

CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE
Faculty of Economics and Management
Department of Economics



BACHELOR THESIS

Food price inflation: causes and impacts in the CR

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CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Department of Economics

Faculty of Economics and Management

BACHELOR THESIS ASSIGNMENT

Mládková Anna

Agricultural Economics and Management

Thesis title

Food price inflation: causes and impacts in the ČR.

Objectives of thesis

The main aim of this thesis is to analyze the food price development. Mainly I will examine the causes and the impacts of this development on chosen product.

Methodology

Methodology is based on studying literature, professional articles and statistics available. Comparative analyses are going to be used as well.

Schedule for processing

12/2010 Výběr tématu

06/2011 Vyhotovení zadání práce

06-09/2011 Studium literatury (příprava na zhotovení teoretické části)

10-12/2011 Zhotovení teoretické části, příprava a zhotovení praktické části

12/2011-02/2012 Analýza výsledků, úprava práce, závěr

03/2012 Odevzdání práce

DECLARATION

I hereby declare that I have worked on my Bachelor Thesis titled “Food price inflation: causes and impacts in the CR” solely and I have used the literature and sources listed in bibliography.

In Prague, 27th March 2012

.....

Anna Mládková

ACKNOWLEDGEMENT

I would like to thank to my supervisor Doc. Ing. Mansoor Maitah, Ph.D. et Ph.D. for his professional recommendations, suggestions, and help with my Bachelor thesis.

I thank to my parents to give me an opportunity to study at university.

Thanks also belong to everyone who provided data for my thesis, advice and any other help.

Food price inflation: causes and impacts in the CR

Inflace u potravin: příčiny a důsledky v ČR

Summary

This thesis presents the topic of inflation in general and emphasizes the issue of food prices more deeply. The theory discusses the typology of inflation according to its origin, characteristics as well as the ways of obtaining the inflation rate, it mentions how the inflation influences the country and real examples from history or present are given to illustrate the situations. The practical part examines the recent experience in the Czech Republic in details. Prices of several food items are observed over 20 years and then compared to overall inflation rate. Chosen price displacements are justified. Time series for example show that the price development of particular items does not really follow the overall inflation rate. Case studies research how the price growth influenced purchasing power of common people. It researches how much food were they able to buy for their income and how much they had left.

Key words

Inflation, food price, inflation rate, CPI, the market basket, purchasing power, bread, chicken, milk, potatoes, eggs

Shrnutí

Tato práce prezentuje téma inflace obecně a více podrobně zdůrazňuje ceny potravin. Teorie pojednává o typech inflace podle původu, o charakteristice inflace stejně jako o způsobech výpočtu míry inflace. Je také zmiňováno, jak inflace ovlivňuje zemi a jsou uvedeny příklady z historie i současnosti k přiblížení jednotlivých problematik. Praktická část zkoumá nedávné zkušenosti České republiky s inflací. Ceny několika potravin jsou sledovány 20 let a srovnány s všeobecnou mírou inflace. Časové řady například ukazují, že ceny konkrétních položek úplně neodpovídají vývoji inflace. Případové studie zkoumají, jak cenový růst ovlivňuje kupní sílu běžných lidí z hlediska toho, kolik jídla si mohli za svůj příjem koupit a kolik peněz jim zbylo.

Klíčová slova

Inflace, cena potravin, míra inflace, CPI, spotřebitelský koš, kupní síla, chléb, kuře, mléko, brambory, vejce

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1 Introduction

Inflation is a phenomenon that is never missing in any modern working economy system. At least its moderate form is always present. A less frequent stage of hyperinflation is an important moment of any country's history. Moderate inflation is desirable and might be adjusted by government. The decrease of purchasing power of money or devaluation of a currency can be caused variously and has many impacts that affect the society a lot.

There are several ways of calculating inflation rate. Each is suitable for someone but all of them are based on averages of values so the results are always general.

When we want to find out how the inflation affects actual people we should aim at the prices of something bought daily that is indispensable for instance the food. With specific numbers we can get a picture of the impacts of inflation. Saying the inflation rate has been 1.5% is very general and some people or businesses can be affected significantly while some of them might not be affected at all.

Even though the inflation belongs to macroeconomics because it involves the global economy of a country the impacts come up to microeconomics as well. The process starts at the level of national budget and as a result every single person might be affected. The theory denotes the impact of inflation is supposed to be projected into the whole system however in reality the inflation conducts itself unevenly and often unpredictably.

Inflation is a very broad and important topic not only for the people who do economics. It concerns everybody so it is worthy to discuss it.

2 Objectives and methodology

2.1 Objectives

The main aim of the thesis is to summarize the theory of inflation (discuss its characteristics, indicate the ways of obtaining it, mention various cases of inflation etc.) The fact resulting from the theory that the purchasing power of people should not change is going to be examined with actual data and results will be evaluated. The goal is to find out whether the reality is the same as the theory implies. The assumption is it will not because the inflation is often unbalance which means the different products have different price development and the general inflation rate is just an average.

Another research will study the development of inflation obtained through one item price calculated by CPI method with the overall inflation rate. The inflation of single products will not probably match with the overall inflation because it involves thousands of prices with all their irregularities.

2.2 Methodology

The topic of inflation is an academic theme so the information for the literature review was mainly acquired from the professional books dealing with macroeconomics. Appropriate web pages were used especially for interpreting the most specific issues.

Qualitative data are processed in the practical part there are qualitative data processed. Some of the data were found on web pages of Czech Statistical Office (CZSO). Other time series were collected from printed yearbooks issued by CZSO. Another data were provided by a volunteer.

Values are processed mainly on Microsoft Excel. Appropriate calculations and formulas are used to obtain indexes, percentages, ratios etc. Results are ranged to suitable graphs to make the gist of the output clear.

3 Literature overview

Inflation is the growth of general price level. It means the depreciation of money or decrease of its purchasing power. It is usually observed by growth of prices. We express the value of inflation rate by various indexes. Inflation might occur in different scopes. One digit inflation rate is natural for economic development, two or three digits inflation rate is quite costly and alarming and higher inflation actually means the break of the national economic system. The opposite effect of inflation is deflation. It's a decrease of general price level however negative inflation is rare nowadays. Inflation has different causes and can impact various situations. Inflation is one of the most discussed, feared and followed phenomenon in economics. It occurs when simply said "too much money chasing too few goods" [1]



Picture 1: Depreciation of purchasing power in practice, source: www.condenaststore.com

3.1 Advantages and disadvantages of inflation

Inflation is often perceived as an economic problem. But as everything it has even its bright sides. Moderate inflation is just essential thing occurring in properly working economic system. Stable inflation generally is not dangerous for an economy. Basically inflation should not be a problem because if prices grow, everything is more expensive so entrepreneurs earn more money and can afford to pay higher wages to their employees. Also when employees recognise the price level is higher trade unions demand higher

wages and salaries. That's why naturally the ratio of the prices and wages remains the same. However complications and costs caused by inflation prevail.

If the inflation is unanticipated it causes random redistribution of incomes and wealth among economic subjects. Generally inflation brings advantages to people that have unfixed incomes, debtors and material wealth owners. Disadvantaged are creditors, people with fixed income and owners of cash. We might say the entrepreneurs, the ones whose income is profit (the least fixed income) can adjust prices of their products to inflation immediately so they are not likely to be harmed by inflation. Contrasting state employees as teachers who have fixed wages and their incomes are adjusted to inflation as well but not that automatically so they might feel some shortage of money due to inflation. The debtors can make money on the loans with no inflation indexation simply because they return less of real value later on so it is less profitable for creditors. Other thing is cash is being depreciated by inflation while the real estates or works of art are being appreciated.

Consumers can be touched by inflation significantly. During a period of inflation, consumers' nominal incomes rise as the price level rises. This partially protects them from the negative effects of inflation. "However consumers are not fully protected because some of the assets they own have fixed nominal values. The money they hold in the form of currency and checking accounts balances is an important example." [4]

Inflation can affect even positively. If there are unused resources in the economy it can stimulate the growth. An economic subject must increase quality or quantity of his/her activity to keep the same real income.

In case of galloping inflation or hyperinflation there are no advantages. It brings just economic and social problems. High inflation hard to anticipate causes an economic instability. It slows down economic development because it makes expecting the profitability of future investments more difficult. [6, 7]

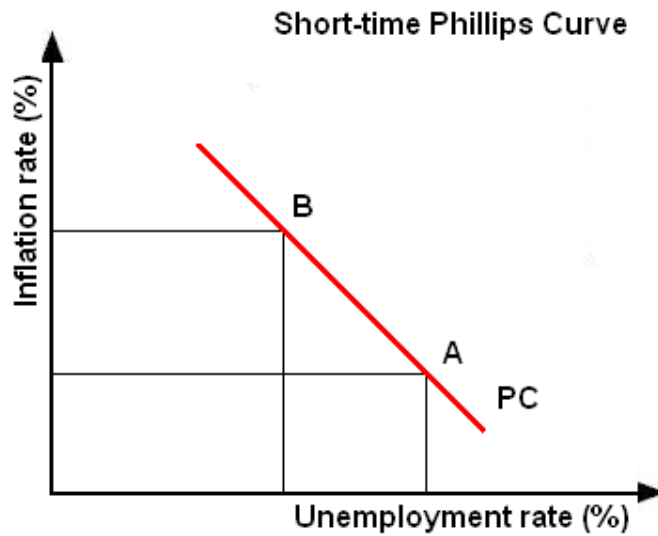


Chart 1: Short-time Phillips Curve

Another unfavourable effect of inflation is it lowers the credibility of information. It misinterprets the development of relations between prices and quality (for instance the price increase of a product caused by rise of quality is sometimes perceived as inflation).

An important think is inflation is closely tied to unemployment. Their relationship is expressed with Phillips curve. The basic message of the Phillips curve is; the higher the inflation rate the lower the unemployment. So it is up to government and national bank what ratio is chosen. In a simplified way; if we let inflation grow we can decrease unemployment which is desired in any economic system. The PC does not work the same way in all economies. The more the curve is steeper the higher inflation is needed to decrease unemployment and the opposite; the more the curve is flatter the lower are the costs to mitigate the inflation. [5]

3.2 How is inflation measured

An intensity of inflation is expressed by the inflation rate. It is calculated using various indexes. Indexes are comparisons of the current prices and the prices in a chosen previous time. Usually the precedent year is chosen as a base year. The indexes differ by the commodities examined. The goal of indexes is to find out how the money's value has changed, to discover the new real value of the currency. Those are CPI, PPI and GDP deflator. If we want to know how the inflation touches regular people – consumers we look at the CPI (consumer price index), if the entrepreneur would like to learn how the inflation

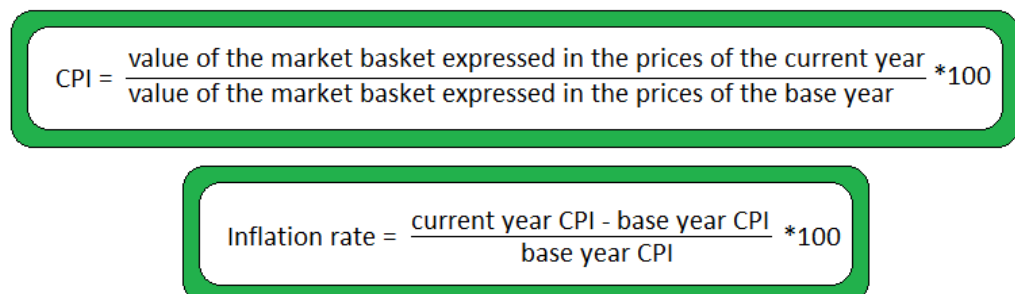
affects his business he observes the PPI (producer price index). The most complex review of price development expresses the IPD (implicit price deflator) also called GDP (gross domestic product) deflator. Of course any of the indexes is not absolutely accurate because it is impossible to measure and compare every single price.

3.2.1 CPI

One of the most common indexes is the Consumer Price Index (CPI). It compares prices of consumers' goods and services so the CPI value reveals how inflation affects consumers' purchases. It is based on so called market basket. The market basket is a set of goods and services bought and consumed by a typical household. CPI is a measure of average prices paid by urban consumers for a constant set of goods and services they typically consume.

Firstly the value of the index itself is computed. We need the value of the vast set of goods and services bought by average household with its specific weights according to how high is their share in all the consumption. The set of the representative goods and services is the market basket which is discussed more deeply in the following chapter. The CPI averages these price increments. Instead of comparing the prices of each item it contrasts the changes of cost of the whole basket. Value of CPI is hundredfold of the difference of the value of the market basket in prices of current year and its value in prices of the base year. If the obtained value of CPI is higher than 100 it means to price level has been growing and the inflation has been taking place.

Those computations of the index and how the index values are used to calculate the inflation rate are explained in the basic formulas in the picture number 2. [2,7]


$$\text{CPI} = \frac{\text{value of the market basket expressed in the prices of the current year}}{\text{value of the market basket expressed in the prices of the base year}} * 100$$
$$\text{Inflation rate} = \frac{\text{current year CPI} - \text{base year CPI}}{\text{base year CPI}} * 100$$

Picture 2: **Formulas to calculate consumer price index and inflation rate (using CPI)**

3.2.1.1 The Market basket

So called market basket is the main tool to measure the consumer price index. Various prices are monitored to observe the development of inflation. The name “consumer” reveals us the prices observed are those paid by average consumers. Market basket contains a long list of goods and services consumed by regular household. Each item has its weight according to proportion in the market basket (it means the ratio of how much of these goods people buy comparing to others). The content of the market basket is carefully chosen from the results of statistics of family bills to reflect citizens purchasing habits. Currently the Czech market basket contains 755 items. There are 146 purely food items. Selected prices are observed in about 10,000 of stores across the country. To be statistically precise it would be useful to change the market basket as little as possible. But to express it significantly it is essential to adjust its content to changing trends. That is why the structure of the market basket is actualised once per five years.

The European Union tries to unify the CPI data by using so called Harmonised Index of Consumer Prices (HICP). Goods and services are divided into 12 groups that are listed in the table number 1.

Main groups of HICP	which include e.g.	weighting (%)
Food and non-alcoholic beverages	Bread, vegetables, lemonade...	15.6
Alcohol and tobacco	Beer, wine, spirits...	3.7
Clothing and footwear	Clothing, accessories, shoes...	6.8
Housing	Rent, electricity, water, gas...	15.6
Household and equipment	Furniture, household gadgets...	7.1
Health	Medicine, dental services...	4.2
Transport	Car parts, airline tickets...	15.1
Communication	Telephone bills...	2.8
Recreation and culture	Musical instrument, garden plants...	9.7
Education	Books, tuitions...	1.0
Hotels and restaurants	Restaurants, fast-foods, cafés...	9.4
Miscellaneous	Hairdressers...	8.5
Total		100

Table 1: Content of the HICP, author's own table based on data from Eurostat [16]

Beside the indexation purposes the HICP system is used for economic analyses e.g. it is one of the indicators whether the EU member is ready to accept EURO. Price stability is defined as when the HICP increases by 2% maximum per year. Considering the inflation of food pie chart number 2 shows what part of the market basket includes food and non-alcoholic beverages group.

However the HICP market basket and the market baskets of different EU countries differ. A structure of average consumption differs from country to country. Different nations have divergent eating habits and preferences also they pay different sums for heating according to their location etc. so it is not really possible to unify the market basket. It is just possible to make content of every national market basket as representative for the regular consumer as possible. Then we can compare how much the inflation touches regular consumers in different countries.

If we want to be even more specific we can compile different market baskets to different social groups of people. Retirees have completely different consumption than young families or rich people so the inflation does not concern different types of people the same way. Prices of assorted products behave differently. Some of them grow and other decrease. CPI examines it as an average of prices. But different kinds of people consume different goods so someone can be hurt by inflation a lot while the other one does not mind. [5, 7, 16]

Proportion of food in the market basket (%)

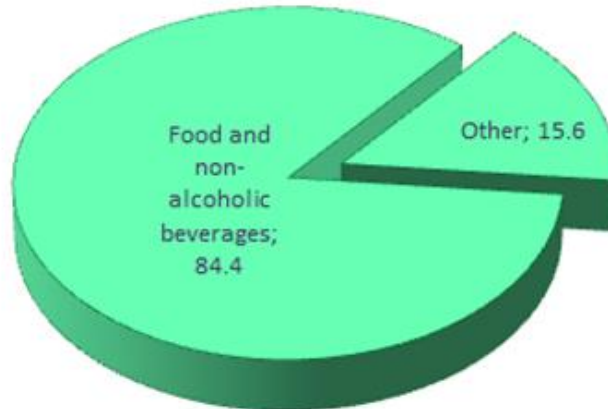


Chart 2: Proportion of food and non-alcoholic beverages items in the HICP market basket, author's own, based on data from table 1

3.2.1.2 Unbalanced inflation

The inflation does not concern all the products equally. The fact prices of separate products change differently makes the statistics procedures even more difficult. This occurrence creates feeling of uncertainty and stress. It also causes the effect called money illusion. It means people think an increase of the nominal value of their wages and salaries signifies they deserve more real money for their work. They even supply more labour and it results in increase of firms output. However at the moment they recognise the real value of their wealth had not changed they feel betrayed. [7]

3.2.2 Producer Price Index

As the CPI shows how the inflation touches consumers the Producer Price Index (PPI) is measured in various branches of industry to find out how the inflation affects the specific ones. It is also called the wholesaler's price index because it considers prices of unfinished goods, raw material etc. not the finished goods as CPI. The Czech Statistical Office calculates for example price index of building works and building objects, price index of industrial producers and etc. The most associated PPI with food is price index of agricultural producers.

Producer price index (base year=previous year)	
Branch of agricultural production	PPI
Agricultural production total	105.4
Agricultural production total except fish	105.4
Crop production	106.3
Crop production except fruit and vegetable	105
Fruit and vegetable	129.2
Fruit	127
Vegetable and flowers	131.7
Livestock and livestock products	104.4
Livestock and livestock products except fish	104.2
Fish	97.6

Table 2: Differences between PPI of various branches of agricultural production in 2010 in the Czech, author's own table based on data from CZSO

The way of computing is the same as with CPI but the content of the basket is different according to the needs of different branches. The main purpose of constructing PPI is to make prognosis for future development of inflation needed for businesses. The increase of input prices will be soon reflected in the prices of many other goods and services. Table 2 shows the difference between price developments of different agricultural products in 2010 comparing to previous year to present an example of unbalanced inflation together with PPI data. [7]

3.2.3 Implicit Price Deflator

Implicit Price Deflator (IPD), called also GDP deflator, differs from the CPI in several ways. It includes all the goods produced in the whole economy during a year (not only a representative sample.) So it does not contain the same things as in the previous period as the market basket does. Other difference is that gross domestic product doesn't include imported goods – it only involves products made in the country while the market basket includes also foreign imported goods. IPD considers all products produced in a state during one year, there are all kind of goods included the basic groceries but even factory machineries, planes or tractors. Because of this the index is the most complex and the most objective but it does not emphasize any specific group of economic subjects. IPD works with the given values of the GDP so it is easier to obtain those data than monitoring thousands of prices in the terrain.

To use GDP deflator for getting know the inflation rate we need to evaluate the GDP of the current year firstly in prices of the current year and then in prices of the previous/base year, then those two values are divided and the result is multiplied by 100. The method is similar to calculation of CPI. We can say the IPD = (nominal GDP/real GDP)*100. With using this formula we get number that is likely to be a bit higher than one hundred. The increment above one hundred is the percentage of inflation rate. [5, 6, 7]

3.3 Typology of inflation

Inflation can be divided into different types according to different criteria. Distinguishing of characteristics of the inflation is important when we need to evaluate the situation and decide whether to start with anti-inflation policy, when we want to predict future development etc. The typology of inflation sorts it out according to its causes, its size, speed, impacts etc.

3.3.1 Demand pull inflation vs. cost push inflation

According to what has started the inflation process we can distinguish two main types of inflation; demand-pull inflation and cost-push inflation. Basically we differentiate whether the inflation originates from the supply side or the demand side.

Inflation is called demand-pull inflation when the inflation impulse has been caused by increase of the aggregate demand that comes from the rise of some part of aggregate expenditures. It might be for instance increase of consumption, investments or government expenditures. In other words; demand-pull inflation is possible to explain as a situation when households, firms, government or foreign entities would like to consume more goods and services than are created and available at stable prices. The emerged gap can be filled up by the rise of production (if there are still some resources left) or rise of prices (it happens more likely in a short time period because this solution is quicker). It simply depends on how much the resources are being used. If they are almost exhausted the inflation impulse cannot be answered anyhow else then rise of prices (in short time period). If there are enough resources left in the economy and the potential product is not being made, the inflation impulse provokes the increase of production that does not affect prices (in long time period). [7]

3.3.1.1 Demand-pull inflation

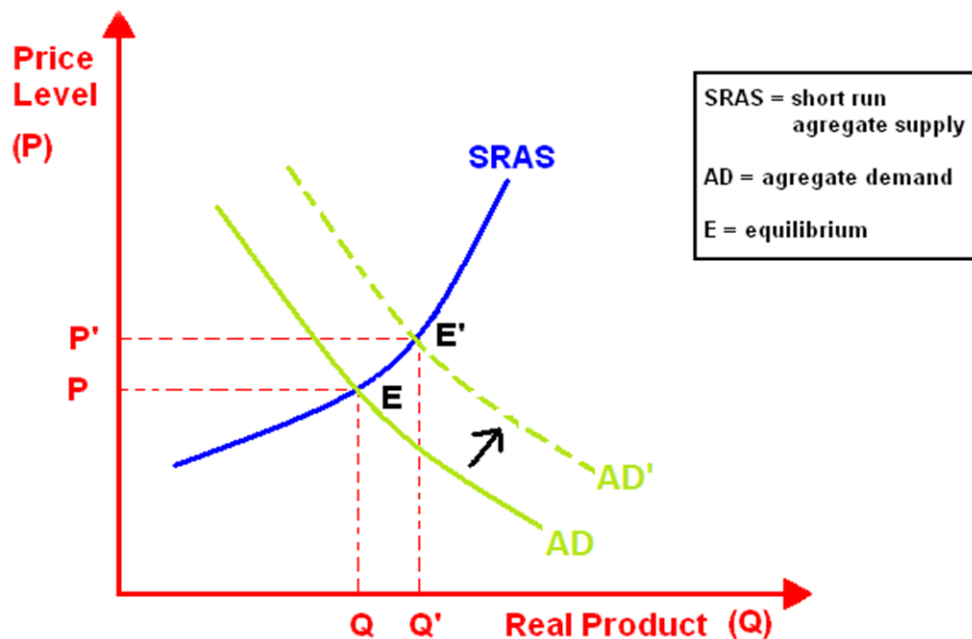


Chart 3: Demand-pull inflation

The situation discussed above (decrease of the aggregate demand) is an inflation impulse that can generate inflation if it is accommodated by central bank. If it is not the shortage of rentable funds suppress the higher investment activity. But the central bank can react by accommodating the impulse so that it emits brand new money. It causes the increase of the price level that is inevitable when the product remains the same but the money supply is higher. Growth of the price level is actually natural tool that re-establishes the balance between aggregate demand and aggregate supply. It depends on how much are the resources of the given economy exhausted, whether the increase of demand reflects the increment of product or increase of the inflation rate. The demand-pull inflation mechanism, in case of aggregate supply did not change, is illustrated in the chart number 3. New equilibrium was reached when the price level increased.

It is important to classify whether the change in price level is one-off (it is usually caused by one demand shock caused by the change of consumers' or investors' preferences or the one-time changes in fiscal or monetary politics. Long-term growth of price level can happen only if the money supply grows over a long period. [4, 5, 6, 7]

3.3.1.2 Cost-push inflation

When the causes of inflation come from the supply side it's called cost-push inflation. An important factor for creating a price of a product is its cost. Cost-push inflation comes from the situation when the prices of final products are pushed up by growth of prices of its input. It depends on a stimulating factor how much the overall price level will be affected. If for any reason potatoes get more expensive we can feel the prices of side dishes, rum or starch get higher. But if the prices of oil or labour go up it will increase the price of almost everything because nearly every branch of industry needs these production factors. Often even price increase of partial material can start the inflation process.

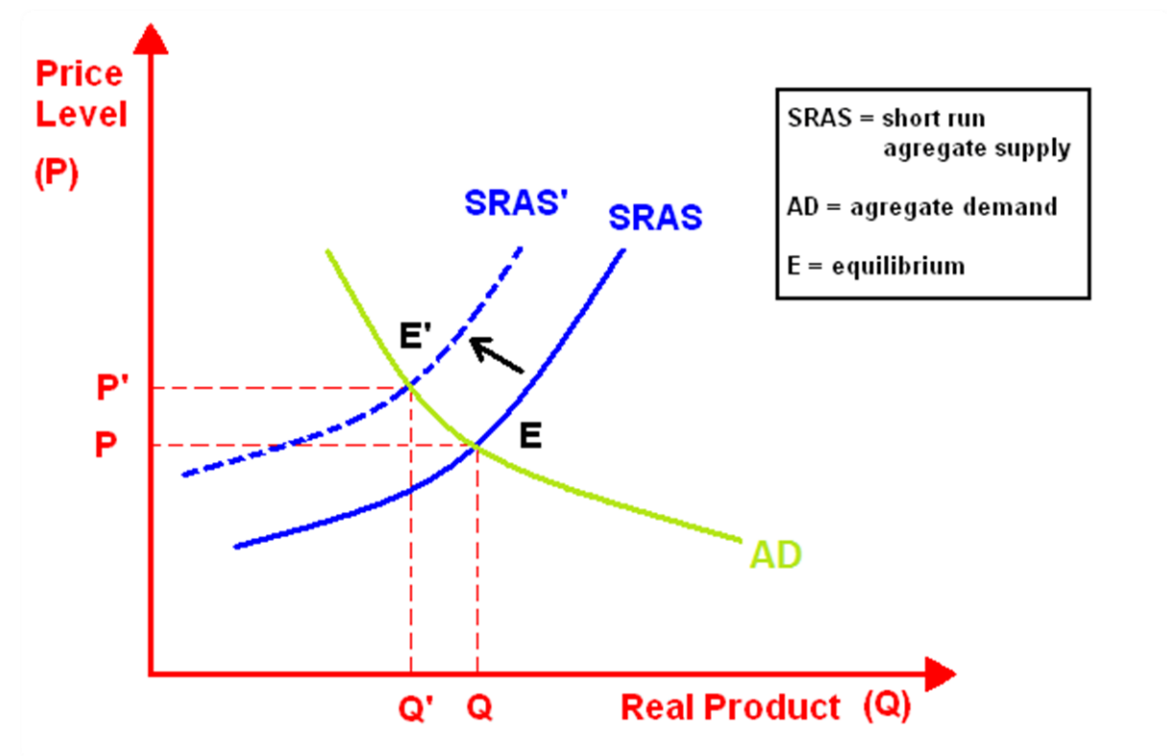


Chart 4: Cost-push inflation

If price of crops goes up bakery products will get more expensive and because these goods are being consumed no matter what the price is (bread is a good example of low price elasticity goods) people would feel the cost of living are getting higher so the labour union would ask for wage increase. If their management accepts the pay rise the costs of labour are getting higher. This makes everything more expensive and it launches inflation. This effect is called inflationary spiral because it's like vicious circle. [3, 4]

A very actual example of cost-push inflation of food is current doubling of price of eggs. European Union has set harsher rules of keeping hens. Most producers had to invest to their facilities to make the cages bigger and it made their overheads higher. The law has caused the enormous price increase of eggs in the Czech Republic that can have further effect in other products that are made of eggs such as bakery or mayonnaise. There is deficiency of eggs and the situation is supposed to be worse because of upcoming Easter. [25]

Inflation happens only when the wage growth is not accompanied with increase of product. When the labour becomes more expensive entrepreneurs are forced to save somehow. Likely they reduce number of their employees. The real product is smaller and unemployment is higher. High unemployment rate is not desired in any economy. Central bank has the power to fix it by accommodating the wage shock. If it issues more money, money supply will be higher. There will be enough money for more labour or for more expensive oil so the businesses will be able to produce the same as before. But if the amount of money in certain economy increases also the price level increases because of money neutrality. It means that if there is the same amount of products but more money the products can be bought by all those money. [7,6]

Chart 4 shows how the new equilibrium is created when short run aggregate supply becomes more expensive.

3.3.2 Anticipated vs. unanticipated inflation

Future inflation rate can be predicted i.e. anticipated. Economic experts are able to estimate the inflation for the future period regarding previous development of the rate, situation on the market, political issues and many other factors.

The term anticipated inflation is the percentage of the inflation rate that has been predicted correctly. Often the anticipations are not completely right. When we subtract the previously anticipated inflation rate from the real inflation rate we gain the unanticipated inflation. It is desirable to the unanticipated inflation rate to be as low as possible (ideal state would be zero) because the lower it is the less harmful the negative consequences of the inflation are. [7, 9]

3.3.3 Inertial inflation

The term inertial inflation is connected with the anticipating. Economical subjects adjust their prices and requirements according to their expectations. This explains the tendency of the inflation to continue by about the same rate. Businessmen increase their prices according to how they are used to from previous years. Sometimes they even overdo and try to protect themselves against the losses that might be caused by unanticipated inflation and increase prices even more than in accordance with the expected inflation. So the inflation continues more or less the same way as previously if there are no supply shocks or other unusual occasions. We can even say that if people did not anticipate inflation no inflation would happen. Therefore it is very difficult to get rid of inflation in a country where it has been happening for some time already.

Inflation anticipations are taken in account in long-term prices and wages contracts. Inflation assumption is included for example in leases. Otherwise unanticipated inflation would become an additional cost for tenants. Businesses would need to reflect those costs to their prices and the chain reaction would continue. Pays are also indexed according forecasted inflation rate. Wages and salaries represent great part of costs of any enterprise so the growth of the price of these resources causes the rise of output prices as well. [5, 8]

3.3.4 Accelerating inflation

Unanticipated inflation leads to accelerating inflation. It means the acceleration of the speed of the inflation e.g. from 2% per year to 5% per year. Inverse situation is called decelerating inflation. [5]

3.3.5 Size of inflation

The inflation rate might be a few per cent or several millions. Of course these two mentioned sizes of inflation do not have same causes, impacts and follow differently. If the inflation rate is smaller than 10% we speak about creeping inflation which is the moderate one. More serious is galloping inflation with two digits percentage rate and the economic disaster called hyperinflation is able to raise prices unlimitedly.

3.3.5.1 Creeping inflation

This kind of inflation does not harm economics a lot. It is acceptable and “healthy” for any economic development. Usually it goes long time in the similar moderate speed and can be estimated at least partially. Creeping inflation is actually based on anticipations from previous years. During times of creeping inflation the same level of inflation rate is maintained by expectation the inflation rate will develop in a similar way. This kind of inflation is present practically all the time. Governments and national banks try to sustain stable moderate inflation. In the Czech Republic the inflation target is 2% according to Czech National Bank (CNB). CNB’s main objective is to retain the consumer price stability in the Czech economy which does not mean the Bank tries to keep the price level same. It keeps the price level growing up to 2% that simultaneously allows small price changes that are needed when price system of any economics works properly. [12, 24]

3.3.5.2 Galloping inflation

So called galloping inflation means the inflation rate grows by tens or even hundreds percent per year. It causes significant economic costs. This kind of inflation lowers the performance of economic system and recalls the growth of uncertainty. Such a fast inflation is not acceptable for healthy economic and social development of the country. That is why galloping inflation impacts special policy to be put away. [7]

3.3.5.3 Hyperinflation

The most serious case is hyperinflation. Inflation rate of thousands even millions percent a year is actually the break of the whole economic system. Money starts to be worthless. It ends to work as a mean of exchange because it’s not reliable and the society returns to natural exchange or tries to buy foreign stable currency. Such a serious situation ordinarily occurs as an impact of historical movements e.g. revolution or war. One of the most famous is the hyperinflation in Germany in the twenties. Back then prices grew up by one milliard percent in two years. It caused the whole economic system broke down. Also the price of banknotes production was higher than their nominal value. [2, 9]



Picture 3: **The Zimbabwean movement fights the regime by showing what happened to their currency**
 Source: <http://idsgn.org>

The highest inflation ever has been the great Hungarian inflation of 1945-1946. “For a period of one year, the monthly rate of inflation averaged about 20,000 percent. In the final month, the price level skyrocketed 42 quadrillion per cent!” [2]

One more example from recent years is hyperinflation in Zimbabwe in 2008. Many million inflation rate was caused mainly by increase of money supply by 17,000% but it was not accompanied by goods and services supply growth. It led to complete loss of confidence in the currency and into the situation that printing money was not physically possible to keep up with the devaluation of the Zimbabwe dollar. Other currencies have replaced it. [17, 22]

Related effect of the serious inflation situations is so called dollarization. When people cannot rely on their national currency they changed their money as soon as possible into another currency that is strong and stable e.g. dollar. This phenomenon still relates to the present time and in a way occurs even in less serious situations than hyperinflation. [7]

3.3.6 The pace of inflation

Disinflation is an occurrence when the inflation is passing of and getting lower. It is not the opposite of inflation. It is important to not mix disinflation up with the deflation.

The most important are not the shapes of the curves but the difference in the percentages of the inflation. It is always over one hundred in case of disinflation. Deflation takes place behind the boundary of one hundred whereas the disinflation happens when the percentage is decreasing but is still above one hundred. Accelerating inflation is increase of inflation rate over time, an acceleration of its speed. Such inflation rate is usually grows quite regularly. [7, 12]

3.4 Causes and impacts

Inflation is an important phenomenon that is present in any economy. As we have seen it may have different processes caused by different events. Various social and economic impacts and consequences are also generated by inflation. In this chapter we are going to mention the most significant ones.

3.4.1 Causes

Various impulses cause inflation as it was already mentioned in the chapters describing the generation of demand-pull and cost-push inflation. Let us see what they are.

3.4.1.1 Causes of demand–pull inflation

Demand-side causes are explained bellow. The main problem is increase of aggregate demand. It's unlikely all the consumers (or enough to make it significant) start to demand more. Such big investments are usually made by government. This situation can be inflicted by rise of investments of companies as well. All these situations are connected with money supply enlargement. That is a challenge the national bank faces. It is up to national bank together and government whether the investment expansion is accommodated or limited. Because the rise of money stock causes inflation that causes unemployment and other problems the central bank cannot increase money supply without constraints. And of course the huge printing of money would cause hyperinflation. Goods and services are available for the circulating bank notes. After cash increment the ratio of products available (that remains the same) and their prices would change. [6, 10]

3.4.1.1.1 Increase of aggregate demand

Usual reason of inflation in the Czech Republic is deficit payment of the national aggregate demand. The easiest way how to finance government expenditures (e.g. facilities purchases, financing education or social benefits) is printing additional money.

The problem is, if there are no goods and services against this additional money the current supply of production is worth the new amount so most things cost more. Chart 5 shows how the amount of circulating money in the Czech Republic has been growing since 1993. The circulating money means; cash and balance on the current accounts, saving accounts and term bank accounts.

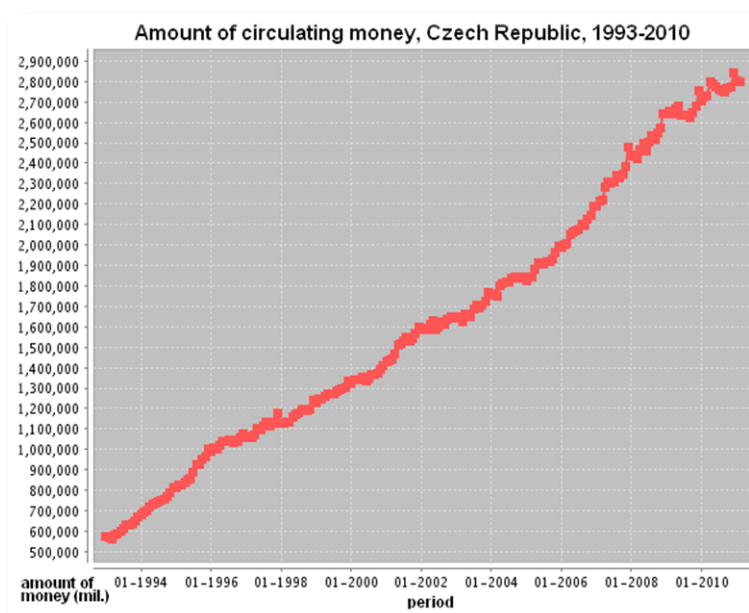


Chart 5: Amount of circulating money in the Czech Republic from 1993 to 2010, source: www.zlaterezervy.cz

In the chart number 5 we can see the amount of money have grown by 389%. Issuing new money must be made carefully and only in a small scale because otherwise it might lead to galloping inflation or even hyperinflation.

Inflation impulses are usually reflected in price rise in short time. A possible way how to respond the impulses is to make supply grow. Actually it cannot be made immediately. More likely it lasts few years and the inflation takes place before it. Deficit financing from the state budget comes from government and parliament but also the public can be blamed because they push national institution to provide more money.

Other explanation of inflation is an inequality of investments and savings. If there is more invested than saved in the economy the macroeconomic balance is broken and the surplus of demand leads to price growth.

Inflation may also be caused by sudden withdrawal of savings because it rapidly increases the demand, too. It can be inflicted when the economic stability has become uncertain and economic subjects have become worried about their savings. [21, 10]

3.4.2 Causes of the cost-push inflation

Inflation pushed by costs is caused by price increase of production inputs. Price growth of labour, capital or natural resources can initiate expansion of the inflation through different branches of industry. Economy is connected internationally so the butterfly effect is occurring all the time. If the basic input item is more expensive it will become evident in many different departments.

3.4.2.1.1 Supply shocks

Supply shock is a situation when production conditions are dramatically affected. Sudden loss or shortage of production factors causes rapid growth of costs. Such an event is usually caused by natural disasters or weather (shortage of crops due to droughts or floods) or political affairs (such as war or embargo).

The best way how to discuss supply shocks is to remind the most famous example from modern history that is oil shocks of the 1970s and 1980s. It started in 1973 as an answer to war conflict Arabian oil producers decided to use their powerful gun – oil. OPEC (which had already controlled the majority of oil market) reduced its oil supply by 5%, Arabian countries promised to reduce oil delivery significantly until Israel abandon occupied area. The Netherlands or USA even faced total oil boycott. Arabian countries wanted to push the USA to stop supporting Israel but the most serious impact was the oil prices had quadrupled in almost a year. Also Majority of industrial countries got into troubles because they were partially dependant on the Arabian oil. Rapid growth of oil prices increased the overall inflation rate because oil is an input of almost all other goods and services. [3, 6]

3.4.2.1.2 Wage push inflation

The situation when the wages grow more quickly than labour productivity is called wage push inflation. The inflation comes from inadequate wage requirements of labour unions. As already stated the wages and salaries are significant part of costs of any business so it affects the output prices. [7]

3.4.2.1.3 Profit push inflation

Profit push inflation is caused by monopoly pricing. Monopoly (or oligopoly) company can misuse its market position and increase their prices to gain higher profit. Price increase of important commodity leads to price growth of other items as well. [7]

3.4.2.1.4 Imported inflation

Inflation can get into a country from abroad. Firm that imports its goods to a country with higher price level have advantage comparing to other firms. They are able to pay higher wages to their employees which can evoke requirements of employees from competing firms. This can cause wage drift that generally inflicts price increase in the rest of economy. Import can affect prices as well. When a firm imports input from abroad its output price relies on the other country price level. [7]

3.4.2.1.5 Devaluation

Inflation can be caused also by depreciation of local currency. Importing firms have to pay higher real prices of their own currency for the same goods. Local prices then go up and influence other goods especially if it is basic material or other essential product. [10]

3.4.2.1.6 Inflation caused by policy and taxes

Tax-push inflation comes from increase of indirect tax which is a part of any price. This causes total price rise in the economy. More special situations might occur. For example considering food price inflation; a government issues a new order to use environmental friendly packages it might rise prices of the final products. Ecological inflation can have various forms. Recycling cost can be added into a purchase price or petrol price might be increased artificially. [7]

3.4.3 Impacts

No matter how was the inflation generated it can have many consequences for the economy and the society. There are several well-known issues caused by inflation. Important impact of inflation is it leads to additional costs. Other possible consequences are for instance;

3.4.3.1 Leakages of resources from productive usage

Inflation depreciates assets. Wealthy economic subjects' anti-inflation strategy leads to replacing the resources to saver non-productive investments. Instead of production the money are invested into purchases of real estates, precious metal or work of art. These goods, especially real estates are not harmed by inflation. Said differently:

Rapidly changing prices make it risky to enter into long-term contracts. In an extremely severe inflation, the "long term" may be only a few days. "But even moderate inflations can have remarkable effects on long-term loans." [2]

Present loans will lose their value due to inflation over time. Lending and borrowing is a big gamble for a long-time period but without them the business investment would be impossible and the economy would stagnate. [7]

3.4.3.2 Net export decrease

If the local price level goes up and abroad it remains the same it is cheap to buy imported goods. But the export becomes more expensive for other countries so the real net export component of aggregate demand for the country with inflation falls. Changes in purchasing power national money make the exchange rates unstable and it does not benefit to international business contracts at all. [7]

3.4.3.3 Costs of inflation

The main reason of the inflation is not desired is simply it is costly. As it was already mentioned the inflation imposes costs when it is unanticipated. But even an accurately predicted inflation costs us something. One of the most significant costs is money losses caused by the changes of real and nominal interest rate explained already. Other important costs of inflation are discussed in the following chapters.

3.4.3.3.1 Inflation tax and shoe leather costs

One of the costs is called inflation tax. “The inflation tax is not exactly like other taxes, however because no one receives a bill from the government for this tax. The inflation tax is like a tax on everyone who holds money.” [10]

Usually the taxes make people behave to avoid paying them. It leads to deadweight losses caused by people wasting resources to get rid of the obligation to pay it. If the inflation is happening people try to keep less cash therefore they have to make more trips to a bank. Literally it signifies the people’s shoes wear out more quickly and so the issue is called the shoe leather cost. Actually it means people spend more time by going to the bank more often. Actually it becomes relevant especially in the case of hyperinflation. [7, 10]

3.4.3.3.2 Menu costs

Simply said the menu costs are the costs related to changing prices. “Typically firms do not change their prices more often than once a year because it is costly. Cost of price adjustment are called menu costs, a term derived from restaurant’s cost of printing a new menu.” [10]

These costs include not only the printing of new menus, but for example also printing, advertising and distributing new price lists and catalogues and even dealing with the customers’ annoyance caused by the prices rise. [10]

3.4.3.4 Redistribution

“Average person is neither helped nor harmed by inflation. But almost no one is exactly average! Some people gain from inflation and others lose.” [2]

Unanticipated inflation may cause random redistribution of wealth. If the inflation rate is not correctly taken in account when realizing a loan the repayment is given back unfairly. A debtor borrows an amount of money but if the inflation rate is not counted properly and the inflation happens till the money is repaid the creditor is worse off. In case of deflation the debtor would have to repay higher real value of money. Because of this it is desirable to predict future inflation correctly to avoid this. Usually it is not anticipated exactly so the redistribution happens and the more unstable the inflation is the less willing

people are to make loans. To avoid redistribution the expected inflation rate is added to the interest rate.

Those who lend money are apt to be victimized by inflation. Borrowers often gain from inflation. Inflation does not systematically steal from the rich to aid the poor, nor does it always do the revers. Inflation redistributes income arbitrarily. "Inflation is especially volatile and uncertain when average rate of inflation is high." [10]

Countries with low inflation are usually those economically reliable such as Germany and the economically uncertain countries with high inflation tend to have unstable hardly predictable inflation rate (e.g. Latin America countries). [7, 10, 13]

3.4.3.5 The malfunction tax system

The tax system designed by law doesn't recognize the difference between nominal and real interests. The system taxes the nominal value of interests and wages and does not take in account the real value. At work it can mean that during inflation nominal wages grow. In progressive taxation system it imposes the wages get into higher tax tariff level which means the real tax burden of personal incomes increases. [2]

3.4.4 Inflation targeting and Government moves

The process of inflation can be mitigated by government measures. It is appropriate for an economy to keep the inflation rate low. "Inflation target is the adoption of an explicit level of inflation." [1]

It is such a kind of monetary politics when the central bank sets specific interval of an inflation rate as a target for a period. It is important the government has the same opinion as the national bank.

Czech National Bank (CNB) has targeted inflation since 1997. CNB observes the excessive inflation pressure and tries to change its monetary policy tools to avoid the deviation of desired inflation rate. Typical tool is increasing repo rate to weaken aggregate demand which leads to restriction of price growth. It means also temporary reduction of incentives to growth of product. This implies the disinflation has its costs, too so it must be applied carefully. Efficiency can be estimated by comparing the costs and benefits of the anti-inflation moves. It can be approximately expressed by the sacrifice ratio which is percentage of lost yearly product during deliberate increasing of inflation rate by 1%.

Usually the planned disinflation is not worthy when the inflation rate does not exceed 10%. The disinflation policy is not always fully successful and fulfilled but the only new the government has set inflation target helps to decrease the rate because it influences anticipations a lot. That is because behaviour of economical subjects is affected by news and affects the real result. [2, 24, 27]

4 Analyses of the food price inflation

Let us see on specific issues of inflation situation in the Czech Republic. In the following part we are going to discuss how the food price inflation have developed comparing to the rest of inflation and how chosen citizens had been affected by those price growths.

4.1 Inflation rate in the Czech Republic in 1990-2010

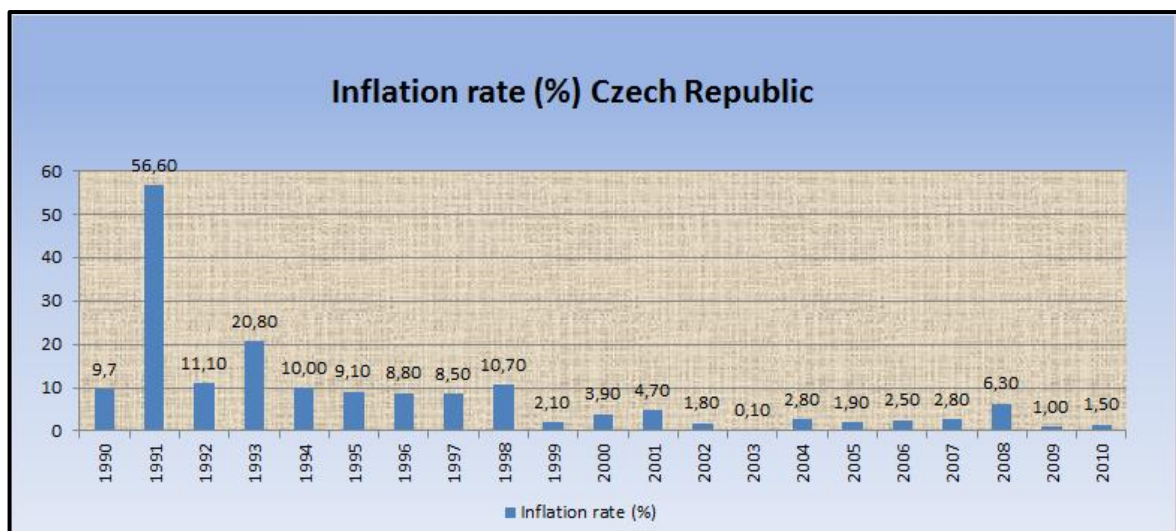


Chart 6: Development of the inflation rate in the Czech Republic 1990-2010 (%), author's own based on data CZSO

First of all there is a summary of inflation and its clarification. Annual inflation in the Czech Republic is indicated in the chart number 6. The deflections in the time series can be justified.

Inflation development in the Czech Republic was wild in the nineties due to transition from collective socialist economy to free-market economy. 1990's inflation of 9.7% was caused mainly by increase of fuel price and cancellation of consumer prices subsidies. The inflation culminated the following year 1991. The inflation rate reached 56.6% because the economic reform was realized radically by price and import liberalization, internal convertibility of the crown, privatization etc. 20.8 % jump of the rate in 1993 was due to introduction of value added tax.

Then until 1998 inflation was more or less stable, its value was fluctuating around 9% as the reformed economy was accommodating itself. After that the low, one digit, moderate inflation has been passing of. The inflation got lower because the CNB started with inflation targeting. There were two little excesses. In 2001 inflation rate jumped to 4.7 also because of price increase caused by deregulation of prices of rent, electricity, gas, transportation, post, telecommunication etc. which also significantly affected food prices. In 2008 the rate of 6.3 was caused by government reforms such as regulation fees at the doctors, increase of VAT of essential life needs to 9%, ecological taxes and increase of consumer tax of tobacco. [19, 27, 29]

4.2 Inflation of chosen food items

In this chapter some consumer prices of chosen food products are discussed. Ones of the most consumed products were selected. Milk, chicken, eggs, bread and potatoes are typical examples of goods with inelastic demand. Those necessities are bought more-less in the same amount. If it gets more expensive people still buy it because they always need such basic food. On the other hand if it gets cheaper people do not buy much more bread or eggs because it cannot be consumed unlimitedly and also it does not last fresh long time. Beside development of consumers' prices the evolution of purchasing power of selected people is researched.

The research compares the development of inflation of single product with the general inflation. Two case studies examine changes of purchasing power of common people. The data of retirees' pensions were collected together with prices of the selected products over the years 1990-2010. The development of their purchasing power is discussed. The second case study evaluates in similar way the purchasing power of a specific person.

4.2.1 Retirees purchasing power

General inflation rate includes the price changes of plenty of items with all their irregularities. There are not many goods whose price fluctuations are exactly equal to official inflation rate because the rate is average of all the prices. The incomes are usually adjusted according this official values the income holders are supposed to have the same real value. They can be affected by price changes negatively and positively as well. It

depends on arbitrary price fluctuations of various product prices so it is up to people's preferences. Some of them might be lucky because some food they are used to buy tends to get cheaper and somebody might prefer food that is getting more and more expensive. Globally on average the prices should follow the inflation rate.

In an ideal world the purchasing power of economical subjects should remain the same because the wages, salaries, production costs and so on are gradually adjusted to inflation so it should not affect the wealth of people that much. We are not living in a perfect world where prices of different things develop variously, the ratio between the consumers' prices and their income fluctuates.

To study this problematic we need some data to analyse. We use prices developments of bread, chicken, milk, potatoes and eggs together with the incomes of retirees in the Czech Republic over 1990-2010. The prices, incomes and related data are listed in the table in supplement A. The list helps us analysing the development of retirees' wealth that relies on how much they can really buy for their income that means what their purchasing power is like.

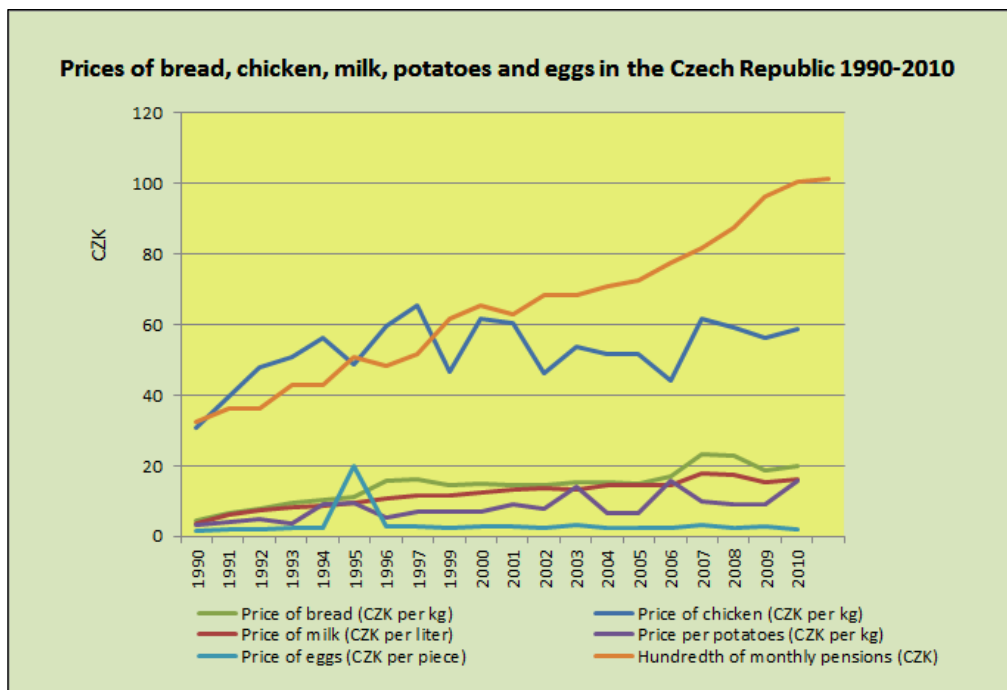


Chart 7: Price of chosen food and retiree's income development author's own graph based on data from CZSO [28]

In the chart number 7 the development of prices of each chosen item is designed together with the retiree's income (divided by 100 to fit easily in the graph). Thanks to the nature of the line graph we can easily compare how much similar the price changes are. It is obvious the most regular growth is registered at the pensions. Prices of food are changing very casually.

However there might be observed little similarities. For example the prices remained stable between 1997 and 2002 (except chicken). Also 2007 brought price decrease to all items except potatoes that conversely became much cheaper.

Each of the goods is a very necessary item but they can be omitted or replaced by substitute goods except eggs. Chicken and bread can be replaced the most easily, chicken by other meat and bread by other kinds of bakery such as bread rolls but those substitutes are very similar and made of the same raw materials so probably the price increase concerns them as well. Moreover the bread and bread rolls are usually made by one company. Replacing chicken by pork or beef is not the win as well because to produce chickens and pigs the input is similar and if the prices of feeding rise it affects prices of most kinds of meat bred in the country. Eggs are very special products that cannot be replaced and people buy them for any price. However the price increase might be followed by lower demand because people try to save. The public can also react by starting producing own eggs.

The prices are processed in supplement A to show how much of each item was the average retiree able to buy each year. Ideally the price growth curve should be equal to the income curve and the curve of how much can be bought for the income should be straight horizontal line. An example that fits the most to this hypothesis is the case of milk. Chart 8 shows that the price of milk grows steadily similarly to pensions except in the second half of the period when the increase is slower.

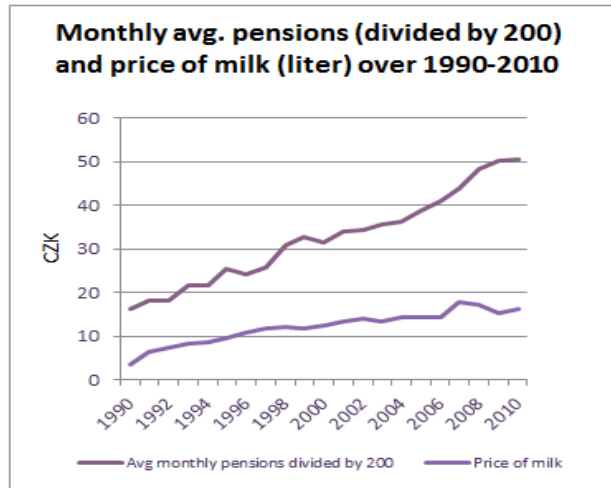


Chart 8: Pensions vs. milk prices, author's own graph based on data from supplement A.

The results of the situations are designed in the chart number 9. That shows the trend of how many litres of milk was available for the income. Except the first years deep fall by 45% the values are fairly close to 500 which means (in terms of milk) the purchasing power was not changing very dramatically.

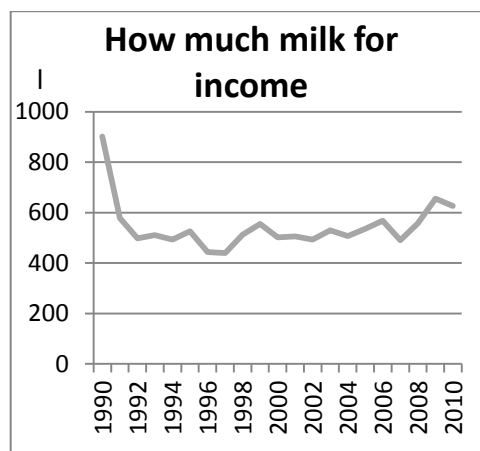


Chart 9: How much milk for income, author's own graph based on data from supplement A.

The most extreme is the case of chicken. As we can see in the chart number 10 price of chicken is represented by a very fluctuating line. Only we can notice there is a tendency to return close to the value of 50 CZK so the price does not grow fluently as the income does.

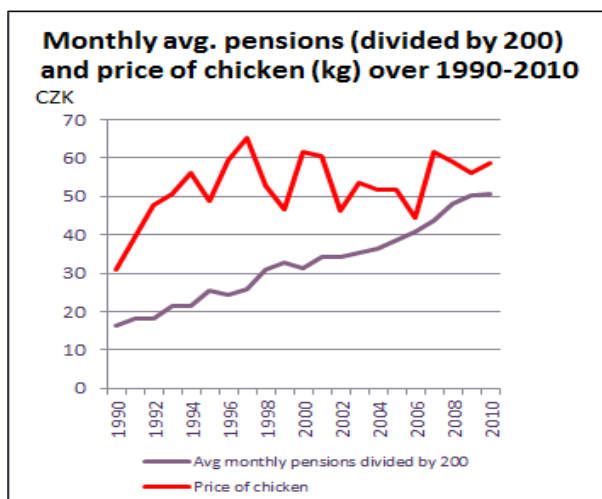


Chart 10: Monthly avg. pensions (divided by 200) and price of chicken (kg) over 1990-2010
 source: author's own graph based on data from supplement A.

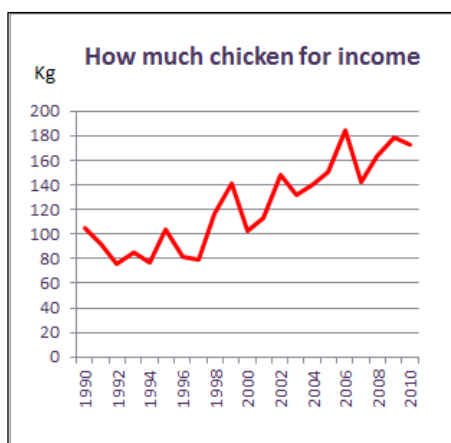


Chart 11: How much chicken for income source: author's own graph based on data from supplement A

Because the income is increasing and the price is fluctuating around 50 CZK the number of kilograms available for the pension is rather growing. The available amount line is fluctuating however the growing trend is visible.

In the real life experience the theory is followed only cursorily. There are plenty of factors that cause the deviations so the reality is often different than expected. The remaining comparisons of bread, potatoes and eggs prices are published in the supplement B.

Purchasing power of any group of people can be also measured by comparing the prices of a fixed set of goods in specific amount purchased (among other things) every month. Proposed amount of basic food of an average retiree is in the table number 3.

Proposed market basket of a retiree	Amount	measure
Bread	4	kg
Chicken	3	kg
Milk	2	l
Potatoes	7	kg
Eggs	15	pc

Table 3: Proposed market basket of a retiree

If the retiree needs to buy these essential food items every month he has certain amount of money left to buy other goods and service. So the higher the remaining of his income the wealthier he or she is. We cannot compare the value of remains in different year because the nominal value is not equal to the real value. Because of this we work with percentages of the income left.

The computations needed are published in the supplement C. For each year the total price of the basket was calculated then this value was subtracted from the average monthly income. Then it was compared how much per cent of the income remained. From the results the graph was generated. Chart 12 shows how well of the retirees were over the years.

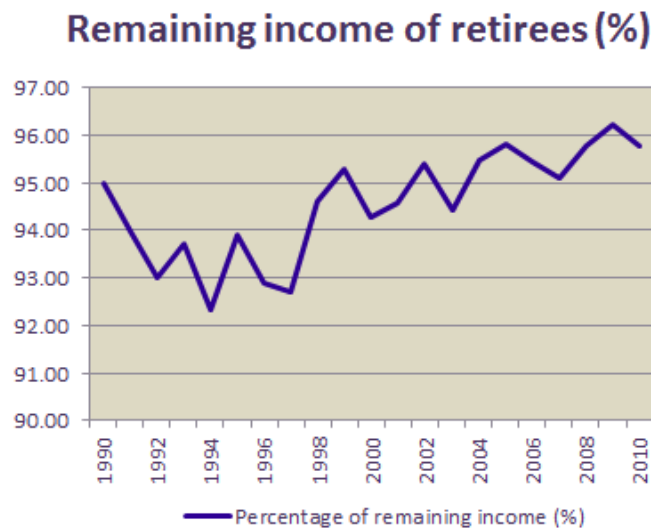


Chart 12: Remains of retirees income after subtracting the price of the market basket.

A bar graph suggests the wealthiest year for the retiree was 2009 when he or she could buy the market basket and had 96.23% of his or her pension left. On the other hand the greatest ration of the income must had been given for food in 1994 when the remainings were only 92.32%. From the graph we can also observe the lately

development is more stable than in the nineties when also the inflation was more fluctuating. We can also learn the trend tends to grow which means retirees are able to buy the basic foodstuff more cheaply relatively to the remainings of their income. However this is just an average result. In this case it is also important to mention the men are probably better off because they have (on average) higher income and when retiring usually the men and women have similar needs.

4.2.2 An employee's purchasing power

To get an example of the development of purchasing power of an actual person there is a summary of engine driver's wage and purchasing habits. The representative wished to not be named in the thesis so he is going to be called just the engine driver (ED). ED is a typical employee employed by huge corporation Czech Railways with active labour unions so the size of his income is probably dependent on the official inflation rate. The examined employee lives in a household alone. He provided a list of average monthly wage for five years. Data covering the period of 2006 to 2010 are presented in the chart number 13.

The graph shows us the wage slightly grew over chosen years. The same process as with the retirees was made with the value of engine driver's income and selected food. More products were used according to ED's choice. The data processing is listed in the supplement D where the data have been processed appropriately to find out how better or worse off was ED each year. Comparing how much of each item he could buy each year brought some knowledge;

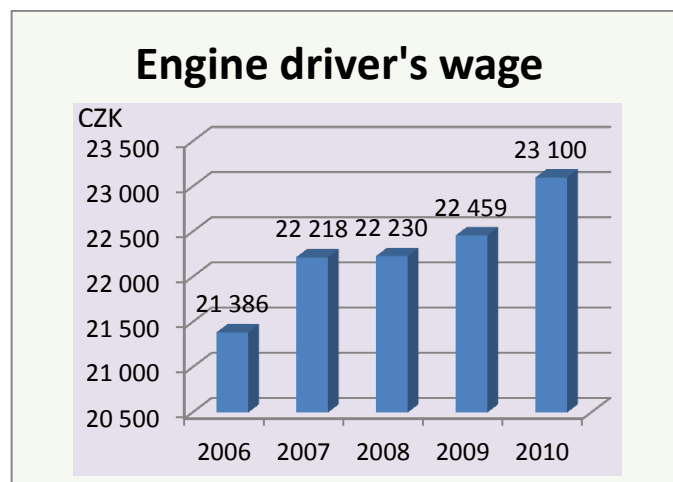


Chart 13: Engine driver's wage summary

The best improvement of ED's purchasing power was recorded in 2009. In spite of his wage had increased minimally (by 1%) he could have bought 17% more sunflower oil and 14% more milk. All other goods became slightly more affordable for him except black tea and Edam cheese that he could buy 3% less (Edam) and 7% less (tea). The least generous for ED was the year 2006. He could have 67% more potatoes however more than 20% less of three other items (namely eggs, Edam and sunflower oil). Again the curve of how much he can buy should be straight horizontal line as the purchasing power should remain the same. This condition is never fulfilled but the lines can show the wealth development in terms of each product.

Let us see what happened with sugar. Chart 14 shows the purchasable amount was not the same but it grew moderately as the price of sugar was decreasing and the income increasing so ED had a chance to buy more and more sugar. In 2010 he could buy 332 kg of sugar more than in 2006 which is a significant improvement. On the other hand the opposite trend is visible in case of egg pasta. In 2010 ED could buy 136.5 kg of pasta less than back in the 2006.

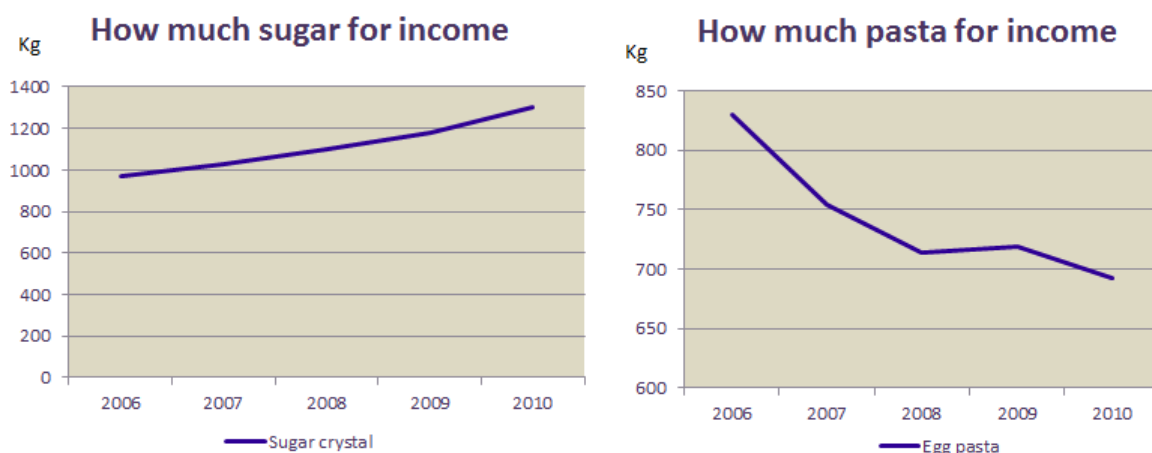


Chart 14: How much sugar and pasta the engine driver could buy each year

Hypothetical market basket was made of the chosen products. Let's assume the most important food is bought every month in the same amount listed in the table number 4. Further computations are added in the supplement E. The results tell us; ED was the wealthiest in 2006 when he had 94.29% of his wage left after buying the most important food. The least money left he had in 2008 (94.05%). However each of the five years he was wealthy almost the same because the percentages diverse only by several tenths of per cent which is not a significant difference.

Appropriate Market Basket of the Engine Driver	
item	amount
Egg pasta	8 Kg
Fine sausages	6 Kg
Sunflower oil	1 l
Edam cheese	1 Kg
Eggs	15 pc.
Sugar crystal	1 Kg
Black tea portioned	0.25 Kg
Milk (semi-fat)	3 l
Potatoes	7 Kg
Bread dumplings	8 portions

Table 4: Proposed market basket of the engine driver

The move of the prices is very various and irregular for different products. If the driver tries to find cheaper alternatives and substitutes he does not have to feel almost any shortage at all. However it would cost him some opportunity costs. According the experiments with the market basket we found out the differences in the ratio of money he spent for necessary food and he had left for other expenditures was not significant. The fluctuations of prices affects him only a little. In this case we can say his purchasing power was the same because the difference between the most and the least wealthy year was only 0.24% of income left.

4.2.3 Inflation of chosen food products

This chapter compares the overall year-on-year inflation rate with the inflation rate calculated from values of single items. Particular food products; bread, chicken, milk, potatoes and eggs were taken to calculate inflation rate through CPI. The formulas from the picture number 3 discussed in chapter 3.2.1 were applied; the first one to get the consumer price index and the second one to obtain the inflation rate from the values of the index. Price of just one product was used instead of the whole market basket price. As a base year the previous year was selected. Detailed table of values we calculated with is available in the supplement F.

The results gained from this issue are designed in the chart number 15. More synoptic graphs that individually compare each food item inflation development with the overall inflation can be found in the supplement G. The collective graph shows us there are some similarities present but in a very small scale and short period. The most obvious is the

fact the inflation of all the five selected items fluctuates a lot unlike the general inflation rate. It is understandable because the general inflation is like the average as mentioned previously. The developments show how different it can be at single products and excesses of their inflation rate are caused by various impacts.

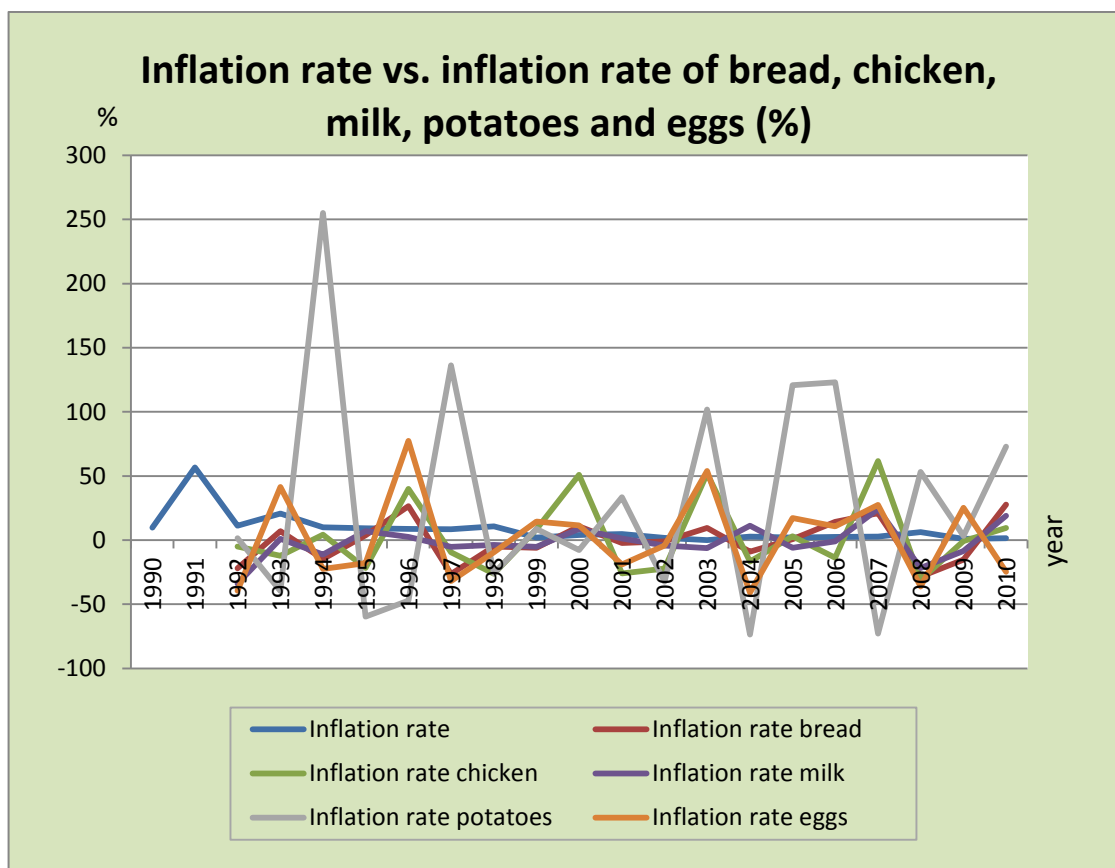


Chart 15: Inflation rate vs. inflation rate of bread, chicken, milk and potatoes, author's own graph based on data from CZSO

The best way how to justify this statement is to mention few issues of real world experience. For example one of the price raise of everything except potatoes in 2007 can be justified by increase of VAT (value added tax), decrease of world supply of grain and increase of consumption that is partially inflicted by world population growth especially in China and India. Rise of grain price affects meat, milk and eggs prices as well. It makes feed mixtures, an important part of input, more expensive. Grain prices entailed even price increase of bread by 36.5%. Rapid growth of potatoes price nearly by 130% was provoked by shortage of potatoes supply. Smaller area was dedicated to potatoes in the Czech

Republic. Lack of potatoes was experienced also in Germany, Slovakia or Poland so their import did not keep Czech price stable as previous year. [14]

Deviations of food prices rely also on the leaders of consumer market, the big chain stores. They have power to set up prices according themselves no matter the situation on the commodity exchange, inflation or taxes. Current strategy of these markets can temporarily offer some of food for prices much lower than their average. That is one of the reasons the monitoring of consumer prices is very difficult nowadays. Not only because of this but also there are more and more stores (more than e.g. 20 or 30 years ago) and the competition is enormous so there are hundreds of types of product.

Recently the company Ahold Czech Republic who runs for example Albert supermarkets in the Czech Republic has used advertising that said; no matter the increase of VAT we keep the prices of basic food stuffs stable. Huge and successful corporation as Ahold can afford such an offering. This example only confirms how difficult is to evaluate consumer price index in the free market economies which is the case of the Czech Republic, too.

It was believed the entry to European Union will increase Czech prices. However the reality is the inflation remained the same. Some prices increased but on the contrary some decreased. There were multiple reasons. We got rid of duties when trading with member countries. It brought us lower prices of e.g. French high quality wines or cheeses. In the other hand we acquired other duties obligatory for EU members when trading with non-members. It includes basic food stuffs such as bananas, rice or fish cans. Chart 15 summarizes the overall inflation rate was normal in 2004 and the prices of chosen products did not behave dramatically as well. Generally the EU entry did not have such dramatic impacts as it was supposed. [26]

Another remarkable point was 2008. Despite of the inflation was higher than previous years (the inflation rate was 6.3% which was the highest rate since 2002 when the inflation had not exceeded 2.8%) the prices of our selected products did not rise but they fell instead by 2.3% till 4.5% except eggs whose price fell even by 16.4%.

Because the prices of particular food develop individually the inflation based on these prices cannot resemble to overall inflation rate. Each item price increase might be caused by various impulses and can inflict diverse impacts. If there was such a representative product it would be only a coincidence.

5 Conclusion

After summarizing the theory we can see the real life experience doesn't usually fit into the average. It depends on particular case whether it proves or disproves the theory. Our assumption the inflation does not influence all the goods and people equally has been proven.

We have learnt the inflation rate does not necessarily tell consumers how much more they are going to pay. The inflation rate summarizes given set of price as an average. So it depends on specific purchasing habits. Usually inflation rate influences majority of goods and services available but not always evenly. There are plenty of connections between commodities and the products however there are also lot of different factors influencing price of specific products.

Therefore for more accurate results it is helpful to construct specific market basket for particular group of people to evaluate how they do. We can research individual person and with help of his/her typical shopping list estimate how the inflation or disinflation of the specific food or other essential groceries change his or her purchasing power.

In spite of the inflation rate is really difficult to obtain (especially by observing the market basket prices) the value is only to orient in the possible increase of price level.

The case studies presented in the thesis showed the group of Czech retirees' purchasing power is fluctuating but growing with the regular falls. However the percentage change of the rest of their pension after shopping the necessities does not change a lot. Generally during 1990-2010 they did not experience very poor times (in terms of the basic food). It is a signal of certain stability of the economy considering the researched period included currency reform. The engine driver's purchasing power was even more stable but we had a chance to research only short time of five years in his case.

When processing the prices of individual food stuffs we can observe the inflation calculated by the CPI of each item does not follow the overall inflation. That is why all the products make together the market basket that reflects all the deviations as an average.

However we have also experienced sometimes the prices develop similarly. That might be explained by the connections between different stages of production cycle. If the feeding gets more expensive various kinds of meat is going to be expensive. If eggs' price goes up it will probably cause the price of products made of eggs will grow too. If any kind of tax or obligation is established it will result in a price growth of the considered group of

goods and services. The broader the price changes are the more kinds of people and other economical subject will be affected by the emerging inflation.

6 Resources

6.1 Bibliography

- [1] BANNOCK, Graham, BAXTER R. E., DAVIS, Evan. Dictionary of economics. 4th ed. Princeton (NJ): Bloomberg, 2003. 410 p. ISBN 1-57660-146-3
- [2] BAUMOL, William, J., BLINDER, Alan, S. *Macroeconomics: principles and policy*. 9th ed. Mason (OH): South-Western, 2004. 378 p. ISBN 0-324-20165-6
- [3] BURDA, Michael, WYPLOZS, Charles. *Macroeconomics: A European text*. 4th ed. Oxford: Oxford University Press, 2005. 576 p. ISBN 0-19-926496-1
- [4] DOLAN, Edwin G., LINDSEY David E. *Economics*. 5th ed. New York: The Dryden Press, 1988. 992 p. ISBN 0-03-02377-5
- [5] HELÍSEK, Mojmír. *Makroekonomie základní kurs*. 2th ed. Prague: Melandrium, 2002. 326p. ISBN 80-86175-25-1
- [6] HOLMAN Robert. *Ekonomie*. 4th ed. Prague: C.H. Beck, 2005. 709 p. ISBN 80-7179-891-6
- [7] JUREČKA, Václav et al. *Makroekonomie*. 1st ed. Prague: Grada Publishing, 2010. 332 p. ISBN 978-80-247-3258-9
- [8] KONEČNÝ, Bronislav, SOJKA, Milan. *Malá encyklopedie moderní ekonomie*. 6th ed. Prague: Libri, 2006. 279 p. ISBN 80-7277-328-3
- [9] LIŠKA, Václav et al. *Makroekonomie* 2nd ed. Prague: Professional Publishing, 2004. 628 p. ISBN 80-86419-54-1
- [10] MANKIW, N. Gregory. *Brief Principles of Macroeconomics*. 3rd ed. Mason (OH): South-Western, 2004. 431 p. ISBN 0-324-17190-0

[11] MONTIEL, Peter, J. *Macroeconomics in Emerging Markets*. 1st ed. Cambridge: Cambridge University Press, 2003. 445 p. ISBN 0-521-78060-8

[12] NESET, Pavel, POŠTA, Vít, SOUKUP, Jindřich. *Makroekonomie*. 2nd ed. Prague: Management Press, 2010. 518 p. ISBN 978-80-7261-219-2

[13] VLČEK, Josef et al. *Ekonomie a ekonomika*. 3th ed. Prague: ASPI, 2005. 559 p. ISBN 80-7357-103-X

Statistická ročenka České a Slovenské Federativní republiky 1992. 1st ed. Prague: Statistické a evidenční vydavatelství tiskopisů, 1992. 735 p. ISBN 80-7049-041-1

Statistická ročenka České republiky '95. 1st ed. Prague, Český spisovatel, 1995. 626 p. ISBN 80-202-0568-3

Statistická ročenka České republiky '97. 1st ed. Prague, Scientia, 1997. 711 p. ISBN 80-7183-105-0

Statistická ročenka České republiky '99. 1st ed. Prague, Scientia; Český statistický úřad, 1999. 725 p. ISBN 80-7223-182-0

6.2 The Internet

[14] Brambory podraží až na dvojnásobek. *Aktuálně.cz* [online]. August 2006 [cit. 2012-03-05]. Available at: <http://aktualne.centrum.cz/ekonomika/domaci-ekonomika/clanek.phtml?id=221847>

[15] Česká republika se zdražení masa nevyhne. *Měšec.cz* [online]. August 2007 [cit. 2012-03-05]. Available at: <http://www.mesec.cz/clanky/ceska-republika-se-zdrazeni-masa-nevyhne/>

[16] HICP weighted basket. *European Commission* [online]. 2009

[cit. 2012-03-16]. Available at:

http://ec.europa.eu/economy_finance/netstartsearch/focuson/inflation/graph/basket.html?keepThis=true&TB_iframe=true&height=550&width=685

[17] How Zimbabwe lost control of inflation. *Newzimbabwe.com* [online].

December 2009 [cit. 2012-03-05]. Available at:

<http://www.newzimbabwe.com/pages/inflation180.17386.html>

[19] Míra inflace v letech 1989-2004. *Český statistický úřad: Krajská správa ČSÚ v Olomouci* [online]. May 2009 [cit. 2012-03-25]. Available at:

http://www.czso.cz/xm/redakce.nsf/i/mira_inflace_v letech_1989_2004

[21] Příčiny inflace peněz a její důsledky pro každého z nás (1) Úvod. *Zlaté rezervy* [online]. April 2011 [cit. 2012-02-15]. Available at:

<http://www.zlaterezervy.cz/clanky/poucme-se/priciny-inflace-penez-a-jeji-dusledky-pro-kazdeho-z-nas-1-uvod>

[22] R.I.P. Zimbabwe Dollar. *CATO Institute* [online]. May 2010 [cit. 2012-03-05].

Available at: <http://www.cato.org/zimbabwe>

[23] The HICP basket with 12 product and services group group. *European Commission* [online]. 2009 [cit. 2012-12-19]. Available at:

http://ec.europa.eu/economy_finance/netstartsearch/focuson/inflation/graph/basket.html?keepThis=true&TB_iframe=true&height=550&width=685

[24] Úloha měnové politiky: Úloha měnové politiky ČNB podle zákona o ČNB. *Česká národní banka* [online]. [cit. 2012-03-05]. Available at:

http://www.cnb.cz/cs/menova_politika/uloha.html

[25] Vajíčko se prodává už téměř za šest korun, kvůli Velikonocům bude hůř kvůli. *Idnes.cz* [online]. March 2012 [cit. 2012-03-15]. Available at:

http://ekonomika.idnes.cz/vajicko-se-prodava-uz-temer-za-sest-korun-kvuli-velikonocum-bude-hur-1it-/ekonomika.aspx?c=A120305_102552_ekonomika_spi

[26] Vstup do EU ceny moc nezmění. *Idnes.cz* [online]. June 2003

[cit. 2012-03-05]. Available at:

http://ekonomika.idnes.cz/ekonomika.aspx?r=ekonomika&c=A030610_215746_ekonomika_pol&l=1

[27] Vývoj a současný rozsah cenové regulace. *Ministerstvo financí české republiky* [online]. March 2011 [cit. 2012-02-15]. Available at:

http://www.mfcr.cz/cps/rde/xchg/mfcr/xsl/cenova_regulace_cr.html

[28] Spotřebitelské ceny vybraných druhů zboží a služeb. *Veřejná databáze ČSÚ* [online]. [cit. 2011-12-16]. Available

at: http://vdb.czso.cz/vdbvo/tabparam.jsp?voa=tabulka&cislotab=08-07&&kapitola_id=30

[29] Zpráva o inflaci - I/2008. *Česká národní banka* [online]. [cit. 2012-03-02].

Available at:

http://www.cnb.cz/cs/menova_politika/zpravy_o_inflaci/2008/2008_I/index.html

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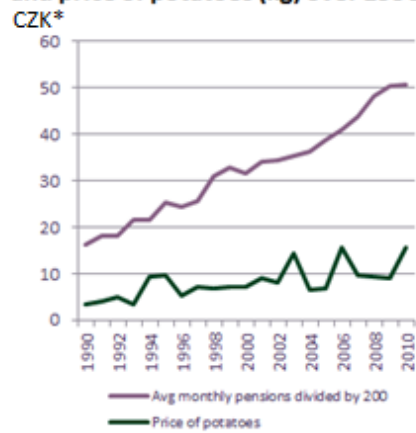
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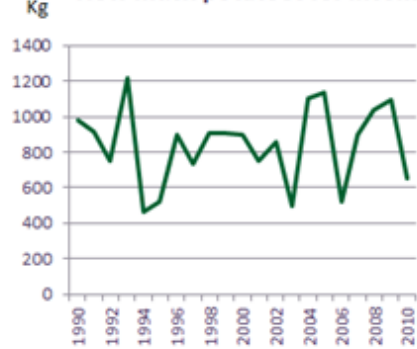
8 Supplements

Purchasing power of retirees	
Year	1990* 1991* 1992* 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 MAX
Bread (CZK/kg)	4.40 6.59 7.69 9.60 10.22 11.29 15.76 16.20 15.82 14.54 14.80 14.71 14.46 15.56 15.25 15.06 17.00 23.20 22.67 18.77 19.85
Chicken (CZK/kg)	31.00 39.46 47.74 50.75 56.27 48.85 59.37 65.27 52.90 46.49 61.65 60.55 46.23 53.60 51.80 51.60 44.30 61.47 58.99 56.18 58.63
Milk (CZK/kg)	3.60 6.29 7.25 8.43 8.71 9.63 10.91 11.70 12.07 11.80 12.54 13.48 13.87 13.38 14.35 14.45 14.40 17.84 17.28 15.32 16.17
Potatoes (CZK/kg)	3.30 3.96 4.82 3.54 9.23 9.70 5.38 7.05 6.84 7.21 7.02 9.12 8.01 14.19 6.61 6.80 15.60 9.73 9.29 9.15 15.58
Eggs (CZK/pc.)	1.49 2.22 2.00 2.55 2.52 2.04 2.93 2.86 2.53 2.56 2.89 2.64 2.31 3.11 2.47 2.30 2.37 3.11 2.60 2.72 2.14
Retirees avg. income (CZK) monthly	3 245 3 633 3 611 4 306 4 293 5 070 4 842 5 150 6 174 6 557 6 297 6 815 6 841 7 084 7 270 7 744 8 187 8 747 9 638 10 045 10 123
How many kg of bread for income	738 551 470 449 420 449 307 318 390 451 425 463 473 455 477 514 482 377 425 535 510
How many kg of chicken for income	105 92 76 85 76 104 82 79 117 141 102 113 148 132 140 150 185 142 163 179 173
How many litres of milk for income	901 578 498 511 493 526 444 440 512 556 502 506 493 529 507 536 569 490 588 656 626
How many kg of potatoes for income	983 917 749 1216 465 523 900 730 903 909 897 747 854 499 1100 1139 525 899 1037 1098 650
How many eggs for the income	2178 1636 1806 1689 1704 2485 1653 1801 2440 2561 2179 2581 2961 2278 2943 3367 3454 2813 3707 3693 4730
Annual increase of income (%)	111.96 99.39 119.25 99.70 118.10 95.50 106.36 119.88 106.20 96.03 108.23 100.38 103.55 102.63 106.52 105.72 106.84 110.19 104.22 100.78
Annual increase of bread price (%)	149.77 116.69 124.84 106.46 110.47 139.59 102.79 97.65 91.91 101.79 99.39 98.30 107.61 98.01 98.75 112.88 136.47 97.72 82.80 105.75
Annual increase of chicken price (%)	127.29 120.98 106.30 110.88 86.81 121.54 109.94 81.05 87.88 132.61 98.22 76.35 115.94 96.64 99.61 85.85 138.76 95.97 95.24 104.36
Annual increase of potatoes price (%)	120.00 121.72 73.44 260.73 105.09 55.46 131.04 97.02 105.41 97.36 129.91 87.83 177.15 46.58 102.87 229.41 62.37 95.48 98.49 170.27
Annual increase of milk price (%)	174.72 20.98 6.30 10.88 -13.19 21.54 9.94 -18.95 -12.12 32.61 -1.78 -23.65 15.94 -3.36 -0.39 -14.15 38.76 -4.03 -4.76 4.36
Annual increase of eggs price (%)	120.00 121.72 73.44 260.73 105.09 55.46 131.04 97.02 105.41 97.36 129.91 87.83 177.15 46.58 102.87 229.41 62.37 95.48 98.49 170.27
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Annual increase of eggs price (%)	120.00 121.72 73.44 260.73 105.09 55.46 131.04 97.02 105.41 97.36 129.91 87.83 177.15 46.58 102.87 229.41 62.37 95.48 98.49 170.27
Annual increase of eggs price (%)	120.00 121.72 73.

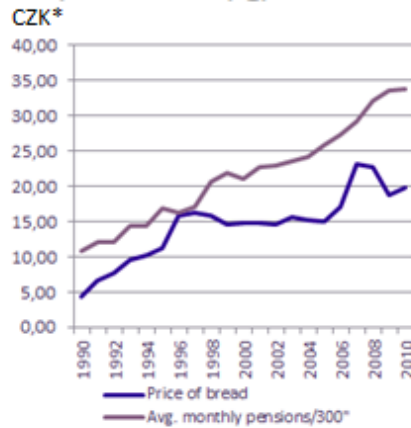
**Monthly avg. pensions (divided by 200)
and price of potatoes (kg) over 1990-2010**



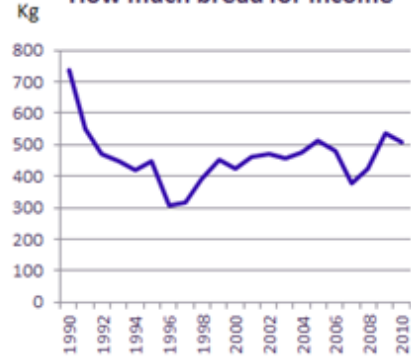
How much potatoes for income



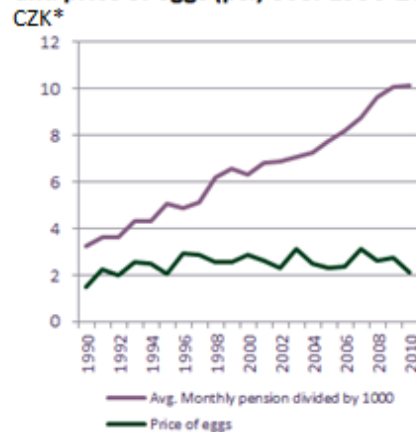
**Monthly avg. pensions (divided by 300)
and price of bread (kg) over 1990-2010**



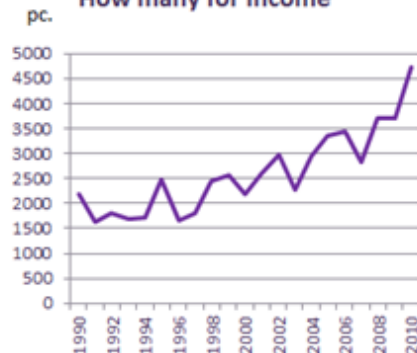
How much bread for income



**Monthly avg. pensions (divided by 1000)
and price of eggs (pc.) over 1990-2010**



How many for income



*in 1990-1992 the currency was not CZK but the Czechoslovakian Crown

Supplement B: How much food for income?, author's own graphs based on data from Supplement A

year	Bread, 4 kg		Chicken, 3 kg		Milk, 2 l		Potatoes, 7 kg		Eggs, 15 pc.		Total price of the market basket (CZK)	Retirees' income (CZK)	Income - market basket price (CZK)	Percentage of remaining income (%)
	Price of the amount unit (CZK)	Price of the amount unit (CZK)	Price of the amount unit (CZK)	Price of the amount unit (CZK)	Price of the amount unit (CZK)	Price of the amount unit (CZK)	Price of the amount unit (CZK)	Price of the amount unit (CZK)	Price of the amount unit (CZK)	Price of the amount unit (CZK)				
1990*	4.40	17.6	31.00	93	3.60	7.2	3.30	23.1	1.49	22.35	163.25	3 245	3 082	94.97
1991*	6.59	26.36	39.46	118.38	6.29	12.58	3.96	27.72	2.22	33.3	218.34	3 633	3 415	93.99
1992*	7.69	30.76	47.74	143.22	7.25	14.5	4.82	33.74	2.00	30	252.22	3 611	3 359	93.02
1993	9.60	38.4	50.75	152.25	8.43	16.86	3.54	24.78	2.55	38.25	270.54	4 306	4 035	93.72
1994	10.22	40.88	56.27	168.81	8.71	17.42	9.23	64.61	2.52	37.8	329.52	4 293	3 963	92.32
1995	11.29	45.16	48.85	146.55	9.63	19.26	9.70	67.9	2.04	30.6	309.47	5 070	4 761	93.90
1996	15.76	63.04	59.37	178.11	10.91	21.82	5.38	37.66	2.93	43.95	344.58	4 842	4 497	92.88
1997	16.20	64.8	65.27	195.81	11.70	23.4	7.05	49.35	2.86	42.9	376.26	5 150	4 774	92.69
1998	15.82	63.28	52.90	158.7	12.07	24.14	6.84	47.88	2.53	37.95	331.95	6 174	5 842	94.62
1999	14.54	58.16	46.49	139.47	11.80	23.6	7.21	50.47	2.56	38.4	310.1	6 557	6 247	95.27
2000	14.80	59.2	61.65	184.95	12.54	25.08	7.02	49.14	2.89	43.35	361.72	6 297	5 935	94.26
2001	14.71	58.84	60.55	181.65	13.48	26.96	9.12	63.84	2.64	39.6	370.89	6 815	6 444	94.56
2002	14.46	57.84	46.23	138.69	13.87	27.74	8.01	56.07	2.31	34.65	314.99	6 841	6 526	95.40
2003	15.56	62.24	53.60	160.8	13.38	26.76	14.19	99.33	3.11	46.65	395.78	7 084	6 688	94.41
2004	15.25	61	51.80	155.4	14.35	28.7	6.61	46.27	2.47	37.05	328.42	7 270	6 942	95.48
2005	15.06	60.24	51.60	154.8	14.45	28.9	6.80	47.6	2.30	34.5	326.04	7 744	7 418	95.79
2006	17.00	68	44.30	132.9	14.40	28.8	15.60	109.2	2.37	35.55	374.45	8 187	7 813	95.43
2007	23.20	92.8	61.47	184.41	17.84	35.68	9.73	68.11	3.11	46.65	427.65	8 747	8 319	95.11
2008	22.67	90.68	58.99	176.97	17.28	34.56	9.29	65.03	2.60	39	406.24	9 638	9 232	95.79
2009	18.77	75.08	56.18	168.54	15.32	30.64	9.15	64.05	2.72	40.8	379.11	10 045	9 666	96.23
2010	19.85	79.4	58.63	175.89	16.17	32.34	15.58	109.06	2.14	32.1	428.79	10 123	9 694	95.76

* those years the currency was not Czech Crown but the Czechoslovakian Crown

Supplement C: Remainings of the retiree's income after purchasing the market basket

Food usually consumed by engine driver and its prices (CZK)						
product	measure	2006	2007	2008	2009	2010
Egg pasta	1kg	25.78	29.48	31.12	31.24	33.33
Fine sausages	1kg	91.97	92.93	98.74	97.33	96.05
Sunflower oil	1 litre	32.99	42.97	47.89	41.37	43.69
Edam cheese	1kg	109.77	152.95	121.55	114.91	122.63
Eggs	1 piece	2.37	3.11	2.60	2.72	2.14
Sugar crystal	1kg	22.07	21.59	20.16	19.10	17.75
Black tea portioned	1kg	39.25	40.88	44.28	48.23	49.74
Milk (semi-fat)	1 litre	14.40	17.84	17.28	15.32	16.17
Potatoes	1kg	15.60	9.73	9.29	9.15	15.58
Bread dumplings	1 portion	12.64	13.74	15.50	15.40	15.79
ED average net wage	month	21 386	22 218	22 230	22 459	23 100
Percentage change of the income			3.8904	0.054	1.03	2.85409

How much/many of the food for income						
Product	measure	2006	2007	2008	2009	2010
Egg pasta	1kg	829.6	753.7	714.3	718.9	693.1
Fine sausages	1kg	232.5	239.1	225.1	230.8	240.5
Sunflower oil	1 liter	648.3	517.1	464.2	542.9	528.7
Edam cheese	1kg	194.8	145.3	182.9	195.4	188.4
Eggs	1 piece	9023.6	7144.1	8550.0	8257.0	10794.4
Sugar crystal	1kg	969.0	1029.1	1102.7	1175.9	1301.4
Black tea portioned	1kg	544.9	543.5	502.0	465.7	464.4
Milk (semi-fat)	1 liter	1485.1	1245.4	1286.5	1466.0	1428.6
Potatoes	1kg	1370.9	2283.5	2392.9	2454.5	1482.7
Bread dumplings	1 portion	1691.9	1617.0	1434.2	1458.4	1463.0
Mr. X's net wage (CZK)	month	21 386	22 218	22 230	22 459	23 100

Percentage change of how much more he could buy						
Product		2006	2007	2008	2009	2010
Egg pasta			-9.15	-5.22	0.64	-3.60
Fine sausages			2.82	-5.83	2.49	4.22
Sunflower oil			-20.24	-10.23	16.95	-2.61
Edam cheese			-25.44	25.90	6.87	-3.62
Eggs			-20.83	19.68	-3.43	30.73
Sugar crystal			6.20	7.15	6.64	10.68
Black tea portioned			-0.25	-7.63	-7.24	-0.27
Milk (semi-fat)			-16.14	3.30	13.96	-2.55
Potatoes			66.57	4.79	2.58	-39.59
Bread dumplings			-4.43	-11.31	1.69	0.31
total			-20.89	20.61	41.14	-6.29

Supplement D: Purchasing power of the engine driver, author's own table based on collected data and data from CZSO [28]

Appropriate Market Basket of the Engine Driver		2006		2007		2008		2009		2010	
		2006 price of unit (CZK)	2006 price of the amount (CZK)	2007 price of unit (CZK)	2007 price of the amount (CZK)	2008 price of unit (CZK)	2008 price of the amount (CZK)	2009 price of unit (CZK)	2009 price of the amount (CZK)	2010 price of unit (CZK)	2010 price of the amount (CZK)
item/measure	amount										
Egg pasta/kg	8	25.78	206.24	29.48	235.84	31.12	248.96	31.24	249.92	33.33	266.64
Fine sausages/kg	6	91.97	551.82	92.93	557.58	98.74	592.44	97.33	583.98	96.05	576.3
Sunflower oil/l	1	32.99	32.99	42.97	42.97	47.89	47.89	41.37	41.37	43.69	43.69
Eidam cheese/kg	1	109.77	109.77	152.95	152.95	121.55	121.55	114.91	114.91	122.63	122.63
Eggs/pc.	15	2.37	35.55	3.11	46.65	2.60	39	2.72	40.8	2.14	32.1
Sugar crystal/kg	1	22.07	22.07	21.59	21.59	20.16	20.16	19.10	19.1	17.75	17.75
Black tea portioned/kg	0.25	39.25	9.8125	40.88	10.22	44.28	11.07	48.23	12.0575	49.74	12.435
Milk (semi-fat)/l	3	14.40	43.2	17.84	53.52	17.28	51.84	15.32	45.96	16.17	48.51
Potatoes/kg	7	15.60	109.2	9.73	68.11	9.29	65.03	9.15	64.05	15.58	109.06
Bread dumplings/portion	8	12.64	101.12	13.74	109.92	15.50	124	15.40	123.2	15.79	126.32
Total price of the basket			1221.77		1299.35		1321.94		1295.35		1355.44

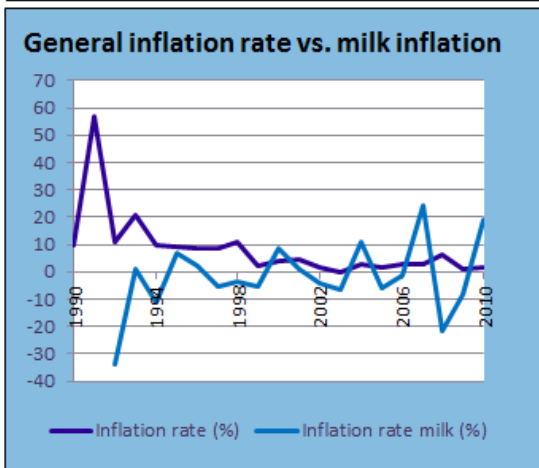
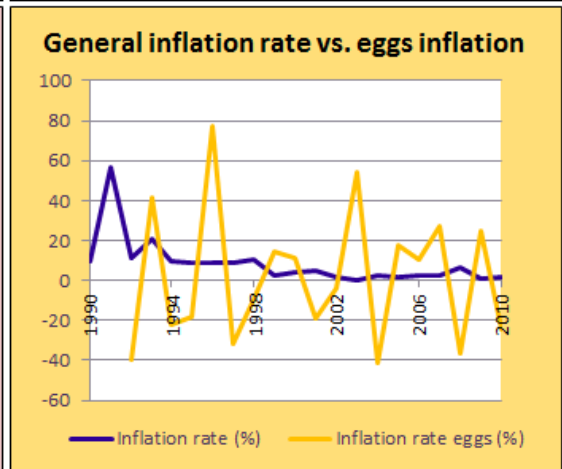
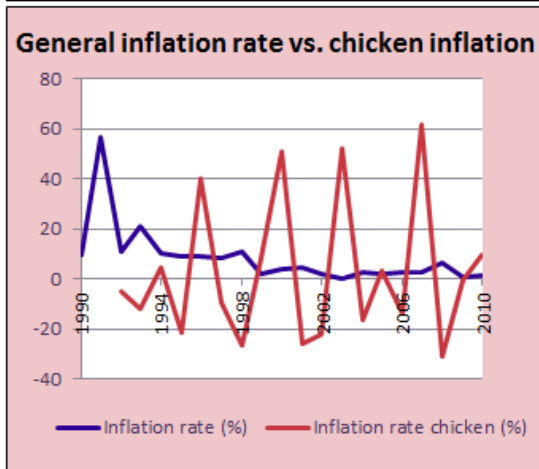
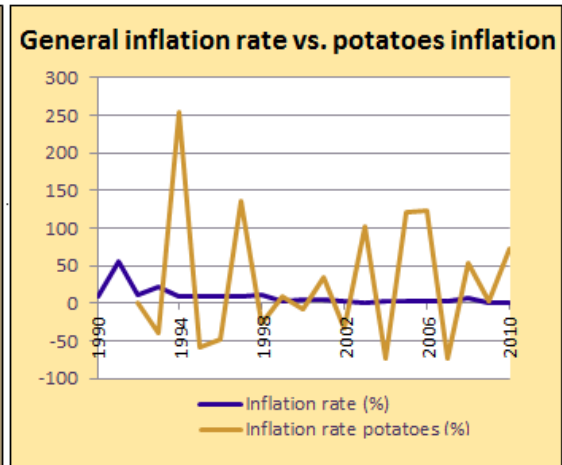
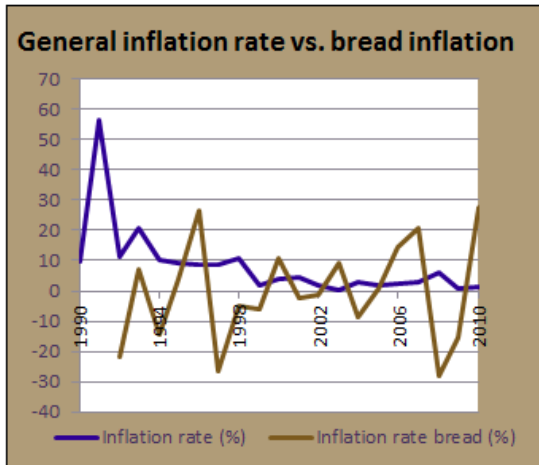
How much income had the driver left every month?			
	income market basket (CZK)	price of the market basket	% of the wage remaining
2006	21 386	1221.77	20 164
2007	22 218	1299.35	20 919
2008	22 230	1321.94	20 908
2009	22 459	1295.35	21 164
2010	23 100	1355.44	21 745
			94.29
			94.15
			94.05
			94.23
			94.13

Supplement E: The engine driver's market basket experiment, author's own table and computations based on data from Supplement D

year	Price bread	Price chicken	Price milk	price potatoes	price eggs	CPI bread	CPI chicken	CPI milk	CPI potatoes	CPI eggs	Inflation rate bread (%)	Inflation rate chicken (%)	Inflation rate milk (%)	Inflation rate potatoes (%)	Inflation rate eggs (%)
1990*	4.40	31.00	3.60	3.30	1.49	149.77	127.29	174.72	120.00	148.99					
1991*	6.59	39.46	6.29	3.96	2.22	116.69	120.98	115.26	121.72	90.09	-22.09	-4.95	-34.03	1.43	-39.53
1992*	7.69	47.74	7.25	4.82	2.00	124.84	106.30	116.28	73.44	127.50	6.98	-12.13	0.88	-39.66	41.53
1993	9.60	50.75	8.43	3.54	2.55	106.46	110.88	103.32	260.73	98.82	-14.72	4.30	-11.14	255.01	-22.49
1994	10.22	56.27	8.71	9.23	2.52	110.47	86.81	110.56	105.09	80.95	3.77	-21.70	7.01	-59.69	-18.08
1995	11.29	48.85	9.63	9.70	2.04	139.59	121.54	113.29	55.46	143.63	26.36	40.00	2.47	-47.22	77.42
1996	15.76	59.37	10.91	5.38	2.93	102.79	109.94	107.24	131.04	97.61	-26.36	-9.54	-5.34	136.26	-32.04
1997	16.20	65.27	11.70	7.05	2.86	97.65	81.05	103.16	97.02	88.46	-5.00	-26.28	-3.80	-25.96	-9.37
1998	15.82	52.90	12.07	6.84	2.53	91.91	87.88	97.76	105.41	101.19	-5.88	8.43	-5.23	8.65	14.38
1999	14.54	46.49	11.80	7.21	2.56	101.79	132.61	106.27	97.36	112.89	10.75	50.89	8.70	-7.63	11.57
2000	14.80	61.65	12.54	7.02	2.89	99.39	98.22	107.50	129.91	91.35	-2.35	-25.94	1.15	33.43	-19.08
2001	14.71	60.55	13.48	9.12	2.64	98.30	76.35	102.89	87.83	87.50	-1.10	-22.26	-4.28	-32.39	-4.21
2002	14.46	46.23	13.87	8.01	2.31	107.61	115.94	96.47	177.15	134.63	9.47	51.86	-6.25	101.70	53.87
2003	15.56	53.60	13.38	14.19	3.11	98.01	96.64	107.25	46.58	79.42	-8.92	-16.65	11.18	-73.71	-41.01
2004	15.25	51.80	14.35	6.61	2.47	98.75	99.61	100.70	102.87	93.12	0.76	3.08	-6.11	120.85	17.24
2005	15.06	51.60	14.45	6.80	2.30	112.88	85.85	99.65	229.41	103.04	14.31	-13.81	-1.04	123.00	10.66
2006	17.00	44.30	14.40	15.60	2.37	136.47	138.76	123.89	62.37	131.22	20.90	61.62	24.32	-72.81	27.35
2007	23.20	61.47	17.84	9.73	3.11	97.72	95.97	96.86	95.48	83.60	-28.40	-30.84	-21.82	53.08	-36.29
2008	22.67	58.99	17.28	9.29	2.60	82.80	95.24	88.66	98.49	104.62	-15.27	-0.76	-8.47	3.16	25.14
2009	18.77	56.18	15.32	9.15	2.72	105.75	104.36	105.55	170.27	78.68	27.73	9.58	19.05	72.88	-24.79
2010	19.85	58.63	16.17	15.58	2.14										

* those years the currency was not Czech Crown but the Czechoslovakian Crown

Supplement F: Consumer price indexes of food stuffs, author's own table and computations based on data from CZSO [28]



Supplement G: Inflation of bread, chicken, milk, potatoes and eggs, author's own graphs based on Supplement F