

Unconventional Fiscal Policy at Work

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While monetary policy was the primary tool to manage the business cycle during the Great Moderation, through much of the 2010s it was constrained by an effective lower bound; and now central bankers are focused on the fight to control inflation. What is more, the rise in debt-to-GDP ratios following the Financial, European sovereign debt, and Covid-19 crises has limited the scope for large spending packages to stimulate the economy. In such an environment, many governments and central banks face the challenging question of how to support the economy. One possible alternative to conventional and unconventional monetary policy and transfers is unconventional fiscal policy (Shapiro, 1991; Correia et al., 2013; D’Acunto, Hoang and Weber, 2018, 2022).

Unconventional fiscal policy uses changes in consumption taxes to engineer an increasing path of the price level and hence inflation. It can do so by either pre-announcing a future permanent increase in consumption taxes, or by a temporary cut with a reversal in the future. As such, the policy operates through intertemporal substitution and imitates the basic transmission mechanism of conventional monetary policy through the consumption Euler equation in standard New Keynesian mod-

els with a representative agent that has full information and rational expectations. One key advantage of unconventional fiscal policy compared to other policies operating through the consumption Euler equation is the fact that it is salient, simple, and actionable (Ramey, 2021) and also works in settings in which agents face cognitive frictions and do not form expectations rationally (Bianchi-Vimercati, Eichenbaum and Guerreiro, 2021; D’Acunto et al., 2023).

To see the baseline mechanisms formally, we replicate here the intertemporal and intratemporal Euler equations from a simple consumption-saving problem with both non-durable consumption C_t and durable consumption D_t (for simplicity without adjustment costs and perfect foresight):

$$(1) \quad \frac{U_C(C_t, D_t)}{U_C(C_{t+1}, D_{t+1})} = \beta \frac{R_{t+1} (1 + \tau_t)}{\Pi_{t+1} (1 + \tau_{t+1})}$$
$$(2) \quad \frac{U_D(C_t, D_t)}{U_C(C_t, D_t)} = \left(1 - (1 - \delta) \frac{\Pi_{t+1} (1 + \tau_{t+1})}{R_{t+1} (1 + \tau_t)} \right),$$

where U_C and U_D are the usual derivatives of the period utility function, R_{t+1} denotes the nominal interest rate for assets held between t and $t + 1$, Π_{t+1} the (expected) rate of inflation between t and $t + 1$, τ_t the consumption tax rate in period t , and δ the depreciation rate of the durable consumption good, an (inverse) measure of its durability. The intertemporal Euler equation (1) shows that policy makers, in principle, might be able to stimulate current aggregate demand through decreases in nominal interest rates (conventional monetary policy), increases in expected inflation (unconventional monetary policy), or decreases in current consumption taxes relative to future consumption taxes (unconventional fiscal policy). The intratemporal Euler equa-

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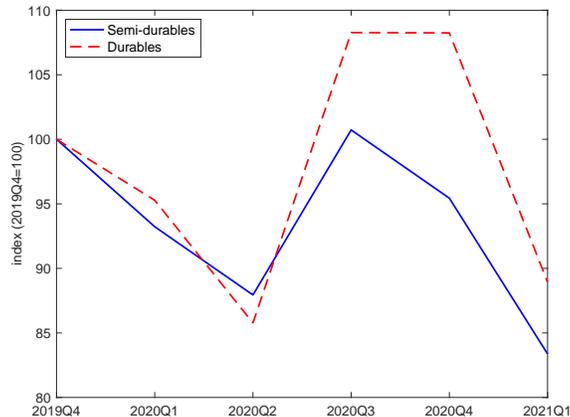


FIGURE 1. SEMI-DURABLE AND DURABLE CONSUMPTION SPENDING.

Note: Figure shows nominal semi-durable (solid blue) and durable (red dashed) consumption spending in Germany (German Federal Statistical Agency, 2022), normalized by the respective spending in 2019Q4. Quarterly spending data are seasonally and calendar-day adjusted.

tion (2) shows that these same policies have a stronger impact, the more durable (i.e., the smaller is δ) a consumption good is.

The German federal government, as part of their Corona stimulus package, implemented a measure of unconventional fiscal policy in the summer of 2020. On June 3rd, 2020, the government unexpectedly announced a temporary decrease in the baseline value-added tax (VAT) from 19% to 16%, effective within days on July 1st, 2020, with a reversal in the tax rate to the old level by January 1st, 2021.¹ A first necessary condition for the effectiveness of unconventional fiscal policy is awareness at the level of consumers. Bachmann et al. (2021) find that almost all consumers in Germany were aware of the cut in July 2020. This high level of awareness, contrary to the awareness of conventional monetary policy (Lamla and Vinogradov, 2019), is not surprising given that retailers can easily advertise the upcoming cut in VAT, whereas a supply-side response of banks and mortgage companies to conven-

tional and unconventional monetary policy via media and advertisement is less likely (see D’Acunto, Hoang and Weber, 2022, for evidence from newspapers).

A second necessary condition for the effectiveness of the policy is that firms indeed lower their prices following the cut in VAT. Many economic commentators questioned the pass-through of changes in VAT to consumer prices but Fuest, Neumeier and Stöhlker (2020) provide direct evidence for retail prices using web-scraped data that this pass-through indeed occurred. Montag, Sagimuldina and Schnitzer (2021) do so for gasoline, and Deutsche Bundesbank (2020b) and Egner (2021) for aggregate consumer prices. Consistent with theory, the pass-through of the VAT cut to consumer prices was larger in more competitive markets.

To get a first impression of whether consumers indeed adjusted their consumption spending during the period of the lower VAT, we use aggregate data from the German Statistical Office for durable and semi-durable consumption. Figure 1 shows the aggregate spending over time with the data normalized to 100 in the 4th quarter of 2019.

We see that spending on durables and semi-durables collapsed in the first half of 2020 with the arrival of the Covid-19 pan-

¹Germany also has a reduced VAT rate, which was cut by 2 percentage points from 7% to 5%. The reduced VAT rate is applied to products such as books, take-away food, and others. The standard VAT rate, in expenditure terms, applies to roughly half of the German consumption basket, the reduced rate to just under 20%. The rest, mostly rent payments, is not subject to VAT (see Egner, 2021).

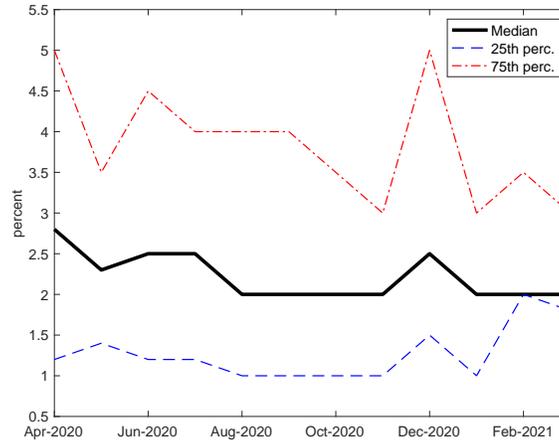


FIGURE 2. HOUSEHOLD INFLATION EXPECTATIONS (NEXT 12 MONTHS).

Note: Figure shows households' inflation expectations for the next 12 months based on the Bundesbank Online Household Panel. Black solid line: median; blue dashed line: 25th percentile; red dash-dotted line: 75th percentile.

demic, widespread lockdowns, and individuals' reduction in spending due to health concerns. In the 3rd quarter, instead, we see a large bounce back in spending on durables and semi-durables above the levels at the end of 2019. Spending in these categories stayed elevated until the end of the year before collapsing again in the first half of 2021 when the VAT returned to its previous level. The response in spending for durables is larger than for semi-durables, consistent with theory given the higher intertemporal substitutability for more durable goods (see House and Shapiro, 2008; McKay and Wieland, 2021). We do not find any noticeable patterns for non-durable goods, which is not surprising given that this category is largely comprised of necessities and perishables that are difficult to substitute intertemporally and are difficult to store for future consumption.

The evidence in Figure 1 is suggestive of the effectiveness of unconventional fiscal policy to shift consumption spending intertemporally. To provide direct evidence that intertemporal substitution likely played a role in the spending patterns in Figure 1, we refer to survey data on inflation expectations. Specifically, we use data from the Bundesbank Online Household Panel (Deutsche Bundesbank, 2020a), which is a monthly representative online

panel of the German population with well over 2,000 survey participants. The survey has been running monthly since April 2020 and focuses on eliciting subjective expectations. Figure 2 plots the median and the 25th/75th percentiles of inflation expectations for the 12 months ahead over time. Inflation expectations were trending down in the 2nd quarter of 2020, in line with views of central banks and professional forecasters that the pandemic would put downward pressure on the price level. The median inflation expectation over the next 12 months started to stabilize during the 3rd quarter of 2020. In the months right before the return of VAT to its previous level, we see a sharp spike in inflation expectations. This spike occurs across the whole distribution of inflation expectations from the 25th to the 75th percentile. Once the VAT returned to its previous level, inflation expectations come back down again.

The evidence in Figure 2 is consistent with the notion that inflation expectations and hence, intertemporal substitution, likely played a role in driving the spending response we document in Figure 1 following the temporary cut in VAT. Yet, we cannot rule out that consumers also perceived an income effect following the temporary reduction in VAT. To the extent consumers are Ricardian, we would ex-

pect such an income effect to be negligible. Another concern with interpreting the provided evidence causally is the fact that spending in the 2nd half of any year is seasonal due to vacation trips and spending on Christmas presents, which was aggravated during 2020 because of a global pandemic and possibly temporary pent-up demand in between waves of the pandemic. Moreover, we lack a counterfactual because all Germans were subject to the temporary lower VAT.

Bachmann et al. (2021) tackle these challenges by employing survey methods, both using an ex-ante approach before the temporary cut in VAT takes place but also using an ex-post approach after the VAT returned to the previous level. They do so by adding customized modules to the Bundesbank Online Household Panel in July 2020 and January 2021. For identification, they exploit the fact that not all Germans were aware of the increase in VAT in January 2021 for the ex-ante approach. Given that virtually everyone knew of the cut in VAT, an income effect, to the extent it exists, should be present across the population. Instead, only consumers that were aware of the later increase in VAT should have intertemporal motives. For the ex-post approach, they rely on the perceived pass-through of VAT into prices because only those consumers that perceived lower prices in the 2nd half of 2020 due to the cut in VAT should have reason to engage in consumption changes. Bachmann et al. (2021) also supplement the ex-post approach with additional customized survey data from the Gesellschaft für Konsumforschung. One advantage of the additional survey is that it gives access to homescan data for 10,000 households, which is less likely to be subject to recall biases in spending, survey noise, and bunching.

Both from an ex-ante perspective and from an ex-post perspective and using both survey and scanner data, Bachmann et al. (2021) confirm our suggestive evidence in Figure 1 causally with micro data. Using the ex-post approach, Bachmann et al. (2021) also perform a simple back-of-the-envelope calculation on the aggregate ef-

fects of the policy and find that it increased overall consumption spending by 26 billion Euros or 1.6%. This multiplier is larger than the estimates in the literature for conventional monetary policy, indicating that the salience of unconventional fiscal policy and its effectiveness even in settings in which agents do not adhere to the full-information rational expectations paradigm, compared to conventional and unconventional monetary policy, likely increases its effectiveness (Ramey, 2021; Bianchi-Vimercati, Eichenbaum and Guerreiro, 2021).

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