

# The role of the corporate income tax as an automatic stabilizer

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**Abstract** This paper analyses the effectiveness of the corporate income tax as an automatic stabilizer. It employs a unique firm-level data set of German manufacturers combining financial statements with firm-specific information about credit market restrictions. The results show that approximately 20 per cent of all firms report both positive taxable income and capital market restrictions. Taking account of the income tax rates and the size differences of the firms, we find that demand stabilization through the corporate income tax amounts to about 8 per cent of an initial shock to gross revenues. This stabilization effect varies over the business cycle and tends to increase during cyclical downturns.

**Keywords** Corporate income tax · Stabilization · Capital market restrictions · Loss offset · Firm-level data

**JEL Classification** H25 · H32 · E63

## 1 Introduction

The current economic crisis has given rise to a debate on the role of fiscal policy as a factor stabilizing demand and, ultimately, employment and output. There are

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essentially two ways in which fiscal policy can contribute to demand stabilization: firstly, governments may cut taxes or increase expenditure; secondly, governments may rely on automatic stabilizers. Auerbach and Feenberg (2000) define automatic stabilizers as “those elements of fiscal policy that tend to mitigate output fluctuations without any explicit government action” (ibid., p. 37).

This paper analyses the effectiveness of the corporate income tax as an automatic stabilizer. Usually, the debate about automatic stabilizers focuses on the personal income tax. This is because the personal income tax is more important in terms of the tax revenue it generates and because it is progressive. We focus on the corporate income tax for a number of reasons. Firstly, the base of the corporate income tax is smaller than that of the personal income tax, but its volatility over the business cycle is much higher. Its potential contribution to overall automatic stabilization may therefore be more significant than its share in tax revenue suggests. Secondly, the automatic stabilization properties of the corporate income tax raise some policy issues, in particular the role of intertemporal loss offset, which are less pressing in the context of the personal income tax. Thirdly, the role of the corporate income tax for automatic stabilization has been largely neglected in the literature.

How do automatic stabilizers work in the case of the corporate income tax? To make things simple, consider an economy with a proportional corporate income tax with a rate of 30 per cent. The effectiveness of this tax as an automatic stabilizer depends on two factors. The first factor is how a given shock on the firm’s before-tax profits affects after-tax profits. In our example, a decline in gross profits by 100 Euros leads to a decline in net profits by 70 Euros. This implies that the corporate income tax absorbs 30 per cent of the initial shock to gross income. The second factor is the link between current disposable profit or cash flow and the firm’s demand for goods and services. Usually, decisions on current expenditures for investment goods and other inputs will be determined by capital costs and expectations about the profitability of investment, rather than current cash flow, which depends on the results of past investment. But firms may also lack financial reserves and face borrowing constraints. In this case, a cushioning of shocks to current cash flow may stabilize not just after-tax profits but also demand.

With few exceptions, the literature on automatic stabilizers focuses either on the personal income tax, social insurance contributions and benefits (see e.g. Auerbach and Feenberg 2000; Auerbach 2009; Mabbett and Schelkle 2007; Dolls et al. 2009), or on the tax system as an aggregate (Sachs and Sala-i-Martin 1992; Bayoumi and Masson 1995), so that the specific issue of corporate taxation plays no role. The role of the corporate income tax as an automatic stabilizer is discussed in Devereux and Fuest (2009).<sup>1</sup> They suggest a simple method to measure the automatic stabilization effect of the corporate income tax, building on the concept of normalized tax change introduced by Pechman (1973). Applying this approach to data for UK firms, Devereux and Fuest (2009) find that the corporate tax is largely ineffective as an automatic stabilizer. On average, the demand stabilization through the corporate income tax in the UK is equal to only 1 per cent of the initial shock to

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<sup>1</sup> Auerbach and Feenberg (2000) also discuss the role of the corporate tax as an automatic stabilizer but do not produce any estimates. Their focus is on the U.S. federal income tax.

gross income. In the presence of full loss offset, the stabilization effect would have been equal to 8.5 per cent.

The present paper extends the literature as follows. It is an important limitation of the analysis in Devereux and Fuest (2009) that firm-specific information on credit constraints and profit or loss positions comes from two separate and unconnected data sources. The share of firms with both credit constraints and positive taxable income is, therefore, approximated by assuming that all firms with losses also face credit constraints. As a consequence, stabilization effects could only emerge if the number of credit-constrained firms exceeds that of loss making firms. This approach underestimates the stabilization effects of the corporate tax as soon as there are firms which run tax losses but do not face credit constraints. In addition, size differences across firms cannot be taken into account. Our analysis is based on a new data set of German manufacturing firms which combines firm-specific information on capital market restrictions with financial information about the firms. This allows us to provide a much more detailed picture of the prevalence of tax losses and financing constraints among firms. Thus, we are able to provide more precise estimates on the effectiveness of the corporate tax to act as an automatic stabilizer.

Our analysis leads to the following results. Most importantly, we find that, in the period 2003–2007, where detailed data are available, biannually, approximately 20 per cent of all firms report both positive taxable income and credit constraints. Given the German corporate income tax rate of approximately 38 per cent, and taking account of the size differences of the firms, we find that demand stabilization through the corporate income tax amounts to about 8 per cent of the initial shock to gross revenues. Yet a binary regression analysis reveals that the firms reporting credit constraints and positive profits differ from other firms. Most important are size differences, which are taken into account using weights for firm size. We also find that firms that are likely to enjoy stabilization through the corporation tax tend to show more volatile sales. While this might indicate that the degree of stabilization is larger, the firms also tend to report a bad business situation. This casts doubt on the view that they would indeed use all available funds for investment.

Another important result of our analysis is that the stabilization effect changes systematically over the business cycle. Since the share of firms with positive taxable income is procyclical whereas the share of firms with credit constraints is anticyclical, it is unclear, a priori, whether the stabilization effect is pro- or anticyclical. In our data set, it turns out that the change in credit constraints over the cycle dominates: Our sample starts in 2003, when Germany was in the middle of a severe economic downturn. For June 2003, our stabilization measure is equal to approximately 13 per cent. In the following periods, Germany experienced an upswing, and the stabilization measure declines continuously to reach a value below 3 per cent in August 2007.

The rest of the paper is set up as follows. In Sect. 2, we discuss the key factors which determine the automatic stabilization effect of the corporate income tax and we derive the measure of automatic stabilization used in the empirical analysis. Section 3 provides the empirical analysis. Section 4 summarizes the results and concludes.

## 2 Firms and automatic stabilization effects of the corporate income tax

Consider a firm without capital market restrictions. Ignoring risk, this firm would invest in the capital stock if the expected return on capital investment exceeds that of an alternative investment, say government bonds. Under standard assumptions, this decision is not affected by the return on past investment. Hence, a shock to the firm's revenues would not affect the investment of the firm. A firm, however, that is facing capital market restrictions is likely to respond to a revenue shock. As this firm would use internal funds to finance its investment, partly or fully, a shock to current revenues translates into changes in the investment decision. For this firm, a cushioning of revenue shocks due to the corporate income tax is important and will help to smooth investment spending.

If the firm that experiences an adverse revenue shock still makes profits, it benefits from a decline of tax payments in proportion to the statutory tax rate. However, if the firm makes losses, the degree to which revenue shocks to firms are cushioned through corporate income taxation depends on the treatment of losses (Auerbach and Feenberg 2000; Devereux and Fuest 2009). In an ideal case, where all losses can be carried back to some previous periods with positive profits, cushioning of revenues is symmetric. A loss making firm facing a decline in earnings would benefit from a reimbursement of previous tax payments in the same proportion as a firm with positive profits would benefit from a decline in tax payments. However, in the more realistic case, where loss carrybacks are restricted, the corporate income tax does not exert much, perhaps no cushioning of revenue shocks to a firm that incurs tax losses. This suggests that the existence of positive taxable profits constitutes a second qualification to a stabilizing role of the corporation tax.

How can the cushioning effect of the tax system be measured? In this paper, we use a simple measure of the cushioning effect, building on Auerbach and Feenberg (2000) and Devereux and Fuest (2009). Consider an economy with  $n$  firms. The cash flow of firm  $i$  in period  $t$  is given by

$$CF_{it} = R_{it} - C_i^f - T_i(R_{it}, D_{it}, \cdot), \quad (1)$$

where  $R_{it}$  denotes the firm's revenue net of variable costs in period  $t$ ,  $C_i^f$  denotes fixed costs,  $D_{it}$  denotes deductions from the tax base related to fixed costs like e.g. interest on debt or depreciation of capital goods, and  $T_i(\cdot)$  is the firm's current corporate income tax payment. Note that the firm's income tax payment may depend on a number of variables, including taxable profits of past periods. Assume that there is a shock on  $R_i$ , denoted by  $dR_i$ . The effect on the firm's cash flow is given by

$$dCF_{it} = dR_{it} \left( 1 - \frac{\partial T_i(R_{it}, D_{it}, \cdot)}{\partial R_{it}} \right). \quad (2)$$

Equation (2) shows that the impact of an exogenous revenue shock  $dR_{it}$  on the firm's cash flow is mitigated by the tax system if current tax payments change as a result of the decline in revenue and, hence, taxable profits. Of course, current tax payments of firms not only depend on current revenues but usually also depend on past taxable profits and other predictors of current profits, depending on the rules for tax

prepayments. In addition, firms may be profitable but pay no taxes because of loss carryforwards from earlier periods. As a first approximation, the analysis below assumes that  $\frac{\partial T_t(R_{it}, D_{it}, \dots)}{\partial R_{it}}$  is equal to the statutory corporate income tax rate, denoted by  $\tau_t$ , if taxable profits are positive and equal to zero for loss making firms.<sup>2</sup> The stabilizing effect of the corporate income tax system on the cash flow of all firms in the economy in period  $t$  ( $A_t^{CF}$ ) can be defined as the difference between the cash flow effect which would occur in the absence of taxes and the cash flow effect in the presence of taxes, divided by the overall revenue shock:

$$A_t^{CF} \equiv \frac{\sum_{i=1}^{n_t} dR_{it} - \sum_{i=1}^{n_t} dCF_{it}}{\sum_{i=1}^{n_t} dR_{it}}. \quad (3)$$

As pointed out above, the stabilization of cash flows does not necessarily lead to a stabilization of investment demand. This can only be expected for credit-constrained firms. Among these firms, only firms with positive taxable profits will be affected by automatic stabilizers. Denote the number of firms with both credit constraints and positive profits in period  $t$  by  $m_t < n_t$ , and order firms such that these firms have lower index values  $j$ . The aggregate effect of automatic stabilizers on investment demand can then be written as

$$A_t^D \equiv \frac{\tau_t \sum_{j=1}^{m_t} dR_{jt}}{\sum_{i=1}^{n_t} dR_{it}}. \quad (4)$$

If the shocks which hit profitable credit-constrained firms and other firms are, on average, of equal size, i.e. if

$$\frac{1}{m_t} \sum_{j=1}^{m_t} dR_{jt} = \frac{1}{n_t} \sum_{i=1}^{n_t} dR_{it}, \quad (5)$$

the demand cushioning effect can be written as

$$A_t^D = \tau_t \frac{m_t}{n_t}. \quad (6)$$

In the following, we will use data for German firms to measure the stabilizing effect of the corporate income tax for the case of Germany, using  $A_t^D$  as a measure of demand stabilization. One should note that this approach is based on the assumption that credit-constrained firms do invest more if their cash flow increases. In our empirical analysis, however, firms will be classified as credit-constrained if they report difficulties in their access to credit. It cannot be precluded that firms report these difficulties although they have no intentions to invest, possibly because of bad business prospects. In this case, our approach would again overestimate the automatic

<sup>2</sup>The fact that we do not observe loss carryforwards in the analysis below biases our results towards overestimating the stabilization effects. One may note, however, that the tax laws of many countries limit the extent to which loss carryforwards may be set against current profits.

stabilization effect of the corporate tax. We will return to this issue in the empirical analysis.

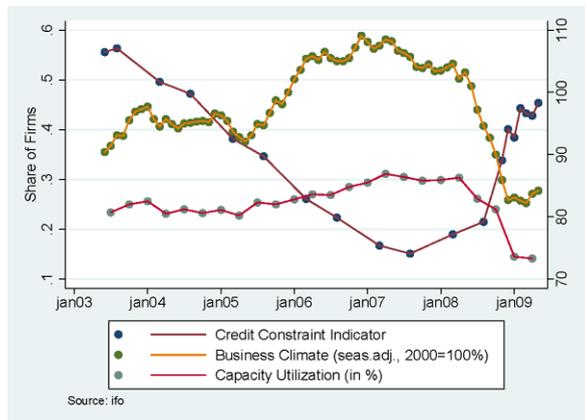
Another limitation of our approach is that there could be indirect effects which are relevant for automatic stabilizers, to the extent that corporate taxes may influence the consumption demand of the owners of corporate shares, either through the size of dividends or through changes in the value of shares, which may trigger wealth effects on consumption demand. Exploring these effects is beyond the scope of this paper, though.<sup>3</sup>

### 3 Empirical application

What arises from the considerations in the preceding section is that the potentially stabilizing role of the corporation tax varies with the share of firms that are subject to capital market restrictions and, at the same time, profitable in the sense that their taxable income is positive. Now, this latter share is likely to change over the business cycle. Actually, it proves anticyclical. This can be seen from Fig. 1 which plots a credit constraint indicator for the German economy<sup>4</sup> against a business climate indicator and a degree of capacity utilization (all taken from the Ifo Business Survey).

To provide empirical evidence we take resort to a unique data set for German firms that combines firm-specific information about business situation, capacity utilization, and capital market restrictions with financial information about these firms—including profit and loss statements. The data are supplied by the Economics and

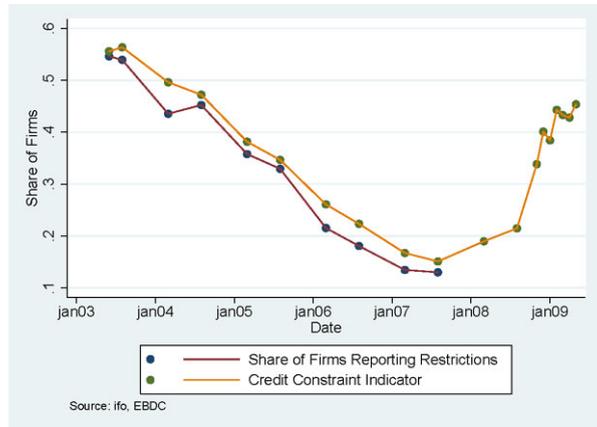
**Fig. 1** Credit constraint indicator vs. business cycle



<sup>3</sup>One may note, though, that households owning shares in companies are less unlikely to be liquidity-constrained than other households, so that their consumption demand probably responds little to fluctuations in dividends or share values.

<sup>4</sup>Until 2007 twice a year, the Ifo Business Survey asks firms about their assessments of bank lending policies. The firms are asked to respond to the following question: “How would you assess the current willingness of banks to extend credit to business?” The credit constraint indicator is calculated from the percentage of the responses in the category “restrictive” (alternative categories are “accommodating” and “normal”).

**Fig. 2** Credit constraint indicator vs. share of restricted firms in EBDC database



Business Data Centre (EBDC) in Munich.<sup>5</sup> For the purpose of the current analysis we focus on ten waves of the data where information about capital market restrictions is provided, starting with June 2003 until August 2007.

Since the EBDC data used in the study are a subset of the Ifo Business Survey where financial information from the Amadeus database has been merged, we might be worried about whether this subsample is representative of the Ifo Business Survey used in Fig. 1. Figure 2 plots the Ifo Credit Constraint Indicator for the manufacturing industry against the share of the firms in our data that consider bank lending policies as restrictive.<sup>6</sup> The figure shows that the EBDC data on credit constraints provide a reasonably good approximation of the general trend in the Ifo Business Survey.<sup>7</sup>

Empirical evidence on the importance of losses is provided by Fig. 3. It includes not only the share of firms reporting capital market restrictions but also the share of firms that experience losses. The share of firms reporting capital market restrictions is generally twice as large as the share of firms with tax losses (note that the share of firms with losses is reported on the vertical axis on the right-hand side). Remarkably, this relationship proves rather robust across the different time periods.

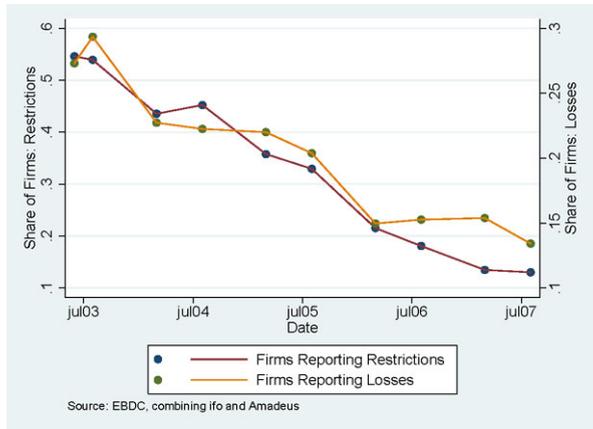
The descriptive statistics presented so far suggest that the stabilizing effect is subject to different cyclical effects. On the one hand, the share of firms where (net-) revenues are exerting an impact on investment due to capital market restrictions is anticyclical. On the other hand, the share of firms where net-revenues could potentially be smoothed by the corporate income tax due to positive taxable profits is procyclical. Thus, the question arises whether, due to the lack of loss offset, the stabilizing

<sup>5</sup>A data description is available at: [http://www.cesifo-group.de/link/\\_EBDC\\_database](http://www.cesifo-group.de/link/_EBDC_database).

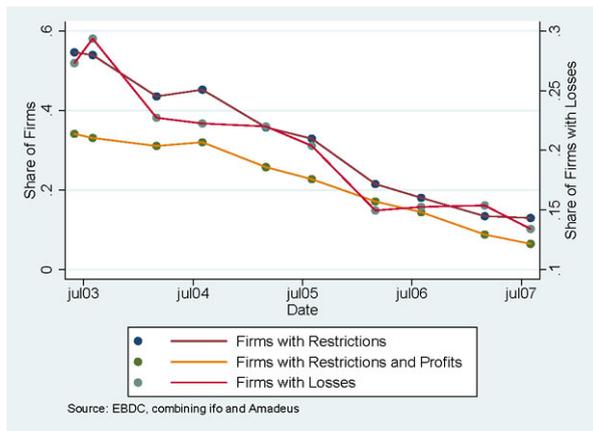
<sup>6</sup>Following the practice of the Ifo Credit Constraint Indicator, a firm is considered credit-constrained in our analysis if the appraisal of bank lending policies is “restrictive” rather than “accommodating” and “normal”.

<sup>7</sup>While rather new, the Ifo Business Survey’s information on credit constraints is widely used to assess capital market restrictions in Germany (e.g., Bundesbank 2008). A recent micro-level study exploiting the Ifo Business Survey’s question on credit constraints (von Kalckreuth 2008) finds a significant association with firm-level investment policies similar to results based on the Industrial Trends Survey by the Confederation of British Industry (von Kalckreuth 2006).

**Fig. 3** Share of restricted firms vs. share of firms with losses



**Fig. 4** Share of restricted firms with positive profits



effect of the corporation tax is rather weak in downturns when it would be most important.

Evidence is provided in Fig. 4 which shows the share of firms that are reporting capital market restrictions but still report positive profits (in the above notation, the figure depicts  $\frac{m_t}{n_t}$ ). This group of firms will not only adjust their investment expenditures to the availability of internal funds. They are also in the position to benefit from a stabilization of revenues due to the corporation tax. As it turns out, this group of firms on average makes up a fifth of all firms (axis is on the left-hand side), indicating that the stabilizing role of the corporation tax is much smaller than indicated by the share of restricted firms.

To sum up, with regard to the role of taxes as automatic stabilizers, our results suggest that over the ten waves of the Ifo Business Survey that provide information about capital market restrictions, the corporate income tax acted as a stabilizer of investment in a fifth of the German firms, on average. This share, however, is higher in the beginning of the time period, when the economy suffered from a low degree of capacity utilization and when the business conditions were rather weak. Later, when the business situation improved, the share is much lower.

**Table 1** Descriptive statistics

Variable	Mean	Std. dev.	Min.	Max.
Restricted firm with positive profits	.240	.427	0	1
Business climate	1.96	.671	1	3
Firm size	2.82	1.21	1	5
Publicly traded company	.068	.252	0	1
Firm age	43.8	36.34	1	107
Tangibility	.285	.198	0	.938
Std. dev. of (log) sales <sup>a</sup>	.121	.183	0	2.15

<sup>a</sup>Panel comprises 10 waves and 3291 ( $n = 2968$ ) observations. Business climate captures the current business situation and varies between 1 = good and 3 = bad. Firm size reports employment in ranges (1 = 0–49, 2 = 50–199, 3 = 200–499, 4 = 500–999, 5 = 1000 and more)

The role of the corporate income tax needs to be further qualified, however, since it seems likely that the firms where a smoothing of investment might take place are special. For instance, these firms might be small or struggling from bad business perspectives. In the former case, demand effects would be unimportant; in the latter case, firms would have reason to cut down on investment spending, anyway.

Table 1 provides descriptive statistics for the firms included in the above analysis. Besides the indicator of whether a firm jointly reports capital market restrictions and positive profits, the table provides statistics on the business climate and firm characteristics possibly associated with the capital market restrictions faced by the individual firm. Firm characteristics include variables such as the firm size, the age of the firm, and the share of tangible capital, all of which should be positively associated with capital market restrictions. Finally, as firms with higher income volatility might also face more severe restrictions, we include the standard deviation of each firm's sales.

Table 2 shows results for a simple binary regression testing whether specific firm characteristics have significant effects on the probability to jointly report capital market restrictions and positive profits. While we include dummies for the different waves in order to depict the time pattern noticed above, we find that the firm size and the age of the firm show significant negative effects. This is in accordance with standard results in the literature on credit rationing. Also publicly quoted firms depict an inverse effect. However, tangibility does not prove significant. The appraisal of the current business situation by the firm shows a positive effect indicating that firms with a bad business situation are over-represented among the group of restricted firms with positive profits. Column (2) reports results from a specification which includes the standard deviation of (log) sales. While all other results are unchanged, qualitatively, we find that firms with larger volatility of earnings are more likely to benefit from a smoothing effect of the corporation tax.

In both specifications the firm's size in terms of employment shows the strongest effect. This suggests that for an assessment of the role of the corporation tax as an automatic stabilizer we should take resort to statistics weighted by firm size in order to assess the importance of firms that are restricted in terms of credit but report positive profits. Figure 5 documents that the share of these firms weighted by firm size is somewhat lower indeed.<sup>8</sup>

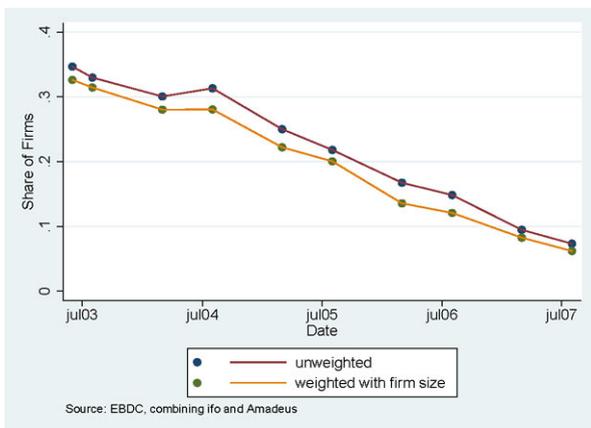
<sup>8</sup>Note that weighting by assets would yield similar results.

**Table 2** Characteristics of restricted firms with positive profits

	(1)	(2)
Business climate	.029 ** (.011)	.031 ** (.012)
Firm size	-.037 ** (.006)	-.034 ** (.006)
Publicly traded company	-.063 ** (.025)	-.080 ** (.024)
Firm age	-.0006 ** (.0002)	-.0006 ** (.0002)
Tangibility	-.030 (.037)	-.004 (.039)
Std. dev. of (log) sales		.126 ** (.046)
R-squared	.069	.070

Dependent variable: Binary variable indicating whether a firm reports credit restrictions as well as positive profits. Linear regressions. An asterisk denotes significance at 5% level. Column (1) uses 3291, column (2) 2968 observations. All estimates include a full set of dummy-variables for each wave of the survey

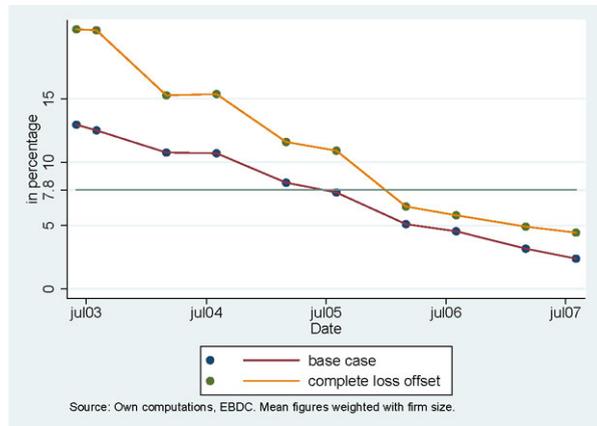
**Fig. 5** Weighted share of restricted firms with positive profits



Based on the firm-level data, Fig. 6 reports an aggregate measure of stabilization corresponding to (6). This measure is obtained as a weighted sum of the statutory tax rates for all firms where a positive profit as well as credit constraints are reported and zero for all other firms.<sup>9</sup> As can be seen from the figure, the average measure of stabilization is about 7.8%. For comparison, in the hypothetical case with complete loss-offset opportunities where all restricted firms benefit from a stabilization of net-revenues, the average measure would be higher: according to our estimates the mean figure would be about 11.5%.

The figure also shows that the stabilizing effect of corporate income taxation changes systematically over the business cycle. In June 2003, when Germany was

<sup>9</sup>Note that we compute the firm-specific tax rates taking account not only of the corporation tax and the solidarity surcharge but also of the local business tax rate faced by each firm.

**Fig. 6** Measure of stabilization

in a downturn, the stabilization measure is equal to approximately 13 per cent. In the following periods, Germany experienced an upswing, and the stabilization measure declined continuously and reached a value below 3 per cent for August 2007. This result can be interpreted as follows. As mentioned above, there are two countervailing effects of the business cycle on our measure of automatic stabilization: On the one hand, the role of credit constraints suggests that automatic stabilizers will tend to be stronger in downturns because more firms will be credit-constrained. On the other hand, in economic downturns there will be more firms with losses. These firms do not pay corporate income taxes, so that automatic stabilization will be weaker. Our results suggest that the impact of the first factor—the role of credit constraints—dominates the second.

#### 4 Conclusions

Using ten waves of a survey of German manufacturing firms, we find that, on average, about 20 per cent of all firms reported both positive taxable income and the existence of credit constraints. Accordingly, at tax rates of approximately 38 per cent, and taking account of the size differences of the firms, demand stabilization through corporate income taxation would amount to about 8 per cent of the initial shock to gross revenues.

While the data used in the above analysis offer a unique combination of firm-specific information about credit market restrictions and financial statements, the empirical magnitude is subject to uncertainties. The micro-level evidence rests on financial statement and survey data that capture the conditions faced by the firm only by approximation. The financial statements might differ from the tax accounts and also do not provide information about the existence of tax shields such as loss carryforwards. Also, the survey data on credit constraints should be considered with caution, since the distinction of the different response categories might be somewhat fuzzy.

Besides measurement issues, it should be noted that the firms where the corporate tax tends to stabilize income may constitute a not-representative group of firms.

Indeed, our analysis reveals that the firms reporting credit constraints and positive profits are smaller than the average. We, therefore, weight the data with firm-size in order to calculate the above aggregate measure of the stabilization effect. However, even firms with the same size may differ in their exposure as well as in their likely response to revenue shocks. Since firms, where the corporation tax tends to stabilize income, show a higher volatility of sales, the stabilization effect might be stronger. However, these firms are also more likely to report a bad situation for their current business and, hence, the willingness to invest might be low. Therefore, it seems difficult to argue that the true amount of stabilization is much bigger—our estimate, thus, serves as an upper bound. We should also note that our analysis abstracts from the possibility that at least multinational firms may react to a stabilization of their cash flow through domestic taxes by smoothing investment in another country.

Our results suggest that the stabilizing effect of corporate income taxation changes systematically over the business cycle. While stabilization effects are mainly expected to occur for firms with positive taxable incomes that are also facing credit constraints, our data suggest that the likelihood to report positive taxable income may be procyclical whereas the likelihood of credit constraints is anticyclical. In our data set, it turns out that the change in credit constraints over the cycle dominates such that the effectiveness of the corporate tax as an automatic stabilizer tends to increase during cyclical downturns—the stabilization measure increases up to 13%. Of course, due to the rather short time period considered, more research is needed to substantiate this finding.

Can we expect our results, which have been derived with German data, to apply to other countries as well? Most European countries have lower statutory corporate tax rates, so that the potential for stabilization effects is lower. But it might be the case that other countries, in particular countries with lower GDP per capita and less developed capital markets, exhibit a larger share of credit-constrained firms. This would suggest a stronger effect on demand stabilization.

What are the policy implications of the analysis in this paper? One immediate implication is that there may be yet another cost of the downward trend in corporate income tax rates induced by international tax competition: automatic stabilizers are weakened. Moreover, our analysis highlights a cost of crowding back loss offset provisions, in particular loss carryback possibilities: restricting loss offset reduces the automatic stabilization effects of the tax system. Of course, extending loss offset would come at a cost in terms of revenue raised, and the question is whether the benefits in terms of automatic stabilization properties of the tax system justify this. The benefits of automatic stabilization through the corporate tax system depend on a number of factors. One issue is whether demand stabilization, if it works, also stabilizes domestic output. If firms import investment goods or intermediate inputs, part of the demand stabilization achieved by automatic stabilizers will leak to other countries. In addition, as pointed out by Blanchard (2000), it cannot be excluded that automatic stabilizers destabilize output in the presence of certain types of macroeconomic shocks because they delay unavoidable adjustments. These are interesting issues for future research.

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