Online Appendix

A Value Functions

Similar to Krause and Lubik (2006), the value to the household of having a household member working in firm H is

$$\mathbf{W}_{H,t} = w_{H,t} + \mathbb{E}_t \Xi_{t+1|t} \left\{ (1-\rho)\mathbf{W}_{H,t+1} + \rho \mathbf{U}_{H,t+1} \right\},$$

where $\mathbf{U}_{H,t}$ is the value of having an unemployed individual searching for employment in firm H:

$$\mathbf{U}_{H,t} = \chi + \mathbb{E}_t \Xi_{t+1|t} \left\{ f_{H,t}(1-\rho)\mathbf{W}_{H,t+1} + \left[1 - f_{H,t}(1-\rho)\right] \mathbf{U}_{H,t+1} \right\}.$$

In turn, the value to the household of having a household member employed in firm L is

$$\mathbf{W}_{L,t} = \max_{s_t} \left\{ w_{L,t} - \kappa(s_t) + \mathbb{E}_t \Xi_{t+1|t} \left[\begin{array}{c} \left(1 - s_t f_{H,t}\right)(1-\rho)\mathbf{W}_{L,t+1} \\ + s_t f_{H,t}(1-\rho)\mathbf{W}_{H,t+1} + \rho \mathbf{U}_{L,t+1} \end{array} \right] \right\},$$

where $\mathbf{U}_{L,t}$ is the value of having an unemployed individual searching for employment in firm L:

$$\mathbf{U}_{L,t} = \chi + \mathbb{E}_t \Xi_{t+1|t} \left\{ f_{L,t}(1-\rho)\mathbf{W}_{L,t+1} + \left[1 - f_{L,t}(1-\rho)\right] \mathbf{U}_{L,t+1} \right\}.$$

Note that $\mathbf{W}_{L,t}$ takes into account the cost of on-the-job search for those workers in firm L, $\kappa(s_t)$. These expressions are identical to those in Krause and Lubik (2006, 2010), and $\mathbf{U}_{H,t} = \mathbf{U}_{L,t} = \mathbf{U}_t$ in equilibrium. This implies that, choosing s_t in $\mathbf{W}_{L,t}$ and imposing $\mathbf{U}_{H,t} = \mathbf{U}_{L,t} = \mathbf{U}_t$, the household's optimal choice over search intensity can be written as:

$$\kappa'(s_t) = (1-\rho) f_{H,t} \mathbb{E}_t \Xi_{t+1|t} \left[\mathbf{W}_{H,t+1} - \mathbf{W}_{L,t+1} \right].$$

From the firm's perspective, the values of a vacancy for firm H and L are respectively given by

$$\mathbf{V}_{H,t} = -\gamma_H + \mathbb{E}_t \Xi^H_{t+1|t} \left\{ q_{H,t}(1-\rho)\mathbf{J}_{H,t+1} + \left[1 - q_{H,t}(1-\rho)\right] \mathbf{V}_{H,t+1} \right\},$$

and

$$\mathbf{V}_{L,t} = -\gamma_L + \mathbb{E}_t \Xi^L_{t+1|t} \left\{ q_{L,t}(1-\rho)\mathbf{J}_{L,t+1} + \left[1 - q_{L,t}(1-\rho)\right] \mathbf{V}_{L,t+1} \right\}.$$

Free entry implies that $\mathbf{V}_{H,t} = \mathbf{V}_{L,t} = 0$ for all t. Finally, the value to firm H of having an additional worker is

$$\mathbf{J}_{H,t} = p_{H,t} z_t F_{n_H}(n_{H,t}, k_{\ H,t}) - w_{H,t} \left[1 + \eta_w \mu_{H,t}\right] + \mathbb{E}_t \Xi^H_{t+1|t} \left\{(1-\rho)\mathbf{J}_{H,t+1}\right\}.$$

Similarly, the value to firm L of having an additional worker is

$$\mathbf{J}_{L,t} = p_{L,t} z_t F_{n_L}(n_{L,t}, k_{\ L,t}) - w_{L,t} \left[1 + \eta_w \mu_{L,t}\right] + \mathbb{E}_t \Xi^L_{t+1|t} \left\{(1-\rho)(1 - s_t f_{H,t})\mathbf{J}_{L,t+1}\right\}.$$

Note that in both cases, the firm's value of having an additional worker is affected by the collateral constraint. Moreover, the probability that workers in firm L transition into employment in firm H affects the value of a worker in firm L, as in Krause and Lubik (2006, 2010).

B Equilibrium Conditions: Benchmark Model

The benchmark model's equilibrium conditions are given by:

$$n_{H,t+1} = (1-\rho)\left[n_{H,t} + m_{H,t}\right],$$

$$n_{L,t+1} = (1-\rho)\left[n_{L,t} + m_{L,t} - \frac{s_t n_{L,t}}{u_{H,t} + s_t n_{L,t}} m_{H,t}\right],$$

$$\mathbf{u}'(c_{h,t}) = \beta R_t \mathbb{E}_t \mathbf{u}'(c_{h,t+1}),$$

$$\kappa'(s_t) = (1-\rho) f_{H,t} \mathbb{E}_t \Xi_{t+1|t} \left[\mathbf{W}_{H,t+1} - \mathbf{W}_{L,t+1}\right],$$

$$c_{H,t} = p_{H,t} F(n_{H,t}, k_{H,t}) - w_{H,t} n_{H,t} - \gamma_H v_{H,t} - i_{H,t} + l_{H,t} - R_{t-1} l_{H,t-1},$$

$$k_{\ H,t+1} = (1-\delta) k_{H,t} + i_{H,t},$$

$$R_t l_{H,t} + \eta_w w_{H,t} n_{H,t} = \eta_t k_{H,t+1},$$

$$\frac{\gamma_H}{q_{H,t}} = (1-\rho)\mathbb{E}_t \Xi^H_{t+1|t} \left\{ p_{H,t+1} F_{n_H}(n_{H,t+1}, k_{H,t+1}) - w_{H,t+1}\left[1 + \eta_w \lambda_{H,t+1}\right] + \frac{\gamma_H}{q_{H,t+1}} \right\},$$

$$\left[1 - \lambda_{H,t}\eta_t\right] = \mathbb{E}_t \Xi^H_{t+1|t} \left\{ p_{H,t+1} F_{k_H}(n_{H,t+1}, k_{H,t+1}) + (1-\delta) \right\},$$

$$1 - R_t \lambda_{H,t} = \mathbb{E}_t \Xi^H_{t+1|t} R_t,$$

$$c_{L,t} = p_{L,t}F(n_{L,t}, k_{L,t}) - w_{L,t}n_{L,t} - \gamma_L v_{L,t} - i_{L,t} + l_{L,t} - R_{t-1}l_{L,t-1},$$

$$k_{\ L,t+1} = (1-\delta)k_{L,t} + i_{L,t},$$

$$R_t l_{L,t} + \eta_w w_{L,t} n_{L,t} = \eta_t k_{L,t+1},$$

$$\frac{\gamma_L}{q_{L,t}} = (1-\rho)\mathbb{E}_t \Xi^L_{t+1|t} \left\{ \begin{array}{c} p_{L,t+1}F_{n_L}(n_{L,t+1}, k_{L,t+1}) - w_{L,t+1}\left[1+\eta_w \lambda_{L,t+1}\right] \\ +\left(1 - s_{t+1} f_{H,t+1}\right) \frac{\gamma_L}{q_{L,t+1}} \end{array} \right\},$$

$$\left[1-\lambda_{L,t}\eta_t\right] = \mathbb{E}_t \Xi^L_{t+1|t} \left\{ p_{L,t+1}F_{k_L}(n_{L,t+1}, k_{L,t+1}) + (1-\delta) \right\},$$

$$1 - R_t \lambda_{L,t} = \mathbb{E}_t \Xi^L_{t+1|t} R_t,$$

$$\mathbf{W}_{j,t} - \mathbf{U}_{j,t} = \frac{\phi}{(1-\phi)\left[1+\eta_w \lambda_{j,t}\right]} \mathbf{J}_{j,t} \text{ for } j = H, L,$$

$$\mathbf{W}_{H,t} = w_{H,t} + \mathbb{E}_t \Xi_{t+1|t} \left\{ (1-\rho)\mathbf{W}_{H,t+1} + \rho \mathbf{U}_{H,t+1} \right\},$$

$$\mathbf{U}_{H,t} = \chi + \mathbb{E}_t \Xi_{t+1|t} \left\{ f_{H,t}(1-\rho)\mathbf{W}_{H,t+1} + \left[1 - f_{H,t}(1-\rho)\right] \mathbf{U}_{H,t+1} \right\},$$

$$\mathbf{W}_{L,t} = w_{L,t} - \kappa(s_t) + \mathbb{E}_t \Xi_{t+1|t} \left[\begin{array}{c} \left(1 - s_t f_{H,t}\right)(1-\rho)\mathbf{W}_{L,t+1} \\ +s_t f_{H,t}(1-\rho)\mathbf{W}_{H,t+1} + \rho \mathbf{U}_{L,t+1} \end{array} \right],$$

$$\mathbf{U}_{L,t} = \chi + \mathbb{E}_t \Xi_{t+1|t} \left\{ f_{L,t}(1-\rho)\mathbf{W}_{L,t+1} + \left[1 - f_{L,t}(1-\rho)\right] \mathbf{U}_{L,t+1} \right\},$$

$$\mathbf{U}_{H,t} = \mathbf{U}_{L,t},$$

$$u_{L,t} + u_{H,t} = 1 - n_{H,t} - n_{L,t},$$

$$y_t = z_t y\left(y_{H,t}, y_{L,t}\right),$$

$$p_{H,t} = z_t y_{y_H}\left(y_{H,t}, y_{L,t}\right) \text{ and } p_{L,t} = z_t y_{y_L}\left(y_{H,t}, y_{L,t}\right),$$

$$y_t = c_{h,t} + c_{H,t} + c_{L,t} + i_{H,t} + i_{L,t} + \kappa(s_t) n_{L,t} + \gamma_H v_{H,t} + \gamma_L v_{L,t}.$$

C Steady State: Benchmark Model

$$n_H = (1-\rho)\left[n_H + m_H\right],$$

$$n_L = (1-\rho)\left[n_L + m_L - \frac{s n_L}{u_H + s_t n_L} m_H\right],$$

$$1/\beta{=}R,$$

$$\kappa'(s) = (1-\rho) f_H \beta \left[\mathbf{W}_H - \mathbf{W}_L\right],$$

$$c_H = p_H F(n_H, k_H) - w_H n_H - \gamma_H v_H - i_H + l_H - R l_H,$$

$$\delta k_H = i_H,$$

$$R l_H + \eta_w w_H n_H = \eta k_H,$$

$$\frac{\gamma_H}{q_H} = (1-\rho)\beta_H \left\{ p_H F_{n_H}(n_H, k_H) - w_H \left[1 + \eta_w \lambda_H\right] + \frac{\gamma_H}{q_H} \right\},$$

$$\left[1 - \lambda_H \eta\right] = \beta_H \left\{ p_H F_{k_H}(n_H, k_H) + (1-\delta) \right\},$$

$$1 - R\lambda_H = \beta_H R,$$

$$c_L = p_L F(n_L, k_L) - w_L n_L - \gamma_L v_L - i_L + l_L - R l_L,$$

$$\delta k_L = i_L,$$

$$R l_L + \eta_w w_L n_L = \eta k_L,$$

$$\frac{\gamma_L}{q_L} = (1-\rho)\beta_L \left\{ p_L F_{n_L}(n_L, k_L) - w_L \left[1 + \eta_w \lambda_L\right] + (1 - s f_H) \frac{\gamma_L}{q_L} \right\},$$

$$\left[1 - \lambda_L \eta\right] = \beta_L \left\{ p_L F_{k_L}(n_L, k_L) + (1-\delta) \right\},$$

$$1 - R\lambda_L = \beta_L R,$$

$$\mathbf{W}_j - \mathbf{U}_j = \frac{\phi}{(1-\phi)\left[1 + \eta_w \lambda_j\right]} \mathbf{J}_j \text{ for } j = H, L,$$

$$\mathbf{W}_H = w_H + \beta \left\{ (1-\rho)\mathbf{W}_H + \rho \mathbf{U}_H \right\},$$

$$\mathbf{U}_H = \chi + \beta \left\{ f_H (1-\rho) \mathbf{W}_H + \left[1 - f_H(1-\rho)\right] \mathbf{U}_H \right\},$$

$$\mathbf{W}_L = w_L - \kappa(s_t) + \beta \begin{bmatrix} (1 - s f_H)(1-\rho)\mathbf{W}_L \\ + s f_H (1-\rho) \mathbf{W}_H + \rho \mathbf{U}_L \end{bmatrix},$$

$$\mathbf{U}_L = \chi + \beta \left\{ f_L (1-\rho) \mathbf{W}_L + \left[1 - f_L(1-\rho)\right] \mathbf{U}_L \right\},$$

$$\mathbf{U}_H = \mathbf{U}_L,$$

$$u_L + u_H = 1 - n_H - n_L,$$

$$y = z y\left(y_H, y_L\right),$$

$$p_H = zy_{y_H}(y_H, y_L) \text{ and } p_L = zy_{y_L}(y_H, y_L),$$

$$y_t = c_h + c_H + c_L + i_H + i_L + \kappa(s)n_L + \gamma_H v_H + \gamma_L v_L.$$

D Construction of Shock Series

We follow the strategy in Jermann and Quadrini (2012) to construct time series for total aggregate productivity (TFP) and financial conditions using our benchmark model.

D.1 Aggregate Productivity Shocks

The construction of TFP assumes that there is a constant-returns-to-scale aggregate production function that takes total employment and total capital as its inputs, as described in the main text. We construct a series for the capital stock beginning in 1952:Q1 using a standard law of motion for the capital stock and measures of depreciation and investment. Depreciation is given by consumption of fixed capital for both nonfinancial corporate and noncorporate firms (series FA106300053.Q and FA116300081.Q) obtained from the Federal Reserve's Flow of Funds. Investment is measured as total capital expenditures in the nonfinancial business sector (FA145050005.Q). All series are deflated using the Business Price Index (obtained from FRED). We choose the initial stock of capital such that the difference between the capital stock in the last period we consider (2015Q2) and the initial capital stock is zero (see Jermann and Quadrini, 2012).[29] Using a standard Cobb-Douglas production function with a capital share of 0.34, we use time series on seasonally-adjusted real GDP (NIPA Table 1.1.6), non-farm employment (Bureau of Labor Statistics), and our constructed capital stock series to obtain a time series for aggregate productivity.

D.2 Financial Shocks

Recall that we consider aggregate financial shocks (that is, shocks that hit both types of firms). As such, our starting point is to create an aggregate collateral constraint for the

[29] Note that since we focus on the period 1985Q1-2015Q2, the initial value of the capital stock has no relevant implications for the validity of the series we construct (see Jermann and Quadrini, 2012).

economy, which we assume to be binding:

$$(R_t l_{L,t} + R_t l_{H,t}) + \eta_w (w_{L,t} n_{L,t} - w_{H,t} n_{H,t}) = \eta_t (k_{L,t+1} + k_{H,t+1}).$$

We can express this constraint more compactly as

$$R_t l_t + \eta_w w_t n_t = \eta_t k_{t+1}.$$

where Rl denotes total firm liabilities, k is the economy's capital stock, and wn is the economy's total wage bill where we assume that $\eta_w = 1$. First, note that using our constructed capital series and NIPA data employee compensation (wages and salaries), we can construct time series for the second term on the left-hand-side of the aggregate collateral constraint. In turn, using data from the Federal Reserve's Flow of Funds, we can follow a similar strategy to the one we adopted to construct the capital stock series and create a time series for firms' liabilities (i.e., the stock of debt). Specifically, and following Jermann and Quadrini (2012), we use data on liabilities for the nonfinancial business sector (FA144104005.Q), deflated by the Business Price Index as a measure of real net borrowing. The initial value for the debt stock is obtained by summing the value of liabilities for corporate and noncorporate business in 1952:Q1 (FL114104005.Q and FL104104005.Q). Combining this initial value with the series on real net borrowing, we can construct the time series for firms' liabilities (the left-hand side of the aggregate collateral constraint). Then, the financial shock process η_t can be constructed as follows:

$$\eta_t = \frac{R_t l_t + \eta_w w_t n_t}{k_{t+1}}.$$

E Alternative Detrending Methodologies

The HP filter suffers from well-known drawbacks related to end-point problems. To make sure that these drawbacks are a minor concern in our study, we use data starting in 1980:Q1 to extract the cyclical component of each of our series of interest for 1985:Q1 onward. For completeness, though, we also experiment using the Baxter-King filter, first differencing, and the Corbae-Ouliaris Frequency-Domain (COFD) filter (which can perform better than other filters, including the Baxter-King and HP filters in dealing with end-point problems) as alternative means of detrending the data. As shown in Tables A1 and A2 below, regardless of the detrending technique being used, in terms of absolute quantitative results and relative quantitative results key statistics do not vary much. Therefore, we conclude that our results are robust to various detrending techniques. As in the paper's main body, we highlight that the number of observations available for net quits (Table A2) are substantially less compared to those available for other variables (Table A1), so the same caveats apply regarding our discussion of the statistics in these tables as in the paper's Tables 1 and 2.

F Model Alternatives

F.1 Benchmark Model with Additional Years: 1956Q1 - 2015:Q2

Our analysis focuses on the period 1985:Q1-2015:Q2 due to the presence of, as noted in Jermann and Quadrini (2012), a structural break in the 1980s. As a robustness check, we extend the Benchmark model to cover the period 1956:Q1-2015:Q2. The estimation of the shock processes yields: $\rho_z = 0.7529$, $\rho_\eta = 0.6977$, $\sigma_z = 0.00569$ and $\sigma_\eta = 0.0098$. The resulting contour and statistical analyses akin to that performed in the main body of the text follow below.

F.1.1 Contour Analysis

As shown in Figure A1, even when extending the prediction horizon back to 1956:Q1, the Benchmark model performs quite well in capturing the cyclical behavior of all key model variables. Of note, the model's predictions of consumption, unemployment, and labor income track the data quite well across the sample period and also amid the GFC. The same is true regarding net quits. All told, the contour analysis suggests that in spite of the 1980s structural break, the Benchmark model performs quite well over a much longer time span than presented in the main text.

F.1.2 Statistical Analysis

Tables A3 and A4 show results akin to the main text Table's 1 and 2. Starting the analysis in 1956:Q1 yields results that are quite similar to those from the paper's main text when starting the analysis in 1985:Q1. In addition, note from comparison of Tables 1 and A3 that the SAD and SSD results are fairly similar. All told, the preceding contour analysis and the present statistical analysis suggest that our results are robust to the time horizon under consideration, once again, in spite of the fact that, as noted in Jermann and Quadrini (2012), a structural break occurs in the 1980s.

F.2 Alternative Model Specifications: 1985Q1-2015:Q2

Two of the alternative specifications detailed in this section were already analyzed in the main text; namely, the No OTJS model and the No Fin. Shocks model. The remaining specifications addressed in this section are other intuitive variants relative to the Benchmark model. We refer to the analysis pertaining to these model variants further below.

F.2.1 No OTJ Search

(*Referred to as No OTJS in Tables 1, 2, and omitted from Tables A5 and A6 since this model was already addressed in the main text.*) The only difference relative to the baseline calibration of the benchmark model is that we shut down the OTJ search channel. The parameters borrowed from related literature remain unchanged. To keep the model as comparable to the baseline calibration of the benchmark model as possible, we target the job-filling probability (which is roughly 0.60 in the benchmark model). The resulting parameter values are $\chi = 0.3546, \gamma_H = 0.4792, \gamma_L = 0.1198, M = 0.5365, \overline{\eta} = 0.5053$, and $\varphi_k = 2.230$.

F.2.2 No Financial Shocks

(*Referred to as No Fin. Shocks in Tables 1, 2, and omitted from Tables A5 and A6 since this model was already addressed in the main text.*) The only difference relative to the baseline calibration is the absence of financial shocks in the simulations. The parameters borrowed from related literature remain unchanged. The resulting calibrated parameter values are $\chi = 0.3572, \gamma_H = 0.4123, \gamma_L = 0.1031, M = 0.6398, \overline{\eta} = 0.5056$, and $\varphi_k = 0$. This model does not generate enough investment volatility to require a positive capital adjustment cost.

F.2.3 No OTJS and $\eta_w = 0$

The only difference relative to the baseline calibration of the benchmark model is that we shut down the OTJ search channel along with the wage bill in the collateral constraint (to make the comparison across models more transparent, we use exactly the same estimated shocks processes as in the Benchmark model). The parameters borrowed from related literature remain unchanged. The resulting calibrated parameter values are $\chi = 0.3546, \gamma_H = 0.4792, \gamma_L = 0.1198, M = 0.5365, \overline{\eta} = 0.5053$, and $\varphi_k = 2.780$.

F.2.4 One Sector

In this one-sector version of the benchmark model (which naturally abstracts from OTJ search), we use the same values used for the baseline calibration of our benchmark model for the subjective discount factors households and firms, the depreciation rate of capital, the separation rate, the capital share, the bargaining power of workers, and the matching function elasticity. In turn, we calibrate the contemporaneous value of unemployment χ, the per-vacancy cost of recruiting workers γ, matching efficiency M, the capital adjustment cost φ_k, and firms' borrowing capacity $\overline{\eta}$ to match a job-finding probability of roughly 0.80, a total recruiting cost of 5 percent of total output, a ratio of debt to (quarterly) GDP of 3.16, a relative volatility of investment of 4.25, and a steady-state unemployment rate of 0.12. While this last target is consistent with Krause and Lubik (2006, 2010), it is above the level of unemployment in the data. Lowering steady-state unemployment to 0.06 (a value consistent with the data) implies that the job-finding probability is lower than in the data. Our main conclusions remain unchanged under this alternative calibration. All told, the resulting parameter values are $\chi = 0.4534, \gamma = 0.7608, M = 0.6781, \varphi_k = 2.742$, and $\overline{\eta} = 0.5053$.

F.2.5 No Collateral Constraints

(*Referred to as No Coll. Const. in Tables A5 and A6.*) We use the same values used for the baseline calibration of our benchmark model for the subjective discount factor of households (which in turn is the same as the one for firms, absent collateral constraints), the depreciation rate of capital, the separation rate, the capital share, the total output aggregator parameter, the bargaining power of workers, and the matching function elasticity. In turn, we calibrate the contemporaneous value of unemployment χ, the per-vacancy cost of recruiting workers for each firm category γ_H and γ_L, matching efficiency M, and the cost parameter for OTJ search κ using the same calibration targets as in the baseline calibration for the benchmark model.

The resulting parameter values are $\chi = 0.4307, \gamma_H = 0.4702, \gamma_L = 0.1176, M = 0.6412$, and $\kappa = 0.1258$. This model cannot generate sufficient investment volatility relative to the data, so $\varphi_k = 0$. Also, in the absence of financial frictions and using the same calibration targets and standard parameter values, we need to introduce a minimal degree of curvature for the cost of OTJ search. As such, we set $\eta_s = 1.01$ to avoid indeterminacy issues.

F.2.6 No TFP Shocks

The only difference relative to the baseline calibration is the absence of TFP shocks in the simulations. The parameters borrowed from related literature remain unchanged. The resulting calibrated parameter values are $\chi = 0.3572, \gamma_H = 0.4123, \gamma_L = 0.1031, M = 0.6398, \overline{\eta} = 0.5056$, and $\varphi_k = 3.10$.

F.2.7 No FR

This case abstracts from the shock purging in the style of Fujita and Ramey (2007) that we use otherwise. As pointed out in the main text, Jermann and Quadrini (2012) estimate a joint VAR for TFP and the measure of financial conditions to extract the shock processes that are later fed into the model. Specifically, Jermann and Quadrini's (2012) approach consists in estimating

$$\ln \begin{pmatrix} z_t \\ \eta_t \end{pmatrix} = \begin{bmatrix} \rho_{zz} & \rho_{z\eta} \\ \rho_{\eta z} & \rho_{\eta\eta} \end{bmatrix} \ln \begin{pmatrix} z_{t-1} \\ \eta_{t-1} \end{pmatrix} + \begin{pmatrix} \varepsilon_t^z \\ \varepsilon_t^\eta \end{pmatrix},$$

where $\varepsilon_t^z \sim N(0, \sigma_z^2)$ and $\varepsilon_t^\eta \sim N(0, \sigma_\eta^2)$. Using data from 1985:Q1 to 2015:Q2, our estimation yields

$$\begin{bmatrix} \rho_{zz} & \rho_{z\eta} \\ \rho_{\eta z} & \rho_{\eta\eta} \end{bmatrix} = \begin{bmatrix} 0.883 & -0.060 \\ 0.703 & 0.719 \end{bmatrix}$$

In turn, the standard deviation of the shocks is: $\sigma_z = 0.0042$ and $\sigma_\eta = 0.0104$. The only difference relative to the baseline calibration for the benchmark model is the shock series for TFP and financial conditions. The parameters borrowed from related literature remain unchanged. The resulting calibrated parameter values are $\chi = 0.3572, \gamma_H = 0.4123, \gamma_L = 0.1031, M = 0.6398, \overline{\eta} = 0.5056$, and $\varphi_k = 0.317$.

F.3 Alternative Calibrations: 1985Q1-2015:Q2

This section presents robustness check calibrations as related to some of the Benchmark model's key parameters. We refer to the analysis pertaining to these calibration alternatives further below. For comparability with the baseline results, we use the same shock series throughout all our alternative calibration experiments.

The first alternative eliminates the wage bill from the firms' collateral constraint. All other parameters remain identical to the one for the benchmark model under the baseline calibration (*This alternative is referred to as* $\eta_w = 0$ in *Tables A5 and A6.*)

The second alternative changes the curvature of the cost of OTJ search to have a minor degree of convexity. As before, we use the same parameter values from existing literature and the same calibration targets but set $\eta_s = 1.1$ for illustrative purposes. The resulting calibration implies $\chi = 0.3571, \kappa = 0.1131, M = 0.6414, \gamma_L = 0.1032, \gamma_H = 0.4127, \overline{\eta} = 0.5056, \varphi_k = 0$. (*This alternative is referred to as Alt.* ηs *in Tables A5 and A6.*)

The third alternative calibration changes the separation rate and the contemporaneous value of unemployment. Specifically, we use the same parameter values from existing literature but change the separation rate to 0.05 (vs. 0.10 in the benchmark calibration) and set the value of χ such that it represents roughly 70 percent of the average wage (the calibration target is higher than the one in our baseline calibration, but lower than in Hagedorn and Manovskii, 2008). The resulting calibration implies $\chi = 0.4224, M = 0.6011, \gamma_L = 0.1422, \gamma_H = 0.2845, \overline{\eta} = 0.5079, \varphi_k = 2.366$. (*This alternative is referred to as Alt.* χs *and* ρs *in Tables A5 and A6.*)

Finally, the fourth alternative calibration changes the subjective discount factor for high-wage and low-wage firms. As before, we use the same parameter values from existing literature but set $\beta_H = \beta_L = 0.95$ (vs. $\beta_H = \beta_L = 0.97$ in the baseline calibration). This implies a higher interest rate spread. The resulting calibration implies $\chi = 0.3192, M = 0.6287e, \gamma_L = 0.0955, \gamma_H = 0.3821, \overline{\eta} = 0.5856, \varphi_k = 1.99$. (*This alternative is referred to as Alt.* βs *in Tables A5 and A6.*)

F.4 Analyses of Model and Calibration Alternatives

Consider first Table A5 and focus on the middle vertical panel, which considers alternative model specifications. Inspection of the last two rows of this table shows via SAD and SSD analysis that, on average, all alternative specifications are inferior to the Benchmark model. The only exception is the No FR model, which has a slightly lower SSD than the Benchmark model. However, the no FR specification is a failure from the point of view that from row-wise Panel C statistics, this model's own-variable correlations with the data are broadly opposite to the data sign-wise.

Compared to the Benchmark model, the most striking limitations of the remaining models are as follows. The No OTJS and $\eta_w = 0$ model generates disappointingly low standard deviations of unemployment and the v/u ratio relative to output. This limitation is also a feature of the One Sector model, which also generates excessive relative volatility of labor income. The No Collateral Constraints model generates disappointing standard deviations of consumption and labor income relative to output. Finally, the No TFP Shocks model presents a disappointingly low standard deviation of consumption relative to output, an excessively high standard deviation of unemployment relative to output, and sign-wise counterfactual correlations of unemployment and the v/u ratio with output.

Now, focus on the far-right column-wise panel of Table A5, which features the results from alternative calibrations of the Benchmark model. In terms of the $\eta_w = 0$ model, the Alt. χs and ρs model, and the Alt. βs model the SAD and SSD statistics suggest that there is not much difference between these models and the results from the Benchmark model. The Alt. η_s model is nonetheless a somewhat poorer fit compared to the Benchmark model under the baseline calibration, mainly on account of it generating a relatively low standard deviation of unemployment relative to output. All told, the Benchmark model appears to be quite robust to alternative calibrations, although it is somewhat sensitive regarding the calibration of the η_s, suggesting that our baseline calibration with a smaller curvature in the OTJ search cost is in fact appropriately consistent with a better match with the data.

Finally, focusing on Table A6, which centers on statistics related to net quits, we once again note that these statistics are to be taken with caution since the number of observations is quite limited compared to those used for generating Table A5. On net and taking into account the results from Table A5, we can conclude that, from a comprehensive perspective and considering our variables of interest, the Benchmark model continues to provide a good fit with the data relative to alternative specifications.

For completeness, we also present relevant contour analyses in Figures A2 through A10. The message from these analyses is in line with that of Tables A5 and A6. We stress, though, that amongst the model alternatives the Benchmark model tends to fair best in terms of tracking the data's behavior regarding net quits amid the GFC.

F.5 Appendix Tables

Table A1. Alternative filter statistics, 1985:Q1-2015:Q2

	Variable	Obs.	HP Filter (smooth param = 1600)	COFD-Filtered	$BK_{12}(6,32)$	First Difference
A. Standard deviation of variable relative to output	Consumption	122	0.88	0.79	0.89	1.02
	Investment	122	4.25	4.42	4.23	3.17
	Unemployment	122	9.94	12.29	9.69	7.23
	v/u ratio	122	19.75	22.16	19.36	14.49
	Labor income	122	1.41	1.82	1.34	1.60
B. Correlation of variable with output	Consumption	122	0.91	0.93	0.95	0.70
	Investment	122	0.89	0.95	0.92	0.69
	Unemployment	122	-0.88	-0.90	-0.89	-0.59
	v/u ratio	122	0.89	0.94	0.91	0.55
	Labor income	122	0.78	0.79	0.84	0.43

Notes: All data are in logs. Panel A: Standard deviation of variable relative to output. Panel B: Correlation of variable with output.

Table A2. Additional alternative filter statistics: 1990:Q2-2013:Q3 and 2001:Q1-2015:Q2

	Variable	Obs.	HP Filter (smooth param = 1600)	COFD-Filter	$BK_{12}(6,32)$	First Difference
A. Standard deviation of variable relative to output	Net quits (DH)	94	11.39	11.71	11.61	13.05
	Net quits (JOLTS)	58	15.35	20.55	17.04	18.28
B. Correlation of variable with output	Net quits (DH)	94	0.78	0.87	0.88	0.33
	Net quits (JOLTS)	58	0.88	0.82	0.97	0.52

Notes: All data are in logs. Net quits DH are constructed using data from Davis and Haltiwanger (2014) and data from the Current Population Survey; these data span 1990:Q2-2013:Q3. Net quits JOLTS are constructed using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey and the Current Population Survey; these data span 2001:Q1-2015:Q2.. Panel A: Standard deviation of variable relative to output. Panel B: Correlation of variable with output.

Table A3. Statistics: 1956:Q1-2015:Q2

	Variable	Obs.	Data	Benchmark
A. Standard deviation of variable relative to output	Consumption	238	0.78	0.45
	Investment	238	7.81	5.20
	Unemployment	238	1.15	1.13
	v/u ratio	238	3.23	2.85
	Labor income	238	16.27	11.00
B. Correlation of variable with output	Consumption	238	0.89	0.62
	Investment	238	-0.87	-0.87
	Unemployment	238	0.85	0.63
	v/u ratio	238	0.89	0.86
	Labor income	238	0.91	0.87
C. Own-variable correlation with data	Output	238	1.00	0.81
	Consumption	238	1.00	0.45
	Investment	238	1.00	0.56
	Unemployment	238	1.00	0.56
	v/u ratio	238	1.00	0.59
	Labor income	238	1.00	0.52
D. Summary statistics	SAD	16	—	11.66
	SSD	16	—	36.12

Notes: All data are in log deviations from steady state obtained using an HP filter with smoothing parameter equal to 1600. Panel A: Standard deviation of variable relative to output. Panel B: Correlation of variable with output. Panel C: Own-variable correlation with data.

Table A4. Additional statistics: 1990:Q2-2013:Q3 and 2001:Q1-2015:Q2

	Variable	Obs.	Data	Benchmark
A. Standard deviation of variable relative to output	Net quits (DH)	94	11.39	18.17
	Net quits (JOLTS)	58	15.35	19.91
B. Correlation of variable with output	Net quits (DH)	94	0.77	0.46
	Net quits (JOLTS)	58	0.88	0.45
C. Own-variable correlation with data	Net quits (DH)	94	1.00	0.34
	Net quits (JOLTS)	58	1.00	0.16

Notes: All data are in log deviations from steady state obtained using an HP filter with smoothing parameter equal to 1600. Net quits (DH) are constructed using data from Davis and Haltiwanger, 2014, and data from the Current Population Survey; these data span 1990:Q2-2013:Q3. Net quits (JOLTS) are constructed using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey and the Current Population Survey; these data span 2001:Q1-2015:Q2. Panel A: Standard deviation of variable relative to output. Panel B: Correlation of variable with output. Panel C: Own-variable correlation with data.

Table A5. Statistics: 1985:Q1-2015:Q2

					Alternative Model Specifications					Alternative Calibrations			
	Variable	Obs.	Data	Benchmark	No OTJS, $\eta_w = 0$	One Sector	No Coll. Const.	No TFP Shocks	No FR	$\eta_w = 0$	Alt. η_s	Alt. χs and ρs	Alt. βs
A. St. dev. of var. rel. to output	Consumption	122	0.88	0.71	1.05	0.86	0.25	1.42	0.49	0.73	0.82	0.82	0.57
	Investment	122	4.25	3.99	3.35	3.48	3.12	4.23	3.36	3.52	3.33	3.79	4.06
	Unemployment	122	9.94	6.02	1.31	1.37	5.09	27.65	6.67	6.15	3.62	11.95	5.78
	v/u ratio	122	19.75	13.53	5.89	2.99	10.91	12.70	13.87	13.60	7.78	26.29	13.11
	Labor income	122	1.41	1.84	1.60	3.12	0.77	3.54	1.24	0.88	2.42	1.57	1.85
B. Corr. of var. with output	Consumption	122	0.91	0.51	0.64	0.67	0.58	0.99	0.32	0.62	0.47	0.57	0.58
	Investment	122	0.89	0.69	0.68	0.80	0.93	0.85	0.86	0.53	0.85	0.61	0.77
	Unemployment	122	-0.88	-0.77	-0.57	-0.43	-0.88	0.39	-0.97	-0.89	-0.61	-0.72	-0.76
	v/u ratio	122	0.89	0.58	0.32	0.47	0.95	-0.67	0.88	0.76	0.68	0.54	0.61
	Labor income	122	0.78	0.49	0.62	0.41	0.96	0.16	0.98	0.87	0.41	0.53	0.49
C. Own-var. corr. with data	Output	122	1.00	0.86	0.87	0.84	0.77	0.22	0.29	0.88	0.85	0.88	0.87
	Consumption	122	1.00	0.58	0.66	0.67	0.27	0.07	0.64	0.57	0.59	0.58	0.54
	Investment	122	1.00	0.42	0.30	0.38	0.64	-0.13	-0.01	0.28	0.49	0.33	0.56
	Unemployment	122	1.00	0.48	0.62	0.52	0.54	0.32	-0.06	0.68	0.40	0.54	0.52
	v/u ratio	122	1.00	0.34	0.24	0.38	0.49	0.28	-0.21	0.58	0.27	0.41	0.38
	Labor income	122	1.00	0.52	0.53	0.44	0.62	0.37	-0.08	0.78	0.43	0.56	0.54
D. Summary statistics	SAD	16	—	15.12	28.05	32.17	19.36	35.91	16.94	14.46	24.59	13.32	15.47
	SSD	16	—	56.21	269.70	359.65	105.09	376.73	51.86	54.27	187.29	48.85	63.17

Notes: All data are in log deviations from steady state and obtained using an HP filter with smoothing parameter equal to 1600. Panel A: Standard deviation of variable relative to output. Panel B: Correlation of variable with output. Panel C: Own-variable correlation with data. Panel D: Summary statistics. Models: Benchmark; No on-the-job search and $\eta_w = 0$; One-sector; No collateral constraints; No TFP shocks; No Fujita-Ramey purging; $\eta_w = 0$; Alternative ηs; Alternative χs and ρs; Alternative βs. Details for each model are as noted earlier.

Table A6. Additional statistics: 1990:Q2-2013:Q3 and 2001:Q1-2015:Q2

					Alternative Model Specifications					Alternative Calibrations			
	Variable	Obs.	Data	Benchmark	No OTJS, $\eta_w = 0$	One Sector	No Coll. Const.	No TFP Shocks	No FR	$\eta_w = 0$	Alt. η_s	Alt. χs and ρs	Alt. βs
A. St. dev. of	Net quits (DH)	94	11.40	20.86	0.00	0.00	16.09	28.13	18.12	20.25	9.79	35.90	19.44
var. rel. to output	Net quits (JOLTS)	58	15.35	22.63	0.00	0.00	17.51	26.89	17.78	22.62	11.11	39.59	21.21
B. Corr. of var.	Net quits (DH)	94	0.78	0.36	N/A	N/A	0.77	0.34	0.72	0.58	0.53	0.28	0.42
with output	Net quits (JOLTS)	58	0.88	0.36	N/A	N/A	0.73	0.34	0.73	0.51	0.53	0.29	0.43
C. Own-var. corr.	Net quits (DH)	94	1.00	0.32	N/A	N/A	0.38	0.06	-0.13	0.45	0.27	0.35	0.34
with data	Net quits (JOLTS)	58	1.00	0.15	N/A	N/A	0.37	-0.18	-0.36	0.39	0.06	0.20	0.19

Notes: All data are in log deviations from steady state and obtained using an HP filter with smoothing parameter equal to 1600. Net quits DH are constructed using data from Davis and Haltiwanger (2014) and data from the Current Population Survey; these data span 1990:Q2-2013:Q3. Net quits JOLTS are constructed using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey and the Current Population Survey; these data span 2001:Q1-2015:Q2. Panel A: Standard deviation of variable relative to output. Panel B: Correlation of variable with output. Panel C: Own-variable correlation with data. Models: As in Table A5. Details for each model are as noted earlier.

Table A7. Statistics: 1985:Q1-2015:Q2

	Variable	Obs.	Data	Benchmark	Alternative Model Specifications: Fixed OTJ Search Intensity	No OTJ Search, No Recalib.	No Fin. Shocks, No Recalib.	No Coll. Constraints, No Recalib.	No TFP Shocks, No Recalib.	Common Shock
A. St. dev. of	Consumption	122	0.88	0.71	0.88	0.89	0.20	0.25	1.31	0.33
var. rel. to output	Investment	122	4.25	3.99	1.92	1.21	4.97	5.10	10.39	5.04
	Unemployment	122	9.94	6.02	2.67	2.68	0.70	0.77	3.64	0.91
	v/u ratio	122	19.75	13.53	3.65	3.96	3.06	3.12	6.49	3.80
	Labor income	122	1.41	1.84	3.96	4.05	10.48	10.91	22.91	11.32
B. Corr. of var.	Consumption	122	0.91	0.51	0.61	0.57	0.62	0.58	0.13	0.75
with output	Investment	122	0.89	0.69	-0.50	-0.46	-0.85	-0.88	-0.99	-0.87
	Unemployment	122	-0.88	-0.77	0.41	0.40	0.92	0.96	0.48	0.91
	v/u ratio	122	0.89	0.58	0.79	0.77	0.89	0.93	0.82	0.74
	Labor income	122	0.78	0.49	0.59	0.39	0.99	0.94	0.36	0.79
C. Own-var. corr.	Output	122	1.00	0.86	0.86	0.85	0.76	0.77	0.20	0.77
with data	Consumption	122	1.00	0.58	0.64	0.62	0.23	0.26	0.55	0.51
	Investment	122	1.00	0.42	0.39	0.36	0.63	0.64	-0.08	0.48
	Unemployment	122	1.00	0.48	0.52	0.48	0.53	0.54	0.04	0.48
	v/u ratio	122	1.00	0.34	0.41	0.21	0.52	0.45	-0.07	0.38
	Labor income	122	1.00	0.52	0.43	0.42	0.60	0.62	0.29	0.48
D. Summary	SAD	16	—	15.12	34.27	35.28	43.17	43.64	57.21	43.00
statistics	SSD	16	—	56.21	329.15	323.27	454.97	460.06	726.41	442.92

Notes: All data are in log deviations from steady state and obtained using an HP filter with smoothing parameter equal to 1600. Panel A: Standard deviation of variable relative to output. Panel B: Correlation of variable with output. Panel C: Own-variable correlation with data. Panel D: Summary statistics. Models: Benchmark; Benchmark with Fixed OTJ Search Intensity; No on-the-job search with parameter values from benchmark model; Benchmark without financial shocks and parameter values from benchmark model; model without collateral constraints with parameter values from benchmark model; Benchmark model without TFP shocks with parameter values from benchmark model; model with common shock. Details for each model are as noted earlier.

Table A6. Additional statistics: 1990:Q2-2013:Q3 and 2001:Q1-2015:Q2

	Variable	Obs.	Data	Benchmark	Alternative Model Specifications: Fixed Search Intensity	No OTJ Search, No Recalib.	No Fin. Shocks, No Recalib.	No Coll. Constraints, No Recalib.	No TFP Shocks, No Recalib.	Common Shock
A. St. dev. of	Net quits (DH)	94	11.40	20.86	1.85	0.00	14.79	11.78	33.38	18.12
var. rel. to output	Net quits (JOLTS)	58	15.35	22.63	2.13	0.00	15.63	17.51	43.67	20.20
B. Corr. of var.	Net quits (DH)	94	0.78	0.36	0.57	N/A	0.89	0.77	0.04	0.55
with output	Net quits (JOLTS)	58	0.88	0.36	0.61	N/A	0.87	0.73	0.04	0.49
C. Own-var. corr.	Net quits (DH)	94	1.00	0.32	0.47	N/A	0.43	0.38	0.05	0.26
with data	Net quits (JOLTS)	58	1.00	0.15	0.31	N/A	0.47	0.37	-0.15	0.23

Notes: All data are in log deviations from steady state and obtained using an HP filter with smoothing parameter equal to 1600. Net quits DH are constructed using data from Davis and Haltiwanger (2014) and data from the Current Population Survey; these data span 1990:Q2-2013:Q3. Net quits JOLTS are constructed using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey and the Current Population Survey; these data span 2001:Q1-2015:Q2. Panel A: Standard deviation of variable relative to output. Panel B: Correlation of variable with output. Panel C: Own-variable correlation with data. Models: As in Table A7. Details for each model are as noted earlier.

F.6 Appendix Figures

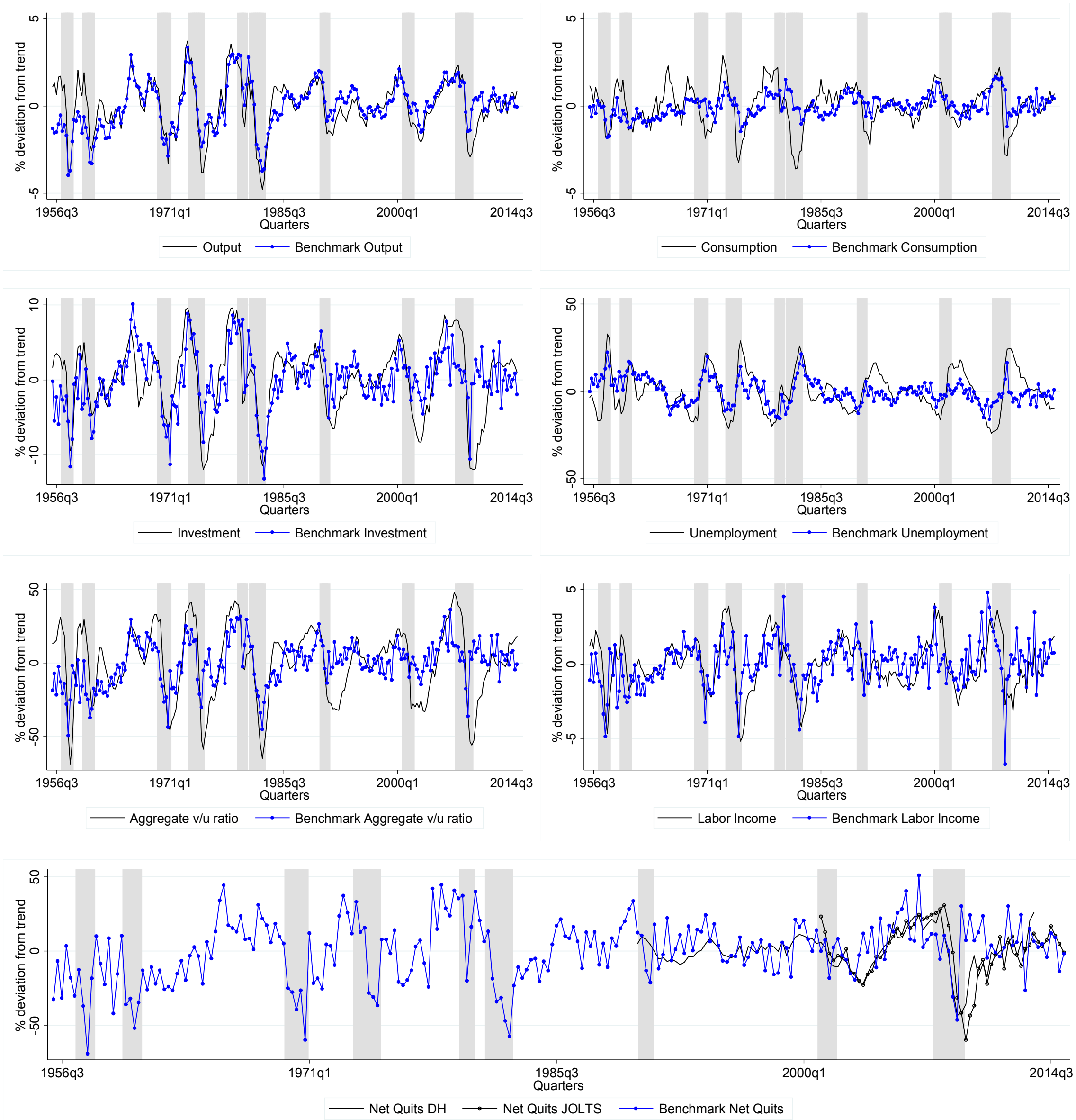

Figure A1. Cyclical dynamics for period 1956:Q2-2015:Q2 of output, consumption, investment, unemployment, the v/u ratio, labor income, and net quits: Data and Benchmark Model. All series are obtained using the natural logarithm of the data and an HP filter with smoothing parameter equal to 1600. Recession quarters are marked in gray. Net quits DH are constructed using data from Davis and Haltiwanger (2014) and data from the Current Population Survey; these data span 1990:Q2-2013:Q3. Net quits JOLTS are constructed using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey and the Current Population Survey; these data span 2001:Q1-2015:Q2.

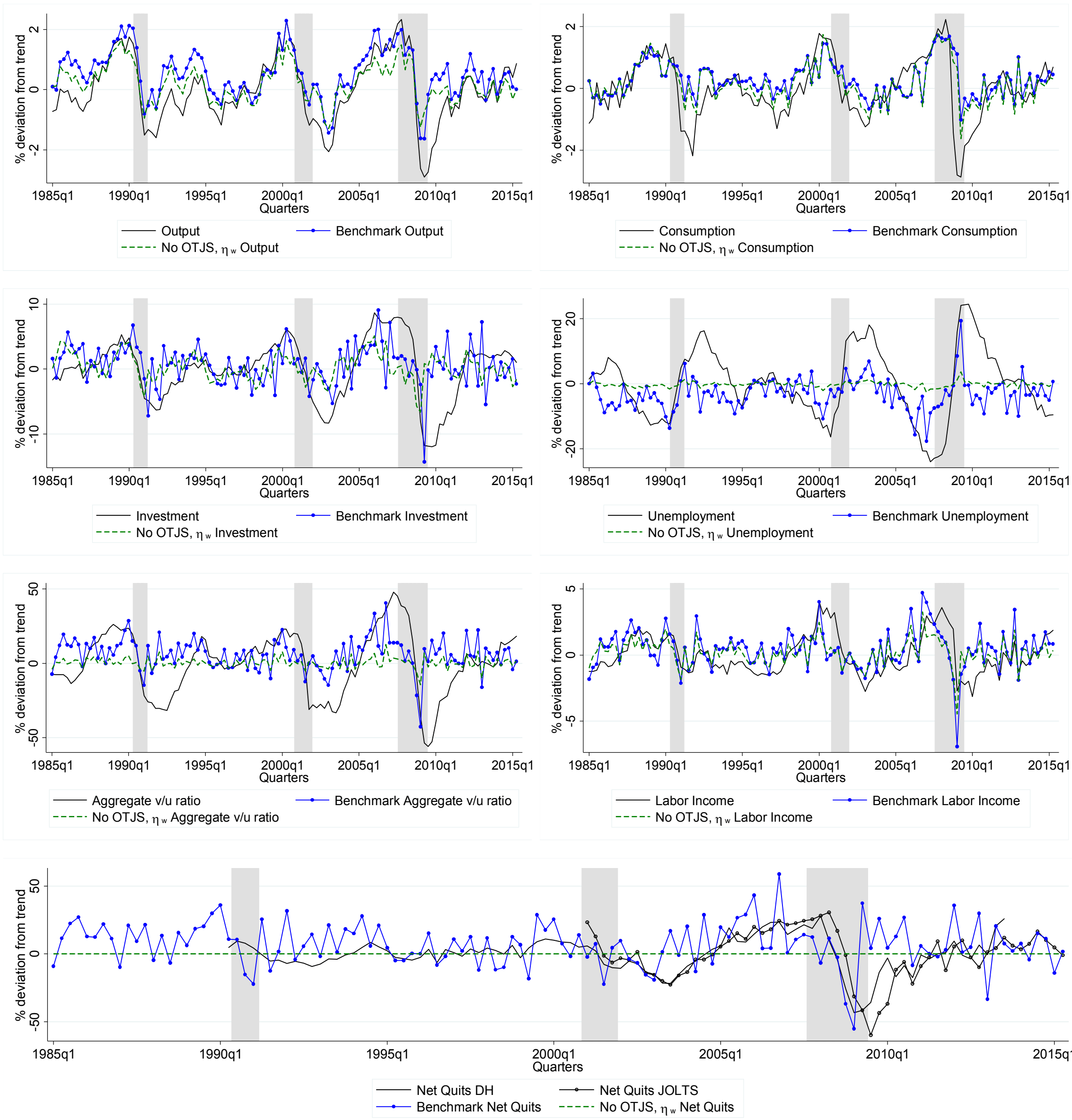

Figure A2. Cyclical dynamics (1985:Q1-2015:Q2) of output, consumption, investment, unemployment, the v/u ratio, labor income, and net quits: Data, Benchmark Model, and Model without OTJS and η_w. All series are obtained using the natural logarithm of the data and an HP filter with smoothing parameter equal to 1600. Recession quarters are marked in gray. Net quits DH are constructed using data from Davis and Haltiwanger (2014) and data from the Current Population Survey; these data span 1990:Q2-2013:Q3. Net quits JOLTS are constructed using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey and the Current Population Survey; these data span 2001:Q1-2015:Q2.

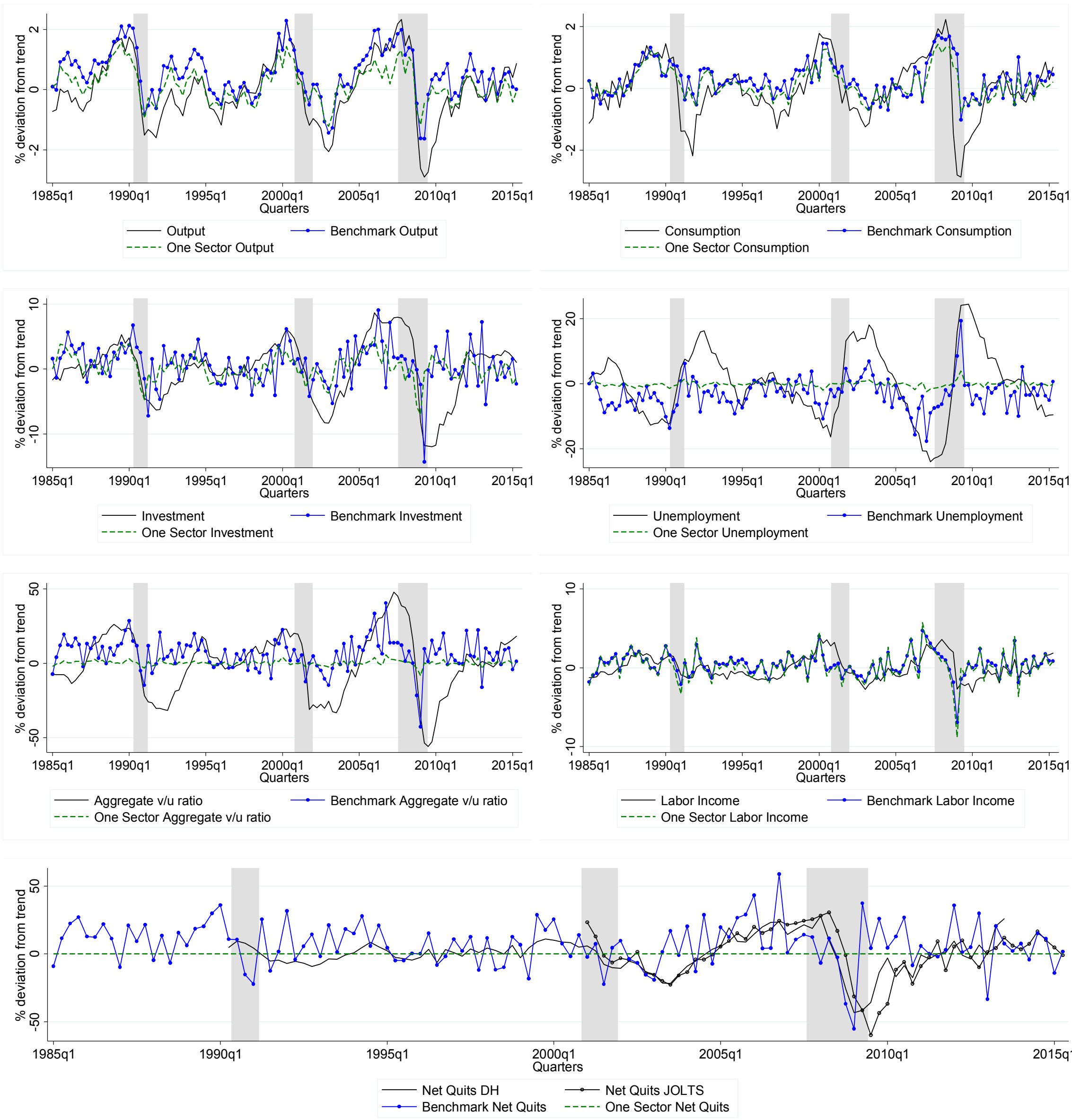

Figure A3. Cyclical dynamics (1985:Q1-2015:Q2) of output, consumption, investment, unemployment, the v/u ratio, labor income, and net quits: Data, Benchmark Model, and One-Sector Model. All series are obtained using the natural logarithm of the data and an HP filter with smoothing parameter equal to 1600. Recession quarters are marked in gray. Net quits DH are constructed using data from Davis and Haltiwanger (2014) and data from the Current Population Survey; these data span 1990:Q2-2013:Q3. Net quits JOLTS are constructed using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey and the Current Population Survey; these data span 2001:Q1-2015:Q2.

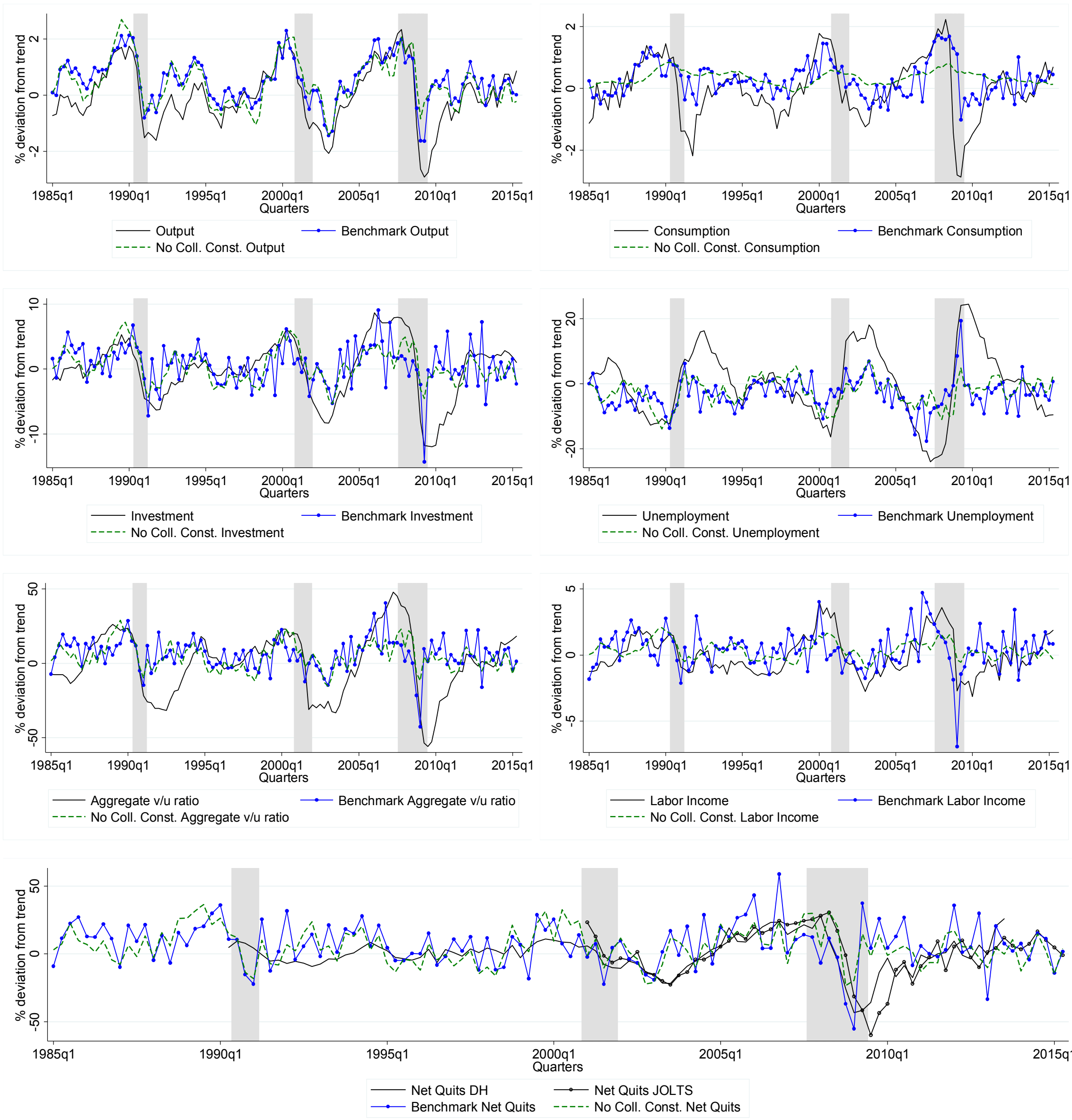

Figure A4. Cyclical dynamics (1985:Q1-2015:Q2) of output, consumption, investment, unemployment, the v/u ratio, labor income, and net quits: Data, Benchmark Model, Benchmark Model without Collateral Constraints. All series are obtained using the natural logarithm of the data and an HP filter with smoothing parameter equal to 1600. Recession quarters are marked in gray. Net quits DH are constructed using data from Davis and Haltiwanger (2014) and data from the Current Population Survey; these data span 1990:Q2-2013:Q3. Net quits JOLTS are constructed using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey and the Current Population Survey; these data span 2001:Q1-2015:Q2.

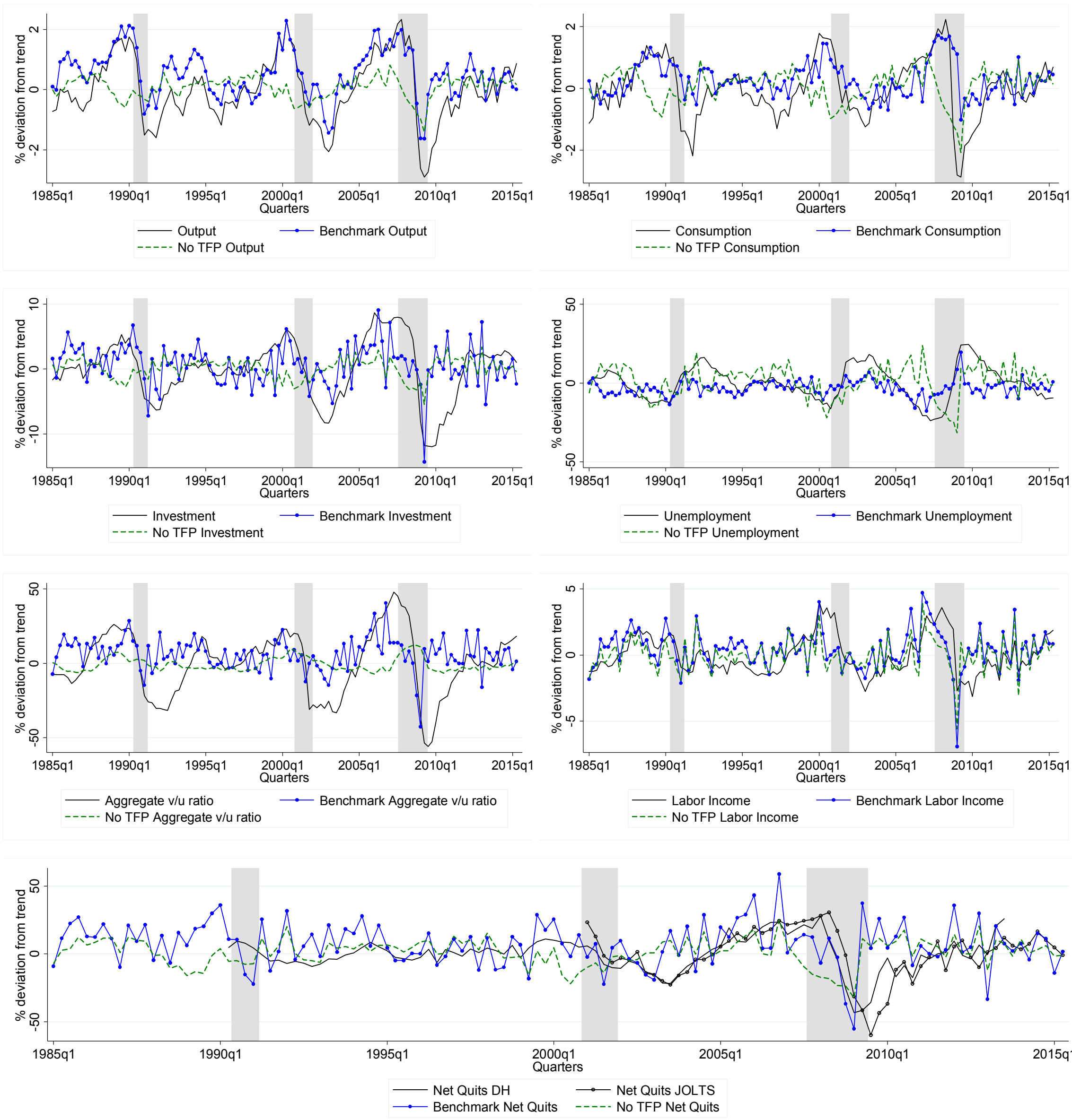

Figure A5. Cyclical dynamics (1985:Q1-2015:Q2) of output, consumption, investment, unemployment, the v/u ratio, labor income, and net quits: Data, Benchmark Model, and Benchmark Model without TFP shocks. All series are obtained using the natural logarithm of the data and an HP filter with smoothing parameter equal to 1600. Recession quarters are marked in gray. Net quits DH are constructed using data from Davis and Haltiwanger (2014) and data from the Current Population Survey; these data span 1990:Q2-2013:Q3. Net quits JOLTS are constructed using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey and the Current Population Survey; these data span 2001:Q1-2015:Q2.

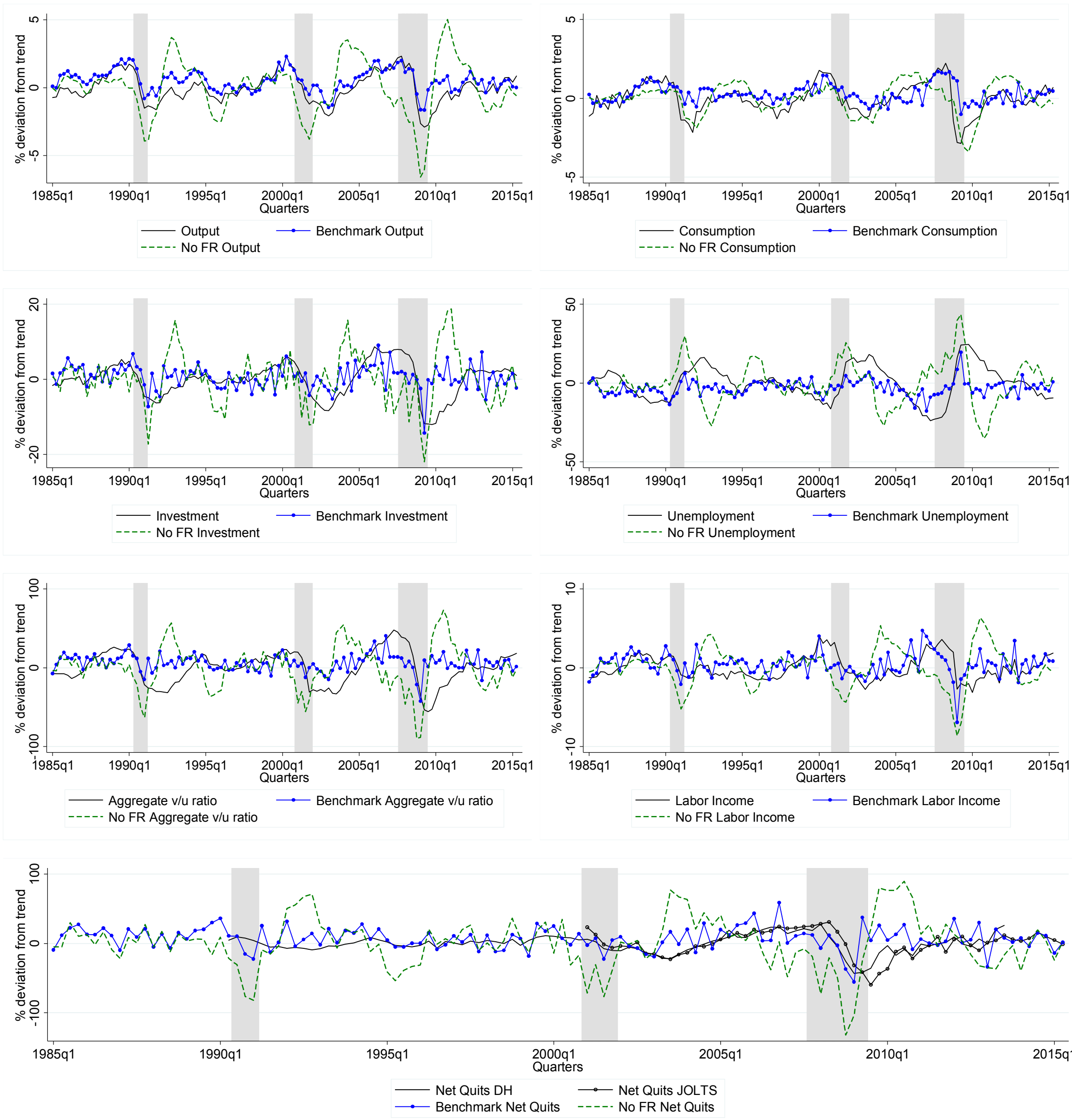

Figure A6. Cyclical dynamics (1985:Q1-2015:Q2) of output, consumption, investment, unemployment, the v/u ratio, labor income, and net quits: Data, Benchmark Model, and Benchmark Model without Fujita-Ramey (FR) shock adjustment. All series are obtained using the natural logarithm of the data and an HP filter with smoothing parameter equal to 1600. Recession quarters are marked in gray. Net quits DH are constructed using data from Davis and Haltiwanger (2014) and data from the Current Population Survey; these data span 1990:Q2-2013:Q3. Net quits JOLTS are constructed using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey and the Current Population Survey; these data span 2001:Q1-2015:Q2.

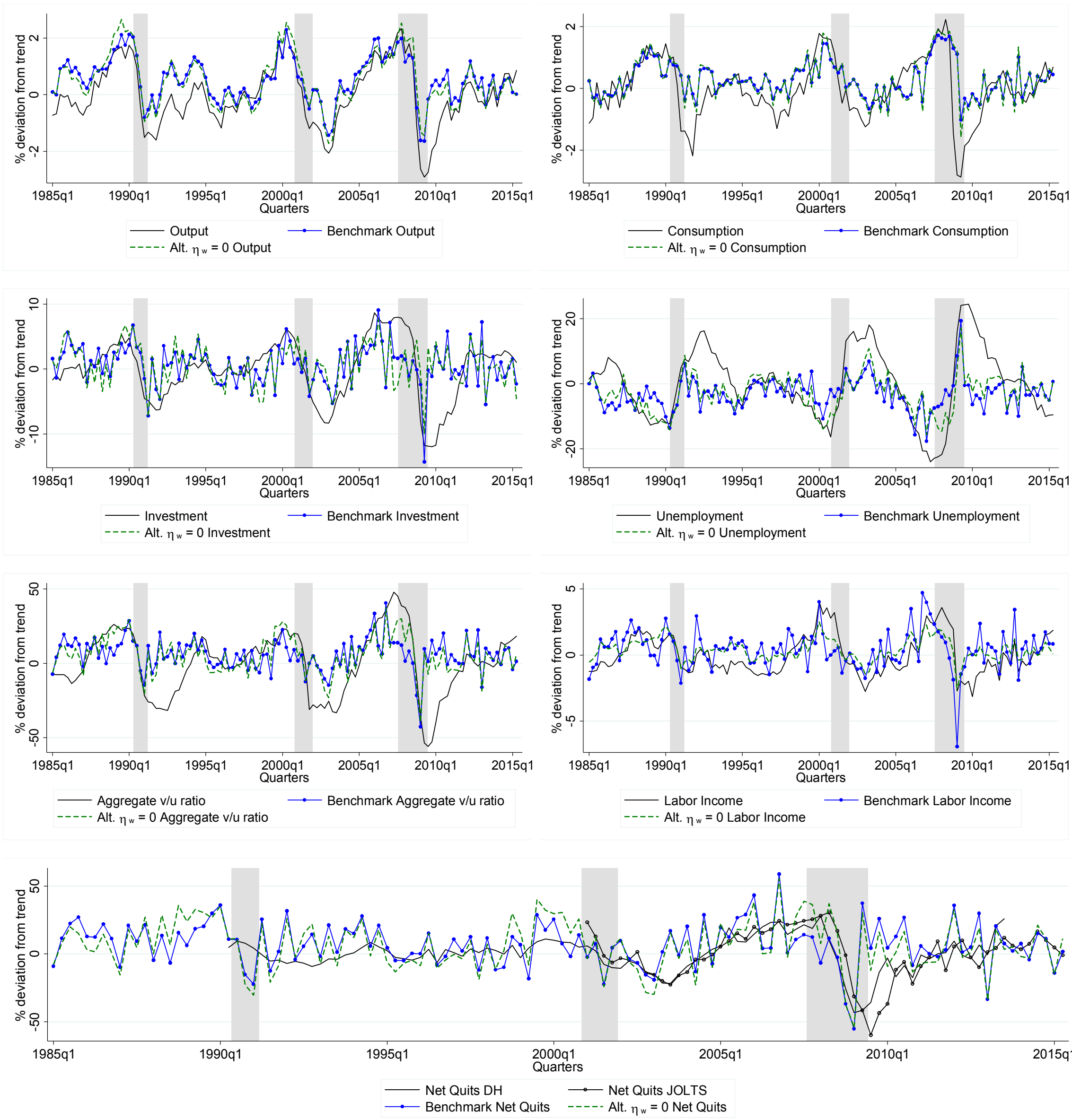

Figure A7. Cyclical dynamics (1985:Q1-2015:Q2) of output, consumption, investment, unemployment, the v/u ratio, labor income, and net quits: Data, Benchmark Model, and Benchmark Model with $\eta_w = 0$. All series are obtained using the natural logarithm of the data and an HP filter with smoothing parameter equal to 1600. Recession quarters are marked in gray. Net quits DH are constructed using data from Davis and Haltiwanger (2014) and data from the Current Population Survey; these data span 1990:Q2-2013:Q3. Net quits JOLTS are constructed using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey and the Current Population Survey; these data span 2001:Q1-2015:Q2.

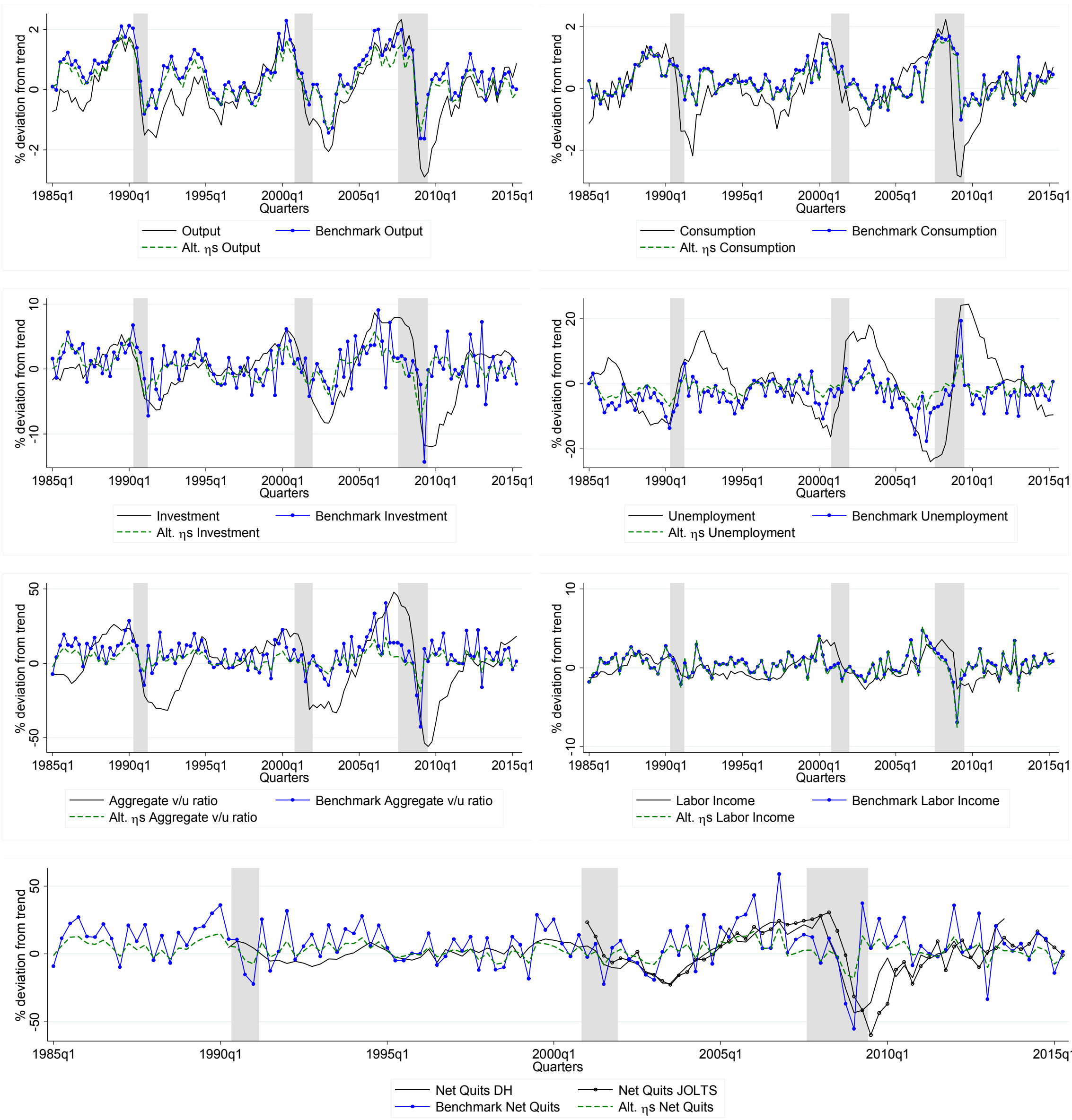

Figure A8. Cyclical dynamics (1985:Q1-2015:Q2) of output, consumption, investment, unemployment, the v/u ratio, labor income, and net quits: Data, Benchmark Model, and Benchmark Model with Alternative η_s. All series are obtained using the natural logarithm of the data and an HP filter with smoothing parameter equal to 1600. Recession quarters are marked in gray. Net quits DH are constructed using data from Davis and Haltiwanger (2014) and data from the Current Population Survey; these data span 1990:Q2-2013:Q3. Net quits JOLTS are constructed using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey and the Current Population Survey; these data span 2001:Q1-2015:Q2.

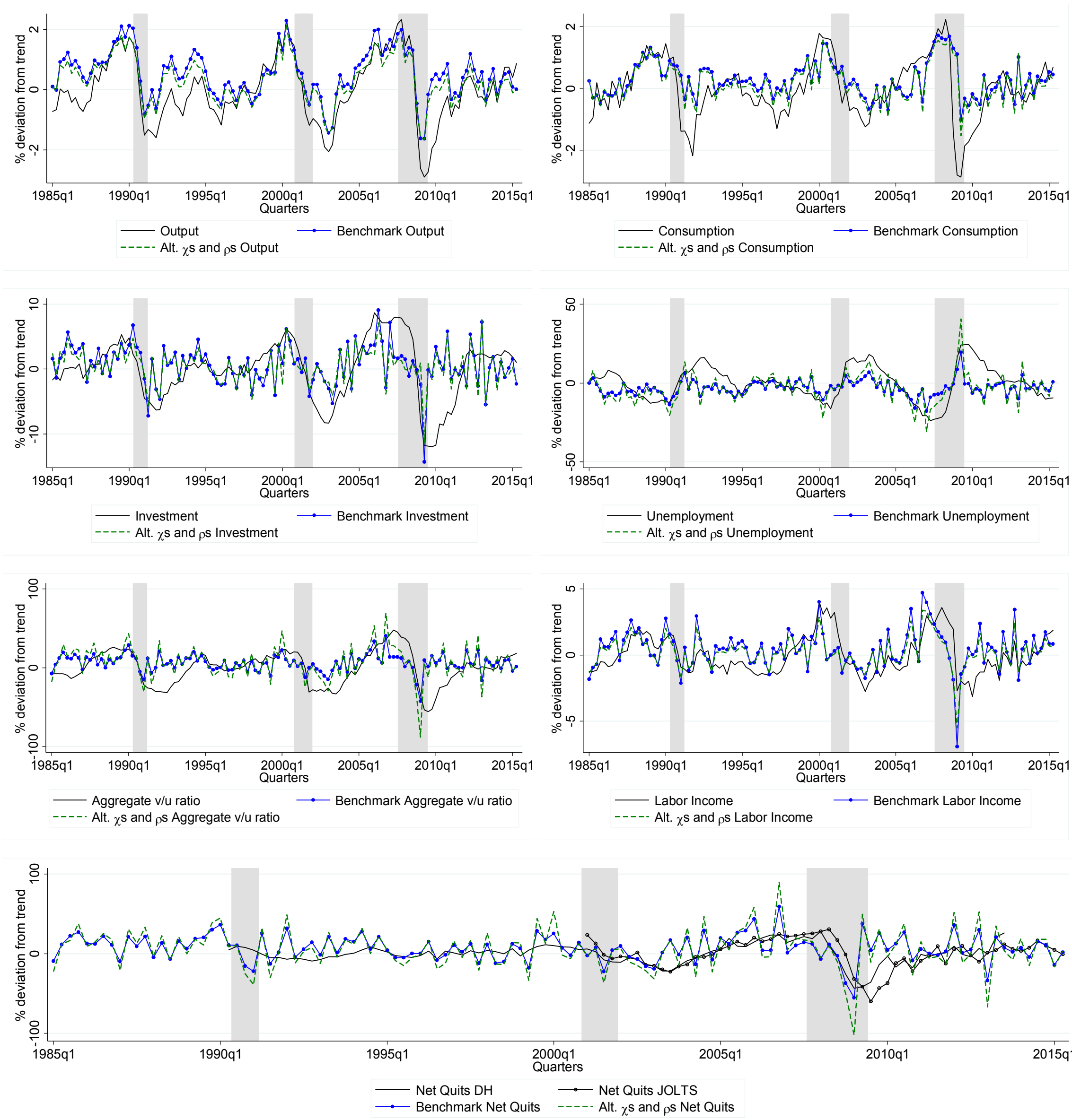

Figure A9. Cyclical dynamics (1985:Q1-2015:Q2) of output, consumption, investment, unemployment, the v/u ratio, labor income, and net quits: Data, Benchmark Model, and Benchmark Model with Alternative χ and ρ. All series are obtained using the natural logarithm of the data and an HP filter with smoothing parameter equal to 1600. Recession quarters are marked in gray. Net quits DH are constructed using data from Davis and Haltiwanger (2014) and data from the Current Population Survey; these data span 1990:Q2-2013:Q3. Net quits JOLTS are constructed using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey and the Current Population Survey; these data span 2001:Q1-2015:Q2.

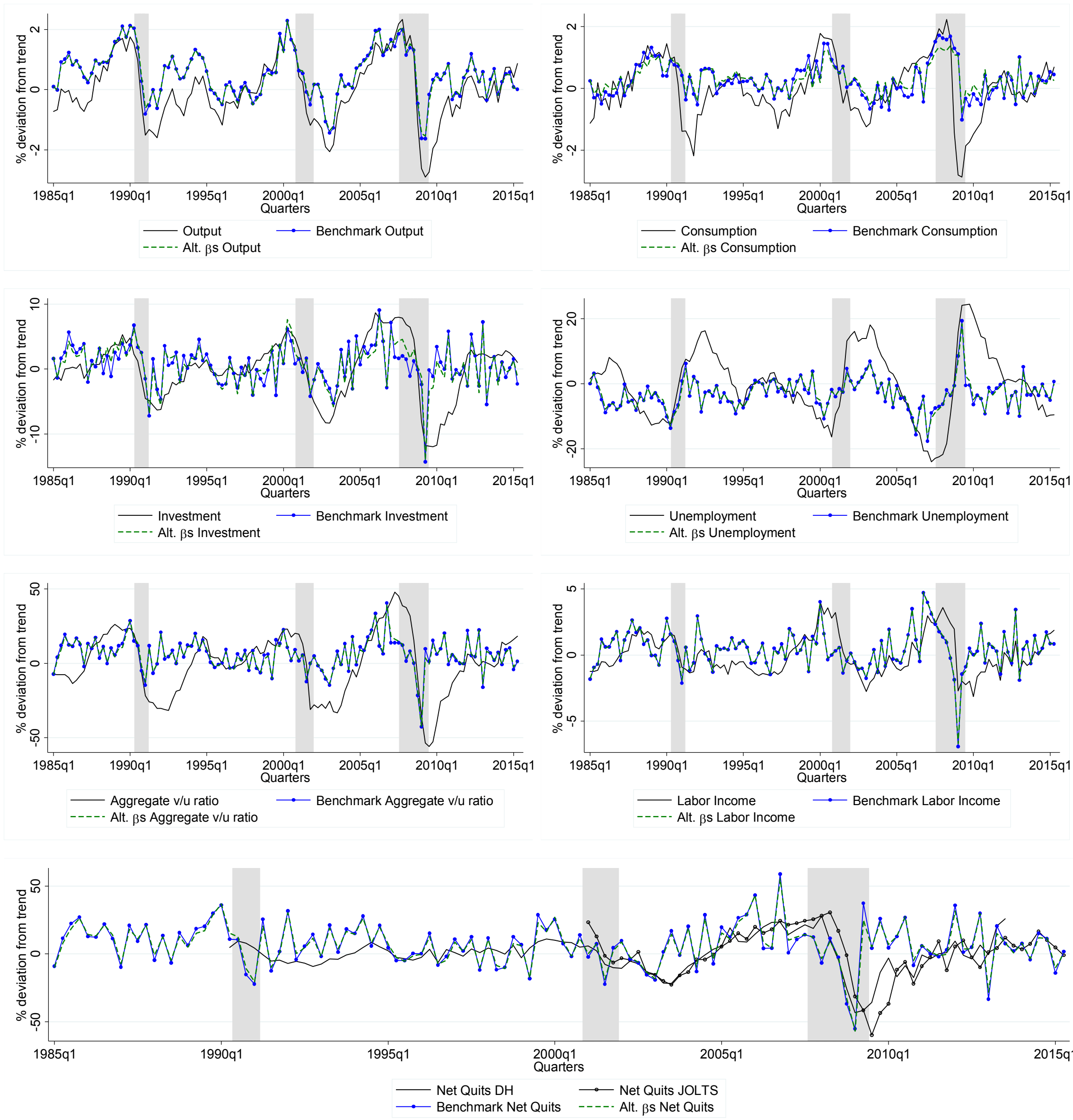

Figure A10. Cyclical dynamics (1985:Q1-2015:Q2) of output, consumption, investment, unemployment, the v/u ratio, labor income, and net quits: Data, Benchmark Model, and Benchmark Model with Alternative βs. All series are obtained using the natural logarithm of the data and an HP filter with smoothing parameter equal to 1600. Recession quarters are marked in gray. Net quits DH are constructed using data from Davis and Haltiwanger (2014) and data from the Current Population Survey; these data span 1990:Q2-2013:Q3. Net quits JOLTS are constructed using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey and the Current Population Survey; these data span 2001:Q1-2015:Q2.

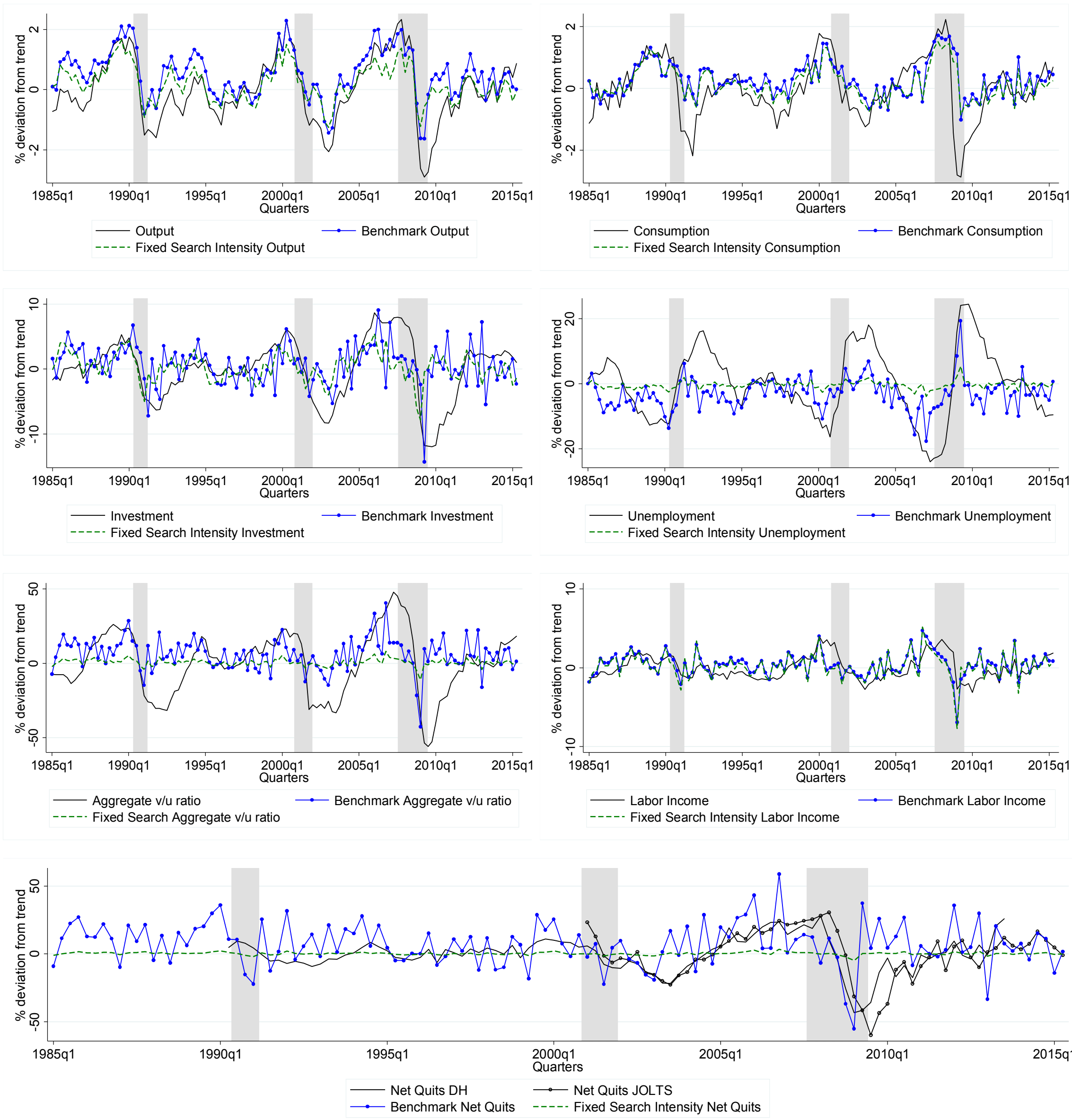

Figure A11. Cyclical dynamics (1985:Q1-2015:Q2) of output, consumption, investment, unemployment, the v/u ratio, labor income, and net quits: Data, Benchmark Model, and Benchmark Model with Fixed Search Intensity. All series are obtained using the natural logarithm of the data and an HP filter with smoothing parameter equal to 1600. Recession quarters are marked in gray. Net quits DH are constructed using data from Davis and Haltiwanger (2014) and data from the Current Population Survey; these data span 1990:Q2-2013:Q3. Net quits JOLTS are constructed using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey and the Current Population Survey; these data span 2001:Q1-2015:Q2.

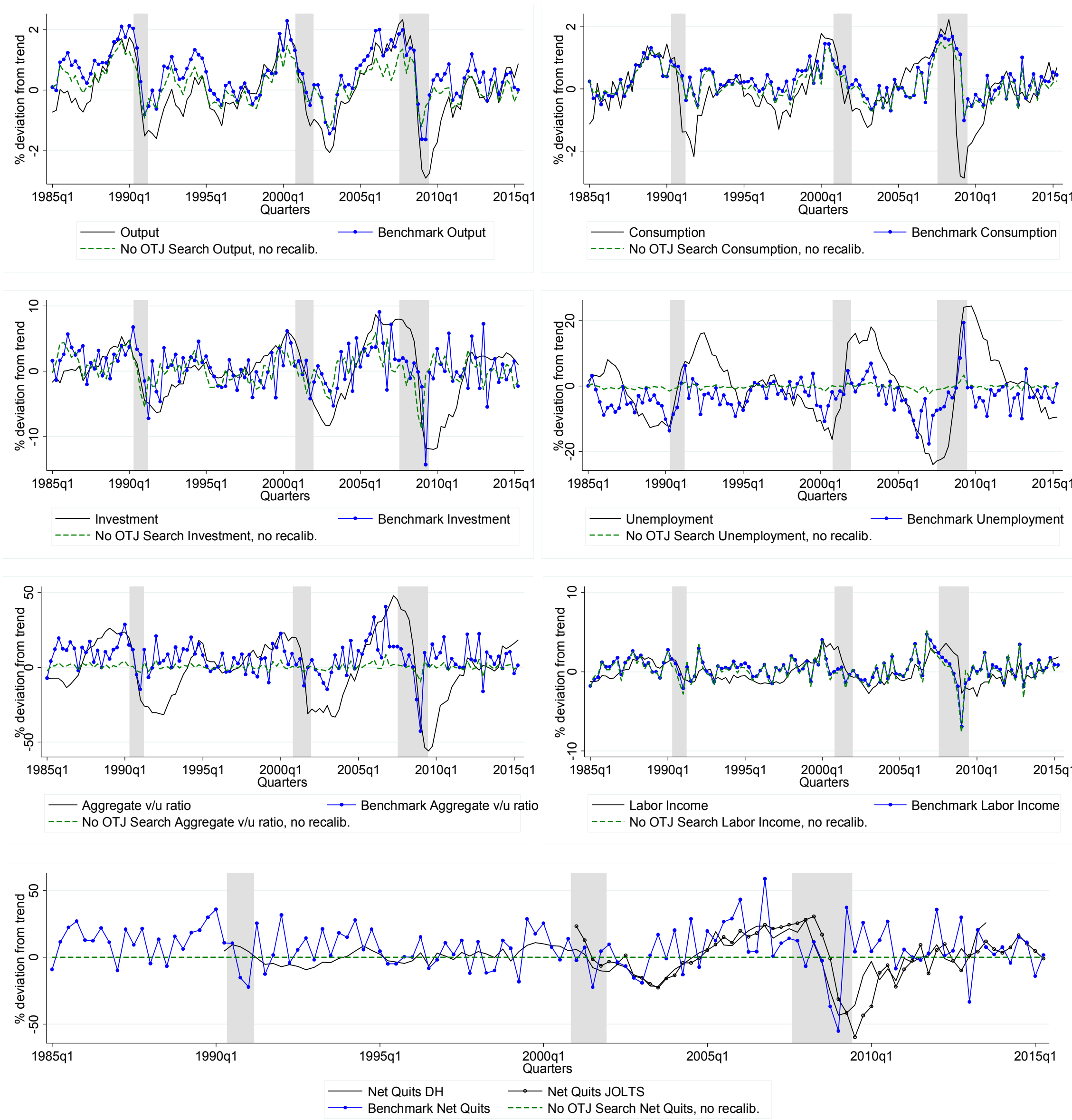

Figure A12. Cyclical dynamics (1985:Q1-2015:Q2) of output, consumption, investment, unemployment, the v/u ratio, labor income, and net quits: Data, Benchmark Model, and Benchmark Model without OTJ Search (*no recalibration*). All series are obtained using the natural logarithm of the data and an HP filter with smoothing parameter equal to 1600. Recession quarters are marked in gray. Net quits DH are constructed using data from Davis and Haltiwanger (2014) and data from the Current Population Survey; these data span 1990:Q2-2013:Q3. Net quits JOLTS are constructed using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey and the Current Population Survey; these data span 2001:Q1-2015:Q2.

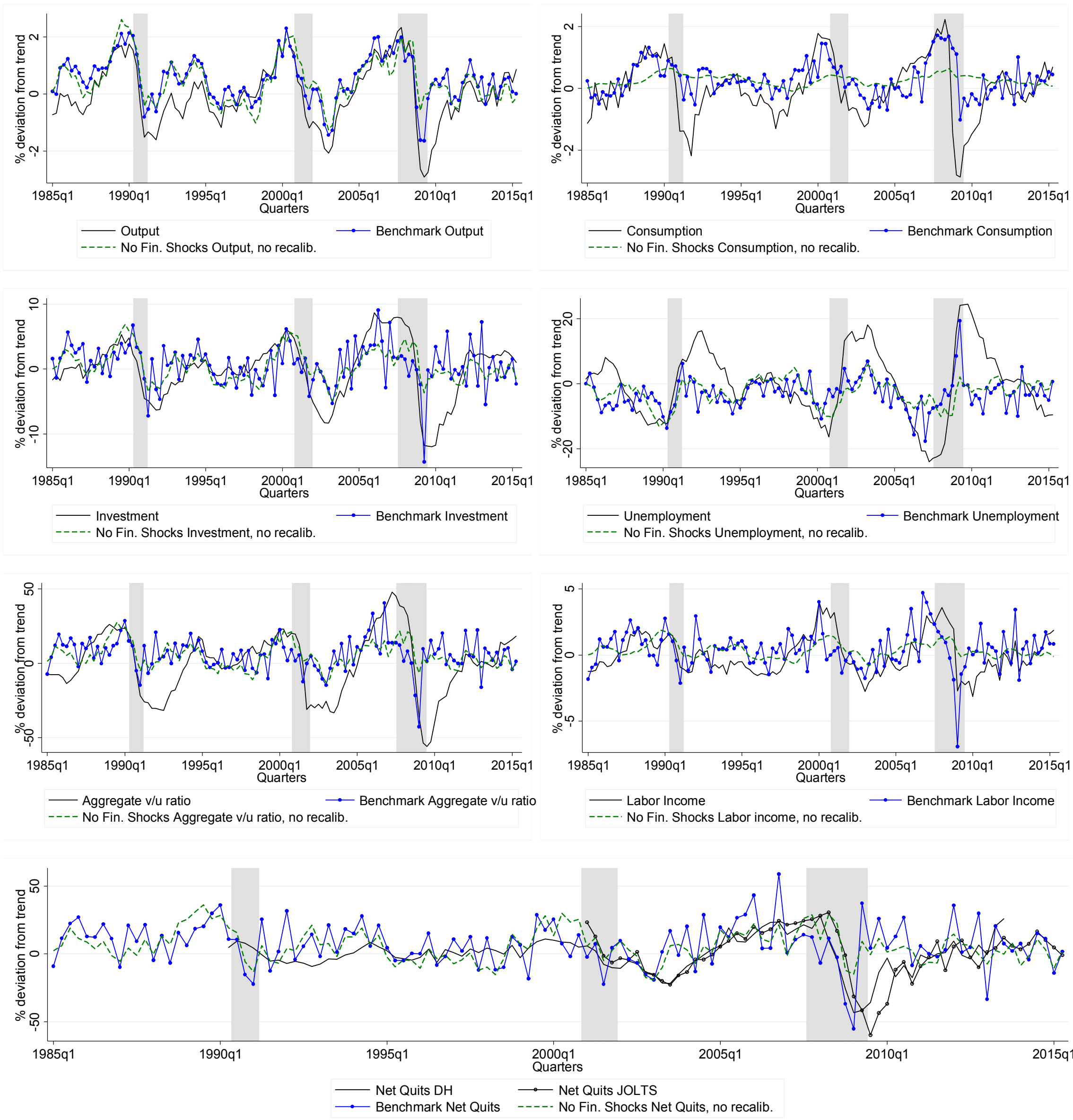

Figure A13. Cyclical dynamics (1985:Q1-2015:Q2) of output, consumption, investment, unemployment, the v/u ratio, labor income, and net quits: Data, Benchmark Model, and Benchmark Model with No Financial Shocks (*no recalibration*). All series are obtained using the natural logarithm of the data and an HP filter with smoothing parameter equal to 1600. Recession quarters are marked in gray. Net quits DH are constructed using data from Davis and Haltiwanger (2014) and data from the Current Population Survey; these data span 1990:Q2-2013:Q3. Net quits JOLTS are constructed using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey and the Current Population Survey; these data span 2001:Q1-2015:Q2.

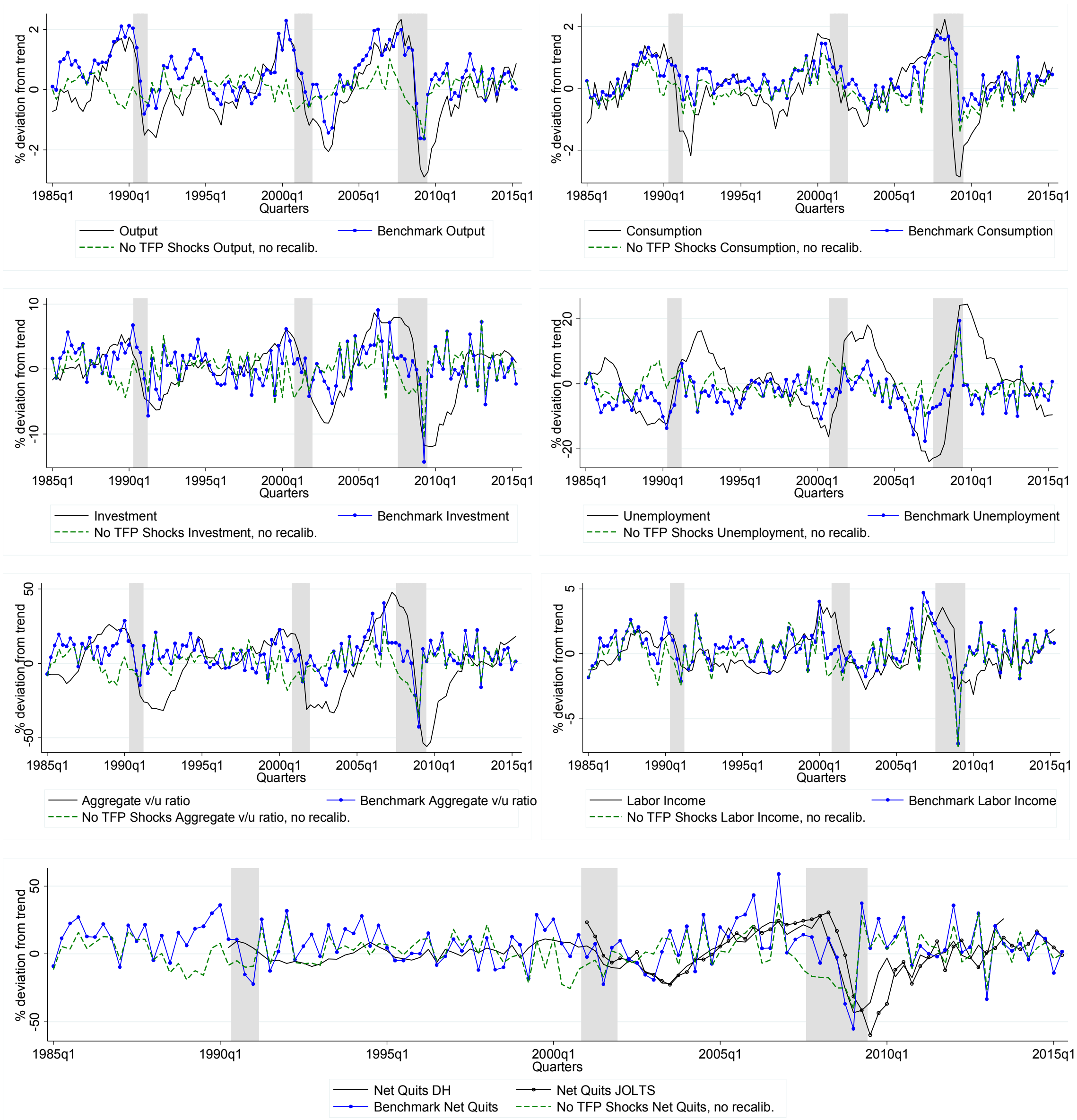

Figure A14. Cyclical dynamics (1985:Q1-2015:Q2) of output, consumption, investment, unemployment, the v/u ratio, labor income, and net quits: Data, Benchmark Model, and Benchmark Model with No TFP Shocks (*no recalibration*). All series are obtained using the natural logarithm of the data and an HP filter with smoothing parameter equal to 1600. Recession quarters are marked in gray. Net quits DH are constructed using data from Davis and Haltiwanger (2014) and data from the Current Population Survey; these data span 1990:Q2-2013:Q3. Net quits JOLTS are constructed using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey and the Current Population Survey; these data span 2001:Q1-2015:Q2.

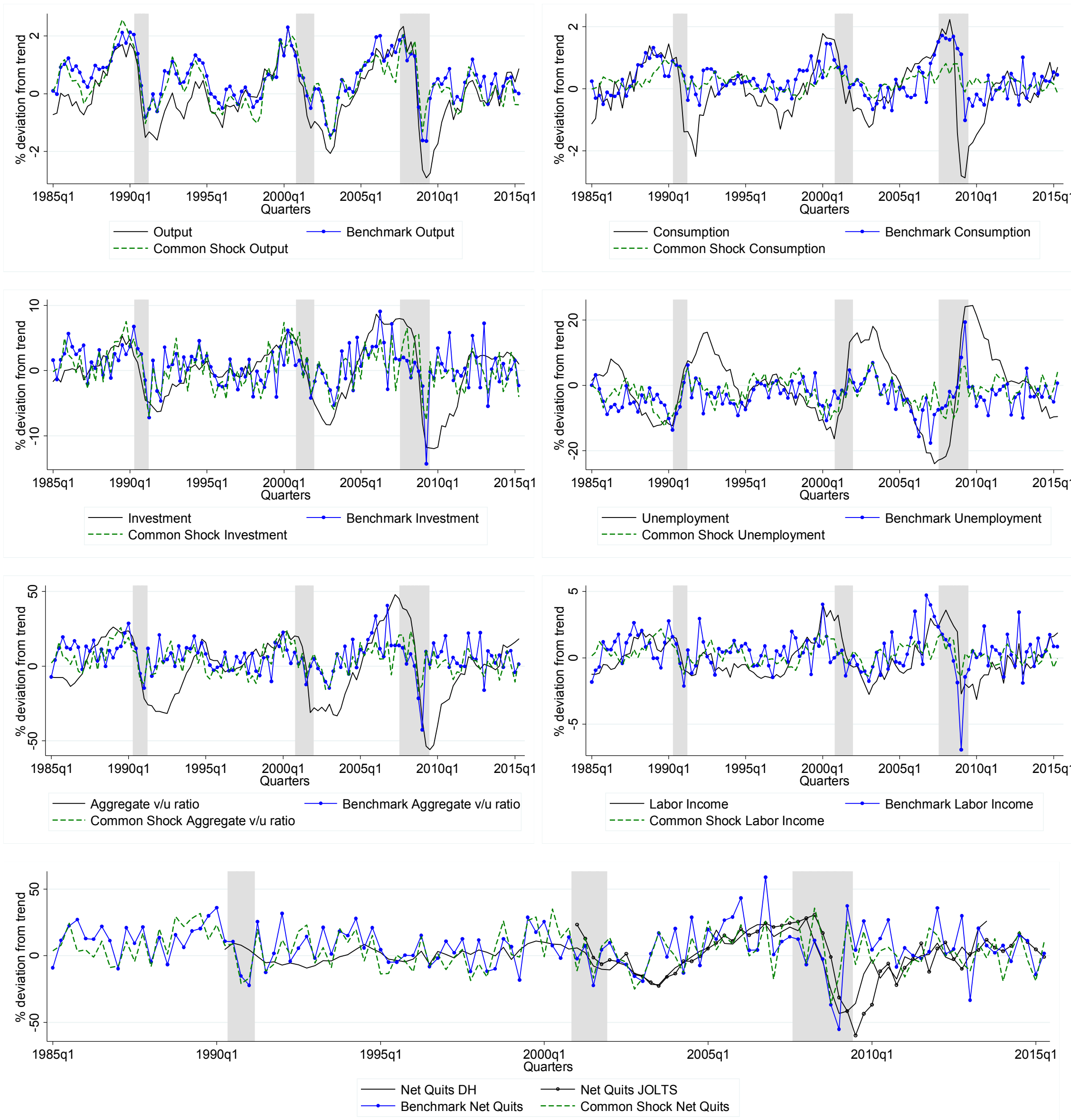

Figure A15. Cyclical dynamics (1985:Q1-2015:Q2) of output, consumption, investment, unemployment, the v/u ratio, labor income, and net quits: Data, Benchmark Model, and Benchmark Model, Common Shock for z and η. All series are obtained using the natural logarithm of the data and an HP filter with smoothing parameter equal to 1600. Recession quarters are marked in gray. Net quits DH are constructed using data from Davis and Haltiwanger (2014) and data from the Current Population Survey; these data span 1990:Q2-2013:Q3. Net quits JOLTS are constructed using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey and the Current Population Survey; these data span 2001:Q1-2015:Q2.