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## **THE CONSUMPTION OF MILK AND MILK PRODUCTS FROM 1990 TO 2003**

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**ABSTRACT.** This paper presents quantity and structural changes in milk and their products consumption during last years. It was shows, among others, that in spite of great oscillations and changes in consumption, milk is still a very popular food product and also is valued by consumers as a very important nutritive component. In connection with a lot of positive and negative conditions of consumption, milk and its derivatives are coming back to consumer's tables in more and more ranges.

**Key words:** milk, milk products, consumption, market

### **Introduction**

Milk plays a very important role in human life, primarily as a source of perfect food. Milk and its products are substantial carriers of protein and calcium. Owing to their high availability and buffer properties milk and its derivatives have always occupied a significant position in the Polish feeding style. The share of milk protein in the total of animal proteins amounts to 35% on average, and in the total of all proteins – 20% on average (**Zalewski** 2000).

In the 1980's Poland belonged to the countries of high production and consumption of milk and milk products. It was a consequence of the fact that milk and its products received more subsidies than meat products, which made them a cheaper source of animal protein. Towards the end of the 1980's milk consumption amounted to 271 l per head per annum (milk processed into butter not included) and it would have been higher but for the barrier in the form of limited productive capacity of dairy industry. The beginning of the 1990's was marked by a dramatic fall in the consumption of dairy products, mainly due to the fall in people's real income, rapid increase in the prices of milk and its products and also a wide free access to other groups of products. The years 1995-1998 mark a considerable increase in the consumption of milk and its products

and later another drop in the consumption followed (**Kowrygo 2000, Kowrygo et al. 1997**).

The aim of this paper is to present the trends of changes in the amount and structure of the consumption of milk and its products over last decade in view of the changing market conditions. The material for the analysis comes from the data supplied by Public Statistics and the Institute of Agricultural Economics and Food Management.

### **The economic conditions of the consumption of milk and milk products**

The end of 1989 and beginning of 1990 brought the transformation of the economic system in Poland, which resulted in the need to introduce market economics by freeing retail prices of products and services. The process could be best observed in the case of products which received high subsidies, mainly food, and especially milk and its products.

Tendency of relative increase in the prices of dairy continued up to the mid-1990's. In the following years the average annual rate of price increase was a little lower than the rate of inflation, but it was higher than the total rate of price increase for food. The crucial factors which favoured the price increase in dairy products included: improvement in purchasers' income, development of the demand for highly processed products and intensive promotion of such products.

Along with the rapid price increase the change in the standard and structure of personal income caused by the freezing of salaries became another factor conditioning the decreasing demand for dairy products. That resulted in the fall in real salaries, which during the hardest period of 1989-1992 amounted to about 43% in farmers' households, 32% – in the households of workers owning a farm, 22.4% in worker's households and 12.6% in retired people's households. From 1994 people's real income began to increase gradually. Simultaneously, since that moment it has been possible to observe the phenomenon of limiting the increase rate of real income accompanied by the increase in income polarisation.

The varied variance of people's real income and retail prices of food were the main reasons for the changes in the households' style of expenses which took place in the 1990's. From 1990 to 2003 the average share food expenses in the total expenses decreased from about 50% to about 30% while the expenses on other goods and services increased considerably. The households with lower income had spending value much higher than average. The share of dairy expenses in the food expenses of the analysed period ranged from about 10% in 1991 to nearly 11.6% in 2003. Retired people's households are definitely characterised by the highest share of dairy expenses. From 1990 to 2003 the average level butter expenses in households ranged from about 3.5% to 1.8%. The lowest share of expenses on this assortment of food was the domain of households related with farming, where home production still has a considerable, though decreasing, share in supplying food.

## **Changes in the amount and structure of consumption of milk and milk products**

The increase in the prices of milk and milk products which coincided with the deep fall in people's real income resulted in a drop in the consumption of these products. The dairy market developed a strong demand barrier, which resulted in the disappearance of supply shortages and appearance of permanent surplus of products. It was a transition from the shortage economy and manufacturer's market to the purchaser's market. The situation forced both producers and consumers to change their economic system. In consequence of difficulties in the sales of the produced goods it was necessary for producers to reduce production. The fall in production resulted in a price increase and further limitations of the demand. Consumers, in turn, who had more and more limited income, first reduced purchasing products to make reserves and then started comparing other (not price-related) attributes of products thus trying to select the most suitable product.

The analysed period resulted not only in quantitative changes in the consumption of milk and its products but also important shifts in the assortment of consumed products. The end of 1989 and beginning of 1990 also brought the opening of the frontiers and unlimited inflow of consumer goods, which also included dairy products. Although the foreign products were more expensive and sometimes of lower quality, but their attractive colourful packages and the countries of origin were very competitive. The phenomenon of high popularity of imported goods continued on a very high level until 1993, when the influx of imported goods was followed by foreign investments in the dairy sector. The increasing competition in the dairy market resulted in a complete reconstruction of the range of products. Besides the appearance of new types of products individual brands developed, and the companies which had supplied products mainly for the local market started supplying goods across the whole country (Sznajder et al. 1998).

In 1990 milk consumption, in balance statistics, reached about 241 l per year per head (milk processed into butter not included) and butter consumption amounted to about 7.8 kg per head. In the following five years the consumption of these products dropped to 195 l of milk (milk processed into butter not included) and 3.7 kg of butter respectively. In 1996 the rapid fall in the consumption of milk eased off and the consumption of butter became relatively stable. At the time Poland went back to the late 1950s as regards the quantity of milk consumption, and to 1966 as regards butter consumption. From 1995 to 1998 a 5% increase in the consumption of milk and its products was observed in comparison with 1995. However, in 1999 the consumption of milk and its products began to decrease again. It is worth noting that while the consumption of milk and its products was decreasing so rapidly, the consumption of meat and meat products remained at a relatively stable level (Fig. 1), and from 2001 their increase to the level about 71 kg per head in 2004.

A slightly different situation could be observed on the butter market. Butter consumption dropped from 9 kg per head in 1986 to about 4.6 kg per head in 1996 (a fall by more than 50%) (Fig. 2). Since that time butter consumption has been at a relatively stable level between 4.2-4.6 kg per head. However, the fact that until 1996 butter consumption had been falling so dramatically does not mean that consumers began to consume less fat. This important gap was, in fact, filled with new products on the market such

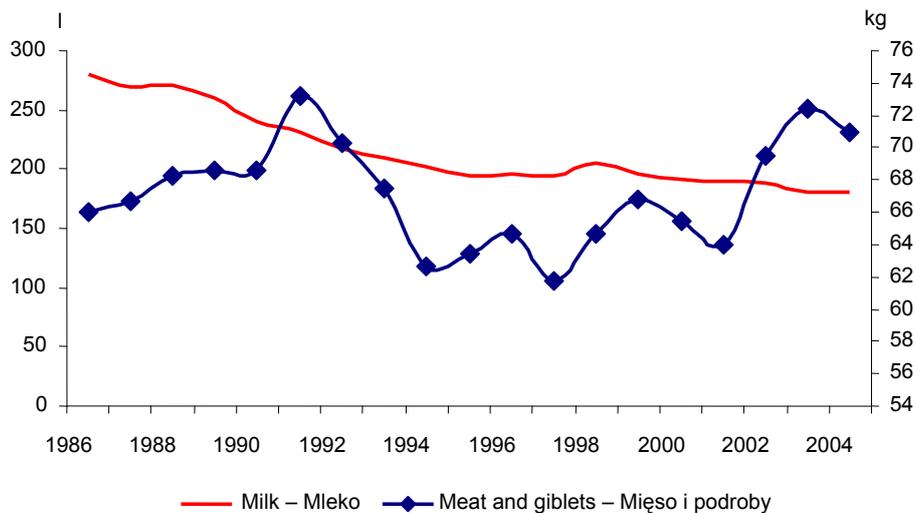


Fig. 1. Annual consumption of milk, meat and giblets per head from 1986 to 2004 (balance statistics) (**Rocznik...** 1990-2003)

Ryc. 1. Roczne spożycie mleka, mięsa i podrobów w latach 1986-2004 w przeliczeniu na mieszkańca (w ujęciu bilansowym) (**Rocznik...** 1990-2003)

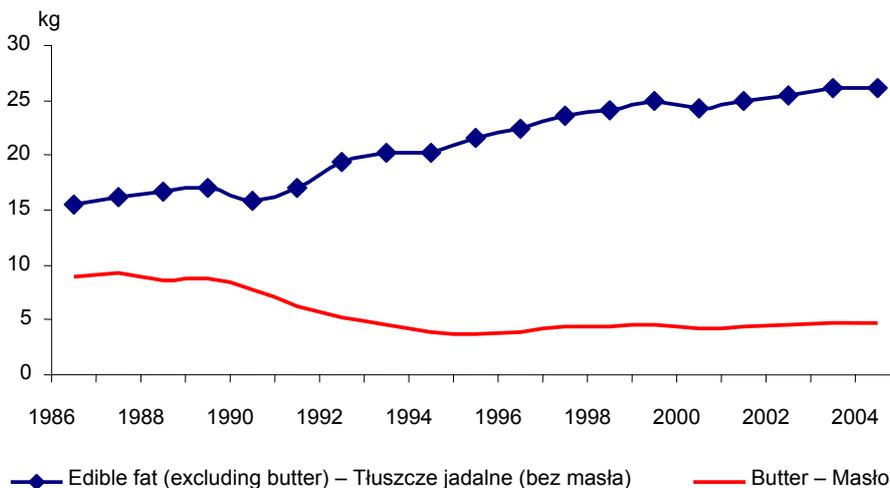


Fig. 2. Annual consumption of edible fat and butter per head from 1986 to 2004 (balance statistics) (**Rocznik...** 1990-2003)

Ryc. 2. Roczne spożycie tłuszczów jadalnych i masła w latach 1986-2004 w przeliczeniu na mieszkańca (w ujęciu bilansowym) (**Rocznik...** 1990-2003)

as vegetable fat and mixes of vegetable fat and butter, whose consumption has constantly been growing since 1990. At the beginning of the 1990s a statistical Pole consumed about 15.8 kg of fat and in 2003 – more than 26 kg. However, arresting the further dramatic fall in the consumption of butter could also be attributed to the consumers' appreciation of its nourishing and health value and strong advertising campaign promoting the advantages of the product.

According to household budgets in the analysed period the consumption of milk and milk products dropped from about 102 l per head per year to 68-65 l per head per year in 2000-2003 (Fig. 3). As far as other milk products are concerned the consumption of cottage cheese fell from 7.32 kg in 1990 to 6.36 kg in 1995, then it reached 6.84 kg in 1998 and from 2000 to 2001 remained level at about 6.4 kg. The consumption of sour cream and cream dropped from 7.28 l in 1990 to 5.04 l in 2003. The consumption of butter decreased from 9.3 kg per head to 4.2 kg per head. The only dairy products whose consumption was rising during the analysed period were hard cheese and processed cheese. In 1990 consumption in this group of products was 2.86 kg per head and in 2003 – 3.96 kg per head per year (increase by about 30%). The reasons for such a considerable increase in the consumption of this assortment were undoubtedly the changing consumption models and increased popularity of fast food.

During the analysed period the consumption of condensed milk and milk powder remained at a roughly stable level and reached 0.48 kg per head per year.

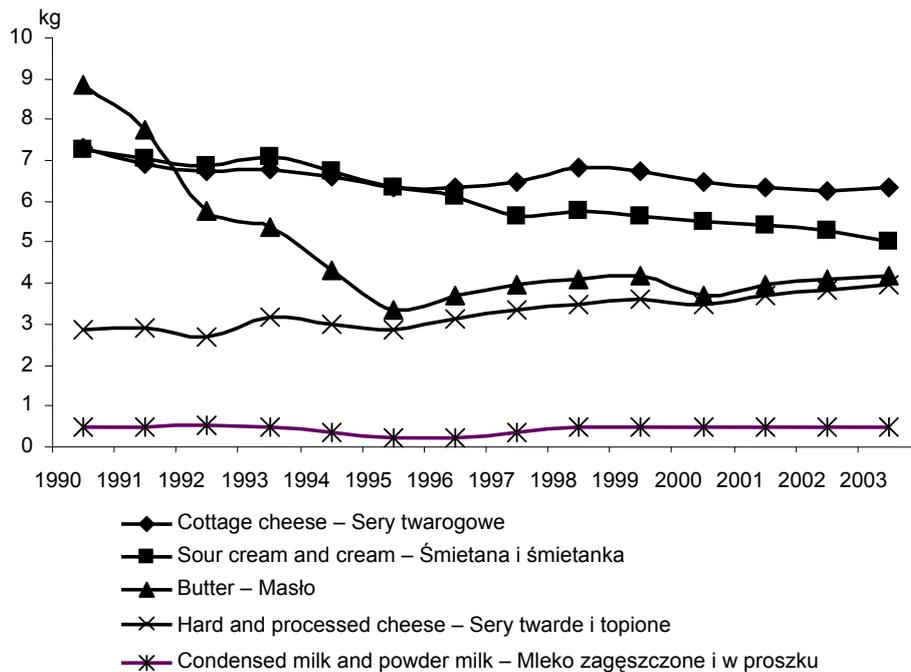


Fig. 3. Average annual consumption of milk products per head in households from 1990 to 2003 (according to household budgets) (**Rocznik...** 1990-2003)

Ryc. 3. Przeciętne roczne spożycie przetworów mlecznych w gospodarstwach domowych w latach 1990-2003 w przeliczeniu na osobę (według budżetów gospodarstw domowych) (**Rocznik...** 1990-2003)

### **Differentiation in the consumption of milk and milk products in households**

The analysis of milk and milk products consumption in individual socio-economic groups shows that the changes were not identical in each group.

In workers' households the biggest changes in dairy consumption concerned: butter – a drop from 0.5 kg per month per head in 1992 to 0.32 kg in 2003 (by 40.0%), milk powder – a drop from 0.07 kg per month per head in 1992 to 0.04 kg in 2003 (by 43.00%), sour cream – a drop from 0.47 kg per month per head in 1992 to 0.35 kg in 2000 (by 25.53%). In the case of cottage cheese no significant changes in consumption were noted from 1990. It reached only about 0.46 kg per head. The only products whose consumption rose during the analysed period were the group of maturing cheese and processed cheese. Their consumption increased from 0.30 kg per month per head to 0.38 kg in 2003.

In farmers' households the biggest changes in dairy consumption concerned maturing and processed cheese. Their consumption increased from 0.10 kg per month per head to 0.19 kg in 2004. The percentage increase of consumption was enormous, because it reached as much as 90%, however, the comparison of absolute values shows that the people belonging to the group consume very little maturing and processed cheese compared with the other socio-economic groups. Another product in the case of which big changes in consumption in farmers' families were noted was butter. Its consumption dropped from 0.53 kg per month per head in 1990 to 0.33 kg per month per head in 2003 (by 40%). Such a drop in the consumption of butter was above all the result a fall in self-catering in this group of households.

The consumption of milk and milk beverages in this group of households resulted in a drop by over 32% – from about 12 l per month per head in 1990 to about 8.2 l per head. In farmers' households there was a similar considerable drop in the consumption of sour cream and cottage cheese. In the case of the former product the consumption fell from 0.94 kg per month per head in 1990 to 0.64 kg in 2003. Similarly to milk, this used to be the group of the highest consumption among the other groups of households. As far as cottage cheese is concerned the fall amounted to about 29%. The consumption fell from 0.80 kg per month per head in 1990 to 0.64 kg in 2003. Similarly to milk and sour cream such a big fall in the consumption was the result of the drop in real income and decreasing share of self-catering in consumption.

In the households of workers maintaining farms the biggest changes in dairy consumption concerned (as in the case of workers) butter – a drop from 0.51 kg per month per head in 1992 to 0.29 kg in 2003. As far as the other groups of milk products are concerned the drops in consumption were not so dramatic and did not exceed 17%. Thus, the consumption of cottage cheese from 0.76 kg per month per head in 1992 to 0.56 kg in 2000, milk from 10.51 kg per month per head in 1992 to 5.86 kg; sour cream – from 0.81 kg to 0.50 kg. No changes in the consumption of skimmed milk and milk powder were observed. Only in the case of maturing and processed cheese a 14.29% increase in the consumption was noted – from 0.10 kg to 0.14 kg. Such changes in the consumption model of the group of workers maintaining farms make them more and more similar to the group of workers.

In pensioners' households the biggest changes in dairy consumption concerned milk – a drop from 10.07 kg per month per head in 1992 to 5.92 kg in 2003 (by 40.0%). This

was the biggest fall in milk consumption among all the socio-economic groups. Sour cream consumption fell from 0.70 to 0.53 kg per month per head. Also, it was the biggest fall in the consumption of this product among all the socio-economic groups. Butter consumption dropped from 0.61 to 0.44 kg (by 30.0%). Also, a 28.38% drop in cottage cheese consumption was observed – from 0.74 to 0.65 kg per head. Similarly to milk and sour cream this was the highest percentage fall in consumption. The only milk products whose consumption increased were maturing and processed cheese. Their consumption rose from 0.27 kg per month per head to 0.37 kg – a rise by 37.0%. In pensioners' households no changes in the consumption of condensed milk and milk powder were noted. The reason for the biggest decrease in the consumption of milk and its products in this socio-economic group was the most severe fall in the real income of the group.

The socio-economic group whose consumption model diverged most were the households of the self-employed. In this group the lowest percentage drop in milk and butter consumption was noted; 7% for milk – from 5.76 l (the lowest consumption of all the categories in 1992) to 4.04 l per month per head in 2003. Butter consumption fell from 0.56 kg in 1992 to 0.39 kg in 2003, where it reached one of the higher consumption level in comparison with the other socio-economic groups. Only in this group the consumption of maturing and processed cheese dropped from 0.37 to 0.28 kg per month per head, whereas the consumption of cottage cheese rose from 0.49 kg to 0.69 kg – by about 40% and the consumption of cream and sour cream increased from 0.48 kg to 0.58 kg. Such changes in the consumption model of this socio-economic group prove that from the beginning of the 1990's the consumption model of dairy products was gradually becoming similar in its structure to consumption in the EU countries.

### **Forecast of dairy products consumption**

With the general lowering tendency in dairy consumption and significant structural changes the economic conditions of consumption discussed above reach the rank of determinants of demand for this group of products. However, in order to estimate fully how households' demand on dairy products is going to change it is necessary to consider numerous factors of demographic, psychographic, nutritional or market type. What is a challenge for all dairy market is the quantitative and demographic changes, such as, for example: the negative net birth-rate approaching zero, ageing society, reducing size of an average household, falling number of children in family (Adamczyk 2001). The demand for dairy products will also be influenced by the development of socio-economic factors such as: the situation on the job market, increasing women's job activity, or psychographic factors, for example: consumers' lifestyle, their activity, nutrition model. Furthermore, in the case of economies whose consumption needs are not fully developed, where the Polish economy belongs, world or European consumer trends might play an important role affecting the form of consumption model.

It is not neutral for future model of consumption our access to EU and activities on common, unit European market. For demand stimulation there will be friendly programmes of subsidies for production and turnover. But increasing milk and products prices will stop demand development.

The authors' estimate of the demand for milk and its products for the nearest years, which was done on the basis of the average rate of changes in the consumption from 1993 to 2003 (not including the early 1990's when the consumption model was slightly distorted due to the continuing lock effect), assumes that in 2005 the level of milk consumption will reach about 180 l per year per head, and butter consumption – about 4.7 kg per year per head. It is lower than the level of the last decade.

According to optimistic script, in 2005 the total consumption of milk and its products (in milk equivalent) will account for about 262 kg per head.

The estimated values also slightly diverge from those recommended by nutritional sciences. In the planned options of nourishing people the suggested quantities of consumption of cereal products, potatoes, fruit, vegetables, milk, eggs and butter are higher than those of 2000 while the consumption of fat and sugar is lower (**Adamczyk 2002, Kowrygo et al. 1997**).

### Conclusions

1. During the period of pro-market changes in the Polish economy there were important changes in people's consumption model. Deconsumption of most food products occurred, which was mainly a result of unfavourable economic conditions of consumption.

2. Significant structural changes accompanied the decreasing consumption of milk products. However, the changes did not lead to the levelling of considerable discrepancies between the consumed quantities in individual groups of households.

3. Parallel to changes in model of milk and their products consumption, the phenomenon of higher and higher flexibility of the dairy industry in relation to consumers' demand for dairy products has occurred.

4. Possibility of choice from a wide range of products, improving (though not equally) economic conditions of consumption, changes in people's nutrition models, influence of consumer trends from Western Europe, changes in consumers' lifestyle – here are only some of factors influencing the present model of milk and milk products consumption.

5. In spite of great oscillations and changes in structure of consumption milk, still is and doubtlessly will be a very popular food product and invaluable component of the Polish consumer diet.

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## SPOŻYCIE MLEKA I JEGO PRZETWORÓW W LATACH 1990-2003

### S t r e s z c z e n i e

Mleko odgrywa bardzo ważną rolę w życiu człowieka, przede wszystkim jako źródło doskonałego pożywienia. Ze względu na bardzo dobrą przyswajalność i właściwości buforowe mleko i jego pochodne zawsze zajmowały znaczącą pozycję w polskim modelu wyżywienia. W ciągu ostatnich kilkunastu lat spożycie mleka znacznie się zmieniło. Czynnikiem, który wydatnie wpływał na ograniczony popyt na mleko i jego przetwory, był wzrost cen mleka i przetworów przy jednoczesnym głębokim obniżeniu dochodów realnych ludności. Wraz ze zmianami ilościowymi nastąpiły także znaczące zmiany, jeśli chodzi o rodzaj spożywanych produktów mleczarskich. Zróżnicowane uwarunkowania konsumpcji wpłynęły też istotnie na różnice w modelu spożycia pomiędzy poszczególnymi grupami społeczno-ekonomicznymi gospodarstw domowych.