Sensitivity Analysis for "The Dollar and the US Wealth Share"

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This document presents a sensitivity analysis to accompany Dahlquist, Heyerdahl-Larsen, Pavlova, and Pénasse (2025).

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1 Initial responses

The figures in this section plot the medians of initial responses to a negative (i) Home-specific shock, (ii) level shock, and (iii) Foreign-specific shock. The responses are computed at the time the shock hits the economy, i.e., we plot the first value of the impulse response functions (IRFs) reported in Figure 5 in Section 5 and Figure I1 in Appendix I.

Section 1.1 presents the sensitivity analysis of initial responses to parameters in Table 6. In all plots in this section, the red dashed line depicts the calibrated parameter value from Table 6 in the paper. In Section 1.1.1, the solid blue curve depicts the initial response of the variable measured on the vertical axis to a negative Home-specific shock as a function of the parameter specified on the horizontal axis. In Section 1.1.2, the solid blue curve depicts the initial response of the variable measured on the vertical axis to a negative level shock as a function of the parameter specified on the horizontal axis. In Section 1.1.3, the solid blue curve depicts the initial response of the variable measured on the vertical axis to a negative Home-specific shock as a function of the parameter specified on the horizontal axis. Specifically, the Home-specific shock is a shock to x_t, the level shock is a shock to $\log \mathcal{Y}_t$, and the Foreign-specific shock is a shock to x_t^*. In each plot, we vary only the parameter specified on the horizontal axis; all other parameter values are fixed at their calibrated values.

Section 1.2 presents the sensitivity analysis for parameters in Table 4 and 5, and is structured in the same way as in Section 1.1.

From this analysis, we conclude that the results reported in the paper are robust. They remain qualitatively the same as in the paper. The only quantities that may change signs relative to those reported in the paper are the initial responses of net exports (NX) and net foreign assets (NFA). This is to be expected, as we show in Section 4 that the signs of these responses depend on whether the Home country holds a leveraged portfolio vis-à-vis the rest of the world. Specifically, the condition is $a > \frac{1}{2}$, which acts similarly to our net creditor condition in the simple model in Section 3.

1.1 Sensitivity to parameters in Table 6

1.1.1 Home-specific shock

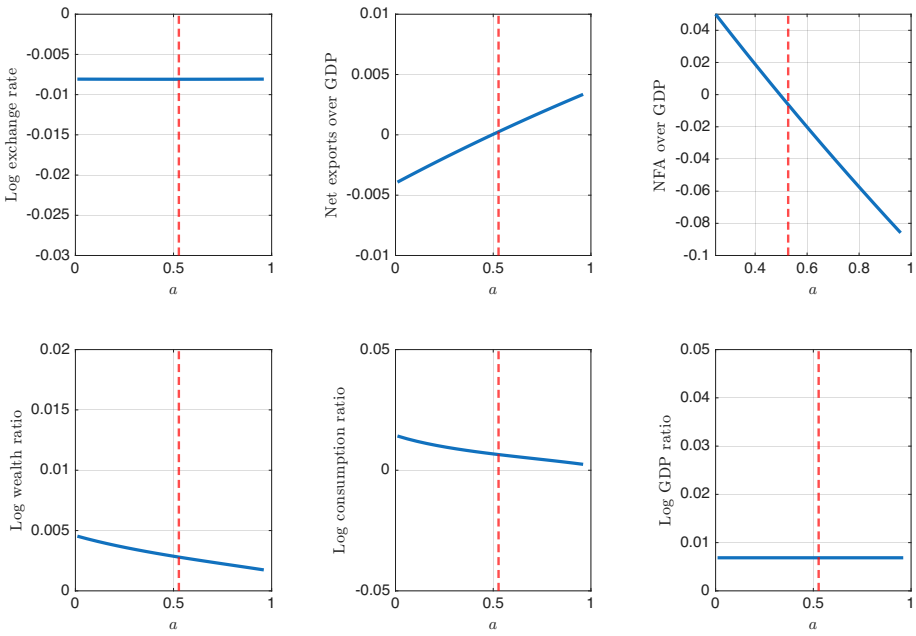

Figure 1: Sensitivity to home Pareto weight a

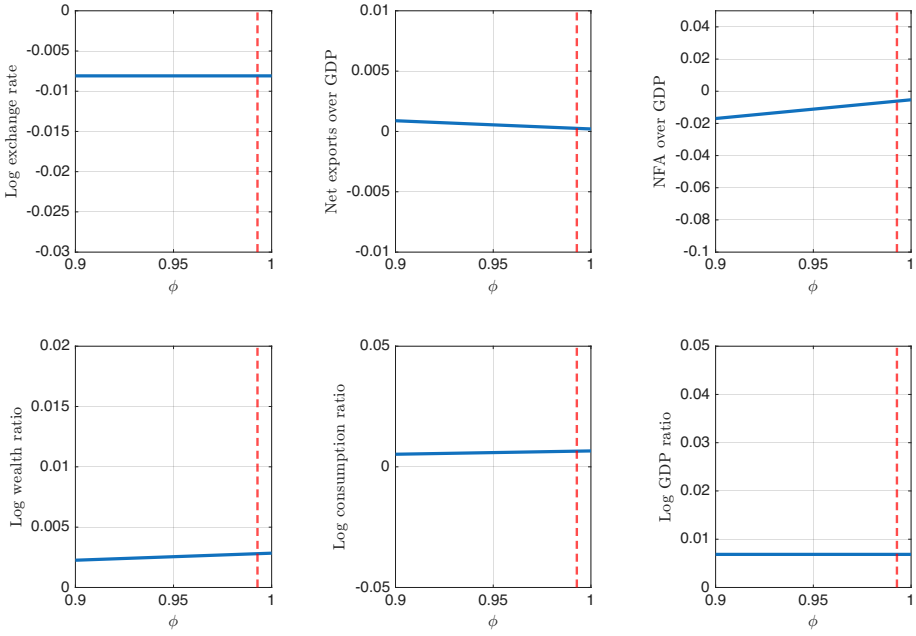

Figure 2: Sensitivity to domestic habit home bias ϕ

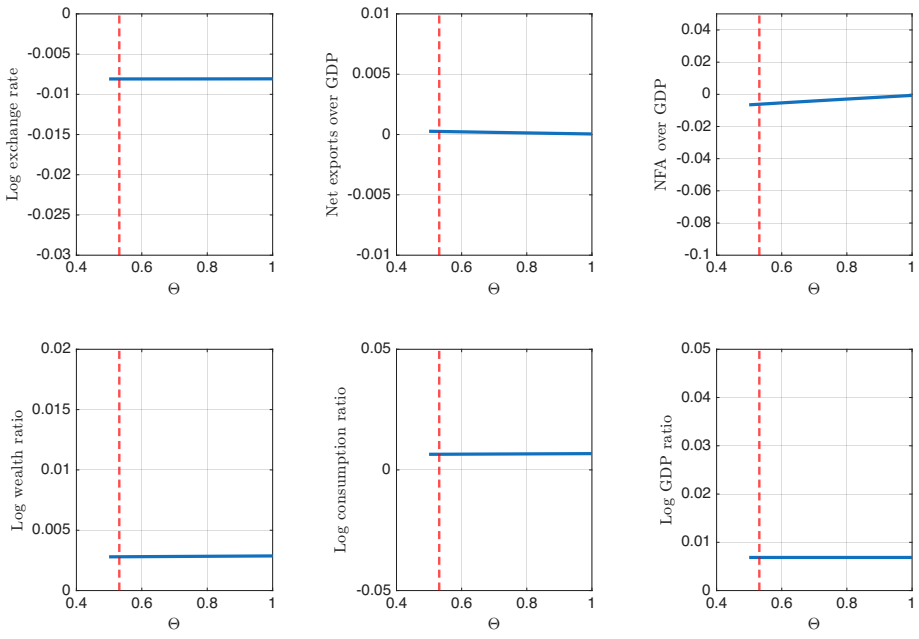

Figure 3: Sensitivity to conventional home bias Θ

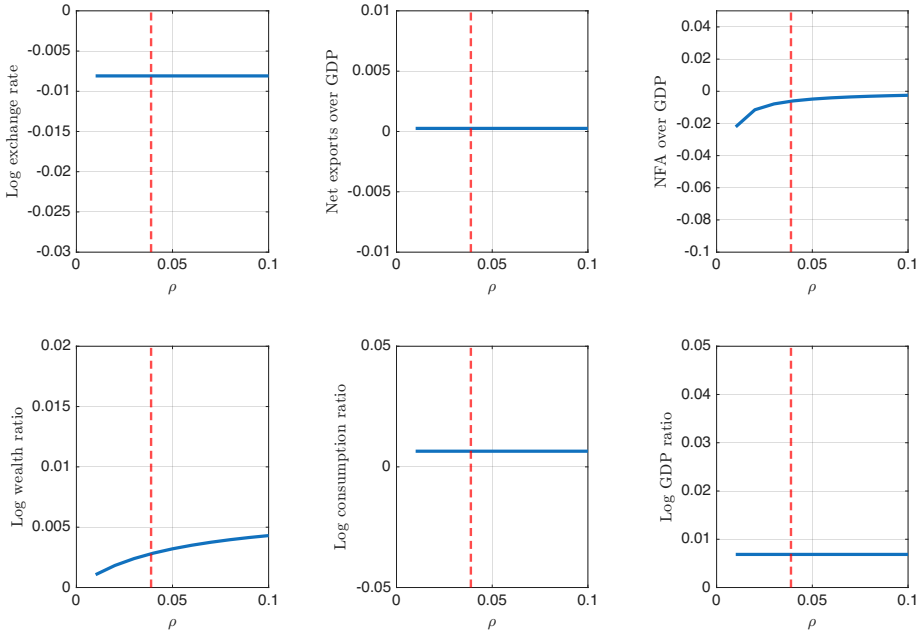

Figure 4: Sensitivity to time preference ρ

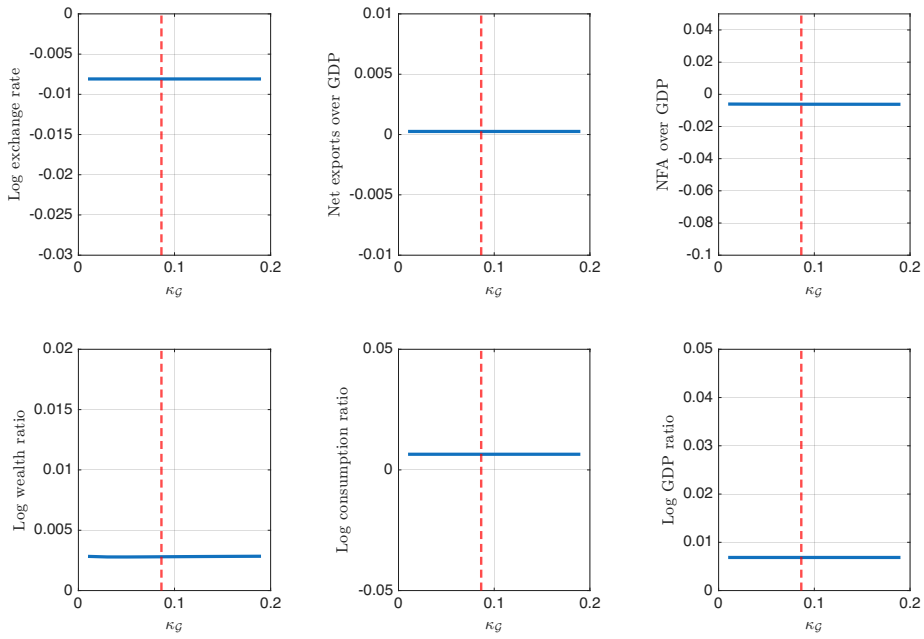

Figure 5: Sensitivity to speed of mean reversion of habit level factor $\kappa_{\mathcal{G}}$

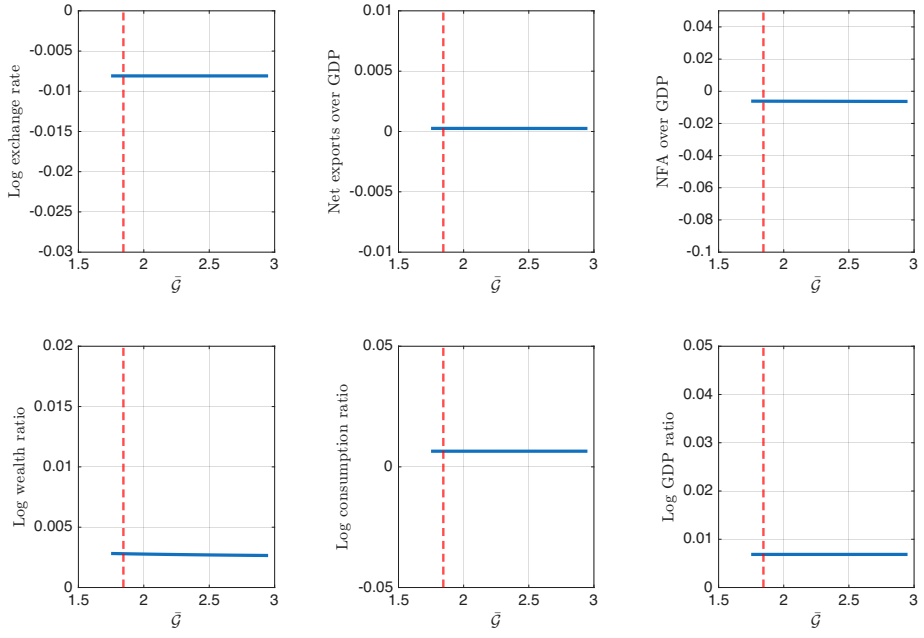

Figure 6: Sensitivity to long-run mean of habit level factor $\bar{\mathcal{G}}$

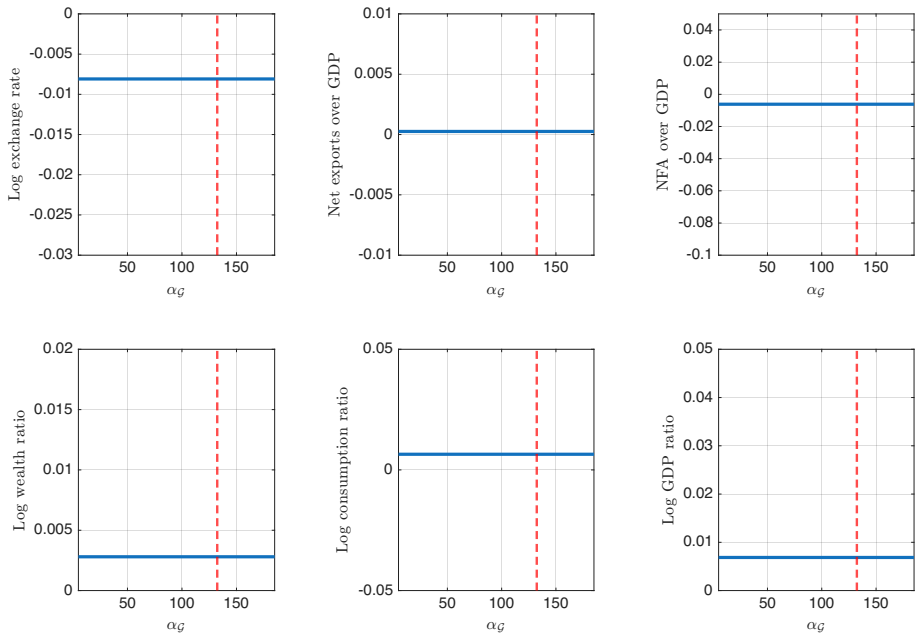

Figure 7: Sensitivity to volatility sensitivity of habit level factor $\alpha_{\mathcal{G}}$

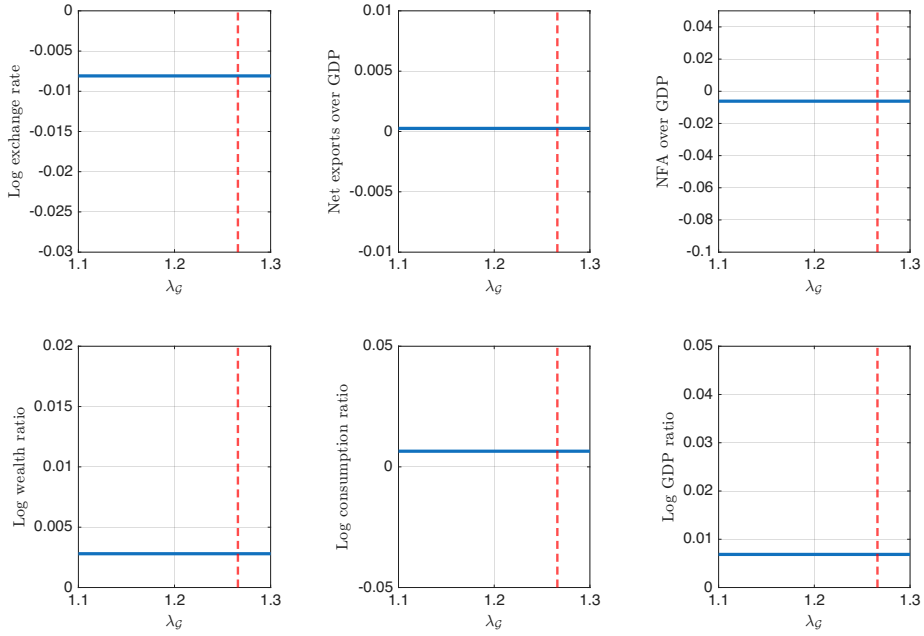

Figure 8: Sensitivity to habit level factor lower bound $\lambda_{\mathcal{G}}$

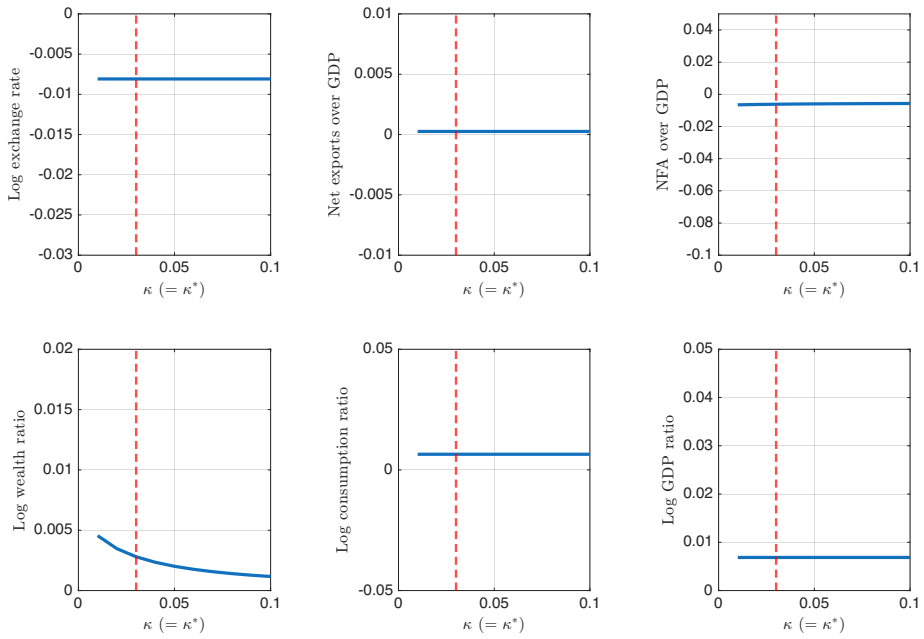

Figure 9: Sensitivity to speed of mean reversion of domestic habit κ $(= \kappa^*)$

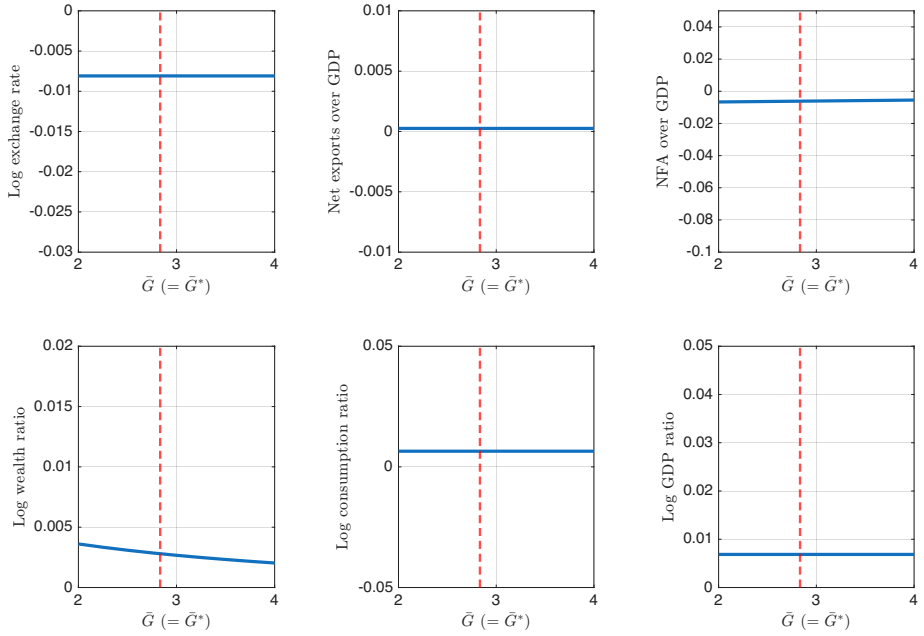

Figure 10: Sensitivity to long-run mean of domestic habit $\bar{G}$ $(= \bar{G}^*)$

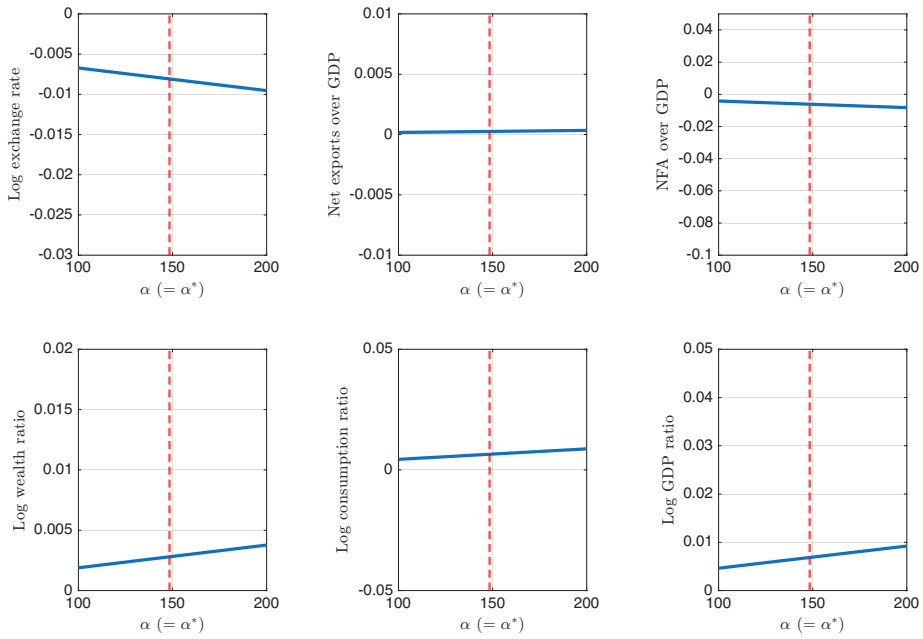

Figure 11: Sensitivity to volatility sensitivity of domestic habit α $(= \alpha^*)$

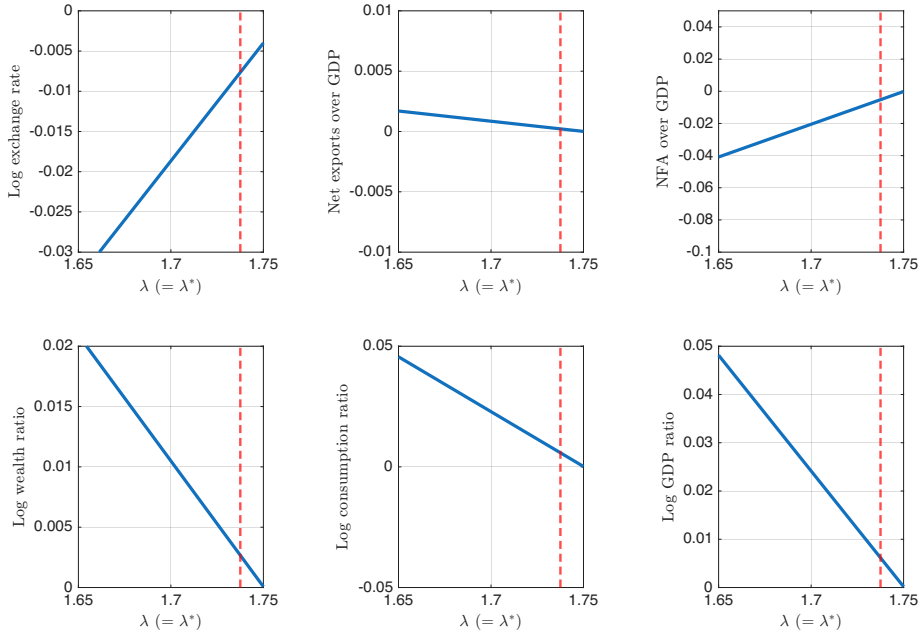

Figure 12: Sensitivity to domestic habit lower bound λ $(= \lambda^*)$

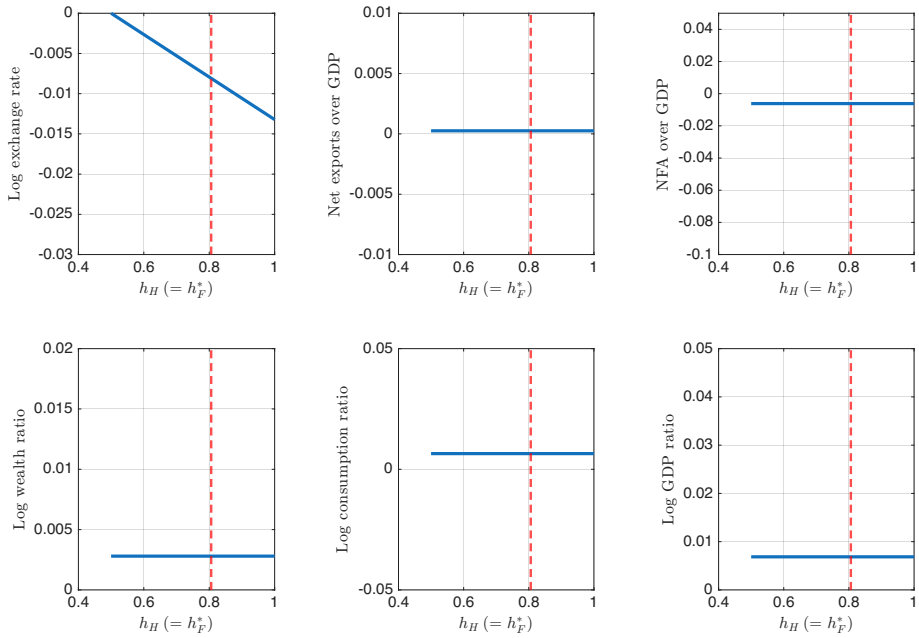

Figure 13: Sensitivity to price index weight on domestic good $h_H\ (= h_F^*)$

1.1.2 Level shock

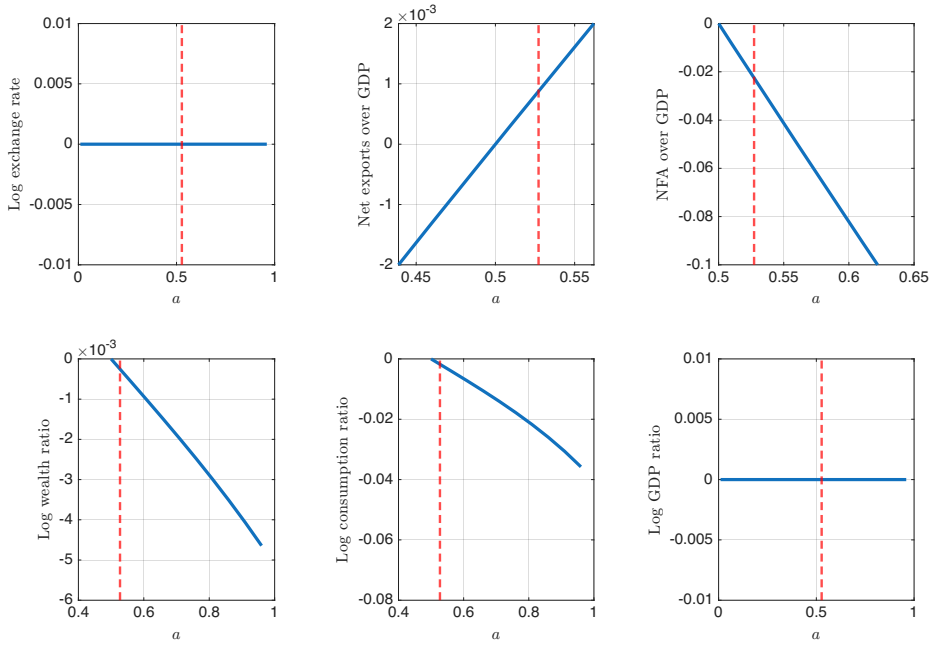

Figure 14: Sensitivity to home Pareto weight a

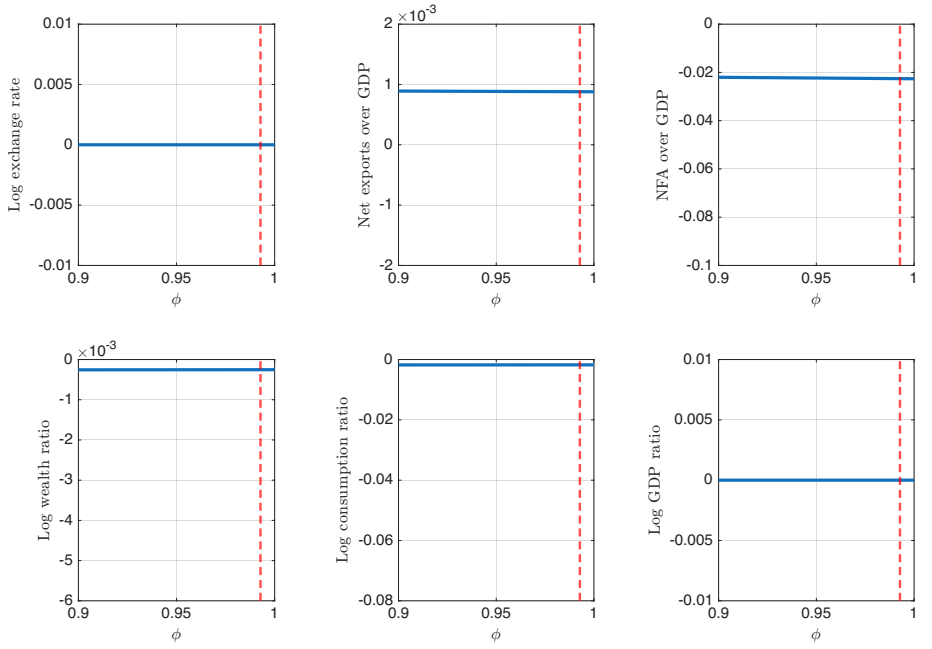

Figure 15: Sensitivity to domestic habit home bias ϕ

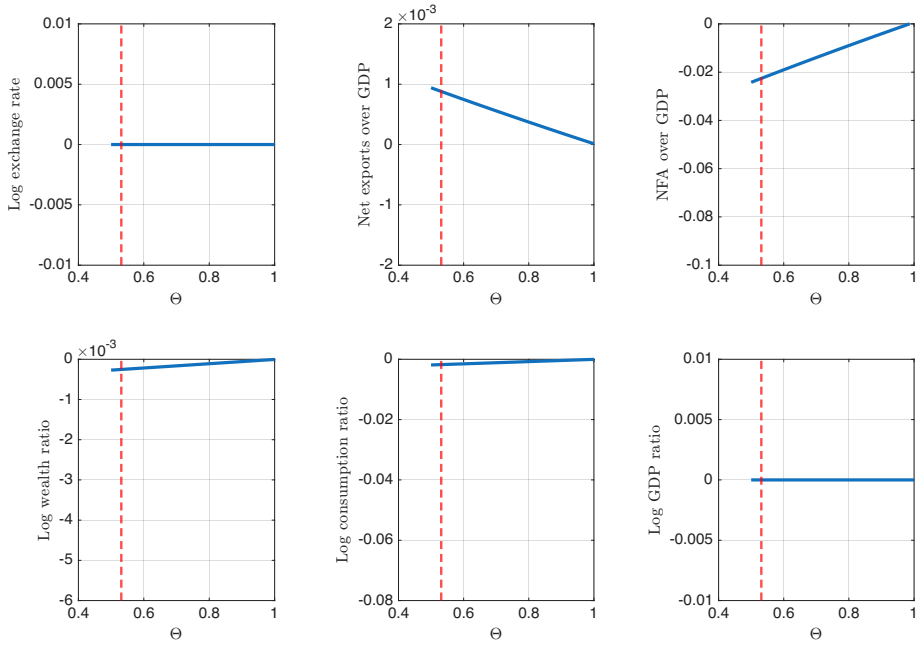

Figure 16: Sensitivity to conventional home bias Θ

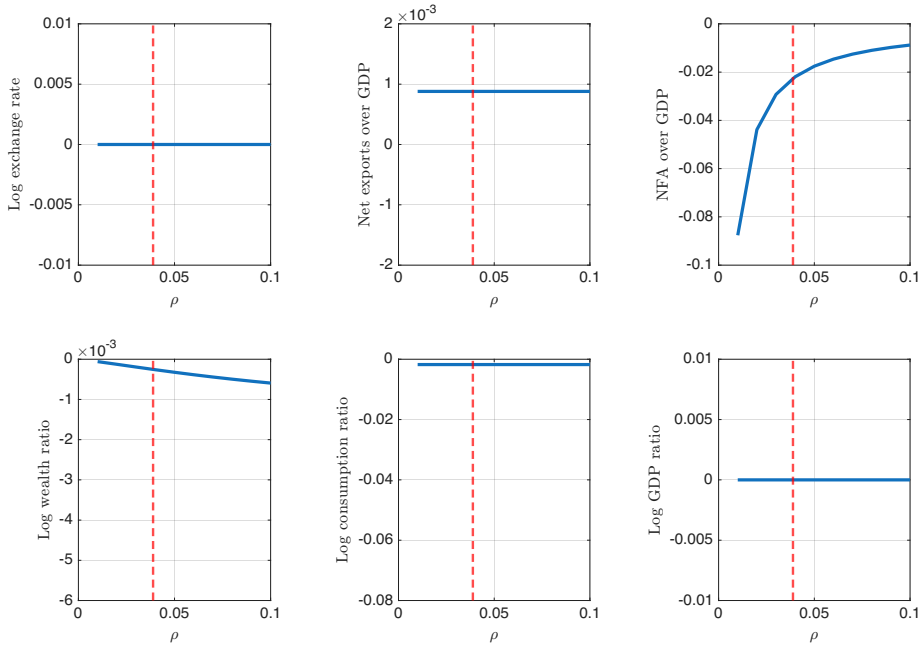

Figure 17: Sensitivity to time preference ρ

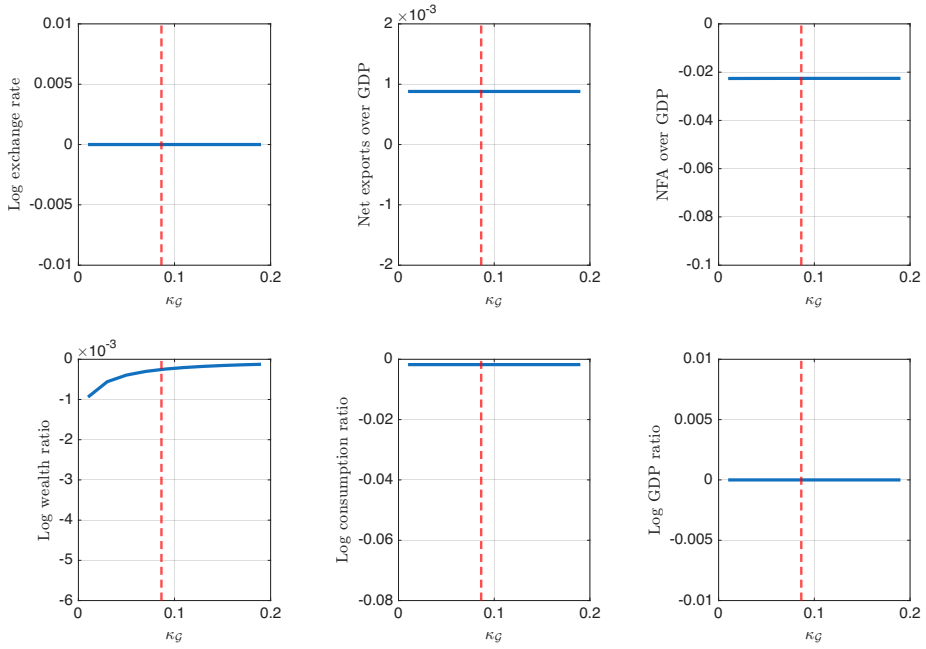

Figure 18: Sensitivity to speed of mean reversion of habit level factor $\kappa_{\mathcal{G}}$

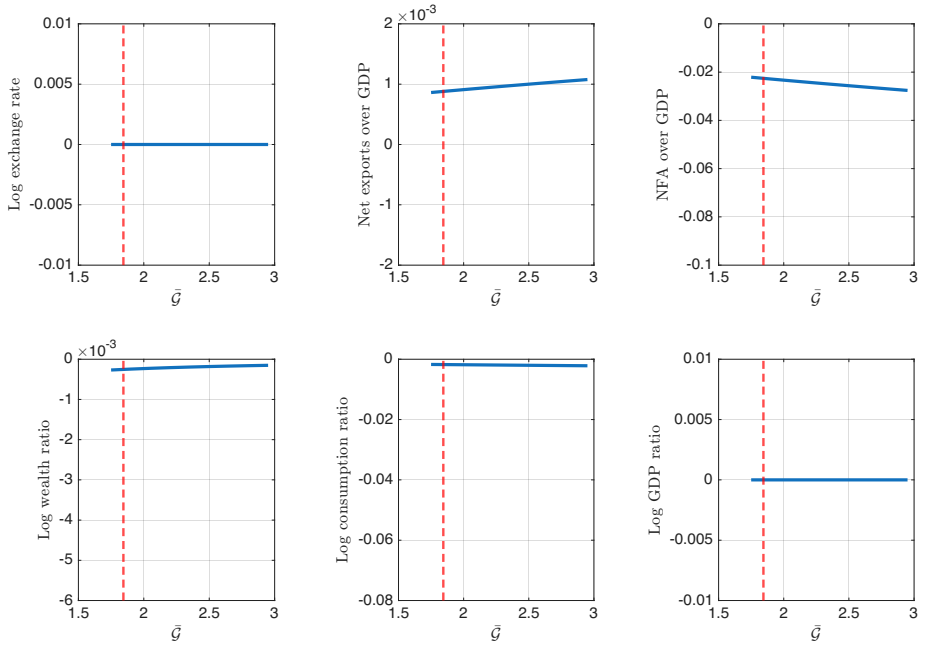

Figure 19: Sensitivity to long-run mean of habit level factor $\bar{\mathcal{G}}$

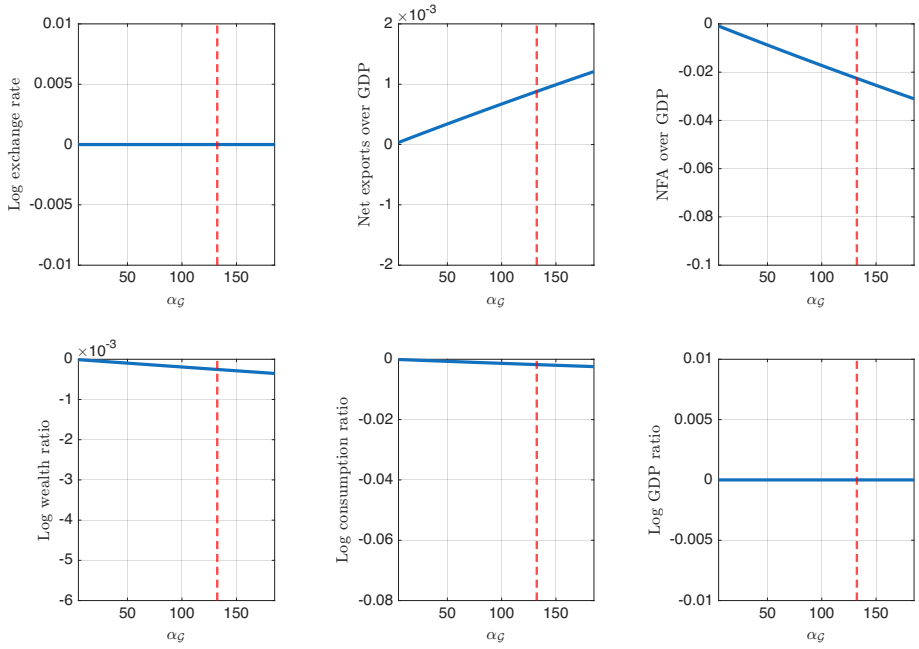

Figure 20: Sensitivity to volatility sensitivity of habit level factor $\alpha_{\mathcal{G}}$

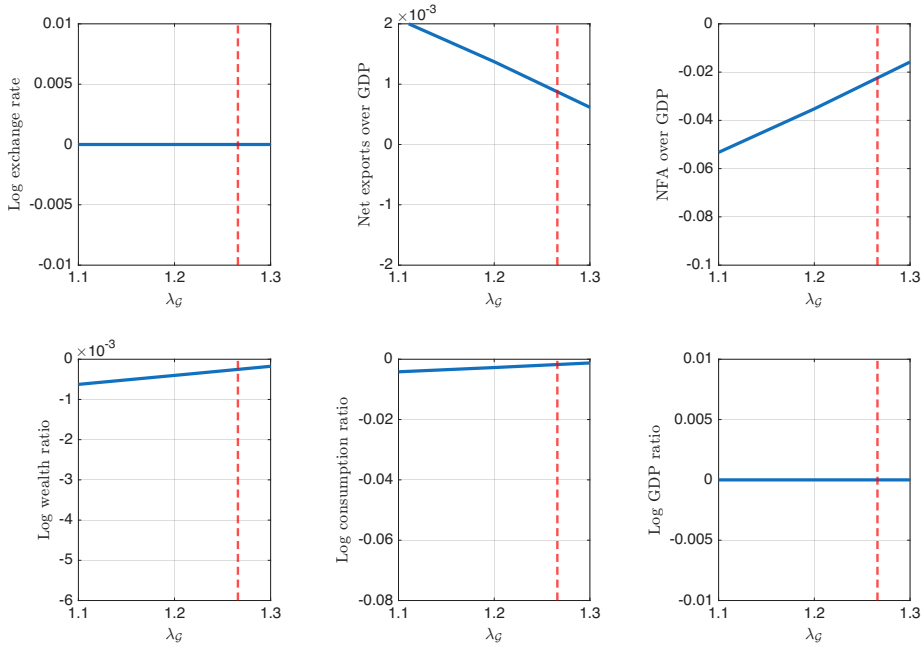

Figure 21: Sensitivity to habit level factor lower bound $\lambda_{\mathcal{G}}$

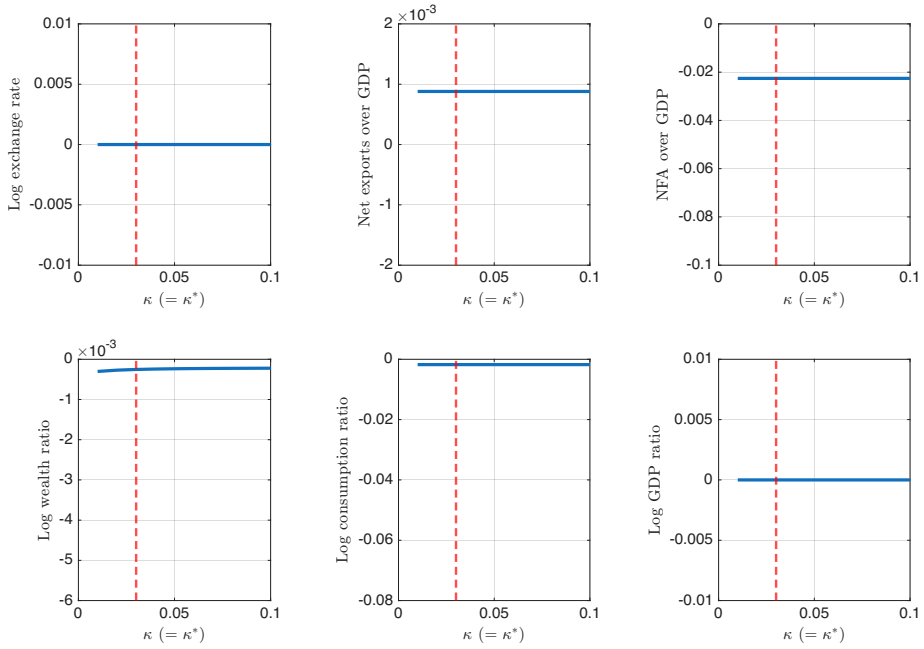

Figure 22: Sensitivity to speed of mean reversion of domestic habit κ $(= \kappa^*)$

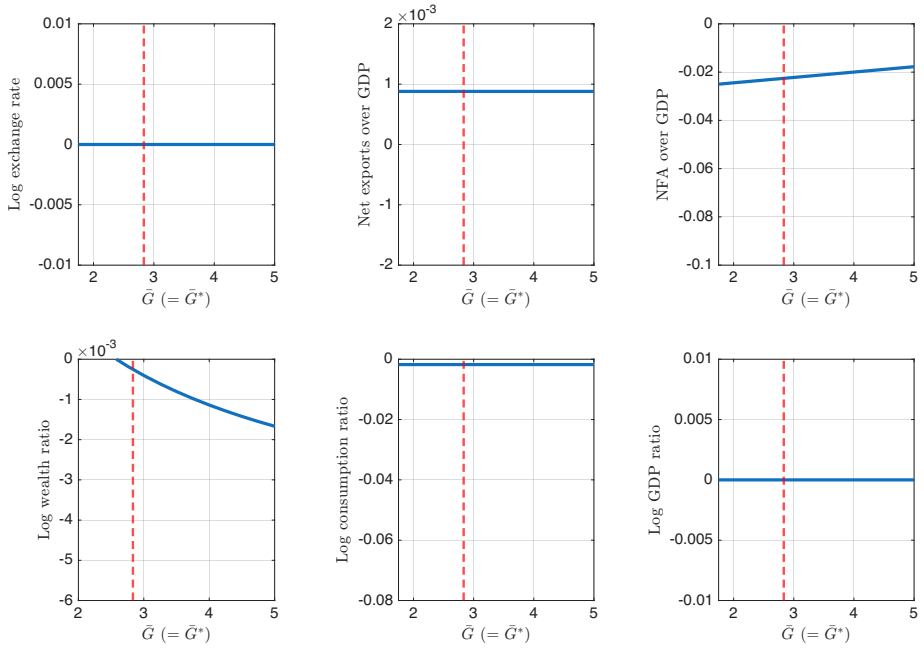

Figure 23: Sensitivity to long-run mean of domestic habit $\bar{G}$ $(= \bar{G}^*)$

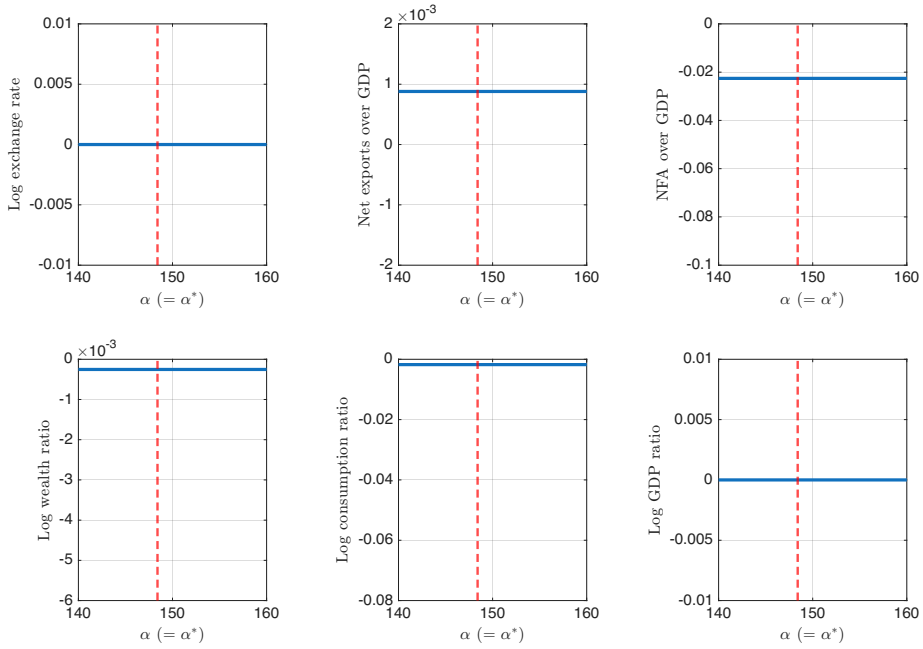

Figure 24: Sensitivity to volatility sensitivity of domestic habit α $(= \alpha^*)$

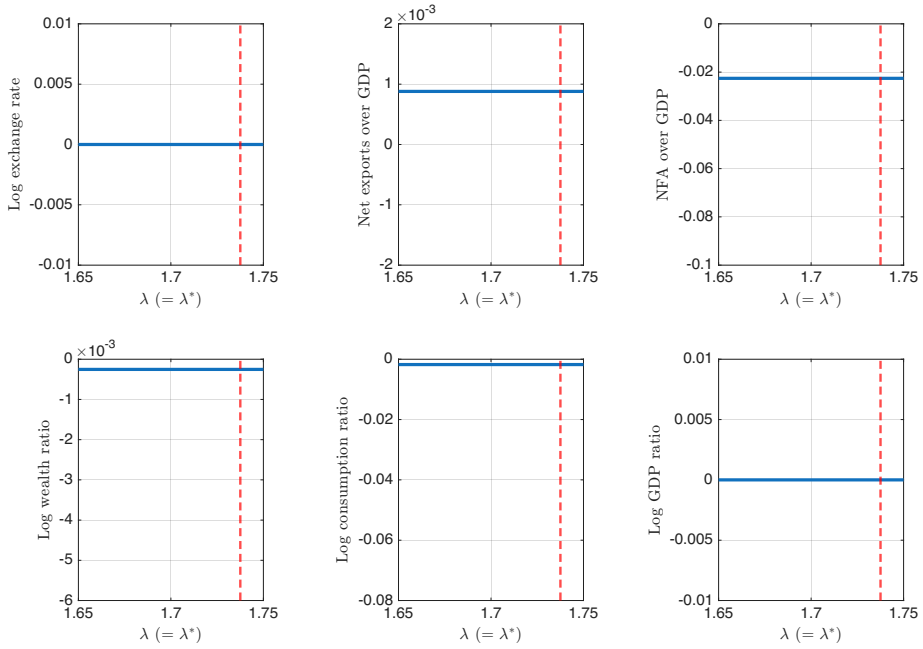

Figure 25: Sensitivity to domestic habit lower bound λ $(= \lambda^*)$

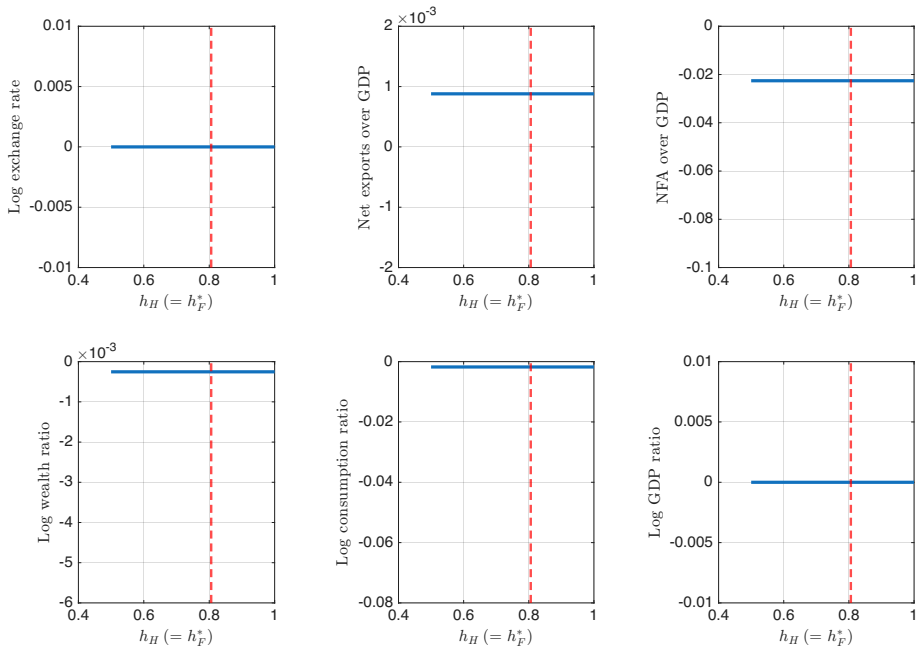

Figure 26: Sensitivity to price index weight on domestic good $h_H\ (= h_F^*)$

1.1.3 Foreign-specific shock

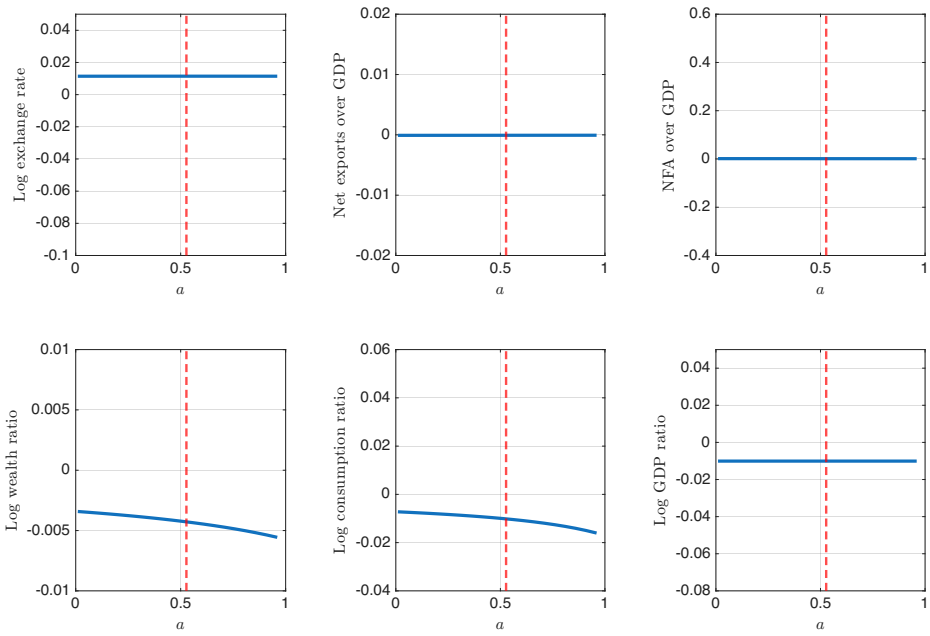

Figure 27: Sensitivity to home Pareto weight a

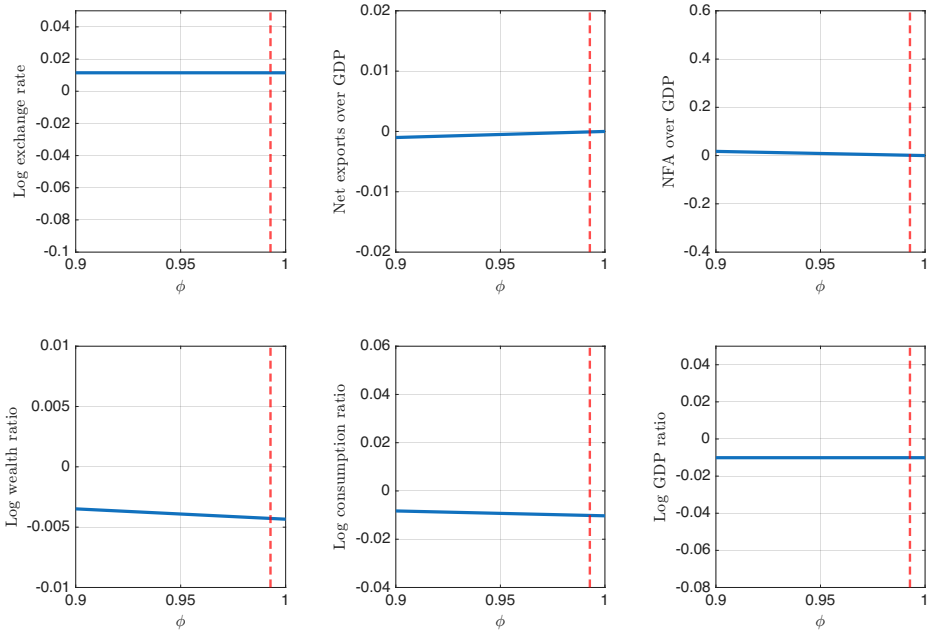

Figure 28: Sensitivity to domestic habit home bias ϕ

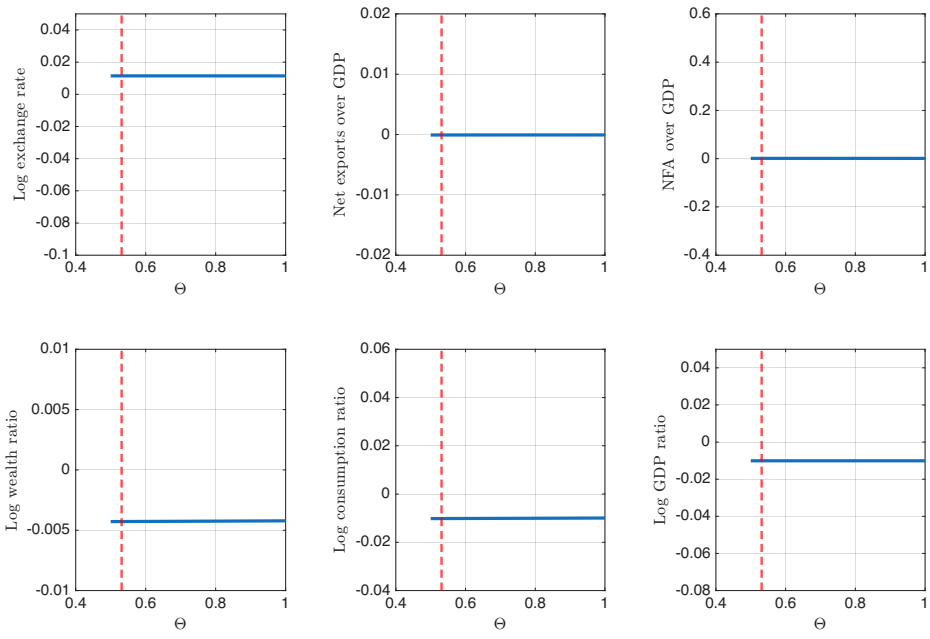

Figure 29: Sensitivity to conventional home bias Θ

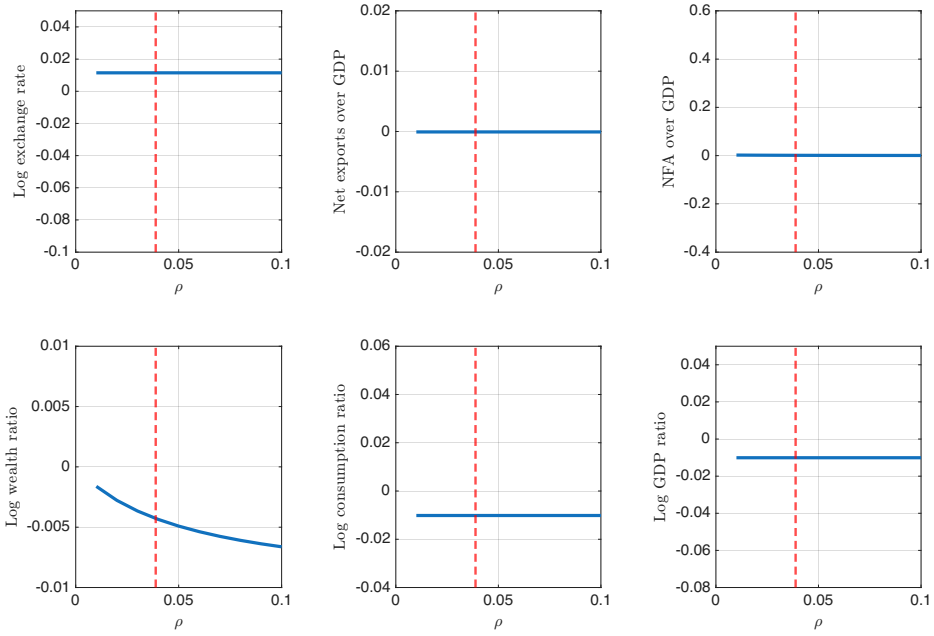

Figure 30: Sensitivity to time preference ρ

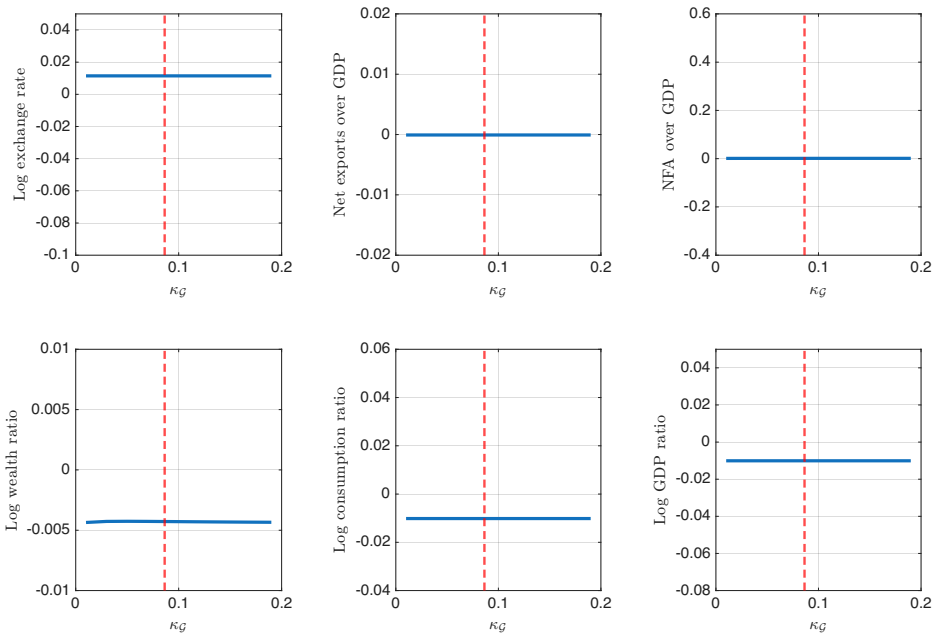

Figure 31: Sensitivity to speed of mean reversion of habit level factor $\kappa_{\mathcal{G}}$

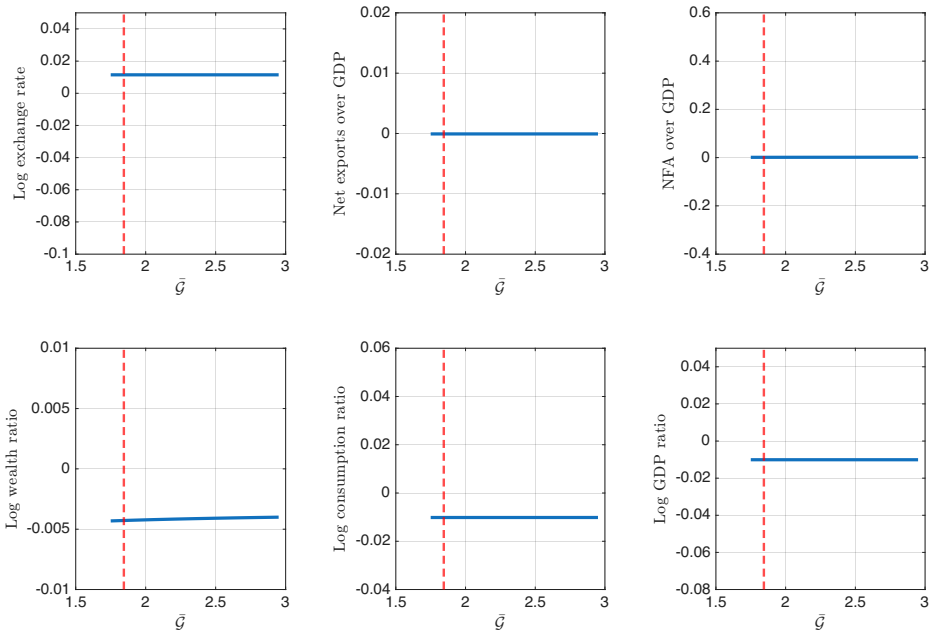

Figure 32: Sensitivity to long-run mean of habit level factor $\bar{\mathcal{G}}$

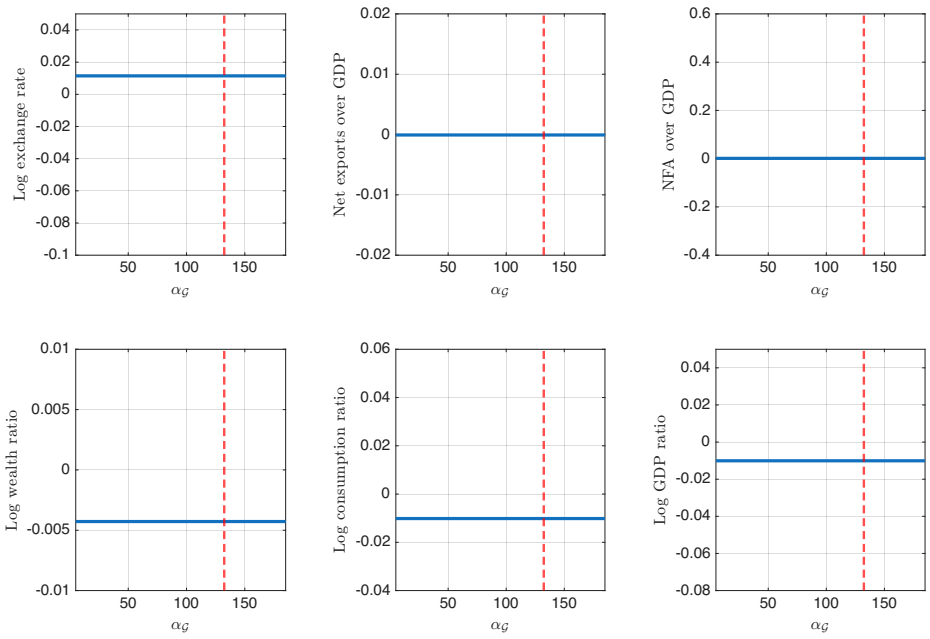

Figure 33: Sensitivity to volatility sensitivity of habit level factor $\alpha_{\mathcal{G}}$

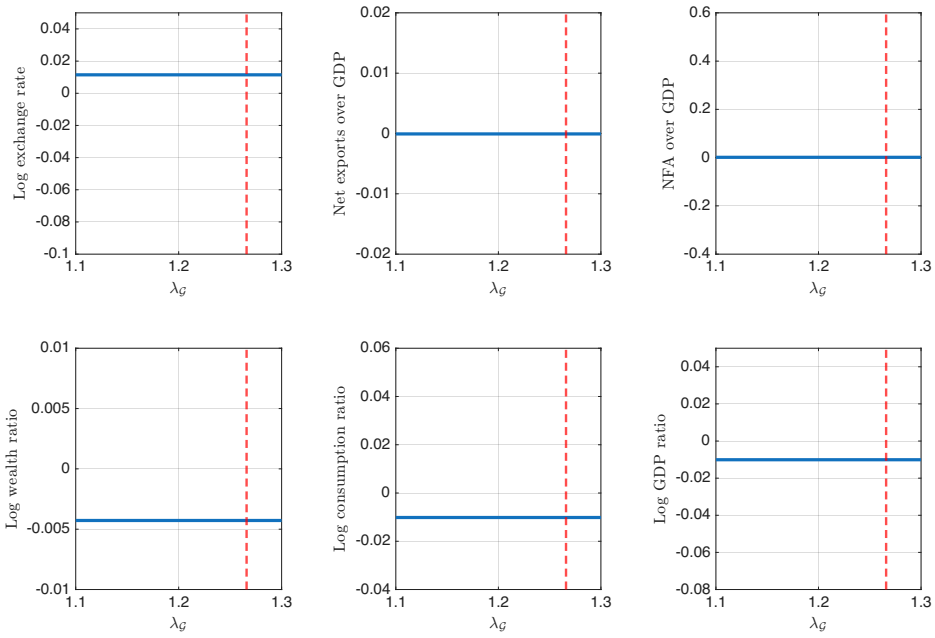

Figure 34: Sensitivity to habit level factor lower bound $\lambda_{\mathcal{G}}$

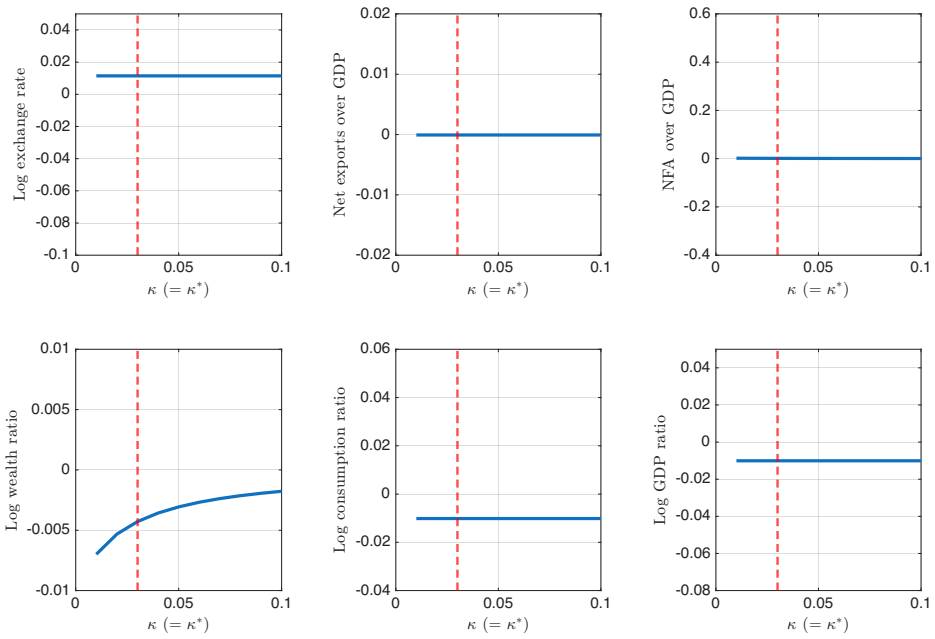

Figure 35: Sensitivity to speed of mean of domestic habit κ $(= \kappa^*)$

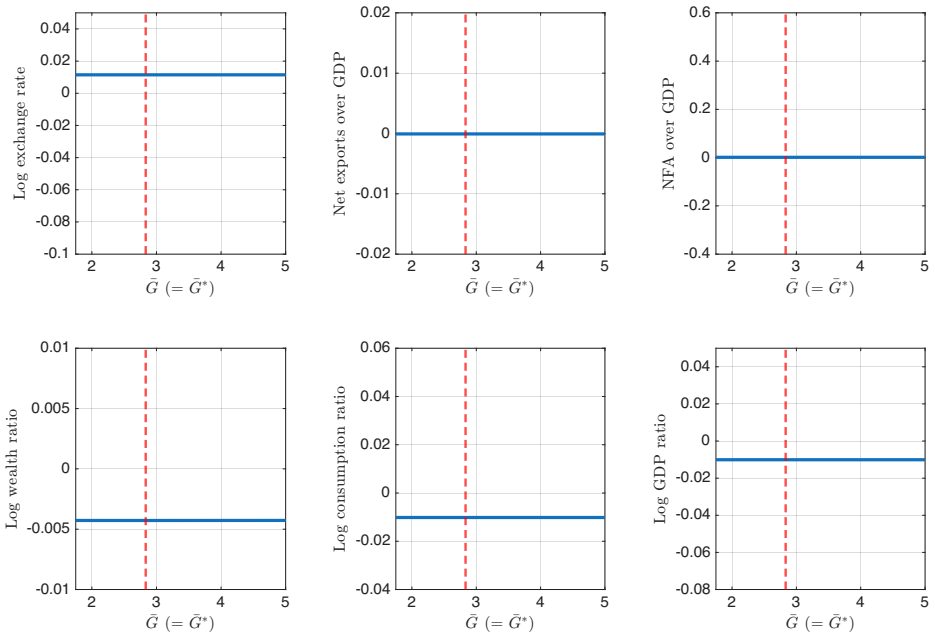

Figure 36: Sensitivity to long-run mean of domestic habit $\bar{G}$ $(= \bar{G}^*)$

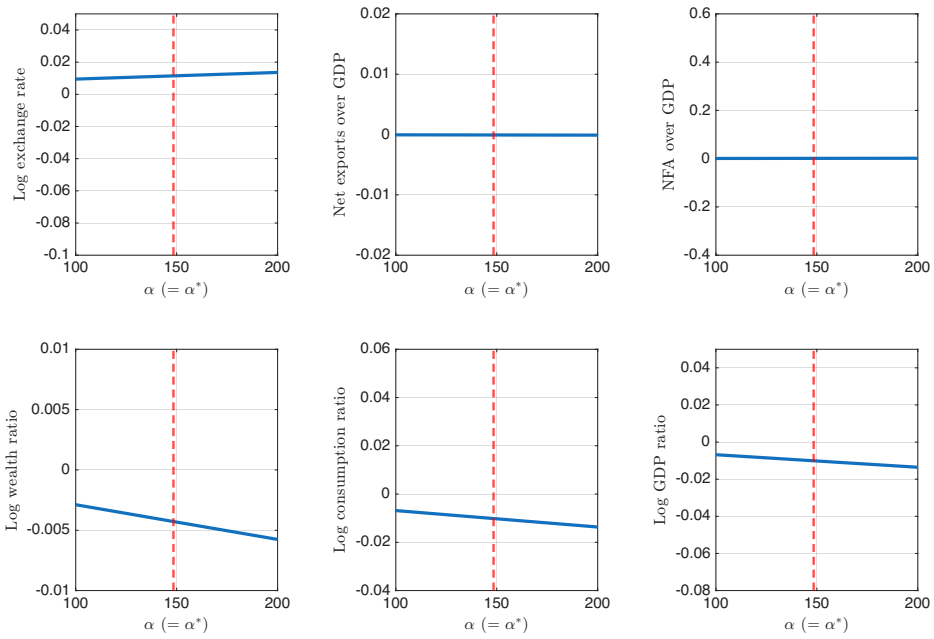

Figure 37: Sensitivity to volatility sensitivity of domestic habit α $(= \alpha^*)$

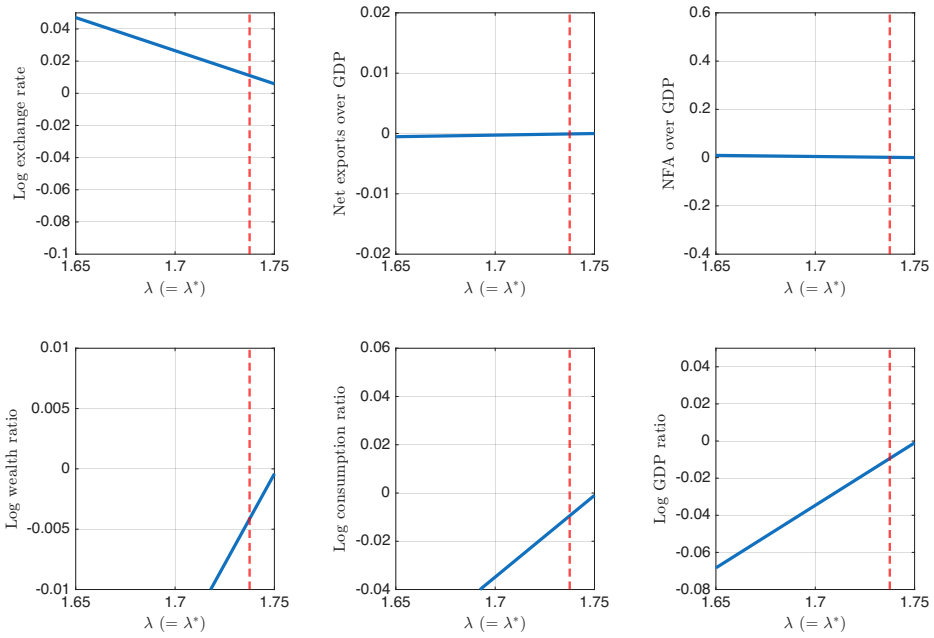

Figure 38: Sensitivity to domestic habit lower bound λ $(= \lambda^*)$

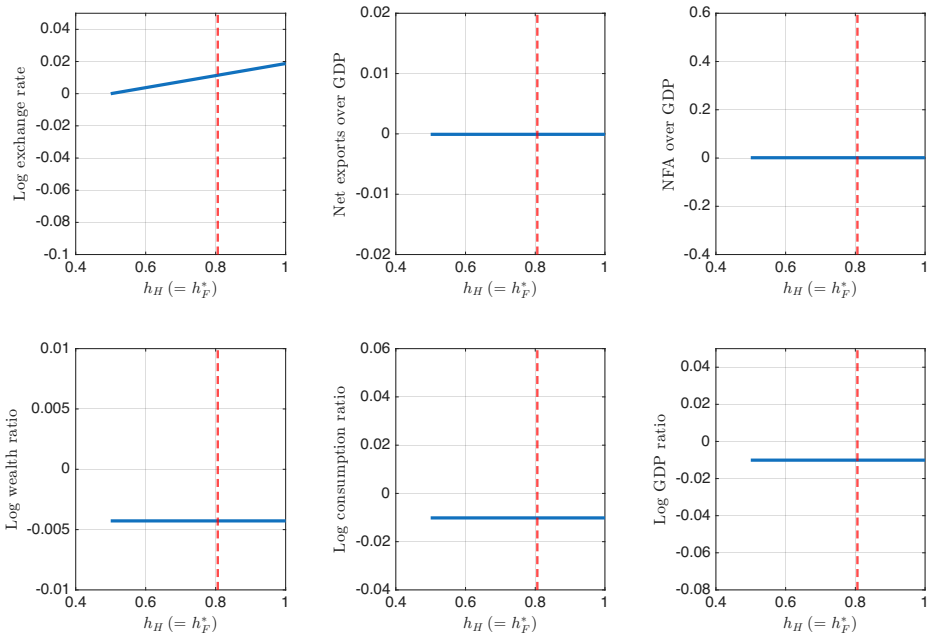

Figure 39: Sensitivity to price index weight on domestic good $h_H\ (= h_F^*)$

1.2 Sensitivity to parameters in Tables 4 and 5

1.2.1 Home-specific shock

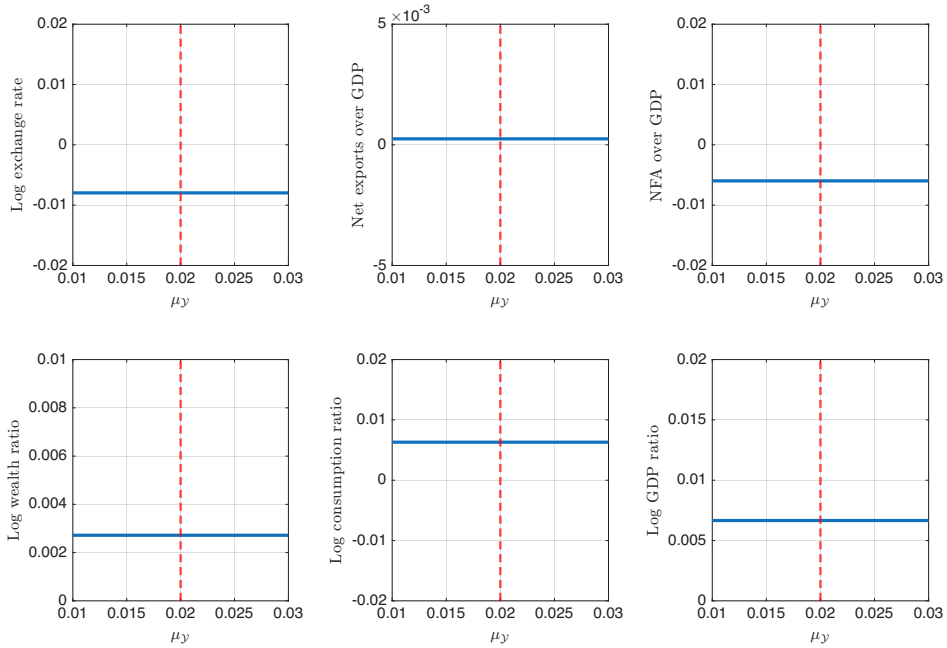

Figure 40: Sensitivity to expected output growth μ_y

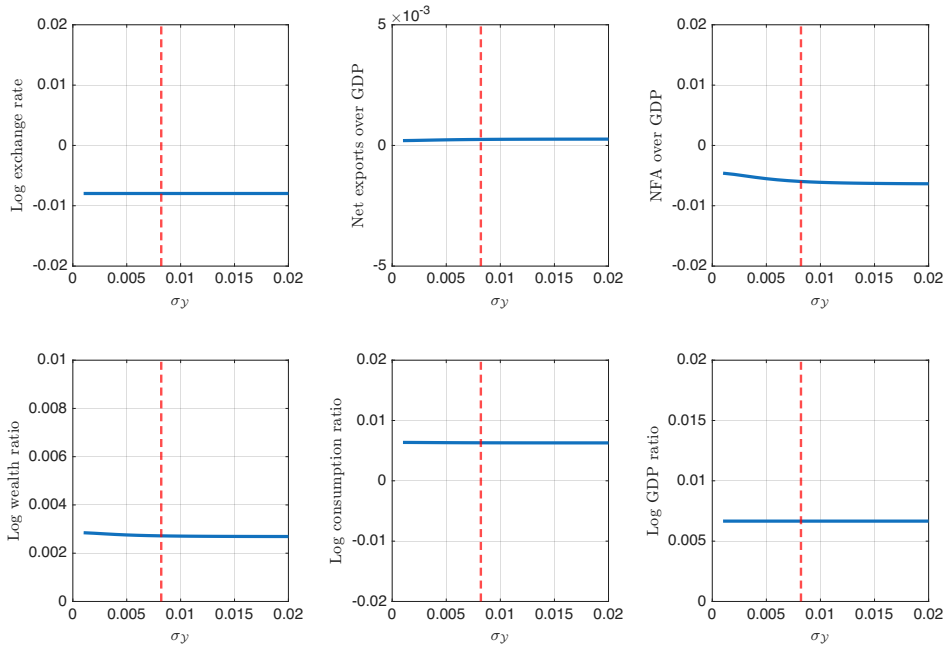

Figure 41: Sensitivity to volatility of world trend growth σ_y

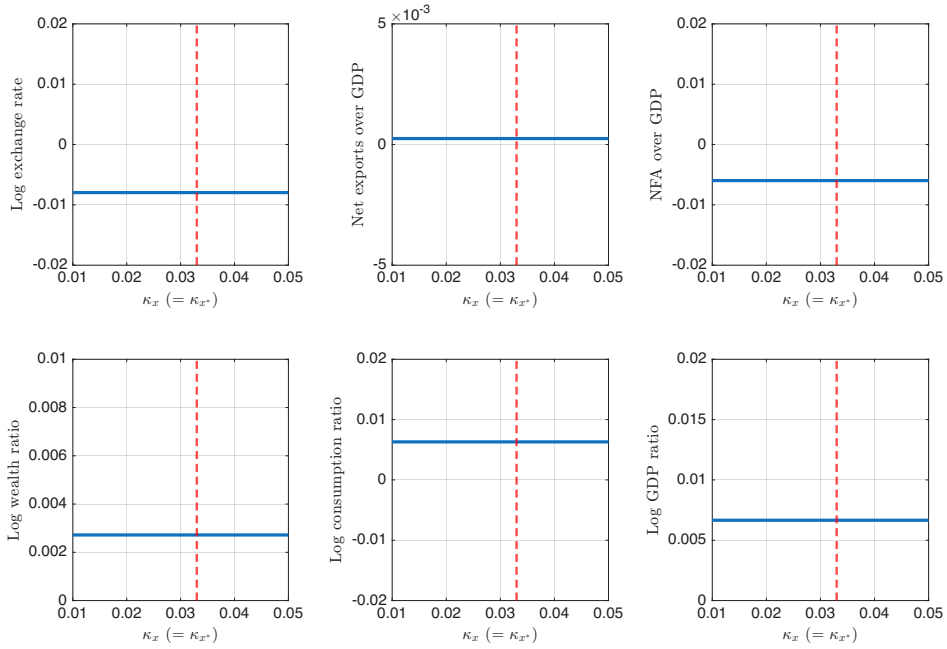

Figure 42: Sensitivity to speed of mean reversion in output growth κ_x $(= \kappa_{x^*})$

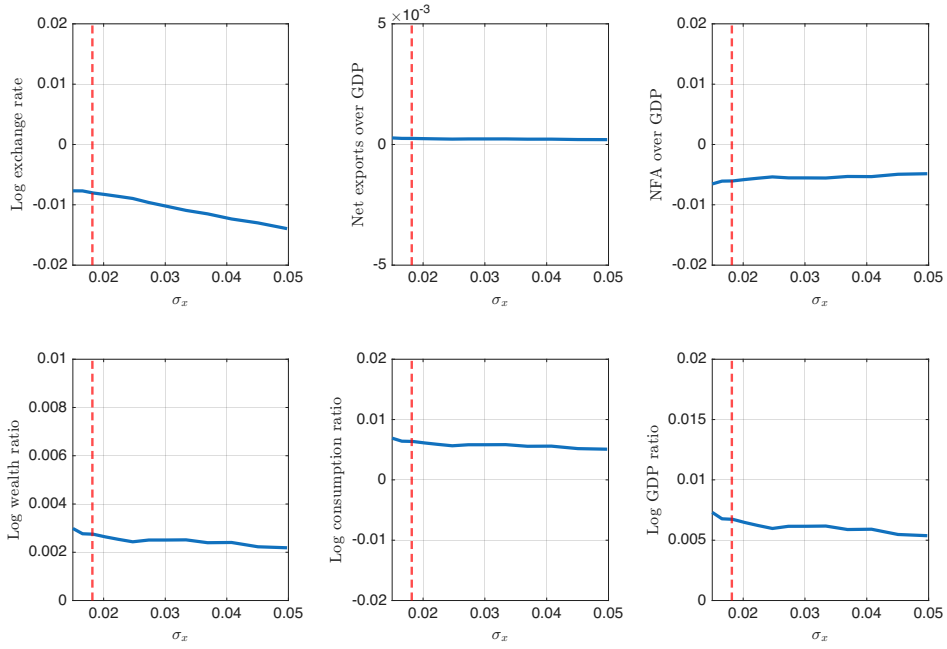

Figure 43: Sensitivity to volatility of country-specific factor σ_x

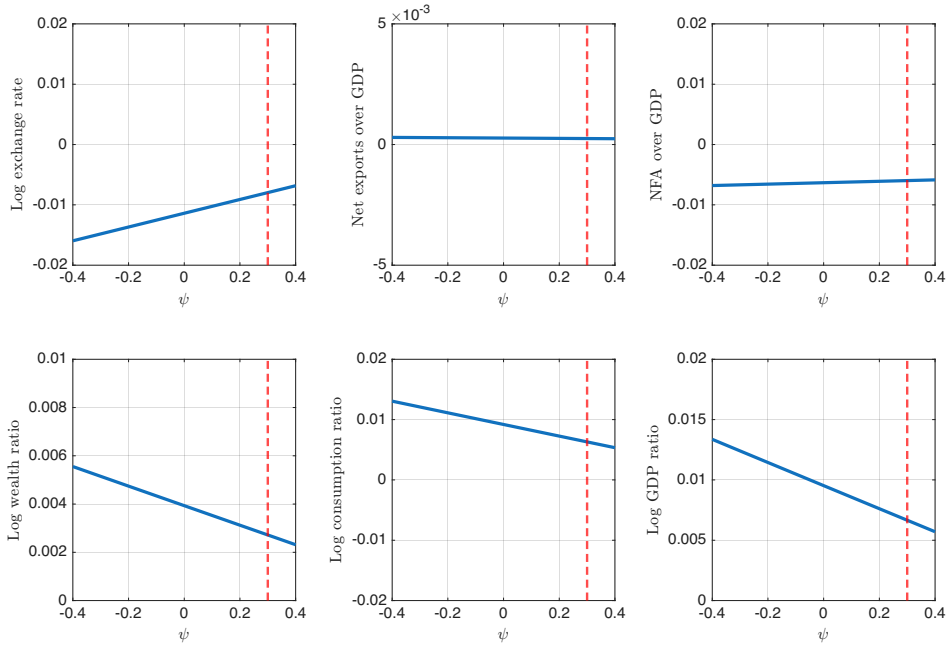

Figure 44: Sensitivity to correlation US and ROW ψ

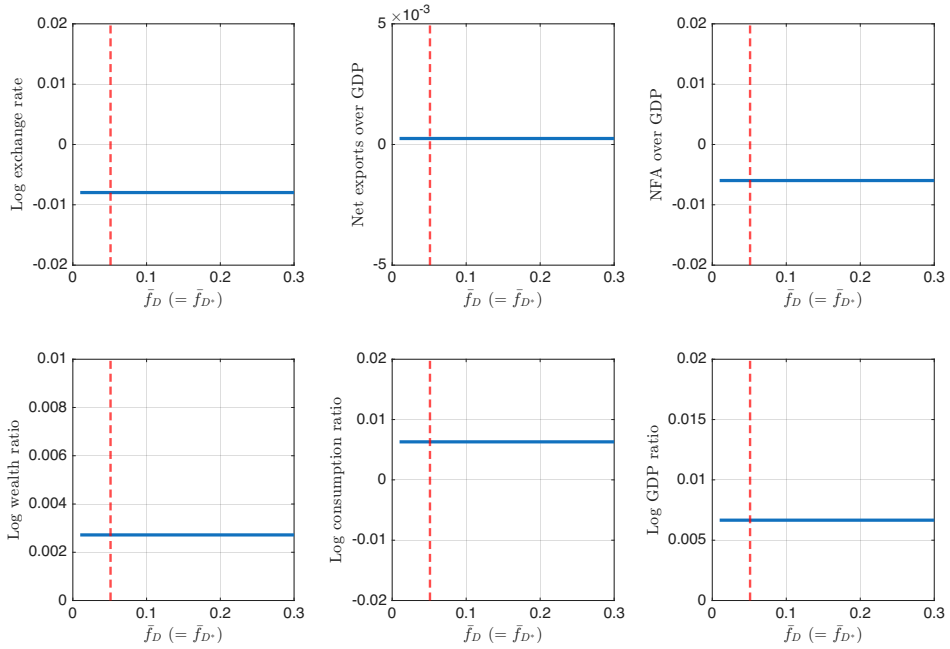

Figure 45: Sensitivity to long-run dividend share $\bar{f}_D$ $(= \bar{f}_{D^*})$

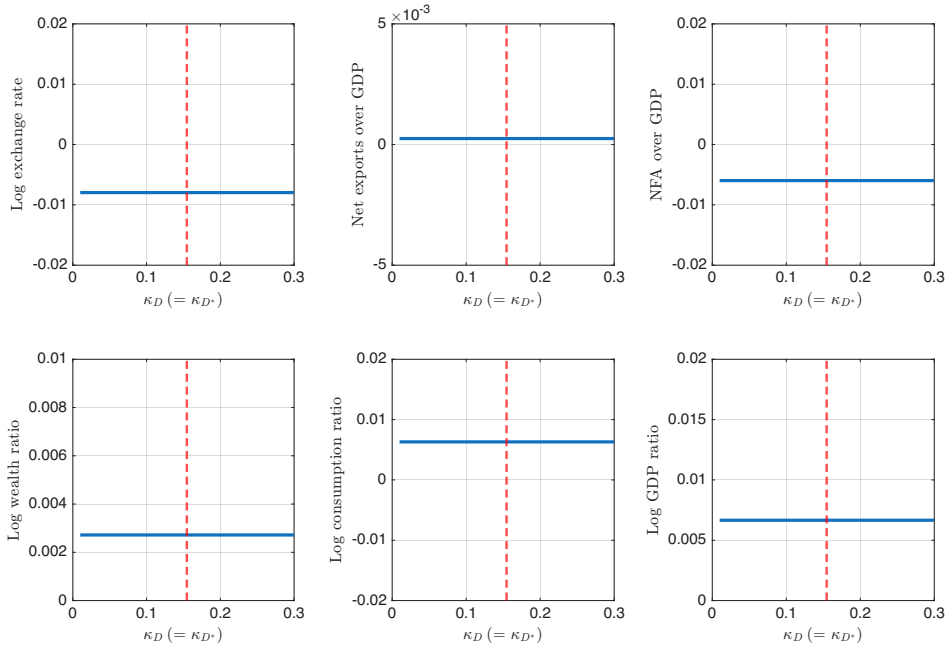

Figure 46: Sensitivity to speed of mean reversion in dividend share $\kappa_D\ (=\kappa_{D^*})$

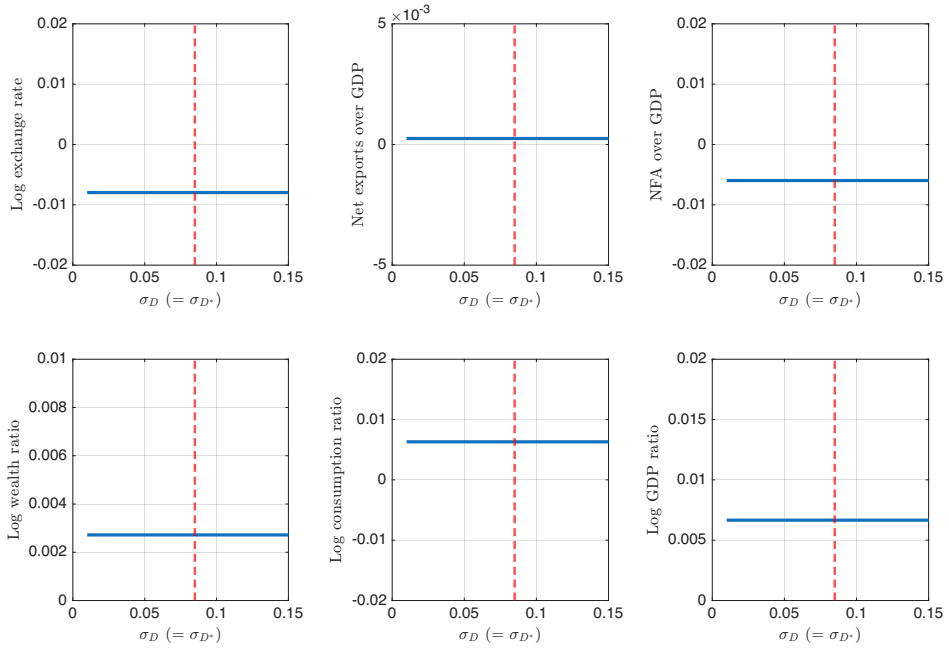

Figure 47: Sensitivity to volatility of dividend share $\sigma_D\ (=\sigma_{D^*})$

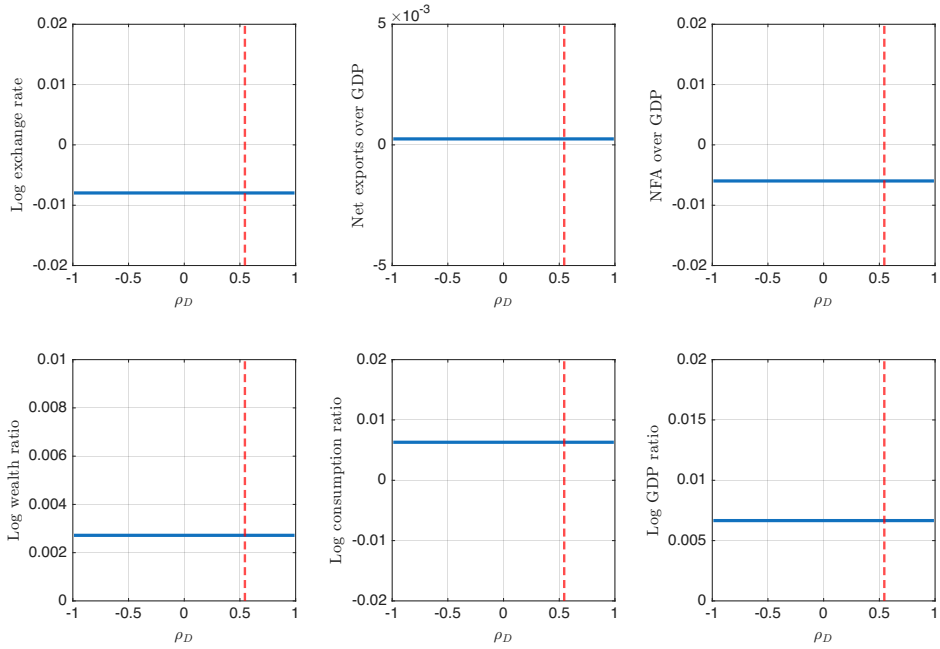

Figure 48: Sensitivity to correlation of dividends US and ROW ρ_D

1.2.2 Level shock

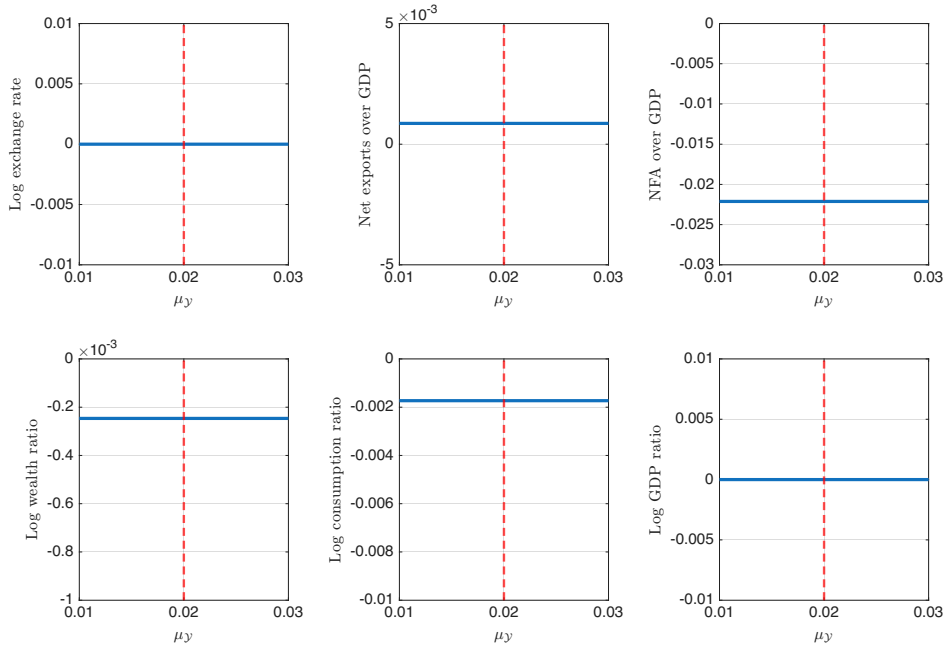

Figure 49: Sensitivity to expected output growth μ_y

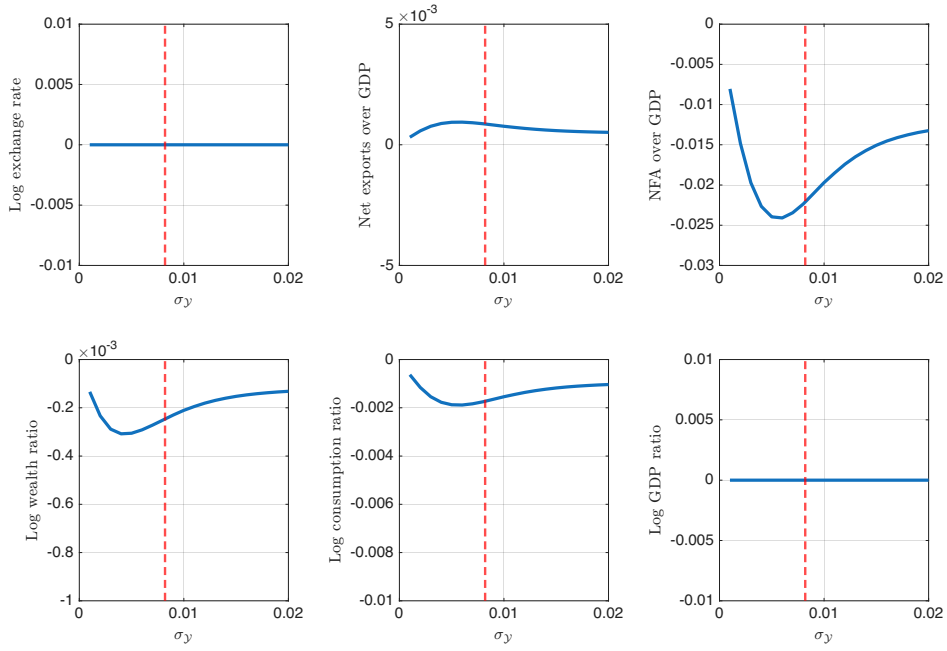

Figure 50: Sensitivity to volatility of world trend growth σ_y

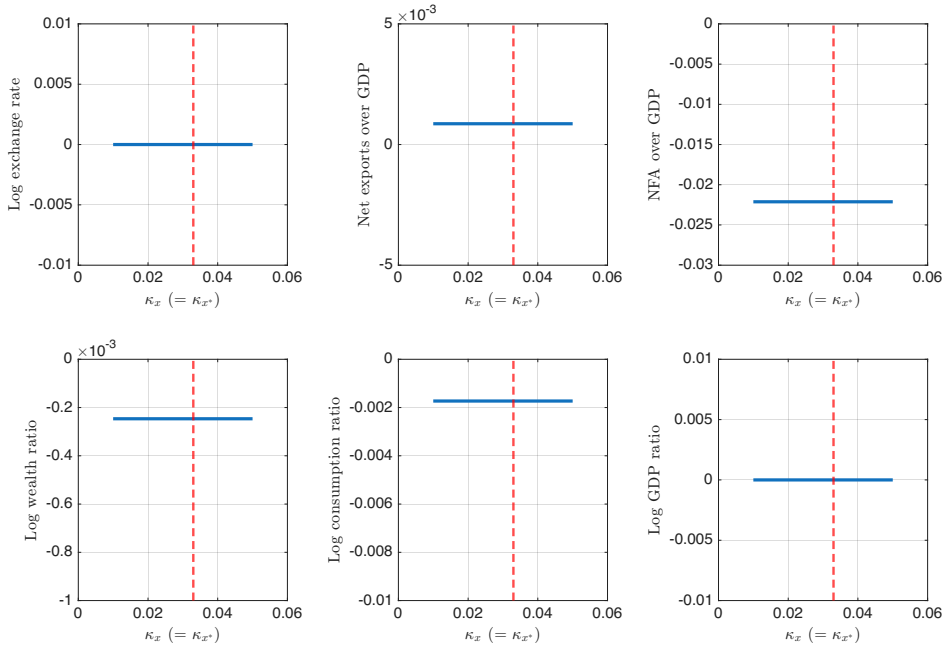

Figure 51: Sensitivity to speed of mean reversion in output growth κ_x $(= \kappa_{x^*})$

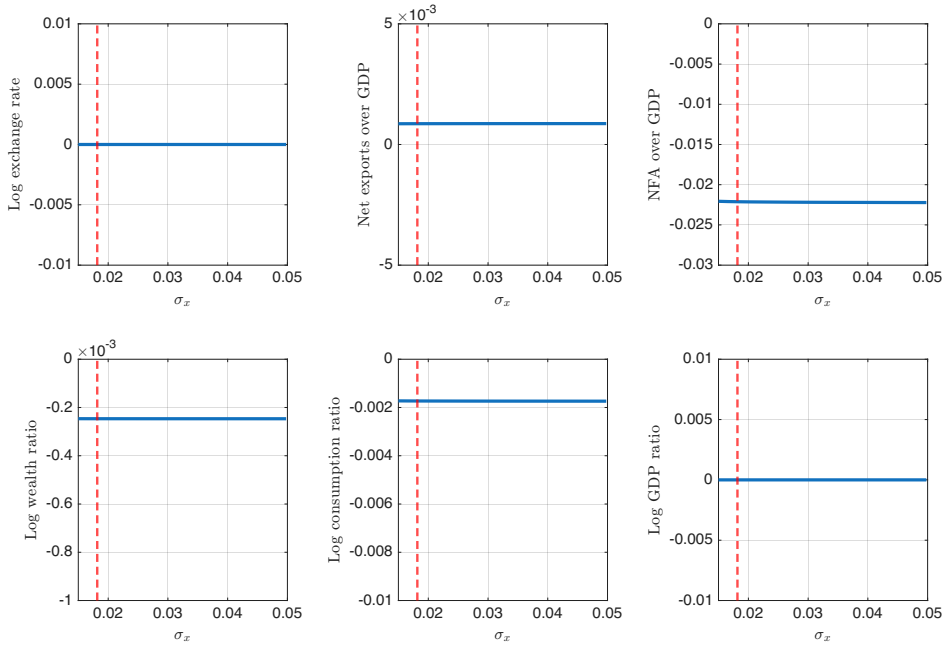

Figure 52: Sensitivity to volatility of country-specific factor σ_x

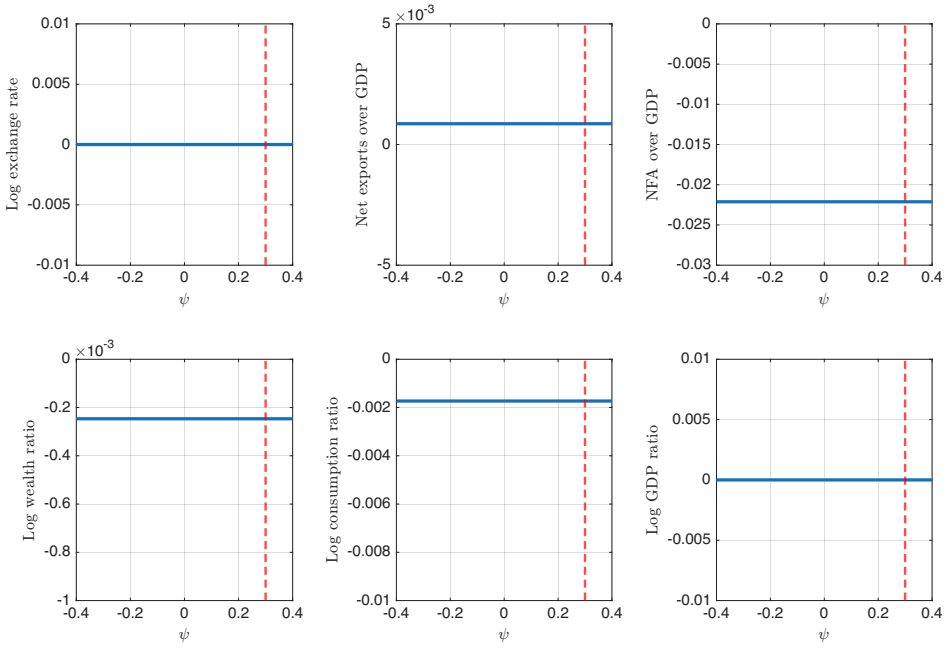

Figure 53: Sensitivity to correlation US and ROW ψ

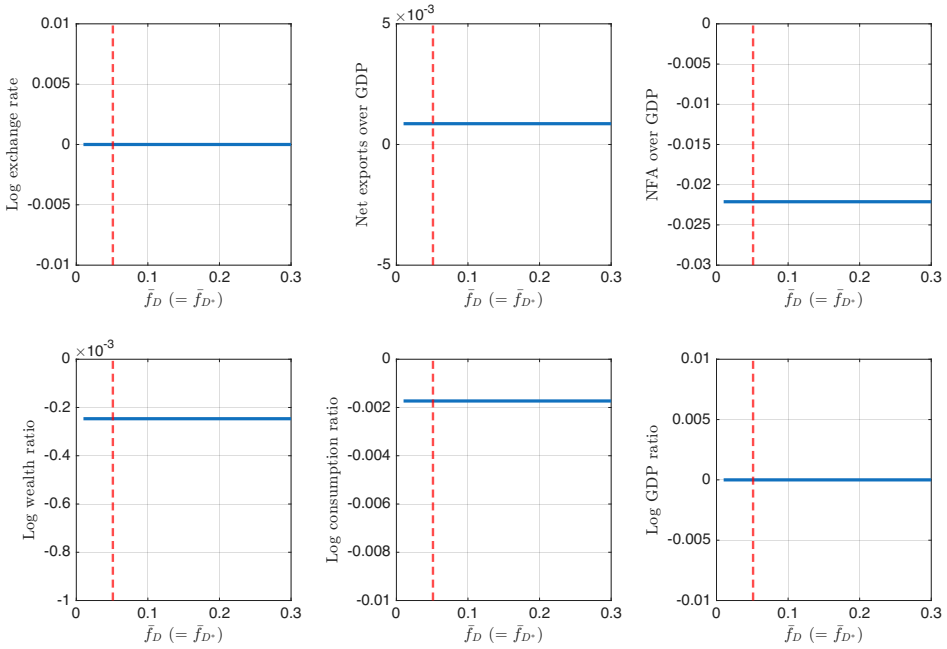

Figure 54: Sensitivity to long-run dividend share $\bar{f}_D$ $(= \bar{f}_{D^*})$

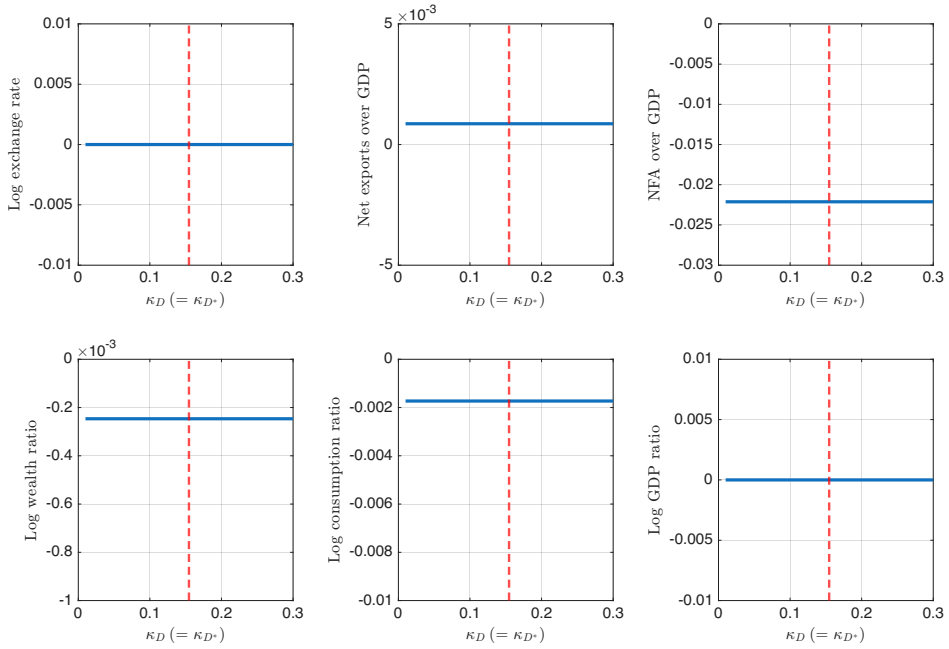

Figure 55: Sensitivity to speed of mean reversion in dividend share $\kappa_D\ (=\kappa_{D^*})$

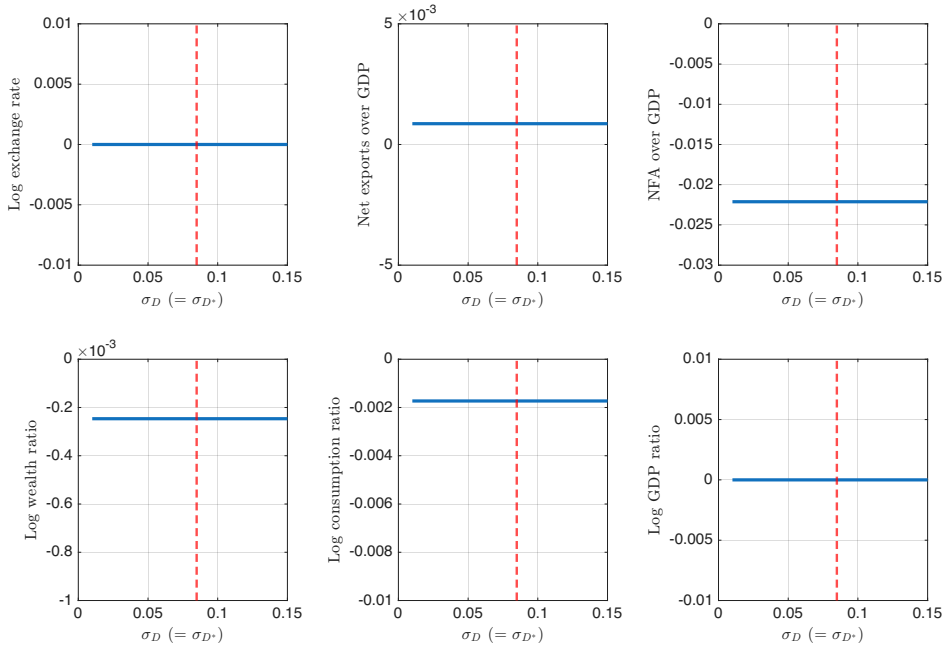

Figure 56: Sensitivity to volatility of dividend share $\sigma_D\ (=\sigma_D^*)$

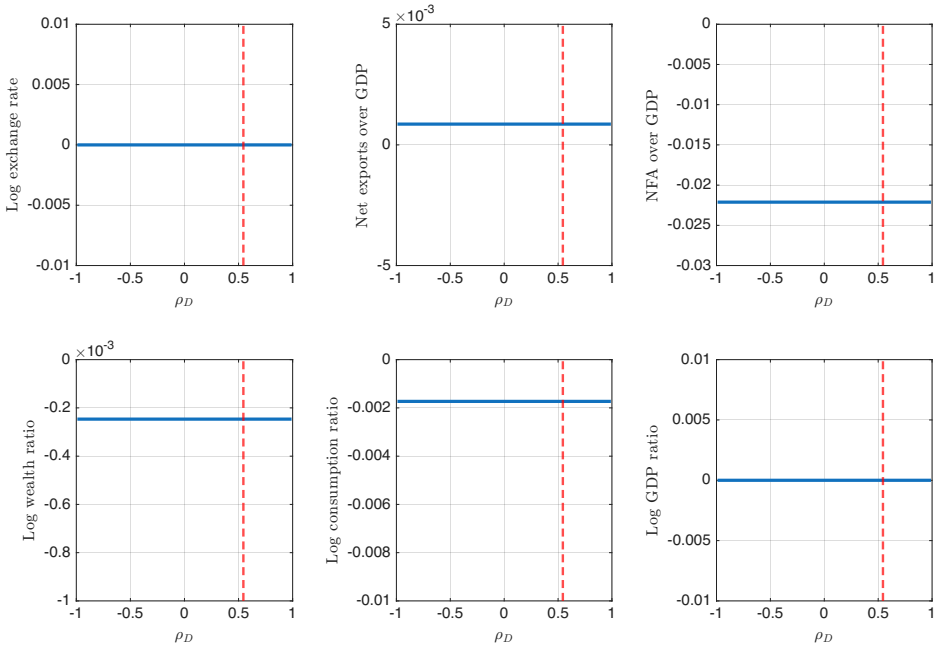

Figure 57: Sensitivity to correlation of dividends US and ROW ρ_D

1.2.3 Foreign-specific shock

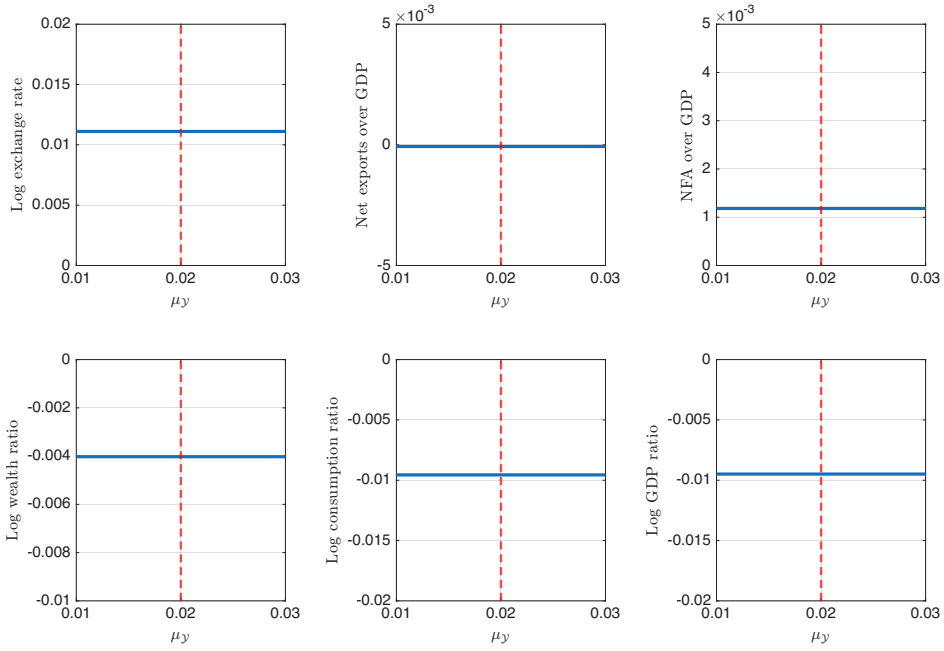

Figure 58: Sensitivity to expected output growth μ_y

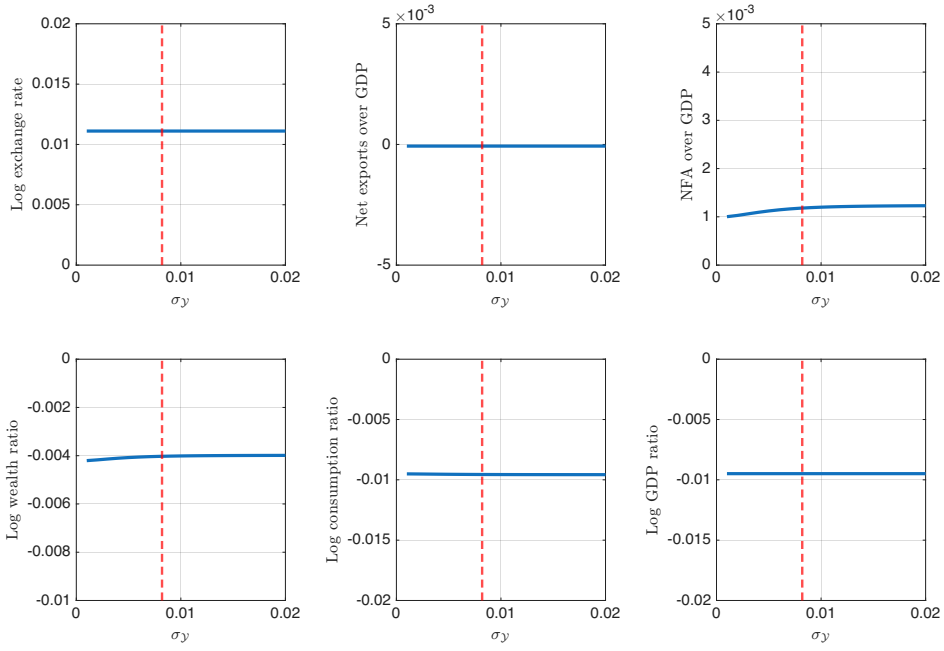

Figure 59: Sensitivity to volatility of world trend growth σ_y

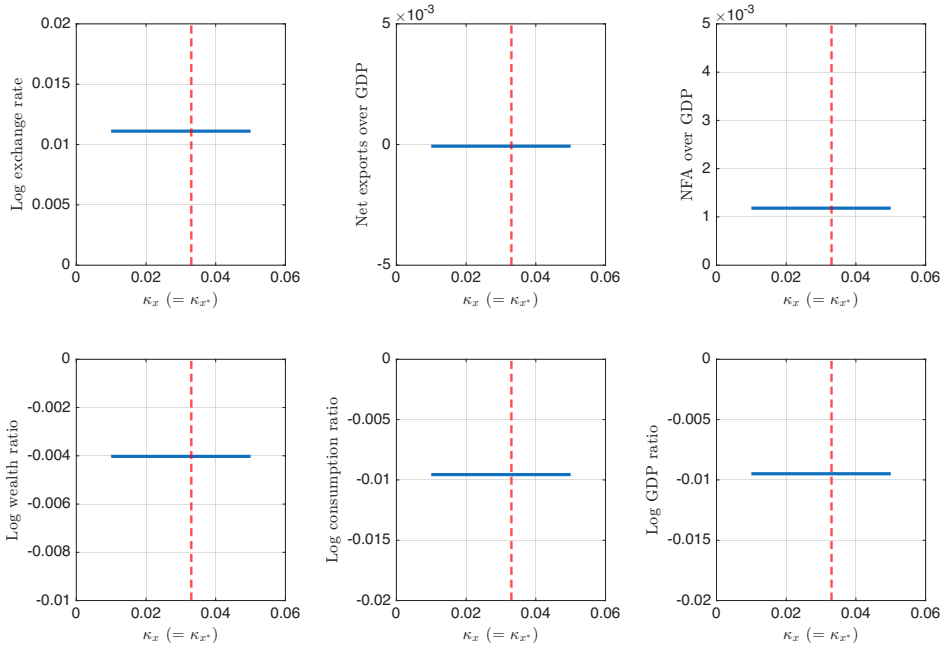

Figure 60: Sensitivity to speed of mean reversion in output growth κ_x $(= \kappa_{x^*})$

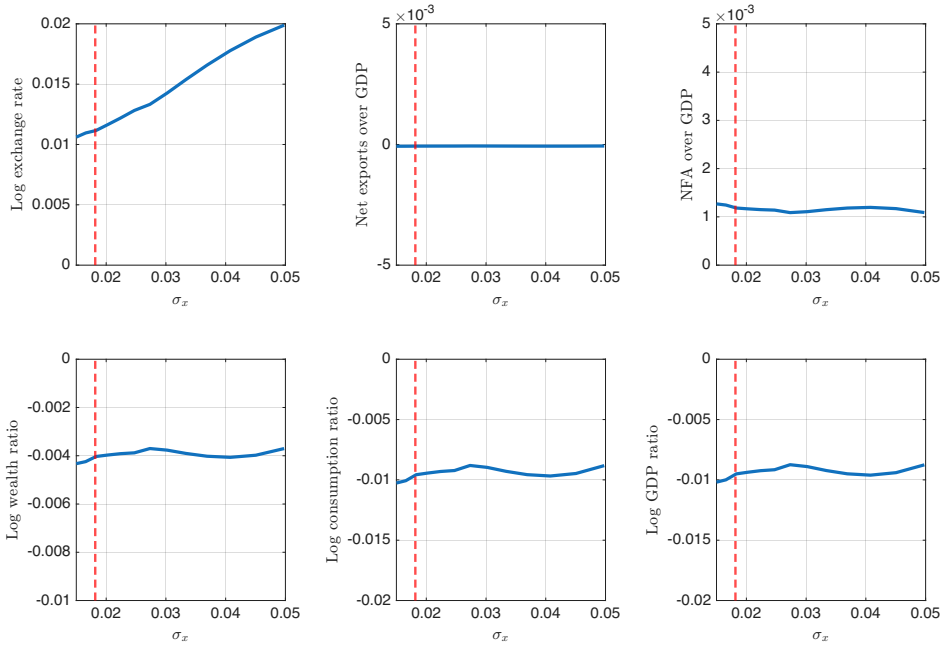

Figure 61: Sensitivity to volatility of country-specific factor σ_x

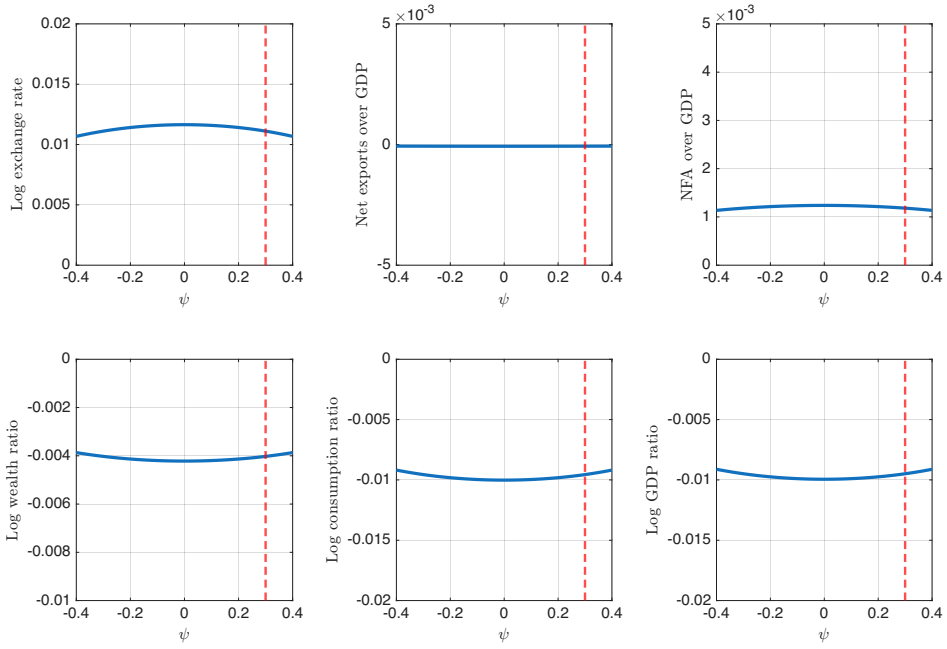

Figure 62: Sensitivity to correlation US and ROW ψ

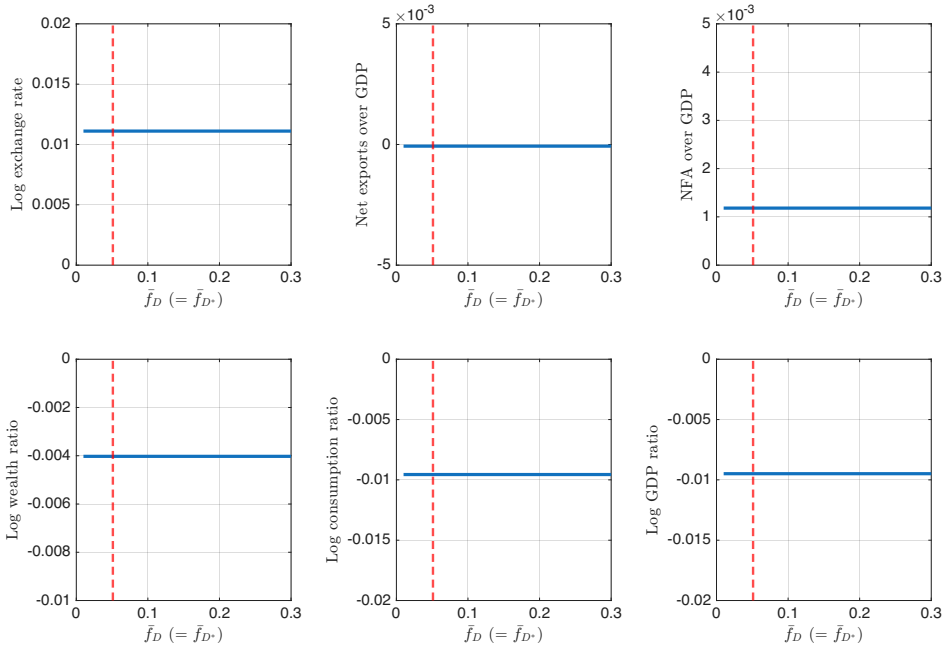

Figure 63: Sensitivity to long-run dividend share $\bar{f}_D$ $(= \bar{f}_{D^*})$

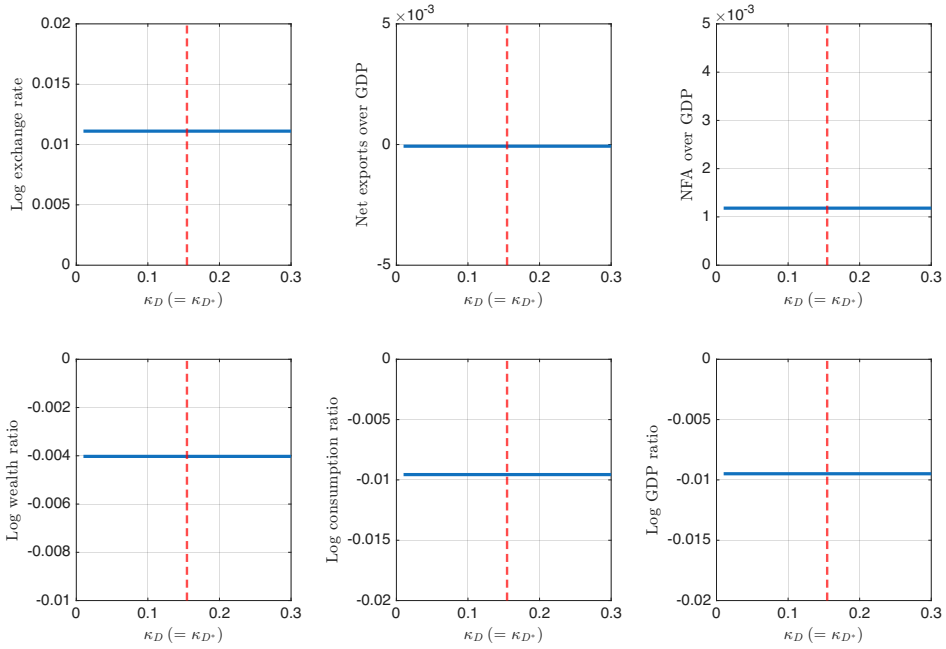

Figure 64: Sensitivity to speed of mean reversion in dividend share $\kappa_D\ (=\kappa_{D^*})$

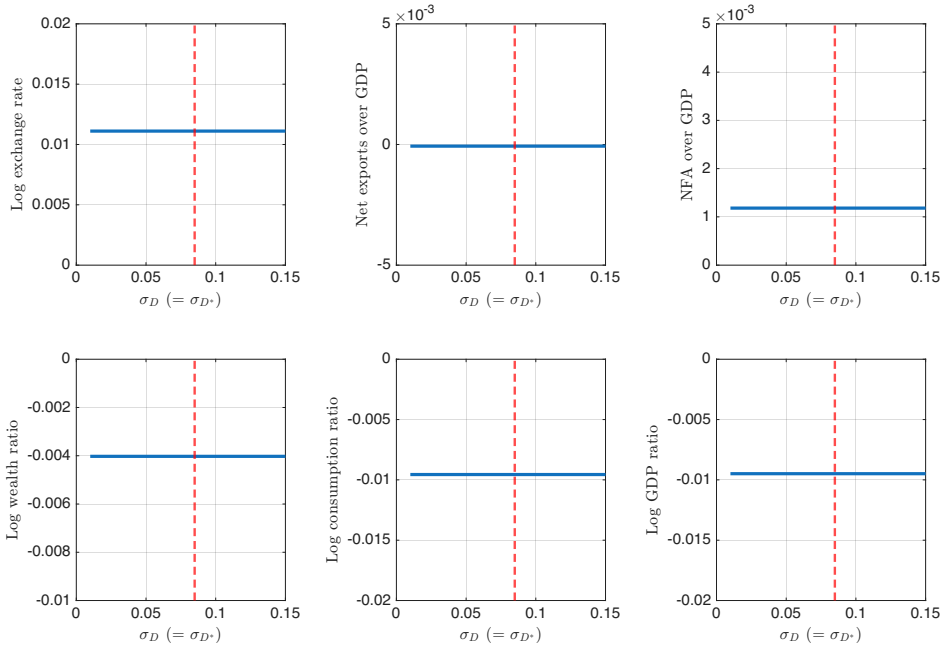

Figure 65: Sensitivity to volatility of dividend share $\sigma_D\ (=\sigma_{D^*})$

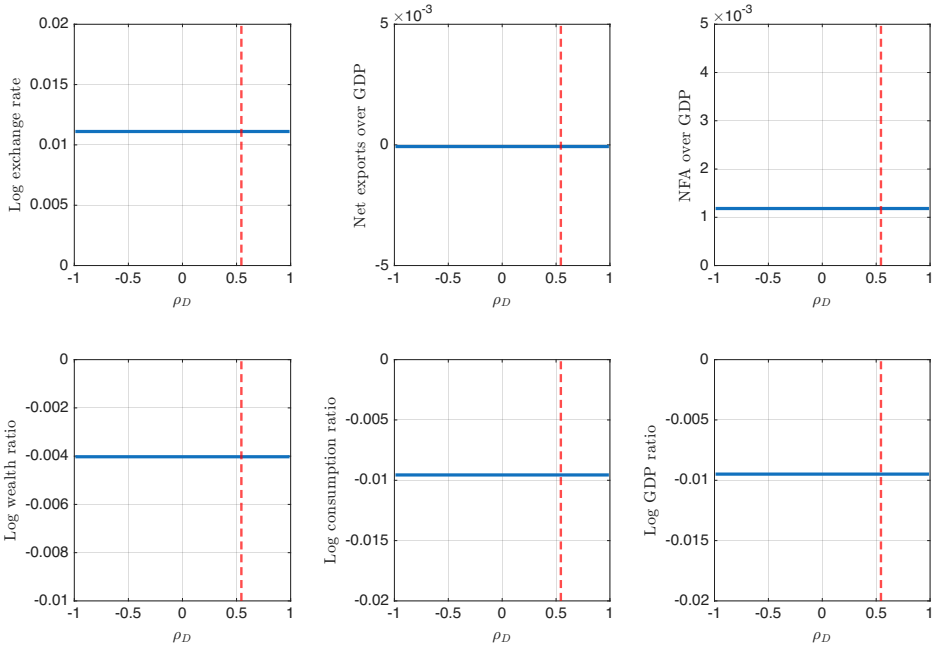

Figure 66: Sensitivity to correlation of dividends US and ROW ρ_D

2 Sensitivity of calibrated moments to parameter values

The figures in this section plot the sensitivities of the calibrated moments to parameters in Tables 4–6.

Section 2.1 presents the sensitivity analysis for parameters in Table 6. In all plots, the red dashed line depicts the calibrated parameter value. For each moment, the orange dashed line depicts its calibrated value. For each moment, the solid blue curve depicts the sensitivity of the moment to changes in the parameter measured on the horizontal axis; all other parameter values are fixed at their calibrated values.

Section 2.2 presents the sensitivity analysis of calibrated moments in Tables 4 and 5, and is structured in the same way as Section 2.1.

From this analysis, we conclude that the results reported in the paper are robust. They remain qualitatively the same as in the paper. It is worth commenting on the sensitivity of the UIP moment to some parameters. This moment reflects a well-known tension in the literature, rooted in the specification of the habit formation, giving rise to different interest rate dynamics; see, the contrast between Wachter (2006) and Verdelhan (2010).

2.1 Endowment, preference, and price index parameters in Table 6

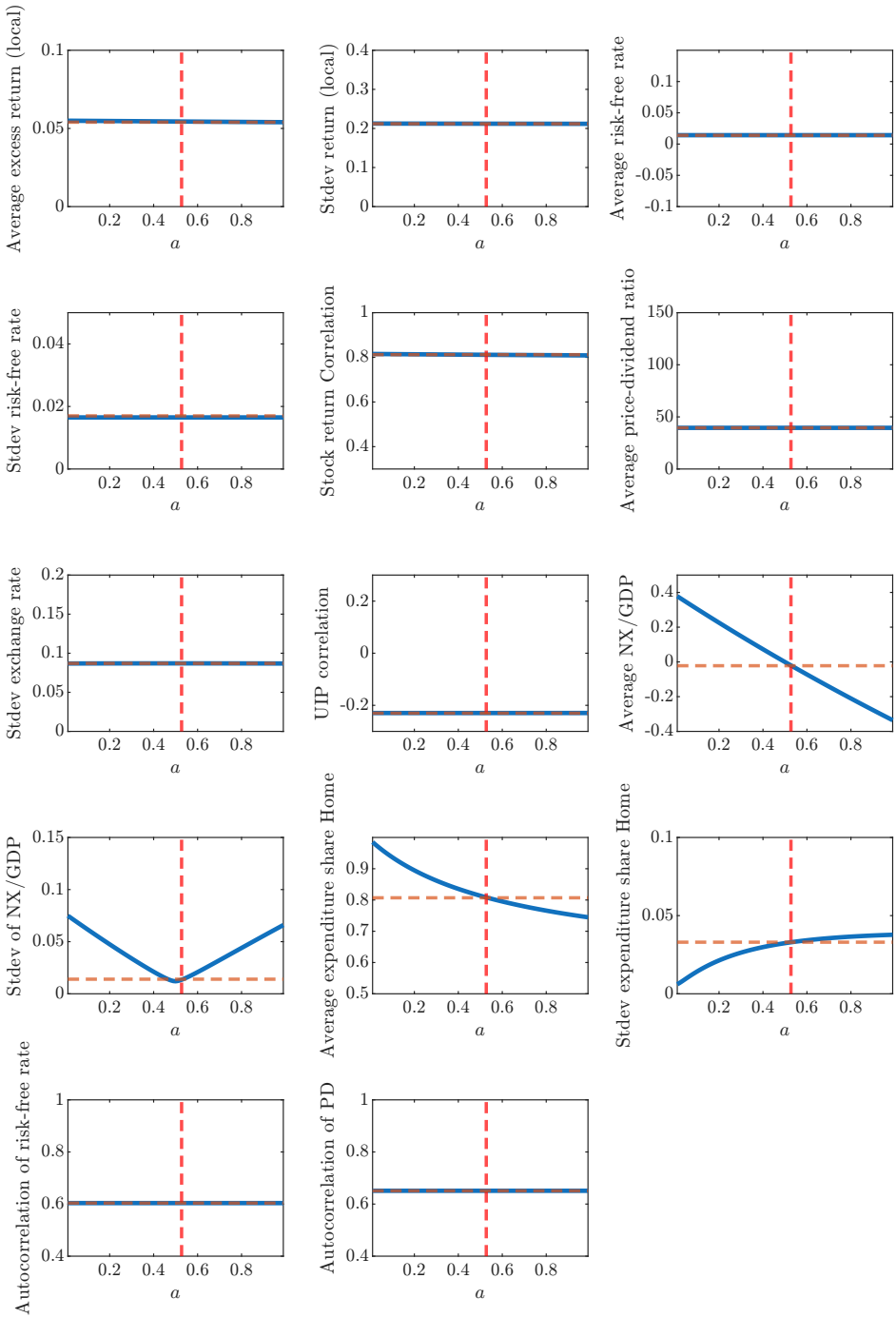

Figure 67: Sensitivity to home Pareto weight a

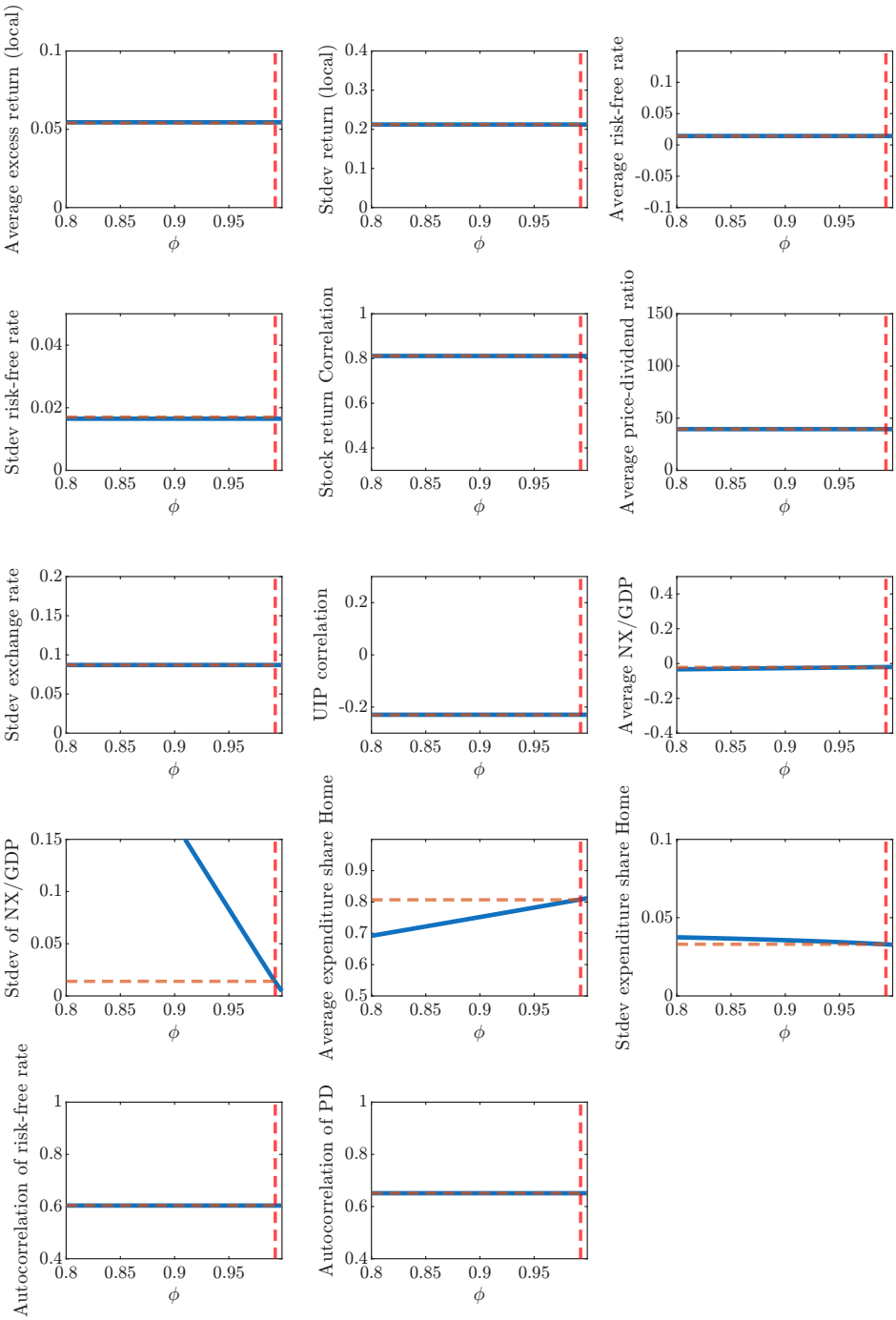

Figure 68: Sensitivity to domestic habit home bias ϕ

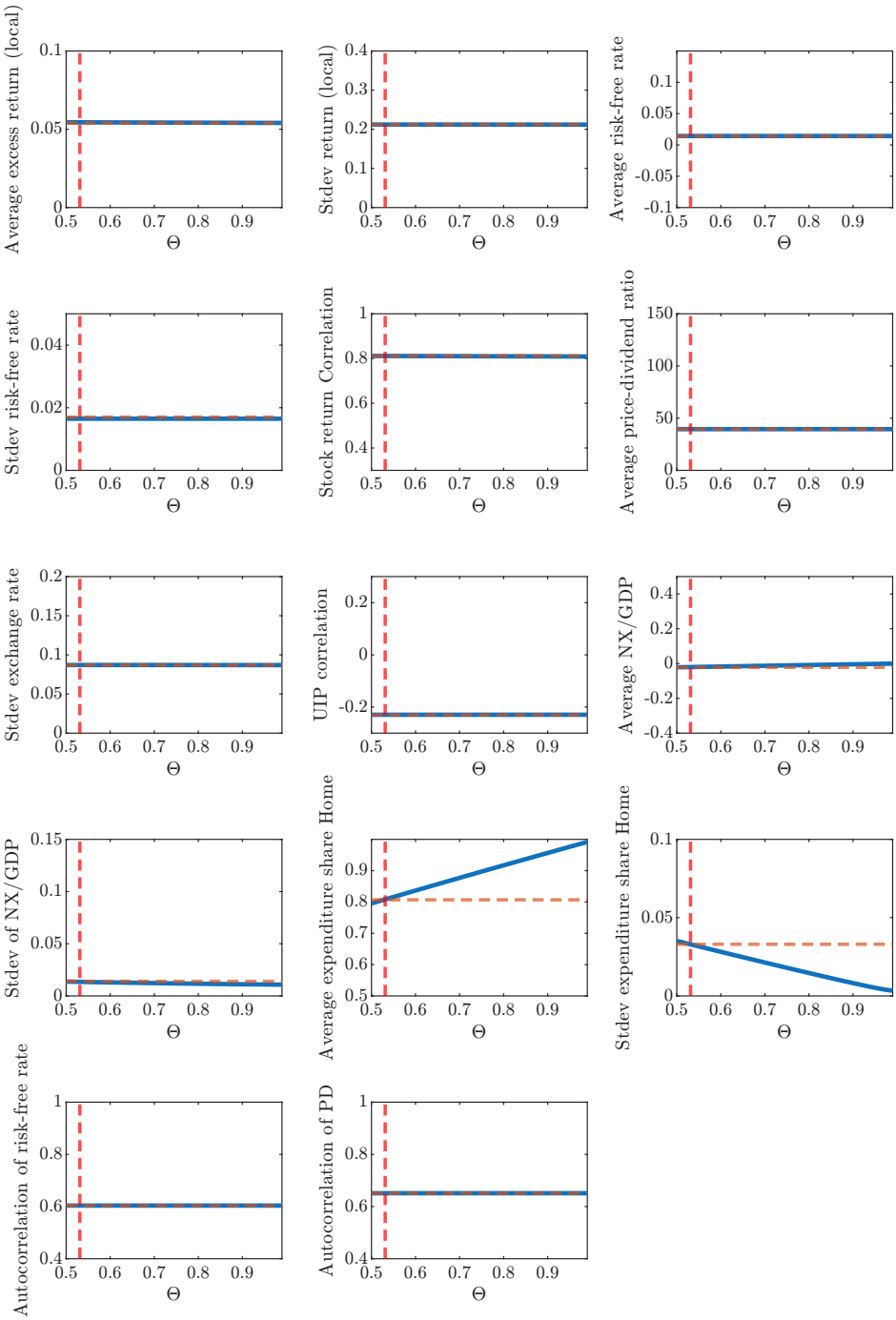

Figure 69: Sensitivity to conventional home bias Θ

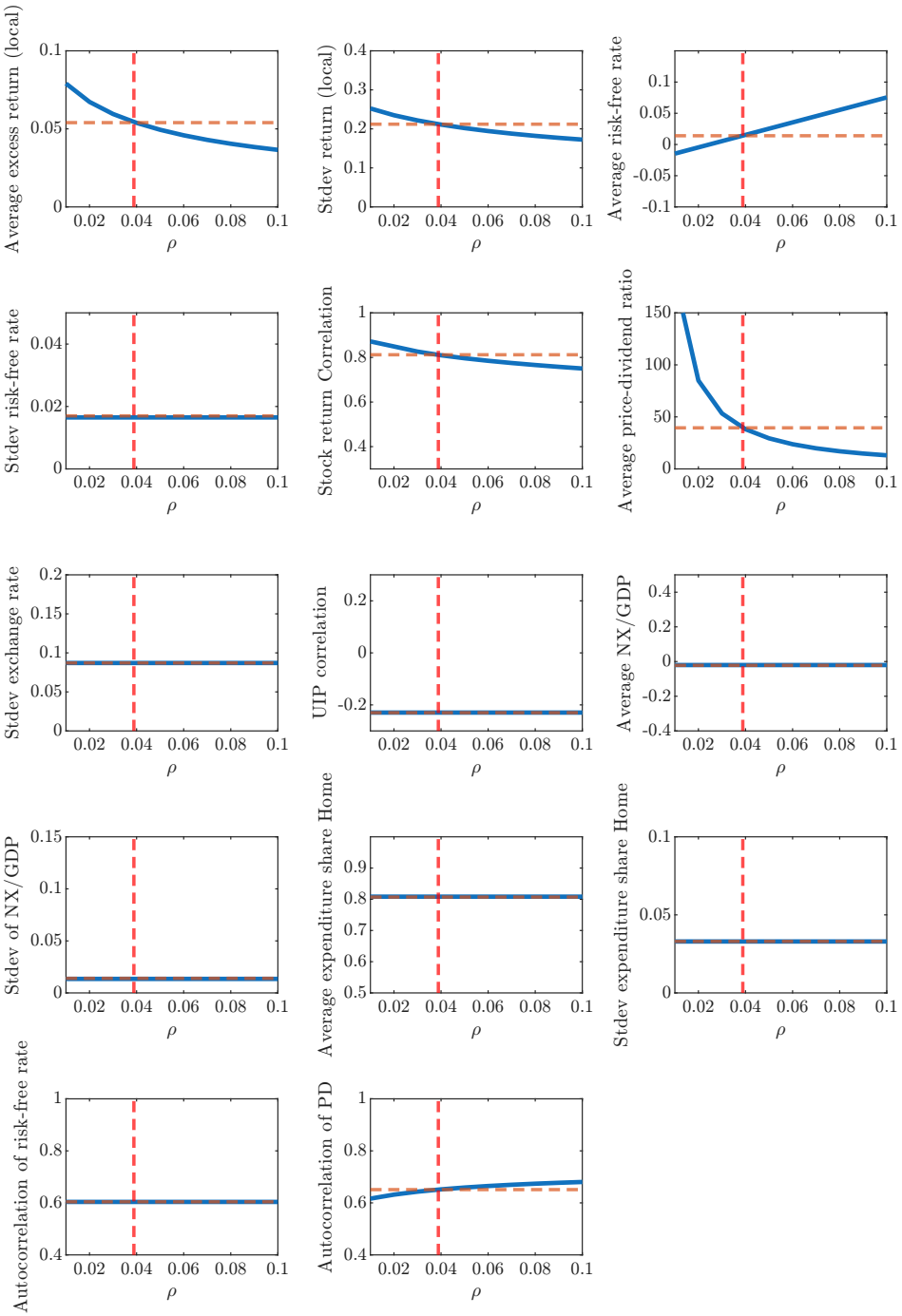

Figure 70: Sensitivity to time preference ρ

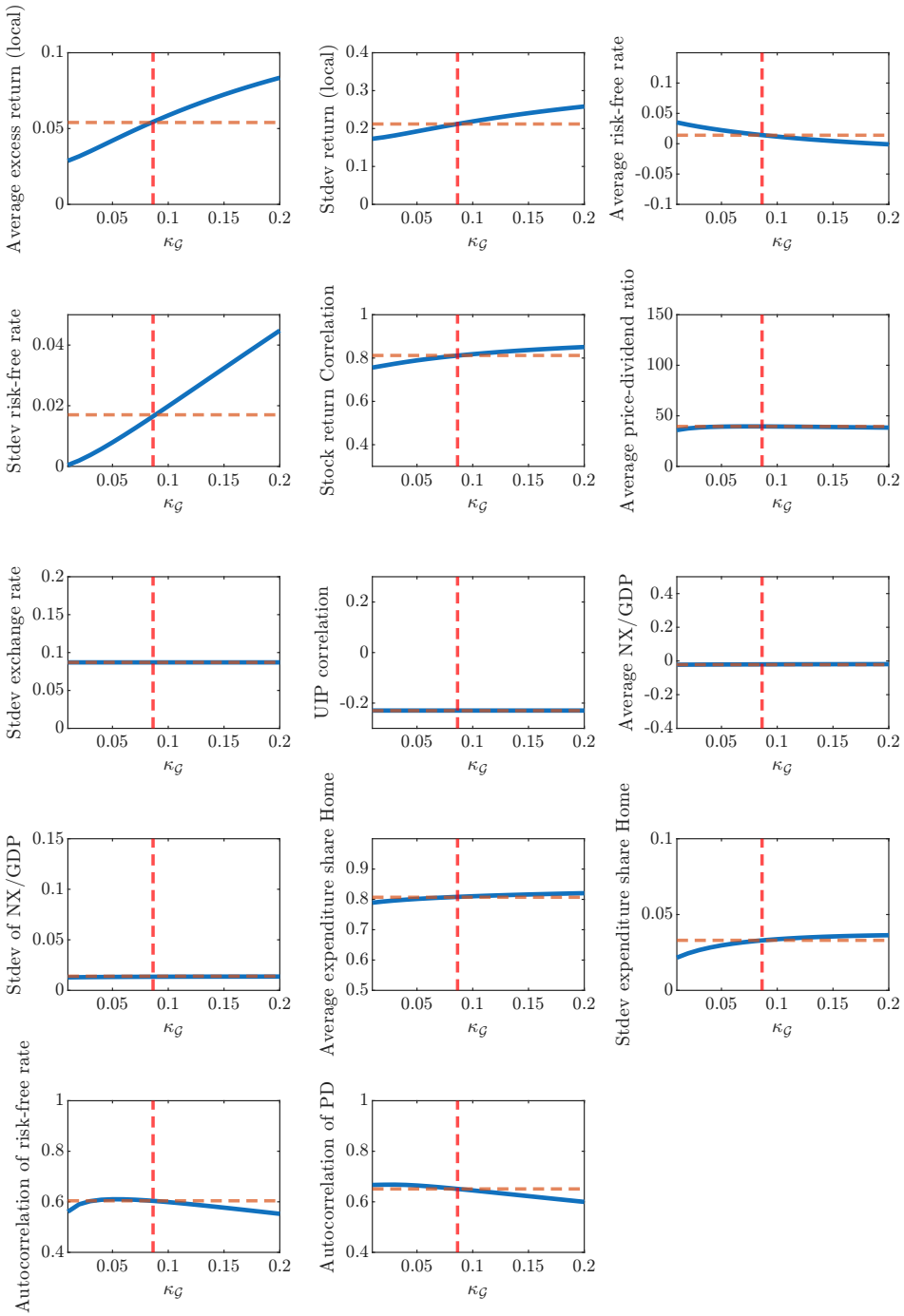

Figure 71: Sensitivity to speed of mean reversion of habit level factor $\kappa_{\mathcal{G}}$

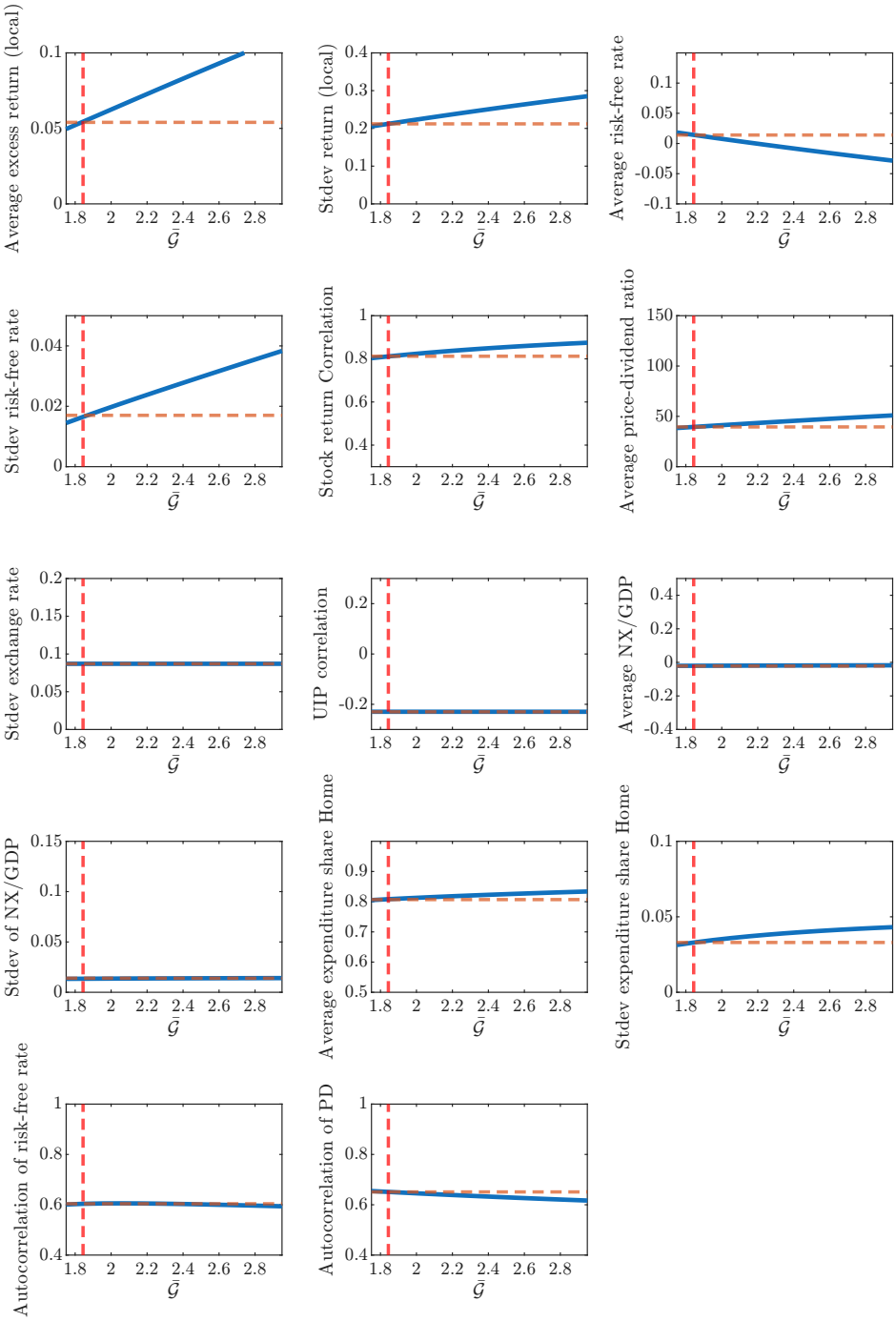

Figure 72: Sensitivity to long-run mean of habit level factor $\bar{\mathcal{G}}$

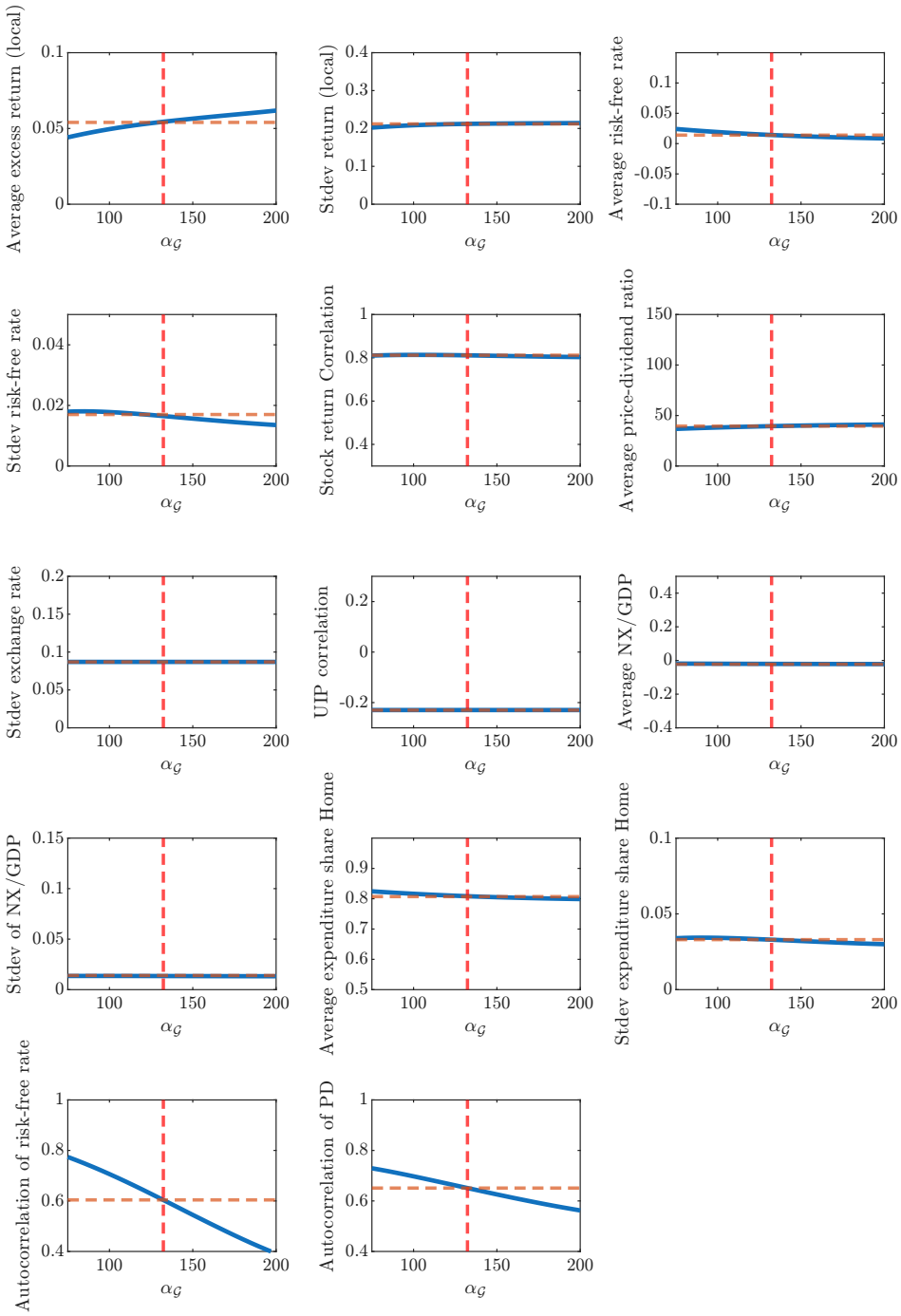

Figure 73: Sensitivity to volatility sensitivity of habit level factor $\alpha_{\mathcal{G}}$

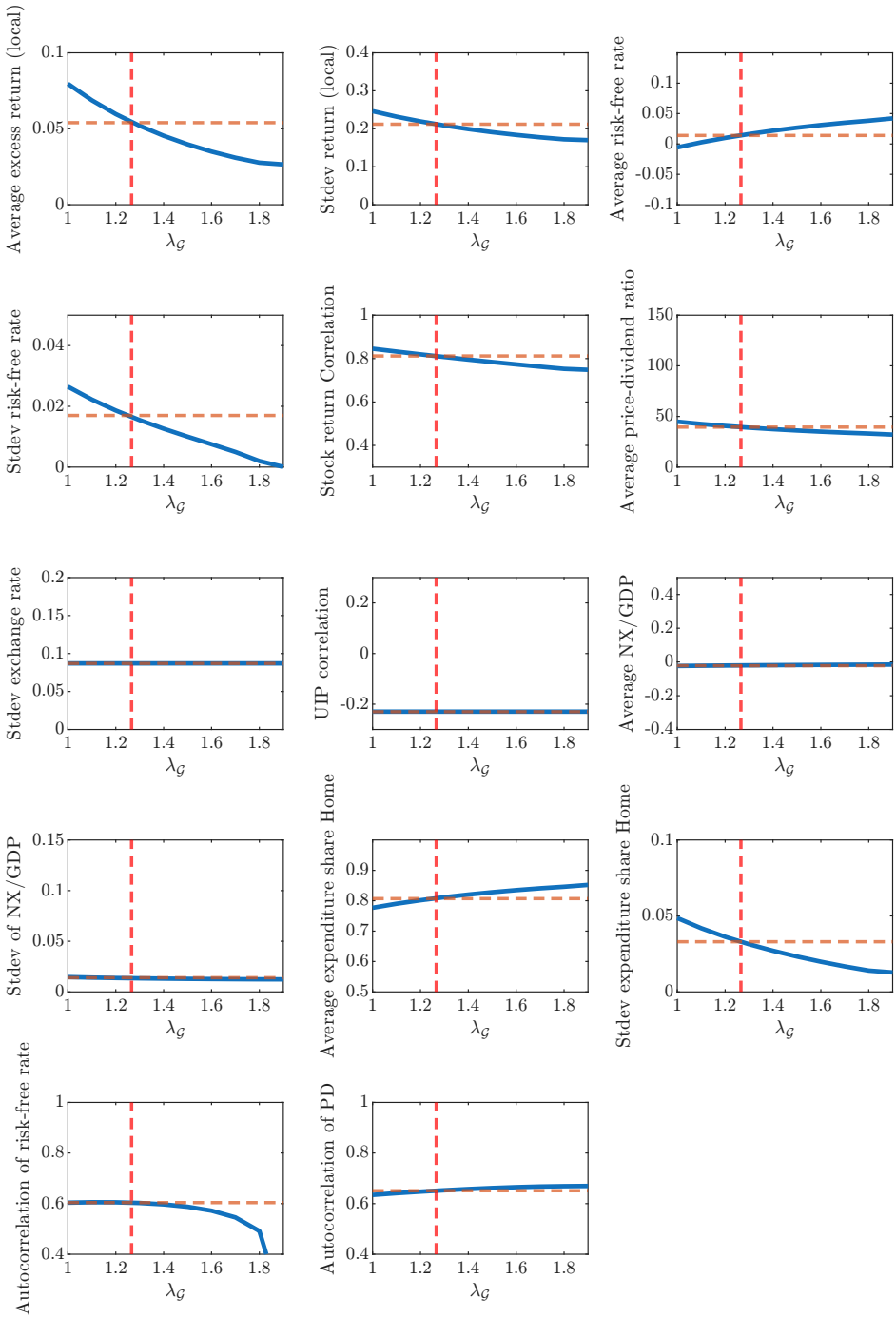

Figure 74: Sensitivity to habit level factor lower bound $\lambda_{\mathcal{G}}$

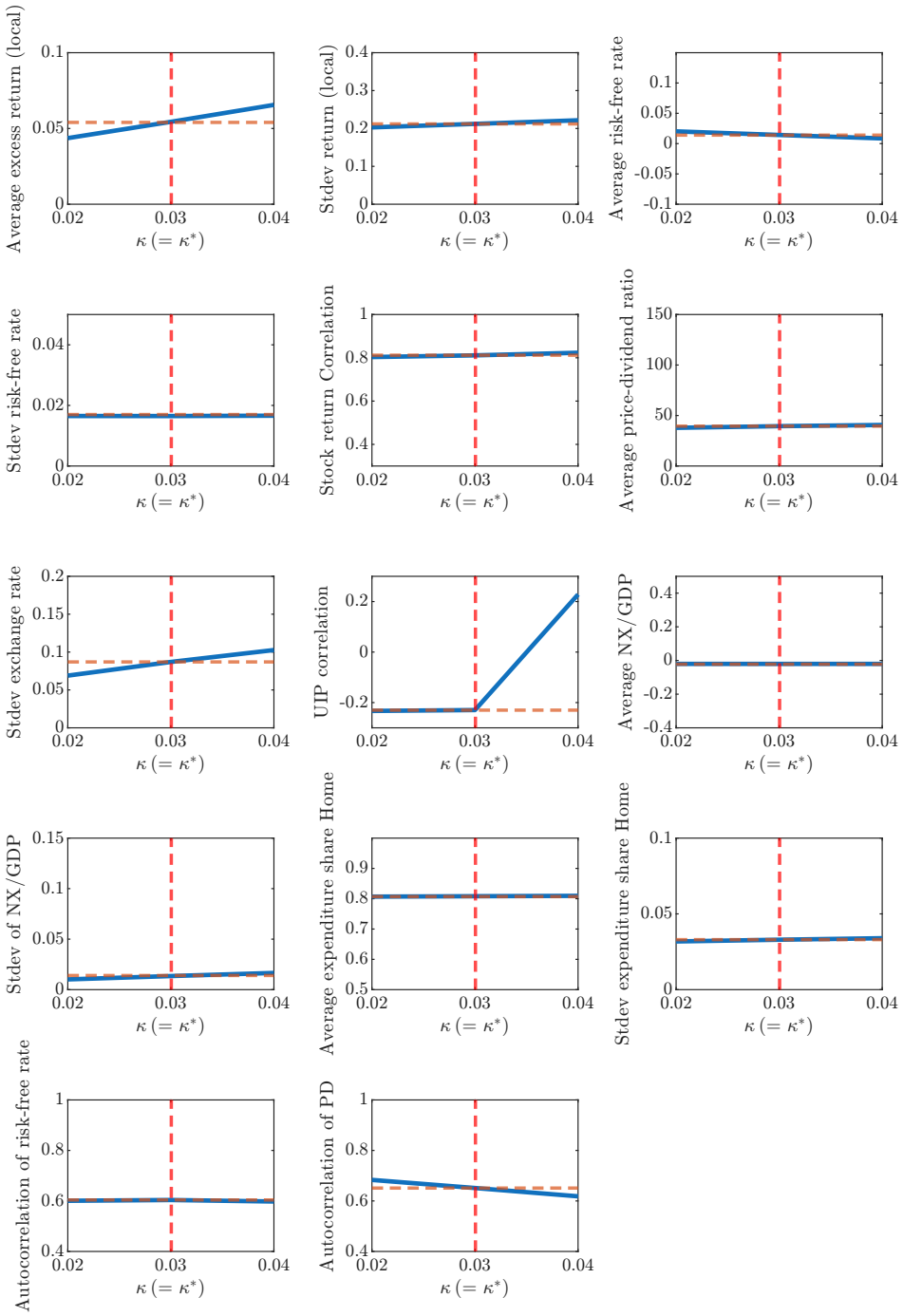

Figure 75: Sensitivity to speed of mean reversion of domestic habit $\kappa\ (=\kappa^*)$

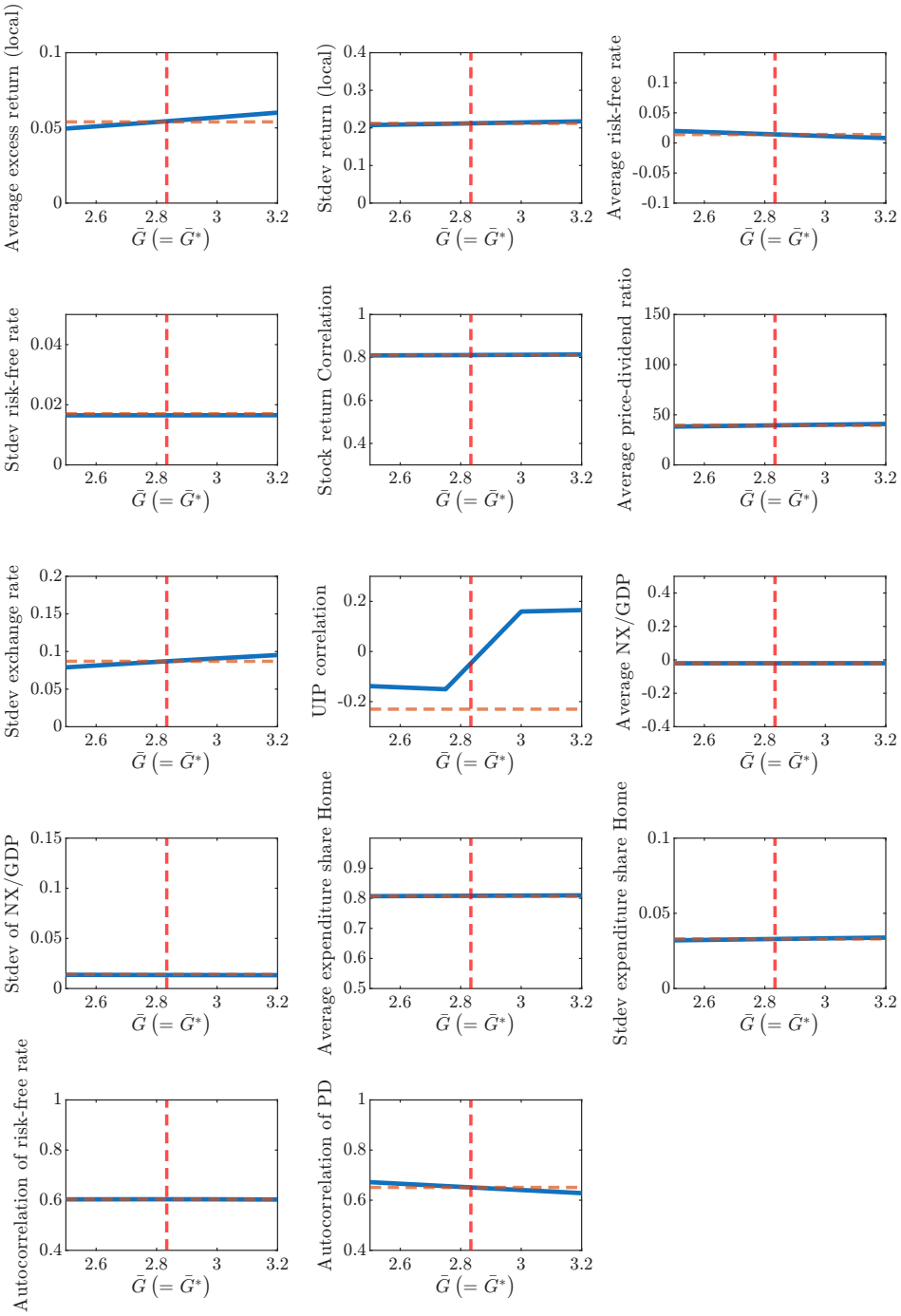

Figure 76: Sensitivity to long-run mean of domestic habit $\bar{G}\ (=\bar{G}^*)$

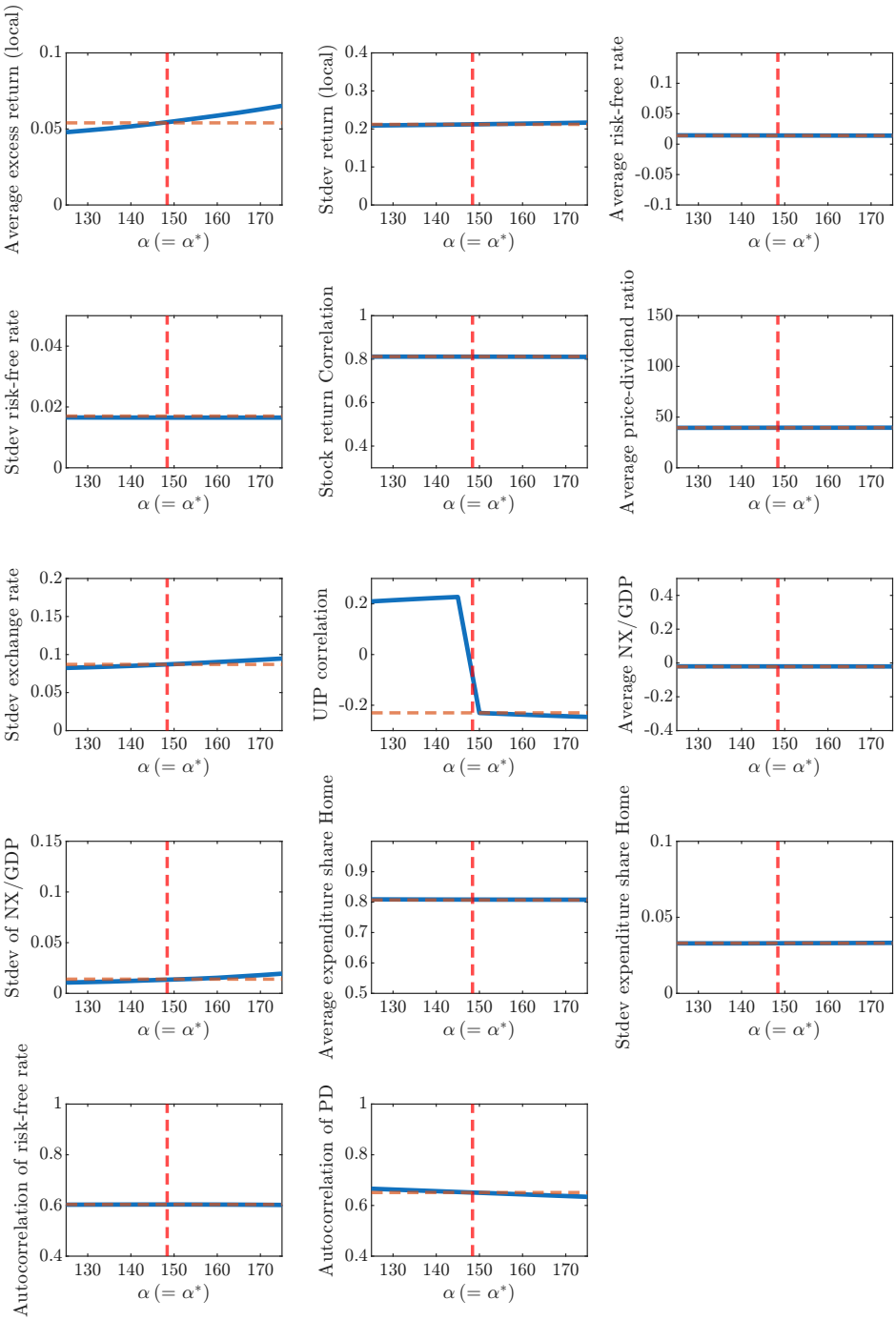

Figure 77: Sensitivity to volatility sensitivity of domestic habit α $(= \alpha^*)$

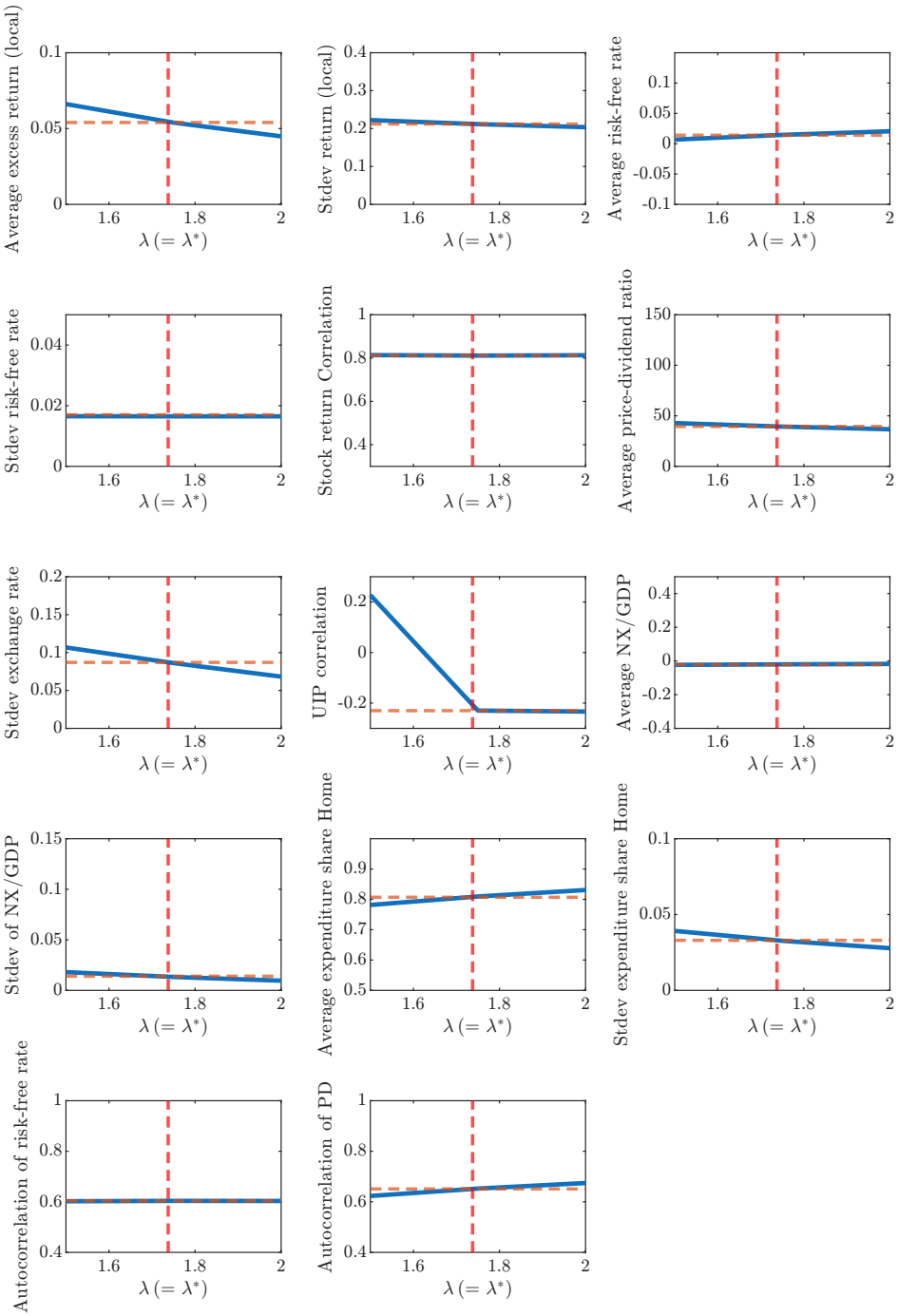

Figure 78: Sensitivity to domestic habit lower bound λ $(= \lambda^*)$

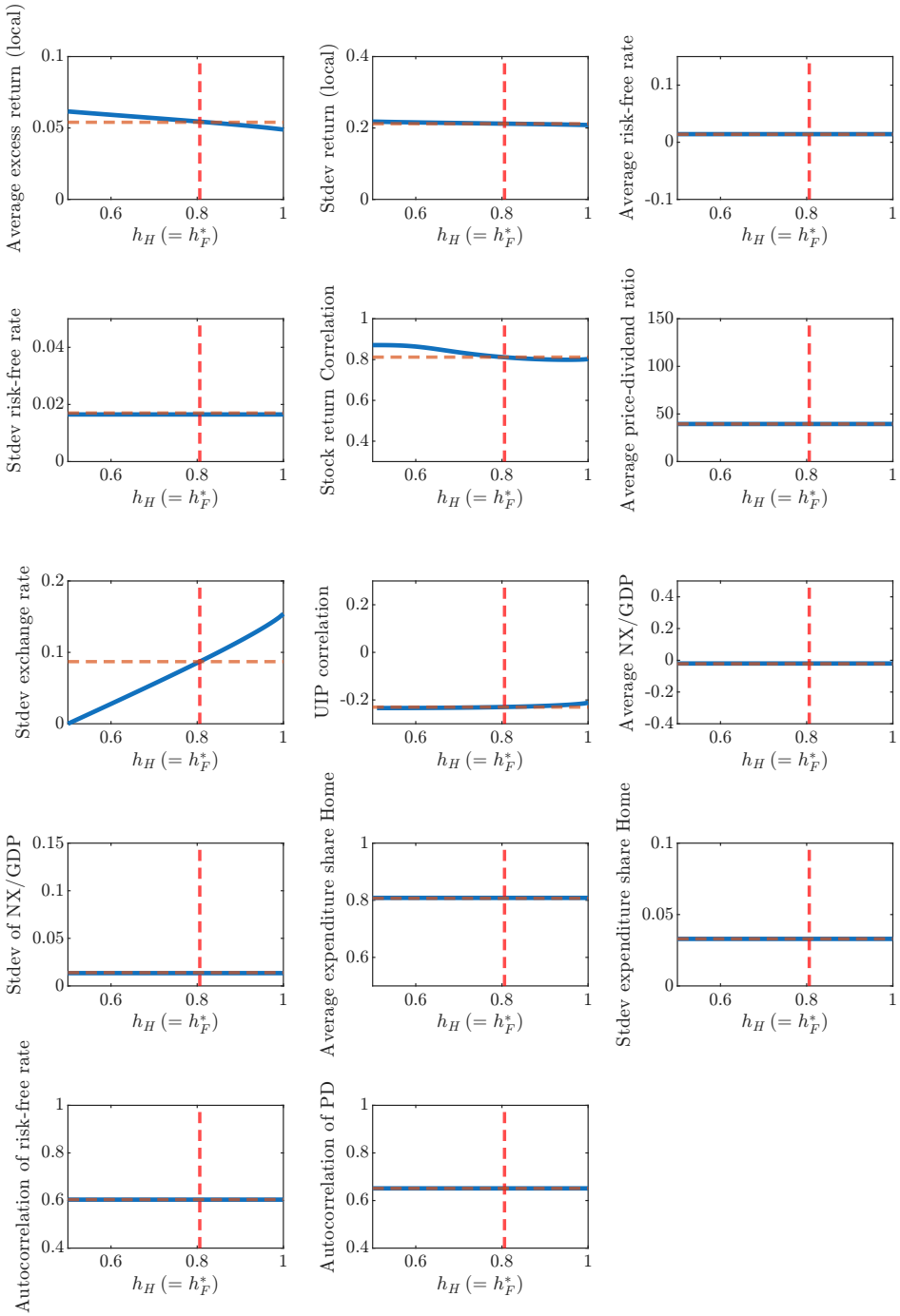

Figure 79: Sensitivity to price index weight on domestic good $h_H\ (= h_F^*)$

2.2 Output and dividend processes parameters in Tables 4 and 5

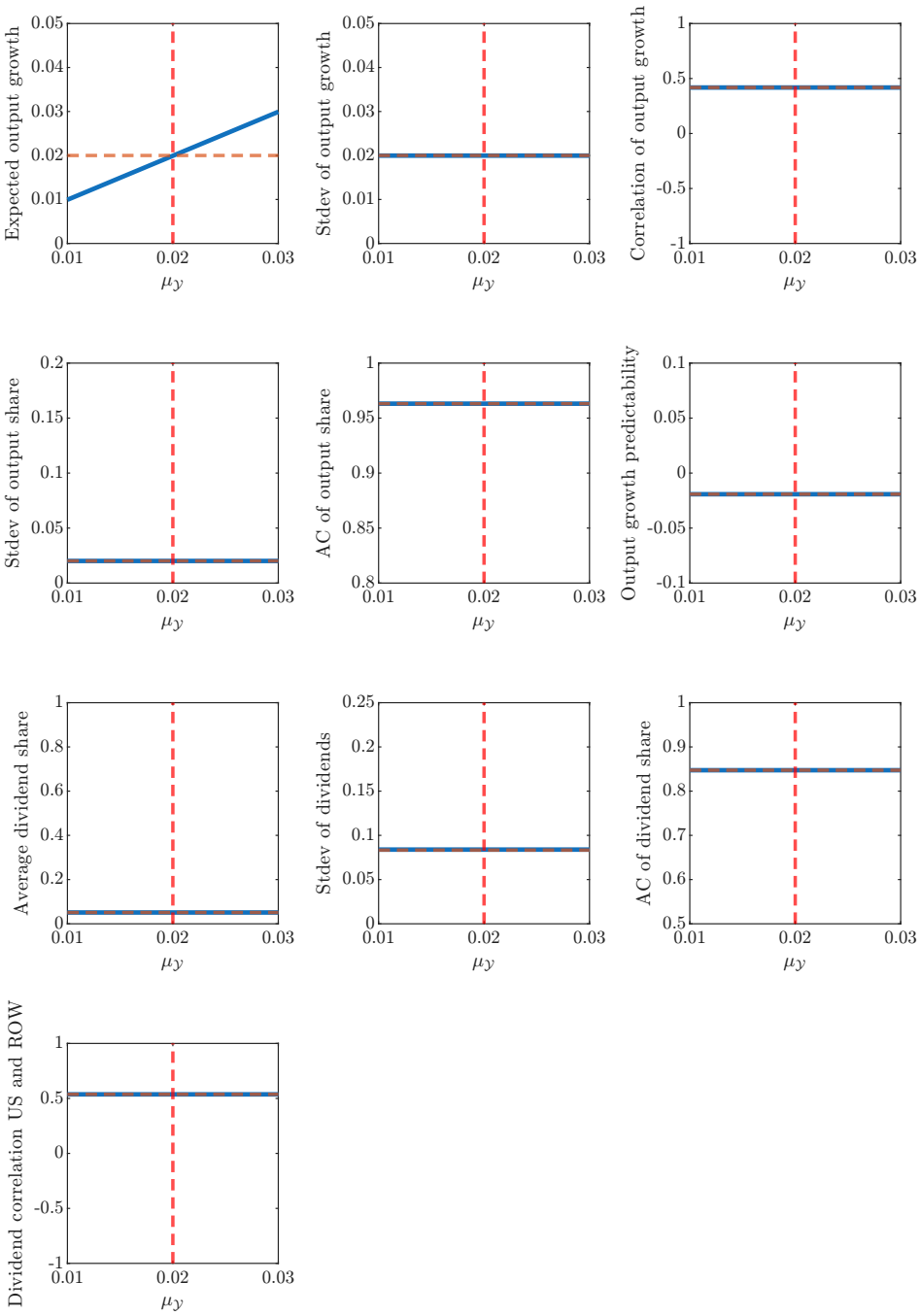

Figure 80: Sensitivity to expected output growth μ_y

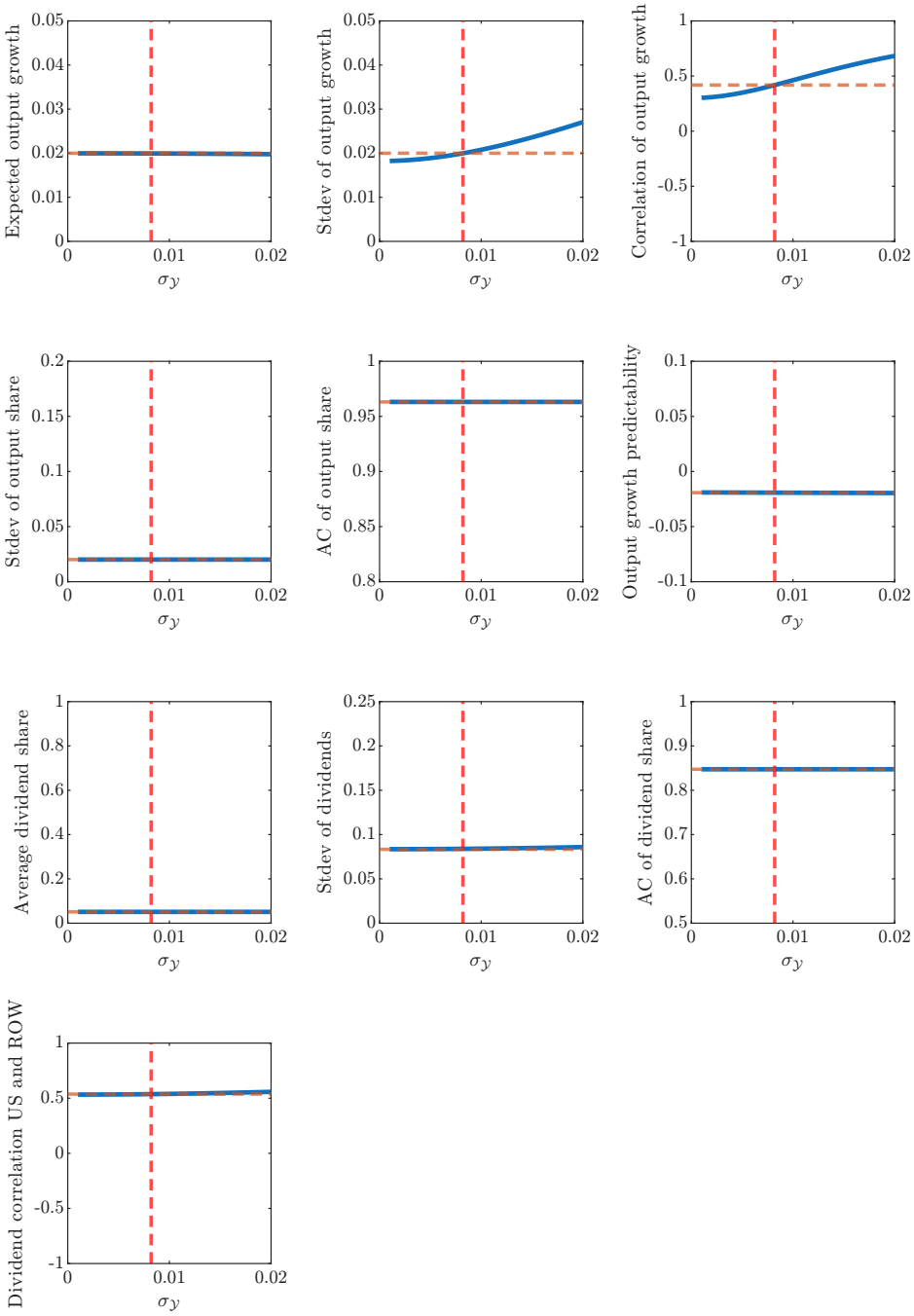

Figure 81: Sensitivity to volatility of world trend growth σ_y

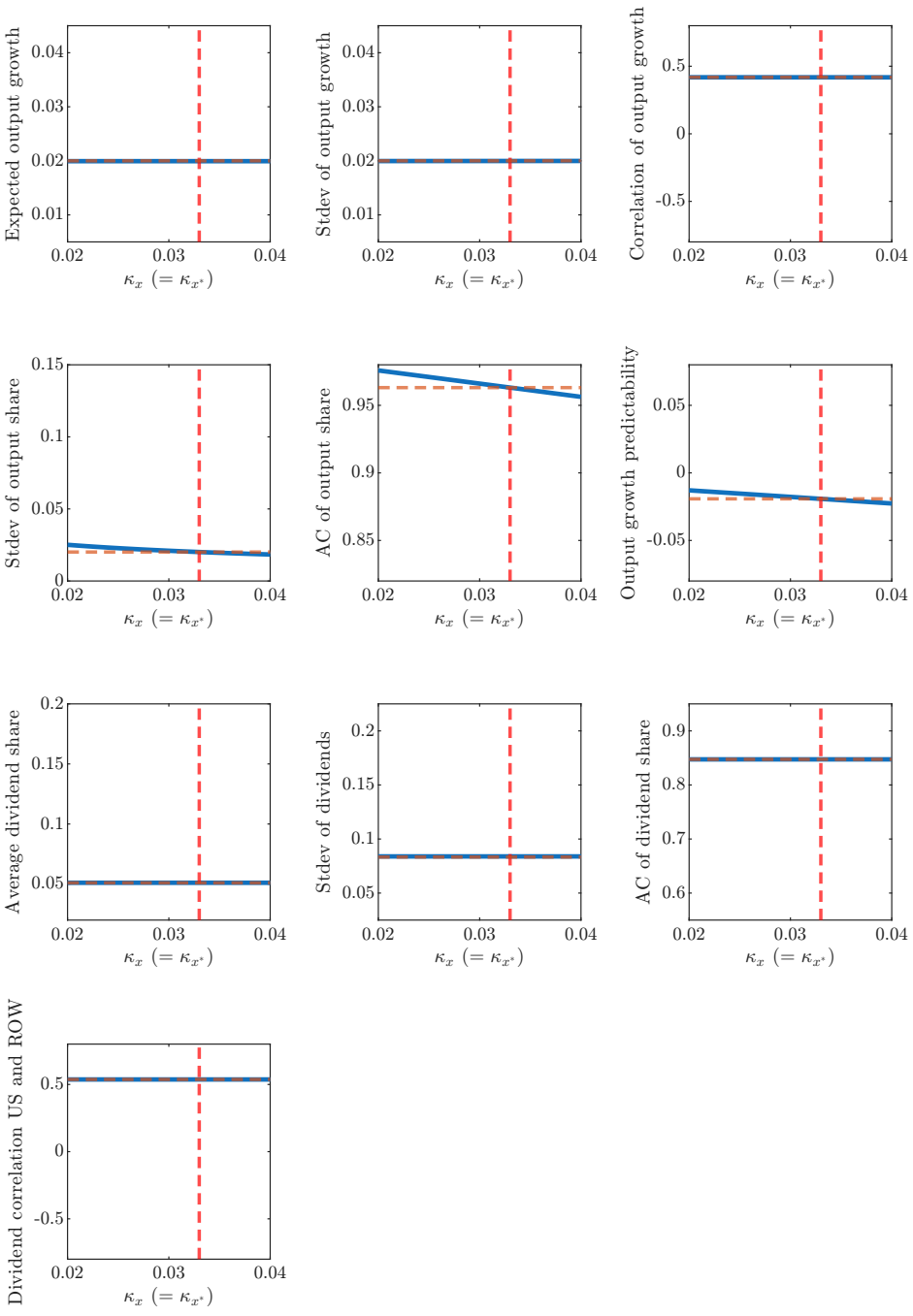

Figure 82: Sensitivity to speed of mean reversion in output growth κ_x

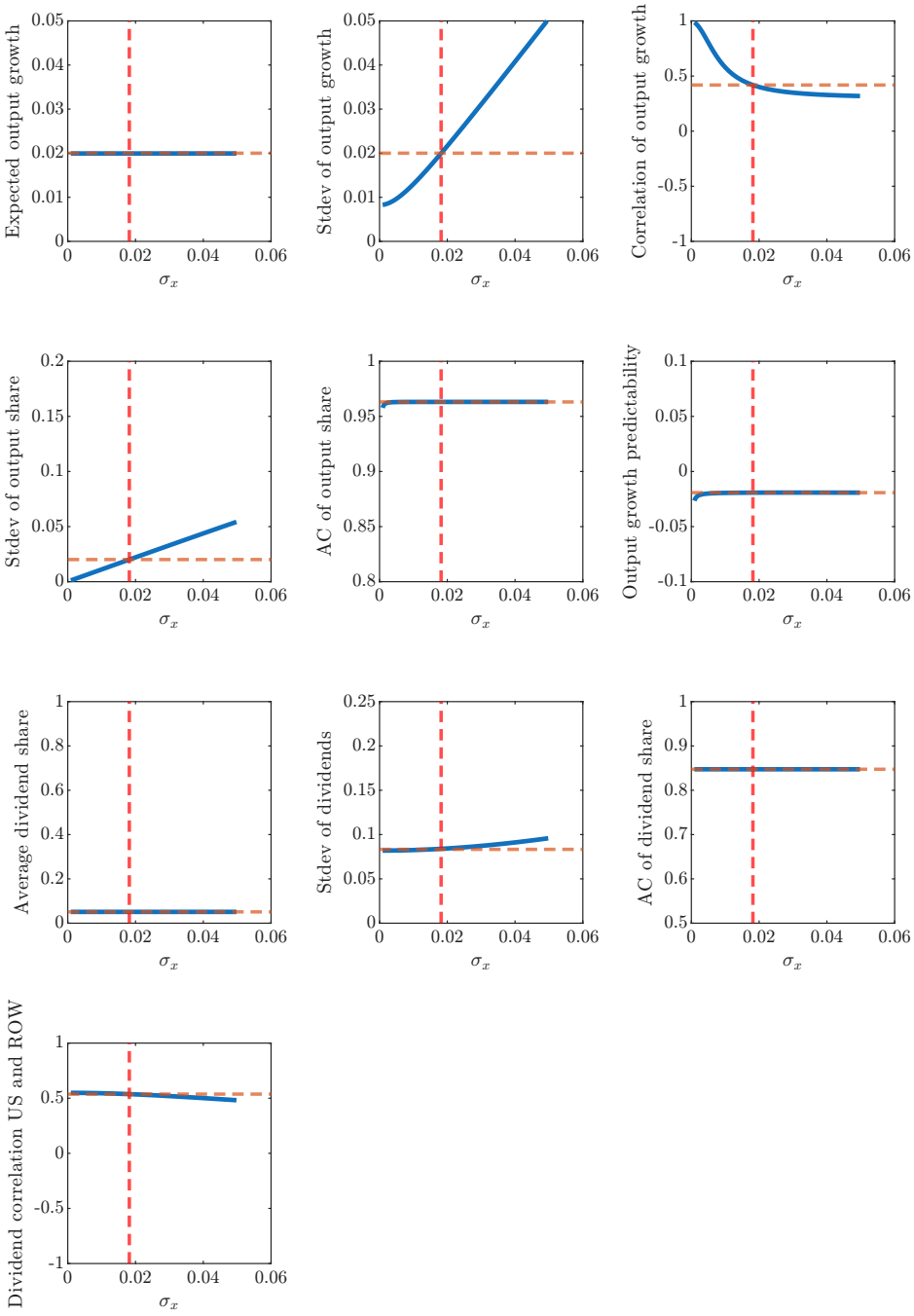

Figure 83: Sensitivity to volatility of country-specific factor σ_x

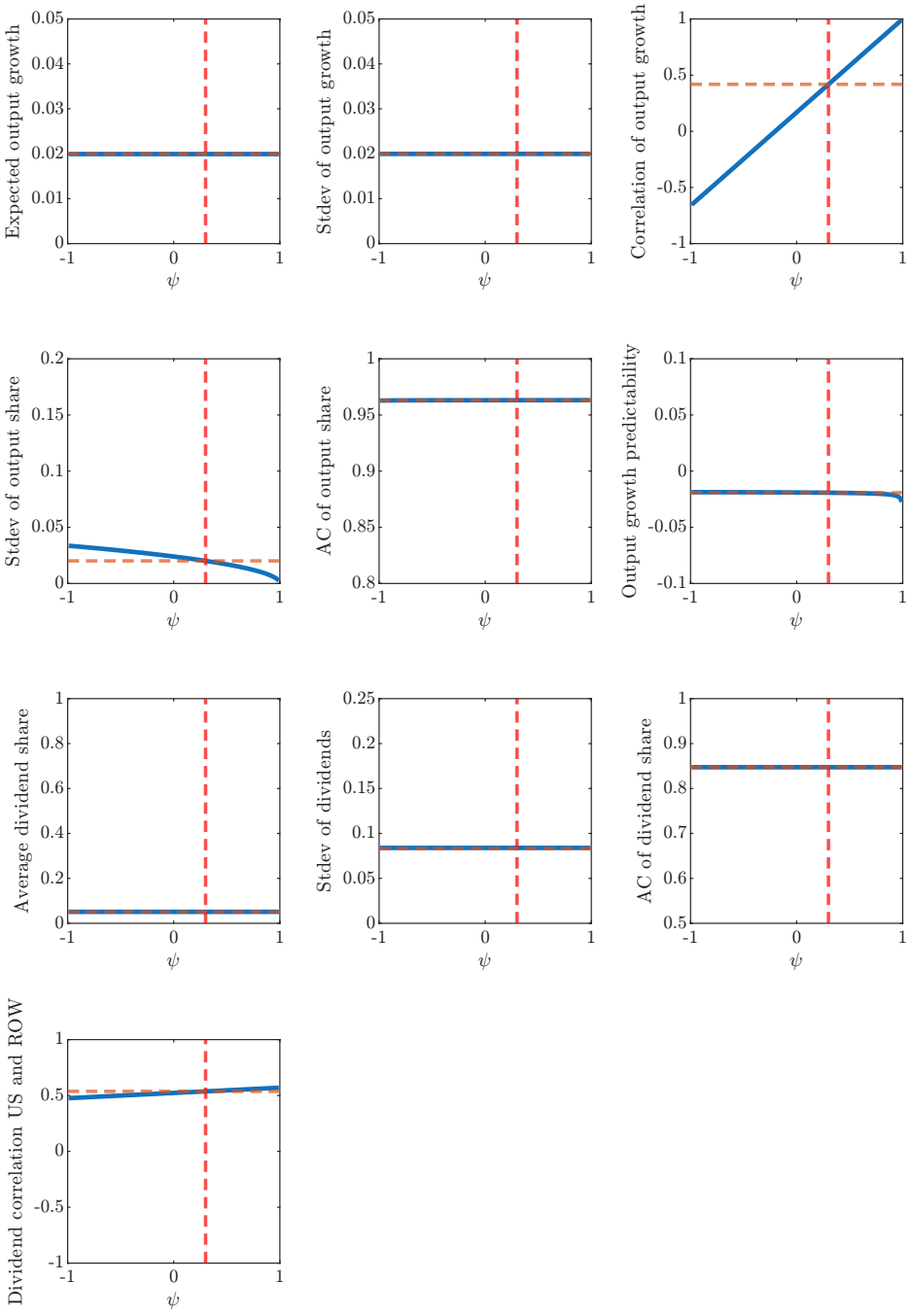

Figure 84: Sensitivity to correlation US and ROW ψ

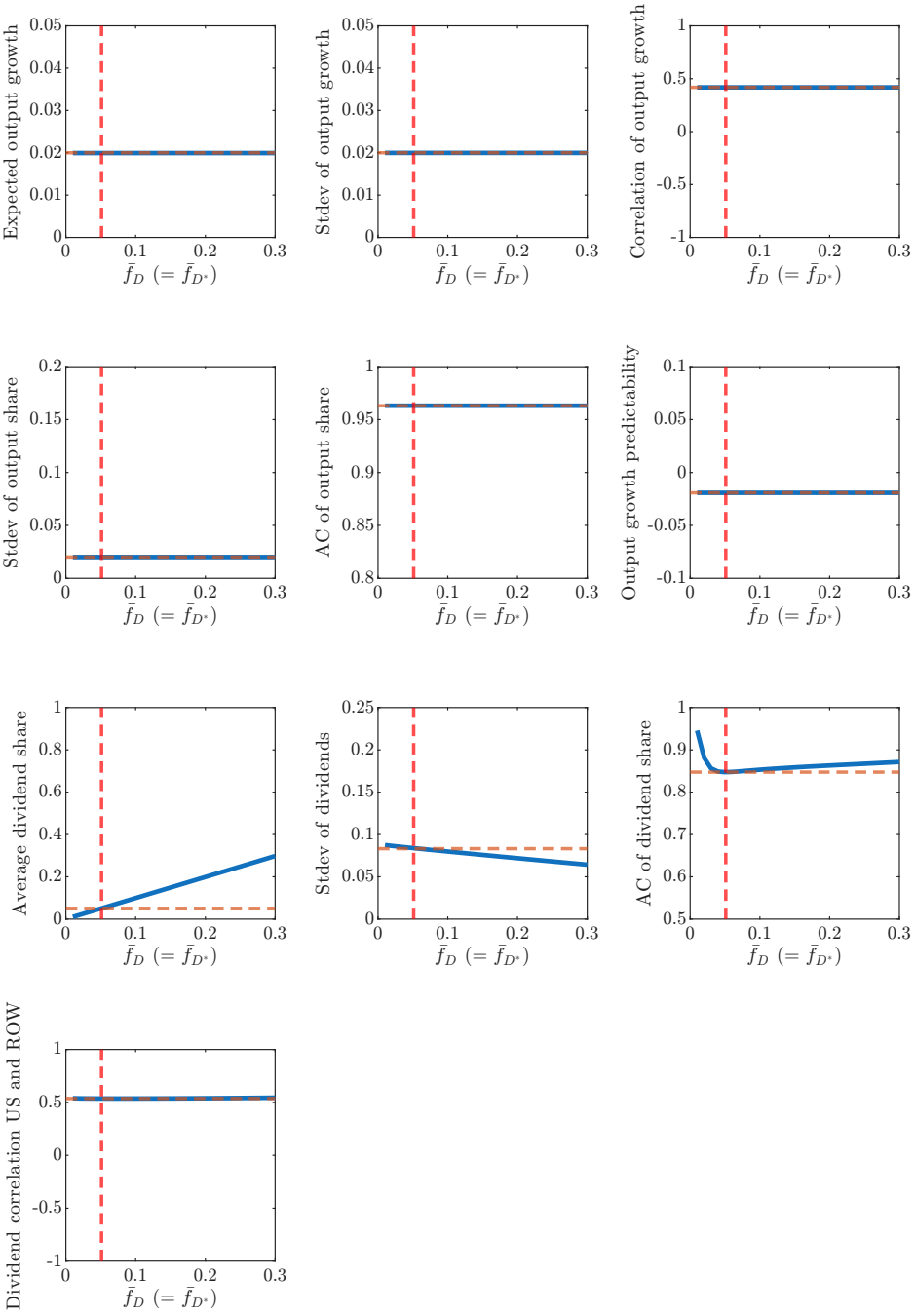

Figure 85: Sensitivity to long-run dividend share $\bar{f}_D$ $(= \bar{f}_{D^*})$

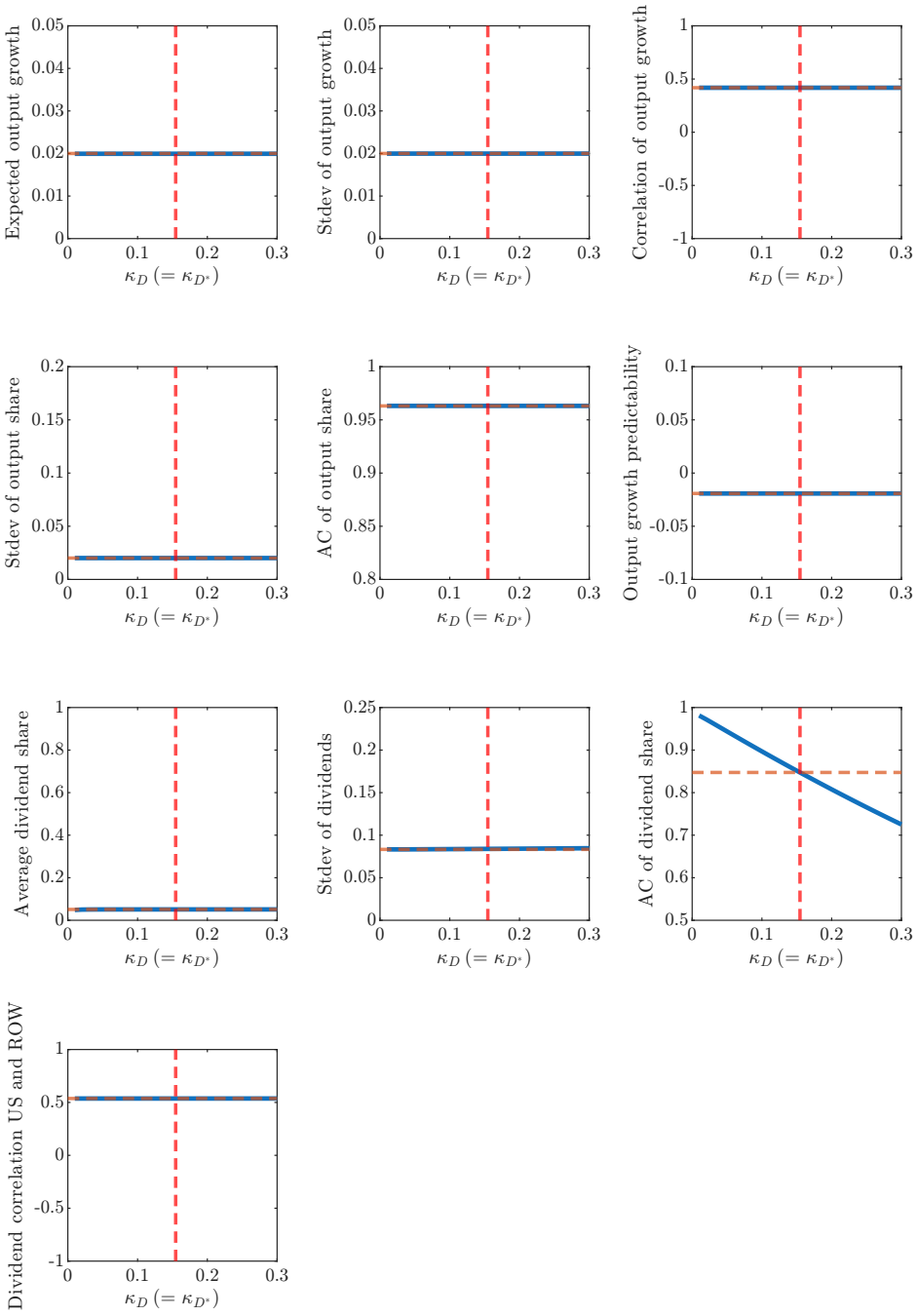

Figure 86: Sensitivity to speed of mean reversion in dividend share $\kappa_D\ (=\kappa_{D^*})$

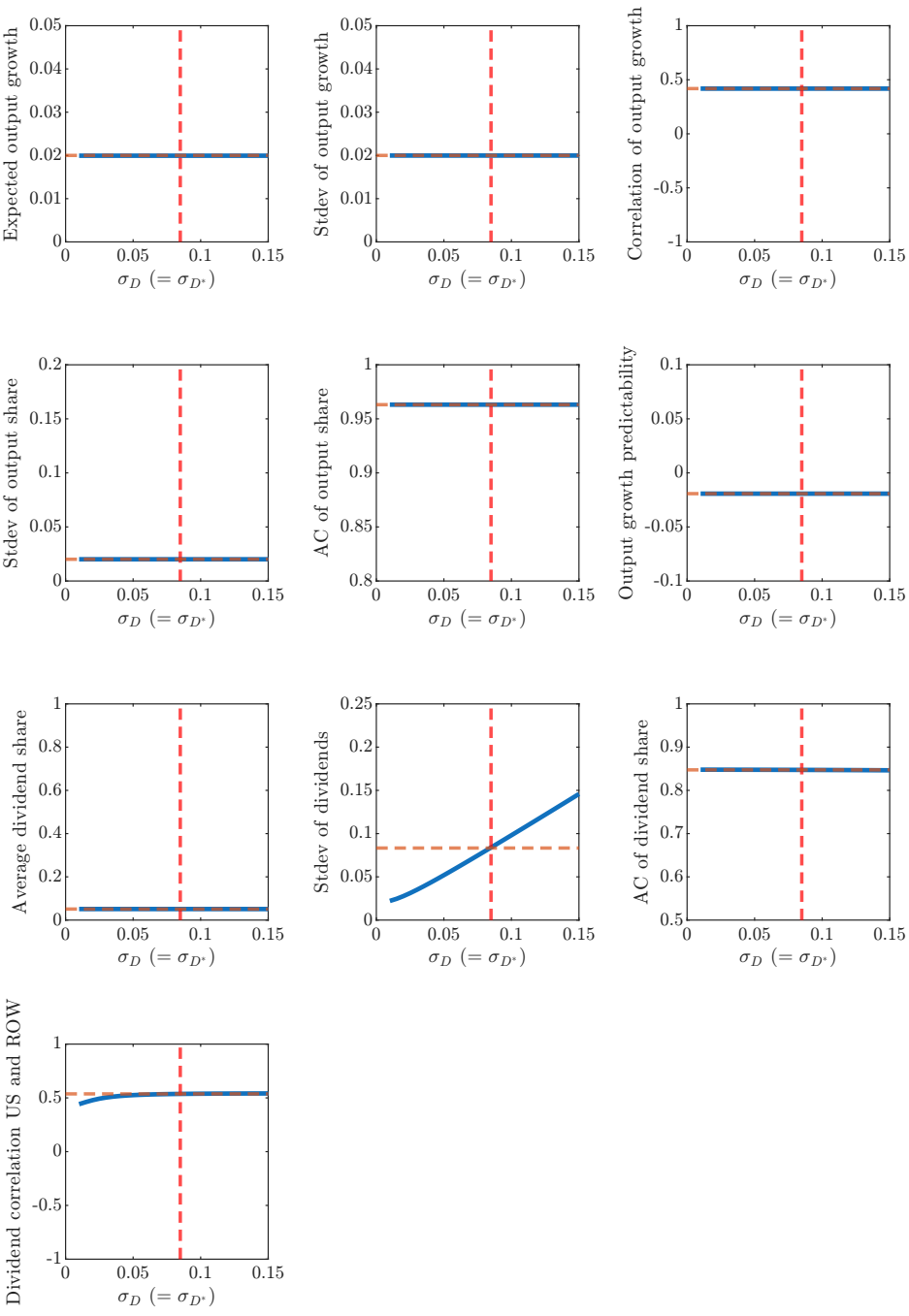

Figure 87: Sensitivity to volatility of dividend share σ_D $(= \sigma_{D^*})$

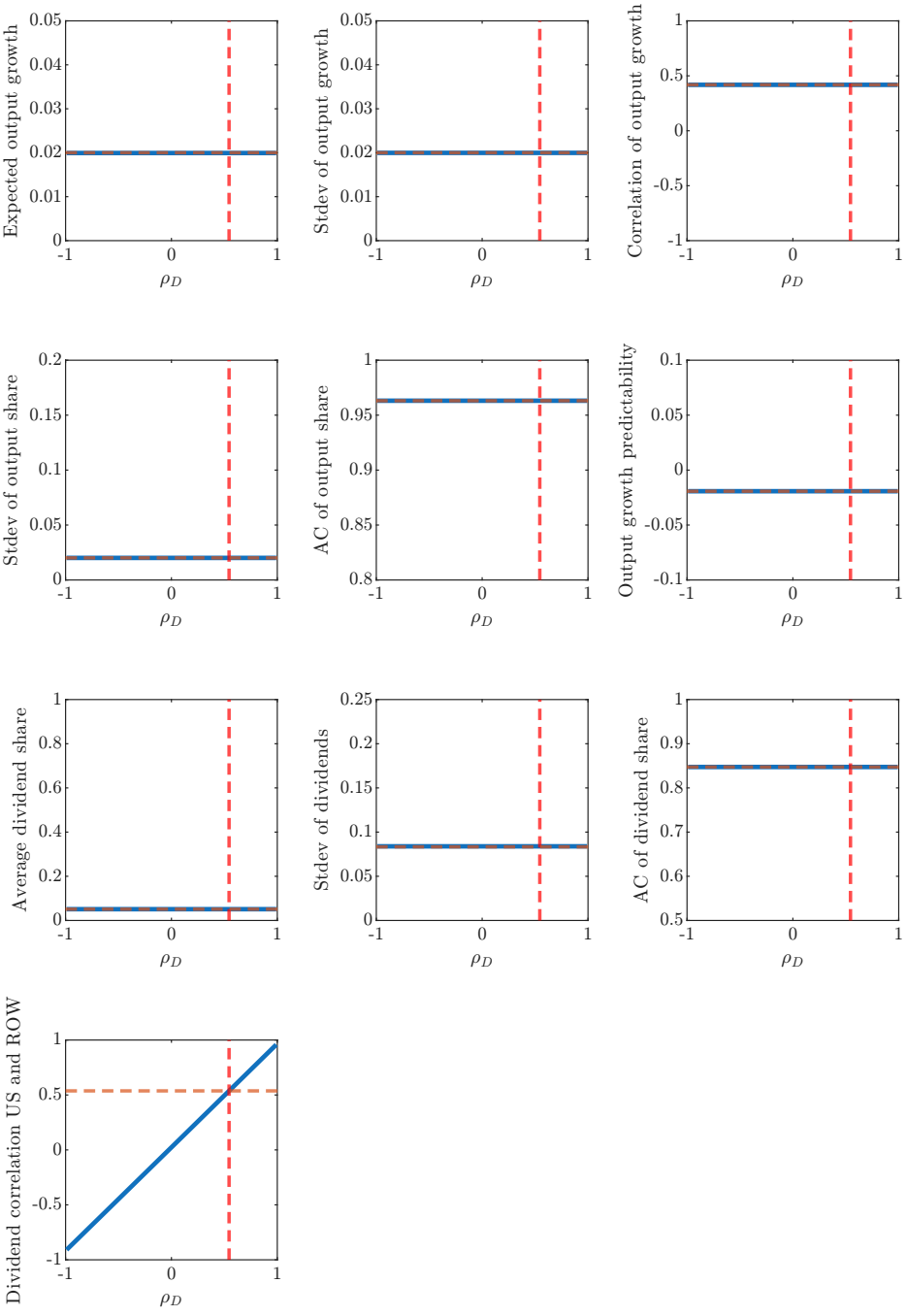

Figure 88: Sensitivity to correlation of dividends US and ROW ρ_D

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