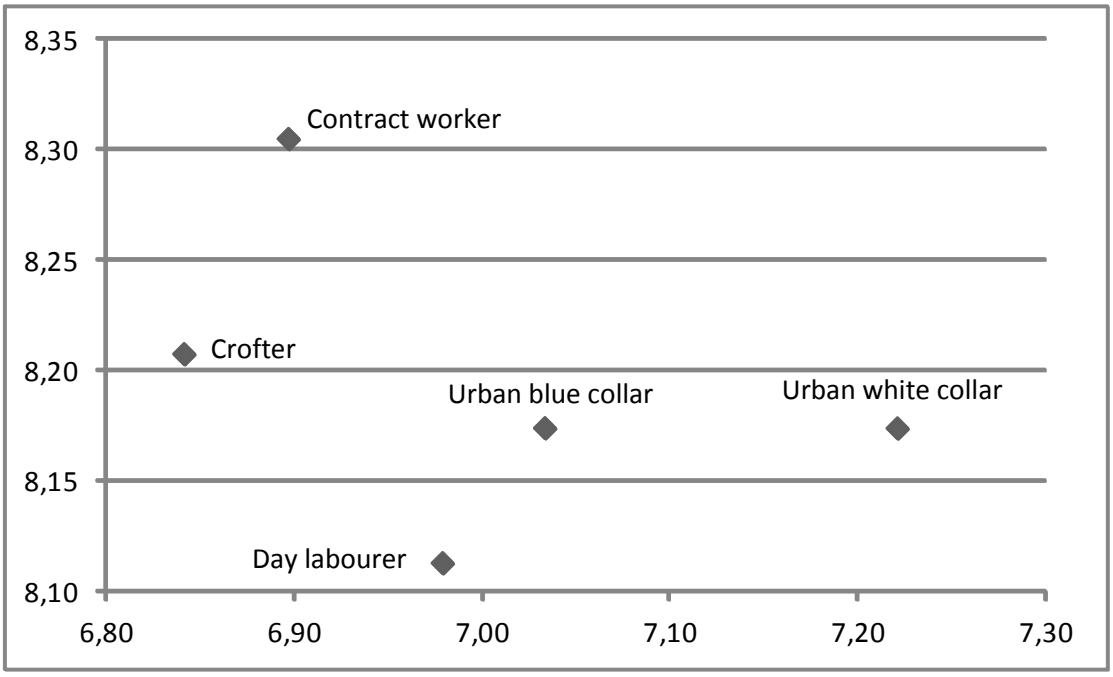
Sources: See Table 1.

Table 7. A daily meal of one consumption unit distributed by energy-giving nutritional substance and worker group (%).

Worker group	Fat grams	Carbohydrates grams	Protein grams
Contract worker	26	62	12
Crofter	23	64	12
Day labourer	30	58	12
Blue-collar worker	27	61	12
Lower white-collar worker	29	60	12

Note: The energy of one gram of fat is set to 9 Kcal and one gram protein to 4 Kcal. As a consequence. the energy of one gram of carbohydrates is 4.22 Kcal. (Becker (1982). 51.)
Sources: See Table 1.

ln calories per c.u.



ln real household income per c.u.

Figure 1. Relationship between calorie intake and total household real income per consumption unit.

Appendix 1. Average household income per year by worker group (kronor)

Type of income	Contract-worker	Crofter	Day labourer	Blue-collar worker	Lower white-collar worker
1. Total income from employment/production	3,345.96	3,728.59	3,826.37	4,294.63	5,154.43
1.1. Husband's earnings	2,907.65	3,544.13	3,408.05	4,007.90	4,887.78
1.1.1. Wage	1,985.48	1,608.10	2,755.54	3,830.20	4,705.71
- in cash	844.32	1,459.58	2,611.39	3,786.35	4,556.98
- in kind	1,141.16	148.51	144.14	43.85	148.73
1.1.2. Own production	833.34	1,884.96	582.96		
- for sale	328.49	939.79	153.55		
- for household consumption	504.85	945.17	429.41		
1.1.3. Additional income	88.83	51.07	69.55	177.70	182.07
1.2. Wife's earnings	378.56	115.58	385.39	154.76	87.44
1.3. Children's earnings	59.76	68.88	32.93	131.97	179.21
2. Accommodating, renting	4.85	0.00	0.00	113.89	189.63
3. Sickness allowance, pension, etc.	6.46	0.00	0.00	90.61	120.05
4. Other income	92.06	118.94	135.74	186.76	188.27
Total household income	3,449.32	3,847.54	3,962.11	4,685.89	5,652.80
Total household income (adjusted)	3,193.82	3,142.94	3,606.29	4,685.89	5,652.80

Note: Adjusted total household income is exclusive of what was used as payments to servants or other running expenditures that were needed to keep up the own production.

Source: *Levnadskostnaderna i Sverige 1913–1914. Del II. Lokalmonografier. 3. Malmö.* (Stockholm, 1917), and *6. Hälsingborg.* (Stockholm, 1918). *Levnadskostnaderna på landsbygden i Sverige vid år 1920.*

Appendix 2

Nutrition value of food items

Labels of the household books, Social Board's surveys 1913/14 and 1920	Labels of the norishment table, Social Board's survey 1940/42	Note	Codes	Per	Calories per gram	Fat per 0.1 gram	Carbohydrates per 0.1 gram	Protein per 0.1 gram
Fresh meat and pork								
meat	Fresh meat	a)	301/302	1 hg.	153.0	92.5	0.0	162.0
veal	Fresh veal	b)	303/304	1 hg.	134.5	61.0	3.5	179.5
sheep	Other fresh meat		306	1 hg.	147.0	70.0	0.0	200.0
pork	Fresh pork		311	1 hg.	484.0	450.0	0.0	160.0
Preserved meat and pork								
meat	Salted and smoked meat		307	1 hg.	209.0	130.0	0.0	215.0
pork	Salted and smoked pork		313	1 hg.	522.0	500.0	0.0	140.0
Fresh fish								
herring	Fresh herring		401	1 hg.	123.0	70.0	0.0	140.0
other	Other fresh fish	c)	402/403	1 hg.	82.0	32.5	0.0	125.0
Preserved fish								
salted herring	Salted herring		404	1 hg.	212.0	140.0	0.0	200.0
dried cod	Other salted or dried fish		405	1 hg.	114.0	3.0	0.0	254.0

Milk and cream								
unskimmed milk	Unskimmed milk		1	1 litre	650.0	360.0	460.0	310.0
skimmed milk	Skimmed milk		2	1 litre	356.0	30.0	480.0	320.0
cream	Cream		3	1 decilitre	160.0	120.0	40.0	30.0
Butter	Butter, average		4	1 hg.	770.0	850.0	0.0	10.0
Margarine	Margarine		101	1 hg.	795.0	850.0	4.0	5.0
Fat and dripping	Other fat		102	1 hg.	930.0	1000.0	0.0	0.0
Cheese	Cheese, not fully fat		5	1 hg.	253.0	118.0	35.0	315.0
Eggs	Eggs		201	1 hg.	152.0	105.0	0.0	134.0
Bread								
ryemeal bread, hard	Ryemeal bread, hard		511	1 hg.	343.0	7.0	710.0	110.0
ryemeal loaf, sweet	Ryemeal loaf, sweet		513	1 hg.	258.0	6.0	527.0	90.0
ryemeal loaf, souer	Ryemeal loaf, souer		512	1 hg.	272.0	10.0	560.0	80.0
wheatmeal bread	Wheatmeal bread	d)	514/515	1 hg.	287.0	23.5	546.0	86.5
rusk	Cracker, rusk		516	1 hg.	385.0	50.0	700.0	125.0
Flour								
wheat	Wheat flour		501	1 hg.	362.0	10.0	747.0	112.0
rye	Rye flour		503	1 hg.	353.0	7.0	753.0	93.0
potatoe	Other grain or macaronis		505	1 hg.	352.0	4.0	701.0	148.0
oats	Other grain or macaronis		505	1 hg.	352.0	4.0	701.0	148.0
not specified	Other grain or macaronis		505	1 hg.	352.0	4.0	701.0	148.0
Grain								

rolled oats	Rolled oats		506	1 hg.	384.0	60.0	670.0	130.0
rice	Other grain or macaronis		507	1 hg.	348.0	7.0	696.0	138.0
corn	Other grain or macaronis		507	1 hg.	348.0	7.0	696.0	138.0
semolina	Other grain or macaronis		507	1 hg.	348.0	7.0	696.0	138.0
not specified	Other grain or macaronis		507	1 hg.	348.0	7.0	696.0	138.0
Macaronis	Other grain or macaronis		505	1 hg.	352.0	4.0	701.0	148.0
Peas: yellow, green	Dried peas and beans		618	1 hg.	360.0	14.0	612.0	234.0
Brown beans	Dried peas and beans		618	1 hg.	360.0	14.0	612.0	234.0
Potatoes	Potatoes, average		601	1 kg.	858.0	10.0	1,870.0	200.0
Sugar	Sugar		801	1 hg.	400.0	0.0	976.0	0.0
Sirupe	Sirupe and honey		802	1 hg.	271.0	0.0	645.0	16.0
Malt beveridge	Malt beveridge	e)	905/906	1 litre	301.0	0.0	708.5	25.0
Wine, half sweet wine		f)		1 hg.	81.0	0.0	3.0	0.0
Spirits		g)		1 hg.	222.0	0.0	0.0	0.0

Notes: Codes are from the the 1940/42 nourishment table. In some cases, code groups were merged to fit the labels used in the Social Board surveys 1913/14 and 1920.
a) 301/302 = Mean of codes 301 Beef with bone and 302 Beef without bone
b) 303/304 = Mean of codes 303 Veal with bone and 304 Veal without bone
c) 402/403 = Mean of codes 402 Other fat fresh fish and 403 Other fresh fish and seafood
d) 514/515 = Mean of codes 514 White bread and 515 Simple soft buns
e) 905/906 = Mean of 905 Beer and 906 Small beer
f) Code 1908 White half dry or half sweet wine vol.% 12.5. Source: The Food Database, National Food Administration, Sweden; www.slv.se

g) Code 1918, 'Renat brännvin' or vodka vol.% 40. Source: The Food Database, National Food Administration, Sweden; www.slv.se

Sources: *Levnadskostnaderna i Sverige 1913–1914. Del II. Lokalmonografier. 3. Malmö.* (Stockholm, 1917), and *6. Hälsingborg.* (Stockholm, 1918). *Levnadskostnaderna på landsbygden i Sverige vid år 1920. Hushållsbudgetar och livsmedelskonsumtion i städer och tätorter 1940-1942.* SOS Sveriges Officiella Statistik. Socialstatistik. Stockholm 1943. Bilaga 2; The Food Database, National Food Administration, Sweden; www.slv.se.