

# An economic analysis of the TOZO, the Dutch support scheme for self-employed during COVID-19

At the beginning of the coronavirus crisis, 260,000 households received Tozo support, approximately 18% of all households with at least one self-employed.

The support was used by selfemployed people with both high and low incomes/liquid assets. As the coronavirus pandemic progressed, take-up decreased, mainly among those with high incomes/liquid assets.

The income partner test and the economic recovery are potential explanations.

The study gives insights into the trade-off between speed and effectiveness when providing financial support to self-employed during a crisis.

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# Summary

The Temporary Support Scheme for Self-Employed Persons (Tozo) was a support measure for selfemployed entrepreneurs during the COVID-19 crisis. By providing income and liquidity support to selfemployed persons, the scheme aimed to maintain their businesses and stabilize the economy. In this study we first analyse the effectiveness of the Tozo scheme on the basis of the characteristics of the recipients, such as their sector and position in the income and liquid assets distribution. Second, we analyse possible side-effects of the Tozo scheme, particularly on the number of hours worked and turnover.

The take-up of Tozo benefits was initially subject to few conditions at the start of the coronavirus crisis, and the scheme was also used by self-employed people with high household income and/or liquid assets. At the start of the coronavirus crisis, 260,000 households received Tozo benefits. That is around 18% of all households with at least one self-employed person. The decision to make support broadly available was the result of a trade-off between a fast response to the great uncertainty at the start of the coronavirus crisis and a slower response with a more targeted implementation and the associated costs.

From Tozo 2, the number of recipients with high household income and/or liquid assets fell substantially, partly due to the introduction of the partner income test. There was more visibility on the economic impact of the pandemic and more time to take a customised approach to implementation. The conditions of the Tozo scheme were therefore amended in June 2020. Partly due to the introduction of the partner income test with effect from Tozo 2 and the improved economic conditions, Tozo use fell to 5% of selfemployed persons. Use fell particularly among households with relatively high income and/or assets. During the winter of 2020/2021, which included a second lockdown, use increased somewhat (6% during Tozo 3). Thereafter, use fell again (4% during Tozo 4 and 2.5% during Tozo 5). The Tozo scheme was terminated on 1 October 2021.

From June 2020, the scheme led to a decrease in the hours worked and turnover of self-employed persons. We use the introduction of the partner income test in June 2020 to analyse the effect of Tozo 2 and subsequent Tozo schemes on hours worked and turnover. From that time self-employed persons with a partner were in many cases no longer eligible for the Tozo scheme, because their household income was often above the social minimum. We then compare the developments in hours worked and turnover of selfemployed persons without a partner (treated group) with those of self-employed persons with a partner (control group). Compared to the situation before the partner income test, self-employed persons without a partner worked on average 10% fewer hours per week (average of four hours) than self-employed persons with a partner. They had on average 5% less turnover in the third and fourth quarters of 2020. However, these estimations are to some extent uncertain due to data limitations. The data on hours worked are only available for a sample, so the estimates are less precise, and for turnover we only have data for some sectors.

The analyses provide a number of lessons for income support for self-employed persons in future crises. If the income support is mainly intended for self-employed persons with relatively low income and low financial buffers, explicit conditions should also be included in the scheme to that effect, such as a household income test and possibly also a means test on wealth. The additional implementation costs would then have to be offset against the benefits of better targeting. A high marginal decline is a key issue in the design of the scheme. Tozo recipients lose one euro of Tozo for every earned euro up to the social minimum (marginal rate of 100%). This may partly explain the negative effects on hours worked and turnover in low income groups. These negative effects could be mitigated by reducing the Tozo benefit less rapidly as income rises. The downside of this, however, is that the support would be less targeted.

# 1 Introduction

The Temporary Support Scheme for Self-Employed Persons (Tozo) was a measure providing income support and/or business loans for self-employed persons during the coronavirus crisis. The Tozo scheme had three objectives. The first was to provide a minimum standard of living for entrepreneurs encountering difficulties due to COVID-19. This took the form of a minimum subsistence benefit if their income fell below the social minimum (Parliamentary documents II, 35420, no. 6, 2020). The second objective was to prevent liquidity shortages. The Tozo scheme met this objective by means of a business loan. A third objective was to absorb any macroeconomic shocks arising due to fall back in consumption and feedback loops. The analysis of the latter objective is outside the scope of this report.

The scheme was the largest support measure during the coronavirus crisis in terms of the number of users, but it ranked fourth in terms of budget. A total of more than 300,000 self-employed persons used the income support and 24,000 used the business loan (CBS, 2022a). In budgetary terms, the Tozo scheme ranked fourth among the coronavirus support packages at over €3 billion, after the Temporary Emergency Bridging Measure to Preserve Employment (NOW, €24 billion), tax deferral (€21 billion) and the COVID-19 Damage Compensation Scheme and the Reimbursement of Fixed Costs Scheme (TOGS and TVL, €10 billion) (CBS, 2022b).¹

This study provides insight into the effectiveness of the successive Tozo schemes and any side-effects on hours worked and turnover. Despite the minister's moral appeal to use the Tozo scheme only when genuinely necessary, the fast and broad rollout at the start of the pandemic could go along with take-up by self-employed persons who did not need it. The introduction of the partner income test with effect from Tozo 2 was intended to prevent this. We analyse the effectiveness of the Tozo schemes on the basis of the characteristics of Tozo recipients, such as the sector in which they operate and their income and liquid assets prior to the coronavirus crisis. We also analyse possible side-effects of the Tozo schemes, such as potential negative effects on hours worked and turnover due to higher marginal loss up to the social minimum for Tozo recipients.

The remainder of this report is structured as follows. Chapter 2 describes the Tozo schemes and Chapter 3 then provides a brief description of the data sets used. Chapter 4 provides aggregated key figures for the Tozo schemes. Chapter 5 then analyses the characteristics of recipients of the successive Tozo schemes. Chapter 6 analyses the possible side-effects on hours worked and turnover. Finally, Chapter 7 draws a number of conclusions from the preceding analyses. The annexes include more detailed descriptions of the data sets used, the methods and additional results.

<sup>&</sup>lt;sup>1</sup> The sum of €3 billion concerns Tozo income support.

<sup>&</sup>lt;sup>2</sup> The Letter to Parliament of 17 March (Parliamentary documents II, 35420, no. 2, 2020, p. 6) expressly states: 'The Government appeals to self-employed entrepreneurs only to use the scheme if necessary.'

# 2 The Tozo schemes

The purpose of the Tozo schemes was to support self-employed entrepreneurs who suffered a loss of income and/or encountered liquidity shortages due to the economic circumstances resulting from COVID-19 and the coronavirus measures.<sup>3</sup> In the first half of March 2020, hospitality venues, gyms and sport clubs, among others, were closed due to the social distancing measures. Professions with close contact to people (e.g. hairdressers) were also prohibited from operating. Partly for this reason, self-employed entrepreneurs in sectors covered by social distancing measures faced a loss of income. In order to help entrepreneurs to absorb this income shock and safeguard the continued existence of their business, the government rolled out several support measures shortly after the social distancing measures came into force. On 17 March 2020, the government announced the Temporary Support Scheme for Self-Employed Persons (Tozo).<sup>4</sup>

In order to start up the Tozo scheme rapidly and make it as easy as possible to implement, the scheme was based on the existing Decree on Assistance for Self-Employed Persons (BBZ), but with fewer conditions. As in the case of the BBZ, the income support only had to be repaid in the event of fraud or noncompliance with the information requirement. In contrast to the BBZ, Tozo included no rules regarding shared living costs, no means test on wealth and, specifically in the case of Tozo 1, no partner income test. There was also no test of the viability of a business as a precondition for a business loan in the Tozo scheme.

Municipalities were responsible for implementing Tozo; the budget was provided by central government. The municipalities were in charge of both granting and paying the benefits. The budget was provided by central government, initially on the basis of an advance payment, after which the actual expenses were fully reimbursed on the basis of claim forms (Parliamentary documents II, 35830 XV, no. 1, 2021).

The Tozo scheme consisted on the one hand of an income support payment equal to social assistance benefit. For self-employed entrepreneurs who no longer earned the social minimum, the Tozo scheme provided an income supplement up to the level of a social assistance benefit. The benefit was a maximum of €1,500 net per month for a single person and a maximum of €1,500 net for a couple. As in the case of a social assistance benefit, the Tozo subsistence benefit was paid out at household level. If two self-employed persons applied for Tozo benefits in the same household, the municipality paid a single amount up to the social assistance level for a couple (Parliamentary documents II, 35420, no. 6, 2020).

It was also possible to obtain a business loan under the Tozo scheme. The Tozo scheme provided a business loan for self-employed entrepreneurs who encountered liquidity problems with their business as a result of the coronavirus measures. The loan was a maximum of €10,157 per self-employed entrepreneur. Self-employed persons could draw this loan in a single amount or as smaller loans, as long as the total amount did not exceed €10,157 over the entire period of operation of the Tozo scheme. <sup>5</sup>

The Tozo scheme started on 17 March 2020 and ran until 1 October 2021. The Tozo scheme initially applied for three months and ran from March 2020 to May 2020 inclusive (Tozo 1). During the pandemic as a whole, the Tozo scheme was extended another four times (Tozo 2 to Tozo 5). When the coronavirus measures were

<sup>&</sup>lt;sup>3</sup> The term self-employed person encompasses self-employed persons without personnel, self-employed persons with personnel and directors/major shareholders of private limited companies.

<sup>&</sup>lt;sup>4</sup> We refer here to the official legal text, which can be accessed at <u>wetten.overheid.nl/BWBR0043402/2021-10-01</u>.

<sup>&</sup>lt;sup>5</sup> Where a couple consisted of two self-employed entrepreneurs, both partners could apply for a loan (Section 3(15)(2)).

eased in the autumn of 2021, the Tozo scheme was discontinued with effect from 1 October 2021 (Parliamentary documents II, 35420, no. 365, 2021).

In order to be eligible for the Tozo scheme, self-employed persons had to meet four criteria: income below the social minimum or business liquidity shortages, having worked at least 1,225 hours as a self-employed person in 2019, registration with the Chamber of Commerce and residence in the Netherlands. There were nevertheless exceptions for self-employed entrepreneurs living outside the Netherlands in border regions and having a business activity in the Netherlands. The self-employed entrepreneur had to be registered with the Chamber of Commerce before 17 March 2020. There were no additional requirements with regard to sector, legal form, business viability and/or the level of household's assets.

Under Tozo 1, there were no conditions concerning the income of the self-employed person's partner, but the government issued a moral appeal not to apply for Tozo unnecessarily. The goal of the moral appeal was to prevent self-employed persons from submitting a Tozo application if they were formally entitled to Tozo 1 but did not require any support due to their household's asset and income situation. 8 Chapter 5 examines which income and liquid asset groups were the main users of the various Tozo schemes.

The conditions for income support were tightened in Tozo 2: a partner's income test and a bankruptcy clause were introduced. As of Tozo 2, the entire household income, rather than just the income of the self-employed entrepreneur, had to be below the social minimum in order to be eligible for a Tozo subsistence benefit. The bankruptcy clause meant that self-employed persons were asked at the time of application to declare that they had not been involved in bankruptcy proceedings or a payment moratorium (unrelated to coronavirus). 9 The conditions were further tightened to some extent in subsequent Tozo schemes. Table 2.1 shows how subsequent Tozo schemes differed from Tozo 1 and the phase of the coronavirus pandemic in which these changes were implemented.

<sup>&</sup>lt;sup>6</sup> Liquidity problems are defined in the Tozo scheme (Section 3(10)) as follows: 'Assistance to meet the need for working capital may be granted to the self-employed person who declares and demonstrates in writing that, as a result of the COVID-19 crisis, he has insufficient funds immediately available to meet the financial obligations associated with his business or self-employed profession.'

<sup>&</sup>lt;sup>7</sup> There were some exceptions for self-employed persons who were registered abroad but mainly worked in the Netherlands. We disregard this group in our analyses, because we have no underlying characteristics for them.

<sup>&</sup>lt;sup>8</sup> See Parliamentary documents II, 35420, no. 6, 2020: 'As stated previously, the government expressly appeals to people who do not need the extra support not to make an application.'

 $<sup>^{\</sup>rm 9}$  Both conditions remained in force up to and including Tozo 5.

Table 2.1 Tozo 1 to 5 and social distancing measures during the COVID-19 pandemic

	Scheme	Period	Changes compared to Tozo 1		Social distancing measures
	·		Subsistence	Business Ioan	
Tozo 1		March to May 2020			Lockdown 16 March to 11 May 2020
Tozo 2		July to September 2020	Partner income test	Bankruptcy clause	Economy reopened with social distancing
Tozo 3		October 2020 to March 2021	Employment reorientation: the municipality may ask a Tozo recipient to explore other earning potential or revise the business model		Closure of hospitality venues from 14 October, 14 December closure of retail stores, 20 January 2021 curfew until 28 April 2021 Click & collect for non-essential stores from beginning of February
Tozo 4		April to June 2021		Repayment date 1 July 2021, term of loan 42 months	From the end of April, almost all stores and pavement cafés were open again until the end of June
Tozo 5		July 2021 to September 2021	Additional requirement to disclose information on other income in the Tozo period	Repayment date 1 January 2022, term of loan 60 months	Closure of clubs and passes to enter hospitality venues, after which measures were eased

#### A random check was conducted afterwards to verify if entrepreneurs met the Tozo conditions.

Entrepreneurs also had to reapply for the scheme in each round, when the conditions were assessed again and, if incorrect information was provided, the Tozo benefits could be reclaimed. The municipality was also required to impose fines in the event of fraud.<sup>10</sup>

The loan repayment conditions were eased as the coronavirus pandemic progressed. The loan repayment conditions were eased with effect from Tozo 4 (April 2021) and again under Tozo 5 (July 2021). Finally, since 1 July 2022, the loan has to be repaid within 72 months from the time of payout.

After the termination of the Tozo scheme in September 2021 a simplified and less strict form of the usual Decree on Assistance for Self-Employed Persons (BBZ) remained in place. This support was active from 1 October 2021 through to 31 March 2022 in order to counter the impact of the social distancing measures in the winter of 2021/2022. Among other things, no means testing on wealth was enforced under the simplified BBZ. It was possible to apply for the benefit retrospectively and the income was assessed at monthly level, rather than on the basis of the financial year. <sup>11</sup>

<sup>&</sup>lt;sup>10</sup> A more detailed explanation of the conditions can be found in Sax and Engelen (2020).

<sup>&</sup>lt;sup>11</sup> For more information, see Parliamentary documents II, 35420, no. 365 (2021).

# 3 Data

For the analysis, we use pseudonymised administrative data on all self-employed persons registered in the Netherlands over the period 2018-2021. Our analysis is based on all self-employed persons registered in the Netherlands from 2018 to 2021 including the following legal forms: sole proprietorship, shipping company, partnership, general partnership, limited partnership and private limited company. We designate these legal forms in this report as 'all self-employed persons', linking to them information on persons, such as gender and age, household composition, the income and assets of the household and its members. We follow the individuals and the households from January 2018 until December 2021 on a monthly basis.<sup>12</sup>

Our main data comprises over 90 million observations with around 1.5 million households, 1.6 million businesses and almost 2 million persons. For the main data, we combine information from 13 different data sets. Annex C provides a detailed description of the structure of the data set for the analysis and the sources used.

We base our analysis on the entire population of self-employed persons who were registered with the Chamber of Commerce at the beginning of each year. Various conditions were attached to the Tozo scheme, such as the hours criterion. We cannot accurately define the target population for the Tozo scheme, however, since we do not know who fulfilled the hours criterion. <sup>13</sup> This results in an excessively large population base, so the actual take-up percentages relative to all beneficiaries are probably higher. This applies most in the case of lower income groups. We therefore base our analysis on the entire population of self-employed persons who were registered with the Chamber of Commerce at the beginning of each year.

# 4 Overview of use of Tozo scheme

The number of households that received Tozo subsistence benefits decreased in 2021 compared to 2020, as did the percentage of business loans. One in five households with a self-employed person received Tozo subsistence benefits in 2020. In 2021, the proportion decreased to one in 15 households with a self-employed person (Table 4.1). We include in our analysis all households having at least one (adult) self-employed entrepreneur, because the Tozo scheme pays benefits at the household level. In the case of businesses, we compare the number of benefits to the total number of self-employed persons registered in the Netherlands in 2020 or 2021. The percentage for business loans is lower: 1.5% of businesses in 2020 and 0.3% in 2021. In 2020, the government granted €3.2 billion and in 2021 €0.9 billion of advance payments to municipalities as part of the Tozo scheme (the total of Tozo subsistence benefits and business loans under the Tozo scheme).

<sup>&</sup>lt;sup>12</sup> The figures in this publication may differ from those published by Statistics Netherlands, because we establish more links to other databases and thus analyse a somewhat different population.

<sup>&</sup>lt;sup>13</sup> Every self-employed person who meets the hours criterion is automatically entitled to self-employment tax deductions. We do know from the data whether a person benefited from self-employment tax deductions, but this proved not to be a good proxy for self-employed persons on low incomes. This is because if the self-employment tax deduction is zero, we do not know whether a person has not fulfilled the hours criterion or has not benefited from self-employment tax deductions because the profit is too low (i.e. the deduction cannot be applied). The use of this proxy would therefore lead to an underestimate of the number of persons entitled to Tozo, particularly in low income groups.

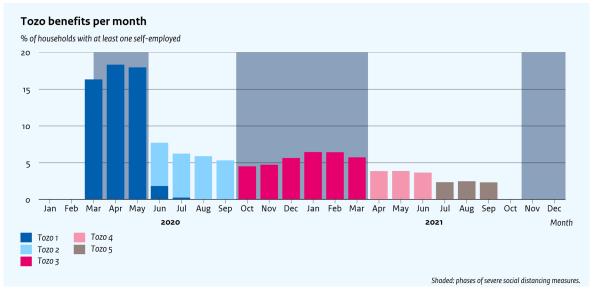
Table 4.1 General descriptive statistics on Tozo use

	2020	2021	2020	2021
		Subsistence		Business loan
Self-employed persons with Tozo	Number (thousands)			
Households	311	116	24	5
Businesses	314	110	25	5
Self-employed persons with Tozo	Percentage of self-employed persons (%)			
Households	18.8	6.7	1.5	0.3
Businesses	19.8	6.6	1.5	0.3
Advances*	euros (billion)			
	3.2	0.9		

<sup>\*</sup> Advances concern subsistence benefits and business loans.

Source: Statistics Netherlands microdata; annual reports of Ministry of Social Affairs and Employment 2020 and 2021 (Parliamentary documents II, 35830 XV, no. 1, 2021; Parliamentary documents II, 36100 XV, no. 1, 2022)

Figure 4.1 Tozo recipients over time as a percentage of households with least one self-employed



Source: Statistics Netherlands microdata and CPB calculations

The take-up of Tozo benefits was to some extent associated with the course of the pandemic, but the change in eligibility criteria also had a substantial effect. Figure 4.1 shows the Tozo benefit payments per month, with the blue coloured areas showing phases with severe social distancing measures. <sup>14</sup> The number of Tozo recipients peaked in April 2020, after which it fell with the reopening of the economy after the first lockdown and with the introduction of the partner income test under Tozo 2 from June 2020. <sup>15</sup> In order to give an impression of the absolute numbers, we provide a sample calculation: 10% concerns approximately 160,000 households with at least one self-employed person. Particularly at the outset, there was great

<sup>&</sup>lt;sup>14</sup> We define severe social distancing measures as the closure of various sectors (including retail stores, schools, hospitality, sport and culture venues), the curfew and/or advice to stay at home.

<sup>&</sup>lt;sup>15</sup> In June and July 2020, Tozo 1 and 2 briefly existed side by side, because the Tozo 1 benefit lasted a maximum of three months after the time of application and applications could be submitted up to 31 May 2020.

uncertainty as to the effects of the virus and the conditions for the Tozo scheme were the least strict. In November and December 2020, hospitality venues and (non-essential) stores and services had to close again due to the more severe social distancing measures. The number of Tozo recipients then increased again, but to a much lower level than at the start of the pandemic. Possible explanations for this are the stricter conditions (partner income test), less uncertainty concerning the effects of the virus and changes to self-employed persons' business models. Here we only consider Tozo subsistence benefits; an overview for business loans granted under the Tozo scheme can be found in Figure A.5 in the annex. That figure shows that the granting of business loans peaked in July 2020 and fell sharply thereafter.

# 5 Characteristics of Tozo recipients

In order to assess the effectiveness of the Tozo schemes, we examine whether the Tozo benefits were received by self-employed persons who were vulnerable and severely impacted by the coronavirus shock and associated measures. For this, we examine the sector, the income and asset position and the use of other coronavirus support measures. We show the characteristics of Tozo recipients in relation to the entire population of self-employed persons in the Netherlands from March 2020 through to September 2021. We show both the take-up in percentages and absolute numbers. <sup>16</sup>

We also analyse reclaims of Tozo benefit payments. For this we examine the percentage and number of reclaims from Tozo recipients in the income and liquid assets distribution.

The annex contains additional analyses to provide a more comprehensive picture of the Tozo recipients and to place the results in perspective relative to all self-employed persons. Annex A provides a more detailed description of characteristics such as sector, legal form and household composition. We also show the position of self-employed persons in the income and assets distribution of the entire Dutch population in order to view the findings also in that perspective.

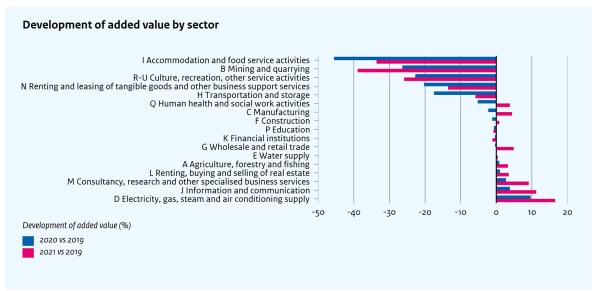
## 5.1 Tozo take-up by sector

The accommodation & food services, culture & recreation, rental and transport and storage sectors were hit hardest by the coronavirus pandemic, the coronavirus measures and the resulting loss of demand (Figure 5.1). <sup>17</sup> These are the sectors in which strict coronavirus measures were in force, such as the closure of hospitality venues, the cancellation of performances and events and the closure of sports clubs and leisure parks. The level of turnover in these sectors was still markedly lower in 2021, because the pandemic and the measures were still continuing.

<sup>&</sup>lt;sup>16</sup> With regard to these data it should be noted that we know only whether a household has received a Tozo benefit; we have no information on voluntary repayments.

<sup>&</sup>lt;sup>17</sup> The mineral extraction sector also saw a major fall in turnover, but this was due to reduced gas production in Groningen (Mares, 2021).

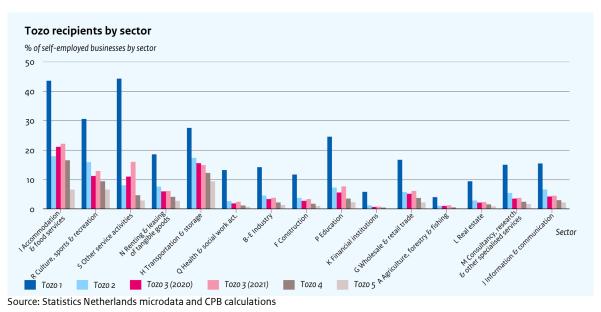
Figure 5.1 Added value by sector in 2020 and in 2021 compared to 2019



Source: Statistics Netherlands StatLine and CPB calculations

These sectors have the highest shares of self-employed persons receiving Tozo benefits. The top 5 Tozo sectors are accommodation & food services, culture and sport, other services (including wellness centres, saunas and hairdressers), transport and storage and education (Figure 5.2). This includes the education sector, because other education, such as adult education centres, driving and motorcycle riding schools and dance schools, are also part of this sector. The proportion of recipients in education is consequently high. <sup>18</sup>

Figure 5.2 Percentage of Tozo recipients by sector (businesses)



<sup>&</sup>lt;sup>18</sup> The sectors differ slightly between Figures 5.1, 5.2 and 5.3, because for added-value data at the macro level we only have access to aggregate information for some sectors.

Tozo recipients by sector

Number of businesses

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Figure 5.3 Number of Tozo recipients by sector (businesses)

In terms of absolute numbers, support was provided particularly for businesses in the sectors of specialised business services, other service activities, trade, culture and sport, and accommodation and food services (Figure 5.3). This support was provided throughout the Tozo period. The high numbers in the consultancy and specialised business services sector (M) in Tozo 1 are explained by the fact that this is the largest sector. The sharp fall in subsequent Tozo schemes is probably due to the fact that this sector was ultimately hit less hard. Under Tozo 3, it was hospitality, culture, trade and other services that had the largest numbers of businesses supported. This can be explained by the development of the pandemic: Tozo 3 coincided with the severe lockdown in force from December 2020.

#### 5.2 Tozo take-up by household income

Fewer than one-third of self-employed persons received Tozo 1, although the conditions for Tozo 1 were not checked in many cases at the time of application. Figure 5.4 (left) shows the percentage of Tozo recipients by decile of the standardised disposable household income<sup>19</sup> in the Dutch population in January 2020 and January 2021 respectively. The social minimum is in the second decile for each year. The percentage is relative to all self-employed persons in the same decile.

The Tozo 1 scheme stands out because the take-up percentage in all income deciles is higher than in the subsequent Tozo schemes. The take-up rate gradually decreases as household income rises. In the top five income deciles, the Tozo 1 take-up percentage is between 7% and 20%.

In the subsequent Tozo schemes, the take-up percentage remains high, particularly in the low income deciles, but it falls most sharply in the higher income deciles. The introduction of the partner income test, the decreasing uncertainty surrounding the coronavirus and adjustments to the business models may have contributed to this.

<sup>&</sup>lt;sup>19</sup> For this definition of income, all possible sources of income are added together. The reference date for the income is 1 January 2020 for Tozo 1 to 3 (2020) and 1 January 2021 for Tozo 3 (2021) to 5. The Tozo 3 scheme ran from October 2020 through to March 2021.

Percentage of Tozo recipients **Number of Tozo recipients** in income distribution in income distribution % of all households with at least one self-employed by decile Number of households 30.000 25 25.000 20.000 15 15,000 10 5,000 9 10 Income decile in 4 10 4 5 9 **Dutch** population Dutch population Tozo 3 (2021) Tozo 3 (2021) Tozo 1 Tozo 1 Tozo 4 Tozo 4 Tozo 2 Tozo 2 Tozo 3 (2020) Tozo 5 Tozo 3 (2020) Tozo 5

Figure 5.4 Percentage of Tozo recipients (left) and numbers by income decile (right) (households)

In terms of absolute numbers, higher income earners received Tozo 1 more often and were also the largest group of entrepreneurs. Their number decreased sharply from Tozo 2, however.<sup>20</sup> Although the take-up percentage among high income earners was therefore relatively low, this was not the case in terms of absolute numbers. Self-employed persons with high incomes are also the largest group in the income distribution of all Dutch self-employed persons (see annex A.1). Figure 5.4 (right) shows the number of Tozo recipients per income decile in the population. Under Tozo 1, just less than half of the benefits (144,000) went to the top half of the income distribution (sixth to tenth deciles). From Tozo 2, the number of applications in the higher income deciles fell considerably, partly due to the partner income test. The share of the top half of the income distribution declined to between one-third and one-quarter of the total number of Tozo recipients per round, depending on the Tozo scheme.

#### 5.2.1 Reclaims

Of all Tozo recipients, 8% had a reclaim outstanding in December 2021, mainly recipients on lower incomes. A reclaim took place when the actual income was higher than that estimated at the time of the Tozo application. Incomes were difficult to estimate in advance, partly because at the start of the coronavirus pandemic it was unclear how long the social distancing measures would remain in force. <sup>21</sup> Figure 5.5 (left) shows households with outstanding reclaims of subsistence benefits in December 2021 as a percentage of the number of households that received benefits under at least one Tozo scheme. <sup>22</sup> In the lowest three income deciles, between 10% and 12% of self-employed persons who received benefits under at least one Tozo scheme in 2020 or 2021 had a reclaim outstanding at the end of 2021. The proportion of reclaims falls sharply as household income rises, as a percentage of the number of households with Tozo benefits. Reclaims are also more prevalent among low income earners in terms of absolute numbers (Figure 5.5 right). The underlying reasons for the concentration of reclaims among low income groups are unclear and require further investigation.

<sup>&</sup>lt;sup>20</sup> The underlying population in these figures includes all self-employed persons registered with the Chamber of Commerce in a given year.

<sup>&</sup>lt;sup>21</sup> See, for example, the CPB scenarios from March 2020 (CPB, 2020).

<sup>&</sup>lt;sup>22</sup> We show these data because we cannot make an unambiguous match between a Tozo advance and the corresponding reclaim. We chose the 2021 decile because this is the most recent information on repayment capacity for the outstanding reclaim.

Percentage of Tozo reclaims **Number of Tozo reclaims** by income decile by income decile % of households with at least one Tozo benefit Number of households 6.000 15 5,000 4,000 3,000 2,000 1,000 Income decile in Dutch population at start of 2021 Income decile in Dutch population at start of 2021 % of reclaims Numbers

Figure 5.5 Distribution of reclaims for Tozo subsistence recipients, percentage (left) and number (right), by income decile (households)

# 5.3 Tozo take-up by liquid assets

Liquid assets are defined as the total value of households' bank and savings deposits and are the most important indicator of the capacity to absorb income shocks. Annex A.2 describes the position of self-employed persons in the entire household liquid assets distribution and the median liquid assets per decile.

The take-up percentage for all Tozo schemes is highest among households of self-employed persons with low liquid assets. The median liquid assets in the first decile at the beginning of 2020 amounted to just €128. Liquidity shortages are therefore a very likely reason for Tozo applications. In the second and third deciles, the liquid buffers were €1,163 and €2,913 (see Annex A.2). Figure 5.6 (left) shows the percentage of Tozo recipients by liquid assets decile in the Dutch population. Figure 5.6 (right) shows the absolute numbers by liquid assets decile.

The distribution of Tozo take-ups over the liquid assets deciles can be explained by modifications to the Tozo conditions and the course of the pandemic. In general, Tozo 1 is somewhat more evenly distributed over the liquid assets deciles than subsequent Tozo schemes. From Tozo 2, the number of recipients with high liquid assets decreases. This is partly due to the introduction of the partner income test. Here we see a similar picture to that of the income distribution. The recipients of Tozo 2 and subsequent schemes are mainly self-employed persons with low liquid buffers (first to third deciles), both in terms of the percentage of the number of self-employed persons and in absolute numbers by asset decile.

Percentage of Tozo recipients **Tozo recipients** by liquid assets decile Number of households by liquid assets decile % of all households with at least one self-employed by decile 25 30,000 20 25,000 15 20,000 15,000 10 5 5,000 8 4 in Dutch population in Dutch population Tozo 3 (2021) Tozo 3 (2021) Tozo 1 Tozo 1 Tozo 4 Tozo 4 Tozo 2 Tozo 2 Tozo 3 (2020) Tozo 5 Tozo 3 (2020) Tozo 5

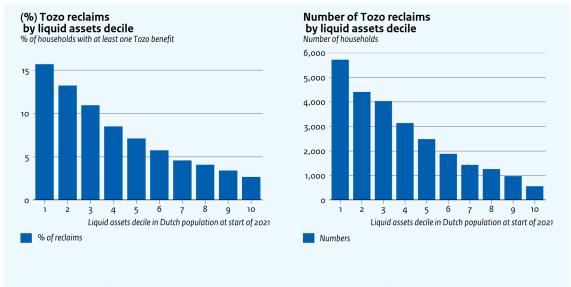
Figure 5.6 Percentage of Tozo recipients (left) and numbers (right) by liquid assets decile (households)

#### 5.3.1 Reclaims

The reclaims of Tozo subsistence benefits are concentrated among households with low liquid assets. In order to map the repayment capacity for reclaims on the basis of the household's liquid buffers, we also show the distribution of the reclaims in the liquid asset distribution. Figure 5.7 shows the reclaims in December 2021 as a percentage of the number of households that received at least one Tozo benefit. <sup>23</sup> In the lowest three asset deciles, between 10% and 15% of self-employed persons had a reclaim outstanding at the end of 2021 and received benefits under at least one Tozo scheme in 2020 or 2021. The proportion of reclaims falls sharply with higher levels of liquid assets. The underlying causes of the concentration of reclaims among groups with low liquid assets are probably mechanical: the repayment capacity is low, because the self-employed already have low buffers, and reclaims are also outstanding for longer.

<sup>&</sup>lt;sup>23</sup> We show these data because we cannot make an unambiguous match between a Tozo advance and the corresponding reclaim. We chose the 2021 decile because this is the most recent information on repayment capacity for the outstanding reclaim.

Figure 5.7 Distribution of reclaims, percentage (left) and number (right), in liquid assets distribution (households)



#### Business loans concentrated among low income groups

Only one in a hundred self-employed persons received a Tozo business loan in 2020. 24,000 households received a business loan in 2020 and in 2021 there were approximately 5,250. This is only a small fraction relative to the number of self-employed persons who received Tozo subsistence benefits. The Tozo business loans had to be repaid as of 1 July 2022.

About one in five business loans went to the lowest income groups. Figure 5.8 (left) shows the number of Tozo loans in 2020 and 2021 by income decile. The number of loans is highest in the first income decile, with 4,645 of the 22,870 loans in 2020 and 1,140 of the 5,050 loans in 2021 being received by households with the lowest income (first income decile), representing 15% and 20% of loan recipients respectively.

Tozo loans by income decile Loan to income ratio (%) Number of households Outstanding claim as % of disposable household income 5,000 5 4,000 3,000 3 2,000 1,000 Income decile in Dutch population 2021 income decile in Dutch population LTI

Figure 5.8 Business loans in the income distribution (left) and loan-to-income ratio (right) (households)

Source: Statistics Netherlands microdata and CPB calculations

The risk of non-repayment of business loans and reclaims is concentrated among low income groups.

Figure 5.8 (right) shows the average loan-to-income ratio (LTI) for self-employed persons with income support and/or a business loan. This concerns the ratio of outstanding loans and reclaims of income support in December 2021 to the disposable annual income of a household in 2021. The reclaims for the lowest income groups are around 7% of the average annual disposable household income. If these households have to repay the reclaims, loans and other support, this, coupled with high outgoings due to the energy price rises, can lead to financial difficulties. From the fourth decile, the percentage below 1% is negligible.

# Side-effects of the Tozo schemes

In addition to the effectiveness of the Tozo schemes, we also analyse possible side-effects in the form of behavioural reactions. In this chapter, we show the analyses of the effects on the number of hours worked and turnover of Tozo recipients.

The Tozo subsistence benefit was phased-out with a marginal rate of 100% which may have had a negative effect on the number of hours worked and turnover. According to the standard labour supply model, a higher marginal rate generally leads to a decline in the number of hours worked. This effect is probably strongest among self-employed persons living around the social minimum. At the beginning of 2020, these amounted to between 150,000 and 200,000 persons.<sup>24</sup>

The coronavirus pandemic and the social distancing measures also most likely had a negative impact on the number of hours worked and turnover. As a result of the coronavirus pandemic and the social distancing measures, there was a fall in output for a given number of hours worked (lower productivity). This may reduce the number of hours worked and turnover. The lockdowns even had a direct negative impact on the number of hours worked and turnover. Due to the pandemic, people had to take on extra tasks that demanded time, alongside leisure and work, such as home schooling and caring for family members. 25 These tasks also may have negatively impacted the number of hours worked. We use a differences-in-differences method to distinguish the effect of the Tozo scheme on hours worked and turnover from the effect of the coronavirus pandemic and the social distancing measures. The method and results are explained in further detail below.

#### **Approach** 6.1

A measurement of causal effects requires a control group in order to properly determine the counterfactual development of the outcome variable. This means that we need a group of self-employed persons who have developed in the same way as the treatment group (Tozo recipients) and experienced the same circumstances (the coronavirus pandemic with social distancing measures), but have not received any Tozo benefits. In this section, we describe the main elements of the econometric method. A more detailed explanation including the estimated regression equations can be found in Annex B.

We use a differences-in-differences method with self-employed persons with a partner as the control group. We thus compare the development in hours worked and turnover of self-employed persons with a partner (before the coronavirus pandemic) with that of self-employed persons without a partner (before the coronavirus pandemic). The assumption is that these groups have the same development over time and have had the same shocks from the coronavirus crisis, but for an exogenous reason have or have not received any Tozo benefits. It should be noted, however, that not all self-employed persons with a partner ceased to be entitled to the Tozo scheme. Hence there are still self-employed persons in the control group who did receive Tozo benefits. Conversely, not all self-employed persons without a partner were entitled to Tozo benefits. We therefore estimate an intention-to-treat (ITT) effect.

We combine this method with coarsened exact matching to analyse the effect on turnover; this is not possible for the effect on the number of hours worked, due to data limitations. This means we use a

<sup>&</sup>lt;sup>24</sup> We assume here that self-employed persons in the first decile and part of the second decile of the income distribution are living below the social minimum. Figure A.1 in Annex A shows the position of self-employed persons in the income distribution. <sup>25</sup> See Remary et al. (2021) for the effects of the coronavirus pandemic on the distribution of household tasks in the Netherlands.

number of variables from January 2020 to make the treatment group and control group even more comparable by means of matching. The variables are: gender, three origin categories (migration background), business age categories and sector (SBIo1 code). 26 It is not possible to carry out the matching for the hours worked outcome variable, because we have too few observations left to produce a reliable econometric estimate. This is due to the fact that hours worked are only available for a (representative) sample of the self-employed population.

This approach is plausible, as can be seen from the major difference in the use of the Tozo scheme by self-employed people with a partner after the introduction of the partner income test. Before the partner income test, the development of Tozo take-up of the groups with a partner and without a partner were almost the same (Figure 6.1). In the following sections, we use this variation to determine the causal effect of the Tozo scheme on hours worked and turnover.

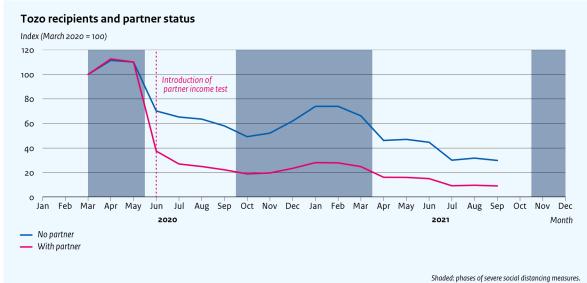


Figure 6.1 Partner status and Tozo take-up over time

Source: Statistics Netherlands microdata and CPB calculations

#### Effect on hours worked 6.2

We analyse the effect of receiving a Tozo benefit on self-employed persons' hours worked per week. The Dutch Labour Force Survey (EBB) explicitly asks for the number of hours worked per week for a representative sample of the Dutch labour force.<sup>27</sup> In total, we can link around 20,000 observations from the original dataset to the EBB.

<sup>&</sup>lt;sup>26</sup> The three origin categories are the Netherlands, Europe and outside Europe.

<sup>&</sup>lt;sup>27</sup> The question asked is: 'How many hours did you actually work last week?'

Hours worked and partner status Hours per week 40 Introduction of partner income tes Termination of Tozo 30 25 20 Q1 Q<sub>4</sub> O<sub>2</sub> Q<sub>3</sub> O<sub>2</sub> Q<sub>3</sub> Ó1 O<sub>2</sub> Q<sub>3</sub> Ó1 Q<sub>3</sub> Q4 Q4 02 2019 No partner With partner

Figure 6.2 Hours worked per week of self-employed persons with and without a partner: 2018-2021

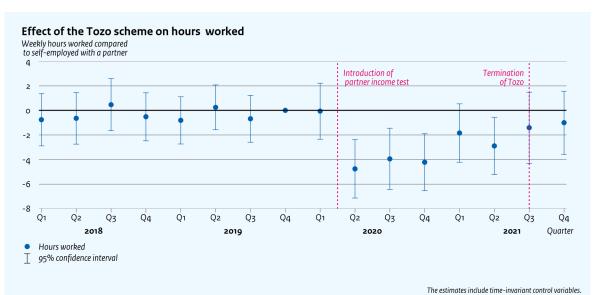


Figure 6.3 Regression results of the effects of the Tozo scheme on hours worked per week

Source: Statistics Netherlands microdata and CPB calculations

The treatment and control groups show a similar development prior to the introduction of the partner income test, after which the number of hours worked falls more sharply in the case of self-employed persons without a partner. Self-employed persons without a partner work almost as many hours as self-employed persons with a partner at the start of the coronavirus crisis (Figure 6.2). The hours worked fall further in the second and third quarters and remain lower in the case of self-employed persons without a partner. The partner income test was introduced on 1 June 2020, so the effect of the introduction is already partly reflected in the decline in the number of hours worked in the second quarter. <sup>28</sup>

<sup>&</sup>lt;sup>28</sup> Monthly estimates show that the decrease in employment hours in June and July 2020 was indeed greater than in April and May 2020.

The decrease in hours worked is also economically and statistically significant (Figure 6.3). Self-employed persons without a partner worked four hours per week less than self-employed persons with a partner in the third and fourth quarters of 2020. This is a decrease of around 10% compared to the hours worked of this group in the same quarters in 2019. The differences between self-employed persons with and without a partner decrease somewhat in the second long lockdown in the winter of 2020/2021 (the fourth quarter of 2020 and the first quarter of 2021) and increase again in the second and third quarters of 2021.

This may indicate moral hazard caused by the Tozo scheme. A self-employed person who starts working again also immediately loses the entitlement to at least part of the Tozo benefit. Hence the Tozo scheme may make it attractive to continue working less.

The results must be interpreted with the necessary caution. Alternative estimates at quarterly and monthly level yield similar results. We cannot completely rule out that the pandemic affected self-employed people without a partner differently than self-employed people with a partner (e.g. because the latter group more often has children). If that is the case, all or part of the decrease in hours worked could also occur independently of the Tozo scheme. The regression analysis does not show significant differences until the second quarter of 2020. This indicates that at the start of the pandemic self-employed people with and without a partner were not affected differently by the pandemic. However, we cannot test whether self-employed people with and without a partner were affected differently during the course of the pandemic.

#### 6.3 Effect on turnover

Before the introduction of the partner income test, self-employed people with and without a partner had a similar turnover development. Figure 6.4 shows the weighted average (using the weights resulting from matching) of the turnover for self-employed people with and without a partner. Self-employed people with a partner have higher turnover than self-employed people without a partner, but the turnover development is very similar.

The turnover of self-employed people without a partner increased less rapidly after the introduction of the partner test. Both groups saw a fall in turnover in the first quarter of 2020. From the fourth quarter of 2020, turnover fell further for self-employed people without a partner. Until the end of 2021, the turnover difference as compared to self-employed people with a partner remained larger than before 2020.

The sharper decline in turnover is economically and statistically significant, but it did not start immediately after the introduction of the partner income test. The regression results in Figure 6.5 show that self-employed people without a partner had an average of €1,000 less turnover in the third and fourth quarters of 2020. That is approximately 5% less turnover compared to the same quarters in 2018 and 2019. The lower turnover development remained significant in the first three quarters of 2021 until the Tozo scheme was phased out. The sharper decline in average turnover may be driven by a reduction in hours worked.

These results should be interpreted with caution, because the estimates are uncertain. Alternative estimation methods yield very similar results. <sup>29</sup> But as in the analyses of hours worked, it cannot be completely ruled out that the pandemic affected self-employed people without a partner differently over time.

<sup>&</sup>lt;sup>29</sup> We estimate models without fixed effects and Callaway Sant'Anna specifications. We use the estimator from Callaway and Sant'Anna (2021).

In addition, the results are not representative of the entire population of self-employed people. We only observe turnover for the following sectors: wholesale and retail trade, transport and storage, accommodation and food services, information and communication, specialised business services and other business services. There is no registry data available on turnover for the remaining sectors.

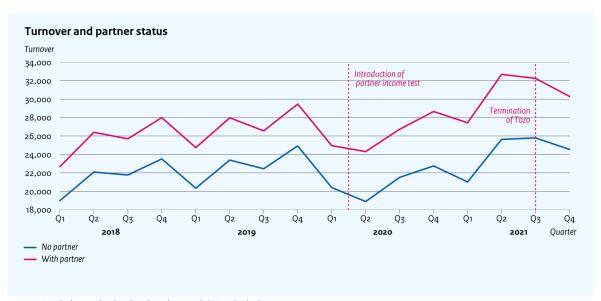


Figure 6.4 Turnover of self-employed persons and partner status: 2018-2021

Source: Statistics Netherlands microdata and CPB calculations

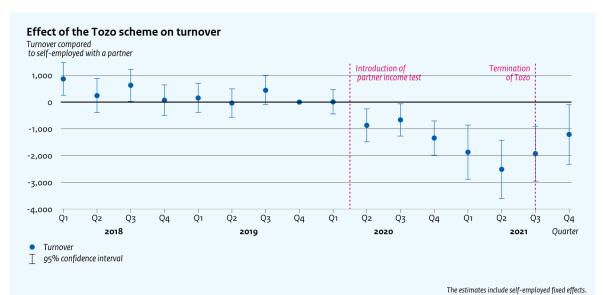


Figure 6.5 Regression results of the effects of the Tozo scheme on turnover

Source: Statistics Netherlands microdata and CPB calculations

# 7 Conclusions

Financial support for self-employed persons during an economic crisis raises important trade-offs. First, there is a trade-off between targeting and speed in order to eliminate uncertainty at the start of the crisis. Second, there is a trade-off between encouraging work and targeting. Third, there are considerations, such as macroeconomic effects, that we cannot assess on the basis of our analyses, because they are difficult to measure or outside the scope of this report.

Support could be provided in a more targeted way by means of an income and asset test, but this would be at the expense of simplicity and speed of implementation. If income support is mainly intended for selfemployed people with relatively little income and low financial buffers in the form of liquid assets, explicit conditions should also be included to that effect. This could involve, for example, a household income test and possibly also a means test on wealth.

Income-related support creates an incentive to work less, but reducing this incentive would come at the expense of targeting. Tozo recipients lose one euro of Tozo for every euro earned up to the social minimum. This may partially explain the negative effects on hours worked among low-income households. It may also explain the decline in turnover. These negative effects could be mitigated by phasing out the Tozo scheme more slowly as income rises, but this would make the measure less targeted.

There are also effects of the Tozo scheme that we cannot properly quantify or that are outside the scope of this report. For example, the stabilising effects on the macroeconomy due to mitigating a sharp fall in consumption are not taken into account. Nor does this report investigate medium-term effects. The support may also have broader effects, such as effects on the health of the self-employed. Furthermore, the available data do not allow reliable analyses to identify potential fraud with sufficient accuracy. This is mainly because we cannot adequately determine the population that was eligible for the Tozo scheme.

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# Annex A: Additional descriptive analyses

#### A.1 Household income

The high absolute numbers of Tozo recipients in the high deciles are due to the fact that most self-employed entrepreneurs have high incomes compared to the rest of the Dutch population. Figure A.1 shows the distribution of Dutch self-employed people in the income distribution at the beginning of 2020 and 2021. Inside each bar is the median disposable income per person in each decile on January 1. The deciles are defined on the basis of the total Dutch population with an income. This is the standardised disposable household income at the beginning of 2020 and 2021, in 2020 prices. On an annual basis, the social minimum is in the second decile.

Figure A.1 Income and income position of self-employed people in the Dutch population (households)

Source: Statistics Netherlands microdata and CPB calculations

#### A.2 Households' liquid assets

The lowest deciles had small liquid assets buffers at the start of the pandemic. The first decile had a median liquid buffer of €128 in their bank account in 2020 (see Figure A.2). In the second decile, the median household had only €1,163 in its bank account. This confirms the findings of previous studies that these groups are very vulnerable to shocks.<sup>30</sup>

<sup>&</sup>lt;sup>30</sup> See, for example, the CPB and AFM stress test of the crisis resilience of Dutch households (Vlekke et al., 2020) or the research of Van Toorn et al. (2021) on the resilience of self-employed persons.

Over half of the self-employed population had ample liquid buffers at the start of the coronavirus crisis: from the fifth decile onwards, the median liquid assets were above €10,000. These data provide a foundation for linking longer-term support for the self-employed to the asset position of households.<sup>31</sup>

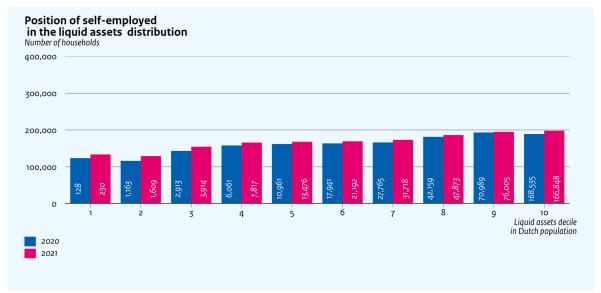


Figure A.2 Liquid assets of self-employed people in the Dutch population (households)

Source: Statistics Netherlands microdata and CPB calculations

#### A.3 Household composition

The household composition of the Tozo population changed substantially over the course of the pandemic. Figure A.3 shows the household composition of Tozo recipients each month. Until June 2020, self-employed people with (registered) partners made up the largest group of Tozo recipients. From May to June 2020, the number of Tozo recipients with a partner fell by more than 120,000 households (over 65%). The number of recipients without a partner fell by around 28,000 (around 36%). After May 2020, single-person households made up the largest group of Tozo recipients.

<sup>&</sup>lt;sup>31</sup> See, for example, Van Eijkel et al. (2020).

Household composition of Tozo recipients Number of households 300,000 250,000 200,000 150,000 100,000 50,000 0 Jan Feb Mar Apr May Oct Nov Dec Jan Feb Mar Apr May Aug Sep Oct Nov Dec Jul Jun Jul Sep Month Single-person household Married couple without children Single-parent household Unmarried couple with children Unmarried couple without children Married couple with children Shaded: phase of severe social distancing measures.

Figure A.3 Household composition of Tozo recipients (households)

#### Legal form of the business

The Tozo population mainly comprises sole proprietorships and general partnerships and includes fewer private limited companies. The Tozo scheme was not limited to any particular legal form. It is therefore interesting to examine the breakdown of Tozo recipients by legal form (Figure A.4).

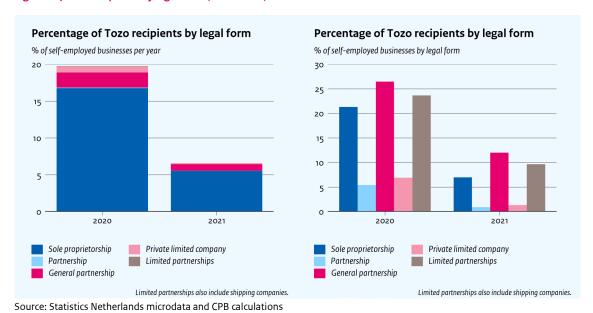


Figure A.4 Tozo recipients by legal form (businesses)

# A.5 Business loans per month

The Tozo business loans were mainly granted in the first phase of the pandemic. Figure A.5 shows the number of new Tozo loans. The granting of loans peaked in July 2020 and fell sharply thereafter. The shaded areas show the phases of severe social distancing measures.

Tozo business loans per month Number of new business loans 7,000 6,000 5,000 4,000 3,000 2,000 1,000 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec New business loans Shaded: phase of severe social distancing measures.

Figure A.5 Tozo business loans per month

Source: Statistics Netherlands microdata and CPB calculations

## A.6 Tozo take-up by branch

The ten branches with the highest Tozo percentages were also those most affected by the coronavirus pandemic. This is also consistent with previous analyses of the Tozo scheme. 32 In the main text we show differences between sectors (SBI01 level). Figure A.6 shows a refinement of the categories at SBI02 code level.

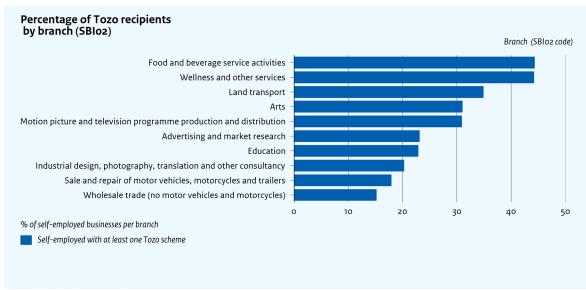


Figure A.6 Top 10 branches with at least one Tozo scheme (businesses)

Source: Statistics Netherlands microdata and CPB calculations

# Tozo take-up and other support packages

Tozo was not a standalone scheme, so it is interesting to examine its relationship with other support packages. 28% of Tozo recipients also used the TOGS (COVID-19 Damage Compensation) scheme and a quarter also used tax deferral in addition to Tozo. In addition, around 17% of Tozo recipients also received benefits from the Reimbursement of Fixed Costs (TVL) scheme. 9% also received support from at least one of the NOW (Temporary Emergency Bridging Measure to Preserve Employment) schemes. Figure A.7 shows the percentage of Tozo recipients receiving benefits under one of the other measures. 33 In Figure A.8 we show the use of other support packages by branch. Here too we see that many other support packages were used in the severely affected branches.

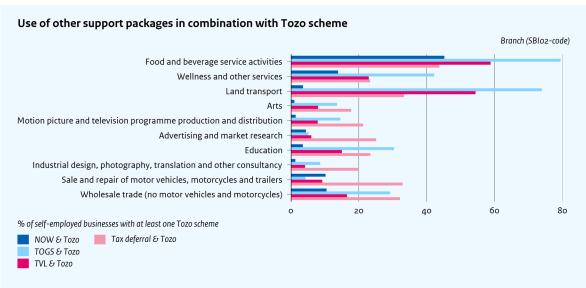
<sup>32</sup> CBS (2022c) comes to similar conclusions, but uses a different classification of sectors and is based only on the population of businesses with one employed person.

<sup>33</sup> The TOGS and TVL schemes provided compensation for monthly expenses and the NOW scheme ensured continued payment of wages for employees of self-employed persons. The tax deferral was intended as a loan to give businesses greater liquidity.

Percentage of Tozo recipients with other support packages Support package TOGS Tax deferral TVL One NOW scheme 20 0 10 15 25 30 % of self-employed businesses with at least one Tozo scheme Tozo recipients

Figure A.7 Use of other support packages combined with the Tozo scheme (businesses)

Figure A.8 Use of other support packages combined with the Tozo scheme for branches with the highest Tozo use (businesses)



Source: Statistics Netherlands microdata and CPB calculations

# Annex B: Explanatory notes on the econometric methods

In this section, we explain the regression analyses in more detail. In sections 6.2 and 6.3, we present the results of the econometric analyses we conducted on hours worked and business turnover. We estimate a dynamic differences-in-differences model combined with coarsened exact matching to determine the causal effects of the Tozo scheme on turnover. The matching variables are: gender, three origin categories (migration background), business age categories and sector (SBI1 code). We cannot use matching for the variable hours worked because we have too few observations in the data.

We observe each entrepreneur i in year-quarter t or for the hours worked also in each month t. We then estimate the equations below for each dependent variable.

Average weekly hours worked (in a quarter) from the Dutch Labour Force Survey (EBB) for a representative sample of entrepreneurs:

$$y_{it} = \alpha + \tau_t + \gamma D_p + \sum_{t=201901 \text{ } \land t \neq baseline \ quarter}^T \delta_t 1[p=t] (\tau_t \times D_p) + \omega' X_i + \epsilon_{it}$$

2) Turnover per quarter in whole euros

$$y_{it} = \alpha_i + \tau_t + \gamma D_p + \sum_{t=2019Q1 \ \land t \neq baseline \ quarter}^T \delta_t 1[p=t] (\tau_t \times D_p) + \epsilon_{it}$$

**The regression equation includes the following parameters.**  $\tau_t$  are annual-quarterly fixed effects.  $D_p$  is a dummy that is 1 for entrepreneurs who had no partner in the period from 2020 to 2021 inclusive. In the specifications for hours worked,  $X_i$  is a matrix with time-invariant control variables: gender, age category in 2020, origin and sector.  $\alpha_i$  in the regressions for turnover is a fixed effect at the level of the individual. Standard errors are clustered at the level of the individual.

The coefficient  $\delta_t$  is the causal effect of the Tozo scheme on outcome variable  $y_{it}$  under the following **assumptions.** First, there must be a common pre-trend in  $y_{it}$ , for both the treated and the control group prior to the treatment period. Second, the coronavirus shock must be the same for entrepreneurs in the treatment and control groups. We can test the first assumption using pre-trends and we have done so in all specifications. We can test the second assumption empirically by comparing the trends of the two groups in the second quarter. We cannot correct for this, however, if the shock to the groups evolves differently over the period of the pandemic. We can also make the analyses more plausible by making the groups even more comparable using matching or, failing that, using time-invariant control variables.

We limit the sample for the regressions to a subpopulation of all self-employed people to minimize measurement error, and make three important selections. First, we only include self-employed people whose self-employment is their main source of income. Second, we only analyse a balanced panel of selfemployed people in the period 2018-2021 and, third, the only legal form we consider is sole proprietorships.

# Annex C: Data construction and population

#### Data construction

In this section we describe the construction of the database and the key choices we made. Initially, our basis was the self-employed population on 1 January of the years 2018 to 2021 inclusive. We then link the underlying characteristics of this population. To benchmark our analyses, we use publicly available data from Statistics Netherlands on the use of the support measures.<sup>34</sup> There are minor differences because Statistics Netherlands has used a different population and linking methodology. Table C.1 provides an overview of the data sets used, the variables that we include from these databases in our analyses and the period over which we examine these variables.

#### Detailed description of the data

In this study we focus on all self-employed people and Tozo recipients belonging to the Dutch labour force. For the descriptive part in Chapters 4 and 5, we restrict the data to self-employed persons who were registered with the Chamber of Commerce in the period 2018-2021. These are self-employed people and Tozo recipients who belong to the labour force (aged 15 to 74 inclusive) and are registered in the Netherlands (Basic registration, BRP). In addition, we disregard institutional households.

We limit our analyses to entrepreneurs with a sole proprietorship, shipping company, partnership, general partnership, limited partnership or private limited company. 35 This is because the Tozo scheme is intended for self-employed people without personnel, self-employed people with personnel and directors/major shareholders. We disregard public limited companies, 36 foundations, associations, etc.

In the data we distinguish between data at the personal level of the Tozo recipient, the household that receives a Tozo benefit and the business of the self-employed entrepreneur in the household with a Tozo benefit. This is mainly due to minor limitations in the data: the Tozo benefit is paid at the household level and in the records we see a person who receives a benefit. However, this is not necessarily the same person as the person who has a business within a household. The personal data are the data of the Tozo recipient. The business data are those of the business of the self-employed person in the household. We select one business per person and household, because we do not observe which business a Tozo benefit belongs to. We apply the following decision-making rules: the largest business in terms of employees in full-time equivalents and otherwise the oldest business.

<sup>&</sup>lt;sup>34</sup> CBS (2021) and CBS (2022a) can be used as a benchmark.

<sup>35</sup> Our data differ slightly from the data already published by Statistics Netherlands, because we use other sources to determine the population of self-employed people. We do not have access to the 'Satelliet Zelfstandig Ondernemers' (SZO) file that Statistics Netherlands uses in its research, but we create links based on zelfstandigentab and inpbeidtab. This leads to minor differences, particularly in absolute numbers.

<sup>36</sup> Public limited companies (NVs) were not entitled to Tozo, but could claim other support measures, such as the NOW scheme and tax deferral.

We report data on monthly, quarterly and annual levels. This is because we only observe some characteristics at a certain frequency.

Table C.1 Overview of data sets used

	Data set Information and variables	Data period
Personal characteristics		
'Bijstandspersoonbus' database	Tozo subsistence benefit, social welfare benefit, IOAW/IOAZ, BBZ, other social welfare benefit (yes/no)	2020-2021.08
Bijzonderebijstanduitkering	Tozo business and loan benefit (yes/no)	2018-2021
Dutch Labour Force Survey (EBB)	Hours worked	2018-2021
Gbapersoontab	Age, gender, origin	2018-2021
Inpatab	Personal income, amount of self-employment tax deductions,	2018-2021
Inpbeidtab <sup>37</sup>	Business identification numbers of self-employed entrepreneurs and directors/major shareholders	2018-2021
Koppeltabelzelfstandigen	Personal identification number of self-employed entrepreneurs	2018-2021
Household characteristics		
Gbahuishoudensbus	Household composition	2018-2021
Inhatab	(standardised) Disposable income, decile group based on (standardised) disposable income	2018-2021
Vehtab	Assets, decile group based on assets	2018-2021
Business characteristics		
ABR	Legal form, sector, age of business, size category, municipality	2018-2021
DRT	Quarterly turnover for specific sectors <sup>38</sup>	2018-2021
Support packages (customised)	Indicator of whether a business received other coronavirus support packages in 2020 and 2021 (tax deferral, NOW, TOGS, TVL, etc.)	2020.03-2021.08

<sup>&</sup>lt;sup>37</sup> We identify the self-employed population on the basis of two micro databases: 'inpbeidtab' and 'koppeltabelzelfstandigen'. 'Inpbeidtab' provides information on self-employed entrepreneurs and directors/major shareholders during the year, with Statistics Netherlands examining income data to identify the target population. 'Koppeltabelzelfstandigen' provides information on selfemployed entrepreneurs on 1 January. Statistics Netherlands only includes self-employed persons and directors/major shareholders who pursue market activities and are responsible for their businesses as natural persons.

<sup>38</sup> The sectors are: wholesale and trade intermediary services, transport and storage, hospitality, information and communication, specialist business services and other business services.