A STATISTICAL ILLUSTRATION

In this chapter, we would empirically establish the arguments put forth in the theoretical model in the last chapter. Contrary to all the three views on inequality and growth presented in chapter 2, we have argued that there could be two opposite effects in the wake of concentration and financialisation. On the one hand, there could be an increase in consumption as a result of the wealth effect, debt effect and the dividend effect. On the other hand, there could be a tendency towards underinvestment due to an increase in the desired rate of capacity utilisation as a result of concentration. We would have to test these tendencies empirically in this chapter.

Broadly speaking, the questions that we posed before the three extant views on concentration can now be answered in our framework. We argue below that during the 80s and the early 90s, it was the underinvestment effect which was dominant even as overconsumption was taking place. But with an unprecedented stock market boom in the history of the United States in the late 90s, the overconsumption effect started to dominate and in the process lifted the investment despite the tendencies for underinvestment. It is this interaction of these two effects that produced a feeble 1980s and early 90s, but in contrast a 'fabulous' late 90s. Moreover, the Federal Reserve, through its monetary policy, tried to prolong this stock market boom as long as it could last. This strategy was more effective in the 90s because the Fed could easily target a 'real' rate of interest by setting the nominal rate in the wake of stable inflation in that decade.

The issues that we would specifically answer are as follows:

1. Is there a tendency towards underconsumption? To establish this, one has to test whether the consumption propensities of the workers and the capitalists differ significantly? If such a tendency exists, then what explains the dramatic increase in the share of consumption since the early 1980s? How strong is the wealth effect and how strong a role did it play in this upsurge?

2. Is there a tendency towards underinvestment linked to the process of financialisation and concentration? How does one verify whether it exists?
3. Is the growth process generated through wealth driven consumption very volatile and tethered to the stock markets? Has the economy become a by-product of the speculative bubble?

4. What has been the role of the government during this period? Has it been to maintain the credit-driven consumption patterns in the economy through the monetary policy?

We attempt to present statistical evidence, both in descriptive as well as parametric form with respect to the points raised above. Section 4.1 presents the descriptive results starting with an overview of the US economy. Section 4.2 presents parametric estimates of the consumption function, the investment function and the price equation. Section 4.3 attempts to briefly analyse the last two business cycles in the US economy, the DotCom boom of the 90s and the real estate boom of the present decade. These two episodes might help us understand the process in greater detail. The last section concludes this chapter.

4.1 DESCRIPTIVE EVIDENCE

We begin with an overview of the US economy by presenting the macroeconomic data for the US starting from the 1950s. This would help us place issues in a perspective where comparison can be drawn between the Golden Age of US capitalism (1955-1973) and the age of finance (1979-present) that followed. We also present the stock market movement during this time along with the financial status of the different constituents of the economy like the household, business and the government sectors to focus on the fragility of the system at present. This would be followed by presentation of data on consumption, investment and inflation which would help us in our analysis in the following sections.

4.1.1 An Overview of the US Economy

Let us divide the period starting from 1955.4 till now into three separate periods: period I, the Golden Age (1955.4-1973.1), period II, the transition (1973.1-1978.4) and period III, the age of finance (1978.4-till now). Within these periods, we present the data for respective business cycles\(^1\) in table 4.1.

\(^1\) We define the business cycles on similar lines as Gordon (1997) where he used the capacity utilisation peaks as the peaks for his business cycles and not the NBER defined business cycles. While the NBER defines a peak in a cycle just before the rate of growth of actual output starts becoming negative, according to this method, a peak occurs as soon as the actual output growth
A few important conclusions can be drawn from these macroeconomic data. First, the rate of growth was higher during the golden age than in the age of finance. Even within the cycles across these two periods, it is the 1960s that perform the best. For all the hype about the fabulous decade of the 1990s, if one takes the average across the whole cycle, even that decade seems to be just as good or as bad as the others during the age of finance. It is easy to see why high growth of the 1990s is not showing in the present data because we have presented the data as cyclical average. It is only if we break the data for the 1990s into two halves that we get a better result. Blinder and Yellen (2001) show that if we take only the second half of the 90s into consideration, then the GDP grew at 4 percent per annum, inflation at 2.4 percent while unemployment remained at 5 percent, which seems quite impressive compared to the rest of the period during the age of finance. But, as correctly argued by Pollin (2005), if one compares the 1990s with the 1960s then the fabulous 90s pale in every indicator of economic performance.

Table 4.1: Comparative Analysis of Growth and Aggregate Demand in the US: 1955.4-2006.4

<table>
<thead>
<tr>
<th>Period</th>
<th>g</th>
<th>u</th>
<th>C/O</th>
<th>G/O</th>
<th>(X-M)/O</th>
<th>I/O</th>
<th>(net I)/O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Golden Age</td>
<td>4.05</td>
<td>83.46</td>
<td>62.09</td>
<td>21.9</td>
<td>0.45</td>
<td>15.53</td>
<td>8.04</td>
</tr>
<tr>
<td>(1955.4-1973.1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age of Finance</td>
<td>3.07</td>
<td>79.61</td>
<td>65.91</td>
<td>19.66</td>
<td>-1.95</td>
<td>16.37</td>
<td>6.66</td>
</tr>
<tr>
<td>(1978.4-2006.4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Cycles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Golden Age</td>
<td>1.71</td>
<td>82.23</td>
<td>62.52</td>
<td>21.65</td>
<td>0.41</td>
<td>15.4</td>
<td>7.57</td>
</tr>
<tr>
<td>1955.4-1959.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1959.2-1966.1</td>
<td>4.63</td>
<td>63.02</td>
<td>62.26</td>
<td>21.65</td>
<td>0.77</td>
<td>15.29</td>
<td>7.95</td>
</tr>
<tr>
<td>1966.1-1973.1</td>
<td>3.05</td>
<td>84.53</td>
<td>61.7</td>
<td>22.28</td>
<td>0.17</td>
<td>15.83</td>
<td>8.37</td>
</tr>
<tr>
<td>Transition Age</td>
<td>3.01</td>
<td>81.29</td>
<td>62.63</td>
<td>20.81</td>
<td>-0.16</td>
<td>16.71</td>
<td>7.93</td>
</tr>
<tr>
<td>1973.1-1978.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age of Finance</td>
<td>3.21</td>
<td>78.96</td>
<td>64</td>
<td>20.48</td>
<td>-1.7</td>
<td>17.22</td>
<td>7.34</td>
</tr>
<tr>
<td>1978.4-1989.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1989.2-1997.4</td>
<td>2.82</td>
<td>81.27</td>
<td>66.82</td>
<td>19.28</td>
<td>-1.05</td>
<td>14.94</td>
<td>5.36</td>
</tr>
<tr>
<td>1997.4-2006.4</td>
<td>2.69</td>
<td>77.88</td>
<td>69.27</td>
<td>18.34</td>
<td>-4.08</td>
<td>16.46</td>
<td>6.26</td>
</tr>
</tbody>
</table>

Source: BEA statistics, Author’s Calculation

Second, the average rate of capacity utilisation has gone down from 83.46 percent during the golden age to 79.6 percent during the age of finance (this trend is clearly visible in fig. 2.10 also). Even though it goes up in the 90s as compared to the other business cycles within the age of finance but it is still lagging behind the average rate of the 60s. One needs to provide satisfactory

begins to lag behind the potential output growth. The figures would not change much even if we used the NBER cycles’ dates.
answers to why did the trend rate of capacity utilisation decline in the age of finance. We have already shown theoretically in the models presented in the previous chapter that an increase in the desired rate of capacity utilisation would lead to a decline in the actual rate of capacity utilisation. It sounds very similar to the paradox of thrift. Let us recapitulate the reason for an increase in the desired rate of capacity utilisation. Concentration of firms decreases the number of competitors within the market and also makes the barriers to entry stricter for outsiders to the market, which decreases the need to maintain precautionary excess capacity. Every capitalist's desired rate of capacity utilisation increases which means that they do not want to invest more into building further capacity until their actual capacity utilisation increases beyond their new and higher desired level, a strategy which is correct for an individual capitalist. But for the economy as a whole, it acts to their detriment because this decision leads to a decline in investment demand compared to a situation where desired level of capacity utilisation had remained the same. The only condition in which the actual capacity utilisation would not decline is when we assume that there is a normal tendency in capitalism to adjust to the desired level in the long run. But we have already shown that this leads to an implausible investment function which we do not believe to be true.

Third, the consumption propensity of the economy has increased between these two periods from 62 percent to 65.9 percent (see fig. 2.9 also). Such an increase has a very high potential of increasing the multiplier which can give a boost to the demand. The increase in consumption propensity is specially stark if one looks at the period ending with the business cycle of the 70s and the business cycles following that. At the end of the 1970s, consumption in the US economy as a proportion of GDP was 62.63 percent which jumped to 64 percent in the 1980s, 66.82 percent in the 90s and a whooping 69.27 percent after that.

Fourth, the share of government expenditure has declined during the age of finance. This has especially happened during the 90s when Clinton's Budget Agreement of 1993 proposed to balance the government budget. One can see that during the golden age, the average government expenditure as a proportion of GDP has increased through each passing business cycle whereas exactly the opposite happened during the age of finance where there was a special attempt to make the government small.

Fifth, the net investment-GDP ratio has decreased during the age of finance. This decrease itself would explain the decline in growth in the second period. It is puzzling to note that while the net investment ratio declined, the gross investment-GDP ratio increased during the same period. The reason for this
4.1 DESCRIPTIVE EVIDENCE

discrepancy can only be an increase in the rate of depreciation in the second period as compared to the first period. But an interesting question to ask in this regard is why did that happen? This has been explained by an increase in the rate of wear and tear with the introduction of new technologies like computers etc. which surely would be a reason.

Let us now present the financial side of the US economy during these periods. The most important factor in that would be the performance of the stock market. We present the movement of the Price-Earnings ratio taken from Prof Robert Shiller’s website where he has compiled the data from as far back as the 1880s (see fig. 4.1). The stock market was performing at its best during the 1990s where the price-earnings ratio had far surpassed the levels that they had reached during the stock market boom of the 1920s. Since this stock market boom is central to our argument (through the movement of q in both the models), it would be interesting if we look a little deeper into it.

![Figure 4.1: Performance of the Standard and Poor’s Composite Stock Price Index in the US 1880-2008](image_url)

Figure 4.1: Performance of the Standard and Poor's Composite Stock Price Index in the US 1880-2008

Though the unparalleled stock market performance of the 1990s has been explained through the internet revolution or even corporate frauds, Pollin (2005) has sought to explain this ‘irrational exuberance’ in terms of three other factors. First, the government policy of financial deregulation gave a great impetus to the stock market speculators. Financial markets were strongly regulated after the stock market crash of 1929 to prevent the vicious cycle of speculation. Speculation is a natural outcome of financial markets and they can be avoided
only if regulations to put a brake on them are in place. Second, the high PE ratios, despite showing the speculative nature of these markets, also reflected 'fundamentals' to some extent since there was a dramatic increase in profitability, both profit margins and rates, of the corporations. Pollin argues that this was especially true for the after-tax profit rates because the policies of the government were more in favour of the rich which led to a decline in the tax rates even as the real wages of the blue collared workers stagnated or even declined.

Third, the increase in prices of shares was also driven by the contraction in supply of and increase in demand for shares during that time. Owing to the shareholder revolution which put immense pressure on US corporations to perform better on the returns to the shareholders, a lot of corporations were buying back their stocks which reduced the supply of stocks. On the other hand, there was increased demand for US stocks especially from international market in the wake of financial crises that had engulfed the underdeveloped countries and the US shares were the safest financial assets that the wealthiest in these countries could trust their money on. But this imbalance should not have led to an increase in the prices of the shares according to the Modigliani-Miller theorem because company's stock market performance should not get determined by the financial structure of the companies. But Pollin refutes this logic by saying that the share prices hardly follow the kind of rationality that is generally assumed in Economics textbooks. In the short run, if the buybacks can drive the share prices up, it could be a good opportunity for speculators to buy these shares even though the long-term prospects of the shares might not have changed a bit.

Let us now proceed to other financial indicators like the condition of debt for the household or the business sectors (see table 4.2). The most pertinent question to ask is what effect did the stock market boom of the 1990s have on the household sector or the corporate sector? As we have argued in both the models presented in the previous chapter that an increase in stock market wealth leads to an increase in consumption of the owners of these assets. But since the stock market generated wealth is by definition non-encashable at the margin (if encashed in large numbers, the so-called wealth increase itself might disappear (Bhaduri, Laski, and Riese (2006))), the increase in consumption is financed by debt. So, it would be a good exercise to check whether this happened indeed.

Not surprisingly, the household debt as a proportion of personal disposable income increased manifold, the highest being in the present decade (see table 4.2). A look at the S&P growth rate figures in table 4.2 could approximately tell us the basis for such a high increase in the debt-income ratio. The increase in the debt-income ratio in the 1990s coincides with the dramatic rate of growth
4.1 DESCRIPTIVE EVIDENCE


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</thead>
<tbody>
<tr>
<td>S&amp;P 500 real average</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>annual growth rate</td>
<td>4.6</td>
<td>-5.9</td>
<td>8.3</td>
<td>14.5</td>
<td>2.28</td>
</tr>
<tr>
<td>S&amp;P 500 real growth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>minus GDP real growth</td>
<td>0.2</td>
<td>-9.2</td>
<td>5.4</td>
<td>11.3</td>
<td>-0.4</td>
</tr>
<tr>
<td>Total HH Debt/Disp Pers Income</td>
<td>67.3</td>
<td>67.6</td>
<td>77.2</td>
<td>95.6</td>
<td>130.08</td>
</tr>
<tr>
<td>Total HH Debt/Financial assets</td>
<td>17.5</td>
<td>20.5</td>
<td>23.1</td>
<td>22.8</td>
<td>30.32</td>
</tr>
<tr>
<td>HH bank deposits+govt. sec/Financial assets</td>
<td>23</td>
<td>25.9</td>
<td>26.7</td>
<td>18.8</td>
<td>15.96</td>
</tr>
<tr>
<td>Corporations internal funds/Total Debt</td>
<td>96.3</td>
<td>85.2</td>
<td>94.7</td>
<td>95.5</td>
<td></td>
</tr>
<tr>
<td>Corporations debt/Equity</td>
<td>63.3</td>
<td>122</td>
<td>165.7</td>
<td>90.2</td>
<td></td>
</tr>
</tbody>
</table>

Source: First Four Columns from p. 228, Pollin (2005) and last column author’s calculation from the Flow of Funds Accounts of the Fed

in the stock market as is reflected in the stability of debt to financial asset ratio between the 80s and 90s. In the present decade, however, despite a decline in the growth rate of stock market, the debt-income ratio has continued to shoot. The reason behind the increase in the present decade seems to be the sub prime lending market which generated unprecedented levels of debt, most of the time without a collateral. In fact, after the stock market crash in 2001, the S&P index has hardly been able to recover from the meteoric fall (see fig. 4.1). This presents some evidence on the non-collateralised debt of the household sector in the present decade.

The measures used in table 4.2 are stock variables from the balance sheets of the household sector so, let us look at equivalents of debt-income ratio in flow terms. In other words, let us look at what has been the condition of the household in terms of repayment of interest charges on outstanding mortgage and consumer debt. Debt Service Ratio (DSR) is one such measure which is the ratio of debt payments on these accounts to the disposable income of the household sector. We also present data of a more inclusive concept of the debt obligation that the household sector holds. This measure is called the Financial Obligation Ratio (FOR) which, apart from the repayment of interest charges on outstanding mortgage and consumer debt, includes the automobile lease payments, rental payments on tenant-occupied property, homeowners’ insurance, and property tax payments.

Some important conclusions can be drawn about the financial condition of the household sector based on these two ratios. In panel (a) of fig. 4.2, it clearly shows that both DSR and FOR have been rising since the early to mid-1990s.
4.1 DESCRIPTIVE EVIDENCE

![Graphs](image)

Source: FOF Accounts of the US

Figure 4.2: The Financial Obligation Ratio and Debt Service Ratio for the Household Sector: 1980–2008.1

we differentiate between the debt payments on account of home mortgages and consumer durables, we get panel (b), which tells us another interesting story behind this debt growth. As expected, for the 1990s, which is characterised by stock market boom, it is the consumer durables debt payments that play a central role in driving the FOR up whereas the home mortgage debt payments were declining for that decade. After 2000, however, when the real estate boom replaced the stock market boom, it is the home mortgage payments which determine the FOR for the households.

We have presented some preliminary data on the condition of the US economy since the 1980s. Based on the decline in the rate of capacity utilisation despite an increase in the share of consumption and no offsetting decline in the government fiscal deficit (Reagan’s tax cut had in fact increased the fiscal deficit), we can tentatively argue that there was indeed a tendency towards underinvestment during the 1980s and the early 90s. It was only after the stock market touched the sky in the second half of the 1990s that consumption picked up even further to outweigh the underinvestment tendency of the 80s. The increase in the debt-income ratio for the household sector has increased the financial fragility of the US economy in two different ways. In so far as the engine of growth is wealth induced consumption, rate of growth would be dependent on the movement of prices of assets of one form or the other and the real business cycles would get tethered to the stock market cycles of ups and downs. Second, this increases the debt-GDP ratio of the economy to precariously high levels which might not be sustainable beyond a point. Let us now look at the data of consumption and investment in details.
4.1 DESCRIPTIVE EVIDENCE

4.1.2 Consumption

In our critique of the underconsumptionist argument, we had presented the data on the increase in the share of consumption out of GDP during the same time period as concentration was taking place. Let us start our analysis of consumption from there. We present the same figure here (without the profit share) for quick reference.

As is evident from fig. 4.3, the increase in the share of consumption was dramatic since the early 1980s itself. Till the 1980s, the share seems to remain constant on an average notwithstanding the periodic ups and downs. The increase in the share of consumption as a proportion of GDP between 1980 to 2008 has been a whopping 8 percent. One can easily calculate that such a huge jump in consumption propensity would give a dramatic boost to the income multiplier. If we look at the 80s alone, even then we find that the consumption propensity increased from 62 percent to around 66 percent, an increase of 4 percent within a decade.

When we disaggregate the components of consumption, then we are able to see which of the three categories — durables, non-durables or services — is responsible for the bulk of the increase in this share. As is clear from the fig. 4.4, a greater part of this increase is due to the increase in expenditure on services while the expenditure on durables has remained constant and that on the non-durables declined.
If, however, we further disaggregate the data within the services then we find that the major contributors, which actually explain almost the entire increase in total consumption, are medical care, housing and other professional services as shown below in fig. 4.5. Medical care alone contributes to more than half of the increase in the share of consumption between 1980 and 2000.

Till now, we have shown the share of consumption in GDP with both the variables deflated by the same GDP deflator. But we do not think that is a correct procedure to measure the share of real consumption in GDP, especially if the
4.1 DESCRIPTIVE EVIDENCE

respective price deflators of GDP and consumption have not moved in tandem with each other\(^2\). It is important to stress this because the picture changes significantly when we examine the values of the same variables at their respective prices. This differentiation of deflators clarifies what part of the increase in the share of consumption is merely due to an increase in prices of consumption goods relative to the GDP prices and what part is a genuine increase in the real consumption. This can be understood from a simple arithmetic,

\[
\frac{p_C C / p}{p_O / p} = \left( \frac{C}{O} \right) \cdot \left( \frac{p_C}{p} \right)
\]

(4.1)

In the above equation, the LHS measures the share of nominal consumption deflated by GDP price index to nominal GDP deflated by the same deflator, in other words, the share of nominal consumption to nominal GDP. We can draw conclusions about the share of real consumption in real GDP (i.e. \(C/O\)) based on this share only if the price effect is immaterial or that the GDP price deflator and consumption price deflators move in tandem with each other. Let us see if that was the case. A careful reading of the data (see fig. 4.6) reveals that while in period I the prices of consumer goods and services have declined with respect to the GDP price index, in period III they show a drastic increase giving the relative price index a u-shape\(^3\). Therefore, one has to separately deal with the quantity and price traverse while explaining the share of consumption.

If relative prices play such a crucial role, then it is important to calculate consumption as a proportion of GDP (see fig. 4.7) with their respective price indices and contrast it with the fig. 4.3, where the broken line shows the share of consumption with the respective price deflators.

---

\(^2\) Despite this, in almost all the studies on consumption increase in the US, it is this share which has been analysed (Parker (1999)).

\(^3\) The u-turn movement in the relative prices needs an explanation. We try to provide a tentative answer to this question. If we further disaggregate the relative price between the three components of consumption, it is the relative price of services that shows exactly the same pattern as the overall consumption prices. Therefore, it the relative increase in the prices of services which is responsible for the overall u-turn. This reflects an increase in the markup within the services sector relative to the markup in other industries. Such an increase in markup in the services sector, esp. medical care or financial services or housing, could have been possible because the extent of international competition in this sector is comparatively low in contrast to, say the manufacturing sector. The services industry, unlike the other industries, had a greater leeway in increasing their markup and thus tilt the price in its favour. Within the services sector, it was the medical care industry whose prices increased the most and it also happens to be a necessity for the entire household sector which makes the demand for it highly inelastic. An increase in prices, therefore, need not necessarily lead to a decline in demand for such services. Instead, it might lead to an increase in the total outlay on this service, as indeed seems to have happened during this period.
Figure 4.6: Movement of the Relative Prices of Consumption to GDP Price Index

Figure 4.7: Average Propensity to Consume with and without the Relative Prices of Consumption and GDP
4.1 DESCRIPTIVE EVIDENCE

A partial explanation for the increase in the nominal share of consumption, therefore, is the increase in relative prices of consumption goods and services. We term this the price effect and test for it when we perform the econometric analysis. But even if we discount the price effect, there is still a major increase in real consumption in the 80s and especially in the 90s. What accounts for this increase? Our main argument presented in the last chapter is that it was a result of the wealth and the dividend effect. Let us look at the movement of these two factors for the household sector to find out what was the extent of such an increase.

![Figure 4.8: Increase in Dividend Payout Ratio and Net Worth as a Proportion to the GDP](image)

The variable that is most appropriate to represent the wealth of the household sector is their net worth. Net worth measures the difference between the assets and liabilities of the household sector as a whole. Since we are looking for the determinants of increase in consumption as a share of GDP, we need to measure the household net worth in a similar manner. We, therefore, present figures for household net worth as a proportion of the GDP. The increase in the share of household wealth out of GDP is dramatic for the same period as the increase in real consumption. The most remarkable increase is in the 90s and especially during the late 90s which was entirely due to the unprecedented stock market boom of that time. Another interesting feature, which has often gone unnoticed in this context, is the increase in the dividend payout ratio. While post-Keynesian economists in the US have attempted to look at the increase in dividend payout
ratio as having a negative impact on investment because it decreases the internal funds available to corporations, we are presenting an entirely opposite argument. We believe that an increase in the dividend payout ratio increases the demand, through increase in consumption of the shareholders as shown in the last chapter. To my mind, these two processes are at the heart of any explanation for increase in the share of real consumption. Based on the descriptive data presented in this section on consumption, we would attempt to estimate the consumption function.

4.1.3 Investment

Now let us concentrate on the pattern of investment in the US economy. We start with some descriptive results of the firm level data taken from Compustat Industrial Files. This would be followed by presenting some descriptive evidence in support of decline in net investment, especially in the non-residential category in the economy.

Firm Level Data

In the last chapter, we have made certain claims about the characteristics of firms with respect to their size. We should attempt to find whether those claims are true. We divide the non financial corporations (NFCs) in five different categories\(^4\); smallest, small, moderate, big and biggest based on their asset class (see table 4.3).

Our arguments about economies of scale comes out clearly since the average cost decreases marginally with size. It is to be noted that there is a dramatic fall in the average labour cost which is primarily because of the change in the capital intensity of production. Even though the fall in average labour cost declines drastically with size, average cost does not fall to the same extent. Apart from the increase in fixed costs due to increased capital intensity for larger firms, this could also reflect a higher sales effort on part of the larger corporations. The most important result, however, from this analysis is the pattern of investment capital ratio with respect to size. The smaller firms have a higher \(I/K\) ratio than the bigger firms which substantiates our claim that concentration could lead to a decline in the overall \(I/K\) ratio. Fazzari (1993) also finds that the fastest growing corporations are smaller in size than the big corporations which mostly register a moderate growth.

\(^4\) The details of data definitions and the basis for categorization of firms in different groups is provided in the statistical appendix.
4.1 DESCRIPTIVE EVIDENCE

<table>
<thead>
<tr>
<th>Table 4.3: Characteristics of Firms Based on Asset Size</th>
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</thead>
<tbody>
<tr>
<td><strong>Markup</strong></td>
</tr>
<tr>
<td>Profit/cost</td>
</tr>
<tr>
<td>smallest</td>
</tr>
<tr>
<td>0.19</td>
</tr>
<tr>
<td>Profit/Labourers*</td>
</tr>
<tr>
<td>smallest</td>
</tr>
<tr>
<td>13.02</td>
</tr>
<tr>
<td><strong>Returns to scale</strong></td>
</tr>
<tr>
<td>Average Cost</td>
</tr>
<tr>
<td>smallest</td>
</tr>
<tr>
<td>0.714</td>
</tr>
<tr>
<td>Average Labour Cost</td>
</tr>
<tr>
<td>smallest</td>
</tr>
<tr>
<td>0.348</td>
</tr>
<tr>
<td>Labour Productivity*</td>
</tr>
<tr>
<td>smallest</td>
</tr>
<tr>
<td>125.53</td>
</tr>
<tr>
<td><strong>Investment related ratios</strong></td>
</tr>
<tr>
<td>I/K</td>
</tr>
<tr>
<td>smallest</td>
</tr>
<tr>
<td>0.304</td>
</tr>
<tr>
<td>Avg Capital stock</td>
</tr>
<tr>
<td>(1950)</td>
</tr>
<tr>
<td>(1973)</td>
</tr>
<tr>
<td>(2005)</td>
</tr>
<tr>
<td>Median Capital Stock</td>
</tr>
<tr>
<td>(1950)</td>
</tr>
<tr>
<td>(1973)</td>
</tr>
<tr>
<td>(2005)</td>
</tr>
</tbody>
</table>

*in million dollars per 1000 workers

Source: Compustat Industrial Files, Author's calculations

We would now like to present the inter temporal results of the same category of firms to substantiate the claim as to how their investment behaviour changed between the golden age and the age of finance.

Within these three periods, we have also presented decadal data in order to show the 'fabulous 90s' separately from the sluggish 80s. We can draw some tentative conclusions based on the results shown in table 4.4. First, for the small firms, the annual rate of growth of investment has increased in the age of finance as compared to the golden age. Even for moderate firms, it has only marginally gone down but for both the big and biggest category of firms it had unequivocally gone down drastically. This difference across size can again be explained through our argument that the smaller firms might have gained from the asset price inflation because it relaxed their financial constraint. For the larger firms, finance is less of a constraint to begin with so the negative effect of financialisation and concentration dominated their investment behaviour. Most dramatic decline in the rate of growth of investment is for the top 2% of the firms which are really gigantic in size. If we look at the decadal growth then the overall picture does not change much except that investment really gained in the 1990s across different categories. But even there, it is the smaller firms whose growth rate of investment was higher, in fact even higher than the 'glorious' 60s. For
the bigger firms, however, the growth rate did not cross its peak level of the 60s. As far as the effect of the growth rates of investment of these categories on the growth rate of the economy is concerned, it is the rate of growth of investment in the bigger firms that matters the most since it is they who contribute the maximum to the overall investment of the economy.

Second, the reason for this decline in the rate of growth of investment in the age of finance does not seem to be either a decline in the average sales-capital ratio or the profit rates. On the contrary, they both have either remained stable or marginally increased during the age of finance. Therefore, we can say again

5 The higher sales-capital and profit rates for smaller firms might be perplexing when we see it in conjunction to the higher markups of the bigger firms but this is entirely because of the high value of capital for the bigger industries.
tentatively, in the absence of plausible data on capital gains of firms, that it is because of the increase in financial profits that the rate of investment declined for the larger firms.

Third, if we look at the employment growth figures then they are even more appalling. While there has been a decline in the rates of growth of investment for bigger firms in the age of finance, their rate of growth of employment has become negative in this period which is a pointer in the direction of massive layoffs that would have taken place in these corporations in the wake of mergers. If we look at the decadal growth within the age of finance, we find that while the notorious 80s expectedly witness a negative employment growth rates across the categories, it is surprising to find that even for the roaring 90s, the situation did not change for the bigger firms as they still had negative growth rates of employment.

Let us now present some descriptive data on investment for the economy as a whole.

Economy Level Data

If we look at the net private investment as a proportion of the GDP we find that there has been a decline in it in the post-73 phase as compared to the Golden Age, as shown below in fig 4.9 where the dashed line through the graph is its average over time.

![Chart showing net investment as a proportion of GDP from 1950 to 2000](image)

Source: BEA Statistics

Figure 4.9: Net Investment as a Proportion of the GDP: 1952-2007
4.1 DESCRIPTIVE EVIDENCE

We can easily see that while the ratio on an average had been increasing through the Golden Age period, it started to decline in the post-73 phase. But this measure of net investment includes residential investment as well. Since we know that residential investment has different dynamics from nonresidential investment, we take a look at them separately.

![Graph showing Net Residential Investment as a Proportion of GDP: 1952-2007.](image)

Source: BEA Statistics

Figure 4.10: Net Residential Investment as a Proportion of GDP: 1952-2007

The pattern that the residential investment follows is dramatically opposite to the overall pattern of net investment which only tells us about the recent housing boom in the US which has driven it in the present decade. If we look at the hump in the residential investment in post 2000 phase it quite clearly gives us a picture of the residential housing boom that the US has faced in that period (see fig 4.10).

Net investment of the private business has been declining in the post-1973 period which endorses our underinvestment argument (see fig 4.11). It can be seen that even though this proportion had been falling through the 80s till the early 90s, it started picking up from the mid 90s. This further proves our argument that before the mid-90s, the underinvestment was far dominant a phenomenon than overconsumption but after the DotCom bubble of the 90s there was a dramatic increase in consumption which more than compensated for the decline in investment. This dramatic increase in consumption would have led to an increase in the degree of capacity utilization and to an increase in investment eventually.
One could argue that the decline in investment of the business sector could have been due to paucity of funds. We would recall from fig 2.11 that these corporations instead of being net borrowers have become net lenders to the economy in the post 2000 period. So paucity of funds at least can not be the central argument for the decline in investment. If that is the case then what explains the decline in investment? We have argued that the investment has got dampened due to an increase in the opportunity cost for corporations because of high yielding financial assets. Have the firms started investing more in the financial assets?

We attempt to show that the non-financial corporations have indeed invested a significant amount of idle cash in the financial assets (see fig 4.12). We look at two variables, net acquisition of financial assets and the net increase in financial investment (difference between net acquisition of financial assets and net increase in liabilities) and contrast it with gross capital expenditure. Not only is there an increase in acquisition of financial assets by NFCs but the level has once even surpassed the amount that was spent on real investment and that period happens to be the asset price boom of the late 1990s. On the other hand, since 1950 it is for the first time that the NFCs have maintained a positive net financial investment for a long time as shown in the bar graphs. That is to say that they have acquired more financial assets than the liabilities that they have built. This is a clear case of acquiring financial assets solely for purposes of financial gain and acting as rentiers.
4.2 PARAMETRIC ESTIMATION

Based on the descriptive results of consumption and investment, we would now try to estimate the consumption and investment functions to try and see if the arguments that we have put forward in the last chapter can be tested. The purpose of this section would be to test the following:

1. We would attempt to test three issues vis-a-vis the consumption function. First, whether distribution plays a role in the overall consumption propensity of the economy. This can be established if the propensity to consume out of wages is statistically higher than that out of profits. Second, what role did the wealth effect play in the 1980s and 90s in increasing the consumption? Third, what role did the price effect, as defined above, play in explaining the increase in the share of consumption out of GDP? After performing the regression exercises, we quantify the role of each of these factors in the overall movement of consumption share. Since we are discussing distribution and concentration, the analysis would be incomplete, if we present evidence only at the level of the economy. We, therefore, present household level data analysis by Maki and Palumbo (2001) which has some very interesting conclusions in favour of our argument.

2. As far as the investment function is concerned our objective is to show that the desired rate of capacity utilisation has increased as a result of increase...
in concentration. An increase in the level of concentration decreases the need to maintain high excess capacity on account of decline in the number of competitors within as well as potential outsiders because of the increase in the barriers to entry. It is difficult to estimate the desired level of capacity utilisation even though theoretically it is possible to analyse it. We would rearrange the investment function to make it empirically testable.

4.2.1 Estimation of Consumption Function

The Existing Evidence

Poterba (2000) provides an extensive survey of the recent studies on the linkage of increasing net worth to consumption outlays of the household sector between 1989 and 1999. We present the extent of this increase in table 4.5. He argues that even if the marginal propensity to consume out of wealth is very low, the sheer magnitude of increase in wealth during this period might have led to a dramatic increase in consumption. His focus, however, is primarily on the stock market wealth and not on the net worth in general of the household. The reason why he concentrates on stock market component of net worth alone is because of the dramatic increase in the corporate stock wealth in comparison to the other components of net worth.

The extent of the net worth increase as well as the difference of growth of various components of it can be understood from the fact that during a span of ten years, the real value of corporate equities increased by 262 percent while other components of net worth like tangible assets increased only by 14 percent whereas all other financial assets increased by 34 percent (see table 4.5)[6]. While noting the remarkable increase in the net worth and the value of corporate stock, he draws an intertemporal comparison between the 1990s and the 1920s when similar increases in net worth as a whole of household was witnessed. As far as the value of corporate stocks are concerned, he says in the last 80 years, there has been only one other period, the 1950s, that saw a similar increase in it.

6 Wolff (1998) warns that there has to be a difference in how we measure the wealth depending on what are we studying. According to him, the variable ‘net worth’ as we have come to know it can not serve as a measure for the wealth effects on consumption, so he constructs two different measures of wealth which are more liquid than the traditional net worth. He defines one as ‘fungible net worth’ which includes assets which can be readily converted to cash and thus does not include consumer durables or the retirement wealth. The other measure that he uses is more liquid than this and is called the ‘financial wealth’ which is fungible net worth minus net equity in owner occupied housing because he argues that the owners of these houses are not going to liquidate their houses in the short term for normal consumption.
4.2 Parametric Estimation

Table 4.5: Growth and Composition of Household Net Worth
(in billion $ at 1999 prices)

<table>
<thead>
<tr>
<th>Asset Category</th>
<th>Dec 1989</th>
<th>Dec 1995</th>
<th>Dec 1999</th>
<th>Rate of Growth (in %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangible Assets</td>
<td>12185.5</td>
<td>11796.2</td>
<td>13940.9</td>
<td>14.42</td>
</tr>
<tr>
<td>Financial Assets Except Equities</td>
<td>15634.5</td>
<td>17168.8</td>
<td>21616.8</td>
<td>38.26</td>
</tr>
<tr>
<td>Market Value of Equities</td>
<td>3682.8</td>
<td>6730.4</td>
<td>13331.5</td>
<td>261.99</td>
</tr>
<tr>
<td>Liabilities</td>
<td>4542.2</td>
<td>5453.5</td>
<td>6840.9</td>
<td>50.61</td>
</tr>
<tr>
<td>Net Worth</td>
<td>26958.5</td>
<td>30241.8</td>
<td>42048.2</td>
<td>55.97</td>
</tr>
</tbody>
</table>


Poterba (2000) distinguishes the corporate stock from other forms of net worth also because of the fact that there might be differences in propensities to consume out of other forms of wealth. He provides the example of housing prices and argues that the marginal propensity to consume out of the net worth due to housing price increases depends on the time over which the consumer wants to live in the present house. If she decides to stay long then even though her net worth has increased, the implicit user costs of living in the house also simultaneously increases which might offset the increase in wealth. Therefore, it is important, according to him, to differentiate between different forms of wealth.

To substantiate this claim, he provides the empirical evidence from Engelhardt (1996) and Skinner (1996) who find a weak linkage between housing prices and non-housing consumption. This is a fairly important point especially if we look at it from a more disaggregated level of distribution of assets among households. If a majority of increase in the net worth of the household sector as a whole consists of the increase in the value of corporate equities, then the wealth effect would also be higher for those categories of households whose wealth basket consists more of corporate equities. If one looks at the distribution of the various categories of assets across different quintiles within the household sector, one would find that the distribution of corporate equities is highly skewed in favour of the top 20 percent of the population (see table 1.6). Therefore, one would find that the wealth effect is more pronounced for this quintile as opposed to the other quintiles. Moreover, the wealth effect would be more pronounced for the upper quintiles as compared to the lower ones if the marginal propensity to consume out of wealth consisting of corporate equities is higher than that out of other categories of wealth.

Coming back to the overall effect of wealth on consumption, there exists broadly a consensus among economists about the existence of this effect but the attempts to quantify it have resulted in disparate figures about the marginal propensity to consume out of wealth. Meyer and Associates (1994) provide an
estimate of the wealth effect on consumption both for the short and the long term. They find that a dollar increase in equity wealth and in non-equity wealth lead to an increase in consumption by 2 cents and 1.4 cents in the next quarter respectively. In the longer run, however, the marginal propensities to consume out of these two components of wealth are .042 and .061 respectively. Though Brayton and Tinsley (1996) concur that the effect of stock market wealth is smaller than the other forms of wealth, their estimates for marginal propensities to consume out of these two components are .030 and .075 respectively. The difference in the estimates are also because of the difference in methodologies of these two studies. Poterba (2000) notes that the estimate of the wealth effect or the marginal propensity to consume out of wealth varies across different econometric models. He argues that this estimate is dependent among other things on how consumption and wealth are defined, on the specification used in the model as well as the data sample used. Accordingly, the estimates of Ludvingson and Steindel (1999) for the total wealth on consumption for the period 1953-1997 is .040 while within the sample period they find variation in the estimates if the period is broken into sub-periods.

Based on these varied estimates, Poterba (2000) calculates a tentative estimate of the wealth effect based on three values of marginal propensities to consume out of wealth 0.01, 0.03 and 0.05. He argues that out of these three estimates, there seems to be a broad consensus on 0.03 as the marginal propensity to consume out of wealth. He tries to quantify the increase in consumption as a result of increase in the stock market wealth based on these three parametric estimates. For these three marginal propensities to consume out of wealth, consumption of the household sector as a whole should have increased by 1.5, 4.5 and 7.4 percent respectively over the period 1989-1999.

Though these time series estimates of the wealth effect are quite exhaustive in nature, we believe that certain important factors have to be incorporated in the time series analyses viz. the relative price effect and the distribution effect that we talked about in the theoretical arguments made earlier.

Our Analysis

Since the analysis can be performed between the variables both at their levels as well as the variables as a proportion of the GDP, we present the results of both the exercises to substantiate the basic arguments that we have made earlier.

level variables Since we are dealing with time series data which more often than not have unit roots, we perform a cointegration analysis on quarterly data
from 1953.1 to 2006.4 and find that they are cointegrated to degree one\(^7\). We run the regression in the following form with AR(1):

\[
C_t = a_0 + \sum_{i=0}^{3} \delta_i W_{t-i} + \sum_{i=0}^{3} \beta_i \Pi_{t-i} + \sum_{i=1}^{2} \gamma_i \text{Net Wealth}_{t-i} + \epsilon_t
\]  

(4.2)

The results are reported below for the consumption function where the coefficients are the long-run marginal propensities to consume out of wages, profits and net wealth. We also report the figures for the disaggregated measures of wealth differentiated on the basis of whether it is wealth in equity or other non-equity forms.

\[
C = 0.688W + 0.245\Pi + 0.012\text{Net Wealth}
\]

\[
R^2 = 0.99 \quad DW = 1.70
\]

(4.3)

This is exactly the counterpart of our consumption equation without the debt effect. As noted above, wealth can be differentiated between corporate and non-corporate wealth. So after differentiating between the two components of wealth, we get the following result:

\[
C = 0.503W + 0.166\Pi + 0.011\text{Corporate Wealth} + 0.067\text{Other Wealth}
\]

\[
R^2 = 0.99 \quad DW = 1.70
\]

(4.4)

**variables as a proportion of gdp** Now we would try to estimate the variables as a proportion of output (GDP)\(^8\). Since we want to explain the increase in the share of consumption out of GDP, we deflate \(C\) and \(O\) by the GDP deflator. This cointegration exercise should give us three results based on the arguments made above; the coefficient of profit share should be negative because it represents a shift of income away from wage earners towards profit earners. This would substantiate the tendency towards underconsumption. Second, the coefficient

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7 Data description as well as the details of the cointegration analysis are provided in the appendix. We report here the long-term marginal propensities to consume out of wages, profits and wealth whereas in the appendix, we present the detailed results for each of the lags used for these variables.

8 We have estimated the cointegrated relationship between these variables for the period 1952.1-2000.4. We have restricted the analysis to 2000.4 because after this period there has been a drastic jump in net worth as a proportion of GDP. Such a sudden jump undermines the cointegration relationship that existed between them prior to this jump.
of the relative prices should be positive reflecting that a part of the increase in share of consumption out of GDP is purely due to the increase in prices of consumption goods and services with respect to the GDP deflator. Third, the coefficient of wealth should be positive showing the counteracting tendency against underconsumption.

1952.1-2000.4

\[ \frac{C}{O} = 0.17 - 0.18 h + 0.019 \frac{NW}{O} + 0.45 \frac{pc}{po} \]

\[ T = 195 \quad R^2 = 0.96 \quad \hat{\sigma} = 0.004 \quad \rho = 0.956 \]

(standard errors in parentheses)

It is quite clear from the equation above that all the three predictions about the coefficients are met. We also try to estimate this function especially for the 80s and 90s when major concentration had happened. The result is given below:

1980.1-2000.4

\[ \frac{C}{O} = -0.013 - 0.101 h + 0.012 \frac{NW}{O} + 0.666 \frac{pc}{po} \]

\[ T = 83 \quad R^2 = 0.94 \quad \hat{\sigma} = 0.003 \quad \rho = 0.817 \]

(standard errors in parentheses)

**Quantifying the Relative Importance of Different variables**

Based on the results of our econometric exercise, we try to quantify the contributions of each of these factors in the table 4.6.

It is clear from table 4.6 that the underconsumptionist tendency has been counteracted by the wealth effect quite effectively even if just 1 cent is spent on consumption out of every dollar increase in the net worth. When we assume the wealth effect to be 3 percent instead, as is suggested in the literature, then the wealth effect quite remarkably reverses the entire underconsumptionist tendency and in fact explains a major part of the actual increase in the share of consumption for the entire period 1980-2000. In the post-1995 phase, the wealth effect alone accounts for almost half the increase in the share of consumption.

The other important result is the effect of relative prices which is quite substantial in explaining the increase in consumption as a share of GDP (both deflated by the GDP deflator). This would explain the increase in expenditure on consumption merely due to an increase in the prices of consumption goods. To
Table 4.6: The Effect of Wealth, Concentration and Price on Consumption Share: 1980-2000

<table>
<thead>
<tr>
<th></th>
<th>Under-consumption (h)</th>
<th>Price Effect pc/po</th>
<th>Wealth Effect NW/O</th>
<th>Total Explained</th>
<th>Actual Actual Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Coefficient</td>
<td>-0.101</td>
<td>0.666</td>
<td>0.012</td>
<td>0.03</td>
<td>7</td>
</tr>
<tr>
<td>Change in the Variable (in %)</td>
<td>3.5</td>
<td>3.7</td>
<td>82.4</td>
<td>3.7</td>
<td>33</td>
</tr>
<tr>
<td>1980-1995</td>
<td>3.7</td>
<td>3.1</td>
<td>33</td>
<td>0.2</td>
<td>0.6</td>
</tr>
<tr>
<td>Effect on Consumption Share (in %)</td>
<td>-0.35</td>
<td>2.46</td>
<td>0.98</td>
<td>2.47</td>
<td>3.09</td>
</tr>
<tr>
<td>1980-1995</td>
<td>-0.37</td>
<td>2.06</td>
<td>0.39</td>
<td>0.99</td>
<td>2.08</td>
</tr>
<tr>
<td>1995-2000</td>
<td>0.02</td>
<td>0.3996</td>
<td>0.59</td>
<td>1.48</td>
<td>1.01</td>
</tr>
</tbody>
</table>

Source: Author's Calculations based on the data from FOF and BEA

our knowledge, there has not been any differentiation of the price effect from the other effects in the existing studies (for eg.Parker (1999)) which attempt to explain the increase in the share of consumption as a proportion of GDP. What we find, instead is that the price effect alone explains 2.5 percent out of the 5.7 percent increase in the share of consumption for the period 1980-2000.

It could be seen from above that both the price effect and the wealth effect have independent explanatory power. In the period 1980-1995, the price effect plays a very important role in explaining the increase in expenditure on consumption. Whereas the massive jump in the post-1997 period is, to a great extent, explained by the jump in the net worth since this happens to be the period when there was the biggest stock market boom. Both the price effect and the wealth effect, therefore, explain a greater part of the jump in the share of consumption. It is also to be recalled from the initial section on the data on consumption that its share out of GDP has suddenly stagnated in the post-2001 after having risen for almost 21 years. This halt can be explained by the sudden decline in the value of the net worth due to the stock market downturn in the post-2001 period. Though the consumption share has not dropped concomitantly but its rise has been halted for almost 5 years now.

Based on the present analysis, we could conclude safely that even though there are tendencies for underconsumption due to increase in concentration in the economy, there are counteracting tendencies in the form of the wealth effect that could totally counterbalance this tendency and in fact result in overconsumption as happened in the case of the US economy.
Now that we have established the fact of wealth effect on consumption, it is important to note that this wealth effect would not have the same effect on all the categories of households. We would like to recall from the evidence provided in Wolff (1998) that more than 80 percent and 90 percent of net worth and financial wealth respectively are owned by the top 20 percent of the household sector. In fact the top 1 percent of the population owns close to half the financial wealth. If our arguments about shift of income away from wages to profits and the wealth effect are correct, then we should find an increase in the consumption of those who own the maximum amount of wealth which is the top 20 percent of the population. On the other hand, for the bottom end of the population such a situation of income shift should have acted as a detriment to their consumption demand. Such a conclusion, however, can not be drawn from the macroeconomic data. We will have to look at a more disaggregated data of the various quintiles within the households which is what we present below.

The Household Picture

At the level of the households, there has been an interesting study by Maki and Palumbo (2001) who have divided the households according to both income and the level of education and then tried to measure the wealth effect in each category. Their starting point was 1992 which ended with 2001. What they found is really interesting — between 1992 and 2001 the average propensity to consume out of the disposable income has fallen for the lower two quintiles while it has increased dramatically for the uppermost quintile. This is coterminous with the jump in the net worth ratio of the uppermost quintile. Though this analysis only talks about the 90s but there are some quite noteworthy points in it; first, there has been a marginal shift in the income away

<table>
<thead>
<tr>
<th>Income Quintile</th>
<th>Net Worth-Income Ratio</th>
<th>Share in National Disposable Income</th>
<th>Consumption/Disposable Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-20%</td>
<td>18.1 22.5</td>
<td>4.4 4.4</td>
<td>97.9 95.6</td>
</tr>
<tr>
<td>20-40%</td>
<td>34.8 43.9</td>
<td>10.6 10.6</td>
<td>97.4 94.5</td>
</tr>
<tr>
<td>40-60%</td>
<td>54.9 60.2</td>
<td>16.8 16.5</td>
<td>98.7 98.6</td>
</tr>
<tr>
<td>60-80%</td>
<td>81.4 100.9</td>
<td>24.5 24.2</td>
<td>97.3 98.9</td>
</tr>
<tr>
<td>80-100%</td>
<td>279.4 385.1</td>
<td>43.7 44.3</td>
<td>95.1 104.4</td>
</tr>
</tbody>
</table>

from the lower quantiles to the uppermost quintile even within this short period which endorses our point that there was an increase in the profit share vis-a-vis wages. This further gives credence to the possibility that this process could have been present since the beginning of the 1980s. Second, the increase in the net worth-income ratio for the uppermost quintile is drastic as expected because they own the majority of the wealth and this is the reason why this is the only quantile whose share in the total net worth increased between the two periods (share in net worth not reported here) while for all the other quintiles it decreased.

Third, and the most interesting result, however, is the dramatic rise in consumption as a proportion of disposable income for the highest quintile exactly as we would have expected. Here again we find that the proportion of consumption has decreased for the lower two quintiles while it has remained constant and increased marginally for the third and the fourth quintile respectively. This, however, should not be necessarily interpreted as a proof of higher propensity of consumption for capitalists as compared to workers. The figures for the ratio of consumption to disposable income combine the marginal propensities to consume out of both wealth and income. Such a measure obviously would be higher for the richer category. In other words, the measure shown in table 4.7 combines $c_n$ and $a$ so to say.\footnote{This point comes out clearer if we look at the 1992 figures where net worth had not taken that drastic an effect though even here this proportion is calculated out of income and wealth together but it is still less dramatic than 2001. We find that the propensity to consume is higher for the lower quantiles than the upper ones in 1992 which gives further credence to the tendency for underconsumption.}

Financial Condition of the Household Sector

We have described above that this overconsumption, if financed by debt, can have serious repercussions for the economy. Let us have a look at how the household sector has behaved on this front. We have already seen above that a big part of the increase in the net worth of the household was due to increase in the value of corporate equities. In fact the contribution of corporate equities to net worth of the entire household sector in 1989 was 13.6% whereas in 1999 it increased to 31.7%. As opposed to that the tangible assets were 45% of the total net worth in 1989 whereas they declined to 33% in 1999. This is a pointer to the ephemeral character of this increase in net worth as is indeed evident from the sharp decline in net worth (both absolutely as well as a proportion of the GDP) that happened after the dotcom crash in the late 1990s. In fact, as shown in figure 4.13, this sharp decline is unequivocally because of the nose dive in the value of corporate equities within a very short span.
4.2 PARAMETRIC ESTIMATION

Figure 4.13: The Main Mover Behind the Decline in Net Worth in the late 90s
Source: US FOF Accounts

On the other hand, the picture of the debt taken against this increase in net worth is also worth noting which shows the extent of vulnerability for the households.(fig4·14)

It is clearly visible from fig 4.13 and fig 4.14 that even as the value of the corporate equities took a dip in the late 1990s, the debt obligation of the household did not decline leaving an adverse impact on the net worth of the household. Taking clue from the government debt trap dynamics, Parenteau (2006) argues that such a high debt-income ratio can lead the household sector into a debt trap unless any of the following conditions are satisfied. If the rate of growth of interest expense is lesser than the rate of income growth or the primary financial balance (excluding interest expense) of the sector is sufficiently in surplus or if the rate of appreciation of price of the assets that this sector holds is sufficiently high then the household sector can avoid getting into the debt trap.

Out of the three conditions, however, he finds that the household sector has been violating the first condition since the early 80s. As far as the primary financial balance is concerned, the household sector has been maintaining a surplus at a decreasing rate where it stood at 12% of GDP in 1982 and fell to 3.8% in 1999 and to a mere 1.2% in 2005. This closing gap, he argues, could itself be a reason for the explosive debt-income trajectory for the household. If even this prop doesn’t work then it leaves this sector with only one escape route which is high appreciation in the prices of the assets that they hold. This condition often requires serial bubbles in the prices of financial assets because
the macroeconomic fundamentals alone can not produce such remarkable results in such short periods of time.

Therefore, it is not surprising that the household sector has been, for over a decade, able to deficit spend without any significant disturbances precisely because of the serial bubbles in the economy starting with the New Economy followed by the housing market bubble. The government itself has facilitated this process to allow the household sector to run continuous financial deficit. After the equity bubble crashed in 1999, the government announced heavy tax cuts which increased the consumption expenditure. In the meantime, the Fed decreased the fund rate which resulted in a historically low home mortgage rates for the households, one of the reasons for the housing market boom. But now even the housing market boom is on a downturn, which would require another asset price bubble to ensure another spurt in the wealth effect. In the absence of another asset price appreciation, the wealth effect on consumption would decline leading to either a stagnation or even a decline in the share of consumption as a proportion of GDP.
4.2 PARAMETRIC ESTIMATION

4.2.2 Estimation of Investment Behaviour

Now we present some parametric results of the investment function. The investment function used in the last chapter can be converted into a discrete time framework for econometric estimation in the following manner:

\[
\left( \frac{i}{K} \right)_t = g_t = e + b(u - u_0)g_t
\]

But to calculate the rate of capacity utilisation, we need the data for full capacity output. Unfortunately, this data is not available at the level of the firms. A possible way out is to use the sales–capital (S/K) ratio as a substitute for the product of capacity utilisation and investment–capital ratio (ug) in our investment function above. Moreover, there are surely other factors like the internal funds available and the interest payments that influence the rate at which firms make their investments. Therefore, we include internal cash flows (CF) and interest payments (R) as a proportion of capital into the investment function above. The investment function for a firm 'j' in the panel data that we need to estimate below then becomes,

\[
\left( \frac{i}{K} \right)_{jt} = e + a \left( \frac{i}{K} \right)_{jt-1} + b \left[ \left( \frac{S}{K} \right)_{jt-1} - \frac{S_0}{K} \right] + c \left( \frac{CF}{K} \right)_{jt-1} + d \left( \frac{R}{K} \right)_{jt-1}
\]

\[
= \left[ e - b \frac{S_0}{K} \right] + a \left( \frac{i}{K} \right)_{jt-1} + b \left( S \right)_{jt-1} + c \left( \frac{CF}{K} \right)_{jt-1} + d \left( \frac{R}{K} \right)_{jt-1}
\]

(4.5)

Thus, the desired rate of capacity utilisation enters as a desired rate of sales–capital ratio which is now included in the intercept term as shown above. To find out whether there has been a structural break in the investment function of the firms on account of an increase in the desired rate of capacity utilisation since 1980, we need to use a dummy variable for the period after 1980. For our argument of an increase in the desired rate of capacity utilisation to be true, the intercept in the investment function above should decrease. In other words, the coefficient for the dummy variable used here should be negative. We use the
log values of all the variables. After the inclusion of the dummy variable, the investment function becomes,

\[
\left( \frac{i}{K} \right)_{jt} = \text{Intercept} + \theta D_{80-05} + a \left( \frac{i}{K} \right)_{jt-1} + b \left( \frac{S}{K} \right)_{jt-1} + c \left( \frac{CF}{K} \right)_{jt-1} + d \left( \frac{R}{K} \right)_{jt-1} \tag{4.6}
\]

The results for the regression analysis of this investment function on the panel data of firms are given in tables 4.8 and 4.9. It could be seen table 4.8 that the coefficients of the dummy variable is negative especially for the bigger firms. For the category of smallest and small firms, the coefficients are not significant at all while for the moderate category, it is significant only at 5 percent level. This shows that this factor was not very crucial for the smaller category firms. In sharp contrast to this, there is a sharp decrease in the intercept for the bigger firms. In fact, concentration seems to have led to a decline of investment to the magnitude of 6.6 percent, 7.5 percent and 10.5 percent for the big, biggest and the top 2 percent category of firms respectively. As for the interpretation of other variables, it could be seen that the coefficients for cash flow and interest payments are the lowest for the biggest firms' category and they progressively increase as we move towards the smaller sizes. Thus, while finance matters for the smaller firms, they are largely immaterial for the larger firms.

If we take a subset of the non-financial corporations and concentrate only on the manufacturing sector then the results do not change much, as shown in table 4.9. The period of concentration has affected the larger firms more. The coefficients for the smaller firms for the dummy variable are either not significant statistically or they are significant only at 5 percent level for the smaller firms category. In contrast to that, it leads to a decline of 6.3 percent and 6.6 percent in investment for the firms belonging to the big and biggest category respectively. Rest of the variables behave in a similar manner as they do for the entire set of non-financial corporations.

As far as specific focus to the effect of financialisation is concerned, a very interesting study has been done by Orhangazi (2006) in which he found that the process of financialisation has affected the firms in an asymmetric fashion. He used the financial profits as reported in the Compustat files along with the variables that we have used as a determinant of investment. He found that while the smaller firms have benefited from the enhancement in financial profits, the bigger firms have registered a decline in their investment rates owing to an
4.3 A Study of the Dot Com and the Real Estate Booms

Table 4.8: Parametric Results for Fixed-Effect Investment Functions of NFCs

<table>
<thead>
<tr>
<th>Dependent Variable $g_t = (i/K)_t$</th>
<th>All</th>
<th>Smallest</th>
<th>Small</th>
<th>Moderate</th>
<th>Big</th>
<th>Biggest</th>
<th>Top2%</th>
</tr>
</thead>
<tbody>
<tr>
<td>$g_{t-1}$</td>
<td>0.341</td>
<td>0.108</td>
<td>0.146</td>
<td>0.23</td>
<td>0.448</td>
<td>0.502</td>
<td>0.524</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.016)</td>
<td>(0.017)</td>
<td>(0.013)</td>
<td>(0.007)</td>
<td>(0.009)</td>
<td>(0.024)</td>
</tr>
<tr>
<td>$u_{t-1}$</td>
<td>0.117</td>
<td>0.286</td>
<td>0.335</td>
<td>0.302</td>
<td>0.095</td>
<td>0.104</td>
<td>0.059</td>
</tr>
<tr>
<td></td>
<td>(0.009)</td>
<td>(0.034)</td>
<td>(0.041)</td>
<td>(0.029)</td>
<td>(0.012)</td>
<td>(0.015)</td>
<td>(0.029)</td>
</tr>
<tr>
<td>$C_{F_{t-1}}$</td>
<td>0.232</td>
<td>0.291</td>
<td>0.254</td>
<td>0.244</td>
<td>0.199</td>
<td>0.156</td>
<td>0.147</td>
</tr>
<tr>
<td></td>
<td>(0.007)</td>
<td>(0.021)</td>
<td>(0.022)</td>
<td>(0.018)</td>
<td>(0.009)</td>
<td>(0.012)</td>
<td>(0.027)</td>
</tr>
<tr>
<td>$R_{t-1}$</td>
<td>-0.059</td>
<td>-0.136</td>
<td>-0.137</td>
<td>-0.126</td>
<td>-0.052</td>
<td>-0.052</td>
<td>0*</td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.014)</td>
<td>(0.015)</td>
<td>(0.011)</td>
<td>(0.004)</td>
<td>(0.006)</td>
<td>(0.011)</td>
</tr>
<tr>
<td>80-05</td>
<td>-0.042</td>
<td>0.012*</td>
<td>-0.03*</td>
<td>-0.04**</td>
<td>-0.066</td>
<td>-0.075</td>
<td>-0.105</td>
</tr>
<tr>
<td></td>
<td>(0.006)</td>
<td>(0.029)</td>
<td>(0.027)</td>
<td>(0.019)</td>
<td>(0.007)</td>
<td>(0.009)</td>
<td>(0.02)</td>
</tr>
<tr>
<td>Intercept</td>
<td>-1.223</td>
<td>-2.175</td>
<td>-2.197</td>
<td>-1.915</td>
<td>-0.968</td>
<td>-0.904</td>
<td>-0.633</td>
</tr>
<tr>
<td></td>
<td>(0.026)</td>
<td>(0.101)</td>
<td>(0.113)</td>
<td>(0.078)</td>
<td>(0.03)</td>
<td>(0.039)</td>
<td>(0.074)</td>
</tr>
</tbody>
</table>

| No. of Observations | 28003  | 4627    | 3691   | 5534     | 14147  | 7547    | 1337  |
| R-squared            | 0.30   | 0.20    | 0.22   | 0.28     | 0.38   | 0.43    | 0.44  |

The estimates are significant at 1% except *not significant, ** significant at 5%. Standard errors in parentheses
Source: Compustat, Author's Calculations

increase in the financial profits. Since the compustat dataset does not have all the measures of financial profits, Orhangazi had to content with the two variables which are reported i.e the equity earnings and the interest incomes. Though the greatest part of financial profits would have been the capital gains but paucity of data prevented him from analysing its role specifically. His results for the non-financial corporations are given in table 4.10. It can be seen that the profits from financial assets had a negative impact on investment of the large firms even as it has a positive impact on the small firms (coefficients of finprof in the table).

4.3 A Study of the Dot Com and the Real Estate Booms

Here we would like to study the behaviour of the US economy during the two recent business cycles, one during the 1990s and the other in the present decade. This would help us in understanding the growth process in the US in much greater detail. The present decade has still not seen the bottom of the recession so any inferences drawn about the recent boom would at best be tentative. In any case, we are defining the business cycles from peak to peak, just as the NBER does. In that case, a study of the present business cycle would also be
Table 4.9: Parametric Results for Fixed-Effect Investment Functions for the Manufacturing Sector

<table>
<thead>
<tr>
<th>Dependent Variable $g_t = (i/K)_t$</th>
<th>All</th>
<th>Smallest</th>
<th>Small</th>
<th>Moderate</th>
<th>Big</th>
<th>Biggest</th>
</tr>
</thead>
<tbody>
<tr>
<td>$g_{t-1}$</td>
<td>0.321</td>
<td>0.094</td>
<td>0.106</td>
<td>0.197</td>
<td>0.438</td>
<td>0.506</td>
</tr>
<tr>
<td></td>
<td>(0.006)</td>
<td>(0.018)</td>
<td>(0.02)</td>
<td>(0.016)</td>
<td>(0.009)</td>
<td>(0.011)</td>
</tr>
<tr>
<td>$u_{t-1}$</td>
<td>0.16</td>
<td>0.497</td>
<td>0.479</td>
<td>0.314</td>
<td>0.101</td>
<td>0.115</td>
</tr>
<tr>
<td></td>
<td>(0.012)</td>
<td>(0.042)</td>
<td>(0.05)</td>
<td>(0.036)</td>
<td>(0.015)</td>
<td>(0.019)</td>
</tr>
<tr>
<td>$CF_{t-1}$</td>
<td>0.227</td>
<td>0.231</td>
<td>0.269</td>
<td>0.252</td>
<td>0.193</td>
<td>0.148</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.022)</td>
<td>(0.025)</td>
<td>(0.02)</td>
<td>(0.011)</td>
<td>(0.014)</td>
</tr>
<tr>
<td>$R_{t-1}$</td>
<td>-0.05</td>
<td>-0.119</td>
<td>-0.11</td>
<td>-0.126</td>
<td>-0.047</td>
<td>-0.046</td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.015)</td>
<td>(0.017)</td>
<td>(0.012)</td>
<td>(0.005)</td>
<td>(0.007)</td>
</tr>
<tr>
<td>$80-07$</td>
<td>-0.032</td>
<td>-0.015*</td>
<td>-0.069**</td>
<td>-0.018*</td>
<td>-0.063</td>
<td>-0.066</td>
</tr>
<tr>
<td></td>
<td>(0.007)</td>
<td>(0.031)</td>
<td>(0.03)</td>
<td>(0.021)</td>
<td>(0.008)</td>
<td>(0.011)</td>
</tr>
<tr>
<td>Intercept</td>
<td>-1.332</td>
<td>-2.58</td>
<td>-2.432</td>
<td>-2.03</td>
<td>-1.01</td>
<td>-0.926</td>
</tr>
<tr>
<td></td>
<td>(0.032)</td>
<td>(0.116)</td>
<td>(0.132)</td>
<td>(0.092)</td>
<td>(0.038)</td>
<td>(0.048)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No. of Observations</th>
<th>19994</th>
<th>3606</th>
<th>2669</th>
<th>3987</th>
<th>9729</th>
<th>5213</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-squared</td>
<td>0.29</td>
<td>0.23</td>
<td>0.27</td>
<td>0.27</td>
<td>0.37</td>
<td>0.42</td>
</tr>
</tbody>
</table>

The estimates are significant at 1% except *not significant, **significant at 5%. Standard errors in parentheses
Source: Compustat, Author’s Calculations

appropriate given that it has already peaked. We analyse the role that the Fed has played during these two booms.

4.3.1 The Stock Market Build Up and the US Economy in the 1990s

We have already shown that there is a close linkage between the stock market boom and the growth rate in the age of finance. Let us now concentrate on a specific business cycle of the 1990s and try and see how the economy performed during that business cycle. The peak to peak dates of the business cycle of the 90s, according to the NBER, are 1990.3 and 2001.1. We use these peak dates to find out the trend rate of growth in GDP for this cycle and then detrend the real GDP data to arrive at the pure business cycle. Since we have been arguing that the GDP growth rate and fluctuations in it have got tethered to the vagaries of the stock market in the age of finance\(^{11}\), let us see whether it is true for this business cycle.

\(^{11}\) That is not to say that the earlier business cycles were not linked to the stock market booms and bust but we believe that the growth rate in the earlier periods were not intrinsically linked to
4.3 A STUDY OF THE DOT COM AND THE REAL ESTATE BOOMS

Source: BEA statistics for GDP data and Stock market data from Prof. Shiller's website, Author's calculations

Figure 4.15: Real Business Cycle and Stock Market Cycle of the 1990s in the US
4.3 A STUDY OF THE DOT COM AND THE REAL ESTATE BOOMS

<table>
<thead>
<tr>
<th>dependent variable: ((I/K)_{t-1})</th>
<th>All firms</th>
<th>Large firms(1)</th>
<th>Small firms(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>((I/K)_{t-1})</td>
<td>0.074</td>
<td>0.282</td>
<td>0.006*</td>
</tr>
<tr>
<td></td>
<td>(0.006)</td>
<td>(0.019)</td>
<td>(0.011)</td>
</tr>
<tr>
<td>((Sales/K)_{t-1})</td>
<td>0.045</td>
<td>0.027</td>
<td>0.057</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.002)</td>
<td>(0.002)</td>
</tr>
<tr>
<td>((Profit/K)_{t-1})</td>
<td>0.070</td>
<td>0.086</td>
<td>0.058</td>
</tr>
<tr>
<td></td>
<td>(0.003)</td>
<td>(0.011)</td>
<td>(0.006)</td>
</tr>
<tr>
<td>((Int/K)_{t-1})</td>
<td>-0.048</td>
<td>-0.074</td>
<td>-0.044</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.014)</td>
<td>(0.013)</td>
</tr>
<tr>
<td>((FinProf/K)_{t-1})</td>
<td>0.146</td>
<td>-0.046</td>
<td>0.241</td>
</tr>
<tr>
<td></td>
<td>(0.010)</td>
<td>(0.016)</td>
<td>(0.021)</td>
</tr>
<tr>
<td>((Debt/K)_{t-1})</td>
<td>-0.019</td>
<td>-0.008**</td>
<td>-0.016</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.004)</td>
<td>(0.005)</td>
</tr>
</tbody>
</table>

No. of obs.      | 30233     | 2938          | 7845          |
Number of firms  | 1573      | 270           | 673           |
Rsq              | 0.19      | 0.26          | 0.21          |

*not significant,** significant at 5%, standard errors in parantheses

Large firms and small firms are those which fall in the top 10% and the bottom 25% of the total distribution of assets respectively.
Source: Orhangazi (2006)

We have already seen that consumption, and thus growth was being driven almost single-handedly by the increase in net worth as a result of the stock market boom since the mid 90s. But here we attempt to show the fluctuations in the growth rate and the stock market. Just as we have detrended the GDP growth rate, we detrend the S&P composite stock real price index over the same period and get fig. 4.15. It is clear from this figure that the business cycle of the GDP remarkably maps one to one to the stock market ups and downs.

In fact, there seems to be a lag between the movement in the stock market and the GDP which suggests that the stock market is driving the real economy. The stock market crash of the early 90s seems to have left its effect till 1994 in the form of a decreasing rate of growth in the S&P prices. The downturn in the real economy in the same period also follows but the decline continues through 1996 even while the stock market had already started its revival in 1995. It took a while for this increase in the stock market prices to have its effect on the real economy. Even while one can argue that the stock market boom influences the stock market. But since the early 80s where consumption has become the engine of growth instead of investment, the dependence on the stock market has become more direct.
growth in the real economy, such close movement of the two is also a pointer to the fragility in the growth rate of the GDP. This is specially so because the stock markets, more than reflecting the fundamentals of the economy, reflect the speculative nature of the trading in stock markets. It is alright if the stock markets are just a sideshow to the growth rate of GDP but it another matter altogether when they become the drivers of economic growth. Keynes (1936) (p.159) had very aptly said,

Speculators may do no harm as bubbles on a steady stream of enterprise. But the position is serious when enterprise becomes the bubble on a whirlpool of speculation. When the capital development of a country becomes a by-product of the activities of a casino, the job is likely to be ill-done. The measure of success attained by Wall Street, regarded as an institution of which the proper social purpose is to direct new investment into the most profitable channels in terms of future yield, cannot be claimed as one of the outstanding triumphs of laissez-faire capitalism which is not surprising, if I am right in thinking that the best brains of Wall Street have been in fact directed towards a different object. [emphasis added]

Let us see what led to and sustained the stock market bubble for so long during the 1990s. One is the inherent logic of the stock markets and the other is the role that the government might have played in sustaining it. We would come to the role of the government later. This was the highest ever stock market boom in the history of United States as is evident from the growth of P/E ratios during this period. Even the stock market boom of the 1920s pale in front of the recent DotCom boom. What was so special in this boom that it reached such commanding heights within a span of three years.

Stock Market Frauds and Artificial P/E Ratios

This stock market boom was characterised by stock market frauds unprecedented in the history of the US. To give a few examples, WorldCom, Enron, Arthur Anderson, Tyco, Global Crossing were all leading companies in their respective businesses but all of them filed cases for bankruptcy in the aftermath of the stock market collapse of 2001. Let us briefly study the nature of frauds that they were involved in to understand the nature and extent to which stock markets were ‘artificially’ inflated by the corporations. A number of media reports study these cases in detail. We present here a summary of two of these cases which were huge in scale.
We start with a case study conducted by Moberg and Romar (2003) of the WorldCom collapse. WorldCom was an insignificant player in the telecommunications industry during its inception but between 1991 and 1997, it completed 65 acquisitions by spending $60 billion on them, most of which were financed through debt. In the eyes of the stock market, this was truly a rags to the riches story which resulted in an unbelievable surge in its stock prices from pennies to around $60 a share. The authors write that within a short span of time WorldCom became a 'darling of Wall Street'. This surge itself was driven to a great extent by the thumbs up that the media, investment gurus and the banks gave to the stocks of this company. Increase in the stock market prices further eased up the possibility of acquisitions of even more companies because high-priced stocks could be used for such purchases. It became the second largest telecommunications giant after AT&T, a remarkable growth indeed within a span of 6–7 years. The impact of such acquisitions at break neck speed was to follow. The authors argue that WorldCom could not efficiently integrate the acquired companies and the services dropped. Moreover, the financial burdens of the acquired companies were difficult to handle. The most glaring problem was the accounting malpractice that WorldCom indulged in to show that its profit rates were increasing with every quarter. The expenses for the year 2001 were not accounted for in the same year and instead ‘those costs – to the tune of billions of dollars – had been systematically sprinkled across a series of accounts for capital expenditures’ (Eichenwald and Romero (2002)).

All this while, the CEO of the company, Bernie Ebbers was accumulating stocks and financing further accumulation of stocks by using the increased value of stocks as collateral. But as soon as there were signs of a decline in the prices of the stocks of WorldCom, the value of collateral started to diminish which put pressure on him to either sell some of his stocks back or to take a loan against existing stocks. Since he was a major shareholder, any large scale sale of his stocks would have further depressed the stock prices so the management granted him a loan to the tune of $341 million which, Moberg and Romar (2003) argue, is the highest ever amount of loan granted by the management to its own executive. This was a recipe for disaster especially if the stock prices were going to fall in future. All these fraudulent practices went unscathed during the boom in the stock market but later it was an internal auditor who found these discrepancies which led to the company filing for bankruptcy for fraudulent accounting practices in 2001.

Let us now take the case of Enron. Eichenwald and Henriques (2002) present a detailed analysis of what actually happened at Enron. Enron was also riding high
on the stock market boom of the late 90s. Deregulation of the sale of electricity by the US Congress gave a boost to Enron. In the late 80s it had already started forward trading in natural gas after its deregulation. The directors of this company were supposed to have direct links with the politicians in the White House. Enron had created offshore Special Purpose Entities (SPEs) to pass on different costs in a hidden manner. Enron’s Chief Financial Officer, Andrew Fustow was the brain behind this arrangement. Since these were independent entities, their balance sheet would never show in the balance sheet of Enron even though they were de facto part of Enron. In this way, Enron had tried to pass on heavy costs onto them so that high profits can be shown in every quarter to maintain the stock prices of enron.

The stock prices of Enron were important to keep the company buoyant because all the partnerships that Enron had with these SPEs were written in terms of Enron stock options in return for keeping the losses away from the books of Enron. In fact, there were ‘trigger’ prices that these partnerships claimed, according to which if the stock prices of Enron fell below the trigger price, Enron would be held responsible for repayment of the required amount. Since the stocks were booming during the late 90s, the stock prices of Enron never fell below these trigger prices. Therefore, it was important for Enron to maintain its stock prices to avoid the discrepancy from showing up in their own balance sheet. Moreover, a lot of insider trading was taking place which was entirely illegal in practice. That was the reason why Enron probably was the only company which reported its profits to the stock market without producing its balance sheet. But once the stock prices started to fall, the triggers were pressed which placed the company under immense pressure. The CEO of the company, who along with the CFO was the mastermind behind this practice, resigned just six months after assuming the office fearing a dramatic reversal in the fortunes of the company. This further fuelled doubts among the minds of the people. A decline in confidence in its stocks led to a further decline in its prices. Enron was thus forced to show the hidden costs that it had been hiding for so long which turned its profits into losses and further decreased investor’s confidence. Enron also filed for bankruptcy when its last ditch effort to merge with another company did not materialise in the end.

We have already noted the other reasons that Pollin (2005) adduces for the massive upsurge in the stock market so we do not repeat them here. Instead we would like to concentrate on the role of the government during this period. Speculation and corporate fraud could have been dealt with firmly by the
4.3 A STUDY OF THE DOT COM AND THE REAL ESTATE BOOMS

government but it chose not to and instead encouraged speculation through the policies that it adhered to during this period.

*Repeal of the Glass-Steagall Act*

Through direct intervention, the government put its weight behind the stock market speculation by allowing destabilizing financial reforms and the repeal of acts which were part of regulation of the Wall Street since the 1929 crash. The Glass–Steagall Act (also called the Banking Act), which had been enacted in 1933 in response to banking sector’s direct involvement in the stock market speculation that precipitated the crisis of 1929, was repealed in 1999 under Clinton. This act stipulated that the activities of commercial banking should be separated from investment banking. Commercial banks were not allowed to take too much risk with the depositors’ money by investing them in volatile stock markets or underwrite risky securities. This is what the 2001 Economic Report of the President had to say on its repeal,

In financial services, the Glass–Steagall provisions instituted in the 1930s prevented banks from joining with stockbrokers and insurance companies to create financial monopolies. Restrictions on interstate banking prevented bankers from straying too far from the geographic areas they knew well. Given the massive financial instability of the 1930s, narrowing the range of banks activities was arguably important for that day and age. But those rules are not needed today, and the easing of interstate banking rules, along with the passage of the Financial Services Modernization Act of 1999, have removed them, while maintaining appropriate safeguards. These steps allow consolidation in the financial sector that will result in efficiency gains and provide new services for consumers. (p.47)[also quoted in Pollin (2005)]

*Monetary Policy Tailormade to Speculative Boom*

The monetary policy of the Fed\textsuperscript{12} during the 1990s was entirely tailor-made for the stock market boom. Through the entire 1990s, Fed decided to go lax on the monetary front. Low short-term real interest rates are a boon to stock market prices because for a given yield, a lower rate of interest means a higher price of

\textsuperscript{12} We draw heavily from an exhaustive perusal of the policies of the government during this period by Blinder and Yellen (2001). It is another matter that we do not agree with some of their conclusions.
stocks. Moreover, it is easier for the speculators to speculate on borrowed money because they would always earn more at the margin given low rates of interest. The Fed had started cutting funds target rate from early 90s itself to come out of the recession of 1990–91. We track the federal funds rate since the 1950s to see how they have behaved over this long period (see fig. 4.16). Apart from the deliberate decision of the Fed to maintain the fed funds rate in the 1990s, this option was also eased by the fact that the inflation during this period was low and stable which did not require major revisions in the fed rate to achieve a target real funds rate.

![Figure 4.16: Federal Funds Rate Fixed by the Federal Reserve](image)

Let us now concentrate on the 90s and see how the monetary policy of the Fed fared in this decade. In the aftermath of the recession of 1990-91, the Fed was trying to steer the economy out of the recession of the late 80s. But for quite some time, there were no positive results in sight in terms of recovery and the Fed was accused of not relaxing the monetary policy enough to give a boost to the economy (Blinder and Yellen (2001)). The route to recovery in these cases is generally assumed to be through a boost to investment demand through a decline in the interest rates. But we do not think that the linkage between the interest rates and investment is that strong as certain macroeconometric studies of investment have shown that more important than the rate of interest, it is the internal funds that matter for investment (Fazzari and Mott (1986); Fazzari,
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Petersen, and Hubbard (1988); Fazzari (1993)). Be that as it may, our contention is that it was consumption that was being targeted while attempting to keep the real interest rates low because consumption, especially when it is financed by debt, seemed to respond more to the interest rate cuts. The Fed was so desperate to lower the real rate of funds in the early 90s that since July 1992 for about a year and a half, it maintained a zero real rate (see fig. 4.17). This was an extraordinary dose of easy money, as Blinder and Yellen (2001) argue, which led Fed Chairman Alan Greenspan to say, 'We finally got it right and decided to sit with it.' [emphasis added]. What was the quantitative effect of this heavy dose of money? Blinder and Yellen (2001) provide a good estimate of this effect by performing a simulation exercise on counter factual data. They hold the federal funds rate constant for this period when it actually declined to measure what its effects would be on the GDP growth. They find that in the event that the Fed had maintained a tighter money policy, the GDP growth rate would have been 0.7 percent lower than what it actually was at least for the next one year.

Source: Federal funds rate from FRB and the rate of inflation from BEA

Figure 4.17: Federal Funds Rate and the Rate of Inflation During the Recovery from 1990–91 Recession

Meanwhile, the government was also pursuing a 'reduce fiscal deficit' policy which was on the top priority of Clinton's administration which was to be accomplished both through expenditure reduction and increase in taxes. This was being done with the objective of 'crowding in' private investment based on
the neoclassical logic. It was argued that a decline in fiscal deficit would lead to a decline in the interest rates which would promote private investment as Greenspan said, 'I don’t know how much of the long-term interest rate reduction is attributable to the expectation that there will be a credible reduction in the deficit somewhere out there. I suspect most of it is, rightly or wrongly.' [p.17, Blinder and Yellen (2001)].

While Blinder and Yellen (2001) argue that this is a pre-Keynesian logic but they fail to provide adequate reasoning for why this argument would hold and they themselves endorse this strategy as a great contributor to growth that was to follow. Their argument is that the fiscal deficit reduction led to a reduction in the bond rate which could give a further boost to private investment. Why the bond market behaved the way it did, they argue, is because of the budget proposal of Clinton was not a ’“Smoke-and-mirrors” budget’, unlike the earlier proposals but had an ‘unusual and virtually instant credibility in the financial markets’ (p.18, Blinder and Yellen (2001)).

We, however, believe that the linkage of fiscal deficit with reduction in interest rate is standing the logic on its head. In a world in which the interest rate is decided by the government (even if it only decides one such rate), there is hardly any independent existence of other forms of rates of interest, which are decided in tune with the government decided rates of interest with appropriate term structures. In such a world, it is the government deficit which is decided inter alia by the interest rates and not the other way round. This is so because the magnitude of fiscal deficit is itself dependent on the interest payments outstanding on the government debt, which would be higher higher is the interest rate. This is what we believe would have happened for the US during this phase. Since the Fed had decided to relax the monetary policy with a heavy dose of low interest rates, the other interest rates including the bond rates followed suit. With a decline in the interest rates, the interest payments on the government debts at a later date would be lower leading to a decline in fiscal deficit. We would, therefore, like to argue that had the Fed decided not to tighten the fiscal policy, the growth rate would have been higher than what it already was in the US. This would simply be because the US in the 90s was still a demand constrained system, as has been shown by the level of actual rate of capacity utilisation which was far below its potential even in the ‘fabulous 90s’.

Therefore, we agree with Blinder and Yellen (2001) only vis-a-vis their analysis of the monetary policy whereas we disagree with their other two arguments, about tighter fiscal policy and corporate restructuring playing a crucial role in the boom of the 90s. Even vis-a-vis the monetary policy, their stress seems to lie
on the route of increasing investment through a decline in interest rates whereas we are interested in two possible effects of the monetary policy: increasing debt-financed consumption and giving a boost to the stock market boom which was at the heart of the growth process. While it is true that even the debt-financed consumption would eventually lead to an increase in investment but it is not through the direct effect of a decline in interest rates but mediated through an increase in consumption. Thus even though our purposes are different, the trajectory of monetary policy is important for our story as well.

Let us come back to the monetary policy front. After maintaining zero real funds rate for about a year and a half, and not having raised it for five years at a stretch, the Fed decided to increase it above zero in order to avoid any overshooting in the economy. It was during this time that some interesting debates happened, which Blinder and Yellen (2001) report, within the Federal Open Market Committee (FOMC) which decides on the Fed funds rate. While a section of the FOMC members had started recommending an increase in the federal funds rate as early as December 1993, Greenspan was arguing to wait a little longer. The February 1994 meeting which was to follow had 'real drama', as Blinder and Yellen (2001) argue. The chairman proposed a 25 basis points increase in the federal funds rate but a majority of the FOMC members disagreed with him and wanted it to increase by 50 points instead. Greenspan (p.53, FOMC (1994)) argued against this proposal by saying,

Well, I've been around a long time watching markets behave and I will tell you that if we do 50 basis points today, we have a very high probability of cracking these markets. I think that would be a very unwise procedure... It could generate surprising counterproductive responses in this market...

Look, the stock market is at an elevated level at this stage by any measure we know of. We could set off a sequence of events here that I think could make the policy path that we have been developing here a difficult one.

It is interesting to note the basis of debate over the exact increase in the funds rate in this meeting. Those arguing for a 50 basis points increase were primarily trying to nip the inflationary pressure in the bud and thus lead the business cycle curve rather than following it. Whereas those in favour of a smaller increase were concerned about its negative fall out on the booming stock market, as is evident from the opinion of Greenspan. In such a situation, a low and stable
inflation played a crucial role in giving credence to the claims made by the likes of Greenspan.

If we carefully analyse his comments, then we would find that the ‘policy path’ that the Fed was aiming at, or at least Greenspan wanted it to aim at, was maintenance of the stock market boom, even if the Fed was in full knowledge of the speculative nature of the boom. In the same meeting, Greenspan had argued that there was speculation building up in the stock market and that ‘[i]f we have the capability of having a Sword of Damocles over the market we can prevent it from running away’ (p.47, FOMC (1994)). As the following years were to see, the Fed never had the ‘Sword of Damocles’ dangling over the speculating stock market, especially not during the late 90s which was its most successful run ever.

Despite this appeal by Greenspan, the other committee members were reluctant to change their position. At this point, he had to forcefully say (p.55-6),

It is very unlikely that the recent rate of economic growth will not simmer down largely because some developments involved in this particular period are clearly one-shot factors... This is not sustainable growth, and it has nothing to do with monetary policy. In other words, it will come down.

I would be very concerned if this Committee went 50 basis points now because I don't think the markets expect it. You want to hit a market when it needs to be hit... Were we to go the 50 basis points with the announcement effect and the shock effect, I am telling you that these markets will not hold still. I've been in the economic forecasting business since 1948, and I've been on Wall Street since 1948, and I am telling you I have a pain in the pit of my stomach, which in the past I've been very successful in alluding to. I am telling you--and I've seen these markets--this is not the time to do this... I really request that we not do this...

I also would be concerned if this Committee were not in concert because at this stage we as a Committee are going to have to do things which the rest of the world is not going to like. We have to do them because that's our job. If we are perceived to be split on an issue as significant as this, I think we're risking some very serious problems for this organization.

If somebody asked me if I think there is an economic case for 50 basis points, my answer is “most certainly there is a case.” Do I think there is a case in the full context of where the financial markets are at
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this stage and what the expectations in the markets are at this stage? I would say emphatically "no." It's far too risky. We don't need to take those risks. [Underlining in original but the other emphases are added]

At this point, the other committee members obliged and decided 'unanimously' to increase the funds rate only by 25 basis points. Some interesting points can be derived from this comment of the chairman. Greenspan is candid about admitting that the growth rate during the early 90s had 'nothing to do with monetary policy', and were instead reflective of one-shot factors. In effect, Greenspan was trying to argue that in a situation where the growth rate is fragile like this and especially if it is strictly dependent on the stock market boom, it is dangerous to take any steps that would lead to a meltdown in the stock markets where even this fragile rate of growth would disappear. He was fully aware of the instability of the growth path, though little did he know that even this fragile growth path could be maintained for more than half a decade provided the stock markets are not disturbed. This is precisely what the Fed did in later years.

As the perceptible threats of inflation increased, the Fed funds rate was gradually increased to 6 percent between 1994–95 to ensure a safe landing from the initial high growth rates of the early 90s. But inflationary pressures were not building up, even though the unemployment rate was low because of what has been called the 'traumatised workers' hypothesis, and the economy instead was showing some signs of falling into a recession. The real funds rates were rising in the wake of declining rate of inflation. This prompted the Fed to decrease the funds rate during 1995–96 after which it remained stable for about two years till 1998 (see fig. 4.18).

For the better part of the second half of the 90s, which actually saw phenomenal growth rate in the US, Fed's monetary policy was, what Blinder and Yellen (2001) call, of forbearance. Since the inflationary situation was well under control, there was no reason for the Fed to be worried about increasing the funds rate to tackle inflation. This tranquil state of affairs vis-a-vis inflation gave a lot of elbow room for the Fed to maintain a looser monetary policy. Laurence Meyer, the Federal Reserve Governor, called this period a 'temporary bliss'. Blinder and Yellen (2001) are quite ecstatic at the performance of the economy during this period when they say (p.52),

It was during the good luck period (1996–98) that Greenspan, the alleged inflation hawk, revealed himself to be the committee's most ardent advocate of New Economy thinking: that productivity gains

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and workers insecurity were holding down both compensation and inflation—and might do so for a significant period of time. This view rationalized a strategy for continued forbearance in the face of extraordinarily low unemployment, and Greenspan led his sometimes balky committee to do precisely that. The Fed raised interest rates only once, and then by a mere 25 basis points (in March 1997).

...given increased uncertainty about structural shifts—and the fact that inflation was falling, not rising—Greenspan was able to persuade his committee not to attack inflation "preemptively" but rather to wait to shoot until they could see the whites of rising inflation's eyes. And that, of course never happened. [emphasis in original]

For this entire 'good luck' period of forbearance, the Fed was banking on the stock market boom to provide the extraordinary impetus to consumption demand. During this period, all that the Fed was interested in doing was not only not to disturb the main engine of growth i.e. the stock market but to provide as much impetus as possible to increase the confidence of the investors to keep investing in it. Governor Rivlin placed the mood of the Fed quite succinctly in the meeting held in February 1998, when she said (pp. 64–6),
Uncertainty does not make today's decision harder; in fact, it makes it easier. The fact that there is no imminent danger of inflation or recession makes it easy to justify leaving the monetary policy levers where they are until more evidence accumulates bearing on the question of which way we might want to move them...

I can also imagine the economy proving to be a good deal stronger than the staff projects. Consumer demand could prove even more resilient than they are projecting based on strong wage growth, attractive interest rates for financing homes, durables, and cars, and continued strength in the stock market. Yesterday's stock market increase seemed irrational to me... However, my thinking that market behavior is irrational, or indeed even the Chairman thinking out loud in the same vein, does not guarantee that such behavior will not continue. Favorable financing and general optimism also could keep business investment stronger than projected...

A decision to increase the federal funds rate would be difficult to defend publicly because the downward pressures from declining import prices would still be constraining inflation.

Conversely, I can imagine the U.S. economy looking substantially weaker than the Greenbook forecast over the next few months. This scenario would depend largely on psychological factors and not on anything likely to be picked up in models. The list of downside factors includes some potential setbacks in Asia, such as the lack of political will to carry out the reforms in Korea or Japan or a new round of devaluations, possibly sparked by China and Hong Kong giving in to pressures to devalue. Other downside factors might involve a spate of poor U.S. corporate earnings reports that triggered a steep drop in the U.S. stock market and a fall in consumer and business confidence, negative domestic political developments, or escalating tensions in the Middle East. Any of these triggers would precipitate a steeper-than-anticipated reduction in U.S. growth and even a negative downward spiral that would threaten a world recession. I view this scenario as a lot less likely but a lot more dangerous than the first. The Fed might be called on to act quickly but decisively to contain the damage and try to restore healthy growth. The one thing the world cannot afford right now is a stalling U.S. engine. [emphasis added]
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It is amply clear from this understanding of one of the members of the FOMC what the understanding of the Fed was during the significant rate of growth of the US economy in the late 90s. First, the growth was essentially consumption driven which itself was dependent on the wealth effect of the stock market boom, so it would be foolish to disturb this balance even though the committee had full knowledge that the movement in the stock market was to a great extent speculative and not reflective of ‘fundamentals’. Second, the increase in consumption was financed by debt so it would be prudent not to disturb the federal funds rate. Third, even though they were aware of the possibility of a downside of this growth, and it turning into a world recession, resulting from a decline in the stock market or other developments, they were still in favour of acting when the situation arises rather than preemptively strike at stalling the US engine (read stock markets in the US).

Praise poured in for the Fed and its chairman, Greenspan who was considered a magician since he not only ensured soft landing in the mid 90s but was also the main architect behind the monetary policy that backed the boom in the late 90s. Though the Fed was clear of the positive role that the stock market had played in boosting the consumption demand and thus of growth in the US since the mid-90s but it was also aware of the extent of speculation involved in the stock market boom of that time. Despite being aware of the potential of economy becoming ‘bubble on a whirlpool of speculation’ and its fallout on the economy in the event of a stock market meltdown, the Fed did not take steps to avoid such a scenario because that would have stalled the boom itself. Greenspan was quite candid about his opinion on the stock market boom of that time and did not want to ‘underestimate’ the ‘negative consequences’ of a stock market break as is clear from what he said in a speech delivered at the Annual Dinner and Francis Boyer Lecture of The American Enterprise Institute in December, 1996,

[I]nflation can destabilize an economy even if faulty price indexes fail to reveal it...

But where do we draw the line on what prices matter? But what about futures prices or more importantly prices of claims on future goods and services, like equities, real estate, or other earning assets? Are stability of these prices essential to the stability of the economy?

Clearly, sustained low inflation implies less uncertainty about the future, and lower risk premiums imply higher prices of stocks and other earning assets. We can see that in the inverse relationship exhibited by price/earnings ratios and the rate of inflation in the
past. But how do we know when *irrational exuberance* has unduly escalated asset values, which then become subject to unexpected and prolonged contractions as they have in Japan over the past decade? And how do we factor that assessment into monetary policy? We as central bankers need not be concerned if a collapsing financial asset bubble does not threaten to impair the real economy, its production, jobs, and price stability. Indeed, the sharp stock market break of 1987 had few negative consequences for the economy. But we should not underestimate or become complacent about the complexity of the interactions of asset markets and the economy. Thus, evaluating shifts in balance sheets generally, and in asset prices *particularly*, must be an *integral* part of the development of monetary policy.

It is clear that he was aware of the difference between the stock market crash of 1987 and the one that would follow after the meteoric rise in the late 90s. Unlike the late 80s, the economy in the 1990s was closely tied to the fortunes of the stock market because the main engine of growth in the 90s was the wealth driven consumption demand. Hence, it was a catch-22 situation for the Fed. While it wanted the stock market boom to continue because the growth of the economy was driven by it, it also knew that the foundation of the boom itself was brittle. The boom of the 90s had possibly changed the monetary policy paradigm of the US because asset prices were made an *integral* part of the monetary policy.

As is clear from the opinions of both Greenspan and Governor Rivlin the consequences of the meltdown of the stock market were expected; so when it finally happened in the late 2000, its repercussions were directly on growth which slowed down drastically. Pollin (2005) writes (p.86),

> [T]he stock market was the primary force pushing the US economy forward during the 1990s. Correspondingly, the market collapse was the primary force pushing it down over 2001–02. In particular... the stock market boom produced first a debt-financed consumption boom for the wealthy then a debt-financed investment boom for corporations...

> But the collapse of the bubble meant that businesses were now saddled with excess productive capacity from their bubble-induced spending excesses.

Thus, while the stock market boom of the late 90s helped the US economy overcome the slow growth trajectory of the 80s and the early 90s through the
consumption spree, it could not have been a long-term affair as the enthusiasts of the new economy were portraying it to be. It was being touted as a period where business cycles had disappeared but in reality not only were the cycles not over but they were more volatile and dependent on the stock markets. In the recession of the early years of the present decade, even the Fed could not do much either to steer the economy to a soft landing or to avoid the recession altogether. When the economy is stuck in such a trap where it is dependent on stock market’s performance so overtly, the only way forward is a creation of another bubble in the stock market which occurred through the real estate boom of the present decade which we evaluate below.

4.3.2 The Real Estate Boom Driving the US Economy in the Present Decade

Let us now analyse the most recent boom and the forces behind it. The Fed from the beginning of 2001 had started decreasing the federal funds rate drastically from over 6 percent to around 4 percent in the middle of 2001 with the expectation that this would be enough to give a boost to consumer spending through easy credit but it failed to resonate with the consumers initially and the economy remained in recession. The Fed then decided to further lower the funds rate to less than 2 percent by the end of 2001, the lowest ever since the 60s (see fig. 4.16). Despite that the recovery was not in sight which prompted the Fed to further lower it later (see fig. 4.19).

The policy of the government in the post-2001 phase was multi-pronged to provide a boost to consumption demand which had been responsible for the growth in the 1990s. First, there was a major tax cut by George W. Bush announced on June 7, 2001. Bush, in his remarks in Tax Cut Bill Signing Ceremony, argued that the magnitude of the tax cut that his administration was announcing can only be comparable to the Reagan Tax cut of the 80s or the Kennedy Tax cut of the 60s. This tax cut had a definite impact on increasing the consumption of the rich because they were the biggest beneficiary of the Bush Tax Cut. It can be seen that despite the meltdown in the stock market which had driven the consumption during the 90s, consumption of the household did not decline as would be expected based on the wealth effect (it should be noticed that after increasing for over two decades, the consumption share after 2001 remained stagnant instead of declining despite the meltdown in the stock market as shown in fig. 4.3). The declining wealth effect was compensated to an extent by the easing tax effect during this period. The tax cut took effect from Jan 1, 2002 and
its effect was visible in keeping the consumption spending robust as Mr. Slifman argued in his presentation at the FOMC held in Jan 2002 (pp.49–50).

In light of the robust performance of PCE last year, especially given the rise in unemployment and the slump in the stock market, one might be tempted to ask whether our wealth effect story has been failing us. One crude way to answer the question is to compare the behavior of the wealth-income ratio... with the ratio of PCE to income... over time these two series track each other fairly well, and they have been well aligned recently. Moreover, our more-elaborate econometric models of consumption that include wealth have not been making persistent errors. One reason that consumption growth has been as strong as it has is that real income growth...also has been relatively well maintained. Looking forward, consumption spending is held up in part by the strong growth of real disposable income that we expect in 2002, with a chunk of that gain coming from the cut in tax rates that went into effect on January 1. [emphasis added]

Second, after the stock market crash of 2000, which had its repercussions well into 2002, the Fed was looking for other ways of stimulating consumption demand because that had been the rock–solid basis for growth in the late 90s. In the absence of another equity price bubble, the housing market provided an
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opportunity of such an alternative. The prices in the real estate market had been increasing since the mid-90s but it was still a sideshow to the stock market boom of the 90s. It was only in the early years of the present decade that they started picking up. The reason for this housing market run was quite obvious. The stock market crash led the investors to look for alternative measures of keeping their money and real estate seemed a good opportunity because its demand was going high so there was always a potential of making capital gains (p.92, Pollin (2005)). A Special Report (2005) of The Economist had the following to say about the magnitude of the housing market boom in the US or perhaps the entire developed world,

[T]he total value of residential property in developed economies rose by more than $30 trillion over the past five years, to over $70 trillion, an increase equivalent to 100% of those countries' combined GDPs. Not only does this dwarf any previous house-price boom, it is larger than the global stockmarket bubble in the late 1990s (an increase over five years of 80% of GDP) or America's stockmarket bubble in the late 1920s (55% of GDP). In other words, it looks like the biggest bubble in history. [emphasis added]

The extent of speculation in the housing market can be measured by the ratio of the housing prices to the rental applicable to the houses. This is similar to the P/E ratio of stocks because the income that can be imputed from owning a house comes from the rental that it would fetch in future. Let us see what happened to this ratio. Weller (2006) presents the data comparing the Housing Price Index to Rental and the CPI (see fig. 4.20).

While the ratio of HPI to rentals remained stable for more than two decades since 1975 (as shown by the dashed line in fig. 4.20), there was a sharp increase in it since 2000. This is further corroborated by the fact that in 2004, 23 percent of the homes bought were purely for investment purposes while 13 percent were bought as second homes. 'Investors [were] prepared to buy houses they [would] rent out at a loss, just because they [thought] prices will keep rising—the very definition of a financial bubble.' (Report (2005)). In Miami, writes Report (2005), nearly half of the original buyers resold their apartments in an attempt to make capital gains.

In such a situation of high speculation, the Fed pushed aggressively for an easy monetary policy which meant a drastic decline in the federal funds rate even below the rate of inflation resulting in negative real funds rate. The real federal funds rate remained negative from the mid-2002 to early 2006 which
meant a real heavy dose of easy money for more than three years (see fig. 4.19). This kind of monetary policy has not been seen in the recent past in the US. The household sector responded very positively to this easy credit policy because the mortgage rates also declined. They increased their expenditure on housing which further increased its prices and the spiral started building up. There was another bubble building up as Pollin (2005) writes (p.92),

As the upward price momentum continued through the middle of 2002, the Wall Street Journal, among other observers, began warning of the dangers of a housing “market bubble” in which “stretched buyers push mortgages to the limit.”

The federal reserve during this period had its priorities chalked out pretty well which was to give a boost to the housing prices, just as in the 90s, it was most interested in maintaining the stock market boom. This can be seen from the minutes of the FOMC meeting of this period. Minutes of the FOMC (2004) meeting held in June say,

The members continued to report a high level of housing demand in numerous parts of the country, with housing construction described as a notably robust sector in many regional economies. The strong performance of the housing industry continued to be attributed in large measure to the lowest mortgage interest rates in several decades. [emphasis added]
Third, given that the growth of the economy now was driven by the growth in residential investment financed primarily by debt, there was an increasing tendency by the lenders to be involved in predatory lending practices. The norms of lending were broken at will to keep the real estate boom alive and the Fed, despite being aware of the precariousness of the situation, allowed it to happen under its nose just as it did not intervene during the speculative run in the stock market boom of the 90s. Lending norms were twisted in myriad ways. First, the norm of mortgage was changed for rich borrowers who could use up to 50 percent of their income for their mortgage payment whereas earlier the norm was only 28-32 percent (p.92, Pollin (2005)). Second, new forms of loans were introduced which had no requirement for down payments. As high as 42 percent of the first time borrowers and 25 percent of all borrowers were exempted from making any down payment (Report (2005)). Third, a new form of financing was introduced which was the Adjustable Rate of Mortgage (ARMs), according to which the overall interest payment could be spread over years so that the initial interest payments might seem very low but the debt burden would increase as you go further into future. This was used to sell loans with ‘hidden costs’. Fourth, the borrowers could get up to 105 percent of the buying cost as loan and no documentation of borrower’s income or employment was required (Report (2005)). Fifth, the borrowers were allowed to pay only a part of the interest amount due while their unpaid interest amount and the principal get added as debt, a form of loan which has been termed as ‘negative amortisation loans’. One third of the total loans in the US in 2002 were either interest-only loans or negative amortisation loans (Report (2005)).

The housing market boom had a logic of its own which was in some ways similar to a stock market boom. Since the housing prices were increasing, it provided a good opportunity to make money at the margin by buying low and selling high, just as in the case of equities. Moreover, increasing prices of houses also increase the net worth of the owners of the houses which further increases their capacity to borrow and hence to speculate even more, which was reflected in people buying more than one house. But since all the buy is financed through debt, it puts the household sector on a knife-edge position. On the one hand, if the prices of the houses declined then the value of their collateral declines and further borrowing becomes less likely. In the worst situation, if the prices fell drastically, even the possibility of repaying the debt by selling the house might itself disappear leading to foreclosures. On the other hand, if the interest rates increase eventually, they would increase the debt burden in future, especially if the loans have been taken under the ARM scheme. In effect, it is the real
mortgage rate that matters which is the difference between the nominal mortgage rate and the capital gain through a housing price rise (Weller (2006)).

Even though it was obvious that the housing prices were primarily speculative in nature, Alan Greenspan, while addressing the Joint Economic Committee on June 9, 2005, had rubbished all claims about the housing boom being a speculative bubble by arguing that,

[T]here can be little doubt that exceptionally low interest rates on ten-year Treasury notes, and hence on home mortgages, have been a major factor in the recent surge of homebuilding and home turnover, and especially in the steep climb in home prices. Although a “bubble” in home prices for the nation as a whole does not appear likely, there do appear to be, at a minimum, signs of froth in some local markets where home prices seem to have risen to unsustainable levels...

Transactions in second homes... suggests that speculative activity may have had a greater role in generating the recent price increases than it has customarily had in the past.

The apparent froth in housing markets may have spilled over into mortgage markets. The dramatic increase in the prevalence of interest-only loans, as well as the introduction of other relatively exotic forms of adjustable-rate mortgages, are developments of particular concern.

To be sure, these financing vehicles have their appropriate uses. But to the extent that some households may be employing these instruments to purchase a home that would otherwise be unaffordable, their use is beginning to add to the pressures in the marketplace.

The U.S. economy has weathered such episodes before without experiencing significant declines in the national average level of home prices. In part, this is explained by an underlying uptrend in home prices...

Although we certainly cannot rule out home price declines, especially in some local markets, these declines, were they to occur, likely would not have substantial macroeconomic implications. [emphasis added]

This longish quote from the horse’s mouth explains the stance of the Fed quite succinctly. That the ‘exceptionally’ low federal funds rate and the Treasury rate were behind the speculative run in the housing prices is accepted by the former chairman of the Fed. The only difference is that he thought that this speculative bidding was mere ‘froth’ in an otherwise stable and productive market. He was
also fully aware of the sub-standard lending practices, which according to him, were ‘appropriate’ for other uses but he was not interested in curbing it except for noting it as a matter of concern. Most importantly, he was least bothered about the possibility of a meltdown in the housing market because he believed that it is less likely to find a decline in housing prices. History could not have proved him wrong any better.

It would be really surprising to note that the same Greenspan had an altogether different take on the Depression of the 1930s. Greenspan (1966) wrote,

When business in the United States underwent a mild contraction in 1927, the Federal Reserve created more paper reserves in the hope of forestalling any possible bank reserve shortage... The excess credit which the Fed pumped into the economy spilled over into the stock market-triggering a fantastic speculative boom. Belatedly, Federal Reserve officials attempted to sop up the excess reserves and finally succeeded in braking the boom. But it was too late: by 1929 the speculative imbalances had become so overwhelming that the attempt precipitated a sharp retrenching and a consequent demoralizing of business confidence. As a result, the American economy collapsed.

If we say that ‘the excess credit which the Fed pumped into the economy spilled over into the housing market-triggering a fantastic speculative boom’, then how different would that be from what his argument is? If not, then it sounds puzzling as to why he did not apply his own argument about the Great Depression to the policy of the Fed under his chairmanship. Whitney (2005) writes the following about the policy of the Fed and its former chairman,

Greenspan knows all about “irrational exuberance”; he’s its primary champion. The Fed seduces the public with cheap money, so that credit spending increases and, then, “presto”, millions of Americans slip inexorably into indentured servitude.

Given the delicate balance that the household sector was maintaining vis-a-vis the housing market, it was obvious that any meltdown in these markets would be disastrous not only for the US economy but for the world economy as well. This possibility was further precipitated by the fact that dual pressure fell on the borrowers. On the one hand, the Fed decided to increase the federal fund rate, which increased the interest burdens especially for consumers who had opted for ARMs or negatively amortised loans. On the other hand, decline in housing prices decreased the value of their collateral and thus increased the
possibility of bankruptcy which indeed were quite high in this period. This would especially have serious consequences for the US economy, as can be seen today, because 90 percent of the growth witnessed during 2001-05 was due to increased consumption and residential investment of the households.

Till now we have presented a macroeconomic picture of the housing market but it is obvious that such a market has the potential of having an asymmetric effect on households depending on their income category. For a poorer households, the effect of an increase in the real mortgage rate would be more severe than a richer household. Let us see how different quintiles have fared in the recent boom. Weller (2006) presents detailed disaggregated data.

Thus, some broad pattern can be drawn about the different categories of households. First, the bottom quintile was not a part of the recent run in the housing market since 2001. The value of home as a proportion of income increases the most for the middle quintile. Second, contrary to the general perception, the main customers of ARMs appear to be the richest households and not the poorer ones. This could be because of the fact that the rich were buying the house only for the purposes of selling it later and were financing it through ARMs. A housing market meltdown would, thus, have an asymmetric effect on these categories depending on their relative exposure to the credit market.

We have shown above that the growth in the US economy in the recent past has entirely been driven by either consumption spending or residential investment. Both of these were driven by asset price inflation of one kind or the other. While consumption was driven by the stock market boom of the 90s, residential investment was driven by the housing price boom. Since the process of increased financial deregulation entails underinvestment, a counteracting force to check this tendency of underinvestment would always be required for the economy to grow. Such a growth path would, however, have a few problems. First, it would require asset price inflation of one or the other kind to sustain the wealth driven growth. Second, it would be a highly volatile growth path because the growth path would be dependent on the vagaries of the stock market or some asset price market. Third, it would constrain the government to always act in the interests of the finance capital because they hold the key to growth in the economy. The monetary as well as fiscal policy would have to be tethered to the developments in the asset price markets.
### Table 4.11: Financial Condition of the Different Category of Households During the Housing Boom

(% increase)

<table>
<thead>
<tr>
<th>Period</th>
<th>Home Value/Income</th>
<th>Mortgage Payment/Income</th>
<th>Families with ARM</th>
<th>ARM/Total Mortgage</th>
<th>Houses/Total Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1.50%</td>
<td>16.7</td>
<td>0.1</td>
<td>0.4</td>
<td>-1.3</td>
</tr>
<tr>
<td>Categories</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bottom quintile</td>
<td>13.3</td>
<td>6.2</td>
<td>0.9</td>
<td>-0.9</td>
<td>-1.9</td>
</tr>
<tr>
<td>second quintile</td>
<td>2.3</td>
<td>16.5</td>
<td>0.3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>middle quintile</td>
<td>1.4</td>
<td>22.7</td>
<td>0.3</td>
<td>0.4</td>
<td>-1.6</td>
</tr>
<tr>
<td>fourth quintile</td>
<td>2.5</td>
<td>16.6</td>
<td>0.1</td>
<td>0.7</td>
<td>-1.6</td>
</tr>
<tr>
<td>top quintile</td>
<td>-0.2</td>
<td>14.1</td>
<td>0.1</td>
<td>-0.3</td>
<td>-1.1</td>
</tr>
</tbody>
</table>

4.4 CONCLUSION

We have presented some empirical evidence in this chapter to substantiate our claims made in the theoretical model. There is clear evidence of a difference in propensity to consume out of wages and profits which makes the tendency of underconsumption a likely possibility. It is another matter that it does not materialise because of the counteracting forces like the wealth, dividend and the debt effect. We also showed that a major part of the increase in share of consumption since the 1980s was due to an increase in the relative price of consumption goods which we call the price effect. As for investment, we find proximate evidence in favour of a decline in the desired rate of capacity utilisation as a result of increased concentration in the markets. This could explain the underinvestment that the US economy had witnessed in the 1980s and the early 90s when the growth rate was low despite a continuous increase in consumption.

When we analyse the two recent booms in detail, we find that the Fed had geared its monetary policy entirely to cater to the asset price bubble despite being aware of its limitations and its negative repercussions on the stability of the economy. The Fed, through its easy monetary policy flooded the credit market with cash which gave a boost both to speculation and to debt-financed consumption. In the short run, this increased the growth rate because of overconsumption but it was very dangerous for the stability of the system as a whole because the economy was increasingly becoming ‘a bubble on a whirlpool of speculation’.
4.A APPENDIX

4.A.1 Data Description

Consumption: The data on consumption $C$ is measured as the expenditure on consumption of goods and services which includes both durables as well as non-durables. The quarterly data are seasonally adjusted at annual rates in billions of dollars. The source is BEA Table 1.1.5.

Output: The data on output $O$ is the GDP of US taken from BEA Table 1.1.5.

Wages: $W$ are defined as the compensation of employees. Again the quarterly data are seasonally adjusted at annual rates. The source is BEA Table 1.12.

Profits: It is a more inclusive category than what is generally assumed under the rubric of profits. It is the sum of corporate profits with IVA and CCAdj, rental income with CCAdj, proprietors’ income with IVA and CCAdj and net interest and miscellaneous payments. Profit share $h$ is the share of profits out of the GDP. The quarterly data are seasonally adjusted at annual rates and the source of this variable is again Table 1.12.

Net Worth: $NW$ is taken from the balance sheets of the households B.100 from the Federal reserve’s flow of funds accounts.

Corporate Wealth: Corporate Wealth is defined as the sum of corporate equities, mutual funds shares, security credit, life insurance reserves, pension fund reserves, equity in non-corporate business and miscellaneous assets. The data had been taken from Table B.100 from the federal reserve’s website.

Non-Corporate Wealth: All other forms of wealth apart from the corporate wealth are treated as non-corporate wealth. The source is Table B.100 from federal reserve’s flow of funds accounts.

Price Deflators: There are two price deflators used, GDP deflator and the consumption goods and services’ deflator. Both have been taken from BEA Table 1.1.9. The relative price variable $pc/po$ has been constructed by dividing the consumption price deflator by the GDP deflator. While estimating the level variables all the variables were deflated by the consumption price index while estimating the shares of different variables in GDP, the GDP deflator was used.

For the purposes of analysis at the level of the firms, we have used the Compustat Industrial Files. The description of the data used from these files is
4.A APPENDIX

given below with the item number denoting the identification number of these variables in the Compustat file:

\[ I = \text{Gross Capital Expenditures, Item No.128} \]
\[ Dep = \text{Depreciation and Amortisation, Item No.14} \]
\[ i = \text{Net Investment [Item no.14 - Item no.128]} \]
\[ O = \text{Sales (Net), Item No.12} \]
\[ K = \text{Net Property, Plant and Equipment, Item No.8} \]
\[ \text{Size} = \text{Gross Total Assets, Item no.6} \]
\[ \text{Profits} = \text{Operating Income before depreciation, Item No.13} \]
\[ \text{Total Costs} = \text{Operation Expense+ Maintenance Expense+} \]
\[ \text{Taxes except Income taxes, Item No.41} \]
\[ \text{Labour Cost} = \text{Labour and Related Expense, Item No.42} \]
\[ \text{Labourers} = \text{Number of Employees [in 1000 workers], Item No.29} \]
\[ \text{Average Cost} = \text{Costs/Sales [Item No.41/Item no.12]} \]
\[ \text{Average Labour Cost} = \text{Labour Costs/Sales [Item No.42/Item no.12]} \]
\[ \text{Labour Productivity} = \text{Sales/Labourers [Item No.12/Item no.29]} \]
\[ g = i/K, [\text{Item No.128-Item no.14}]/\text{Item no.8} \]
\[ u = O/K, [\text{Item No.12}/\text{Item no.8}] \]
\[ CF(\text{Cash Flow}) = \text{Retained Earnings, Item No.36} \]
\[ R = \text{Interest Payments, Item no.15} \]

To arrive at the real values of the respective variables, we have used the GDP deflator available at the BEA website.

Categorisation of the firms according to various sizes: I have used the level of the total gross assets of the firms as a representative of their size. Since there are a lot of missing values for different variables, we impose a restriction on the firms which would enter our analysis. Since we are also making some sort of a comparison between the firms in the so-called golden age period and the age of finance, we want to keep enough data points for the period prior to 1973. Therefore, only those firms have entered our analysis for which the data for all the variables used here are available at least for 7 years (not necessarily consecutively) in the pre-73 period and at least for 10 years in the post-73 period. The difference of criteria for choosing the years in these two periods is that there are lesser number of years for which the data is available in comparison to the post-73 data.
4-A Appendix

The categorisation has been done by dividing the firms according to the frequency distribution of all the firms in each year on the basis of the following rule,

- **Smallest** = Total assets in the lower 10 percent of the distribution
- **Small** = Total assets between 10 to 40 percent of the distribution
- **Moderate** = Total assets between 40 to 75 percent of the distribution
- **Big** = Total assets between 75 to 95 percent of the distribution
- **Biggest** = Total assets in the upper 5 percent of the distribution

By using these criteria, we have kept the firms free to fit into a category according to the changing pattern of relative growth of the other firms. In other words, a firm which in one period falls into the smallest category need not necessarily fall into the same category for all the years to come. If the size of this firm increases relative to the other firms, then the possibility remains open that it could jump to some other category which makes these boundaries porous and thereby realistic.

4-A.2 Results of the Consumption Function

*Engel-Granger Test for Cointegration*

**Level Variables:**

**Step 1. Augmented Dickey-Fuller Test**

As a first step to check for cointegration between the variables, we perform the augmented Dickey-Fuller test to test for the existence of unit roots in them in the following form:

\[
\Delta y_t = \alpha_0 + \alpha_1 y_{t-1} + \sum_{i=1}^{n} \alpha_i \Delta y_{t-i} + \beta_1 t + \beta_2 t^2 + \epsilon_t \quad (4.7)
\]

Since the variables are not in the log form, we take the quadratic trend in each of them and then test for unit roots. It goes without saying that for a linear time trend they unequivocally show unit roots but even in the presence of quadratic trends, each of the variables show unit roots at 5 percent level of significance. We report below the estimated values of \( \alpha_1 \) and the corresponding \( \tau \) statistic.

Having done this exercise, we proceed on to test the Engel-Granger cointegration test between these variables.
Table 4.12: Results of the Augmented Dickey-Fuller Test for Unit Roots: Estimated $a_1$ and the Associated $\tau$-statistic

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>W</th>
<th>P</th>
<th>Net Worth</th>
</tr>
</thead>
<tbody>
<tr>
<td>No lags (n=0)</td>
<td>-0.008</td>
<td>-0.015</td>
<td>-0.107</td>
<td>-0.060</td>
</tr>
<tr>
<td></td>
<td>(-0.726)</td>
<td>(-1.092)</td>
<td>(-3.197)</td>
<td>(-2.541)</td>
</tr>
<tr>
<td>4 lags (n=4)</td>
<td>-0.022</td>
<td>-0.038</td>
<td>-0.135</td>
<td>-0.093</td>
</tr>
<tr>
<td></td>
<td>(-1.803)</td>
<td>(-2.723)</td>
<td>(-3.500)</td>
<td>(-3.635)</td>
</tr>
</tbody>
</table>

Note: The model includes a drift and a quadratic time trend

Source: Author's Calculations

Step 2. Dickey-Fuller Test on Residuals

We consider the autoregression of the residuals from equation above in the following form without an intercept term because these are residuals from a regression equation:

$$\Delta \hat{e}_t = a_1 \hat{e}_{t-1} + \epsilon_t$$

We, then check the null hypothesis of whether $|a_1| = 0$, and the results from that exercise are reported below:

$$a_1 = -0.0924775$$

$$H_0 : a_1 = 0$$

$$\tau = -3.61311 \quad p-value = 0.06565$$

$$lags = 4 \quad sample \ size = 215$$

We could therefore say at 10 percent level of significance that the variables are cointegrated.

Variables as a Share of Output

We now perform a similar test for cointegration between various variables as a share of GDP. In this case the variables have been all deflated by the GDP deflator.

Step 1. Augmented Dickey-Fuller Test

Based on the test above, we can conclude that there are unit roots in each of the variables. Now we test for cointegration among them.

---

13 This argument is elaborated in Enders (2004), p. 336
Table 4.13: Results of the Augmented Dickey-Fuller Test for Unit Roots: Estimated $a_1$ and the Associated $T$-statistic

<table>
<thead>
<tr>
<th>No lags(n=0)</th>
<th>C/O</th>
<th>h</th>
<th>NW/O</th>
<th>pc/po</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-0.066</td>
<td>-0.061</td>
<td>-0.027</td>
<td>-0.012</td>
</tr>
<tr>
<td></td>
<td>(-2.41)</td>
<td>(-2.50)</td>
<td>(-1.37)</td>
<td>(-1.34)</td>
</tr>
<tr>
<td>4 lags(n=4)</td>
<td>-0.049</td>
<td>-0.074</td>
<td>-0.011</td>
<td>-0.014</td>
</tr>
<tr>
<td></td>
<td>(-1.67)</td>
<td>(-2.75)</td>
<td>(-0.52)</td>
<td>(-1.53)</td>
</tr>
</tbody>
</table>

Note: The model includes a drift and a linear time trend
Source: Author’s Calculations

Step 2. Dickey-Fuller Test on Residuals
To check whether these variables are cointegrated, we need to perform the Dickey-Fuller test on residuals as follows,

$$a_1 = -0.151$$

$$H_0 : a_1 = 0$$

$$T = -3.825 \quad p-value = 0.038$$

$$lags = 4 \quad sample \ size = 191$$

Based on these results we can say that the set of variables are cointegrated even at 5 percent level of significance.

Detailed Results
Based on the cointegration exercise above, we present the results above of the cointegration analysis between these variables where 3 lags each for the wages and profits along with their present values and two lags of wealth have been used. The present value of wealth is not included because we believe that wealth does not necessarily affect consumption in the same quarter. We have further disaggregated wealth into corporate wealth and non-corporate wealth to distinguish the effects of these two on consumption behaviour.
Table 4.14: Cochrane-Orcutt estimates using the 216 observations 1953:1 – 2006:4
Dependent variable: Real Consumption

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>Std. Error</td>
</tr>
<tr>
<td>Real Wages</td>
<td>0.455</td>
<td>0.067</td>
</tr>
<tr>
<td>(1 quarter lag)</td>
<td>-0.017</td>
<td>0.072</td>
</tr>
<tr>
<td>(2 quarter lag)</td>
<td>0.046</td>
<td>0.066</td>
</tr>
<tr>
<td>(3 quarter lag)</td>
<td>0.204</td>
<td>0.063</td>
</tr>
<tr>
<td>Real Profits</td>
<td>0.148</td>
<td>0.042</td>
</tr>
<tr>
<td>(1 quarter lag)</td>
<td>0.025</td>
<td>0.043</td>
</tr>
<tr>
<td>(1 quarter lag)</td>
<td>0.102</td>
<td>0.043</td>
</tr>
<tr>
<td>Real Net Worth(1 lag)</td>
<td>-0.032</td>
<td>0.046</td>
</tr>
<tr>
<td>(2 quarter lag)</td>
<td>0.005</td>
<td>0.002</td>
</tr>
<tr>
<td>Corporate Wealth(1 lag)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2 quarter lag)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Real Non-Stock Wealth(1 lag)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2 quarter lag)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\delta$</td>
<td>0.996</td>
<td></td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.999</td>
<td></td>
</tr>
<tr>
<td>Durbin-Watson statistic</td>
<td>1.702</td>
<td></td>
</tr>
<tr>
<td>First-order autocorrelation co-eff.</td>
<td>0.147</td>
<td></td>
</tr>
</tbody>
</table>

Source: US Department of Commerce, Bureau of Economic Analysis, Author’s Calculations