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Supplementary Appendix: Forecasting Core Inflation and Its Goods, Housing, and Supercore Components

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SUPPLEMENTARY APPENDIX
Forecasting Core Inflation and Its Goods, Housing, and Supercore Components*

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Abstract

This supplementary appendix provides additional results for our paper, "Forecasting Core Inflation and Its Goods, Housing, and Supercore Components." We provide additional forecasts of core PCE inflation and its components when our BVAR models include an additional 19 variable from the FRED-MD Database. We find that the addition of these variables do not tend to improve PCE forecasts when compared to the more parsimonious data set used in our main paper.

Keywords:
JEL classification codes: C32, C53, E17, E31, E37

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A BVARs with an Additional 19 Macroeconomic Variables

The variable set considered within our main paper – consisting of the Employment Cost Index, core inflation, and some disaggregates of inflation – is fairly small compared to what is now sometimes employed in the forecasting literature. For example, Carriero, Clark, and Marcellino (2019) and Carriero, et al. (2022a) consider models with 20 economic variables, Carriero, et al. (2022b) consider models with 16 variables, and Chan (2021) consider models with 23 and 30 variables. We extend our BVAR models to include an additional 19 macroeconomic variables, for an overall total of 24 model variables, taken from the FRED-MD database maintained by the Federal Reserve Bank of St. Louis.[1] We aggregate the monthly FRED-MD variables to quarterly values by taking quarterly averages. Table 1 lists the full set of 24 variables that we consider in this appendix, along with the variable transformations and FRED-MD codes. We order the variables in our model to correspond with Table 1, top to bottom.

Figures 1-3 summarize the performance of the BVAR models estimated off of this extended data set to its analogous parsimonious counterparts.[2] These figures show that forecasts estimated from the parsimonious data set tend to outperform the forecasts from the data set. However, there are some exceptions. In the 2018-2022 sample, point forecasts of supercore and core goods estimated from the expanded data set tend to outperform corresponding forecasts from the parsimonious set. Additionally, shorter-term point forecasts of housing made prior to 2018 tend to be comparable for the smaller and larger variable sets. For density forecasts, these figures show that forecasts from models estimated with the parsimonious data set tend to outperform forecasts from models estimated with the expanded data set for the full-sample period along with forecasts prior to 2018. However, we find that, for forecasts for 2018-2022, density forecast performance is more mixed, with the expanded data set tending to produce better 8-quarters-ahead forecasts for each of our considered PCE inflation variables but otherwise tending to be worse than forecasts from the parsimonious data set.

Tables 2-6 show the performance of each extended BVAR model relative to its analogous par-

[1] Due to the computational expense of the SVD forecasts we omit them from these supplementary results.

[2] We exclude the UC-SV model from the computation of our diffusion indexes. Additionally, due to computational issues associated with the long MCMC of the expanded NGM-BVAR-SVO-TVM model, we follow the shorter chain settings of Carriero, et al. (2022b), where we discard 200 MCMC draws, retain 1,000 MCMC draws, and simulate 100,000 posterior predictive density draws.

simonious counterpart from Tables 2-6 of the main paper.[3] In the interest of brevity, we note just a few high-level findings, with some focus on the longer 1985-2017 sample. In this sample, for core PCE inflation and the supercore inflation component, forecasts from our models with the baseline, small variable set are almost always more accurate than forecasts from models with the larger variable set, usually with statistical significance. For the housing and core goods components, the smaller models yields forecasts more accurate than their larger counterparts for most horizon-specification combinations, with some exceptions (typically with small to modest differences in forecast accuracy) that tend to be at shorter horizons. In the 2018-2022 sample, the larger models show more advantages, although typically modest, compared to their smaller counterparts. But performance is quite mixed across inflation measures and horizons. Finally, one other broad result to note is that, over both sub-samples, use of the Minnesota-type Normal-Gamma prior appears to make forecasts from models using the expanded variable set more comparable or even better than the parsimonious forecasts for one-period ahead forecasts. This suggests that variable selection from the Normal-Gamma prior assists in short-horizon forecasts when the variable set is large.

Finally, Figure 3 show the time series of forecasts for a UC-SV model compared to the forecasts of the AM-BVAR-SV model estimated with the extended and parsimonious data sets, respectively. This figure shows that the extednded AM-BVAR-SV model tends to perform comparably to the parsimonious AM-BVAR-SV model except for 8-quarters-ahead forecasts during the period of 1985 to 2010.

[3]We use the MCMC settings of Carriero, et al. (2022b) for the AM-BVAR-SV-TVM model of Table 6 due to computational issues associated with a longer MCMC chain.

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Table 1: FRED-MD variables added in the expanded PCE data set

Variable	FRED-MD code	Transformation
Real Personal Income	RPI	$\Delta \log(x_t) \cdot 400$
Real Personal Consumption Expenditures	DPCERA3M086SBEA	$\Delta \log(x_t) \cdot 400$
Real Manufacturing and Trade Sales	CMRMTSPLx	$\Delta \log(x_t) \cdot 400$
Industrial Production	INDPRO	$\Delta \log(x_t) \cdot 400$
Capacity Utilization	CUMFNS	x_t
Unemployment Rate	UNRATE	x_t
Nonfarm Payrolls	PAYEMS	$\Delta \log(x_t) \cdot 400$
Hours	CES0600000007	$\log(x_t)$
Hourly Earnings	CES0600000008	$\Delta \log(x_t) \cdot 400$
PPI (Fin. Goods)	WPSFD49207	$\Delta \log(x_t) \cdot 400$
Federal Funds Rate	FEDFUNDS	x_t
Housing Starts	HOUST	$\log(x_t)$
S&P 500	SP500	$\Delta \log(x_t) \cdot 400$
USD / GBP FX Rate	EXUSUKx	$\Delta \log(x_t) \cdot 400$
Spread of 1-Year Treasuries and Federal Funds	T1YFFM	x_t
Spread of 10-Year Treasuries and Federal Funds	T10YFFM	x_t
Spread of Seasoned BAA Bonds and Federal Funds	BAAFFM	x_t
New Orders for Durable Goods	AMDMNOx	$\Delta \log(x_t) \cdot 400$
Unfilled Orders for Durable Goods	AMDMUOx	$\Delta \log(x_t) \cdot 400$

Note: The table lists the 19 variables added to the baseline variable set of core PCE inflation, inflation in the core goods, housing, and non-housing services components, and ECI growth.

Table 2: Forecast ratios for RMSEs and CRPSs, core PCE inflation

Model / Horizon	*h=1*		*h=2*		*h=4*		*h=8*	
	RMSE	CRPS	RMSE	CRPS	RMSE	CRPS	RMSE	CRPS
1985:Q1 - 2022:Q4								
NM-BVAR-SV	1.091	1.098**	1.157*	1.207***	1.239**	1.372***	1.384*	1.567***
NM-BVAR-SVO	1.091	1.148***	1.182**	1.288***	1.246**	1.468***	1.352*	1.668***
NM-BVAR-SV-TVM	1.193*	1.165**	1.275**	1.289***	1.551***	1.627***	2.363***	2.284***
NM-BVAR-SVO-TVM	1.332***	1.303***	1.301***	1.322***	1.580***	1.664***	2.434***	2.233***
AM-BVAR-SVO	**1.022***	1.113***	1.047**	1.155***	1.055**	1.188***	**1.096***	1.201***
AM-BVAR-SV-TVM	1.037	**1.041**	1.132***	1.127***	1.173***	1.205***	1.574**	1.510***
AM-BVAR-SVO-TVM	1.025	1.053**	1.052	**1.080****	1.075**	1.141***	1.148*	1.219***
NGM-BVAR-SV	1.023**	1.071***	**1.045****	1.126***	**1.054****	1.140***	1.103*	**1.185*****
NGM-BVAR-SVO	1.026**	1.120***	1.046**	1.175***	1.067**	1.217***	1.108*	1.221***
NGM-BVAR-SV-TVM	1.085**	1.067**	1.114**	1.120***	1.123***	**1.133*****	1.351**	1.346***
NGM-BVAR-SVO-TVM	1.040	1.048*	1.095**	1.126***	1.098**	1.168***	1.167*	1.258***
1985:Q1 - 2017:Q4								
NM-BVAR-SV	1.114	1.146***	1.215*	1.252***	1.418**	1.503***	1.701*	1.774***
NM-BVAR-SVO	1.122	1.201***	1.240*	1.340***	1.413**	1.597***	1.640*	1.886***
NM-BVAR-SV-TVM	1.327**	1.243***	1.476***	1.395***	1.965***	1.874***	3.170***	2.731***
NM-BVAR-SVO-TVM	1.331***	1.306***	1.383***	1.378***	1.979***	1.870***	3.240***	2.597***
AM-BVAR-SVO	1.022	1.149***	1.040	1.188***	1.098**	1.243***	**1.243*****	1.291***
AM-BVAR-SV-TVM	1.060	1.070*	1.171***	1.145***	1.325***	1.311***	2.068***	1.733***
AM-BVAR-SVO-TVM	**1.009**	1.059**	**1.020**	**1.082****	1.136**	1.185***	1.336**	1.320***
NGM-BVAR-SV	1.019	1.104***	1.047*	1.150***	**1.094***	1.201***	1.250***	**1.278*****
NGM-BVAR-SVO	1.025*	1.153***	1.048*	1.211***	1.113**	1.276***	1.252**	1.311***
NGM-BVAR-SV-TVM	1.064	1.077*	1.138*	1.136***	1.157**	**1.184*****	1.673**	1.510***
NGM-BVAR-SVO-TVM	1.023	**1.053**	1.126*	1.146***	1.177**	1.219***	1.369**	1.380***
2018:Q1 - 2022:Q4								
NM-BVAR-SV	1.058	0.941	1.051	1.036	1.019	0.964	1.057	1.001
NM-BVAR-SVO	1.044	0.972	1.076	1.084	1.045	1.034	1.052	0.945
NM-BVAR-SV-TVM	**0.966**	**0.902**	**0.825**	**0.888**	**0.888**	**0.860**	1.036	0.987
NM-BVAR-SVO-TVM	1.333	1.291	1.144	1.101	0.956	0.965	1.119	1.008
AM-BVAR-SVO	1.022	0.994	1.058*	1.031	1.012	1.005	0.947**	0.895***
AM-BVAR-SV-TVM	1.006	0.946	1.071**	1.063	1.009	0.897*	0.945**	0.897**
AM-BVAR-SVO-TVM	1.047	1.033	1.098	1.072	1.014	1.005	0.947***	0.903***
NGM-BVAR-SV	1.028**	0.966	1.041	1.039	1.014	0.951	0.955**	0.910***
NGM-BVAR-SVO	1.028**	1.011	1.044*	1.035	1.020	1.019	0.958***	0.905***
NGM-BVAR-SV-TVM	1.115**	1.035	1.079*	1.064	1.089**	0.984	0.962*	0.895***
NGM-BVAR-SVO-TVM	1.066**	1.033	1.047	1.051	1.014	1.011	**0.933****	**0.876*****

Note: Values below 1 indicate improvement over the corresponding model forecasts from the main paper. Significance assessed by Diebold-Mariano-West test using Newey-West standard errors with $h+1$ lags. *, **, and *** represent the .10, .05, and .01 significance levels, respectively. Entries in bold denote the lowest ratio for a given forecasting horizon and measure.

Table 3: Forecast ratios for RMSEs and CRPSs, core PCE services excl. housing inflation

Model / Horizon	*h=1*		*h=2*		*h=4*		*h=8*	
	RMSE	CRPS	RMSE	CRPS	RMSE	CRPS	RMSE	CRPS
1985:Q1 - 2022:Q4								
NM-BVAR-SV	1.081	1.160***	1.161*	1.290***	1.220	1.440***	1.399*	1.707***
NM-BVAR-SVO	1.096	1.199***	1.178**	1.359***	1.198	1.521***	1.365**	1.850***
NM-BVAR-SV-TVM	1.165*	1.147**	1.350***	1.349***	1.665***	1.673***	2.536***	2.439***
NM-BVAR-SVO-TVM	1.253***	1.253***	1.254***	1.349***	1.651***	1.735***	2.608***	2.407***
AM-BVAR-SVO	1.032**	1.157***	1.040	1.225***	1.067**	1.288***	1.079	1.352***
AM-BVAR-SV-TVM	1.049	1.067	1.135**	1.132***	1.197**	1.222***	1.671**	1.562***
AM-BVAR-SVO-TVM	**0.974**	**1.014**	**1.004**	**1.059**	1.081	**1.145*** **	1.134*	**1.243*** **
NGM-BVAR-SV	1.034**	1.129***	1.024	1.191***	**1.050***	1.234***	1.081*	1.298***
NGM-BVAR-SVO	1.034**	1.173***	1.030	1.256***	1.060**	1.324***	**1.063**	1.380***
NGM-BVAR-SV-TVM	1.066	1.068*	1.081	1.099**	1.127***	1.152***	1.549*	1.404***
NGM-BVAR-SVO-TVM	1.044	1.050	1.100*	1.125***	1.149**	1.204***	1.165**	1.287***
1985:Q1 - 2017:Q4								
NM-BVAR-SV	1.064	1.184***	1.205**	1.326***	1.329**	1.515***	1.533*	1.833***
NM-BVAR-SVO	1.078	1.234***	1.224**	1.417***	1.297**	1.632***	1.491**	2.010***
NM-BVAR-SV-TVM	1.184**	1.166**	1.439***	1.408***	1.846***	1.802***	2.907***	2.700***
NM-BVAR-SVO-TVM	1.244***	1.265***	1.284***	1.382***	1.813***	1.861***	2.990***	2.650***
AM-BVAR-SVO	1.039**	1.192***	1.055	1.269***	1.096**	1.346***	1.127*	1.431***
AM-BVAR-SV-TVM	1.079	1.095**	1.164**	1.149***	1.263**	1.275***	1.903***	1.707***
AM-BVAR-SVO-TVM	**0.978**	**1.028**	**1.007**	**1.074**	1.123**	1.181***	1.212**	**1.314*** **
NGM-BVAR-SV	1.041**	1.163***	1.040	1.228***	**1.075** **	1.285***	1.135**	1.370***
NGM-BVAR-SVO	1.041**	1.209***	1.044	1.302***	1.085**	1.385***	**1.106**	1.463***
NGM-BVAR-SV-TVM	1.039	1.068	1.112*	1.120**	1.149***	**1.180*** **	1.722*	1.506***
NGM-BVAR-SVO-TVM	1.039	1.055	1.111	1.136***	1.190**	1.239***	1.249**	1.374***
2018:Q1 - 2022:Q4								
NM-BVAR-SV	1.138	1.046	0.966	1.097	**0.789**	1.063	1.026	1.130
NM-BVAR-SVO	1.161	1.030	0.962	1.039	0.819	**0.953**	1.004	1.006
NM-BVAR-SV-TVM	1.091	1.053	**0.865**	1.027	0.835	1.038	1.183	1.228***
NM-BVAR-SVO-TVM	1.284	1.193	1.117	1.171	0.966	1.095	1.182*	1.146**
AM-BVAR-SVO	1.004	0.990	0.983	0.992	0.977	1.001	0.941**	0.913***
AM-BVAR-SV-TVM	**0.929**	**0.931**	1.002	1.036	0.961	0.965	**0.910***	0.909*
AM-BVAR-SVO-TVM	0.962	0.947	0.991	**0.978**	0.936	0.966	0.921	0.892
NGM-BVAR-SV	1.012	0.968	0.958	0.997	0.971	0.984	0.927**	0.939
NGM-BVAR-SVO	1.009	0.998	0.971	1.007	0.983	1.015	0.935***	0.913***
NGM-BVAR-SV-TVM	1.162	1.069	0.951	0.987	1.049*	1.014	0.978	0.938*
NGM-BVAR-SVO-TVM	1.065	1.029	1.053	1.060	1.013	1.033	0.921*	**0.865** **

Note: Values below 1 indicate improvement over the corresponding model forecasts from the main paper. Significance assessed by Diebold-Mariano-West test using Newey-West standard errors with $h+1$ lags. *, **, and *** represent the .10, .05, and .01 significance levels, respectively. Entries in bold denote the lowest ratio for a given forecasting horizon and measure.

Table 4: Forecast ratios for RMSEs and CRPSs, PCE housing inflation

Model / Horizon	*h=1*		*h=2*		*h=4*		*h=8*	
	RMSE	CRPS	RMSE	CRPS	RMSE	CRPS	RMSE	CRPS
1985:Q1 - 2022:Q4								
NM-BVAR-SV	1.091	1.165***	0.993	1.098	1.034	1.156**	1.046	1.258***
NM-BVAR-SVO	1.099*	1.185***	**0.969**	1.134**	1.009	1.268***	1.037	1.458***
NM-BVAR-SV-TVM	1.320***	1.355***	1.256***	1.306***	1.370***	1.432***	1.554***	1.628***
NM-BVAR-SVO-TVM	1.312**	1.327***	1.342***	1.424***	1.436***	1.570***	1.697***	1.816***
AM-BVAR-SVO	1.006	1.079***	1.011	1.073**	1.022	1.090**	1.029	1.146***
AM-BVAR-SV-TVM	1.024	1.061	1.061	1.057	1.041	1.027	1.177**	1.176**
AM-BVAR-SVO-TVM	1.036	1.082**	1.013	1.054	1.060	1.066	1.111	1.139**
NGM-BVAR-SV	**0.986**	**1.044**	0.990	**1.030**	0.993	**1.026**	1.011	**1.052**
NGM-BVAR-SVO	0.994	1.071**	0.987	1.066*	**0.990**	1.085*	**1.010**	1.148***
NGM-BVAR-SV-TVM	1.087	1.112**	1.078	1.078	1.071	1.054	1.151*	1.168*
NGM-BVAR-SVO-TVM	0.987	1.056	1.011	1.052	1.020	1.058	1.023	1.119**
1985:Q1 - 2017:Q4								
NM-BVAR-SV	1.069	1.150***	0.984	1.111**	0.960	1.204***	1.040	1.354***
NM-BVAR-SVO	1.080	1.186***	0.952	1.173***	**0.899**	1.338***	**1.002**	1.572***
NM-BVAR-SV-TVM	1.322***	1.361***	1.272**	1.335***	1.548***	1.581***	1.877***	1.879***
NM-BVAR-SVO-TVM	1.177**	1.225***	1.319***	1.435***	1.562***	1.699***	2.006***	2.036***
AM-BVAR-SVO	0.984	1.081***	0.977	1.083**	0.990	1.116**	1.047	1.202***
AM-BVAR-SV-TVM	0.988	**1.033**	1.020	1.032	1.039	**1.031**	1.291**	1.270***
AM-BVAR-SVO-TVM	0.995	1.060	**0.941**	**1.028**	1.020	1.062	1.180*	1.185***
NGM-BVAR-SV	0.980	1.040	0.980	1.039	0.978	1.048	1.016	**1.111***
NGM-BVAR-SVO	0.988	1.083***	0.974	1.092**	0.970	1.125**	1.011	1.206***
NGM-BVAR-SV-TVM	1.073	1.108**	1.031	1.060	1.051	1.053	1.236**	1.233**
NGM-BVAR-SVO-TVM	**0.957**	1.048	0.951	1.037	0.984	1.062	1.049	1.162**
2018:Q1 - 2022:Q4								
NM-BVAR-SV	1.182	1.252	1.016	1.039	1.149	0.981	1.056	0.872
NM-BVAR-SVO	1.178	1.178	**1.008**	0.966	1.173	1.002	1.090	0.963
NM-BVAR-SV-TVM	1.309*	1.314*	1.196	1.163	**0.851**	**0.844**	**0.684**	**0.630**
NM-BVAR-SVO-TVM	1.927*	1.982*	1.423*	1.366*	1.095	1.031	0.921	0.866
AM-BVAR-SVO	1.097*	1.069*	1.094	1.032	1.078	0.989	1.001	0.911
AM-BVAR-SV-TVM	1.209	1.239***	1.204	1.185**	1.043	1.014	0.937*	0.802*
AM-BVAR-SVO-TVM	1.252	1.222*	1.246	1.188	1.145	1.082	0.975	0.945
NGM-BVAR-SV	**1.012**	1.062	1.016	0.993	1.018	0.948	1.003	0.826
NGM-BVAR-SVO	1.018	**0.999**	1.018	**0.951**	1.024	0.934	1.009***	0.906
NGM-BVAR-SV-TVM	1.158	1.134	1.235	1.167*	1.113	1.057	0.969	0.905
NGM-BVAR-SVO-TVM	1.147	1.108	1.195	1.130	1.095	1.040	0.975	0.936

Note: Values below 1 indicate improvement over the corresponding model forecasts from the main paper. Significance assessed by Diebold-Mariano-West test using Newey-West standard errors with $h+1$ lags. *, **, and *** represent the .10, .05, and .01 significance levels, respectively. Entries in bold denote the lowest ratio for a given forecasting horizon and measure.

Table 5: Forecast ratios for RMSEs and CRPSs, core PCE goods inflation

Model / Horizon	*h=1*		*h=2*		*h=4*		*h=8*	
	RMSE	CRPS	RMSE	CRPS	RMSE	CRPS	RMSE	CRPS
1985:Q1 - 2022:Q4								
NM-BVAR-SV	1.077	1.086**	1.143**	1.168***	1.144***	1.238***	1.252**	1.431***
NM-BVAR-SVO	1.067	1.115***	1.142**	1.233***	1.172***	1.390***	1.246**	1.562***
NM-BVAR-SV-TVM	1.239	1.183**	1.192***	1.257***	1.301***	1.430***	1.767***	1.870***
NM-BVAR-SVO-TVM	1.189***	1.216***	1.300***	1.323***	1.306***	1.499***	1.750***	1.858***
AM-BVAR-SVO	0.989	1.018	**0.996**	1.050**	**1.016**	1.099***	**1.022**	1.131***
AM-BVAR-SV-TVM	1.015	1.027	1.040	1.065**	1.070**	1.084	1.153***	1.263***
AM-BVAR-SVO-TVM	0.991	1.011	1.008	1.052**	1.028	1.100***	1.092**	1.185***
NGM-BVAR-SV	0.990	**0.996**	1.004	**1.037***	1.021*	**1.050**	1.046*	**1.107*****
NGM-BVAR-SVO	0.995	1.025	1.002	1.063***	1.024**	1.115***	1.048*	1.149***
NGM-BVAR-SV-TVM	**0.985**	0.996	1.018	1.051	1.066*	1.096*	1.165***	1.257***
NGM-BVAR-SVO-TVM	0.987	1.003	0.997	1.051*	1.048	1.123***	1.122***	1.240***
1985:Q1 - 2017:Q4								
NM-BVAR-SV	1.111**	1.120***	1.157*	1.196***	1.219**	1.334***	1.447*	1.572***
NM-BVAR-SVO	1.108**	1.164***	1.149*	1.271***	1.285***	1.503***	1.435*	1.774***
NM-BVAR-SV-TVM	1.242***	1.209***	1.337***	1.354***	1.582***	1.615***	2.356***	2.199***
NM-BVAR-SVO-TVM	1.228***	1.232***	1.437**	1.415***	1.633***	1.690***	2.288***	2.171***
AM-BVAR-SVO	**0.977**	1.029	**0.990**	1.076***	**1.051****	1.147***	**1.084****	1.205***
AM-BVAR-SV-TVM	1.050	1.048	1.091**	1.091***	1.174**	1.168***	1.346***	1.375***
AM-BVAR-SVO-TVM	0.999	1.028	1.018	1.085***	1.077	1.159***	1.221**	1.281***
NGM-BVAR-SV	0.979	**1.002**	0.999	**1.043***	1.054***	**1.098*****	1.110**	**1.145*****
NGM-BVAR-SVO	0.984	1.036	1.002	1.094***	1.061***	1.165***	1.117**	1.221***
NGM-BVAR-SV-TVM	0.996	1.021	1.079*	1.104***	1.206***	1.203***	1.389***	1.383***
NGM-BVAR-SVO-TVM	0.982	1.013	1.042	1.094***	1.129**	1.193***	1.278***	1.359***
2018:Q1 - 2022:Q4								
NM-BVAR-SV	1.036	0.989	1.126	1.082	1.081*	0.984	1.086**	1.078
NM-BVAR-SVO	1.019	0.976	1.133	1.114	1.076*	1.075*	1.084**	0.972
NM-BVAR-SV-TVM	1.237	1.112	1.012	0.983	1.035	0.957	1.072**	1.055
NM-BVAR-SVO-TVM	1.144	1.172	1.124	1.056	0.973	0.988	1.135***	1.029
AM-BVAR-SVO	1.001	0.984	1.003	0.970	0.987	0.963	**0.966*****	**0.913****
AM-BVAR-SV-TVM	0.977	0.970	0.989	0.996	0.988	0.874	0.991	0.999
AM-BVAR-SVO-TVM	0.983	0.966	0.999	0.962*	0.992	0.952	0.987	0.946**
NGM-BVAR-SV	1.003	0.981	1.009	1.018	0.993	0.917	0.987*	1.005
NGM-BVAR-SVO	1.007	0.995	1.002	0.970	0.991	0.971	0.983***	0.933***
NGM-BVAR-SV-TVM	**0.973**	**0.930**	0.957	**0.907***	**0.954**	**0.838***	0.977*	0.963*
NGM-BVAR-SVO-TVM	0.993	0.975	**0.951**	0.934	0.986	0.949	0.991	0.947**

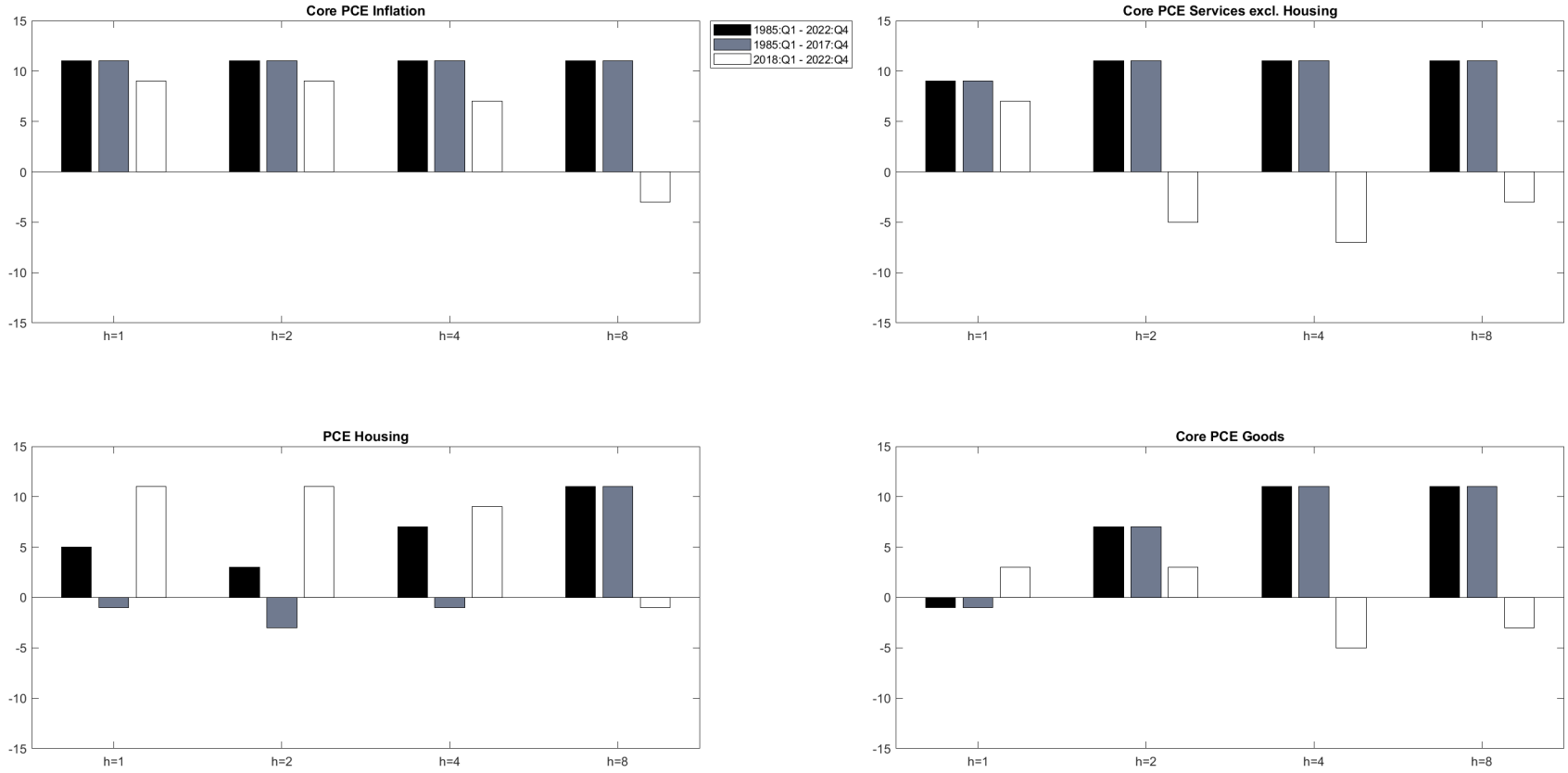
Note: Values below 1 indicate improvement over the corresponding model forecasts from the main paper. Significance assessed by Diebold-Mariano-West test using Newey-West standard errors with $h+1$ lags. *, **, and *** represent the .10, .05, and .01 significance levels, respectively. Entries in bold denote the lowest ratio for a given forecasting horizon and measure.

Table 6: Forecast ratios for RMSEs and CRPSs when using bottom-up approach, core PCE inflation

Model / Horizon	*h=1*		*h=2*		*h=4*		*h=8*	
	RMSE	CRPS	RMSE	CRPS	RMSE	CRPS	RMSE	CRPS
1985:Q1 - 2022:Q4								
NM-BVAR-SV	1.011	1.043***	1.005	1.041***	0.974	1.033**	0.969	1.046***
NM-BVAR-SVO	1.005	1.024	0.988	1.030**	0.975	1.035*	1.012	1.056***
NM-BVAR-SV-TVM	0.965	0.969	1.024	1.004	0.999	1.019	1.177	1.074
NM-BVAR-SVO-TVM	**0.911**	**0.932**	1.039	1.032	0.969	0.959	1.072	0.925
AM-BVAR-SV	1.004	0.991	1.026	1.007	1.044*	1.031*	1.054*	1.048**
AM-BVAR-SVO	1.000	0.987	1.023	1.002	1.034	1.024	1.047	1.048***
AM-BVAR-SV-TVM	0.991	0.974	**0.977**	**0.967**	**0.920***	**0.907****	**0.774***	**0.817****
AM-BVAR-SVO-TVM	1.007	1.003	1.047*	1.026	1.015	0.990	0.988	0.944
NGM-BVAR-SV	0.992	0.976*	1.015	0.988	1.033	1.007	1.046	1.030
NGM-BVAR-SVO	0.988	0.971**	1.013	0.981	1.022	0.996	1.045	1.029
NGM-BVAR-SV-TVM	0.958	0.962	1.020	0.998	0.962	0.967	0.997	0.961
NGM-BVAR-SVO-TVM	0.954	0.986	1.012	0.994	0.985	0.969	0.913	0.884**
1985:Q1 - 2017:Q4								
NM-BVAR-SV	1.028	1.059***	1.016	1.053***	0.998	1.049***	0.981	1.062***
NM-BVAR-SVO	1.011	1.039*	1.001	1.043***	1.010	1.055***	1.030	1.068***
NM-BVAR-SV-TVM	**0.907**	0.958	0.952	0.975	1.002	1.021	1.197	1.092
NM-BVAR-SVO-TVM	0.998	0.986	1.045	1.026	0.917	0.941	1.086	0.929
AM-BVAR-SV	1.015	0.994	1.047	1.012	1.069*	1.036	1.060	1.049*
AM-BVAR-SVO	1.006	0.988	1.041	1.003	1.049	1.025	1.053	1.050**
AM-BVAR-SV-TVM	0.954	0.954*	**0.933***	**0.946***	**0.838*****	**0.861*****	**0.704***	**0.774*****
AM-BVAR-SVO-TVM	1.006	1.000	1.058	1.021	0.991	0.967	0.959	0.913*
NGM-BVAR-SV	1.000	0.979	1.032	0.989	1.049	1.008	1.048	1.027
NGM-BVAR-SVO	0.996	0.973*	1.030	0.980	1.034	0.994	1.043	1.025
NGM-BVAR-SV-TVM	0.935	**0.940***	0.974	0.965	0.949	0.953	0.992	0.938
NGM-BVAR-SVO-TVM	0.950	0.995	0.958	0.966	0.948	0.946	0.856	0.848***
2018:Q1 - 2022:Q4								
NM-BVAR-SV	0.983	0.982	0.980	0.990	0.923	0.957	0.944*	0.971
NM-BVAR-SVO	0.994	0.964	**0.958**	**0.968**	**0.906**	**0.928**	0.974	0.980
NM-BVAR-SV-TVM	1.109	1.020	1.351	1.176	0.982	1.003	0.969	0.927
NM-BVAR-SVO-TVM	**0.768**	**0.748***	1.024	1.062	1.188	1.080	**0.943**	**0.893**
AM-BVAR-SV	0.989	0.977**	0.993	0.987	1.016	1.015	1.044***	1.043**
AM-BVAR-SVO	0.990	0.984*	0.995	0.999	1.016	1.016	1.037**	1.042**
AM-BVAR-SV-TVM	1.047	1.045	1.052	1.046	1.041	1.102	1.018	1.047*
AM-BVAR-SVO-TVM	1.009	1.011	1.032*	1.046*	1.042*	1.075**	1.040***	1.085***
NGM-BVAR-SV	0.980*	0.966**	0.989	0.982	1.014	1.004	1.043**	1.043**
NGM-BVAR-SVO	0.979*	0.963**	0.985	0.986	1.009	1.007	1.048***	1.051***
NGM-BVAR-SV-TVM	0.989	1.035	1.088	1.121	0.977	1.018	1.012	1.066**
NGM-BVAR-SVO-TVM	0.960	0.957	1.100	1.109*	1.031	1.056	1.020	1.060*

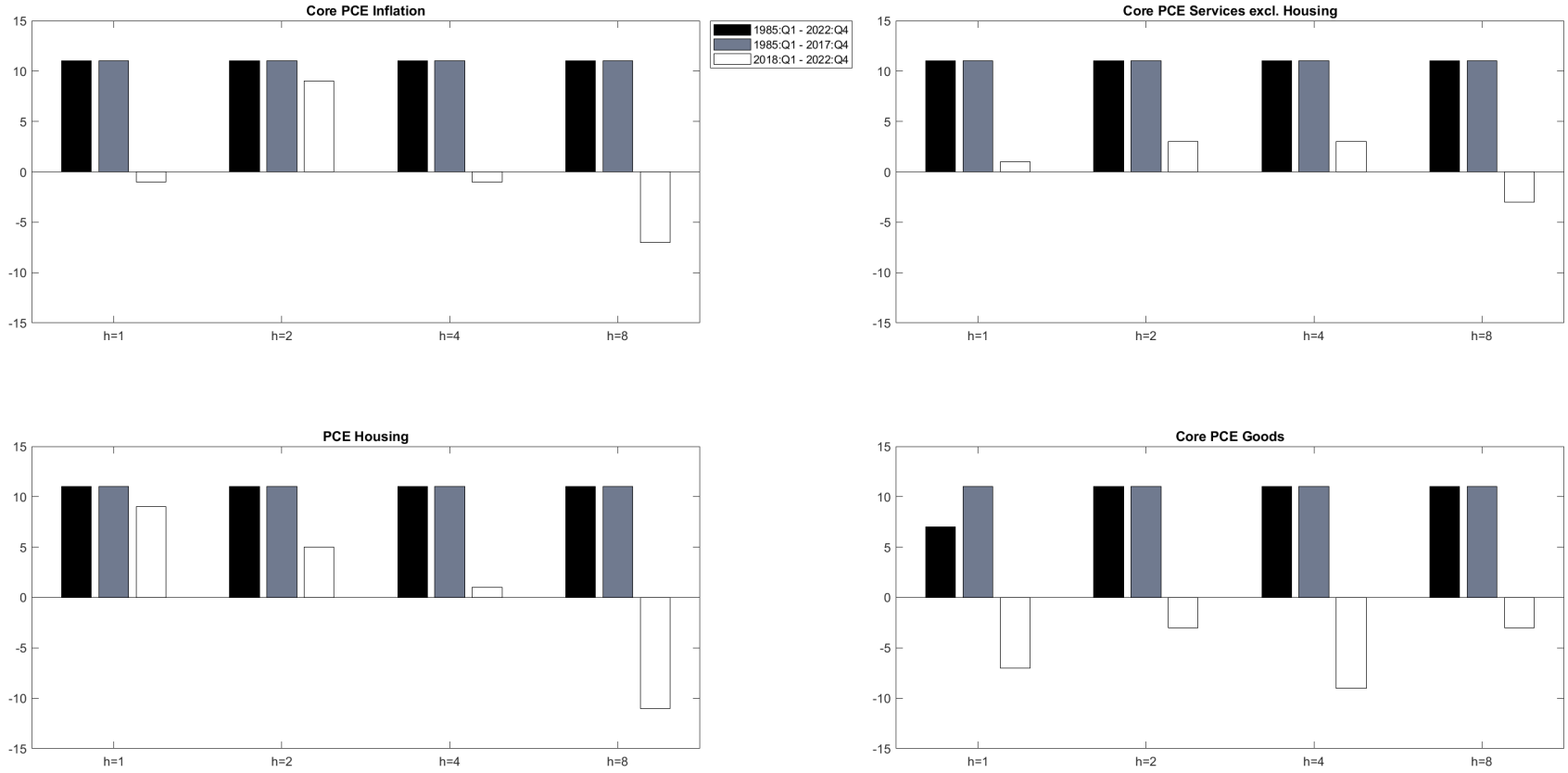
Note: Values below 1 indicate improvement over the corresponding core PCE inflation forecast that is taken directly from the model that includes aggregate inflation. The UC-SV model in the table represents the aggregate forecast from three separate disaggregate UC-SV models. Significance assessed by Diebold-Mariano-West test using Newey-West standard errors with $h+1$ lags. *, **, and *** represent the .10, .05, and .01 significance levels, respectively. Entries in bold denote the lowest ratio for a given forecasting horizon and measure.

Figure 1: Diffusion index of RMSE ratios for PCE



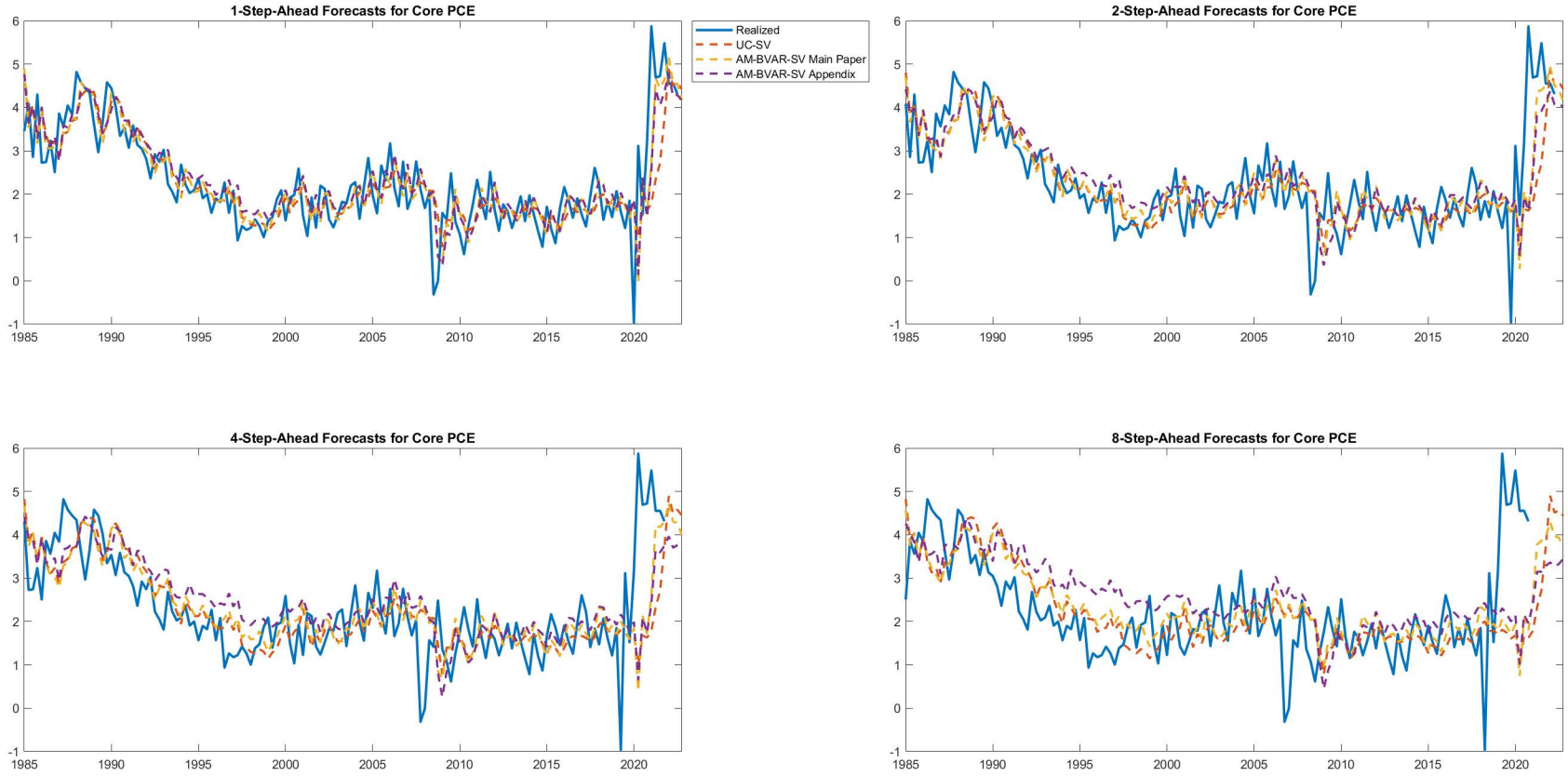
Ratios are calculated so that values below 1 indicate improvement over the corresponding model forecasts from the main paper. Diffusion indexes are calculated such that we take the counts of ratios less than 1 and subtract it from the count of ratios greater than 1, for each horizon, application, and evaluation window.

Figure 2: Diffusion index of CRPS ratios for PCE



Ratios are calculated so that values below 1 indicate improvement over the corresponding model forecasts from the main paper. Diffusion indexes are calculated such that we take the counts of ratios less than 1 and subtract it from the count of ratios greater than 1, for each horizon, application, and evaluation window.

Figure 3: Time series of forecasts of (aggregate) core PCE inflation



Dates on the x-axis represent the date of each forecast origin, t. Realized and forecasted values represent the n-step-ahead value from that given forecast origin.