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The purpose of this study was to investigate the German inflation of 1923 and its effects of the financial and social structure of that country.

A survey of the literature on inflation and on Germany during the 1913-1924 period was undertaken. Particular emphasis was given to the financial and social conditions at that time and their relationship to inflation.

Both the financial and social structure of Germany were profoundly effected by the 1923 inflation. Fixed income obligations became virtually worthless, and equities and real estate lost a large portion of their value. Social conditions including health, education, nutrition, and the moral attitude of the citizens deteriorated significantly.

The Social and Financial Effects of the German Inflation of 1923

by

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APPROVAL PAGE

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CHAPTER I

INTRODUCTION

Inflation has become a subject of deep concern for many of the countries in the world today. The United States experienced double-digit inflation in 1974 and economists predict a continuation of inflation in the future. In Europe, particularly England and Italy, inflation currently has reached dangerous levels. Inflation has recently been named by some experts as the number one problem in the world today. A deeper understanding of inflation and its effects is absolutely necessary if the problem is to be solved. To aid in such understanding this thesis will examine the most serious period of inflation in the twentieth century. This inflation occurred in Germany and lasted approximately ten years - from August 1914 to November 1923. It is hoped that by studying this inflation and its effects on the financial and social structure of Germany a better understanding of our current problems will be obtained.

In Chapter II there is a brief description of the problem, the types, and the different magnitudes of inflation. Particular emphasis is placed on the effects inflation has on the distribution of income and wealth and the important relationship between inflation and unemployment.

There is also in this chapter a discussion of the long-standing debate among economists as to whether a small amount of inflation is beneficial or harmful to an economy. Finally, the main theoretical approaches to inflation are explained. Keynesian theory rests on the liquidity preference function and its relationship to the investment sector of the Net National Product. Monetary theory uses the quantity theory of money and the "equation of exchange," MV=PQ, to explain inflation. Although different in their approaches, both theories recognize the importance of the direct relationship between the supply of money and Net National Product.

Chapter III describes the historical period of German inflation. The beginnings of the inflation are discussed with emphasis on the outflow of gold from Germany and the subsequent ban on the redemption of currency for gold. A consequence of this ban was a large increase in the discounting of Treasury Bills by the government. This resulted in a huge increase in the money supply in accordance with the "equation of exchange" the increase in prices.

Next, the problems stemming from the war are related. The huge cost of the war and the subsequent reparations payments placed a heavy burden on the financial health of the nation. Government attempts at financial reform and also government actions which reinforced the inflation are examined. Finally, the steps leading to the stabilization of the mark and the stabilization itself are discussed. The chapter as a whole gives a thorough and concise account of the inflation.

Chapter IV discusses the financial effects of the German inflation. Prices of German stocks declined during inflation in contradiction with the generally held belief that stocks provide a good hedge against inflation. The reasons why equities are believed to be a hedge against inflation and the reasons why equities did not provide such a hedge in Germany are related. The other sections of Chapter IV analyze the important role of the banking industry in Germany, financial instruments such as bonds, mortgages, or insurance, and the situation in the German housing industry.

Chapter V includes a lengthy discussion of the social effects of the inflation. Particular emphasis is given to the physical health and well-being of German citizens. The difficulties of obtaining food, shelter and clothing are discussed. Additional discussion includes the inflation's effect on the educational system, the moral attitude of the people and the inflation profiteers. Chapter V gives a clear picture of the extent of inflation's effects on the daily lives of a highly educated law-abiding people. These changes which we observe in the German citizens are most important. The interpolation of these changes to today's industrialized societies, which are much more prone to violence, crime, and other unsocial behavior presents a disquieting image.

CHAPTER II

INFLATION

Introduction

Inflation is defined by Warren L. Smith in his book Macroeconomics as a "tendency toward a continuing rise in the general level of prices."[1] Throughout this thesis, this definition of inflation is used unless stated otherwise. The term "general level of prices" refers to some index which measures price changes over certain periods of time. This index is, of course, an average of many different price movements in the economy. In this index, some price changes may be large and others small, some prices may advance and some decline. Ultimately, one index number is derived, and this index number represents an overall view of the price changes. In the United States, the Consumer Price Index, the Wholesale Price Index or the GNP deflator is used.[2]

Inflation and the Economy

Economists have long debated the effects which inflation has on the economy. Although it is universally agreed that rapid inflation is harmful, some economists feel that a small amount of inflation is beneficial. During inflation, prices of goods are generally increasing faster than the cost of producing those goods. Some business profits are thereby

favorably affected. With a portion of these increased profits, some firms will expand their production capacity and, thus, further the economic growth of the country. Although it is conceded that such adverse effects as redistribution of income and wealth occur, those who follow this line of reasoning believe the benefits of fuller employment of resources and greater growth far outweigh any negative effects.[3]

The opposing view labels all inflation as destructive. This belief is founded on the assumption that when there has been a continuous dose of inflation and prospects for further inflation are good, the savings of society will by reduced since savers realize that the purchasing power of their savings will be smaller in the future than it is in the present. In other words, they buy now before prices go up, or they shift liquid assets such as savings into tangible assets. A consequence of this reduction in savings will be a reduction in the funds available for capital accumulation. Since capital accumulation is so important to economic growth it is felt that anything which reduces it is harmful.[4]

Another argument against any amount of inflation is that even a small amount of inflation over a long period of time will seriously disrupt price levels. For example, a three per cent annual rise in prices will result in a doubling of prices in twenty-three years.[5] This change in the price level can have severe redistribution effects on the various sectors of the economy if it is not correctly anticipated.

Finally, some believe that slow inflation leads to more rapid inflation.[6] By gradually building automatically increased wages and prices into their decisions, businesses and consumers foster an atmosphere whereby larger and larger price increases can occur. This could eventually lead to galloping or hyperinflation which is of course undesirable.

Distributional Effects

Perhaps the most disturbing danger of inflation is the redistribution effects it has on income and wealth. If all prices, wages, and value of assets increased at the same rate, inflation would not be a problem. However, these prices change at many different rates and cause considerable problems for those in certain economic status. Particularly affected are those individuals who live off their accumulated savings or retirement benefits and others with fixed income levels. Rising prices cause their costs to increase while their money income (interest from savings plans or pension check) remains stable. Due to these factors their real income falls and consequently their standard of living decreases. Recent high inflation in the United States has caused particular hardships for the nation's elderly citizens. Many of these people formerly lived comfortably off their savings, pensions, or social security incomes. Now after two years of very high inflation, their real incomes have declined significantly. There have been many reports of the difficulties this group has in being able to afford only the barest

necessities of survival. Even food consumption has declined significantly in both quantity and quality.

In addition to their loss of real income, the real value of their accumulated wealth which is stated in fixed monetary terms decreases. These savings which many have held for emergency purposes can now buy much less in terms of goods and services. Consequently, the security once felt by many members of this group is now lacking.

There are other groups in the economy who gain from inflation. Members of this group, businessmen, workers with strong unions, and others who receive business profits, many times receive incomes which rise faster than the cost of living. Additionally, individuals who hold their savings in non-monetary assets (real estate, equities, or real goods) generally gain since the value of these assets normally increases along with the price level.

The impact of this redistribution on a particular group depends on the ability of the members of that group to foresee inflation and also on their ability to adjust the makeup of their assets. If one could accurately predict the rate of inflation, one could move out of the fixed monetary assets during inflation and into those assets which will rise in value commensurate with the general price level. Even if one could predict accurately however, one may be hindered in switching his assets to take advantage of his knowledge. Savings accounts may be the only savings form available to

those of modest means who have little wherewithal to invest in the stock or real estate markets. Such individuals would therefore be no better off with their knowledge of inflation because of constraints that limit them due to lack of wealth or knowledge.

Inflation and Unemployment

There is a large body of evidence on the relationship between inflation and unemployment.[7] This relationship is inverse. That is, the higher the rate of unemployment, the lower the rate of inflation. This relationship is easily understood since at high unemployment levels, unemployed workers are more likely to accept any employment even if wages are low. If there is a large pool of unemployed workers, business firms are also much less likely to accede to higher wage demands. Even unions lower their wage demands when unemployment is high. They know businesses will present greater opposition to wage increases, and they are less willing to go through a long strike when there are many workers unemployed.[8]

When the economy begins to improve and firms begin to hire more employees, workers are more likely to demand increased wages. Because of shortages of qualified workers, businesses will bid up the wages of desirable and necessary employees. Businesses also find it easier to pass along the increased cost of labor in times of high employment and prosperous economy. Additionally, firms do not desire to go

through a long strike over wages while the demand for their product might be high. Therefore, wages tend to increase at a faster rate as the level of unemployment decreases. In times of full employment, other factors of production also increase in price as the demand for them increases. These increased costs are figured into the prices of the output of business firms, and therefore many product prices are increased to reflect these costs.

The relationship between wages and the unemployment rate was first observed by a British economist, A. W. Phillips. The curve representing this relationship is called the Phillips curve and is seen in Figure 1.[9]

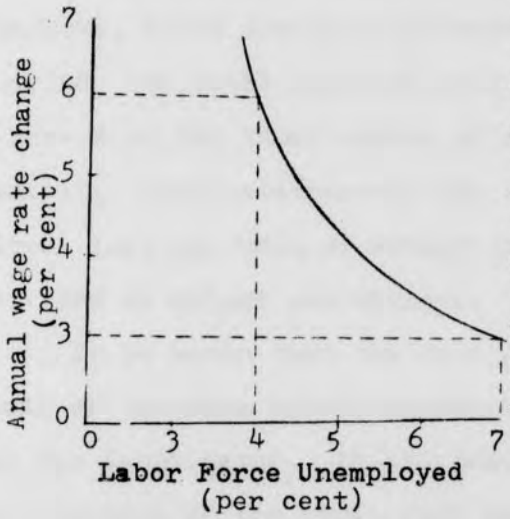

FIGURE 1

THE PHILLIPS CURVE

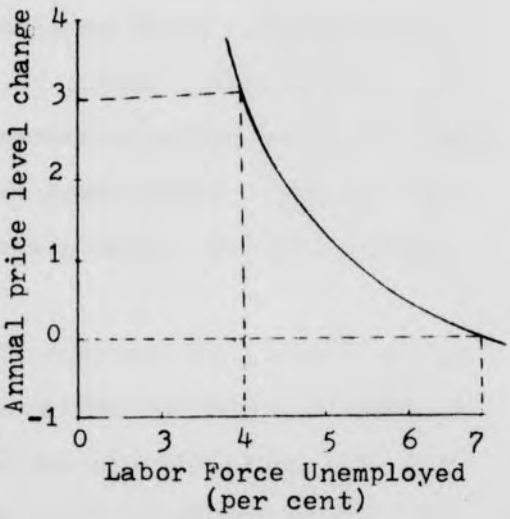

FIGURE 2

RELATIONSHIP BETWEEN UNEMPLOYMENT RATE AND RATE OF INFLATION

According to Figure 1, if the annual increase in the wage rate is six per cent, then the unemployment rate would be four per cent. If the annual increase in the wage rate is three per cent then the unemployment rate would be seven per cent.

The relationship between the rate of change in the price level and the unemployment rate is presented in Figure 2. This relationship is based on the Phillips curve, and it is also inverse.[10]

To derive Figure 2 from the Phillips curve, certain relationships must be examined. First the rate of price increase equals the rate of increase of C, the total cost per manhour, minus the rate of increase of labor productivity. Second, the total cost per unit of output equals $C \times M \div O$ where M is the total number of manhours worked and O is total output. This relationship can be rewritten $C \div (\frac{O}{M})$ or the total cost per unit of output equals total cost per manhour divided by output per manhour.

It is known that the rate of increase of a ratio is the rate of increase of the numerator minus the rate of increase of the denominator. In the previous equation then, the rate of increase of the total cost per unit of output equals the rate of increase of total cost per manhour minus the rate of increase of output per manhour. This information can now be applied to Figures 1 and 2. It is assumed that the rate of increase of total cost per manhour equals the rate of increase

of wages and that the rate of increase of labor productivity is three per cent. With this information thus the rate of increase in prices can be calculated from the rate of increase in wages. Thus Figure 2 is derivable from the Phillips curve.[11]

The location of the Phillips curve is not immutable and can shift. Among the more important factors affecting the position of the Phillips curve are the education, training, and mobility of the work force, and the nature of price expectations in the economy. When the education, training, and mobility of the work force increase, there is less liklihood of labor shortages occurring. Many more workers are thus qualified for various positions, and, therefore, the supply of available workers is increased. This will of course hold down wage demands and inflation. In these cases, the curves shown in Figures 1 and 2 will shift to the left indicating less inflation at various levels of unemployment.[12]

Price expectations also affect the position of the curve. If higher inflation levels are expected, workers will press for higher wages and firms will increase prices at a more rapid rate. Therefore it can be concluded that as future price expectations increase, the curves of Figures 1 and 2 shift outward. That is, there will be more inflation at each level of unemployment.[13]

These curves are of course simplifications. One cannot merely indicate a level of inflation that is acceptable and

look to the curve to see what the unemployment rate will be. However, the curves do show the relationships between inflation and unemployment. Estimations according to information provided by such curves are undoubtedly used by government policy makers and are therefore of vital importance.[14]

Types of Inflation

Economists identify two main types of inflation, demand-pull and cost-push. Demand-pull inflation is the classical type which occurs as a result of too much money trying to purchase too few goods or, more technically, when aggregate demand exceeds aggregate supply. This type of inflation will typically occur after a war if prices of goods have been artificially held down and scarcities of products during the war have caused pent-up demand. This inflation will occur when the factors of production are in full use. This can be illustrated by the use of the graph in Figure 3.[15]

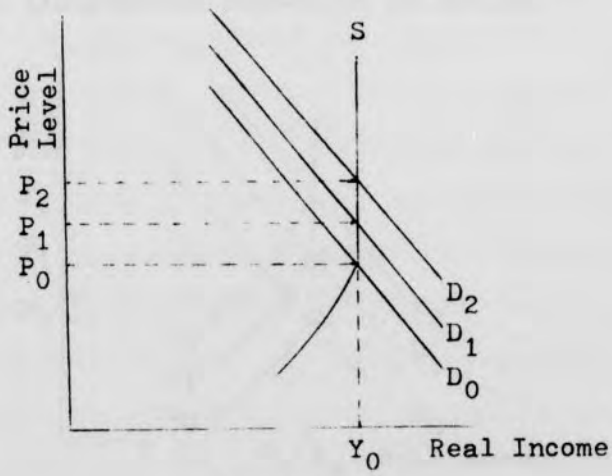

FIGURE 3

DEMAND-PULL INFLATION

At Y_o it is assumed that the economy is maximizing production, that is, factors of production are in full use. Since there can be no further goods produced by this economy, at Y_o and P_o the supply function which had previously been sloping upward becomes completely inelastic. Therefore, if demand increases from D_o to D_1, supply will not increase and prices will rise to P_1 in order to clear the market. Further increases in demand will lead to continued higher prices as the graph shows.

Cost-push inflation results in an economy where free market forces are by certain means restricted. Large labor unions are able to maintain wage levels and even increase them in all phases of the economic cycle. Enormous corporations account for vast portions of certain markets and are able to influence supply and prices by themselves. These forces cause higher prices even though there may be available factors of production and demand is not increasing. The following graph illustrates cost-push inflation.[16]

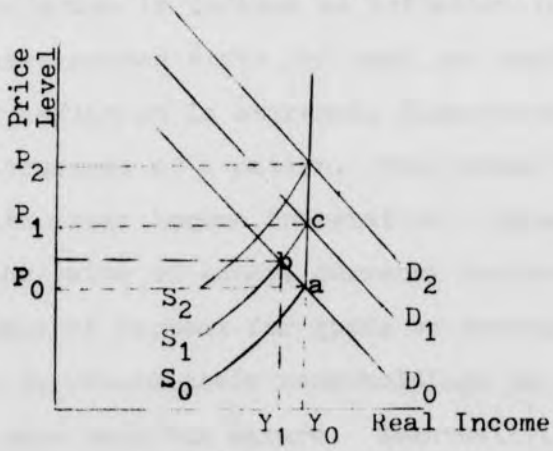

FIGURE 4

COST-PUSH INFLATION

As you will note, if supply is reduced from S_0 to S_1 prices will increase from P_o to P_1^1. This will cause a decline in real income to Y_1^1. If this economy is going to enjoy full employment again, an increase in demand to D_1 must occur. This will of course necessitate further increases in price to P_1.

Speed of Inflation

In addition to these two major types of inflation, there are also varying degrees of inflation broken down according to the rate of the price increase. At the low end of the scale is creeping inflation which is generally defined as inflation at a rate of one to three per cent annually. The desirability of creeping inflation has been discussed earlier in this paper. More rapid inflations in order of increasing rapidity are moderate inflation, galloping inflation, and hyperinflation.

Hyperinflation is defined as inflation in a period where price increases exceed fifty per cent per month.[17] Obviously this type of inflation is extremely disruptive to the economic and social structure of a nation. The normal patterns of behavior in both areas become inoperative. Because of the rapid decline in the value of money, currency becomes less acceptable as a means of payment for goods or services. Holders of cash attempt to reduce their moneyholdings in favor of other assets of a more tangible nature. Eventually, when the penalties of holding cash are recognized by the great majority

of a nation's citizens, a peak of activity is reached. This peak is called a "flight from cash." At this time money completely loses its function as a "medium of exchange." Immediately, as money is received in payment for goods or services, it is spent. As a result the money supply is circulated at an ever increasing rate.[18] At its climax, the velocity of circulation approached infinity.[19] This increase in the velocity of circulation is in itself extremely inflationary and can have a greater effect on prices "than that of successive issues of paper money."[20] Also money loses its store of value (savings) function and its standard of deferred value (loans) function. Eventually bartering takes over as the prominent means of doing business. This of course limits production where workers can't be paid in tradable goods. As a consequence of this decline in production, hyperinflation is normally accompanied by a depression.

Theories of Inflation

Inflation can be explained by using either the Keynesian or Monetary Theory. While these theories differ considerably in their methods, they both arrive at the same conclusions concerning the money supply and the Net National Product (NNP). That is, there is a direct relationship between the two.[21]

The basis of the Keynesian theory rests on the liquidity preference function. This function is presented in Figure 5.

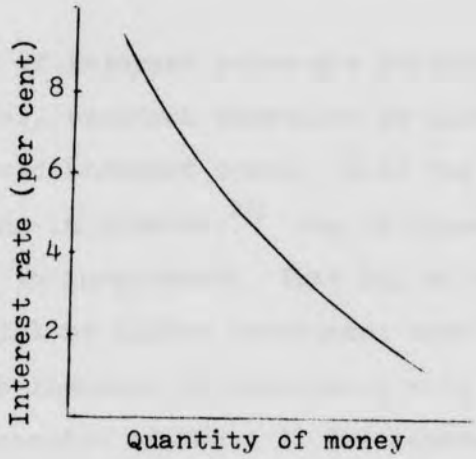

FIGURE 5

THE LIQUIDITY PREFERENCE FUNCTION

It represents an inverse relationship between the quantity of money and the interest rate. That is, with high interest rates the demand for money will be smaller and with low interest rates it will be higher. The reasoning behind this relationship can be explained in simple terms. If interest rates are high, there is a tendency for holders of money to use their funds for investment in order to take advantage of the attractive rates. By investing in bonds or putting their money in a savings account, they would earn a return on their money. This of course lowers the quantity of money in circulation. If interest rates are low, the return on a similar investment is not as great, and therefore money holders would not be as inclined to keep their funds invested.[22]

The linkage between inflation and the liquidity preference function is made in the investment sector of the GNP.

For example if interest rates are declining, the costs of investing (i.e., business expansion or equipment) is lower due to the reduced interest costs. Also the availability of funds for borrowing is greater.[23] Due to these factors, there is an increase in investment. That is, at the same levels of NNP there will be higher investment when interest rates are lower. This increase in investment will in turn create a multiple expansion of NNP. If the economy is operating below full employment, this expansion will result in an increase in real output. If the economy is already operating at full employment, this upward movement in total demand will merely cause increased prices and no additional real output -- that is, it will generate inflation.

Monetary theory uses the quantity theory of money for its explanation of inflation. The essence of the quantity theory of money is the "equation of exchange," MV=PQ. In this equation M is the money supply, V is the velocity of the circulation of money, P is the average price level of all goods and services, and Q "is the output of final goods and services during the period."[24] In this equation, PQ equals the total amount of money received for final goods and services or NNP during the period. MV equals the total amount of money spent on goods and services. Since in the same period the amount spent and received for all goods and services are equal, this equation always holds true.[25]

For purposes of explanation, we will temporarily assume that both V and Q are constant. With V and Q constant, the equation of exchange becomes $M=(\frac{Q}{V})P$, where $(\frac{Q}{V})$ is a constant. In this model, therefore, M and P are proportional. That is, if the money supply increases, the price level must also increase at a similar rate. If the monetary supply decreases, the price level will also decrease.

In a more sophisticated model, both Q and V are not constants. Q, the real output of the economy, fluctuates during the economic cycle and V also fluctuates within a small range. Between 1920 and 1970, excluding the World War II period, velocity of circulation in the United States ranged between 2.5 and 4.5.[26] If Q is held constant, a new equation can be determined, $M=PQ(\frac{1}{V})$, where $(\frac{1}{V})$ is constant. Since PQ equals NNP, then $M=NNP(\frac{1}{V})$. Therefore the money supply is proportional to NNP and can be used as an indicator of NNP.[27]

When the final assumption of V being constant is released, the relationship between M and NNP is no longer directly proportional. However, because of the fairly stable value of V, it is felt that M is still a good predictor of NNP. While the two do not move in direct proportion with each other, they do exhibit similarities in movements of direction and strength.[28]

The monetarists, therefore, use the "equation of exchange" and its derivitives to forecast periods of price changes. Recent research by the Federal Reserve Bank of St. Louis has

shown a close relationship between short-run changes in the quantity of money and short-run changes in NNP.[29]

Gottfried Haberler in his book Inflation: Its Causes and Its Cures, states "there is no record in history of any country having prolonged inflation without a large increase in the quantity of money.[30] Historical examples also point to a direct relationship between the money supply and the price level. For example, when the great importation of gold and silver from the Americas occurred in Europe, the supply of money increased drastically. Consequently, prices also rose greatly. A similar phenomenon occurred after the discovery of gold in the United States, South Africa, and Canada.[31] The large increases in the money supply in Germany during and after World War I preceded the great inflation in that country.

The record of German hyperinflation is examined in the following chapter.

CHAPTER III

HYPERINFLATION IN GERMANY

Introduction

The best known period of hyperinflation in a developed economy occurred in Germany following World War I. Bresciani-Turroni, in his volume The Economics of Inflation, dates the inception of the period as beginning on July 31, 1914. On that day the Reichsbank, the German Central Bank, suspended the right to convert German currency into gold.[32] This inflationary period lasted until November 15, 1923, when the Reichsbank ceased discounting Treasury Bills for the government.[33] During this period the value of the German mark declined from 4.2 marks per United States dollar, to 4,200,000,000,000 marks per dollar with the steepest declines occurring in the first eleven months of 1923.

A complete history of this period is much too exhaustive an undertaking to deal with in this thesis. However some background is necessary to understand inflation's effect on the various forms of savings and wealth vehicles. Therefore a summarized history of this period will follow.

The Inception of World War I

On June 28, 1914 Archduke Francis Ferdinand, heir of the Austrian throne was assassinated by a Serbian Nationalist,

Gavilo Princip. When the Serbian government refused to agree to various demands from Austria-Hungary, the Austro-Hungarian Government declared war on Serbia. Because of the existing alliances among the major powers of that period, a large part of the world's population was drawn into this war. Germany, already allied with Austria-Hungary, joined the conflict on August 1.

In the week preceding Germany's declaration of war, there was a strong anticipation that Germany would come to the aid of her ally. Then, as now, in times of stress and uncertainty there was a desire by the populace to hold an intrinsically valuable item, such as gold, rather than paper currency. Consequently, over one hundred million marks in gold were withdrawn by German citizens from the Reichsbank during that week.[34] This figure represented nearly eight per cent of Germany's gold reserve, and a continuation of this drain could not be tolerated. Therefore, in order to halt the gold outflow, Germany discontinued its policy of redeeming gold for currency.

This action was of considerable importance for, at that time, the gold reserves amounted to forty-three per cent of the banknotes and demand deposits.[35] Removing the link between gold reserves and the amount of money in circulation was the key that opened the door to hyperinflation.

Theory Considerations

The removal of the link between gold and the amount of money in circulation was followed by the discounting of Treasury Bills in huge amounts. This practice was continued throughout the war and greatly increased as the inflation peaked in 1923. The discounting of Treasury Bills of course greatly increased the money supply. As was observed in the preceding chapter, according to the "equation of exchange," MV=PQ, if M, the money supply, is increased. P, the price level, will increase proportionally if V, the velocity of currency circulation and Q, the output of real goods and services are constant. V and Q are, however, not constant in the real world, and together they probably served to limit the price increase during the war.

In Germany during this period, V actually declined. Bresciani-Turroni states this was due to hoarding of banknotes by Germans during the war, and it reflects the confidence they had in the mark.[36] Q probably increased somewhat during the war since greater production efforts were required to supply the German war machine. By the end of the war, however, much of Germany's productive machinery was worn out and German factory workers were exhausted. Consequently no great differences in Q are expected. The effect of these factors on P caused a rise of 2.45 per cent in wholesale prices during the war. This at least confirms that the lower velocity held down price increases to some extent.

The "equation of exchange" is of course not an exact predictor. One cannot simply stick in values for three of the unknowns and expect an exact result for the remaining variable. The equation does, however, give us a good indication of which direction and in what magnitude the result will be.

Tables 1 and 2 provide indices of the values of M and V throughout the inflationary period. As one can observe, the values of each of these factors rose considerably. By the end of October, 1923, M increased 413 times. Velocity had increased 17.79 times indicating the efforts of Germans to unload their currency as quickly as possible. The significant increases of M and V both point to large increases in the price level at some time in the future.

Q declined in value after the war due to the loss of territory, the loss of shipping and railroad equipment, and other affects of the reparations. However large production increases in the early 1920's offset this decline and most likely slightly lessened the upward pressure on P.

Overall, however, with the great increases in V and M, a large increase in the price level was expected according to the "equation of exchange." Table 3, an index of wholesale prices during this period, valedates the equation predictions. Wholesale prices increased 18.7 billion times from 1913 to October 1923. Thus, although an exact prediction of the price level was not available, both the direction and magnitude of the price level did match our expectations.

TABLE 1

INDEX OF CURRENCY CIRCULATION IN GERMANY (1913=1)

End of	
1914	1.43
1915	1.65
1916	2.04
1917	3.04
1918	5.45
1919	8.26
1920	13.5
1921	20.3
1922	213.3
1923 (Oct.)	413*

*Millions

Source: Costantino Bresciani-Turroni, The Economics of Inflation (London, 1937), p. 162.

TABLE 2

VELOCITY OF CIRCULATION OF MONEY
IN GERMANY (1913=1)

End of	
1914	.92
1915	.94
1916	.87
1917	.72
1918	.45
1919	.96
1920	1.06
1921	1.70
1922	6.85
1923 (Oct.)	17.79

Source: Costantino Bresciani-Turroni, The Economics of Inflation (London, 1937), p. 168.

TABLE 3

INDEX OF WHOLESALE PRICES IN GERMANY (1913=1)

End of	
1914	1.25
1915	1.47
1916	1.50
1917	2.02
1918	2.46
1919	8.03
1920	14.40
1921	34.90
1922	1,474.80
1923 (Oct.)	18.7*

*Billion

Source: Costantino Bresciani-Turroni, The Economics of Inflation (London, 1937), p. 162.

The War Years

During World War I, Germany's financial problems were not unique. All major warring powers were forced to spend excessive amounts in order to pay for the huge costs of the war. Monetary circulation in these countries increased four to five times during the war period. These actions were predictably inflationary if one relied on the "equation of exchange" which was discussed in Chapter II. In fact, by the end of 1918 wholesale prices in Germany had risen approximately the same amount as in the other billigerent nations. Germany's wholesale prices increased 2.45 times compared to 3.53 for France and 2.30 for England. The United States registered a doubling in prices during this period although they had been in the war for only a comparatively short time.[37]

The mark at the end of 1918 was valued at approximately twelve United States cents as compared to its prewar value of almost twenty-four United States cents.[38] This decline in value was also comparable to the declines registered by other major currencies. However, although the financial policies of Germany during the war laid the groundwork for the problems of the early 1920's, other countries followed similar courses and managed to avoid the chaos which Germany suffered.

In spite of its strength and effectiveness in military matters, Germany was for the most part a group of semi-autonomous states until 1919. With the exception of the military, the central government had little power and because of this,

the option of central government taxation to finance the war was not entertained until the fighting had been in progress for nearly two years.

War expenses for Germany have been estimated at 164.3 billion marks. Table 4 gives an annual breakdown of these expenditures. The major portion of these expenses were met from the proceeds of the sale of war bonds to German citizens. These proceeds amounted to 96.9 billion marks or nearly sixty per cent of the total cost of the war. The bonds for the most part were issued at a rate of five per cent and were perpetual in length.[39] The balance was provided by several other means. The most important was that the Reichsbank discounted Treasury Bills for the Treasury. This process involved the Treasury presenting Treasury Bills to the Reichsbank. The Reichsbank, after deducting a year's interest from the amount of the Treasury Bills, would return the remainder to the Treasury in banknotes. As these banknotes were spent by the government, the amount of money in circulation would increase by that amount. In this way the Treasury could cover its deficits.[40]

By the use of the above means and particularly because of the forty per cent of the war expenses financed by discounting, the money supply of the Reich increased considerably during the war. The money supply consisted of coins, banknotes, loan banknotes, and daily maturing Reichsbank liabilities. Before the war these totaled approximately 7.4 billion marks. At the

TABLE 4

GERMAN WAR EXPENDITURES, FIRST WORLD WAR

April 1 to March 31	Millions of Marks
1914-15	6,936
1915-16	23,909
1916-17	24,739
1917-18	42,188
1918-19	33,928
ACCOUNTED AFTER 1918	32,599
TOTAL	164,300

Source: Costantino Bresciani-Turroni, The Economics of Inflation (London, 1937), p. 67.

end of the war the money supply had increased sixfold to 44.4 billion marks. If one includes bank money, which is made up of deposits in credit banks, the total amount of money in circulation increased from 12.3 billion marks before the war to 63.5 billion marks at the end of the war. This increase is over fivefold.[41] As can be seen in Chapter 2, an increase in the money supply of this magnitude provides consumers with the means to demand a greater amount of goods. Invariably this leads to higher prices if the supply of goods does not increase at a corresponding rate. Many times, the price increase is a lagged response, and as a result, is not noticed immediately. It can be seen, therefore, that although price increases had been relatively mild during the war, actions were taken that paved the way for the hyperinflation that followed.

Price controls during the war did limit the amount of inflation. The Reich Statistical Bureau calculated that wholesale prices increased 130 per cent during the war according to the legal maximum guidelines. Black market activities, however, were widespread. Goods traded under this system were, of course, much more expensive and consequently negated the results of the official price survey. Still, at their worst, price increases during the war did not approach those of 1923.[42]

Post War Environment

Inflation measured by both the exchange rate and internal price indices increased at various rates after the war and for some brief periods even declined. Much of the fluctuations in the mark were tied to political changes, both domestic and international.

When the armistice was announced on November 11, 1918, Germany was in a state of disarray. The German Empire had been replaced by a Republic only two days before the armistice, and the newly formed government could not effectively control the country. Conditions were further worsened by the wide spectrum of political parties that were now trying to influence the reconstruction of Germany. Leftist Extremists and Government forces clashed violently during this period.

Reparations

Throughout this unsettled period, the allied nations discussed the terms of retribution which they would inflict upon Germany. Germany, itself had no part in these negotiations. The formal peace agreement, the Treaty of Versailles, signed on June 28, 1919, proclaimed the Germans solely responsible for World War I and heavy reparations were imposed on Germany by this treaty.

Among the more important items were Germany's loss of more than an eighth of its land area in Europe and all of its overseas colonies. The surrendered German territory contained important industrial, mineral, and agricultural regions.

Alsace-Lorraine and Upper Silesia were mineral rich and supported great industrial complexes while Posen and West Prussia were major agricultural districts. This land also contained ten per cent of Germany's population.[43]

Great amounts of German property, both public and private, were confiscated by Allied powers at the end of the war and as a result of the Treaty of Versailles. This property loss has been variously estimated at between six and forty billion gold marks, or between one and one half and ten billion American dollars. An estimate of between five and six and one quarter billion dollars has been considered the most reasonable.[44] Although not all of the property that this sum represented would have produced income, a large portion of it would have. Total German income and productive capacity was therefore reduced by this amount and the country's balance of payments suffered accordingly. The value of Q in the "equation of exchange" was therefore reduced because of the land loss and property confiscations. These actions had a limiting effect on prices, other factors being equal.

Most important of the reparation terms was the actual monetary payment required to be paid to the Allies. The computation of a total payment was a complicated and drawn out affair. Much of the difficulty resulted from the differences in attitude toward Germany among the Allied powers. The French were still very bitter about the war and wanted to squeeze from Germany and her people everything of value. They

desired to break the back of the German nation so that it would never rise to its former status of a world power. The French did not want to be threatened ever again by German aggression. The United States and England, perhaps because they themselves were never actually invaded by German troops, were inclined to settle for much less. They desired Germany to get back on her feet economically and felt the French were extremely unrealistic in their demands. Of course, both the English and Americans agreed with the French in the belief that precautions should be taken against a resurgence of German military strength.

The initial reparations figure agreed to by the Allies on January 10, 1920 was 100 billion gold marks or twenty-five billion dollars. The gold mark was the unit of currency in use in Germany before the war. It had a value of 23.82 American cents. During the inflationary period, the gold mark was used as a standard of value since the value of the paper mark, then in use, fluctuated so greatly. Not until April 27, 1921, was the final figure reached of 132 billion gold marks or thirty-three billion dollars. This amount was far beyond the capabilities of Germany to pay. In addition to this fixed amount Germany was required to pay twenty-six per cent of the total amount received from exports for the following forty-two years.

The payment schedule was to start at two billion gold marks a year and increase gradually to six billion gold marks

a year. The payment on exports was due annually and was expected to increase payments by an additional one billion gold marks per year.[46] The magnitude of these payments and the absurdity of the Allies in setting them this high can be illustrated by the response of the most famous economic expert of that time, John Maynard Keymes. Keymes felt that this amount was three times the maximum of what Germany was able to pay.[47] In spite of the harshness of the plan, it was approved by the German Government as a result of an Allied threat to invade the Ruhr Valley.

Although Germany was able to meet its first payment of one billion gold marks, it became readily apparent that relief from the payment schedule had to be forthcoming. Several reductions and postponements of the payments took place during 1922. In fact, beginning in September of 1922 and continuing until late in 1924, no cash payments were made by Germany.[48]

German Financial Reform

Although German Government efforts to improve the financial troubles of the country were feckless, there were several notable attempts to increase Reich receipts and balance the budget. As previously mentioned, the Central Government's powers to raise taxes were almost non-existent in the years before the end of the war. The power of taxation was left almost entirely to that of the individual states and the central government survived for the most part because of the states voluntary contributions to it.

With the collapse of the German Empire and the establishment of the Weimar Republic this procedure was changed. A more centralized government was desired and, therefore, the power of taxation came under new direction.

The first major attempt to increase revenues was termed the Reich Emergency Act. This act became effective in December 1919 and was a tax on all German capital wealth. Although in nominal terms this tax represented almost eighty billion marks, the real value was only eight billion in gold marks. An installment program of payment was introduced in order to decrease the burden of payment for the taxpayer. Because taxes were figured in nominal amounts and payments were made over a period of years, inflation soon made its presence felt. In 1922 the real value of the amounts collected became so small that the payments outstanding were cancelled.[49]

The second major attempt to increase revenues was devised by the Minister of Finance, Matthia Erzberger, and became known as the Erzberger Reform. These reforms were a broad series of taxes on a great number of items. Although at times these taxes were complicated in their applications, they were very successful in their early years in increasing Reich revenues. They remained the basis of the German tax system for years to come.[50]

The third attempt at increasing revenues was a forced loan to the government from property owners in the amount of one billion gold marks. The effectiveness of this loan was

lost due to a government concession that the loan could be paid in paper marks at a rate of seventy paper marks to one gold mark. Because of the rapid decline in the mark's value at that time, the real value of the money received from these loans was minimal.[51]

Despite these attempts at increasing revenues and putting the financial condition of the new republic in order, government deficits continued to grow. By the middle of 1922, the total effect of the Erzberger taxes had been felt and the highest percentage of government receipts to expenditures was reached. As can be seen in Table 5, this ratio reached a high of seventy-five per cent in June of 1922. Because of the decreasing value of the mark and the nominal valuation used in the assessment of taxes, the real value of these receipts became of smaller and smaller importance. In the final months before monetary reform in November of 1923, taxes covered only one to two per cent of government expenses. Although various measures were attempted to adjust the tax system to the higher rates of inflation, no adequate remedy was found. Many taxes did not even pay the cost of their collection.[52] These deficits were financed by the discounting of Treasury Bills which caused an increase in the money supply and consequently worsened the inflation.

Actions of Government That Aided Inflation

The Reichs financing of deficits by the issuance of Treasury Bills and the adverse inflationary effects of these actions have been discussed previously.

TABLE 5

RATIO OF TAXES TO TOTAL REVENUE OR EXPENDITURES

June 20	13.4	December 22	16.8
September 20	21.6	March 23	14.3
December 20	57.0	June 23	9.7
March 21	55.6	July 23	10.2
June 21	40.6	August 23	7.1
September 21	38.3	September 23	2.9
December 21	28.0	October 23	1.3
March 22	59.9	November 23	4.2
June 22	74.8	December 23	46.7
September 22	20.8		

Source: Frank D. Graham, Exchange, Prices, and Production in Hyperinflation: Germany, 1920-1923 (New York, 1930), p. 40.

Another government policy was also substantially debilitating to the mark. This was the very lenient loan policies of the Reichsbank and other commercial banks. These loan policies also had the effect of greatly increasing the money supply. Businessmen would obtain loans from these banks and repay them at a later date with depreciated money. Since the amount of the loan was in fixed terms and inflation was rising at a rapid rate, many businesses were able to use these funds at a very small real cost. Major expansion projects were carried out by many companies simply because the cost of obtaining funds was so inexpensive in real terms. The extent of this policy can be seen by the huge increase in the amount of commercial bills and acceptances outstanding which increased astronomically from 1.1 billion marks at the end of 1921 to 422 billion marks by the end of the following year.[53]

Bresciani-Turroni attributes the development and continuation of these inflationary policies to either a lack of knowledge of their consequences or to capitulation by banking authorities to pressure from those who stood to benefit from them.[54]

The reason that these loans were so popular was the comparatively low effective interest rates at which they could be obtained. Before July 1922, the rate was only five per cent in nominal terms. In August 1923, it had been raised to thirty per cent and in September 1923, to ninety per cent. These figures compare to the actual rate of depreciation of

the mark of more than three thousand per cent in 1922 and several million and billion per cent in 1923.[55]

Much of the activity brought about by these low cost loans was wasteful and only undertaken because the real cost of funds was so low. The additional money and demand created here of course only accelerated the mark's decline in value.

Ruhr Invasion

The beginning of the end of the mark started on January 11, 1923 with the invasion of the German Ruhr Valley by Belgian and French troops. This invasion was precipated by small defaults in timber deliveries by Germany which were required by the reparations agreement. These defaults were used as a pretext by France and Belgium to occupy the area. The French, convinced Germany was trying to evade her reparation obligations, felt the occupation was the only way they could assure receipt of the total amount of payments.[56]

The Ruhr was of immense importance to German industry. At the time of the invasion, it accounted for eighty per cent of Germany's steel and pig iron production and more than eighty per cent of its coal production.[57]

Germany responded to this action with a policy of passive resistance in the area. Factories and mines were abandoned and almost no work of any kind was accomplished. The French and Belgians resorted to bringing in their own citizens to work the mines and forcing the local population to work.

This resistance was extremely costly for Germany. Not only did the loss of the vital steel and coal supplies cripple industrial production throughout the whole of Germany, but the additional costs resulting from it were enormous. Payments to the striking workers were necessary in order for them to eat and live during this period. Additionally companies which accrued losses because of the resistance were compensated. Almost exclusively, these payments were made with the proceeds from discounting of Treasury Bills.[58] Earlier it was established that this fiscal method was inflationary.

Deterioration of the mark occurred rapidly after the Ruhr invasion. At the end of January 1923 its exchange value to the dollar was a seventh of what it had been at the beginning of the month. Further declines were forestalled for a short while but within a few months the decline began again.[59] By July, 1923, the exchange rate of the mark had fallen to one hundred and sixty thousand marks to the dollar from a January level of eighteen thousand. By August the exchange rate of a mark for a dollar was a million marks.[60]

By this time it was clear that further resistance was useless. A new government was instituted and the resistance was ordered to stop on September 26, 1923. Arrangements were made for payments to the Belgians and the French to begin again.

The Last Months of Inflation

During the last two months of the inflationary period, the rate of inflation increased to unprecedented levels. The rate of exchange for the dollar grew from a million marks in the beginning of August to a hundred and thirty billion marks (130,000,000,000) by November 1.[61] By November 20, 1923, the official exchange rate of the dollar had grown to four trillion two hundred billion marks. The rate on foreign markets was much worse at eleven trillion seven hundred billion. This was the highest rate to be reached.[62]

During this time economic activity became increasingly more difficult. Regular commercial business was stifled, factories were closed, unemployment continued to climb, and food and other goods needed to sustain life in the cities and towns remained scarce.

The existence of high unemployment during inflation appears to refute the direct relationship between employment and inflation which was referred to in Chapter 2. This direct relationship did hold true until 1923. Before that, the number of unemployed was negligible. During 1923, however, normal business relationships became distorted. Currency became increasingly unacceptable which resulted in a return to a barter economy and all the inefficiencies associated with it. Also the invasion of the Ruhr in January 1923 greatly affected industrial production in the unoccupied area. The Ruhr was of course the most important source of raw materials

for Germany. When invaded much of the raw material used by German industry was cut off. Many factories were forced to shut down which greatly increased unemployment. Additionally, those workers in the occupied regions would not work under the invaders. Therefore they too were unemployed.

Prices of common products when available had become unbelievable. For example a kilogram of bread cost 428 billion marks; a kilogram of butter, 5600 billion marks; a newspaper, 200 billion marks; a bus trip, 150 billion marks; and a postage stamp, 100 billion marks.[63]

Simple activities became complicated in these times. For example, the receipt of wages by workers became a daily task. In some areas at the height of the inflation wages were paid twice a day. An employee at a German newspaper during this time remembers pay day in this manner.

> Large laundry baskets filled with paper money had to be carried into the editorial conference room. They would sort it out, count it and distribute the pay. As soon as somebody got his bundle, he'd rush out to buy whatever he could. Anything was more valuable than money.[64]

Reform

Under these conditions, it was obvious that some solution had to be found. Various ideas had been considered by the Leaders of Germany. On October 15, 1923, a decree was passed which initiated the policy reform. This decree provided for the issuance of a new currency, the rentenmark, to take effect one month later. The rentenmark was to have a

value of one gold mark or one trillion paper marks. Additionally on November 15, the discounting of Treasury Bills by the Reichsbank was to stop.

Because of the severity of the crisis in Germany at this time, a political base necessary to build a solution to the problem was lacking. Success of the program was not expected even from the designers of the plan because of the reparations problem and the extremely unsettled economic and political conditions.[65] Hans Luther, Finance Minister, and author of the decree of October 15, 1923, likened the plan to building a house, beginning with the roof.[66]

The plan was carried out by the establishment of the Deutsche Rentenbank. The bank was funded with the sum of 3.2 billion rentenmarks which were backed by agricultural soil debts and industrial debts. The bank was allowed to issue 2.4 billion rentenmarks, half of which were issued to the government and half to be used in making loans to businesses.[67]

The rentenmark received its value from a guarantee that the holder of 500 rentenmarks could convert this sum into a 500 gold mark bond. This bond was to pay interest at a rate of five per cent in gold annually.[68]

Faith by the public in the new currency was an absolute and essential part of the success of the plan. Except for two brief periods, confidence remained high. In December, 1923, it appeared that additional rentenmarks would be issued. During this period confidence immediately declined and

inflationary forces began again. This was quickly halted though, when the Rentenbank refused to issue additional rentenmarks.[69]

A second crisis occurred in the spring of 1924. Liberal credit had been extended to German businesses by the Reichsbank after the November 1923 stabilization. These credits were issued to forestall a serious business crisis which might have occurred due to a shortage of working capital. These credits caused large increases in the money supply. Recognizing the dangers of renewed inflation, the Reichsbank curtailed the liberal credit policies in April of 1924. Confidence in the currency was again restored and inflationary pressures were halted.[70]

Improvements in the economy were immediate after stabilization. Renewed confidence in the currency led to higher employment and production and the food crisis in the cities was mitigated because farmers accepted currency.

Employment figures continued to show improvement except for a brief decline during the crisis of 1924. Not until the summer of 1925 did there occur any serious unemployment problems.[71]

There were however many areas where improvement, although visible, was slow. Poor health and food conditions continued for many. Additionally the effects of ten years of physical and mental privation did not disappear immediately. As a whole, however, conditions improved steadily and Germany grew prosperous.

With the return to more stable and profitable times, government income grew and a balanced budget was achieved. This fact, along with a temporary discontinuance of reparations payments, provided further assistance toward improving confidence in the currency.

Dawes Plan

During the months after stabilization, a committee chosen to look into the reparations problem presented a new plan for reparations payments. This plan provided for reduced reparations payments in the first years and allowed Germany the necessary time to recover from the economic crisis it had just experienced. No total amount of reparations payments was ever established under this plan.[72]

The Dawes Plan was approved by both Allied and Axis countries and was put into effect on September 1, 1924. This plan allowed Germany to recover from the hardships she had endured.[73]

CHAPTER IV

FINANCIAL EFFECTS OF THE GERMAN HYPERINFLATION

The German Stock Market

Introduction

Although prices on the German stock exchanges fluctuated greatly during the inflationary period, they ended in 1923 significantly lower than they were ten years earlier. From a base of 100 in 1913, the stock index adjusted for wholesale prices declined to 21.27 by December 1923. This is a decline of almost eighty per cent in ten years. Although this was certainly a significant decline, prices had been much lower in the previous year. In October of 1922, the index reached a low of 3.64, which was a decline of over ninety-six per cent from 1913.

The large decline in share value during this period contradicts the generally held view that stock ownership provides an effective hedge against the loss of purchasing power due to inflation.[74] The term "hedge" refers to the process of trying to avoid or mitigate a loss by making offsetting investments. In this case, investors used stock ownership to eliminate or lessen the real losses caused by the rapid and continual decline value of the mark.

There is some dissension with the position that stocks do provide a reliable hedge against inflation. Disagreement

is centered around several points. First a company's depreciation reserves may be inadequate for replacement of worn out buildings and machines. Inflation, of course, increases the cost of capital goods whereas the reserves are based on preinflation costs. During inflation there is normally a significant gap between the two figures. Second, real wages may actually increase, due to the pressure of strong labor unions. In this case, all other things equal, real profits would decline. Third, and perhaps most importantly, investors may become disenchanted with all financial investments. Stocks would be avoided in favor of physical goods. This, in fact, did occur during the German inflation.

In spite of these reasonable arguments, the position favoring stocks as an inflation hedge is much stronger. Most authorities in this area abide by this position. The following section will present support for this case.

Stocks as a Hedge Against Inflation

The reasoning behind the belief that stocks provide a good hedge against inflation is sound. Corporations are heavy borrowers of funds. These borrowed funds are generally used for expansion purposes when accumulated profits and depreciation reserves are not adequate. As a general rule, the amount of debt of a company is larger than the amount of liquid assets held such as cash, accounts receivable, etc. When a company is in this position, it can be called a "net debtor."[75] During inflation, the real value of the company's liquid assets

will decrease. On the other hand, the real burden of its debt will also decrease. If the company is a "net debtor" its overall financial position will improve as inflation continues. In as extreme a case of inflation as Germany's, the debts of many companies were totally wiped out. The final result was that a company might emerge from the inflationary period in a much improved financial state. Investors would normally place more worth on the company with the stronger balance sheet and purchase more shares. This would drive up the price and thus provide a hedge against inflation.

Lenders tried to protect themselves by charging higher rates of interest on their loans. These rate increases were, however, held down by the Reichsbank's policy of granting extremely large business credits on short-term, low interest bills. This resulted in interest rates never being able to provide adequate protection against the continuing rapid increases in the inflation rate.[76]

As indicated earlier, many businessmen borrowed funds at this time simply because the cost of the funds was so cheap. Even at the height of inflation when the actual rate of depreciation of the mark was several million and billion per cent the loan policy of the Reichsbank and other major lending institutions provided for charges of only thirty to ninety per cent.[77]

A second reason behind the belief that stocks provide inflation protection is that during inflation profits of

corporations generally rise. Profits and prices of stocks are directly related: this would again substantiate the belief that stocks provide inflation protection.[78] Profits rise during inflation for several reasons. First, wages typically lag behind increases in prices.[79] That is, businessmen are more atuned to the economic environment than the average worker. The businessman will have already increased the price of his product before the worker realizes that his real wages are diminishing. By the time a wage increase can be bargained for, prices will have risen further and the worker is once again one step behind. This can be shown by the significant decline of real wages of German workers from 1913 to 1923. Salaried workers' real income dropped thirty-two per cent, skilled workers' fifty-three per cent, and unskilled sixty-six per cent.[80]

The purchase of raw materials also provides a means by which profits can be enlarged. Typically raw materials are bought in bulk for use in production weeks and sometimes months before the actual sale of the final product. In rapid inflation the cost of the raw materials in a product may be many times higher by the time the product is sold. Even though the actual cost of the goods in the product are comparatively low the sale of the product will reflect current production costs and conditions. Therefore in rapid inflation the actual costs of raw materials in a product may be very small and would allow relatively large profits for the producer.

Complementing the above, the purchaser of raw materials is normally given an amount of time, typically thirty days, before his payment comes due. In a period of rapid inflation the purchaser will be paying his bill at the end of the thirty day period with money that is worth substantially less than it was when the bill was issued.[81] This further decreases the cost of goods and allows greater profits for producers.

Other business costs such as interest charges, rent, and taxes were also considerably reduced by the effects of inflation. In more severe inflation the fixed payouts of businesses, although remaining unchanged in nominal terms, are reduced in real terms. In Germany, these payments were reduced to insignificant real amounts in the early 1920's. The cost of taxes in such times is also substantially reduced. There is normally a delay between the time the taxes are calculated and when they are paid. This was true in Germany and many businessmen waited until the last possible moment to pay their taxes. Once again the nominal amount of taxes would remain the same but the cost in real terms would be reduced substantially because of the declining value of the mark.[82]

The rents of factories, stores, and other places of business were fixed in Germany during the inflationary period due to governmental rent controls. Consequently, as the value of the mark declined, the burden of rent payments did also. Eventually these costs became an insignificant real expense of business.[83]

A final reason supporting the belief that stocks are a hedge against inflation concerns the relative amounts of stocks or bonds that an investor might hold. During inflation bonds and mortgages which provide for a fixed return over a period of time become unattractive. The purchasing power of this fixed return becomes less and less as inflation continues causing holders of bonds to suffer real losses. For this reason, holders of fixed income bonds and mortgages try to sell these assets. With the proceeds of these sales they want to buy something which will offer protection from inflation losses. Stocks are among the most popular choices. This increase demand for stock by former bondholders consequently drives the prices of stocks higher.[84]

The Reasons Why Stocks Did Not Provide a Good Hedge Against Inflation

There are many theories why stock prices declined so drastically in Germany during the inflation. Perhaps the most cited reason was the loss of confidence by the population.[85] The shattering defeat in World War I and subsequent harsh penalties imposed by the Allied powers had an extremely depressing effect on a people who viewed their nation as superior to all others. This loss of confidence very naturally extended into the long-term prospects of business concerns and even into the ultimate survival of the German nation. Concern over the direct effects of the reparations was also a factor. Many Germans believed that all or most of this extremely large

sum would eventually have to be paid. Ultimately the means of raising this sum would be through taxation and other austere measures. Business firms would provide a significant percentage of this amount. Because of the enormity of the total reparations, it was felt business firms would be burdened for many years to come. Thus net profit and dividend payouts would be curtailed making ownership of these shares less attractive. These factors assuredly diminished the demand for stocks during various periods in the inflation and caused an overall depressing effect on the prices of stock. Much of the investment funds, which normally would have flowed into the domestic stock market, were used for the purchase of foreign exchange. In this way those who were concerned with the prospects of Germany hoped to be able to hedge against total disaster in the future.

As mentioned previously, more specific instances of investor loss of confidence occurred throughout the inflation period. An example of this occurred during the early months of 1922 when share prices fell rapidly. Until December of the previous year increases in share prices and the depreciation of the mark had moved together for some time. Those who were relatively inexperienced in investing, and there were huge numbers of these, had supposed that the inverse relationship between share prices and the depreciation of the mark was infallible. They felt assured that they had found a way to protect themselves from inflation. When this relationship was

severed in December of 1921 and sharp declines in the share index adjusted for the wholesale index occurred, many investors lost the confidence they had once felt in investing in stock. Consequently when prices began again to decline in early 1922, many investors sold their holdings in fear of much lower prices. This was a type of self-fulfilling prophecy and share prices declined rapidly until the latter part of the year.

Another explanation of depressed stock prices during the inflationary period was the meagerness of declared dividends.[86] A theoretical method of stock valuation bases the present value of a particular issue on the discounted value of the company's future dividend.[87] Therefore, with dividends during this time at a relatively low level, stock prices merely reflected this situation.

Profits of many companies were still high during and after the war. For example, during the fiscal year 1920 to 1921, a group of thirteen large iron and steel companies had a net profit of 383.6 million marks. In spite of these large profits the companies paid out only 160 million marks.[88]

Profits as a whole were not as great as before the war. In a study of 1458 Germany companies during the year 1921 it was found that net profits equaled 3.04 per cent of capital (share capital plus published reserves) compared to 10.55 per cent in 1913. Bresciani-Turroni states however that these figures are suspect due to the practice of companies distorting

reported profits during inflation. Therefore these findings are not to be relied on too heavily.[89]

Another example of the low dividend payout was provided in a study of 120 companies. The dividends paid by these companies resulted in a yield of 0.25 per cent.[90] This was hardly enough to interest potential investors.

A major cause of the low dividend payout during this time was the inflation itself. Because profits of a company are normally earned over a continuous period of time, and dividend payouts occurred on a quarterly basis, large portions of the profits would accumulate until the payout date of the dividend was reached. Although these accumulated profits were invested on a short-term basis, the rapidity of the inflation always caused a loss of real purchasing power. For this reason many companies decided to use their profits for investment in real goods and thus a reduction of dividend payouts occurred.[91]

Although reinvestment of profits in a company is generally wise and will result in increased profits in the future, many investors were more interested in more immediate benefits of dividends.[92] There were those of the "rentier class" whose entire income was the dividends they received. For these people the sale of their stock holdings became necessary because of the small real return on their investments. Other small investors did not fully understand the intricacies of the situation and these investors unloaded their shares in an effort to get a higher return elsewhere.

The "forced" sales by the above groups depressed stock prices. The more astute and wealthy began buying up large blocks of shares at these low prices and many large concentrations of wealth were initiated by this method.

Many times after control of a company was gained by purchase of low priced shares directors of the company would vote themselves special fees as directors. This would compensate for the low dividend payout.[93]

Other reasons for low share valuations include the periodic scarcities of money and the problems involved in analyzing financial records of companies that were expressed in paper marks. These records presented a complex and, at times, impossible task of adequately analyzing a company's financial situation. During the later stages of the inflation, some asset values expressed in a balance sheet were virtually useless. For example, the Dresdner Bank issued a balance sheet for December 31, 1923. It had valued certain physical assets including buildings, its share in a number of valuable syndicates, its shares of other banks and its other stock holdings at one trillion paper marks each. At the going exchange rate the total indicated value was one United States dollar.[94]

Another example concerns the Deutsche Bank. In 1913 its capital was valued at two hundred million gold marks. By 1923 it was valued at one billion five hundred million paper marks which was worth less than one United States cent. On the last balance sheet in paper marks, a capital amount was not even

included.[95] These examples give some indication of the hopelessness of trying to assess the value of a company through its financial records. Because of the risks inherent in purchasing something which cannot be valued many investors simply did not buy these shares.

Most likely all of the above cited reasons contributed to the low stock market valuations during the inflationary period. The loss of eighty per cent registered by the adjusted stock index is certainly not a profitable return for an investment hedge. On the other hand, when one considers that by holding alternative investments of fixed income assets or simply cash, one would have lost everything. Therefore investing in the stock market did provide a partial inflation hedge.

The Role Of Banking In Germany

The German banking system differed from its counterparts in other advanced industrialized countries. It was a combination of a commercial bank, an investment bank and an investment trust.[96] It also fulfilled the function of a brokerage house.

German banks played a large part in the rapid industrialization of Germany in the late 1800's. They were the main financiers behind a great many companies.[97] When functioning as investment banker, they would purchase huge blocks of stocks and bonds and then attempt to place them with the public. This naturally resulted in holding sizable inventories

of stock in various companies. These holdings gave banks significant weight in the decision processes of companies in which they held stock. In addition to the holdings in their own portfolios, they also were allowed to vote the holdings of their customers.[98] This gave them additional power to enforce their guidance on other companies.

The investment banking function was considerably more risky than the more traditional banking business. For this reason German banks needed a large capital base. A typical prewar German bank would have capital reserves and undistributed profits equal to twenty-five per cent of deposits and other liabilities.[99] These funds provided the German banks with enough backing to participate in such a wide variety of undertakings.

The German banks lost considerably during inflation. Until 1920 Germans tried to offset the inflation by increasing the amount of their savings.[100] After that, they realized their real savings were diminishing faster than they could be replaced. They therefore stopped putting money in their savings accounts and spent any extra income. The banks lost almost all their deposits by the end of 1923. The situation was such that authorities stated in the beginning of 1924 that "The banks, for all practical purposes might have been new institutions dating from the stabilization of last November and merely beginning to attract customers."[101]

Along with all other business concerns the banks had to issue balance sheets and other financial statements valued in

gold marks as of December 31, 1923. This was required because the financial statements issued in paper marks had become completely worthless due to the effects of inflation. As stated in the stock market section of this thesis, assets of immense real value were given paper mark values which translated to less than a dollar in United States money. Other companies left out a capital section altogether.[102]

The gold balance sheets were not simply the paper balance sheet figures converted into gold values. Rather they were entirely separate valuations of assets, liabilities and capital items.[103]

The issuance of the gold balance sheets displayed what had happened during inflation. The banks showed a loss of both paper mark capital and prewar capital. This was because of the issuance of additional stock during the inflation and also because of a loss of portions of the original gold capital.[104]

Although banks were more conservative about issuing additional stock than other business concerns, they still had to reduce their gold mark to paper mark capital on a 1:10.3 scale. This compares to a 1:34.3 scale for gas and water companies. When comparing the 1924 gold capital to 1913 gold capital, the ratio was 1:3.3. This was a loss of seventy per cent of capital from 1913 to the end of 1924.[105]

These losses were the result of their large holdings of paper marks and large amounts of outstanding loans. Gold

capital was lost because banks lent out portions of this money and received payment in depreciated marks. Banks attempted to protect themselves by various measures to reduce these losses, but everything failed in the face of increasing inflation.[106]

Some of the measures taken to stem inflationary losses were as follows. First, there was an increase in the rates of interest charged on loans. By the fall of 1923 the interest charge had risen to forty per cent per day. This was still inadequate because of the even faster rate of depreciation of the mark. Second, loans would be valorized by requiring loan payments to be equal to the original gold value of the loan. Third, before the restrictions of the Foreign Exchange Decree of October 12, 1922, any money not loaned out would immediately be invested in foreign exchange. These actions mitigated the losses taken in the final inflation years, but by that time much of the damage had already been done.[107]

Although the assets and capital accounts were considerably reduced because of the inflation, banks' financial stability was not impaired because of an offsetting reduction in their liabilities. The position of banks in the business environment was, however, diminished due to the great losses inflicted by inflation. The great industrial concerns, which emerged from the inflationary period relatively unscathed, replaced the banking industry as the most powerful force in German industry.[108]

Savings Banks

Savings banks were an important factor in the German banking system. In these banks the majority of individual Germans deposited their savings. As a group the savings banks held more deposits than all the commercial banks together.[109] In 1913 the amount of marks on deposit was 19,689,000,000 or nearly four and seven tenths billion dollars.[110] These deposits were for the most part used as a source of funds for the mortgage market. By the end of inflation the real value of these funds had been reduced to an insignificant amount and savings banks had no part in the loan markets in 1924. After stabilization the savings banks again came into more general use and eventually regained their former status.[111]

Bonds

As with all other fixed return investments, bonds depreciated greatly in real value during the inflation. The extent of the decline can easily be seen by a brief example. For instance, if a ten thousand mark bond was purchased in 1913, its value in dollars would have been approximately two thousand five hundred dollars. If it was issued with a five per cent interest rate, the owner would receive five hundred marks or one hundred and twenty-five dollars a year in annual interest. By July of 1922, the real value of this bond had diminished to twenty dollars and its interest to one dollar per annum. By January of 1923, the dollar value of the bond was

fifty-five cents and the annual interest less than three cents. After January the mark fell at such a rapid rate that the bond was virtually worthless. Thus the many people who held bonds lost their total investment if they held them throughout the inflation period.

Bond holdings were very large in Germany. In World War I alone 96.9 billion marks in bonds were sold to the German public to pay for the war.[112] These bonds in addition to those already outstanding before the war brought the total amount of government bonds outstanding to two hundred billion marks at the end of the war.[113] The real value of these bonds was negligible by the end of 1923. Large amounts of industrial bonds were also outstanding. These bonds too lost their value just as rapidly as government bonds.

Efforts were made to stabilize the value of bonds but only after great damage had been done. Some of these attempts involved making the bonds repayable in goods rather than money. One of the first agencies to make such an attempt was the State of Oldenburg. A debenture was issued in denominations of one hundred and twenty-five kilograms of rye. At redemption one hundred and twenty-five kilograms plus twenty-five kilograms as earned interest were to be repaid.[114] The Baden Electricity Supply Company issued bonds in kilograms of coal. Denominations of 500, 1000, 2000, and 5000 kilograms were issued for a total of 1,200,000,000 marks. The purchase price, interest, and redemption price were calculated on the price

of Westphalian bituminous flaming coal IV.[115] Other bonds were issued in electricity, potash, cement and many other products.[116]

Because of the large financial losses suffered by many bondholders there was considerable pressure on the government to take some action that would somehow reimburse those with losses. The government held to the principle that a "mark was a mark" throughout the inflationary period. Not until the last few months of 1923 did this stance change. The circumstance which initiated the change was a Supreme Court decision that the inflation had caused a violation of good faith.[117] In several different legislative bills a procedure for revaluation of bonds and mortgages was established.

Revaluation

The revaluation took form through the passage of two bills. First the Decree of February 14, 1924 reimbursed owners of mortgages and corporate bonds. New instruments were issued in amounts of fifteen per cent of the nominal value of the bond. If the bonds or mortgages had already been paid off these laws did not apply. Savings bank deposits and life insurance obligations were revalued at a lesser rate. Holders of government bonds were exempt from the laws until all the war reparations had been paid. These provisions did not satisfy the public. As a consequence more liberal standards were passed on July 16, 1925. In this law the amount of revaluation for mortgages was increased from fifteen to

twenty-five per cent. If a mortgage was paid off in the last year of inflation the owner was entitled to some degree of compensation.[118] Corporate bond revaluation remained at fifteen per cent but public bonds were revalued. Basically this revaluation amounted to five per cent of the face value of the bonds; however, a special provision enabled certain holders, picked by a lottery, to receive up to twenty-five per cent. This provision placated many holders who felt that a five per cent revaluation was too small.[119]

The revaluations were some relief for those who had been cheated out of their wealth by the inflation. This relief, however, provided only a fraction of the value of the original amount and served only to mitigate the extreme losses of wealth.

Housing And Mortgages

In 1913 the value of the mortgages outstanding in Germany was estimated at sixty-five billion marks or about one-sixth of total German wealth. Approximately one-fourth of this was in rural property and the remaining three-fourths in urban property.[120] The great bulk of these mortgages were worthless ten years later. Inflation had reduced the burden of this debt to a pittance along with the value of the mortgages.

The elimination of all mortgage debt was a very favorable occurrence for property owners. Mortgages which normally would have taken years to pay off could now be terminated by

the payment of only a fraction of a day's wages. Paying off a property mortgage was of course beneficial to all property owners; however, other effects of inflation offset this advantage for some owners and even caused disastrous consequences for others.

Farmers and family home owners were the particular beneficiaries of the inflation while those who owned rental property, whether apartments, homes, or stores suffered. Farmers actually prospered under inflation since they no longer had mortgages to pay and they were able to receive high prices for their agricultural products. An owner of a house who did not desire to sell it benefited by the elimination of his mortgage. Of course the homeowner suffered from high prices and the other adverse inflation effects, but, at least, his home was secure.

Those owning rental property also had their mortgages eliminated, but the loss of the real value of their rent receipts more than offset this advantage. In Germany there was a large middle class who owned income property. Many lived solely from the income produced from this property. Before the war the income from house rentals was approximately five billion marks.[121] As inflation progressed this sum represented less and less real purchasing power. During the early 1920's the real value of rent had shrunk to almost nothing. Thus this large group of rentiers suffered a huge loss of real income due solely to the effects of inflation.

The cause of this dilemma was a government regulation which placed a ceiling on rents based on prewar rent charges. Most rents had reached their limit early in the war and further increases needed in the following years to offset the decline in the marks value were illegal.[122] Even the cost of the normal repair of housing was much greater than the return from the property. Consequently many buildings fell into a state of disrepair.

With the return from rents nominal, many owners of rental property were forced to sell their property to pay for living expenses. This invariably decreased the prices of houses. As an example a Berlin town house was sold in 1914 for four hundred thousand marks or approximately one hundred thousand dollars. In 1923 the same building sold for four hundred million marks or about five hundred dollars.[123]

Because of these low prices there was a great influx of foreign buyers in the German real estate market. Speculation became rampant with sales of the same property occurring sometimes several times in a week. In all major cities foreigners owned blocks of buildings in downtown areas. For instance in Berlin nearly one half of the apartment houses in residential sectors were owned by foreigners. In Wiesbaden, in the French occupied area, twenty-eight per cent of the buildings were foreign owned.[124]

This trend ended after the stabilization of the mark in November 1923. With more normal economic conditions, real

estate ownership again became a long-term proposition. Rent regulations were still in effect and an adequate real current return could not be expected. Prices declined again as foreigners sold what they had bought in previous years. Within a few years most of the houses were again in German hands.[125]

During the inflation there was an extreme shortage of housing in urban areas. In spite of this condition, little new housing was constructed. New housing was not under rent control. The costs of building these new units were very high and in order to make them profitable, very high rents had to be charged. Few Germans could pay these prices and consequently few new houses or apartments were built.[126] A ration system was used in order to allocate the available housing. There was normally a waiting time of years before many families received adequate shelter. In the meantime they lived in inadequate areas with numerous families crowded into the same living quarters. These conditions caused many of the health and social problems of that period.

Insurance Companies

Germany had a very well developed system of private insurance with coverage for accident, sickness, old age, welfare and unemployment. Millions of Germans received coverage under these plans with both the worker and employer contributing to pay the cost.

Before the war these private companies had capital assets of five and one half billion marks.[127] These funds were almost completely dissolved by the effects of inflation. Ironically, laws enacted to protect these funds helped cause this catastrophe. The laws required insurance companies to invest only in mortgage loans on land and in government securities. These investments because of the fixed nature of their return became worthless as the value of the mark fell. Although this law was amended in July 1923 to provide for investment in other areas, the great majority of assets had already been lost.[128]

Inflation, therefore, wiped out the social benefits of millions of Germans. These benefits had been paid for by years of work by Germans and had been counted on to provide help in times of need. The loss of these benefits had much to do with the German sense of hopelessness during these times. The loss of the assets of these companies during inflation also wiped out an important source of mortgage funds in the capital market. The insurance companies did not recover for many years after stabilization.[129]

CHAPTER V

SOCIAL EFFECTS OF THE GERMAN HYPERINFLATION

Health And Living Conditions

Introduction

The health of the German people was severely damaged by the effects of the inflation. One observer commented on health conditions of children in the following manner:

> From infancy to school age marked rickets is so common, anemia, listnessness, poor muscle tone, sunken eyes and emaciation so generally seen that one loses a sense of proportion and is inclined to underestimate the extent of the depreciation of vitality which is almost everywhere obvious among the children of the wage earner, the lesser public officials and the twenty to forty per cent of the adult population who are unemployed.[130]

The prime factors which caused the damage were an inadequate diet, insufficient clothing and heating, and lack of cleanliness. The dietary and food conditions during inflation will be discussed in another section.

Clothing and Heating Conditions

Clothing and heating conditions were poor for a great majority of Germans during inflation. The cost of these necessities had risen too high in relation to current income. Since the cost of food was so high there remained very little money for other necessities. A magazine correspondent depicts the situation as follows:

> The children or a great number of them have no underclothing. Many boys go about with just two garments, a coat and a pair of trousers. Where the coat does not fit tightly, you see bare skin. The girls have a jacket, skirt, stockings, and boots or shoes; the little babies in their charge are in rags.[131]

Another reports that seventy-five per cent of the children in Munich need shoes.[132]

The clothing situation was equally as bad for adults. To preserve their pride, outer garments were in good repair even though quite worn. Undergarments were however, in rags and could be mended no further.

Warmth in the home and schools was lacking. In spite of the cold winters in Germany, many homes were not heated at all. If heat was present in a home it usually was confined to one room of the house. At school the class room temperature was kept near sixty degrees.[133]

These conditions caused an increase in pneumonia and rheumatism in the population.[134] It also helped to lower the resistance of Germans and made them much more susceptible to other disorders.

Increase of Disease

Uncleanliness had never been a problem in prewar Germany. The Germans had in fact been regarded as overfastidious in their personal habits. Much of this was changed due to the privations caused by the war and inflation. Diseases caused by uncleanliness such as eczema, impetigo, scabies and louse infection became very common. Uncleanliness was a result of

a lack of soap, a lack of warm water, and unclean or missing underwear. The closing of a great many public baths and overcrowded sleeping areas added to the problem.[135] The great lack of adequate housing caused overcrowded living conditions for many. Families of eight to ten in number were at times forced to sleep in the same room. Children who had contagious diseases of one type or another would be forced to sleep in the same bed with other uncontaminated children. A lack of bed clothes and linen also added to the unsanitary conditions.[136] The old linen was completely worn out and there was no money available to replace them.

Other diseases such as tuberculosis, typhus, scurvy and rickets became very common during inflation. Because of the lack of milk and other foods and sunlight, the occurrence of rickets was almost universal in children. Most of the children recovered after the dietary deficiencies were corrected. However some suffered these dificiencies for too many years with the result of permanent bone damage. Lack of vitamin rich foods and unsanitary eating habits caused increases in scurvy and typhus.

Tuberculosis was also quite common. In some German towns, one out of every four children had this disease.[137] In a study of health conditions in eight large German cities, Dr. Haven Emerson, a New York physician, found that forty-six per cent of two to six year old children gave a positive reaction to the Von Picquet test. This test indicates those who

are infected with tuberculosis but the disease is still in an inactive stage.[138]

In the following paragraph, Dr. Emerson states the reasons for the great increase in tuberculosis in Germany.

> Unemployment, accompanied by a total loss of all savings and insurance and investments of a lifetime, on top of nine years of a much restricted diet for all ages; inability to pay for private care and hence disregard or conscious neglect of precautions during the early stages of tuberculosis; unavoidable crowding into small, dark, damp, unheated living rooms of a multiple of chronic bacillus carriers to whom fell the lot of tending the little children while all the rest went out to try to earn or gather food; prolonged intense exposure to tuberculosis of even little children already seriously depressed by early severe rickets and the accompanying bronchial infections of the colder weather and with a resistance lowered by a diet of potatoes, meal vegetable oil, and a quite inadequate ration of milk of a low grade of butterfat.[139]

Health Facilities

Many of the causes and consequences of the poor health conditions could have been mitigated if proper facilities such as hospitals, child care centers, disease detection centers and other similar facilities were available. In fact, Germany at one time had very good facilities of this type, but because of the inflation a great many had to close or cut back on services. In Berlin, one-half of the nurseries and one-sixth of infant homes had to close because of increased cost.[140] Also, in Berlin, five tuberculosis detection centers with room for four hundred patients closed due to lack of funds. Several public and private hospitals with beds for several thousand patients had to close for the same reason.

Of the children's facilities in Berlin, seventy-three per cent of the day-nursery centers, twenty-four per cent of the kindergartens; twenty-eight per cent of the children's shelters and thirteen per cent of children hospital beds were closed because of lack of funds.[141] In another city ninety-three kindergartens closed and three thousand children who were to go to a center for the treatment of rickets did not go because the center closed. In Prussia twelve per cent of the hospitals closed in 1922.[142]

Of the hospitals that remained opened, many no longer replaced the linen or made necessary repairs to the facilities. The wards were overcrowded and understaffed. Necessary medical equipment was not available and medicine had become too costly to prescribe. The heating of the building had become a major expense with the cost of coal increasing from six to ten per cent of the budget to fifty per cent.[143]

The condition of those admitted to the institutions that remained opened was noticeably different from pre-inflationary times. Babies brought to charitable institutions for care were wrapped in newspapers rather than diapers.[144] Many patients because of lack of money avoided going to a hospital until they absolutely had to. Many were beyond help when they arrived. An indication of this is the fact that thirty per cent of hospital deaths occurred on the first day of admission and many more within the first three days. Only those in the top ten per cent income class were able to pay their bills. Others had to rely on charity.[145]

Birth and Mortality Rates

Birth and mortality figures were also effected by the inflation and the resulting increase in poverty of the population. In non-inflationary periods the birth rate had been approximately thirty births per thousand. During inflation the rate had fallen to fifteen per thousand.[146] In the large cities births fell from 302,000 to 285,000 in the 1921 to 1922 period.[147] An increase in abortions occurred during this time. Desperate families could not afford to have any more children.[148]

In addition to a lower birth rate, the mortality rate for the newborn was greater. This was a result of the emaciated condition of many of the pregnant women and less prenatal care. New mothers were unable to nurse their young as long as they once had. During the inflation the length of nursing was only a few weeks versus six months or more normally. Also the amount of milk given while nursing was about one-half of that previously given.[149] These factors undoubtedly influenced the health and viability of the newborn. In Munich, comparison of infant mortality figures give a vivid view of the worsening situation. In 1922, only twelve per cent of newborn babies died; the following year during the most advanced stages of inflation forty per cent of newborn babies died.[150]

The overall mortality rate also increased during the latter stages of inflation. In towns over one hundred

thousand, the rate increased from twelve and six-tenths to thirteen and four-tenths per thousand. During the same time period the mortality rate for the whole country increased from twelve and one-tenth to twelve and eight-tenths. Many deaths were reported to be caused by old age or weakness but the main cause was mostly hunger.[151]

Food And Nutrition

Introduction

Germany was always a large food importer even in years of good harvest. It is estimated that one-fifth to one-third of her food requirements had to be imported in the years before the war.[152] Broken down into major categories, fifteen per cent of its grain had to be imported, thirty-five per cent of its meat and fifty per cent of its fats and dairy products.[153] The population of the country was simply too large in comparison to the amount of fertile, tillable land.

During the war the Allied Powers initiated a very successful blockade of German ports. Germany was, therefore, effectively cut off from any imported food supply. This, combined with the fact that many who were formerly engaged in production of food were now in the armed services, caused serious food shortages in Germany. In 1915 the government decreed two meatless days a week as a result of the food shortages. Later ration cards became necessary. In the last years of the war, milk was extremely scarce. Only expectant mothers

and very small children were given any and the amount they received was very little.[154] Although it was officially denied by German authorities, a report from the Health Office in 1918 stated that there was acute famine during the war as a result of the blockade. It was estimated that nearly eight hundred thousand civilians died during the war from starvation and resulting complications.[155]

At the end of the war and the lifting of the blockade the situation improved somewhat. However, improvement was not rapid and it did not last for long. A year after the war had ended a health survey based on medical examination found that in many factory towns there was not one woman from the working class who weighed over one hundred pounds.[156] As inflation grew worse so did the food situation. Undernourishment and starvation were major concerns for most urban dwellers.

Decline of Food Production

There were various reasons for the food shortage. First, food production was significantly below prewar levels. Table 6 presents the production of basic crops in the years 1913, 1921, and 1922. All categories show a decrease during these periods. Wheat and rye which are the basic ingredients of all German bread show a decline of over fifty-one per cent from 1913 to 1922. Production of potatoes, one of the stables of the German diet, declined from fifty-four million tons in 1913 to twenty-six million tons in 1921, which was also a

TABLE 6

GERMAN PRODUCTION OF BASIC CROPS

	1913 Tons	1921 Tons	1922 Tons
Rye	12,222,394	6,798,638	5,349,091
Wheat	4,655,956	2,933,820	1,895,723
Summer barley	3,673,254	1,938,995	1,581,367
Oats	9,713,965	5,004,983	4,130,780
Potatoes	54,121,146	26,151,380	

	Decrease from 1913 to 1921	Decrease from 1921 to 1922
Rye	(56.3)%	(11.3)%
Wheat	(59.3)	(35.4)
Summer barley	(56.9)	(18.5)
Oats	(47.2)	(17.5)
Potatoes	(51.8)	

Source: Sir Philip Dawson, Germany's Industrial Revival (London, 1926), p. 70.

decline of over fifty-one per cent. In Table 7 meat production for the first quarter of 1913 is compared to meat production for the first quarter of 1921. Sharp declines in output can also be seen here. Total meat production in the 1921 period was only forty per cent of prewar levels. Milk production was also reduced significantly resulting in serious milk shortages throughout the inflationary period.

The situation grew worse in the following years. In 1923 it was estimated that grain production would decline twenty to twenty-five per cent from the previous year of poor harvest.[157] At the end of 1923 it was estimated that Germany produced only twenty-five per cent of her prewar food output.[158]

There were numerous reasons why German food production declined so drastically. One of the major factors was the decline in the amount of land under cultivation. Table 8 compares the number of hectares in production for various major crops in the years 1913 to 1922. In 1913 there were 14,752,963 hectares (2,471 acres per hectare) under cultivation. By 1921, there were 10,155,523 hectares and in 1922 only 9,982,899. This is a decline of 4,770,000 hectares or over thirty-two per cent in the amount of cultivated soil from 1913 to 1922. Of this amount, 2,435,624 hectares had been ceded to various other countries under the surrender terms of the war. The remaining 2,300,000 hectares or 6,000,000 acres were removed from production because of economic considerations.[159] The German government had initiated a

TABLE 7

GERMAN PRODUCTION OF MEAT

Beef	1,980,000	862,000
Veal	379,000	185,000
Pork	3,458,000	1,231,000
Lamb	94,000	40,000
	5,911,000	2,318,000

Source: Werner Sombart, "German Standards of Living," The New Republic, XXX (May 24, 1922), 362.

TABLE 8

SOIL UNDER CULTIVATION IN GERMANY

	1913	1922
Winter wheat	1,488,971 hectares	1,185,664 hectares
Summer wheat	214,698 hectares	187,435 hectares
Winter rye	5,219,787 hectares	4,078,941 hectares
Summer barley	1,383,298 hectares	1,152,030 hectares
Oats	4,925,993 hectares	3,202,324 hectares
Potatoes	2,839,393 hectares	2,720,834 hectares
Sugar beet	450,592 hectares	417,019 hectares

Source: Sir Philip Dawson, Germany's Industrial Revival (London, 1926), p. 63.

series of price controls on various crops.[160] These controls diminished the profits the producers would receive and therefore diminished their incentive to plant adequate acreage. The result was an extreme shortage of food.

A second reason for the decline in food production was a decline in the productivity of the land under cultivation. In 1913 wheat yielded ninety bushels per hectare. In 1921 this yield declined to seventy-six bushels per hectare and in 1922, fifty-two bushels per hectare. This is a decline of over forty-two per cent from 1913 to 1922. The yield for rye was seventy-seven bushels per hectare in 1913, sixty-four bushels per hectare in 1921, and fifty-two bushels per hectare in 1922. The declines in the yield of oats were similar. In 1913 oat yield per hectare was one hundred and fifty-four bushels. In 1921 the yield was one hundred and ten bushels and in 1922, ninety bushels.[161] This was also a decline of forty-two per cent in the 1913 to 1922 period.

A decline in the use of fertilizer and a reduced effort on the part of the farmers are reasons cited for this decline.[162] One of the most important fertilizers, Thomashehl, was in very short supply. This resulted from a lack of iron ore needed to produce it. The necessary iron ore had previously come from the province of Lorraine which had been ceded to France after the war.[163] The decline in worker productivity was most likely a result of the ceilings placed on the prices of most agricultural goods and the low morale of the worker.

Another reason for the decline in output per hectare was the poor weather conditions in 1922. Much of the decline in output witnessed that year was blamed on a poor growing season. These conditions were apparent throughout Europe and caused major production reductions in the other major countries.[164]

Food Hoarding

A second reason for the food shortage was the hoarding of available foods by farmers. Even while people were starving in the German cities, German farmers had huge stockpiles of food on the farms. The farmers had decided to withhold large amounts of storable food from the markets because of the rapidly declining value of the mark. In earlier years, they had watched the decline of the value of the marks they received from their harvest. They no longer wanted to exchange their valuable food supplies for paper that they felt would be worthless in a short while. Therefore, they held as much food as possible off the market. They would
tions of it if they needed to buy something the same day or if they received gold or a foreign currency in return.[165] Because of these peculiarities, the farmers were a comparatively properous group at this time. The healthy condition of the farmer can be seen in the following description of a train ride from Munich to Berlin. This took place at a time when much of the urban population was starving.

> Three peasants boarded the train at a small village just outside of Munich and entered my compartment.

> At noon they ate their lunch - large hunks of bread, a whole ham, a long liver sausage, a dozen hard boiled eggs and two apples a piece.[166]

A third reason for the shortage of food was the poverty of a large portion of the German population. Even though there was food available, many could afford only the barest necessities. It is estimated that ninety per cent of the average income of a working family was spent on basic food requirements.[167] This food was inadequate with respect to both amount and nourishment, and many people suffered from malnutrition. A foreign correspondent reported on the food situation in 1923. He said

> I never passed a baker's or green grocer's shop in Berlin without noting crowds gathered around the windows gazing wistfully at fresh vegetables and bread.[168]

Comparisons of Food Consumption

Comparisons of food consumption in prewar years to food consumption in the inflationary years show how critical the shortages were. Before the war German milk consumption averaged a pint a day. During the latter years of inflation, the average in major German cities was under one-tenth of that.[169] Only expectant and nursing mothers and children under two were allowed any milk at all. Even if milk was available, it was extremely expensive. It was estimated by the Municipal Child Welfare Department in Munich that the cost of the rationed milk allowance for three children would be equal to twenty to thirty per cent of the income of a laborer or clerk.[170]

Because of the shortages and the high cost it was estimated that since 1914, children over four years old had had no milk at all. There was also nothing available at that time that would qualify as an adequate substitute so many of these children suffered permanent physical damage because of the scarcity.[171]

Meat consumption also declined substantially during inflation. In 1913 annual meat consumption was 114 pounds per capita. By 1923 consumption had declined by over fifty-six per cent to fifty-one pounds per capita.[172] Not only did the amount of meat consumed decline but also the quality of the meat. During the inflation years the consumption of beef, pigs, and sheep declined, while the consumption of horsemeat and dogs increased. In the fourth quarter of 1921 there were 1,416,051 pigs killed. A year later in the fourth quarter of 1922, 1,131,148 pigs were killed or a reduction of twenty per cent. On the other hand, the number of horses killed in the same time period increased nearly fifty-five per cent from 30,967 to 47,652. As the intensity of the inflation increased in 1923 pork consumption again declined. Somewhat surprisingly horse consumption declined also. Apparently this substitute meat had become too expensive also. The consumption of dog meat, however, experienced sharp increases. In the third quarter of 1921, 1,090 dogs were slaughtered, in the third quarter of 1922, 3,678, and in the third quarter of 1923, 6,430. This is an increase of nearly five hundred per cent from 1921 to 1923.[173]

Consumption of many other products fell along with milk and acceptable meat products. In Table 9, consumption levels of sugar, beer, tobacco, coffee, and sub-tropical fruits are shown. For all categories except sub-tropical fruit prewar statistics were not available. A meaningful comparison can be made, however, by using post-inflation figures. This will give a comparison of consumption in inflationary and non-inflationary periods. Sugar consumption averaged 292,000 tons a quarter in 1923 and by 1927 it had risen to 396,000 tons or an increase of over thirty-five per cent. Thus, consumption of sugar steadily increased after the inflation. Before the war Germany was a large exporter of sugar. In 1913 she had produced 2,700,000 tons of which she exported 1,100,000 tons. By the early 1920's she was barely producing enough for her own needs. Price controls and labor problems contributed to the decline in production.[174]

Beer consumption was also depressed during the inflation period. In 1922 and 1923 beer consumption was 8,012,000 and 6,567,000 hectoliters a quarter respectively. By 1927 consumption had climbed to 12,436,000 hectoliters a quarter. This is an increase of almost ninety per cent from 1923.

Coffee and tobacco consumption also exhibited startling increases after the inflation ended. Coffee consumption grew particularly rapidly from 9,682 tons a quarter in 1923 to 31,175 tons a quarter in 1927. This was an increase of over two hundred and twenty per cent. The comparatively low level

TABLE 9

CONSUMPTION LEVELS OF VARIOUS PRODUCTS

(a) Consumption of Sugar (tons)

	1921	1922	1923	1924
First quarter	283,994	353,171	346,003	166,344
Second quarter	316,868	345,811	254,028	193,599
Third quarter	292,161	332,230	309,063	298,959
Fourth quarter	423,363	389,049	261,727	387,823

	1925	1926	1927
First quarter	296,505	295,503	313,421
Second quarter	337,092	355,384	358,752
Third quarter	395,247	405,017	473,324
Fourth quarter	378,341	409,093	440,682

(b) Consumption of Beer*
(thousands of hectrolitres)

	1921	1922	1923	1924
First quarter	5,807	7,182	5,646	5,685
Second quarter	8,352	9,862	8,026	9,807
Third quarter	11,267	9,439	8,560	10,605
Fourth quarter	6,764	5,566	4,038	8,442

	1925	1926	1927
First quarter	8,662	9,951	9,994
Second quarter	12,900	12,407	13,427
Third quarter	14,111	14,461	15,231
Fourth quarter	10,187	11,213	11,094

*Production plus net imports

(c) Consumption of Tobacco (tons)

	1921	1922	1923	1924
First quarter	29,541	26,483	19,855	26,932
Second quarter	22,731	39,846	21,055	22,130
Third quarter	37,385	23,183	18,614	24,752
Fourth quarter	25,035	21,120	20,448	27,957

	1925	1926	1927
First quarter	26,968	24,108	28,792
Second quarter	30,085	29,021	32,211
Third quarter	38,331	31,340	33,190
Fourth quarter	23,858	32,583	32,759

(d) Net Imports of Coffee (tons)

	1922	1923	1924
First quarter	13,364	7,375	9,950
Second quarter	8,212	12,877	11,660
Third quarter	11,566	6,727	15,079
Fourth quarter	3,650	11,751	18,621

	1925	1926	1927
First quarter	25,648	32,128	39,953
Second quarter	18,884	20,987	24,085
Third quarter	28,383	30,685	36,310
Fourth quarter	17,429	20,998	24,353

(e) Consumption of Sub-tropical Fruits (tons)

1913	298,579	1924	300,766
1920	79,144	1925	379,892
1921 (May-December)	58,440	1926	386,928
1922	52,006	1927	420,541
1923	43,917		

Source: Costantino Bresciani-Turroni, The Economics of Inflation (London, 1931), p. 456.

of coffee consumption in the inflationary period is understandable since coffee provides no nutritious substances for the body. With the need for nourishing foods so great for the masses of Germans, non-nourishing foods were naturally eliminated first from their diet.

Fruit consumption in the early 1920's showed a rapid decline from prewar 1913. In 1913, there were 298,579 tons of fruit consumed in Germany. By 1923, consumption had declined to 43,917 tons, or a decline of over eighty-five per cent. Four years later, consumption had climbed to 420,541 tons, or an increase of over eight hundred and fifty per cent. The sharply reduced levels of fruit consumption in the early 1920's constitute an indication of the extremely high prices of fruit during the inflationary period.

Eating Habits

The great reduction in the consumption of various foods, of course, resulted in alterations in the eating habits of millions of German families. Many families necessarily considered two meals a day sufficient. These meals consisted of fried potatoes for dinner and boiled potatoes for supper. The normal diet for a working class family was black corn coffee, dry bread, and coal potatoes with herring brine. Among the working and middle class, many children never went to bed without being hungry.[175]

During this period of time, many surveys of eating habits were taken in the schools. It was found that children were

being fed an excess of carbohydrates in place of an adequate diet of protein and fat.[176] In the city of Chemnitz, 1,300 schoolchildren were surveyed during the last stages of inflation. Of these, four hundred had no breakfast at all, nine hundred had only a piece of dry bread for lunch, and one thousand had an inadequate meal the previous night. Many of the children had not eaten in twenty-four hours. In Magedeburg, twenty per cent of all children did not receive any hot food all day. Throughout Germany there were many reports of school children fainting in class because of lack of food.[177]

Patients in public and private hospitals before the war had received approximately 2,500 grams of meat and 230 grams of fat a week. In 1923 they received 600 grams or approximately twenty-one ounces of meat and 500 grams of fat a week. The consumption of milk had been reduced to a pint and one-half a week versus two quarts before the war.[178]

As expected, the effects of this adverse change in the German diet were not good. One-sixth of all school children were estimated to have some form of hunger disease as anemia, defective glands, or goiter.[179] The average weight of boys from the ages of six to fourteen was almost eight pounds under the prewar norm. Girls of the same age averaged almost five pounds below the norm. For ages nine to thirteen for both boys and girls there was a thirteen pound decrease in average weight from the prewar norm.[180] In Dresden, a medical exam of 1,528 students indicated an average weight of ten

per cent less than the average weight of a prewar student of the same age.[181] In a study of thirteen year olds in 1922 in the city of Annaberg, boys were on the average almost three inches shorter than the 1913 average and girls were slightly more than two inches shorter.[182] In physical development, it was estimated that boys were on the average at least two years behind prewar levels and girls a year and one-half. Many children were much worse. In the mind of one observer one little girl who appeared to be only four years old was actually ten. Another group of boys who were thought to be between six and eight years were actually between eleven and fourteen. This retardation in growth was not from disease but from malnutrition.[183]

Because of malnutrition and general physical weakness up to twenty per cent of children applying to school in some areas were refused admittance. There was also a lack of physical endurance in gym classes and mental attentiveness in class because of undernourishment.[184]

Outside help was given by foreign countries and voluntary organizations like the Quaker relief fund. The situation was so critical however, that these philanthropic groups only made a slight improvement in overall conditions.

Higher Education

Introduction

The German love for learning is renowned. German universities were among the best in Europe and higher education was

aspired to by the great masses of the middle-class population. Inflation severely disrupted the existing state of affairs.

The number of students enrolled in universities was not adversely affected by inflation, but the way of life of the student and his professors was significantly altered. Enrollment did not decline during the early 1920's mainly because the cost of student tuition remained stable in nominal terms. Consequently, with the value of the mark declining so rapidly, the cost of tuition in real terms became increasingly smaller. Eventually the cost was insignificant.[185]

Although the cost of tuition was insignificant, the student still had many other costs such as books, housing and food which were not insignificant. The increases in these costs caused considerable difficulties for the student. All but the very rich had to find employment to support themselves during this period. Until the middle of 1923 employment was available for most students due to the stimulus of inflation on the economy. Most of these jobs were manual labor and paid barely enough to make it worthwhile for the student. Many students worked a full eight-hour day in addition to going to classes. The necessity of work and the normal class load of study eliminated the non-academic part of the student life which was most enjoyable. Those traditional activities of students as "serenading, drinking bouts, bonfires and rough-housing" had all but disappeared from the German university scene.[186]

Student Aid

In spite of the large number of students working, it seems unlikely that many could have remained in school without outside help. This help came from several sources, the most important being The Studentenhilfe, or cooperative societies.[187] The Studentenhilfe was organized by students in response to the increasing cost of living. It aided students in many different areas by providing goods and services at substantially lower prices. Food, heat, and housing were available at one-fifth to one-tenth of the normal cost. Small businesses such as bookbinding shops, shoe shops, hotels, and general stores, were projects gradually undertaken. These services were run by the students and therefore provided jobs as well as reduced costs.[188]

The costs of the various projects of The Studentenhilfe were reduced by contributions from local merchants, churches and farmers; although in the latter stages of inflation these contributions were greatly reduced. Foreign contributions were also received in support of the program. Costs were kept down by the use of student labor. To qualify for the benefits of The Studentenhilfe a student was required to work two days a semester without wages in one of the various programs. If the student did not complete his service his privileges were taken away. This possibility was naturally avoided by the students with great care.[189]

Other sources of help for the students were provided by the generosity of the citizens in university towns. Many

housewifes would aid students by providing free laundry service. Some would also mend their clothes. When food was available, students would be invited to Sunday dinner. These dinners were often the only adequate meal of the week for students.[190]

Living Conditions of Students

In spite of the generosity of various groups and the great success of The Studentenhilfe, many students suffered greatly during the inflation. The physical strain of working full-time and also attending school contributed to a deterioration in the health and resistance of the student. When combined with the inadequate diet and improper clothing and shelter of the great majority of students, many suffered. Tuberculosis among students increased substantially during this time.

A common view of the poor conditions experienced by students was expressed in the Education Review in 1924.

> Recently three students were discovered in an attic room, with no bed, with a single candle for both light and heat and just enough money to buy one good meal a day. So every day one of the three dined like a king on the meager fare of the mensa (cooperative boarding house) and then returned to bread and water for the next two days while his companions took their turn. All three were trying to earn their way.[191]

The students were not the only ones adversely effected by the inflation. University professors and scholars suffered greatly at this time. Salaries of educators, although high in prewar years, became inadequate as inflation progressed.

Increases in compensation were given but they did not offset the loss in buying power caused by inflation. During 1922 nominal salaries were increased seven to eleven per cent but prices increased sixty to seventy per cent.[192] Professors had to find additional work merely to keep themselves and their families supplied with the necessities of life.

The salaries of professors did not increase as fast as many other sections of German society. According to Albert Einstein in a letter to The New Republic, in 1922, scholars' and teachers' income had been reduced to twenty per cent of its prewar level.[193] At a university extension school a professor would be paid fifty marks for a two hour lecture. This would barely be enough for the professor to buy dinner that night. An authority in a certain field would be paid only three hundred marks for a signed article.[194] At the June 1922 exchange rate this equaled approximately one United States dollar. The working class was organized and was able to pressure larger wage gains from businesses. Scholars and professors had no similar organizations and, therefore, had to be content with what was offered them. There was a good reason why their wage increases had to be kept comparatively small. This was because the budgets of the universities were limited. As mentioned previously tuition for students attending universities declined greatly in real terms until it was an insignificant fee. Since these funds were previously used to pay expenses of the universities, deterioration of this source presented a serious loss of income.

University Income

Income received by universities from endowment funds was also reduced in real terms. These funds were invested largely in fixed income securities. As mentioned in the stock market section, as inflation progressed, the real return from fixed income securities was reduced. Eventually this previously significant source of income became negligible. Thus, two important sources of income for the universities were for all practical purposes eliminated during inflation. Given these reductions in income, budgets had to be reduced and consequently professors salaries had to be held down.

The universities were given some assistance in 1920 by the establishment of the Emergency Society of German Learning. The funds provided by this society offset some of the reductions discussed above. By 1922, however, the beneficial effects were negated by the rapid increase in inflation.[195]

Professional Hardships

In order to offset their losses in real income professors worked additional jobs, normally manual labor. When these sources proved inadequate many professors were forced to sell their personal libraries and reference books.[196] Although providing some needed funds, this was clearly a desperate measure. A man can continue only so far without the tools of his trade.

Many people in the educational field left their profession altogether for a lesser position in manual labor work.

Although the pay was only slightly higher, expenses could be reduced in the latter field. Less expensive work clothes would be worn in labor work. Additionally these clothes would not have to be cleaned as often. The necessity of purchasing books or journals in their field was also eliminated. Other expenses necessary to keep up the prestige which was accorded a university professor in Germany were also avoided by taking a manual labor job.[197]

The university professor suffered hardships other than monetary hardships. The tremendous increases in the cost of publishing made it impossible for most professors to publish their research. Projects which were months or years in preparation now had to be abandoned for lack of funds. Other requirements of a university professor such as subscriptions to journals in his field and attendance of professional meetings were curtailed because of inflation. Journal costs simply became too expensive[198] and professional meetings were eliminated because of the high cost of transportation necessary to attend.[199]

The cost of advanced education also caused a reduction in students who entered graduate schools for doctorate degrees. No longer could necessary tools and materials be purchased for these advance studies. Additionally, the expenses of research for a dissertation and its printing and publishing detered many who were qualified. Without these graduate students to help with the teaching load and carry on

with the work and teaching traditions of their professors, many scholars felt that a vital area of the university system was lost.[200]

University Costs

Funds available for library and research materials and equipment were greatly reduced. In 1922, during a conference of German libraries in Berlin, figures were presented which indicated that of sixteen of the largest German libraries, eight had less than twenty-five per cent of their prewar buying power for their budget. The cost of books which were already high continued upward during the following year. In September of 1922, books were priced sixty times higher than before the war; by December 1922, they cost six hundred times as much; in February 1923, two thousand times as much, and by June 1923, four thousand and two hundred times as much. This was during a period when income to libraries increased very little.[201]

Another example of the difficulties of the German libraries occurred at the University of Munich in one of their special area libraries. The budget for this library for the year was two thousand marks. At the same time the cost of an annual volume in one research journal was ten thousand marks.[202]

Research tools also became unobtainable because of price. Although there were some increases in the amount of money available for research, this in no way offset the increases in the cost of goods. German microscopes cost one thousand to

fifteen hundred marks before the war. In September 1922 they cost eighty to one hundred thousand marks, in December 1922, four hundred thousand marks, and in April 1923, three and one-half to five million marks. Obviously with a relatively fixed budget there was no way schools could buy these items.[203]

Another example of the difficulties in purchasing research tools can be seen at the Emperor William Research Institute in the fall of 1922. The physics department budgeted six thousand marks for instruments before the war. To buy the same amount in 1922 would cost 2,400,000.[204] Again no significant increases in the budget occurred to offset these price increases.

Student Curriculum

The economic conditions of the country caused a change in the type of curriculum chosen by students. A much more practical selection was now made so as to prepare for positions which would be available upon their graduation. In Table 10, university enrollments in various areas of study for the years 1913, 1921, 1922, and 1923 are presented. English, theology, history, philosophy, and all sectors of Fine Arts, show declines in enrollment from prewar years to the early 1920's. Enrollments or the study of medicine also show sharp declines. Germans during inflation lacked funds to pay a doctor and merely postponed or did without medical care. Physicians had to sell their equipment or take on a second job to support themselves. Thus it is understandable why students avoided medicine.

TABLE 10

ENROLLMENT IN GERMAN UNIVERSITIES

	Summer Session			
	1913	1921	1922	1923
Protestant Theology	4,316	3,281	2,904	2,469
Roman Catholic Theology	2,055	2,149	1,919	1,824
Medicine	15,461	14,712	12,746	10,777
Philology and History	10,832	9,550	8,290	7,769
Pharmacy	1,076	848	1,073	1,184
Law and Administration	9,617	19,398	20,329	22,127
Dentistry	932	4,675	2,946	1,849
Chemistry	888	2,832	3,529	3,586
Agriculture	1,353	3,118	2,835	3,257
Mathmatics and Natural History	6,148	6,203	5,278	4,887

Source: Sir Philip Dawson, Germany's Industrial Revival (London, 1926), p. 224.

On the other hand enrollments in the study of law and administration, chemistry and agriculture increased during inflation. There was a need in these areas and students wished to fill it.

The trend toward a selection of a more practical career can be seen in the enrollment figures of technical high schools. In 1914 there were 12,380 students in these schools; by 1923 enrollment had increased to 26,181,[205] or an increase of over 110 per cent. Table 11 provides a breakdown of the different areas of study in these technical high schools. Increases in the study of engineering, electronics, chemistry and mining confirm the trend of choosing a practical occupation.

Inflation Profiteers

Introduction

As mentioned elsewhere in this paper, farmers and certain real estate speculators prospered during the inflationary period. In addition to these groups, there emerged a small group of businessmen who became extraordinarily wealthy. Historically an increase in the concentration of wealth and power is not unusual in times of chaos. The author Schomoller explains this phenomenon stating "In those periods, the strong recover their primitive habits as beast of prey."[206] Pinner, commenting on the new German rich writes, they "derived their power from the destructive forces of their time and became

TABLE 11

ENROLLMENT IN TECHNICAL HIGH SCHOOLS

		Summer Session		
	1914	1921	1922	1923
Architecture	1,914	1,921	1,922	1,923
Building Engineering	2,182	1,848	1,726	1,699
Machinery Engineering	2,765	3,147	3,040	2,854
Electrotechnics	3,511	8,859	9,504	9,815
Chemistry and Mining	874	2,970	3,442	3,789

Source: Sir Philip Dawson, Germany's Industrial Revival (London, 1926), p. 224.

rich not with the increase of general prosperity, but with the increase in the poverty of their people.[207]

Establishment of Fortunes

The fortunes made in the inflationary period were different from those established in prewar Germany. Before the war those who became rich were creators of wealth. They established new managerial techniques or discovered valuable scientific processes.[208] Their work was the basis of the rapid industrialization of the late 1800's in Germany. Many new jobs and a subsequent increase in the German standard of living resulted from their efforts.

The inflation fortunes did not result from the creation of wealth. Instead they resulted from speculation and abnormal economic events resulting from the inflation. The inflation fortunes had their beginnings in various enterprises such as production of military goods and materials during the war; foreign trade which was very profitable due to government restrictions on competition; speculation in used armament materials after the war; speculation in foreign exchange;[209] ownership of scarce materials such as coal, timber, and iron; and liquidation or transfer of metallurgical and mining firms under the terms of the Treaty of Versailles. The owners of these firms were generously reimbursed by the German government. Prominent examples of this were the industrialists Stumm and Stinnes. Stumm was paid one hundred and twelve million marks by the government. Stinnes sold sixty per cent

of his holdings in Saar to France. He was paid one hundred million gold marks for this.[210]

From the large sums accumulated in these various ventures, the profiteers were able to increase their fortunes. They understood inflation best and planned their investments on a continuation of the inflation. Many opposed government attempts to stabilize the economy.

Great industrial concentrations were established by these men. The low level of prices of industrial shares allowed huge amounts of stock to be purchased with relatively small amounts of money. Control of these companies was then obtained. The business of the company had little bearing on whether it was suitable for purchase or not. During the inflation the economic situation changed so rapidly that various industry groups would appear more attractive at one time or another. Since the profiteers were buying anything that looked particularly profitable, huge groups of unrelated companies became connected under the direction of one man.[211]

The most famous inflation profiteer, Hugo Stinnes, was a good example of this. He owned coal, lignite, petroleum, and iron interests; a blast furnace; steelworks; engineering firms; electrical firms; shipyards; forests; transportation companies; ocean and inland shipping companies; merchant firms; newspapers; and inns.[212]

In addition to employing their own funds for their various speculative activites, the profiteers used a method that

was popular with all speculators during that time. They would borrow as much money as they could and later pay back their debts in depreciated marks. Although interest rates had increased due to inflation they did not in any way compensate for the rapid loss of the value of the mark. Speculators profited greatly by these methods.[213]

Life Style of Profiteers

The life style of the profiteers contrasted greatly with that of the typical German. While the average German lived in poverty, the profiteers built mansions in which to live and ate, dressed and entertained lavishly--in general, living in absolute luxury. The profiteers were greatly condemned for their behavior by the great majority who had nothing.

The stabilization ended the speculative opportunities for the profiteers. Some were overextended at that time and lost much of what they had acquired. The majority, however, preserved their fortunes and remained wealthy.

General Poverty

Increase in Crime

In addition to the adverse effects on the food habits, the health, and the education of Germans, inflation disrupted many other areas of their life style. In general, it caused a great impoverishment of the people in all areas of life. As an indication of this, crime statistics grew worse as the inflation increased. Table 12 presents an index of the number

TABLE 12

INDEX OF THE NUMBER OF CRIMES (1822 = 100)

	1913	1921	1923	1924	1925
Total number of crimes	117	136	170	150	122
Crimes committed by men	123	137	179	158	129
Crimes committed by young men	125	173	212	153	87

Source: Costantino Bresciani-Turroni, The Economics of Inflation (London, 1931), p. 332.

of crimes committed for a prewar year and compares it with the years of inflation and post-inflation. Crimes committed rose in all three categories, and, in each category, reached a peak in 1923, the last year of inflation. The total number of crimes increased forty-five per cent from 1913 to 1923. Crimes committed by young men increased by seventy per cent. The types of crime that increased in number were crimes that would provide additional money or goods for the criminal. Theft, misappropriation of goods and illicit receiving of goods or money all showed rapid increases during inflation.[214]

One journalist reports of a sign in the great cathedral of Cologne stating "Beware of Pickpockets".[215] It can be surmised that these crimes were aggravated by the poverty inflicted on the people by inflation. The crimes were committed not by hardened criminals but by those who had been forced into desperate circumstances. Many of these new criminals simply had no other means to keep themselves and their families alive. During the same period crimes of violence such as assaults and homicides decreased. Bresciani-Turroni concludes that the decline in the consumption of alcohol was the cause of this. With poverty so widespread, the traditional heavy drinking of the German people was curtailed. He reasons that the fewer the number of intoxicated people, the less the likelihood of violent crime.

After inflation ended in 1923, the index of crimes declined rapidly. By 1925, the total number of crimes was down

twenty-eight per cent from the high levels of 1923, and crimes committed by young men down fifty-eight per cent. Violent crimes again began to rise after the inflation. This rise coincided with an increase in alcoholic consumption giving some credence to the relationship of alcoholic consumption and vio-violent crimes.

In Table 13 the increase in crimes committed by young men shows a much greater rise than the increase in total number of crimes. Table 13 shows for various years the number of convicted juvenile offenders in Berlin. During the inflationary period, there was a rapid rise in the number of offenders. Between 1913 and 1922 the number of convictions increased by 275 per cent. For the first five months in 1923 the number of convictions almost equaled that of the twelve months of 1922.[216] This rapid increase again gives an indication of the consequences of a rapid and sharp increase in poverty. The young, because of their greater recklessness and their still unformed codes of behavior would be more inclined to be tempted by the advantages of theft.

Prostitution also showed a rapid increase during the inflation.[217] The lack of food and other physical comforts broke down the moral codes of the population. Many young women chose prostitution as a means to improve living conditions for themselves and their families.

Pawn Shops

Crime was but one of the methods used by the Germans to alleviate the poverty they experienced. Most of the population

TABLE 13

CONVICTED JUVENILE OFFENDERS IN BERLIN

1913	1,131
1921	3,752
1922	4,249
1923 (first five months)	3,928

Source: Robert S. Lynd, "Papier Geld - Its Rate of Exchange in the Human Market," The Survey, LI (November 1, 1923), 140.

chose legal means. Those who had articles of value sold whatever they could. A great number of pawn shops and similar stores opened to accomodate this business. Furniture, art, and other personal items filled these shops.

The small amounts received for these goods barely offset the resulting deterioration in living conditions caused by their sale. The condition of one family was pictured as follows:

> In two rooms up four flights of stairs a man lived with six children. Two grown-up daughters received a weekly unemployment dole of three and one-half marks a week. Both rooms were absolutely bare, every article of furniture having been sold except for one bed consisting of a rickety frame with some bits of string tied across, and on these a bundle of rags to serve as a mattress. The man seemed stupified by misery, but the woman wept histerically when she spoke of it, and said she would commit suicide.[218]

The former rich suffered similar circumstances. The novelist, Thomas Mann writes:

> People who had once been wealthy and were still living in their delapidated old mansions sold their art treasures and furniture to sharpers. A Rembrandt might bring them enough to live on for a few weeks. In the end, they were turned out into the streets with their pockets full of multicolored paper.[219]

Medical journals were full of advertisements for the sale of equipment, furniture and clothes.[220]

Borrowing and Sharing

A great increase in mutual borrowing and sharing occurred to compensate for shortages of necessary items that became too expensive due to inflation. In one report a single clothes line was used by several different families. Wash day was

scheduled to coincide with one's day with the line. Newspapers were also shared among families. Clothing too was passed around. One hat was used by three different women, all in separate families, for a trip to the city of Frankfort.[221] In some towns, women would take their bread to the bakers to have it baked. Individual stoves were too expensive to operate and for a very small fee the baker would put the dough in his oven.[222]

When borrowing was not possible people simply did without. "Some of the highest aristocracy and formerly wealthy people stopped buying soap and newspapers. Books were entirely out of the question."[223] Lower quality goods were sometimes substituted in place of goods of higher quality. In a hospital in Munich, the cheapest type of kitchen soap was used in the operating room. The cost of antiseptic soap was too high.[224]

Other areas affected by inflation were charities, divorces, funerals, and the moral outlook of the people. Charitable institutions were adversely affected by inflation in two ways. First, current gifts were reduced as inflation progressed. Second, the real value of their endownments declined rapidly as the value of the mark dropped. In Berlin before the war, there were sixty chartities who had a combined endownment of fifty-six million marks. These funds were for the most part invested in stocks and bonds. Even after the revaluation these assets totaled only a million and a half marks. The

income from these assets was, of course, similarly reduced and service to the public had to be substantially diminished.[225]

A great rise in the number of pauper funerals also occurred. Expenses of burials couldn't be paid by many families and the state had to take over this task. A relaxation of requirements allowing much cheaper pasteboard shells to be substituted for wooden coffins did little to reduce the increasing number of pauper funerals.[226]

Moral Attitude

The amount of divorces also showed a dramatic increase in the inflationary period. Table 14 presents the number of divorces and the rate per thousand population in Berlin for the 1913-1922 period. As indicated the number of divorces in the inflationary 1920's was more than doubled from prewar amounts. The rate of divorces also shows a startling increase. These figures are evidence of the destruction of the old mores of the previously conservative German society.

The attitudes of the people changed too. A young German girl in an interview with Pearl Buck talked about how inflation had affected her and her formerly well-to-do family. While waiting in a line for concert tickets she reported:

> The pie was growing smaller and more people wanted to have pieces of the pie, and so there was nothing left from the good neighbor atmosphere of former days. Even here, in the place of high culture, everybody saw an enemy in everybody else.[227]

The following quotation is a particularly interesting portion of the same interview. It gives some insight into

TABLE 14

DIVORCES IN BERLIN

Year	Number of Divorces	Rate/1000
1913	17,835	26.8
1914	17,740	26.2
1915	10,791	15.9
1916	10,494	15.5
1917	11,603	17.7
1918	13,344	20.6
1919	22,022	35.0
1920	36,542	59.1
1921	39,216	62.9
1922	36,548	59.6

Source: "Divorces and Suicides in Germany," The Nation, CXIX (October 15, 1924), 428.

the change in moral attitude of the girl's father and his efforts to explain to himself why his world was falling apart.

> You could go to the baker in the morning and buy two rolls for twenty marks; but go there in the afternoon, and the same two rolls were twenty-five marks. The baker didn't know how it happened that the rolls were more expensive in the afternoon. His customers didn't know how it happened. It had somehow to do with the dollar, somehow to do with the stock exchange-- and somehow, maybe, to do with the Jews. Anti-Semitism was growing tremendously. 'Stock exchange' and 'Jews' were very much connected in the minds of the people, and when the anti-Semitic propaganda said, 'It is the Jews,' people were ready to believe it. Looking around for the guilty ones, in a situation which nobody really understood, made those who lost their fortune, especially the middle class, ready prey for anti-Semitic propaganda.
>
> I gave up my private lessons, convinced that I could not earn money by honest means. Father began to speak against the Jews more and more.
>
> He used to say, 'There are two kinds of capital; one is creative capital, the other is parasitical. Creative capital is where a man works; parasitical capital is the capital on which a man gets interest. Creative capital is the capital we Germans have, parasitical capital is the capital of the Jews.'
>
> I thought this very silly and I said, 'Now, Father, where did you pick up that theory?' He said, 'I bought a pamphlet on the fish market.' It was a well-known pamphlet by Feder, one of the Nazis.
>
> 'Well,' I said to Father with utter contempt in my voice, 'since when do you pick up your ideas on the fish market?' Father replied, 'Since I have to work in the fish market to earn a living for you.'
>
> He spoke more and more at mealtimes about these things. Mother sometimes said something about Shakespeare and Shylock, and 'maybe there is something in it.' Then Father came with a new slogan--'We are the serfs of the Jews.' The more he repeated it the more I worried, because until now I had not heard the conception of Jews as parasites. So I decided to face Father. I said, 'Your theory is really silly--give me one proof of it.'

Father said, 'I can give you the proof. Where did I get the money for my business--from the Jew Holzman!' 'Father,' I said, 'it was pure friendship, and you were so happy and so thankful about it.' He said, 'But now I have to pay interest to him on the gold value of the mark, while I lose money. If I have to pay him his interest at the beginning of next year, as I have to do, I will have nothing left.' 'But, Father,' I said, 'I remember that you said it was the usual way of business to make a gold clause in the contract.'

Father was getting impatient. 'But I looked at it then in a different way,' he said. 'Now I work hard, get up at six o'clock in the morning and come home late and where does the money go? To the Jews!'

I said, 'But Mother gave you capital, too, and don't you pay her interest?' Father said, 'That has nothing to do with the Holzmans.'

I thought it was just the same but there was no arguing with him.

Then I said to Mother, 'Mother, you know the Holzmans are in a very difficult situation. Mr. Holzman is going to lose his sight and Mrs. Holzman is the best friend you ever had, the only one who stood by you when we had difficult times.'

And then Mother said to Father, 'Well, Paul, I think in this case you have gone too far. Maybe there is something right in what you say about the Jews, but don't mention my friends Holzman in this connection anymore.'[228]

The father's attack on the Jews was one way he could explain the cause of the inflation. The hardships and adversity of the inflation years needed to be blamed on someone or something. The anti-semitic propaganda provided a target for the pent-up frustrations of the Germans. This propaganda provided a base from which the Germany of Hitler was formed.

Suicides

Suicides rose considerably during the last years of inflation. In 1922 there was a twenty per cent increase from the previous year.[229]

In Berlin eleven suicides were reported in one day. For the most part these people were older citizens who had once been well-to-do but had since lost everything in the inflation years. They did not want to be a burden to others and also did not want a slow death by starvation.[230]

In Munich in an old people's home patients presented a petition requesting means to kill themselves. They too desired a quick death rather than a slow one from lack of food.[231]

Given the privations and suffering that these people lived through in the inflation years, it is not surprising that some chose to end their lives rather than to continue living.

CHAPTER VI

SUMMARY AND CONCLUSION

The objective of this thesis is to study the German inflation of 1923 and to determine the resulting financial and social effects.

In Chapter II, the nature of inflation is briefly examined. Inflation has been defined as "a tendency toward a continuing rise in the general level of prices." Although there is some disagreement on the desirability of a small degree of inflation, all economists feel a significant rise in prices is harmful. An important argument against inflation is that it causes distributional effects on income and wealth. Those who live on relatively fixed incomes from savings, pensions, or social security face increased cost for the necessities of life. During inflation with costs increasing and incomes stable, these groups must either decrease their standard of living or depend on other sources to maintain themselves. Wealth held in savings accounts or fixed income securities loses its real value resulting in hardships for those who depend on their savings for retirement. Both the decline in real income and the decline in real wealth adversely effect large portions of a society's population. These effects, while not directly measureable, definitely decrease the overall welfare of these groups.

The inverse relationship between unemployment and inflation is important. Based on the work of the British economist, A. W. Phillips, it is theorized that when unemployment is low the annual increase in wage rates is relatively high, and when unemployment is high, the annual increase in wage rates is relatively low. From this we can derive the relationship between unemployment and the inflation rate. Because of this inverse relationship, optimal levels of unemployment and inflation cannot be attained at the same time. Since both factors are very important considerations in today's society there is much public debate on the relative merits of each.

Inflation can be typed as either demand-pull or cost-push and is also distinguished according to its rate of increase. There are two main theories of inflation. One is based on Keynesian theory and the other on monetary theory. Keynesian theory rests on the liquidity preference function. This function describes the inverse relationship between the quantity of money and the interest rate. The connection between inflation and the liquidity preference function is made in the investment sector of the Net National Product. If interest rates are declining, investment will increase. This higher level of investment will cause a multiple expansion of N. N. P. If the economy is operating at full employment, this higher level of investment will cause an increase in prices.

The monetary theory of inflation is based on the quantity theory of money of which the "equation of exchange", MV=PQ, is

an essential component. In this equation, M is the money supply, V is the velocity of the circulation of money, P is the price level of all goods and services, and Q is the output of final goods and services during the period. If V and Q are held constant, M and P will be directly proportional. That is, if M increases, then P will also increase. Of course V and Q are not constant in the real world. Derivations of the "equation of exchange" can be calculated to arrive at $M=NNP(\frac{1}{V})$. This equation exhibits a direct relationship between M and NNP if a constant V is assumed. V is a fairly stable variable, and therefore in this equation M is a fairly good predictor of NNP. Historical examples have been studied, and the relationship between M and P is borne out in the great majority of cases.

In Chapter III, the historical period of the German inflation is examined. This inflation had its beginnings in the days preceding World War I. At that time, in order to halt the outflow of gold from Germany, the country discontinued its policy of redeeming currency for gold. The removal of the link between gold reserves and the amount of money in circulation was followed by the discounting of Treasury Bills in huge amounts. The discounting of Treasury Bills increased the amount of money in circulation by over 413 times. By the end of 1923 the velocity of circulation also increased greatly by almost 18 times. Q is estimated to have remained essentially stable. The "equation of exchange" MV=PQ, predicts

a large increase in prices due to the large increases in M and V. The actual price figures validate this equation. Wholesale prices in Germany from 1913 to October 1923 rose 18.7 billion times. With these historical results, it is concluded that the monetarists view of the theory of inflation is valid in the inflation under consideration.

Chapter IV relates the events of the topsy-turvy financial world of the inflation period. The German stock market fluctuated violently during this period. The overall trend however, was decidedly downward with an index of stock prices almost eighty per cent lower at the end of 1923 than it was in 1913. The German banking system, which had been the most powerful economic group in Germany, was damaged more than many other industries. This occurred because the great amount of bank funds was by necessity placed in intangible assets such as loans and currency. These assets became completely worthless during inflation. Bonds, insurance policies, and mortgages, because they are valued in fixed nominal terms, also became completely worthless.

The effects of the inflation and its resulting conditions on the social structure of the time was equally devastating. The continued decline in the value of the mark resulted in a large decline of the real value of the great majority of Germans' incomes and wealth. This decline of the real income and wealth of such a large portion of the population caused much of the social hardships of the period. The

great majority of Germans had inadequate nourishment and insufficient warmth and clothing. Many hospitals and other health care facilities were closed. These conditions resulted in an increased death rate and a declining birth rate. Food shortages were acute during much of this period. The lack of milk, meat, and nourishing vegetables weakened the population as a whole and stunted the growth of German children. Inflation caused severe hardships on the student and teaching population. Students were forced to take full-time jobs and professors were forced to take second jobs to offset inflation's effects. In contrast to the great majority of Germans, a small group of inflation profiteers arose and amassed great fortunes at this time. They made their money through speculative activities and at the expense of the great majority of suffering Germans. Those who were not rich sold life-long possessions, borrowed, or resorted to crime to obtain the necessities of life. The inflation resulted in many other changes in the German way of life and altered the social structure of the society.

The study of the German inflation and its effects on the financial and social structure of the country provides a historical model which is of some validity in 1975. Germany was, at the beginning of the inflation a highly industrialized and socially advanced nation. The power of the inflation was such that it completely wiped out the fortunes of millions of Germans and in doing so caused severe physical hardships for

them. As a result of this, the social habits and the mores of society were unfavorably altered. Many of these hardships could have been avoided if a more conscientious effort had been made to control the financial policies of the country. Although an inflation of the magnitude of Germany's is not likely in the United States at this time, effects similar to those observed in Germany could occur in countries pursuing similar policies. Even on a much smaller scale these effects could be disastrous for the country and its citizens.

The example of Germany during this period should serve as a warning to today's industrialized societies. The warning is that rapid inflation can be extremely disruptive, even in a well-organized, modern, industrial economy. Avoidance of rapid inflation should be one of the important priorities of any government.

FOOTNOTES

[1]Warren L. Smith, Macroeconomics (Homewood, Illinois, 1970), p. 338.

[2]The Consumer Price Index is perhaps the most well-known general measure of price change. It is quoted widely in newspapers and television and is used in many labor contracts to determine cost-of-living escalators. In deriving the Consumer Price Index over 398 items are measured either monthly or quarterly. These measurements, taken by Bureau of Labor Department employees, are compiled in visits to approximately 18,000 retail outlets. [Richard Janssen and Albert Hunt, "Inflation Yardstick," The Wall Street Journal (October 21, 1971), p. 20.]

In spite of its popularity, there has been widespread criticism that the index does not accurately reflect the cost of living. Some critics have charged that the index is slow in reflecting price changes and others say it has a built-in inflationary bias. These charges stem from claims that the index fails to take into account improvements in the quality of items in the index. For instance, even though a particular cereal might have improved its quality through fortifying, the index would only reflect its higher price. The added benefits of better nutrition for the consumer would not be taken into account. With numerous similar improvements in the quality of the items measured over the years, some feel that the rate of inflation is overstated. This contention is challenged by those in charge of the Consumer Price Index. Joel Popkin, assistant commissioner of the Bureau of Labor Statistics, states "we have found enough instances of this going in both directions that we cannot prove the hypothesis of bias up or down." [Ibid.]

These experts by no means feel that the Consumer Price Index is a perfect measurement. The problem of making quality improvement determinations in service areas is among the most difficult. For instance how can one reflect in the index improvements in medical services versus increased waiting time in the doctor's office or hospital. Other difficult problems involve how to measure prices which have increased so rapidly that consumers have switched to substitute goods. In those cases the higher prices would be reflected in the index even though consumers were not using the items, thus overstating inflation. [Ibid.]

These and other problems are now being studied by government officials. Over $20 million is being spent in an effort to solve the problems and make the index a more accurate measurement of the cost of living. [Ibid.]

[3]Campbell R. McConnell, Economics: Principles, Problems, and Policies (New York, 1963), p. 199.

[4]Smith, p. 341.

[5]McConnell, p. 200.

[6]Ibid.

[7]Smith, p. 358.

[8]Edwin Mansfield, Principles of Macroeconomics (New York, 1974), p. 309.

[9]Ibid., p. 310.

[10]Ibid.

[11]Ibid.

[12]Ibid., p. 311.

[13]Ibid., p. 312.

[14]Ibid., p. 140.

[15]Martin Bronfenbrenner and Fraklyn D. Holzman, "Survey of Inflation Theory," The American Economic Review, LIII (September, 1963), 596.

[16]Ibid.

[17]Philip Cagan, The Monetary Dynamics of Hyperinflation, in Studies in the Quantity Theory of Money, ed. Milton Friedman (Chicago, Illinois, 1956), p. 28.

[18]Hans H. Helbling and James E. Turley, "A Primer on Inflation: Its Conception, Its Costs, Its Consequences," Federal Reserve Bank of St. Louis Review, LVII (January, 1975), 7.

[19]Thomas F. Darnburg and Duncan M. McDougall, Macroeconomics (New York, 1968), p. 299.

[20]Costantino Bresciani-Turroni, The Economics of Inflation (London 1937), p. 159.

[21]Mansfield, p. 253.

[22]Ibid.

[23]Ibid., p. 245.

[24]Ibid., p. 249.

[25]Ibid.

[26]Ibid., p. 251.

[27]Ibid., p. 250.

[28]Ibid., p. 251.

[29]Ibid., p. 248.

[30]Ibid., p. 250.

[31]Gottfried Haberler, Inflation - Its Causes and Its Cures (Washington, D. C., 1966), p. 61.

[32]Bresciani-Turroni, p. 23.

[33]Ibid.

[34]Gustav Stolper, et al, The German Economy, 1870 to the Present, in The German Inflation of 1923, ed. Fritz K. Ringer (New York, 1969), p. 64.

[35]Ibid.

[36]Bresciani-Turroni, p. 170.

[37]Frank D. Graham, Exchange, Prices, and Production in Hyperinflation: Germany, 1920-1923 (New York, 1930), p. 6.

[38]Ibid.

[39]Stolper, p. 68.

[40]Ibid., p. 41.

[41]Ibid., p. 69.

[42]Ibid., p. 70.

[43]Graham, p. 19.

[44]Ibid., p. 23.

[45]Ibid., p. 31.

[46]Stolper, p. 73.

[47]Ibid.

[48]Bresciani-Turroni, p. 248.

[49]Stolper, p. 76.

[50]Ibid., p. 77.

[51]Bresciani-Turroni, p. 59.

[52]Graham, p. 38.

[53]Stolper, p. 82.

[54]Bresciani-Turroni, p. 294.

[55]Ibid., p. 83.

[56]Stolper, p. 74.

[57]Alan Bullock, Hilter: A Study in Tyranny (New York, 1961), p. 64.

[58]Graham, p. 10.

[59]Ibid.

[60]Bullock, p. 64.

[61]Ibid.

[62]Bresciani-Turroni, p. 24.

[63]Ibid., p. 25.

[64]Howard Fliegar, "Fright: A Flashback," U. S. News and World Report, LXXV (March 1, 1924), 33-34.

[65]Bresciani-Turroni, p. 335.

[66]Ibid., p. 335.

[67]Stolper, p. 88.

[68]Bresciani-Turroni, p. 335.

[69]Ibid., p. 405.

[70]Ibid., p. 351.

[71]Ibid., p. 406.

[72]Stolper, p. 89.

[73]Ibid.

[74]Jerome B. Cohen and Edward D. Zinbarg, Investment Analysis and Portfolio Management (Homewood, Illinois, 1967), p. 5.

[75]Reuben A. Kessel and Armen A. Alchian, "Effects of Inflation," The Journal of Political Economy, LXX (December, 1962), 528.

[76]Stolper, p. 82.

[77]Ibid.

[78]Samuel A. Morley, The Economics of Inflation (Hinsdale, Illinois, 1971), p. 119.

[79]Kessel, p. 128.

[80]Philip G. Wright, Inflation and After (Charlotte, North Carolina), p. 42.

[81]Peter P. Reinhold, Germany Since the War (New Haven, Connecticut, 1928), p. 82.

[82]Sir Philip Dawson, Germany's Industrial Revival (London, 1926), p. 44.

[83]Ibid.

[84]Morley, p. 119.

[85]Bresciani-Turroni, p. 265, 268; Graham, p. 278.

[86]Bresciani-Turroni, p. 368.

[87]Cohen and Zinbarg, p. 236.

[88]Bresciani-Turroni, p. 262.

[89]Ibid.

[90]Bresciani-Turroni, p. 269.

[91]Konrad Heiden, "Der Fuehrer: Hitler's Rise to Power," in The German Inflation of 1923, ed. Fritz K. Ringer (New York, 1969), p. 181.

[92]Ibid.

[93]Bresciani-Turroni, p. 315.

[94]Robert C. Long, "If You Own German Securities," American Banker's Association Journal, XVII (May 1925), 672.

[95]Ibid.

[96]Stolper, p. 56.

[97]W. F. Bruck, Social and Economic History of Germany from William II to Hitler, 1880-1938, A Comparative Study (London, 1938), p. 81.

[98]Stolper, p. 57.

[99]Ibid., p. 26.

[100]Wright, p. 11.

[101]Robert C. Long, "German Banks First Stable Money Year," American Banker's Association Journal, XVII (June, 1925), 739-740.

[102]Robert C. Long, "Position of German Banks After Scaling Down," American Banker's Association Journal, XVII (January 1925), 433-434.

[103]Ibid.

[104]Ibid.

[105]Ibid.

[106]Ibid., p. 434.

[107]Ibid.

[108]Ibid.

[109]Stolper, p. 53.

[110]Reinhold, p. 86.

[111]Ibid., p. 82.

[112]Bresciani-Turroni, p. 317.

[113]Karsten Laursen and Jorgen Pedeisen, The German Inflation, 1918-1923 (Amsterdam, 1964), p. 94.

[114]J. W. F. Thelwall, Federal Republic of Germany - Great Britain Commercial Relationships and Export Department, 1922/23 (London, 1923), p. 9.

[115]Ibid., p. 10.

[116]Hjalmer Schacht, The Stabilization of the Mark (New York, 1927), p. 160.

[117]Ibid., p. 212.

[118]Long, "If You Own German Securities," p. 671.

[119]Ibid., p. 672.

[120]Bresciani-Turroni, p. 318.

[121]Ibid., p. 197.

[122]Moritz Julius Bonn, Wandering Scholar, in The German Inflation of 1923, ed. Fritz K. Ringer (New York, 1969), p. 102.

[123]Robert Crozier Long, "German Financial Chaos: A Letter From Berlin," Fortnightly Review, CXIV (September, 1923), 385.

[124]Literary Digest, LXXXII (September 27, 1924), 22.

[125]Ibid.

[126]Ibid.

[127]Schacht, p. 217.

[128]Bresciani-Turroni, p. 282.

[129]Schacht, p. 217.

[130]Dr. Haven Emerson, "Report upon the Health, Sickness, and Hunger among German Children," International Conciliation (1924), p. 80.

[131]"Is Germany Starving?" The Literary Digest, LXXX (January 5, 1924), 12.

[132]Edith Van Hook, "Starving the New Generation in Germany," The Nation, CXXVIII (March 19, 1924), 304.

[133]Emerson, p. 81.

[134]Franz Bumm, Speech before the Reichstag, February 20, 1923, in The German Inflation of 1923, ed. Fritz K. Ringer (New York, 1969), p. 113.

[135]Emerson, p. 82.

[136]Van Hook, p. 304.

[137]"Is Germany Starving?" p. 12.

[138]Dr. Haven Emerson, "If Thine Enemy Hunger, Feed Him," The Literary Digest, LXXX (March 1, 1924), 33.

[139]Ibid.

[140]Bumm, p. 114.

[141]Emerson, "If Thine Enemy Hunger, Feed Him," p. 33.

[142]"Health and the Mark," The Survey, L (April 15, 1923), 87.

[143]Ibid.

[144]Bumm, p. 114.

[145]"Health and the Mark," p. 87.

[146]Emerson, "Report upon the Health, Sickness, and Hunger among German Children," p. 79.

[147]Bumm, p. 113.

[148]Frank Alsworth Ross, "The Passing of the German Middle Class," The American Journal of Sociology, XXIX (March 1924), 536.

[149]Emerson, "Report upon the Health, Sickness, and Hunger among German Children," p. 79.

[150]Hellmuth M. Brinkmann, "A Letter to the Editor of The Nation, CXVII (March 19, 1924), 314.

[151]Bumm, p. 114.

[152]Dawson, p. 226.

[153]"Is Germany Starving," p. 12.

[154]Stolper, p. 63.

[155]"What Germany Paid in Population," The Literary Digest, LXXX (March 22, 1924), p. 20.

[156]Stolper, p. 15.

[157]John Lowrey Simpson, "The Picture of the German Loaf," The New Republic, XXXIII (January 31, 1923), 249.

[158]"Is Germany Starving?" p. 12.

[159]Dawson, p. 71.

[160]Ibid., p. 63.

[161] Ibid., p. 71.

[162] Ibid., p. 63.

[163] Ibid., p. 72.

[164] Ibid.

[165] "The German Famine," The Nation, CXVII (November 21, 1923), 571.

[166] Ross, p. 534.

[167] Van Hook, p. 304.

[168] "Land of Perpetual Nightmare," The Literary Digest, LXXIX (October 13, 1923), 40.

[169] Emerson, "If Thine Enemy Hungers, Feed Him," p. 34.

[170] Robert S. Lynd, "Papier Geld - Its Rate of Exchange in the Human Market," The Survey, LI (November 1, 1923), 141.

[171] Emerson, "If Thine Enemy Hungers, Feed Him," p. 34.

[172] Dawson, p. 231.

[173] Bresciani-Turroni, p. 239.

[174] Dawson, p. 72.

[175] Van Hook, p. 304.

[176] Bumm, p. 114.

[177] Van Hook, p. 304.

[178] "Health and the Mark," p. 87.

[179] Van Hook, p. 304.

[180] Ibid., p. 303.

[181] Lynd, p. 141.

[182] Bumm, p. 115.

[183] Van Hook, p. 304.

[184] Bumm, p. 114.

[185] Ringer, p. 150.

[186]H. H. Allen, "Student Difficulties in Germany," Educational Review (April, 1924), p. 191.

[187]Ibid.

[188]Ibid., p. 192.

[189]Ibid.

[190]Ibid.

[191]Ibid., p. 193.

[192]"The Real Poverty of the German People," The Literary Digest, LXXIV (September 2, 1922), 23.

[193]Albert Einstein, "Conditions in Germany," The New Republic, XXXII (October 18, 1922), 197.

[194]"The Real Poverty of the German People," p. 23.

[195]Georg Schreiber, Die Not der Deutschen Wissenschaft und der geistigen Arbeiter, in The German Inflation of 1923, ed. Fritz K. Ringer (New York, 1969), p. 104.

[196]Ibid.

[197]Ross, p. 534.

[198]Schreiber, p. 107.

[199]Einstein, p. 197.

[200]Schreiber, p. 107.

[201]Ibid., p. 106.

[202]Ibid., p. 105.

[203]Ibid.

[204]Ibid.

[205]Dawson, p. 224.

[206]Bresciani-Turroni, p. 289.

[207]Ibid., p. 292.

[208]Ibid., p. 291.

[209]Ibid., p. 292.

[210]Ibid., p. 293.

[211]Ibid., p. 196.

[212]Ibid., p. 297.

[213]Ibid., p. 294.

[214]Bresciani-Turroni, p. 332.

[215]"Land of Perpetual Nightmare," p. 46.

[216]Lynd, p. 140.

[217]Bresciani-Turroni, p. 330.

[218]"Misery and Misrule in Germany," The Literary Digest, LXXX (January 26, 1924), 23.

[219]Thomas Mann, "Inflation, The Witches Sabbath, Germany 1923," Translation of a 1942 lecture, Ralph Manheim, Encounter, XLIV (February 1975), 62.

[220]"Health and the Mark," p. 87.

[221]Ferdinand Reyher, "A Tragedy of Thrift," Century, CVII (March, 1924), 690.

[222]Ibid., p. 689.

[223]"Land of Perpetual Nightmare," p. 40.

[224]Lynd, p. 140.

[225]Bresciani-Turroni, p. 320.

[226]Ibid., p. 328.

[227]Pearl S. Buck, How It Happens: Talks about the German People, 1914-1933, with Erna von Pustav in The German Inflation of 1923, ed. Fritz K. Ringer (New York, 1969), p. 128.

[228]Ibid., p. 114.

[229]Editorial, The Survey, L (July 1, 1923), 407.

[230]Editorial, The Nation, CXVIII (May 28, 1924), 598.

[231]Lynn, p. 41.

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