A Comment on HANK Models

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April 2026

Abstract

This paper contrasts HANK models with structural macroeconometric models. Because of the high level of aggregation of HANK models, many important features of the macro economy are ignored, features that are relevant for estimating monetary and fiscal policy effects and for general business cycle analysis and that are part of macroeconometric models. A comparison of the properties of two HANK models to those of a particular macroeconometric model reveals large differences. The HANK models have much larger initial policy effects than does the macroeconometric model.

1 Introduction

The literature on HANK models has blossomed in the last decade. Four recent papers that provide a summary of the advances that have been made are Bayer et al. (2024), Kaplan (2025), Winberry et al. (2025), and Kaplan and Miyahara (2026). This research in the "New Keynesian" framework is a cumulation that began in the 1990's, with one of the seminal papers being Smets and Wouters (2007). Winberry et al. (2025) in their review point out that the first wave of this research worked with representative agent models. The second wave introduced HANK models, which added heterogeneous households. Their hope is that a third wave will add

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heterogeneous firms. There is an optimistic tone in this literature that there is much important research left to be done.

It is well known, however, that these models are not closely tied to the data in the way that structural macroeconometric models are. Theory has been stressed over estimating aggregate equations using regression analysis. There is much calibration, and when estimation techniques, usually Baynesian techniques, are used, there are tight theoretical restrictions imposed. Steady states of the models are often examined, which doesn't lend itself to testing since the macro economy is likely seldom in a steady state.

In this comment I want to contrast this "modern macro" approach with the approach of specifying and estimating macroeconometric models, which I will call the "Cowles Commission" (CC) approach. I will use my "US Model," Fair (2024), as an example, but the main point is much broader than this one model. It is necessary to review the model in some detail to prepare for the discussion of the comparison to HANK models.

2 The US Model

Theory

The theoretical model that I have used to guide the specification of my macroeconometric model is the following.[1] Households and firms make decisions by solving maximization problems, utility maximization for households and profit maximization for firms. These are optimal control problems, where the objective functions are over many future periods. A household's decision variables include consumption and labor supply. A firm's decision variables include its price, production, investment, employment, and wage rate. Firms are assumed to behave

[1] I first developed this model in 1974, Fair (1974), but this has too many details for anybody to want to read. A less detailed version is in Chapter 3, Fair (1984).

in a monopolistically competitive environment. Prices and wage rates are thus endogenous—decision variables of the firms. The maximization problems yield current and future values of the decision variables, but only the current values are implemented. The maximizations are repeated each period based on any new information.

Expectations of future values, which are needed in solving the maximization problems, are not assumed to be rational or model consistent, and there is nothing in the system that ensures that markets are cleared. Actual values may differ from expected values. Expectations for the most part are adaptive; they depend on lagged values. Disequilibrium in the goods market takes the form of unintended changes in inventories. Disequilibrium in the labor market takes the form of unemployment, where households may be constrained by firms from working as much as the solutions of their unconstrained maximization problems say they want to. Because of possible expectation errors and adjustment costs, a firm may at times may have more labor and capital on hand than is needed for current production, "excess labor" and "excess capital."

The government in the model purchases goods and labor, issues transfer payments to households, and pays interest on its debt (or receives interest if the debt is negative). It collects taxes from households and firms. Purchases of goods and labor and transfer payments are exogenous, as are tax rates. Interest payments are endogenous because the interest rate and government debt are endogenous. Tax revenue is endogenous because taxable income and profits are endogenous. There is an interest rate rule of the monetary authority.

Given a set of parameters, the initial conditions, and the values of the exogenous variables, the theoretical model is solved using numerical techniques. The aim is to see the qualitative properties of the model. This is not calibration in the sense of trying to fit anything to data. It is just to learn about the properties of the theoretical model. One of the key points is that relaxing the assumption of rational expectations and assuming that agents may make expectation errors allows many puzzles to be solved. Unemployment can be explained, as can unintended inventory investment. Also, excess labor and excess capital can be explained—for example capacity utilization may not always being full.

This framework endogenizes disequilibrium. In the model there are forces pushing the economy towards equilibrium, but Godot never arrives. Some of these forces are 1) firms adjust labor demand and capital investment over time to eliminate excess labor and capital, 2) firms adjust production to eliminate undesired inventories, 3) the monetary authority lowers interest rates in bad times and vice versa, 4) prices and wages fall in bad times and vice versa.

If households and firms form their expectations adaptively and don't think about policy rules and the like, then the Lucas critique is not relevant. If there is a structural policy rule change, this will show up over time in the values of the policy variable, which will then affect expectations of future values of the policy variable. Agents are just looking at past values, not anything more sophisticated. Survey evidence suggests that firms' inflation expectations are largely determined by firms' perceptions of current and past inflation. An early paper supporting the view that expectations of future inflation depend mostly on past inflation is Fuhrer (1997). This is supported by the evidence reviewed in Coibion et al. (2020). It shows that the strongest predictor of households' and firms' inflation forecasts are what households and firms believe inflation has been in the recent past.

There is also little evidence that firms know much about monetary policy targets. Candia et al. (2021) find that there is inattention to monetary policy: "...we find that most CEOs are unaware of the Federal Reserve's inflation target. The fraction of CEOs that correctly identifies 2 percent as the inflation target is less than 20 percent. Nearly two thirds of CEOs are unwilling to even guess what the target is. Of those who dare, less than 50 percent think it is between 1.5 and 2.5 percent." (Candia et al. (2021), p. 4). Another recent survey, of firms in France, described in Savignac et al. (2021), shows that firms' inflation expectations depend in large part on their perceptions of past inflation. The results also suggest that firms are not that knowledgeable about macroeconomics in that they perceive little link between price and wage inflation.

The assumption of adaptive expectations is sometimes considered “ad hoc” or “reduced form,” but it seems the most accurate explanation of how expectations are actually formed.

Empirical Implementation

The CC approach uses information from a theoretical model to guide the specification of the equations to estimate. This is usually not a tight link, which modern macro has heavily criticized. But remember one is dealing with aggregate data. The aim is to see, guided by theory, if one can find stable relationships among the aggregate variables. All specifications are approximations.

In my theoretical model households choose consumption and labor supply. In the National Income and Product Accounts there are four main categories of household expenditures, consumption of services, nondurable goods, durable goods, and housing investment. There are also four labor supply variables that are useful to treat separately, labor force participation of men 25-54, women 25-54, all other 16 and over, and the number of moonlighters (people holding two jobs). Aggregate equations are specified for these eight variables in the US Model. Also, the expenditure variables include imports, and so an aggregate import equation is specified. Not all expenditures are on domestically produced goods.

Six aggregate decision variables for firms are specified, explaining demand for jobs, demand for hours paid per job, nonresidential fixed investment, inventory investment, the private nonfarm price deflator, and the aggregate private wage rate. In this specification, consistent with the theoretical model, the aggregate price level and wage rate are assumed to be set by firms. In some versions of the HANK model unions set wages, but this is not likely to be realistic since unions make up only about 6 percent of the labor force of the private sector.

There is an estimated interest rate rule of the Fed and two estimated term structure equations explaining a long term bond rate and a mortgage rate. There is also an estimated equation explaining the level of dividends of the firm sector and an estimated equation explaining interest payments of the federal government.

There are also many definitions in the empirical model. The National Income and Product Accounts and the Flow of Funds Accounts have been integrated, which requires many definitions. There are six sectors in the model: household, firm, financial, state and local government, federal government, and foreign. The sum of the financial savings across the six sectors is zero: some sector's expense is some other sector's revenue. This is useful in keeping track of the federal government budget. For example, if the federal government has a non zero value of financial savings, at least one of the following must change: government securities, demand deposits of the federal government, currency, non borrowed reserves, gold and foreign exchange.

The empirical model consists of a set of nonlinear, dynamic, simultaneous equations. Some of the equations have serially correlated errors. The equations can be consistently estimated by nonlinear two-stage least squares, which is what I do. The estimation period is 1954.1–2025.4 with dummy variables used for 2020.1–2021.4 because of the pandemic. Each estimated equation is tested in various ways to see how robust it is in explaining the data. There is no calibration in the model; the data rule. For example, the Fed rule is completely estimated. It estimates the effects of the unemployment rate and the inflation rate on the interest rate that the Fed sets.

There is nothing close to a steady state in a large nonlinear model like this. Given the estimated parameters, the initial conditions, and the values of the exogenous variables, the model can be solved for the current and future periods, but nothing settles down to a steady state.

3 HANK Models versus the US Model

HANK models and the US model are so different as to make it hard to compare properties. I have chosen seven cases below where one can make at least rough comparisons. Before discussing these comparisons, some general comments will be made. The first concerns the measurement of variables.

Bayer et al. (BBL) (2024): Variable Mismeasurement

As discussed in Fair (2020), there has been a persistent problem of variable mismeasurement in DSGE models since at least the Smets and Wouters (2007) (SW) paper, which used mismeasured variables. Many of the DSGE studies that followed SW have made the same mistakes. Nine studies are cited in Fair (2020). There are others since these nine.

The latest example is BBL. In Online Appendix A.1 they list their data. Here are the problems: 1) Nominal personal consumption expenditures is divided by the GDP deflator instead of the personal consumption deflator. 2) Gross private domestic investment is divided by the GDP deflator instead of the investment deflator. 3) Nominal output is taken to be the sum of nominal consumption, nominal investment, and nominal government spending. Real output is taken to be this sum divided by the GDP deflator. But the sum is not nominal GDP. Nominal exports minus nominal imports has been left out. 4) The civilian noninstitutional population has been used to convert the relevant variables to per capita terms. This variable is revised each year, but not revised back, and so there are spikes (positive or negative) each January. It appears that no adjustment has been made for this. The results in Fair (2020) show that the differences between the correctly measured variables and the mismeasured variables are large.

I am unaware of any work examining how sensitive the properties of DSGE models are to these errors.

Disaggregation

A limitation of HANK models is the high level of aggregation. I have discussed above the level of aggregation in the US model. Here is a comparison of the disaggregations:

- Consumption. US Model: services, nondurables, durables. HANK: total consumption.
- Investment. US Model: housing, nonresidential fixed, inventory. HANK: total investment.
- Imports. US Model: imports. HANK: usually not part of the models.
- Employment. US Model: jobs, people employed. HANK: no distinction between jobs and people employed.
- Labor force. US Model: labor force men 25-54, women 25-54, all others 16+, and number of moonlighters. HANK: usually not part of the models.

The level of aggregation in HANK models may have serious effects on the properties of the models. Monetary policy has different effects on the three categories of consumption, with durable expenditures being the most sensitive, and aggregating the three is problematic. Also, monetary policy has different effects on the three categories of investment, with housing investment being the most sensitive, and so this aggregation is problematic. It may go without saying, but ignoring the endogeneity of imports is a serious limitation in HANK models that have no foreign sector. When aggregate demand changes, some of the demand is for imports and not domestically produced goods. In 2025.4 the ratio of imports to GDP was 0.13.

Some people have more than one job, and so the number of jobs exceeds the number of people employed. The difference between the two (moonlighters) varies with the business cycle, which is quantitatively important, a feature not part of HANK models. Likewise, labor force participation is cyclical (discouraged worker effects), which is ignored in HANK models.

Excess Labor and Excess Capital

In the US model there can be excess labor, where the number of jobs exceeds the number of jobs needed to produce the output of the period. Similarly, there can be excess capital, where the amount of capital exceeds the amount needed to produce the output of the period. In the theory excess labor and capital arise because of adjustment costs and expectation errors. In the labor demand equation in the US model the amount of excess labor on hand has a significant negative effect on current labor demand. Likewise, in the investment equation the amount of excess capital on hand has a significant negative effect on current investment. In recessions, where excess labor and capital have built up, the response of labor demand and investment to an increase in output is less than it is when there is no excess labor and capital. In recessions some of the increased output can be produced by drawing down excess labor and capital. The cyclical behavior of excess labor explains the cyclical behavior of "productivity" as measured by the ratio of output to the number of jobs. These features are important quantitatively, but they is not part of HANK models.

Okun's law is the relationship between the growth rate of output and the change in the unemployment rate. It is not a stable relationship over time, but it is the case that the relationship is not one for one. This is explained in the US model as follows. Say output increases by 1 percent. If there is excess labor on hand, the number of jobs increases by less than 1 percent. This is the first leakage. As the number of jobs increases, the number of moonlighter increases, and so the number of people employed increases by less than the number of jobs. This is the second leakage. The increase in jobs leads more people to enter the labor force (negative discouraged worker effect). So there is an increase in the number of people looking for work. This is the third leakage. The decrease in the unemployment rate is thus less than 1 percentage point because job growth is less than output growth, people employed growth is less than job growth, and there is an increase in people looking for work. This relationship is not stable over time because it depends on how close the economy is to full capacity. I dwell on this because it is an important part of the business cycle story and is missing from HANK models.

Kaplan (2025) Household Assets and Government Debt

Kaplan (2025) argues against models with zero government debt, which seems sensible to say the least. The federal government debt is large. In his model he equates the real value of government debt to the real value of the aggregate assets of households. In 2025.4 the real value of federal government debt was $20.5 trillion, and the real value of household assets was $88.5 trillion.[2] So in reality household assets are much larger than the government debt, but perhaps this doesn't matter in the model.

The government budget constraint is treated in various ways in HANK models. The treatment can be important in these models because of steady state constraints. In the US model there are no such constraints. Federal government financial savings (almost always negative) is endogenous. Government spending aside from interest payments and tax rates is exogenous, and given these values and the state of the economy, government financial savings is determined. Interest payments are endogenous. An increase in the government deficit and thus an increase in the government debt leads to an increase in interest payments. When policy makers change government spending or tax rates, there are no constraints that say that the budget has to be balanced in the long run. This seems true in practice. Expected future deficits play a very minor role in current decisions of policy makers.

Kaplan (2025) Figure 1(a)

This is the first of seven cases providing a rough comparison of the properties of the US model and a HANK model. Figure 1(a) in Kaplan (2025) shows the effects of a temporary (one-quarter) 50 basis point increase in the nominal interest rate in

[2] These are variables -AG/GDPD and AH/GDPD in the US model.

the model with short term debt. Table 1 shows the effects on the inflation rate with no change in fiscal surpluses. The inflation rate initially rose by 0.200 percentage points.[3] In the next four quarters the increases were, respectively, 0.190, 0.170, 0.140, and 0.110 percentage points.[4] The reason the inflation rate rose rather than declined has to do with long run constraints.

Table 1
Effects of a one-quarter increase of 50 basis points in the nominal interest rate (changes in percentage points)

Qtr.	HANK inflation	US inflation
1	0.200	-0.012
2	0.190	-0.038
3	0.170	-0.029
4	0.140	-0.017
5	0.110	-0.015

HANK: Deviations from steady state.
US: Deviations from baseline.

This same experiment can be run using the US model. It is a follows. The period examined is 2023.1–2024.1, five quarters. First, the estimated Fed interest rate rule is dropped, which makes the short-term interest rate, RS, exogenous. Second, the residuals are added to the estimated equations and taken to be exogenous. This means when the model is solved with no change in any exogenous variable, a perfect tracking solution is obtained. Third, RS is increased by 50 basis points in 2023.1 from its base (actual) value. Fourth, the model is solved. The difference between the predicted value of an endogenous variable and the actual value is the estimated effect of the change in RS.

[3] All inflation rates in this paper are at annual rates.

[4] I estimated these effects from the figure, and so they are not likely to be exact. The same is true for the other tables below.

The results are also presented Table 1. The effects on inflation are negative and small in absolute value. In the model interest rates appear in the three consumption equations and in the housing investment equation. Their coefficient estimates are negative and significant. Therefore, other things being equal, an increase in interest rates lowers consumption and investment demand. This in turn lowers output, which lowers the number of jobs, which raises the unemployment rate, which lowers inflation. Output falls less than demand (sales) in the short run and so there is an increase in inventories. There are also leakages, as discussed above, from output to jobs (jobs fall less) and from jobs to the unemployment rate (the unemployment rate rises less). The size of the decrease in inflation from the interest rate increase depends on the size of the interest rate coefficient estimates in the four equations and the size of the leakages. Given these sizes, the net result of a one-quarter increase in RS of 50 basis points on inflation is small in the model. The initial decrease in the inflation rate is 0.012 percentage points, which compares to a 0.200 percentage point increase for the HANK model. After five quarters the difference is -0.015 versus 0.110. The effects on inflation are thus much larger in absolute value in the HANK model than in the US model aside from the differences in sign.

Kaplan (2025) Figure 2

The second case is Figure 2 in Kaplan (2025). This figure shows the effects of a temporary (one-quarter) unfunded increase in government transfer payments to households of 13 percent of government debt. The effects on inflation for the first five quarters are presented in Table 2. The initial increase in the inflation rate was 28.00 percentage points. Then for the next four quarters the increases were 20.00, 12.00, 5.00, and 0.50 percentage points respectively.

Table 2
Effects of a transfer payment increase
of 13 percent of government debt
(changes in percentage points)

Qtr.	HANK inflation	US inflation
1	28.00	0.74
2	20.00	0.77
3	12.00	1.12
4	5.00	0.67
5	0.50	0.46

HANK: Deviations from steady state.
US: Deviations from baseline.

The same experiment was run using the US model. The same methodology was followed as for the first experiment above. The period examined was 2023.1–2024.1, and the residuals were added to the estimated equations and taken to be exogenous. Federal transfer payments to households is an exogenous variable in the model, $TRGH$, and so no equation has to be dropped. $TRGH$ was increased by \$2740.9 billion at an annual rate in 2023.1. This is 13 percent of the value of the government debt in 2022.4.[5] This is a very large increase. The actual value of $TRHG$ in 2022.4 was \$2984.3 billion, so the increase is almost double.

The results are also presented in Table 2. The initial increase in the inflation rate was 0.74 percentage points, which compares to 28.00 percentage points for the HANK model. After 3 quarters the increase was 1.12 percentage points versus 12.00 for the HANK model. In the US model an increase in $TRGH$ increases disposable income, which is an explanatory variable in the three consumption equations and the housing investment equation. So an increase in $TRGH$ increases demand. There is a slow adjustment of demand to an increase in disposable income, and so the immediate effects are fairly small. In addition, there are the leakages discussed above from demand to inflation. Also, the increase in $TRGH$ is only

[5]The federal government debt variable in the US model is $-AG$.

for one quarter. The net effect on the inflation rate is thus modest, peaking at about 1 percentage point after three quarters. The bottom line, as in the first experiment, is thus that the initial increase in inflation is much larger in the HANK model than in the US model. Although not shown in the table, the increase in the price level after five quarters was 14.0 percent for the HANK model versus 1.1 percent for the US model.

For this experiment the Fed interest rate rule was dropped, and RS was taken to be exogenous. If the Fed rule were retained, the results in Table 2 for the US model would be slightly smaller in absolute value because the Fed would be predicted to increase the interest rate in response to the increased inflation, which would have a negative effect on inflation.

Winberry et al. (2025) Figure 3

The third case is Figure 3 in Winberry et al. (2025). The experiment is a 50 basis point decline in the real interest rate with quarterly persistence of 0.5. The results are in Table 3. The initial rise is 0.40 percent for output, 0.20 percent for consumption, and 1.00 percent for investment. The effects fall rapidly to near zero after five quarters.

Table 3
Effects of an increase of 50 basis points
in the real interest rate
(percent changes)

		HANK			US	
Qtr.	Output	Consumption	Investment	Output	Consumption	Investment
1	0.40	0.20	1.00	0.02	0.04	0.01
2	0.20	0.11	0.50	0.05	0.05	0.14
3	0.10	0.06	0.20	0.07	0.06	0.21
4	0.05	0.04	0.04	0.07	0.05	0.21
5	0.00	0.03	0.00	0.06	0.05	0.20

HANK: Deviations from steady state.
US: Deviations from baseline.

The same experiment was run using the US model, with the same methodology as above. RS was decreased by 50 basis points in the first quarter, by 25 basis points in the second, by 12.5 basis points in the third, by 6.25 basis points in the fourth, and by 3.125 basis points in the fifth. RS is nominal, but the response of the inflation rate to a small change in RS is so small that it can be ignored for purposes of this comparison. The decreases in RS are roughly decreases in the real rate.

The results are presented in Table 3. Comparing the initial increases to the initial increases in HANK, they are (all in percents): 0.02 versus 0.40 for output, 0.04 versus 0.20 for consumption, and 0.01 versus 1.00 for investment. Again, the HANK estimates are initially much larger.

Winberry et al. (2025) Figure 4

The fourth case is Figure 4 in Winberry et al. (2025). The experiment is a one-time increase in transfer payments of 1 percent of GDP financed by government borrowing. The results are in Table 4. The initial increase is 0.30 percent for output, 0.28 percent for consumption, and 0.01 percent for investment. By quarter five the effects are, respectively, 0.05, 0.04, and 0.00 percent.

Table 4
Effects of an increase in transfer payments of 1 percent of GDP
(percent changes)

	HANK			US		
Qtr.	Output	Consumption	Investment	Output	Consumption	Investment
1	0.30	0.28	0.01	0.11	0.18	0.09
2	0.15	0.13	0.00	0.13	0.15	0.11
3	0.10	0.08	0.00	0.11	0.13	0.13
4	0.07	0.05	0.00	0.09	0.11	0.13
5	0.05	0.04	0.00	0.07	0.10	0.15

HANK: Deviations from steady state.
US: Deviations from baseline.

The same experiment was run using the US model, with the transfer payment variable being $TRGH$, as in the second case above. $TRGH$ was increased by $267.6 billion at an annual rate in 2023.1, which is 1 percent of GDP in 2022.4. The results are presented in Table 4.

The initial increase is 0.11 percent for output, 0.18 percent for consumption, and 0.09 percent for investment. By quarter five the effects are, respectively, 0.07, 0.10, and 0.15. Again, the HANK effects are initially larger except for investment. There is essentially no effect on investment in the HANK model, which is not true in the US model.

Kaplan and Miyahara (2026) Figure 3

The fifth case is Figure 3 in Kaplan and Miyahara (2026).[6] The experiment is an increase in transfer payments of 20 percent of government debt financed by government borrowing. All but 1 percent is paid in the first quarter, with 1 percent being paid in the second quarter. The nominal interest is kept unchanged. The results are in Table 5. The initial increase in output is 21 percent, and the initial increase in the inflation rate is 58.0 percentage points. The increase in output falls rapidly to zero by quarter five. The increase in the inflation rate is 40.0 percentage points in the second quarter and 20.0 percentage points in the third. The increase in the fourth quarter is 2.0 percentage points. In the fifth quarter inflation is lower by 1.0 percentage points.

[6] The HANK model in Kaplan (2025) is roughly the same as the HANK model in Kaplan and Miyahara (2026).

Table 5
Effects of an increase in transfer payments of 20 percent of government debt (percent changes for output) (percentage point changes for inflation)

	HANK		US	
Qtr.	Output	Inflation	Output	Inflation
1	21.0	58.0	1.6	1.1
2	6.0	40.0	1.9	1.3
3	2.0	20.0	1.6	1.8
4	1.0	2.0	1.2	1.1
5	0.0	-1.0	0.9	0.7

HANK: Deviations from steady state.
US: Deviations from baseline.

The same experiment was run using the US model, with again the transfer payment variable being $TRGH$. The estimated Fed rule was dropped from the model, and RS was taken to be exogenous. $TRGH$ was increased by $4,216.8 billion at an annual rate in 2023.1 and by 42.0 billion at an annual rate in 2023.2. The total is 20 percent of federal government debt in 2022.4.[7] The results are presented in Table 5.

The initial increase is 1.6 percent for output and 1.1 percentage points for inflation. The peak resonse is 1.9 percent for output in the second quarter and 1.8 percentage points for inflation in the third quarter.

There are thus huge differences in the initial responses between the HANK model and the US model. For output 21.0 percent versus 1.6 percent, and for inflation 58.0 percentage points versus 1.1 percentage points. The way in which transfer payments affect the economy in the US model is discussed under the second experiment above.

[7]Twenty percent of variable $-AG$ in the US model.

Kaplan and Miyahara (2026) Figure 6(a)

The sixth case is Figure 6(a) in Kaplan and Miyahara (2026). The experiment is an increase of 500 basis points in the nominal interest rate with a half life of two quarters. The case analyzed here is the model with short-term debt. The results for inflation are in Table 6. Inflation rose by 3.00 percentage points in the first quarter. Then increases for the next four quarters were respectively 2.50, 2.10, 1.70, and 1.50 percentage points. The reason the inflation rate rose rather than fell is the same as in the first case above, having to do with long run constraints. The effects are larger in Table 6 than in Table 1 because the interest rate increase is much larger and pertains to more than the first quarter.

Table 6
Effects of an increase of 500 basis points in the nominal interest rate with a half life of two quarters (percentage point changes)

Qtr.	HANK Inflation	US Inflation
1	3.00	-0.12
2	2.50	-0.45
3	2.10	-0.56
4	1.70	-0.50
5	1.50	-0.54

HANK: Deviations from steady state.
US: Deviations from baseline.

The same experiment was run using the US model. RS was increase by 500 basis points in the first quarter, then in the next four respectively 375, 250, 187.5, and 125 basis points. Results for inflation are in Table 6. Inflation initially fell by 0.12 percentage points, reaching a peak in absolute value in the third quarter at 0.56 percentage points. The way in which interest rates affect the economy in the US model is discussed under the first experiment above. The effects on inflation are over ten times a large in absolute value in Table 6 versus Table 1 for the US model, which reflects the fact that the increase in the interest rate is more than ten times as large.

Comparing the HANK model to the US model, the effects are much larger in absolute value in the HANK model and are of the opposite sign.

Kaplan and Miyahara (2026) Figure 12

The seventh case is Figure 12 in Kaplan and Miyahara (2026). The experiment is one in which it is assumed that there is no monetary or fiscal policy response to the pandemic. The Fed would have kept the nominal interest rate constant and there would have been no fiscal stimulus. The experiment begins in 2020.1. Results for output and inflation are presented in Table 7.

Had there been no response, output would have been 6.50 percent lower in the first quarter and inflation would have been 19.00 percentage points lower. Output would have been 6.0 percent lower in quarter three, 4.5 percent lower in quarter five, 3.0 percent lower in quarter seven, and the same in quarter nine. Inflation would have been 6.00 percentage points lower in the third quarter, 10.00 percentage points lower in the fifth quarter, 3.00 percentage points lower in the seventh quarter, and 3.00 percentage points higher in the ninth quarter.

Table 7
Effects of no monetary and fiscal policy responses to COVID
(percent changes for output)
(percentage point changes for inflation)

	HANK		US	
Qtr.	Output	Inflation	Output	Inflation
1	-6.50	-19.00	-0.09	-0.05
3	-6.00	-6.00	-1.68	-0.06
5	-4.50	-10.00	-3.01	-0.64
7	-3.00	-3.00	-3.29	-1.07
9	0.00	3.00	-3.07	-1.52

HANK: Deviations from baseline.
US: Deviations from baseline.

The same experiment was run using the US model. The prediction period began in 2020.1. RS was kept unchanged from its value in 2019.4 (rather than falling as it did in practice). Real federal transfer payments to households were kept at their 2019.4 value throughout the prediction period (no stimulus). The same was true for real federal government purchases of goods, real federal transfer payments to state and local governments, and real state and local government transfer payments to households. Some of the stimulus was federal transfer payments to state and local governments, which then increased their transfer payments to households somewhat. This stimulus was also turned off. Results for output and inflation are in Table 7.

The effects in the first quarter were small. By quarter three output would have been lower by 1.68 percent and inflation could have been lower by 0.06 percentage points. Then for quarters five, seven, and nine output would have been a little over 3.00 percent lower. Inflation by quarter nine would have been 1.52 percentage points lower.

Again, the initial effects for the HANK model are much larger in absolute value than for the US model, especially for inflation.

4 Conclusion

Because of the large level of aggregation, HANK models have omitted many important features of the aggregate economy, features that are important for explaining monetary policy and fiscal policy effects and general characteristics of business cycles. Because of the extensive calibration and tight theoretical restrictions, like rational expectations and steady state restrictions, the models are not disciplined as much by the data as are models with more regression estimates. These may be the reasons for the much larger initial policy effects for the HANK models compared to those for the US model.

Although, as Winberry et al. (2025) argue, it may be useful to expand HANK models to heterogenous firms, perhaps more work following the CC approach would also be useful? Modern macro has perhaps become too narrowly focused on one set of models and methodology, a methodology that has drifted away from the data.

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