Do firms use non-regular workers as a buffer to exogenous shocks? We investigate the heterogeneous adjustment of regular and non-regular workers exploiting the exchange-rate fluctuation and heterogeneous dependence on international trade across firms as a source of exogenous variation. The analysis of panel data—of Japanese manufacturers reveals that appreciation of Japanese Yen spontaneously decreases the sales of exporters and the employment of non-regular workers, but it moderately reduces the employment of regular workers only with one year lag. The dynamic adjustment patterns of non-regular worker are consistent with the notion that firms use non-regular workers as buffer to the exogenous shocks in an uncertain environment.