

Analysis of the economic impact of COVID-19 pandemic on Small and Medium Enterprises

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Abstract

We analyze the determinants of operations degree and the expected duration of the pandemic as perceived by firms, using data of the *Conjuncture Survey to Manufacturing Small and Medium Enterprises* of *Fundación Observatorio PyME (FOP)* and additional data for the second and fourth quarter of 2020, with econometric models of the type of limited dependent and qualitative variable. We classify these determinants in four channels: firm-related variables, sanitary variables (COVID-19 cases), government-related variables and demographic variables. The main conclusion we obtain from all the estimations is that, for analyzing the degree of operation, all channels may have explanatory power, but for analyzing expected duration, only variables related to the firm are important.

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1 Introduction

The COVID-19 pandemic has shown since its beginning that there are two dimension of analysis that prevail over others: the sanitary and the economic facets, moreover that there is a trade-off between the two, but that both need to be considered jointly. In this paper we consider investigating the quantitative impact of these facets of the pandemic on Small and Medium Enterprises (SME) of the manufacturing sector in Argentina. Specifically, we identify four channels that could affect two important economic variables: the actual degree of operation, i.e. whether the firm is operating or not at present, and the expectations that the owners of the firms have regarding the duration of the pandemic. The four channels are: economic variables that characterize the firms, sanitary variables related to number of COVID cases, government-related variables like quarantines and aid programs, and demographic variables like mobility and density of population. The first and the third channels could be considered as pertaining to the economic aspect of the pandemic and the second to the sanitary aspect, leaving the fourth as a residual or control facet. We follow the methodology of [3] that consists in modeling econometrically the two mentioned variables: the degree of operation with *Ordered Probit* models and the expected duration with *Tobit* models.

We address the question of how important and of which magnitude is each of these four channels in explaining the two mentioned economic variables, in particular, how important are the own situation of the firm, the spread of COVID pandemic, the effect of the measures taken by the Argentine government, and the mobility of population (a variable that can proxy the economic activity level).

We start with data of the *Conjuncture Survey to Manufacturing Small and Medium Enterprises* (CS) that is conducted quarterly by the *Fundación Observatorio PyME* on a sample of 400 firms from Argentina, representative by industrial sector and size. To these data, we also incorporate information from another survey of the FOP, the *Structural Survey to Manufacturing Small and Medium Enterprises* (SS) that is conducted annually on a sample of 900 firms from Argentina, representative by sector, size and region and other sources. The two editions that we use for the analysis are the CS of the second and fourth quarters of 2020. We consider, as our period of study, the period from the start of the pandemic (for Argentina) at the beginnings of March 2020 to the end of December 2020, in which there has been one peak in the series of daily COVID contagions (during October 2020). However, during first semester of 2021, there has been a second increase in contagions, more harmful than the other, that is ongoing at the time of writing this

paper, and that we leave for future analysis.

Besides the questions we mentioned, that follow the analysis in [3], we believe that the paper contributes to the literature by showing evidence from another country, i.e., by showing the effect of particular variables that are produced only in the CS directed to Argentinean firms, which are not used in any other analysis of the pandemic. The analysis of the particular characteristics of the government measures taken in Argentina is, we believe, another contribution of the paper, as well as providing quantitative measures of the effect of each of the channels by estimating marginal effects on the degree of operation and the expected duration.

The rest of the paper is divided as follows: section 2 reviews the economic literature on the pandemic, section 3 describes the data used and performs a descriptive analysis, section 4 presents the estimation results and, finally, section 5 concludes.

2 Literature review

2.1 Firms decisions of reopening: survey data and Tobit models

We begin by reviewing the work by [3] who analyze firms decisions of reopening. They remark that there are two barriers that may impede reopening, even when the restrictions imposed by the government are lifted: first, the concern held by the owners and customers about their own health, and second, the coordination problems in the supply chain created by the dislocation associated with the pandemic. Two questions arise in relation to these decisions: first, as restrictions are relaxed, how quickly should we expect businesses to reopen, and second, to what extent are these different barriers driving decisions to reopen. They use econometric models to analyze the expectations that owners of firms have about when regulatory restriction will end, the expected level of demand and when will they reopen, taking into accounts the barriers mentioned.

As their primary source of data they use a survey to firms in the US made by *Allignable Inc.* They document using this survey that, between March and mid-May (of 2020), the share of firms temporarily closed fell from 41 to 24 percent, and that this percentage varies considerably across type of business, with firms considered essential by regulations being 16 percent less likely to be temporarily closed. In relation to expectations about reopening they document that for the modal firm, the legal restrictions are binding and they will reopen as soon as they are lifted, but that there are an 18 percent of firms

that report that they will delay reopening at least one month after restrictions are lifted. This delay in decision to reopen may be explained by the barriers mentioned above: health risks and coordination failures. The authors find that the first of the two barriers are not significant in explaining reopening: models with include the amount of COVID cases and other control variables show that the former are not significant. In relation to coordination failures, they find that problems related with suppliers (upstream) are not important, but problems related with customers (downstream) are significant. This last result shows the importance of the expectation of the level of future demand that owner of firms have. For the average firm, they find that the expectation of the demand level in September (made in the beginning of May) will be 35.3 percent lower relative to the pre-crisis level.

The authors argue that the responses that owners give, when surveyed, about what would be their expectations of the level of future demand, cause problems of endogeneity in the estimations, because, as they affirm "*... it is possible that firms that expect to delay reopening are merely justifying their behavior with statements about reduced revenues, which would lead to a spurious correlation between projected demand and reopening*". They use two instrumental variable methods to correct the endogeneity of the expectation of future demand: first, they design a survey in which for one-third of the respondents, their responses are made after knowing what is the average response of similar firms in the rest, to induce a change in the expectations ("*Optimistic owners shift beliefs downward, while pessimistic owners have rosier forecasts after receiving the information treatment*"). In the second approach, future demand is instrumented with the share of downstream firms that are in essential sectors. They estimate *Tobit* models and *Instrumental Variables Tobit* models in which the dependent variable is the expected time until reopening which is censored upward, and find that the effect of expected demand, as an explanatory variable (which is a causal effect in the case of instrumental variables estimations) plays an important role in contrast to health considerations or problems with suppliers.

In a related paper [4] report data of the same survey mentioned in the previous paragraph. The respondents are taken from the wave made at the end of March. They study three aspect in particular: first, a description of the current impact of COVID-19 on business operations and employment, second, a description of the financial fragility of those business and third, a description of the expectations about the duration of the crisis and on their own economic survival. In relation to the first aspect they report that 41.4 percent of firms where temporarily closed and 55.4 were still operative (only a 1.8 percent reported that they were permanently closed). In relation to employment, they report that full time employment had fallen by 32 per-

cent and part-time employment by 56 percent, both percentages compared to the end of January figures. Considering the breakdown by size and sector, smaller firms were more likely to be closed and had the largest employment reductions. The most affected sector were in-person retail and services business. The second aspect inspects whether the firms that temporarily closed had the resources to face the crisis over the months following the closing. One-fourth of these firms reported that they had cash-on hand for less than one month, taking as a benchmark the total expenses of January, and one-half had enough cash for a period of one to three months. Finally, in relation to the third aspect, one-fifth of firms answered that the crises will be ended by end of May, another 30 percent answered that it will be ended between the end of May and the start of July and another 50 percent answered that the crisis will still be ongoing by the end of July.

The closing of firms is documented also in [6] who uses data of the *Current Population Survey* of US comparing the period between February and April. The author finds that, in that period, the number of firms plummeted by 22 percent (3.3 millions), which is the largest drop in the series. Also, the number of firms that were operating part-time the drops were of 28 percent for firms working two days per week and 31 percent for firms working four days per week. For incorporated businesses, although more stables, the drop was of 20 percent. The decline was common to all industries except agriculture.

2.2 The economic impact of the pandemic dynamics: SIR Models

Another branch of literature uses the *SIR Model* (S : Susceptible of disease, I : actively Infected, R : Recovered or dead) to analyze the dynamics of the pandemic and its impact on the economy. These three states are modeled in dynamical system in which transition probabilities between states depend on health or economic parameters. In [2] the traditional *SIR Model* is used with transition probabilities modeled by health parameters and in [5] a *SIR-Macro Model* is defined in which transition probabilities depends on economic variables.

In the first of these articles the model is simulated in different scenarios to analyzes the trade-off between severity and timing of suppression of the disease. The main conclusion is that severe social distancing measures need to be taken to avoid congestion of the health system, which is calculated to happen when 1 percent of the population is actively infected, even when these measures have severe economic consequences. In a first experiment the model is simulated for several values of the parameter governing contagions, R_0

(lower R_0 values taken as proxy of more severe measures of social distancing). In all the scenarios considered the peak of population actively infected varies from 20 percent to 10 percent (from a values of R_0 of 3.0 to a value of R_0 of 1.6), and these peaks are reached at 200 to 450 days respectively. In a second experiment, a reduction in the speed of contagion is investigated by reducing continuously R_0 from a value of 3.0 to a long-run value of R_∞ of 1.6. The scenarios considered consist in different speeds at which R_0 fall from its initial values, finding that the benefit of speedy mitigation is in delaying the peak in the percentage of population actively infected (reached first at value of approximately 400 days for "very-low" descending speed). Finally, in a third experiment, it is investigated a sharp drop in the path of R_t as consequences of very hard social distancing measures imposed for a short period of time, and then a return of R_t to its initial value. In this case the fraction of actively infected population is maintained at roughly 0 percent for the first 300 days, and the peak of approximately 20 percent is reached at the day number 400. The conclusion from this last experiment is that the epidemic returns after mitigation measures are relaxed.

A modified version of the *SIR Model* is presented in the second article to study the trade-off between economic and epidemic variables: as people cut back consumption and work hours, a reduction in the severity of the epidemic (as measured by total deaths) is obtained, but these same decisions increment the size of the recession. The pandemic has both aggregate supply and aggregate demand effects. The first arises because the epidemic expose people who are working to the virus who react by reducing their labor supply. The second arises because the epidemic expose people who are purchasing product who react by reducing their consumption. A market failure arises because each person takes the economy-wide infection rate as given. The authors examine what would be the policies that the government should implement to deal with this externality. They find that it is optimal to introduce large social distancing measures that exacerbate the recession but raise welfare by reducing the number of deaths. In a benchmark *SIR Model*, in which transition probabilities are determined by health parameters, calibrated to reach 60 percent of population infected, the authors find a mild recession, consumption falls by 0.7 percent in the first year, and in the long-run GDP and population fall by 0.3 percent. Considering the *SIR-Macro Model* in which transition probabilities are determined by people consumption and work abstracting from the possibility of vaccination and medical treatment, and assuming limited health capacity, the recession is much sharper: consumption fall by 4.7 percent in the first year. In both models the end of epidemic is reached when a sufficiently high fraction of population become immune ("herd immunity"). As the authors affirm, "*The best policy in this*

world is to build up the fraction of the population that is immune, curtailing consumption when externalities are large, that is when the number of infected people is high. Such a policy involves gradually ramping up containment measures as infections rise and slowly relaxing them as new infections wane and the population approaches the critical immunity level". Another scenario is considered, in which the health system is overwhelmed by treating the mortality rate as an increasing function of the number of people infected. The recession is much larger and the optimal policy is to impose more aggressive containment measures. In a scenario when vaccines become available, the optimal policy is to introduce initially severe containment measures which cause a large recession but minimize deaths.

In an analysis of the case of Argentina the authors of the work[1] observe that the assumption of a single peaked pandemic dynamics of a *SIR Model* may be misleading for prediction and policy proposal. The overall process of the pandemic is uncertain in dimension, time span, speed and recurrence cycles. The authors propose a combination of short-term time-series forecasts and the *SIR Model*. Forecasting techniques that detect breaks "...allows helping in the process of detecting changes in the evolving stop and go nature of the COVID-19 process and directly translate into SIRD [i.e. SIR] parameters". This approach is illustrated with data of the *City of Buenos Aires* (up to June 10, 2020), in which they estimate models and evaluate their forecasting performance for reported cases and deaths. They use, for dealing with breaks in the series due to policy intervention or sudden shocks, robust forecasting techniques for 7 days ahead, and show that these forecasts can be related to *SIR Models*.

3 Data

3.1 Description of the database

The databases used in this article corresponds to FOP's CS for the second and fourth quarters of 2020, FOP's SS of 2020 and additional variables added from other sources. The CS is a quarterly survey specifically directed to SME of the manufacturing sector. The size of the sample, each quarter, is of 400 SME that have between 10 and 249 employees. The effective sample size in the first database was 357 due to the difficulties associated with the pandemic, and 400 in the fourth quarter. The sample is stratified by activity sector and by size measured by quantity of workers: 13 sectors of production (following the classification of the *International Standard Industrial Classification* (ISIC) Revision 4 of the *United Nations*) and 2 sizes, resulting in a total of 26 strata.

Table 3 shows the detailed description of the components that form the strata. These two database are used separately for estimation and have a common set of additional variables coming from the SS and other sources. The SS is an annually survey directed also to SME that has a sample size size of 900 firms for the manufacturing sector, stratified by activity sector, size and region. In essence, the CS is used to analyze the short-run dynamics of sales and other performance variables and has a short questionnaire. The SS, to the contrary, has a larger questionnaire and is used to analyze several dimensions of the firms, not only economic performance. The variables utilized, that we describe in Subsection 3.2, from the CS are:

- *Degree of operation*: which take four discrete values (1 = evaluating closing the firm, 2 = temporarily closed, 3 = partially open and 4 = open)
- *Expected duration of the pandemic as perceived by the owners of the firms*: takes discrete values corresponding a period of time in the future. It is censored upward, because the last value includes the expectations of all future dates greater than that value.
- *Business Confidence*: corresponds to FOP's *ICEPYME* to be explained below.
- *Orders received*: a discrete variable that measures if the orders received in the quarter have decreased, stayed equal or augmented.
- *Expected demand*: a discrete variable that measures if the future demand in the short-run will decrease, stay equal or augment.

These variables have variability at the firm level. From the SS of 2020 we used:

- *Percentage of firms that received credit*. These data correspond to credit solicited in year 2020 during the pandemic.
- *Percentage of sales exported in 2019*
- *Percentage of sales invested in 2019*
- *Average labor productivity of 2019* (total of 2019 sales divided by total employees of 2019).
- *Average quantity of employees with postgraduate studies*

These variables were merged to the two databases of the CS and have variability at level of stratum. Finally, the additional variables that come from other sources correspond to:

- *Variables related to the clients of the firm* (downstream) to measure if the firm is specialized in retail sales. Specifically, for each sector to which the firm belongs (at 4-digit, at 2-digit and at the 13 sector described in Table 3) the percentage of firms that sale 50% or more to retail customers. These variables are included in the database to take into account the possibility that customers may choose not to buy in these type of firms because of fear of contagion of COVID-19. The source of these three variables is the FOP's SS of 2019.
- *Legal permission to operate.* These are dummy variables that measure if the activity of the firm was permitted in each of the months from April to August (after this last month there was a relaxation in permissions to operate). These variables capture the extent of the lock-down imposed by the government. The source is the government's web page *Infoleg* which has a database of laws and decrees sanctioned.
- *Covid-19 cases.* The source of these data is the database published daily by the *National Ministry of Health*. The data correspond to the positive test occurred in each day since the first cases in Argentina (March, 3, 2020) classified by region (province and department). We computed total cases for each quarter, accumulated cases for each quarter, and cases per 100,000 inhabitants for each month and quarter. We assigned to each firm the number of cases of the department where is located.
- *Population density.* The information comes from the census of Argentina of the year 2010 made by the *National Institute of Statistics and Census* (INDEC by its acronym in Spanish).
- A dummy variable that indicates if the firm is located in the *Metropolitan Area of Buenos Aires* (AMBA, by its acronym in Spanish) formed by the *City of Buenos Aires* (BA) and the 24 surrounding departments (known as *Great Buenos Aires*) (GBA). This variable is similar to the population density since AMBA concentrates approximately 30 percent of the population of the country in a very small area. This region tends to be overrepresented in the sample of both CS due to the ease in surveying firms there.
- *Government aid programs to SME.* The national government implemented from April to December (although we have data up to August)

the *Emergency Assistance Program for Work and Production* (ATP Program, by its acronym in Spanish) that consisted in a grant to pay 50 percent of the salaries of a firm up to 2 minimum legal wages, for firms that have experienced a large drop in nominal sales (according to the sanitary situation and its impact on activity, the drop magnitude was adjusted) in each of these months. In our database we include, for each firm, a dummy variable for each month of the ATP between April and August. We identify the firms in the CS and in the ATP databases by the tax identification number (*Clave Unica de Identificación Tributaria*, CUIT by its acronym in Spanish).

- Mobility data that come from *Google’s Mobility Index*. We assign to each firm the mobility of the department to which belongs.

Except for the first, which comes from the SS and has variability at the level of sectoral activity code, the others have variability at firm level.

3.2 Descriptive analysis

In this subsection we show descriptive statistics and graphs of the variables of our two database (CS of the second and fourth quarters of 2020) with the additional variables mentioned in the previous subsection (3.1).

Size and Sales The manufacturing SME were in recession previous to the start of the pandemic, only medium enterprises showed positive rates of variation of real sales in 2019 (Figure 1). Employment showed negative rate of variation since the first quarter of 2018 and only in the fourth quarter of 2020 showed a positive rate, however, medium-sized enterprises exhibited positive rates for some quarters (Figure 2). The following two paragraphs describe the figures from the two CS’ waves considered in the models estimated: that from second and fourth quarter of 2020.

In the second quarter, the average quantity of employees of all the sample is 31.7, which, if it is separately analyzed by small and medium size, gives figures of 19.6 and 104.8. With respect to sales in nominal and real terms, Table 5 shows that rate of change with respect to the previous quarter experienced a great drop of approximately 20% in real terms, as a consequence of the lock-down imposed by the government. The impact of the drop in medium-sized enterprises was half that of small-sized enterprises. This shows that the lock-down, that started in March 20, 2020, impacted greatly in the second quarter. The most impaired sector was Textiles with a drop in real sales in the quarter of approximately 53%. It is followed by the drop in

non-metallic products of approximately 34%, which is explained by the huge fall, of approximately 70% (with respect to the same period of the previous year), in the Buildings Sector of GDP (ISIC codes 41, 42 and 43). Other important drops are those of: metals, parts of vehicles, furniture and other manufacturing products.

With respect to the figures of the previous paragraph, those of the fourth quarter relative to employment stayed roughly constant at 31.2 for average employment (19.5 and 102.2 for small and medium firms respectively). However, the figures of sales show an improvement with respect to the second quarter due to an easing of most of the regulations that impeded the operation of firms. Also, as it is shown below in the paragraph related to COVID data, a phase of decrease in the number of daily contagions was ongoing since the end of October. All the sector, except Chemical and Pharmaceutical products, showed a positive rate for real sales, most notably Textiles, Parts of Vehicles and Other manufacturing products. Although the rates shown in Table 5 are with respect to the previous quarter and not seasonally adjusted, they serve as an estimation of activity level in those quarters.

Qualitative condition of demand: orders received This variable serves to characterize accurately the demand that the firms have during the quarter. It has a positive strong correlation with the qualitative variation in production (the two indicators are included in a section of the CS, as indicated in Table 4). The figures in Table 6 show a drop sharp in orders received in the second quarter, 64.74% of firms experienced a decrease in orders, and a recovery in the fourth quarter when only 22.11% of firms experienced a decrease in orders and the percentage of firms that experienced an increase has doubled. The recovery is also higher for medium enterprises than for small ones.

Expectations about future sales The expectations about future sales available from the CS (sales of the next quarter) can be considered similar to the expectation of the future level of demand considered in [3]. The figures in Table 7 show no important variation in the expectations about future demand in both quarters. In fact, the percentage of firms that expect a decline in sales is greater in the fourth quarter and may be due to the seasonal effect of vacations.

Business Confidence Index The *Indice de Confianza Empresarial PyME* (ICEPYME) is an index that measures the beliefs that the entrepreneurs have about the conditions in which they operate. It has three components: an as-

assessment of the actual situation with respect to one year back, an assessment of what will be the situation one year in the future and an assessment about if it is a good or bad moment to invest. The first component has three sub-components: the situation of the firm, the sector and the country. The second component has four sub-components: an assessment related to profitability is added. These components are called in the following sections: actual conditions (*act_cond*), expectations about the future (*futur_expec*), moment to invest (*moment*) and the general index (*icepyme*). Table 8 shows the correlation between these four variables, in which it can be seen that *futur_expec* is the component most correlated with index. The index, which varies between 0 and 100, experienced a large drop in the first quarter (from 38.9 to 30.2) and recovered in the second quarter reaching a value of 42.2.

Degree of operations and expected duration of the pandemic The first of these variables is a categorical variables that measures the degree at which the firm is operating in the second and fourth quarters. It has, as mentioned, four categories: evaluating closing the enterprise, temporary not operative, partially operative and totally operative. The second variable measures the expected time at which the enterprise will recover its pre-pandemic level of sales, which could be considered as the expected duration of the pandemic as perceived by the owners. This variable is censored upward, since there is a last option which groups all future possible dates in one item response. Figure 9 shows that, in the second quarter, there was a clear inverse relation between these variables: the perceived duration was longer as the operative condition of the firm got worse. In the fourth quarter (Figure 10) most of the firms were operative, totally or partially, and the firms that were not operating had high figures for expected duration, in particular the firms that were evaluating closing, which considered that they will not recover from the shock introduced by the pandemic.

Also, the business confidence index is related to these variables (positively in case of degree of operations and negatively in case of expected duration) as Figures 11 and 13 show for the second quarter and Figures 12 and 14 show for the fourth quarter respectively. This illustrates the result that firms expecting longer duration of the pandemic or were closed have worse expectation about the conditions in which they operate.

In Figures 15 and 17 it is shown the sectoral composition of degree of operation. Textile was the sector with more firms closed or temporarily closed in the second quarter and textile and non-metallic minerals in the fourth quarter. Figures 16 and 18 show that expectations about duration take values for almost all sectors in each category (expected date). Finally,

firms operating totally or partially expect sales to go up in the near future (Figure 19 and Figure 20).

Government programs to aid SME in the pandemic The ATP Program was designed by the national government at the beginning of April to aid firms to pay salaries. Related to pay roll, it stipulated that firms satisfying certain conditions of sales loss (specifically a one year fall in nominal sales of 50% or more) will receive a grant equal to 50% of salaries (up to two minimum legal wages). Additionally, the ATP Program disposed the postponement of some labor taxes and their reduction up to 95%. The program operated from April to December of 2020 ¹. Taking the database of the second quarter, mostly firms of small size and of food and beverages, textiles, machinery and metal sector entered in the program. Table 9 shows that, effectively, the firms that experienced greater drop in sales received aid from the government. However, considering the database of the fourth quarter, firms that received aid from the program in June to August, had greater rates of variation in sales in the fourth quarter (a quarter with positive aggregate variation in nominal and real sales), which shows that the program effectively helped firms in short-run to remain operative. Moreover, Figures 21, 22 and 25 show the relation between the access to the program and the degree of operation in which it can be seen that firms not operating acceded to the program in greater proportion. Figures 23, 24 and 26 show the relation with respect to the expected duration of the pandemic, where there is no clear relation, except for Figure 26 in which there is a low percentage of firms that answered already recovered that received aid.

COVID-19 data This data correspond to information that comes from the *National Ministry of Health*. We describe first the series for the whole country to give an introduction summary of how was the dynamics of the pandemic since its beginnings. Figure 3 shows that since the first cases the curve of daily contagions had a peak in October, another in January and a more pronounced peak in April that is ongoing at the time of writing this paper. From the point of view of the two CS waves analyzed, the first (second quarter) experienced an ascending phase of the curve and the second (fourth quarter) a descending one. However, aggregate figures do not show the dynamics in different regions of the country. In relation to this, Figure 4 shows that the behavior of the pandemic in AMBA, the region integrated by BA (Buenos Aires City) and GBA (suburbs of BA), has shown a peak, in July, before that of the aggregate curve. Meanwhile, for *the rest of the Province*

¹We only have data of the program from April to August.

of *Buenos Aires* the curve was ascending up to the moment of the peak in aggregate curve. The same happened for the rest of the country. These two last regions (the rest of the Province of Buenos Aires and then rest of the country) more than compensated the decline of the first two. Considering monthly total cases from Figure 5, it can be seen the same behavior and that in the rest of the country the most important provinces was *Santa Fe*, *Córdoba* and *Tucumán*. Comparing monthly total cases per 100,000 inhabitants it can be seen that the provinces of *Tierra del Fuego* and *Santa Cruz* experienced months with peaks in the figures clearly higher than the rest (Figure 6). For the models estimated we consider four measures of Covid cases: cases in the quarter, cases in the quarter per 100,000 inhabitants, accumulated cases up to the quarter and accumulated cases up to the quarter per 100,000 inhabitants.

Mobility data Data from mobility come from *Google's Mobility Indexes* which measure the mobility in workplaces, transit stations, retail and recreation places, parks, groceries and pharmacies and residential places. All of the indexes show the sharp effect of the quarantine imposed by the government in March, 2020. The residential index went up and all other indexes showed a large decline. After April, all the indexes started a recovery and, by December, the groceries and pharmacies index reached the pre-pandemic level and the workplaces index almost its pre-pandemic level (shown in Figure 7). For the models estimated we use the workplaces index, assigning to each firm the mobility index of the department or municipal district to which it belongs.

Data from the Structural Survey (SS) These data are introduced in the models to consider control variables. The percentage exported, the percentage invested, the quantity of employees which postgraduate studies and the labor productivity do not change too much from year to year and are included as proxies for firms better organized that could deal with the pandemic in a better way. The percentage of firms that received credits in 2020 is affected by the pandemic, as the models estimated show below. Figure 8 shows the averages of these variables grouped by firm size.

4 Estimation results

In this sections we present the results of the econometric estimations of *Ordered Probit* models to explain the degree of operations of the firms and

Tobit and Instrumental Variables Tobit models to explain the expected duration of the pandemic (the time after which the firm expects to return to its pre-pandemic production level) as perceived by the owners. The two period covered are the second quarter of 2020, which was of strict lockdown measures and great drop in sales, and the fourth quarter of 2020, when there was a relaxation of the restrictions and a greater economic activity level. We investigate the explanatory power of the four channels mentioned in section 1: economic variables of the firms, sanitary variables, government-related variables and demographic variables.

We use the econometric methodology in [3] in which the authors use *Probit Models* and *Tobit and IVTobit Models* to analyze the decision of firms' owners to reopen after the restriction to operate are lifted. In the first case, they model the probability of being open at December 20, 2020 (the article was written in June, 2020). In the second case, they analyze the expected time when the owners will reopen and the factors that determine this decision. The expectation about future demand is the most important factor explaining this decision, and the authors consider the case that the variable used to measure this effect is endogenous.

We estimate *Ordered Probit Models* at the the second and fourth quarters of 2020 in which the dependent variable can takes four values: evaluating closing, temporarily closed, partially open and totally open, value 1 to 4 respectively. These estimations differ from those in [3] in that the response are made after each quarter has been completed.

Secondly, we estimate *Tobit Models* to analyze the expected duration of the pandemic as perceived by the owners of the firms, i.e., how much time will take to recover the level of pre-pandemic sales. The CS has a question regarding the qualitative variation in sales in the near future that we use as a variable similar to the level of expected demand in [3] for estimating *Instrumental Variables (IV) Tobit Models*.

Finally, we include an analysis of marginal effects for the most representative models in each case. The estimations are performed using the software package **Stata**.

4.1 Explaining the degree of operation of the firms

Tables 12, 13, 14, 15, 16 and 17 present the results of *Ordered Probit* models for the second quarter. The dependent variable takes four categories: evaluating closing, temporarily closed, partially operative and fully operative, in this order. The regressors related to the firm are always significant and with the expected sign: the expected duration of the pandemic has negative sign because a longer duration implies a larger period in which the firm has

to incur in fixed expenses with low level of sales. The business confidence index (ICEPYME) has positive sign as more confidence in the economy is associated with a greater probability of staying open. The same happen with orders which measure the actual level of demand. The expected demand has negative sign because in this quarter, having a great expected demand implies having a current low level of demand (temporarily, due to the pandemic) and hence a low operations degree. The percentage of firms that has retail clients and a dummy variable for size are not significant. The only significant ones are (Model (6)): Food and beverage, Paper and rubber and Plastic, that are essential sectors (as in the case of Food and beverage) or provide materials for this sector. Productivity is significant in certain specifications (Model (3)) as percentage of sales exported (Models (4), (5) and (6)) that measure the organization and capacity of the firm to access international markets. Finally, the percentage of firms that obtained credit is always significant with negative sign which shows the inverse relation between this variable and the degree of operation. In this quarter, firms with low degree of operation obtained more credit from banks and financial assistance from the government (shown below for *ATP Program*).

In relation to government channel: a dummy variable for ATP in May is significant and with negative sign in all models tested. The sign is due to the fact that for having received aid from the program, the firm must have experimented a large drop in sales, as mentioned in subsection 3.2, which is associated with a lower probability of being open. The dummy for legal habilitation to operate is significant and with positive sign, as expected, for June.

In relation to sanitary variables only accumulated COVID cases in the second quarter and accumulated COVID cases per 100,000 inhabitants in the same period are significant and with negative sign, showing that the pandemic affected the degree of operations. To the contrary, COVID cases that occurred in the third quarter are not significant. There is little impact of the variables related to COVID cases because the impact of the pandemic is captured in the other regressors: those of the firm and the government.

In relation to demographic variables: Google's mobility is significant in the majority of models with positive sign, showing that this variables act as a proxy for the level of demand that firms has. The dummy variable for AMBA is the other significant variable in this channel, with negative sign, which shows that the pandemic affected more the operation of firms in this region in second quarter.

Tables 23, 24, 25, and 26 show the results for the fourth quarter. Expected duration and orders received are the two significant variables in all models, the former with negative sign and the latter with positive sign, as

in the second quarter. All other regressors are not significant for explaining the degree of operation in this quarter. Only in Model (3) there are other significant regressors but they are not significant in all the models considered.

Table 1: Summary of the explanatory power of regressors for *Oprobit* Models

Channel	Q2	Q4
Regressors related to the firm	found evidence of almost all regressors	found evidence of duration and orders
Regressors related to government policies	found evidence of aid programs and legal habilitation	no evidence
Sanitary channel	found evidence of accumulated cases and accumulated cases per 100000 inhabs.	no evidence
Controls (including mobility)	found evidence of mobility and AMBA dummy	no evidence

To summarize, Table 1 shows the evidence of regressors with explanatory power in each of the four channels: in the second quarter, when the curve of contagions was rising and there were severe restriction measures, all channels had impact; but in the fourth quarter, when the curve was descending and there was a relaxation of restrictions, the degree of operations was affected only by two regressors (expected duration and orders received).

4.2 Explaining the duration of the pandemic perceived by the firms

Tables 18, 19, 20, and 21 show the results for the second quarter. Variables related to the firm are significant and with expected sign: being operative, having more orders (actual demand or demand in the near future), having more confidence or expecting higher demand in the future are associated negatively with the expected duration of the pandemic in all models tested. The dummy variable for size is significant in all models but with positive sign, which is, a priori, not as expected because medium enterprises (more than 50 employees) are more stable to fluctuations in business and have better indicators of organization and performance. Government aid and legal habilitation are not significant, as well as COVID cases are also not significant to explain the expected duration. Another significant regressor is bank

credit access, with negative sign, which shows that credits helped the firms in the most difficult quarter of the pandemic, from the point of view of the decline in sales (not the sanitary situation) and contributed to form expectations of lower duration. Finally, mobility and demographic variables are not significant.

Tables 27, 28, 29, and 30 show the results for the fourth quarter. Degree of operations, business confidence, mobility and size are significant with negative sign, as expected. In this case, size is strongly significant for explaining the expected duration contrary to the results of the second quarter. Government aid (July) is also strongly significant with positive sign. The sign is contrary to expected, because as it is shown in Table 9, firms that received aid in the third quarter performed better in the fourth quarter. The sign could be explained by a worse economic situation for the firms in July to maintain operations, that may influence the expected duration perceived in the fourth quarter. COVID cases are in general not significant, also demographic variables are not significant.

Table 2: Summary of the explanatory power of regressors for *Tobit* Models

Channel	Q2	Q4
Regressors related to the firm	found evidence of almost all regressors	found evidence of degree of operation, ICEPYME and size
Regressors related to government policies	no evidence	found evidence of aid programs (lagged: ATP of July)
Sanitary channel	no evidence	little evidence of Covid cases
Controls (including mobility)	no evidence	found evidence of mobility

We include a summary in Table 2: in the second quarter, the variables that helped to explain the expected duration were of the firm channel. The other channels helped to explain the degree of operations but not the expected duration. In the fourth quarter, there are evidence of the firms channel and little evidence of the other three channels.

4.3 Estimation considering endogeneity

As treated in [3], we consider the possibility that expected demand is endogenous in the *Tobit* models, so we estimate *Instrumental Variables Tobit* models. We cite those authors in section 2 because they consider the expected demand endogenous: firms could respond a different duration than perceived to justify their behavior in relation to operations and the decisions to stay open or not after legal constraints are lifted.

The categorical variable expected level of sales, described in subsection 3.2, is considered as the analogue of the expected demand in [3]. To instrument this variable we use the component of the business confidence index (ICEPYME) that is related to the assessment of future conditions which is correlated with expected sales. Also, we consider the mobility index one quarter ahead as another instrument, because it measures the level of economic activity in the near future for firms. To determine if they are valid instrument we use the Wald test of exogeneity of the instrumental variables which has a null hypothesis of no endogeneity.

Table 22 shows the estimations for the second quarter. Expected demand (instrumented), operations degree, orders received and actual conditions (component of ICEPYME) are significant and with the expected negative sign in the second stage regressions. In the first stage regression, expectations of future business conditions are significant with positive sign and orders with negative sign. At 95 percent confidence level the null hypothesis of no endogeneity is accepted in all cases (whit p-values of 0.0615 and 0.1333 respectively).

Table 31 shows the estimations for the fourth quarter. The results are similar to those of the second quarter, except that orders are not significant in the second stage regression. At 95 percent confidence level the null hypothesis of no endogeneity is rejected in the two models (whit p-values of 0.0211, 0.0307 respectively).

4.4 Estimation of marginal effects

Estimation of marginal effects of a representative model in each type of estimation is considered. In the case of *Ordered Probit Models* we consider a representative model which has as many significant regressors as possible (withouth considering COVID cases) and a model in which, if it is found, at least one variable for COVID cases is significant. Table 32 and 36 shows the first case and Table 33 shows the second case. The conclusions may be best viewed in Figures 27 and 29. The regressors that are positively related to the dependent variable have a greater marginal effect (i.e. variation in probabil-

ity) for the outcome of being totally open (ICEPYME, Orders, Mobility, and Percentage of sales exported in 2019). The contrary happens with the regressors negatively related with the dependent variable for the second quarter. The same happens in the fourth quarter with the exception of productivity which have a greater marginal effects as the outcome augments.

For the model that include significant variables related to COVID cases, Figure 27 shows that evaluating the marginal effects at different levels of COVID cases exhibits the the same pattern of reducing these effects for the totally open firms. As we mentioned in subsection 4.1 the impact of COVID is captured by its impact on other regressors rather than in a direct way.

In the case of *Tobit Models* for the second and fourth quarter the greater marginal effect is for degree of operation, implying that augmenting it reduces the expected duration of the pandemic (Tables 34, 35, 37 and 39). Varying COVID cases has no effect on the marginal effects for the expected duration (Table 38).

5 Conclusions

We analyze the determinants of operational degree and the expected duration of the pandemic as perceived by firms, using data of the *Conjuntural Survey* of Fundación Observatorio PyME (FOP) for the second and fourth quarter of 2020, data from the *Structural Survey* (SS) of FOP and additional data. We classify these determinants in four channels: firm-related variables (from the CS and the SS), sanitary variables, government-related variables and demographic variables.

In general all variables related to the firm are significant and with the expected sign. For operational degree (*Ordered Probit models*): business confidence and orders received with positive sign and expected duration with negative sign. For variables related to government, legal habilitation has positive sign (in the second quarter and it is not considered in the fourth quarter because restrictions were relaxed in general not only for the manufacturing sector) and government-aid has negative sign because it is directed to the most affected firms. COVID cases have negative sign, but it is significant only in models of the second quarter; and demographic variables that measures population density have negative sign.

For expected duration, we use *Tobit models* because the response is censored upward. The variables related to the firm have the expected sign: operations degree, orders, business confidence and expected demand have negative sign as well as COVID cases. We consider the endogeneity of expected demand accepting the null hypothesis of no endogeneity in all models

for the second quarter but not in models for the fourth quarter. The instruments used are: the component of the ICEPYME related to expectation of future conditions and the mobility index one period ahead.

Finally, we perform a prediction analysis, calculating the marginal effects. In the case of *Ordered Probit Models*, variables related positively have greater impact on the probability of being open, and the contrary happens in variables related negatively. The impact of COVID cases has the same shape and magnitude when evaluated at different values. In all cases they affect negatively the probability of being open and positively the other outcomes. In the case of *Tobit Models* all effects are significant and with the same sign as in the estimation.

The main conclusion we obtain from all the estimations is that: for analyzing the degree of operation, all channels may have explanatory power, but for analyzing expected duration, only variables related to the firm are important.

We leave for future work the analysis of the pandemic during 2021, particularly in relation with the resurgence of cases that is ongoing since April.

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Table 3: Components determining the strata.

Activity sector	Firm size
Food and beverages	10-49 employees
Textiles, wearing apparels and leather	50-249 employees
Wood and products of wood and cork	
Paper and paper products and reproduction of recorded media	
Chemical and pharmaceutical products	
Rubber and plastic products	
Other non-metallic products	
Basic metals and metal products	
Computer, electronics, optical and electrical products	
Machinery and equipment	
Parts and accessories for motor vehicles	
Furniture	
Other manufacturing products	

Table 4: Parts of the Conjuncture Survey

Data related to	Variables
Employment and sales	quantity of employees at the start and end of the quarter and sales of the current and previous quarter in pesos
Rates of variation in the current quarter with respect to the previous quarter	production, nominal sales, prices, cost of the most important supply, wages, total costs and profitability
Qualitative variation in the current quarter with respect to the previous quarter	exports, domestic sales, orders, hours worked, stocks, time of delivery of suppliers and capacity utilization
Principal problems	problems related to drop in sales, demand, financing, payments, costs, competence of imports and other problems
Qualitative expectations for the next quarter	domestic sales, quantity of employees, hours worked, prices of the principal product and exports
Qualitative expectations with respect to the past and the future	profitability, investments, economic situation of the firm, situation of the activity sector to which the firm belongs and economic situation of the country. Finally, if it is a good or bad moment to invest
Questions related to COVID-19 pandemic	degree of operation, time at which the firm will recover the pre-coronavirus level of sales and a question related to the hypothetical use of a loan received from the government

Table 5: Rates of variation of nominal and real sales

Sample	Nominal Q2	Real Q2	Nominal Q4	Real Q4
Total sample	-15.43	-20.93	23.76	11.47
Small enterprises	-17.73	-22.46	22.92	10.91
Medium enterprises	-5.08	-11.69	28.81	14.89
Food and beverages	-9.18	-13.27	16.62	6.28
Textiles, wearing apparels and leather	-50.3	-53.02	43.77	26.47
Wood and products of wood and cork	-10.77	-18.04	30.03	11.51
Paper and paper products and reproduction of recorded media	-11.17	-16.67	24.64	13.59
Chemical and pharmaceutical products	0.66	-7.93	5.04	-3.39
Rubber and plastic products	15.83	6.99	20.95	7.18
Other non-metallic products	-31.05	-34.36	16.21	4.31
Basic metals and metal products	-31.01	-35.69	14.74	3.49
Computer, electronics, optical and electrical products	2.59	-5.75	21.56	9.47
Machinery and equipment	32.69	19.68	30.25	19.75
Parts and accessories for motor vehicles	-25.22	-29.11	42.90	27.29
Furniture	-30.15	-35.14	20.76	8.28
Other manufacturing products	-28.49	-30.51	35.21	26.16

Table 6: Orders received in the quarter (percentage of firms)

Sample	Declined Q2	Equal Q2	Augmented Q2	Declined Q4	Equal Q4	Augmented Q4
Total sample	61.74	17.15	21.11	22.11	34.13	43.76
Small enterprises	64.59	14.72	20.69	24.30	33.33	42.37
Medium enterprises	44.47	31.86	23.67	8.84	39.00	52.16

Table 7: Expectations about future sales (percentage of firms)

Sample	Decline Q2	Equal Q2	Augment Q2	Decline Q4	Equal Q4	Augment Q4
Total sample	20.57	42.21	37.22	31.31	33.04	35.65
Small enterprises	20.55	43.33	36.11	31.62	32.82	35.56
Medium enterprises	20.66	35.39	43.95	29.40	34.39	36.21

Table 8: Correlation matrix for the *ICEPYME*

Component	Icepyme	act_cond	futur_expec	moment
Database of 2Q20				
Icepyme	1.0000			
act_cond	0.6504	1.0000		
futur_expec	0.8733	0.2270	1.0000	
moment	0.4005	0.2799	0.1655	1.0000
Database of 4Q20				
Icepyme	1.0000			
act_cond	0.7962	1.0000		
futur_expec	0.8808	0.4519	1.0000	
moment	0.4772	0.2965	0.2749	1.0000

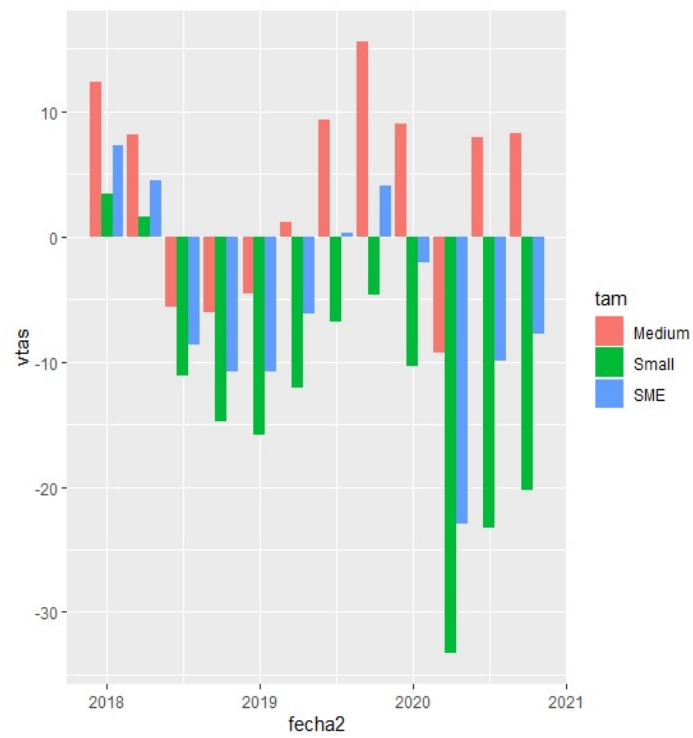


Figure 1: Rates of variation of real sales

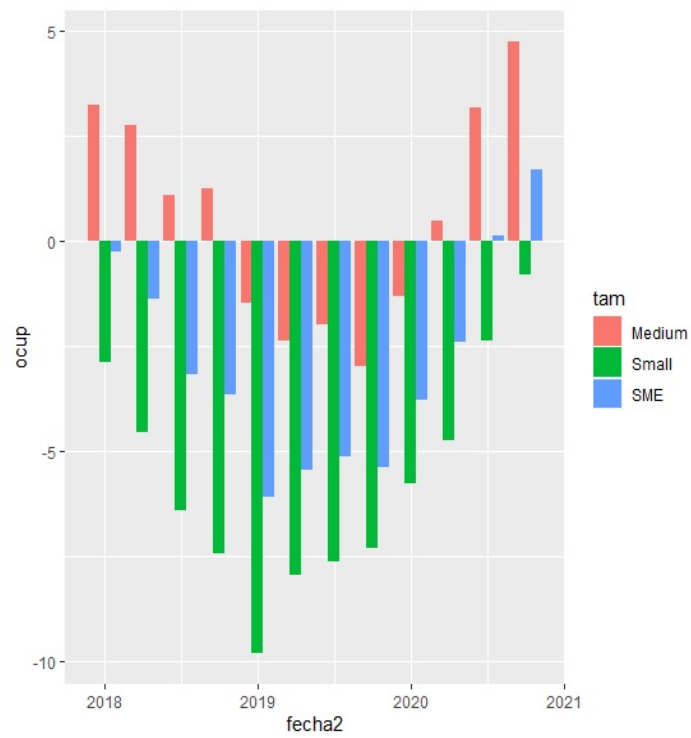


Figure 2: Rates of variation of employment

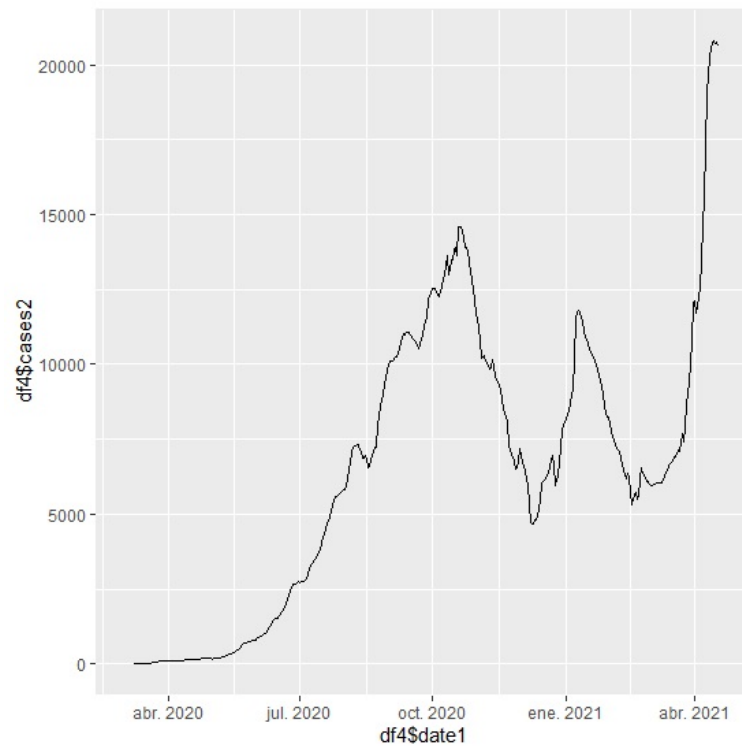


Figure 3: COVID-19 cases per day (moving average last 7 days)

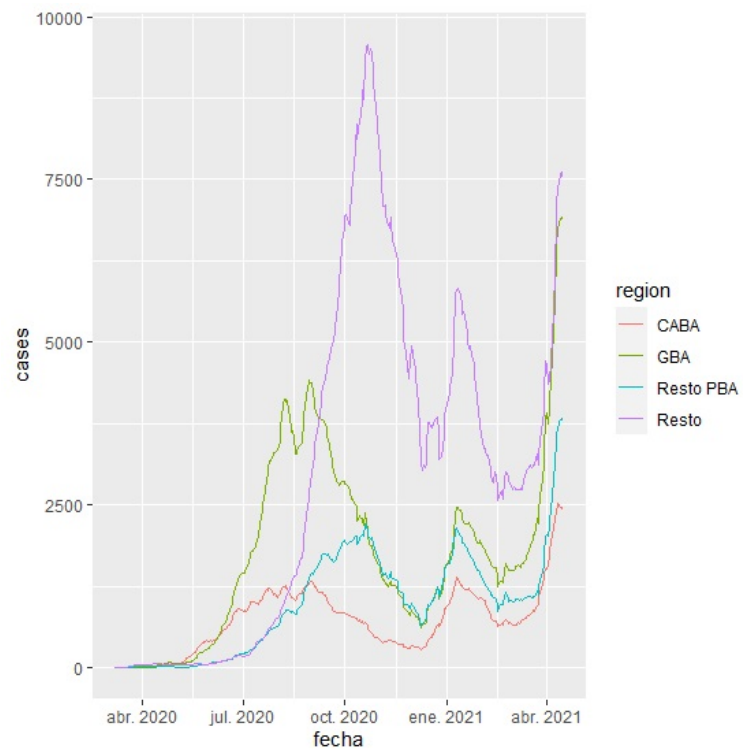


Figure 4: COVID-19 cases per day by region (moving average last 7 days)

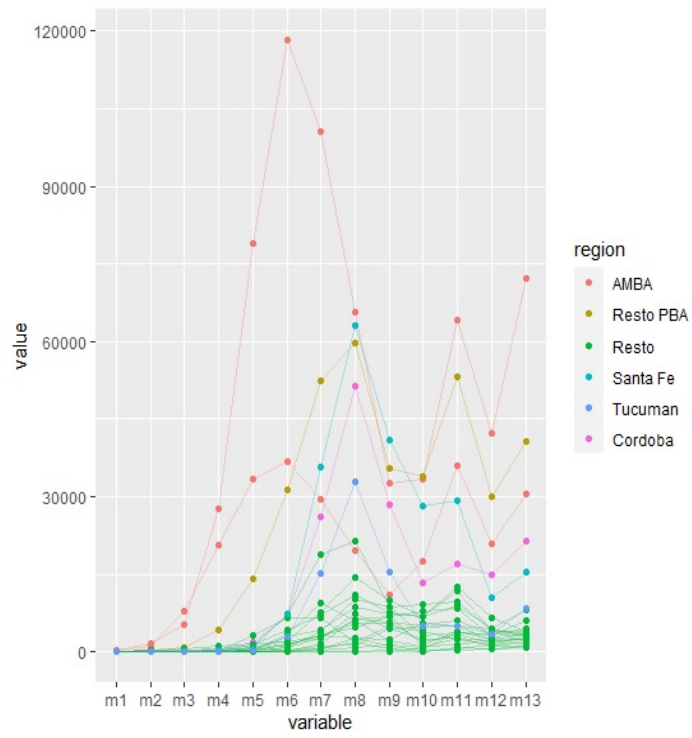


Figure 5: COVID-19 cases per month by province

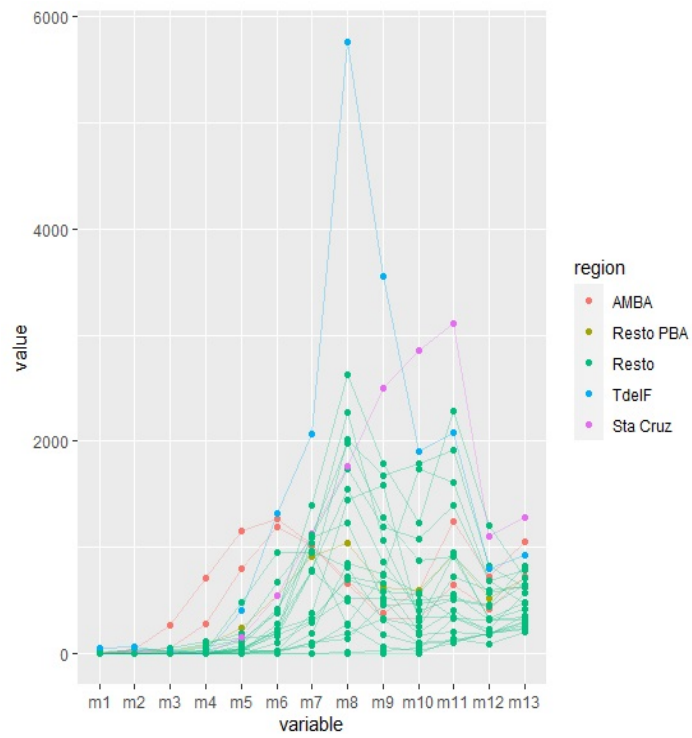


Figure 6: COVID-19 cases per 100000 habs. per month by province

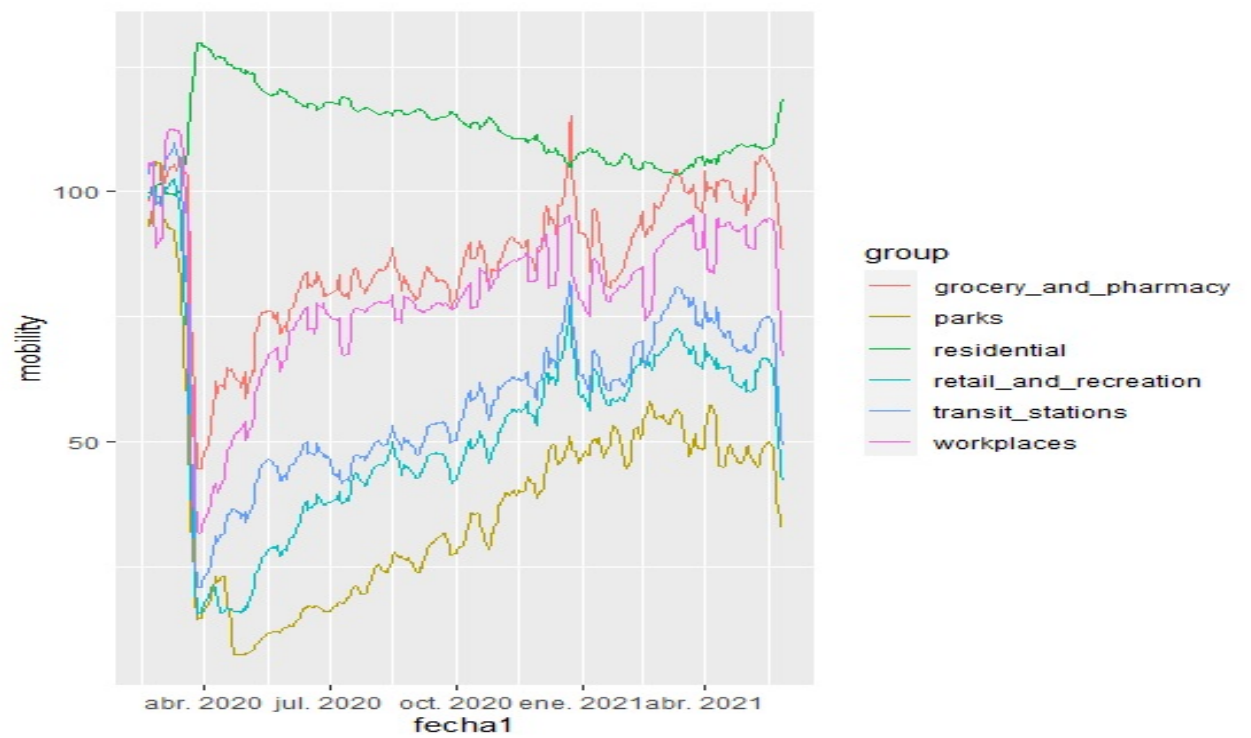


Figure 7: Google's Mobility Index

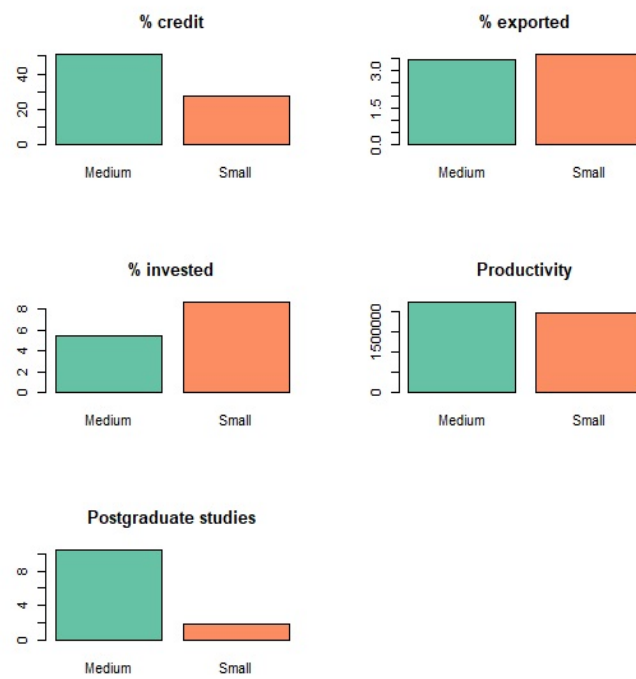


Figure 8: Data from FOP's Structural Survey of 2019

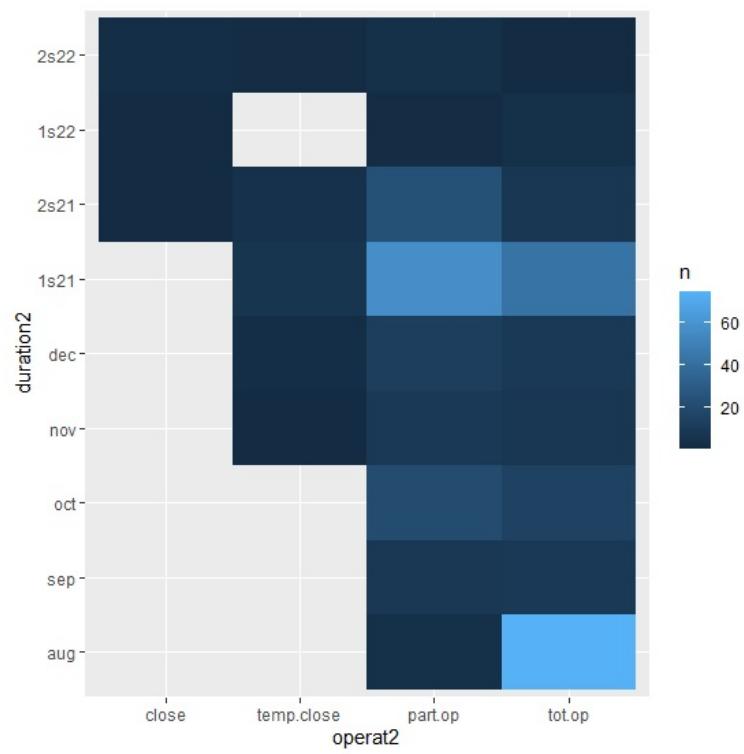


Figure 9: Expected duration of the pandemic vs. degree of operation (Q2)

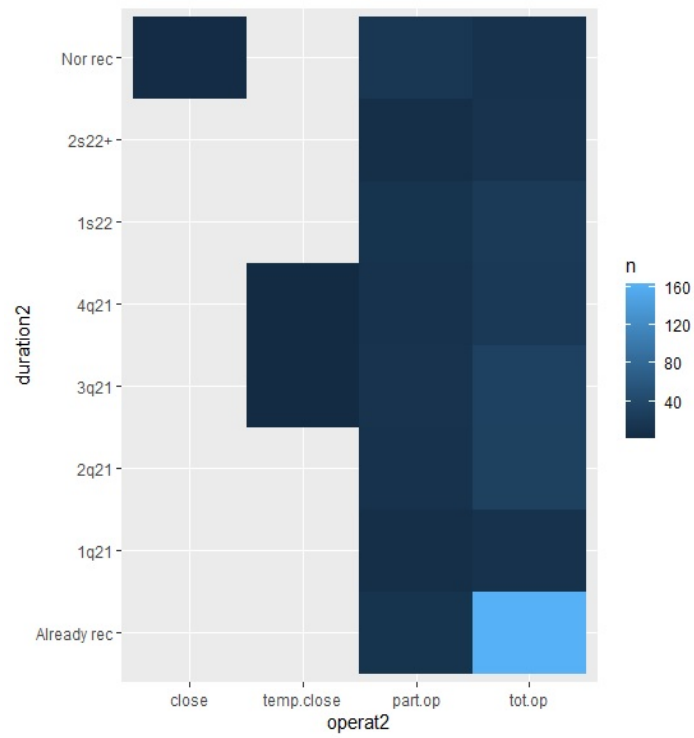


Figure 10: Expected duration of the pandemic vs. degree of operation (Q4)

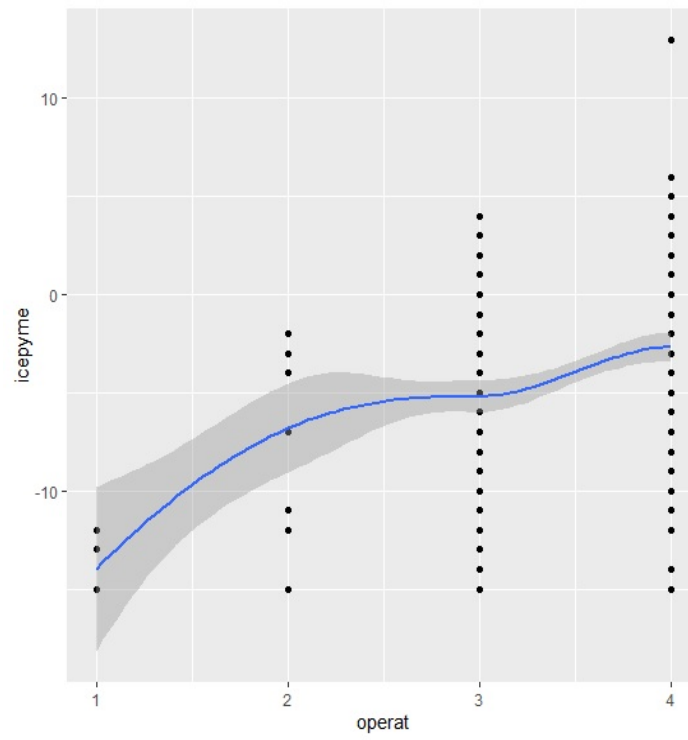


Figure 11: Degree of operation vs *ICEPYME* (Q2)

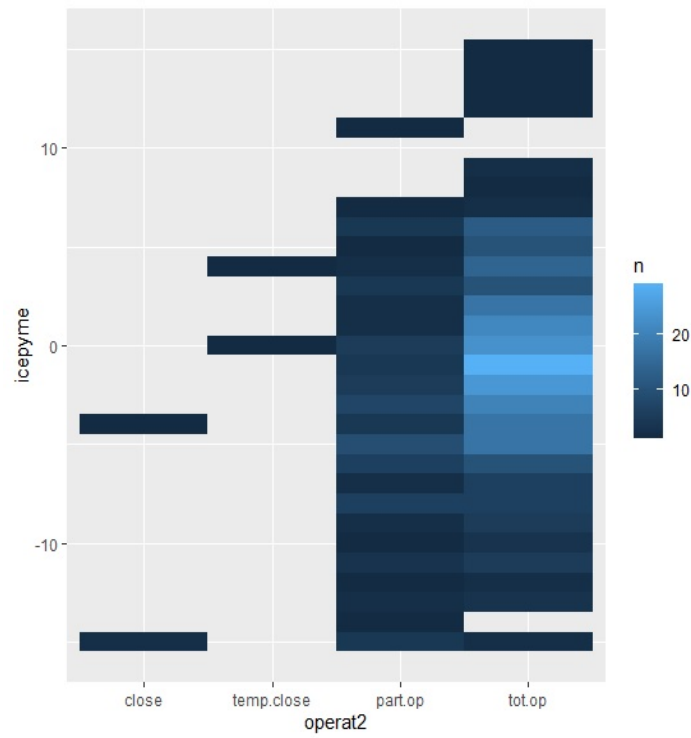


Figure 12: Degree of operation vs *ICEPYME* (Q4)

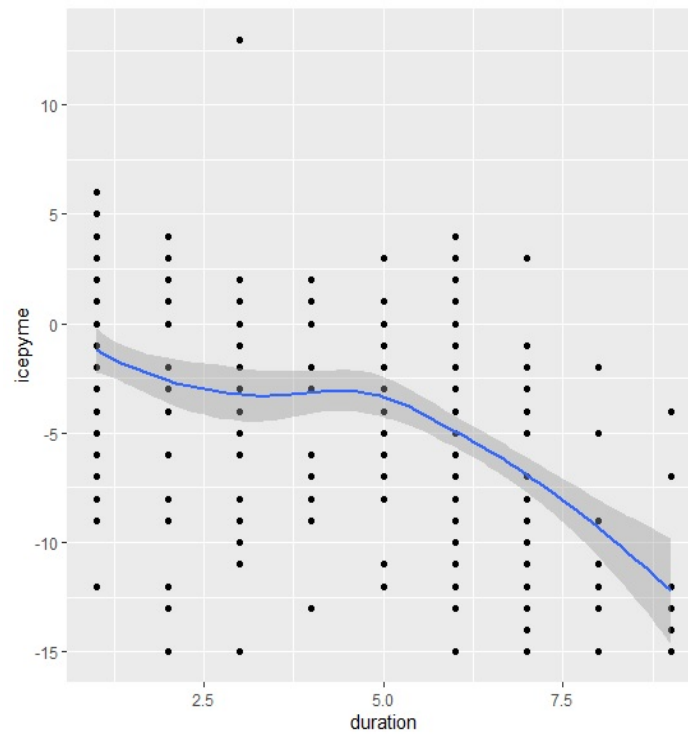


Figure 13: Expected duration vs *ICEPYME* (Q2)

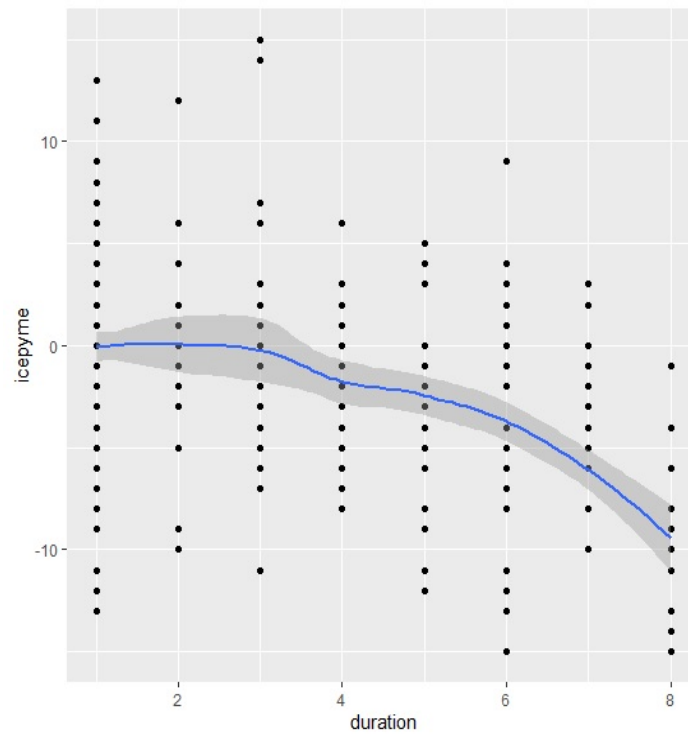


Figure 14: Expected duration vs *ICEPYME* (Q4)

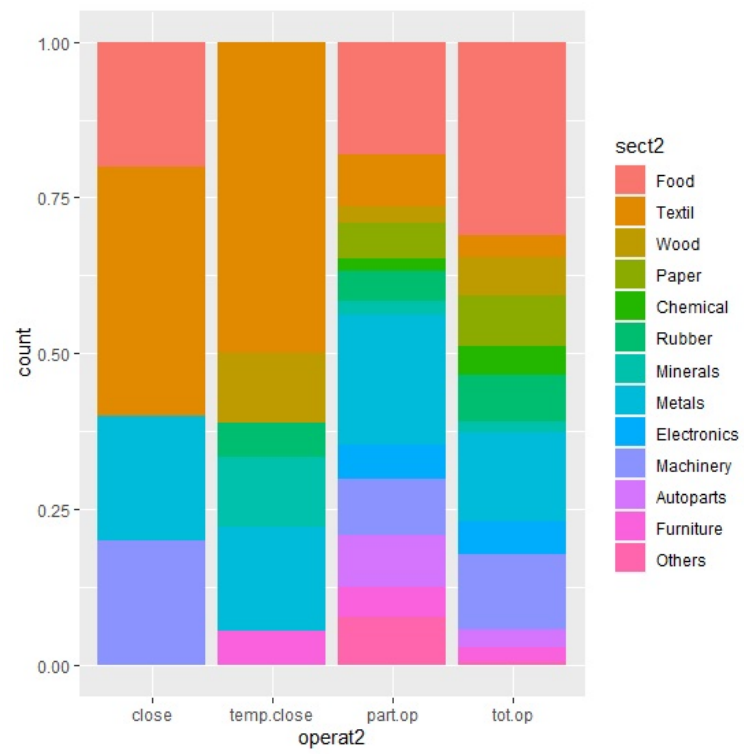


Figure 15: Composition by sector of degree of operation (Q2)

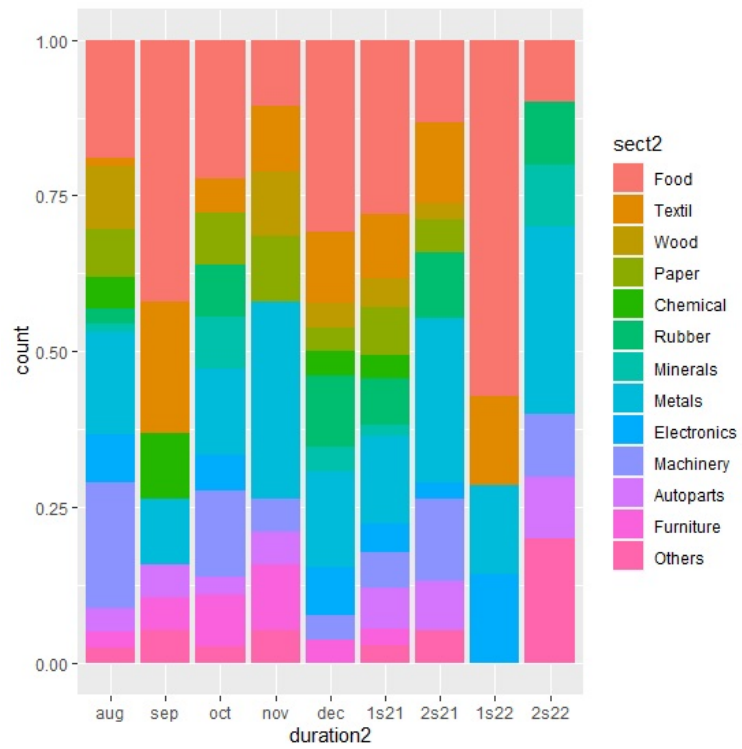


Figure 16: Composition by sector of expected duration of the pandemic (Q2)

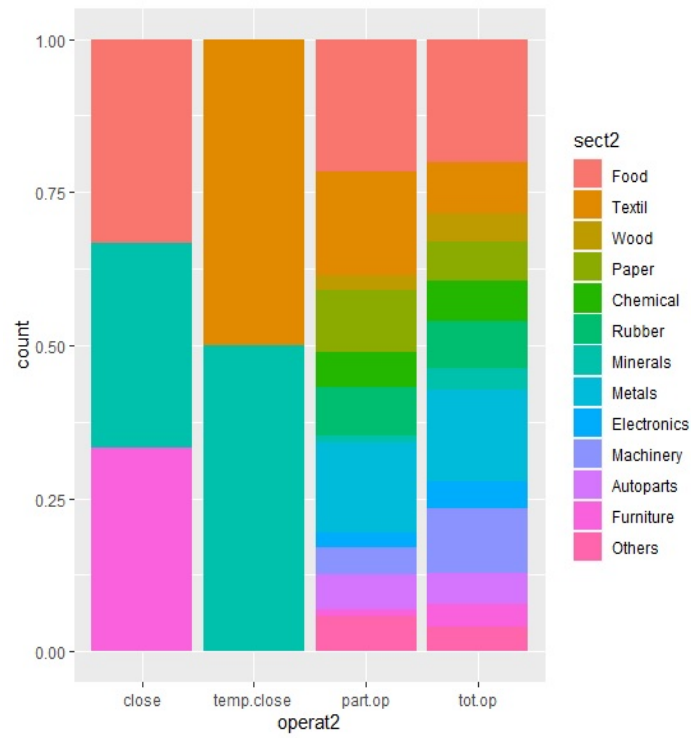


Figure 17: Composition by sector of degree of operation (Q4)

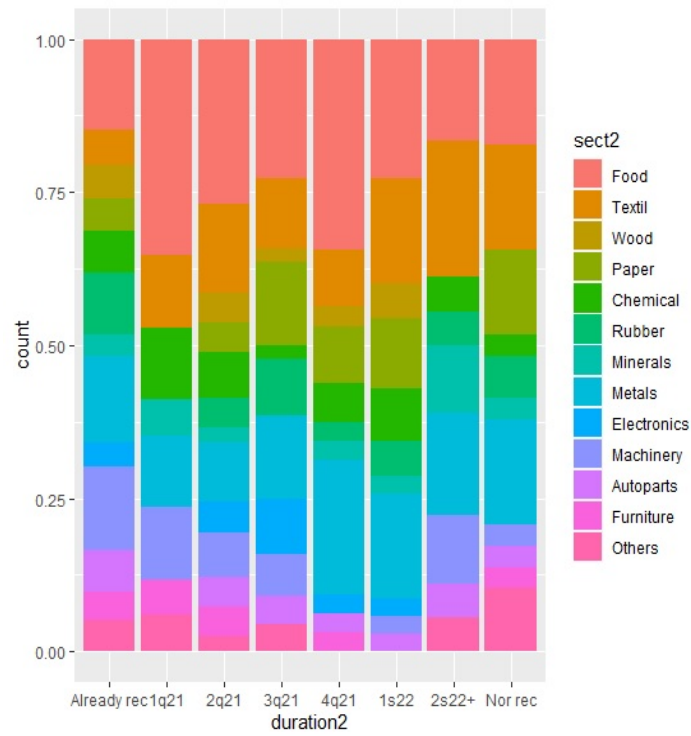


Figure 18: Composition by sector of expected duration of the pandemic (Q4)

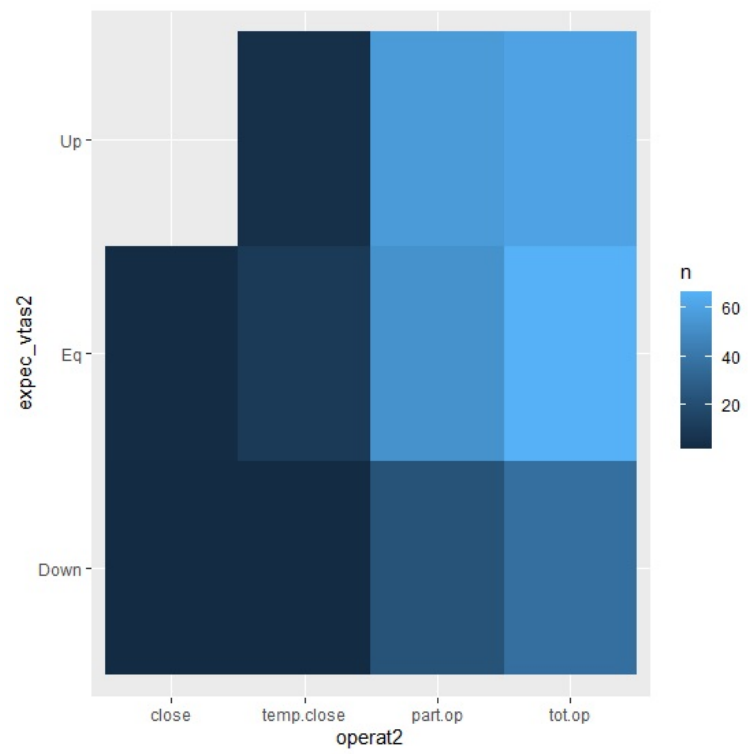


Figure 19: Degree of operation vs expected sales (Q2)

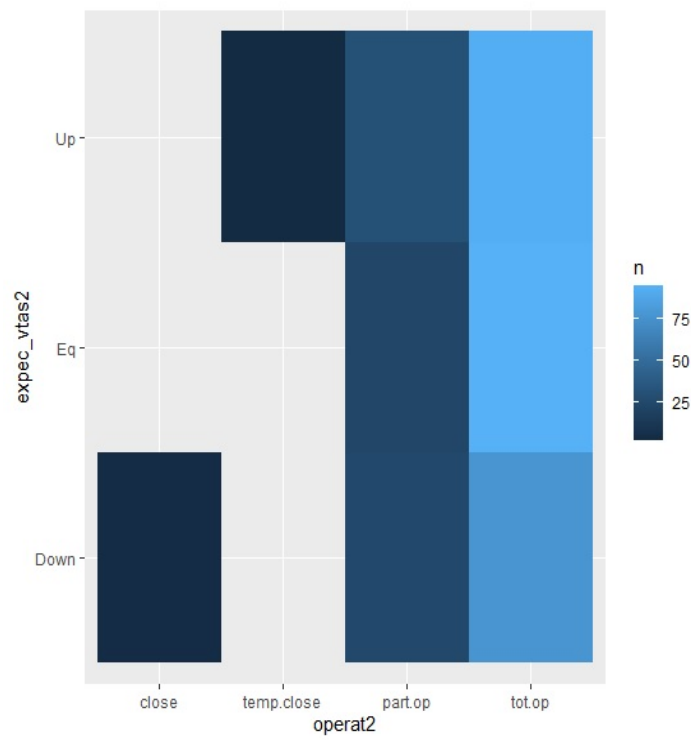


Figure 20: Degree of operation vs expected sales (Q4)

Table 9: Rate of variation in sales

Received aid	Nominal	Real
2Q20: ATP of April		
Received	-20.64	-25.97
Not received	-5.84	-11.67
2Q20: ATP of May		
Received	-29.47	-33.75
Not received	0.18	-6.69
4Q20: ATP of June		
Received	32.34	18.42
Not received	14.91	4.30
4Q20: ATP of July		
Received	41.21	26.67
Not received	15.52	4.29
4Q20: ATP of August		
Received	41.81	28.04
Not received	14.28	2.76

Table 10: Degree of operation vs ATP (april)

	Not received	Received	Total
Totally operative	79	100	179
Partially operative	37	117	154
Temp. not operative	5	13	18
Evaluating closing	0	6	6
Total	121	236	356
Chi2(3)=18.4471 p-value=0.000			

Table 11: Degree of operation vs ATP (may)

	Not received	Received	Total
Totally operative	120	59	179
Partially operative	45	109	154
Temp. not operative	3	15	18
Evaluating closing	3	3	6
Total	171	186	357
Chi2(3)=54.8517 p-value=0.000			

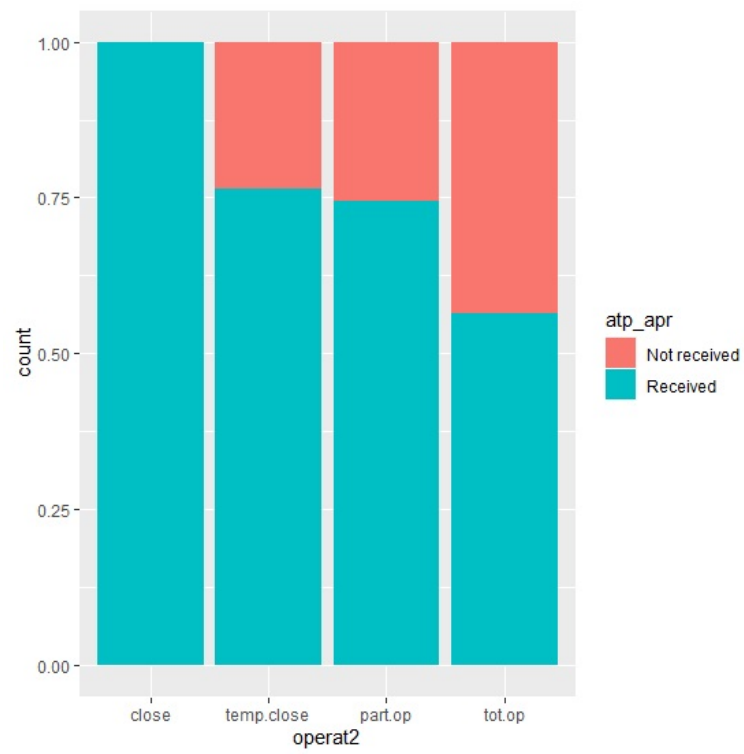


Figure 21: Degree of operation vs ATP Program in april

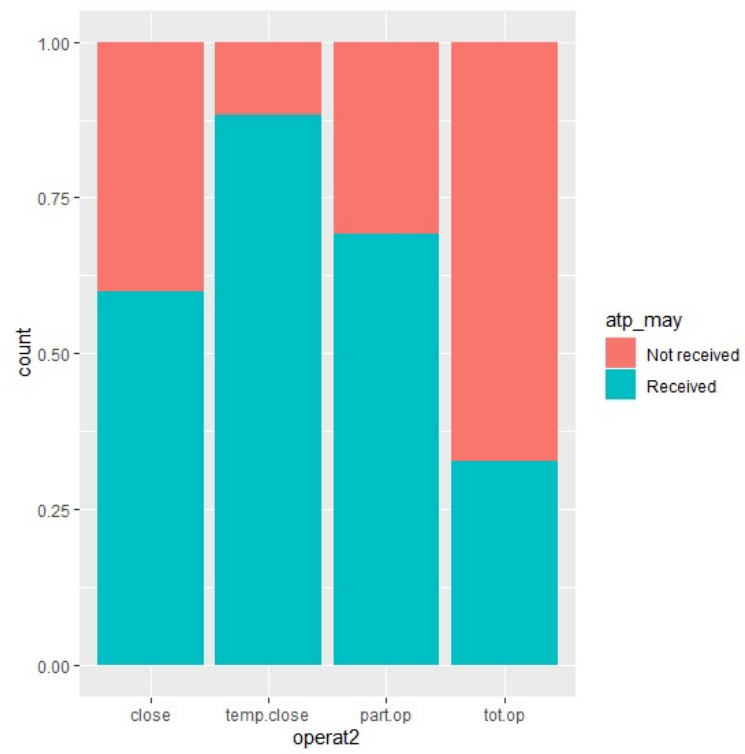


Figure 22: Degree of operation vs ATP Program in may

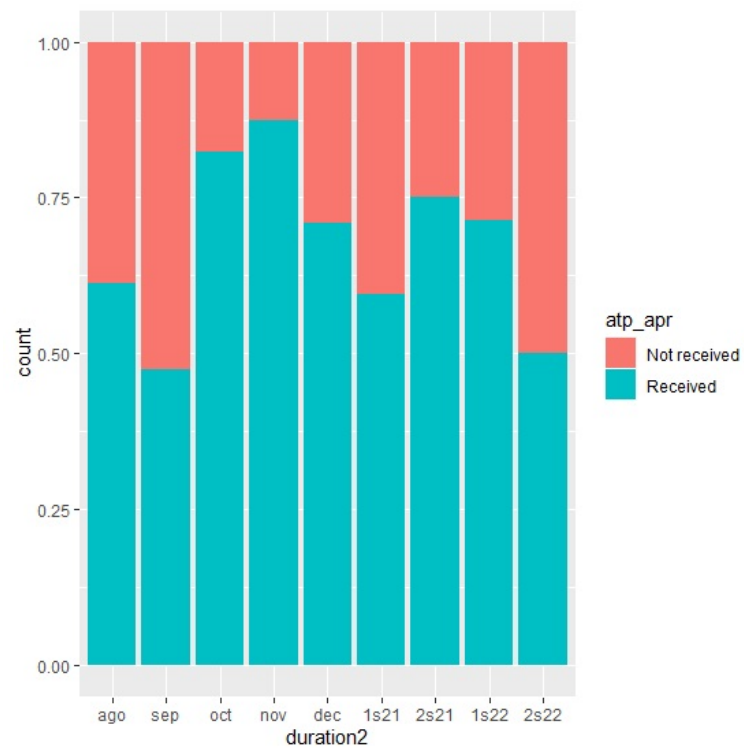


Figure 23: Expected duration of pandemic vs ATP Program in april

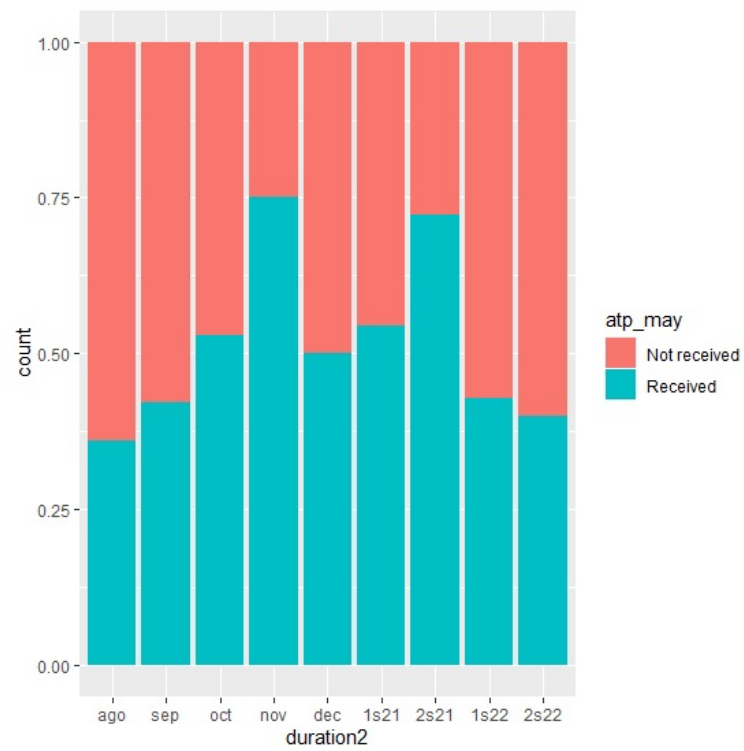


Figure 24: Expected duration of pandemic vs ATP Program in may

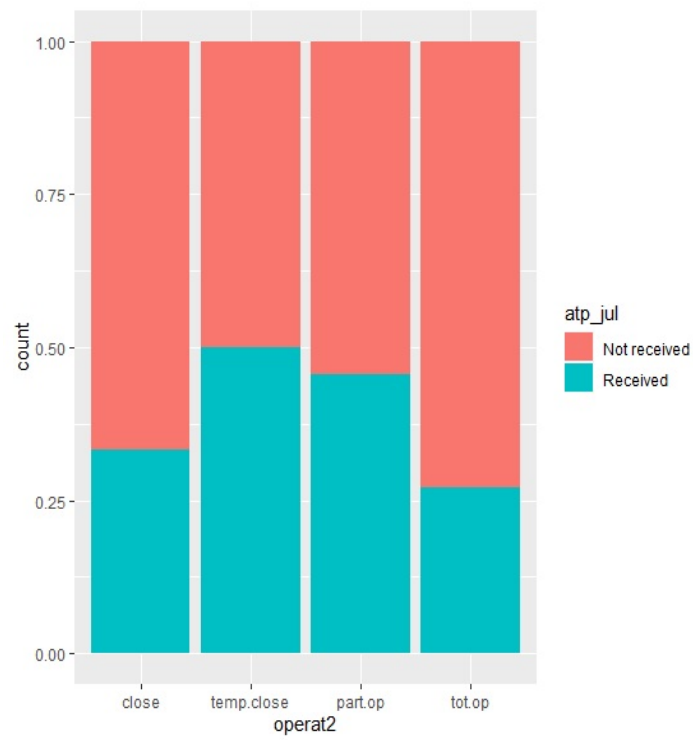


Figure 25: Degree of operation vs ATP Program in July

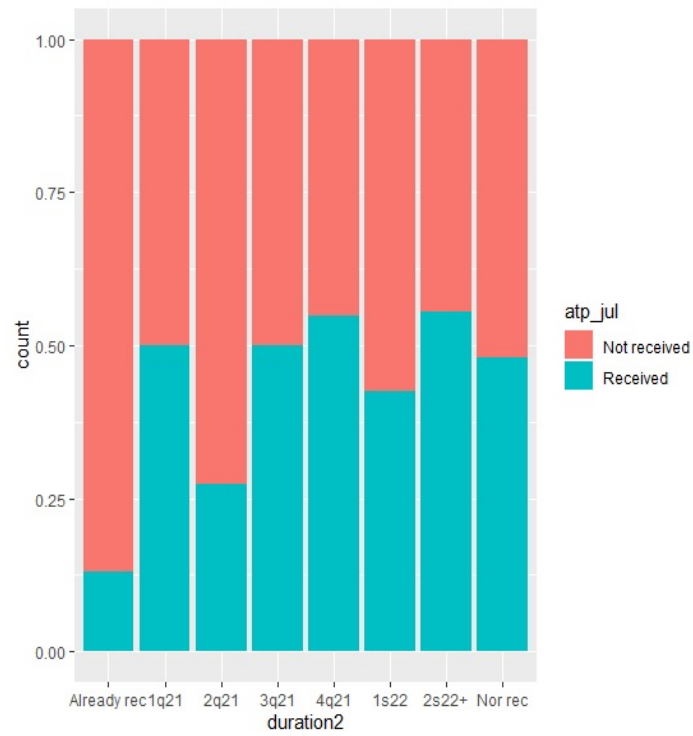


Figure 26: Expected duration of pandemic vs ATP Program in july

Table 12: Ordered Probit estimations of probability of degree of operation (Q2)

Variable	Model (1)	Model (2)	Model (3)
Expected duration	-0.24899 *** (0.03741)	-0.25148 *** (0.03756)	-0.25229 *** (0.03822)
ICEPYME	0.04746 *** (0.01480)	0.04674 *** (0.01500)	0.04793 *** (0.01503)
Orders	0.30872 *** (0.11013)	0.26600 ** (0.11210)	0.24561 ** (0.11323)
Expected demand	-0.32706 *** (0.11097)	-0.30294 *** (0.11101)	-0.29433 *** (0.11248)
Retail clients (% of firms)	0.04617 (0.28553)		
Dummy Size	0.17522 (0.18480)	0.21421 (0.18475)	0.05720 (0.20660)
Google's mobility		0.01776 *** (0.00624)	0.01820 *** (0.00632)
Log(Productivity 2019)			0.37958 ** (0.18010)
N	317	318	318
Wald Chi2 (df)	107.58(6)	121.04(6)	117.82(7)
p-value	0.0000	0.0000	0.0000

Source: Conjecture Survey to manufacturing SME (second quarter) plus additional variables
Robust SE reported. Significance level: ***=1%, **=5%, *=10%

Table 13: Ordered Probit estimations of probability of degree of operation (Q2) (cont.)

Variable	Model (4)	Model (5)	Model (6)
Expected duration	-0.26584 *** (0.04008)	-0.26000 *** (0.03935)	-0.25695 *** (0.03798)
ICEPYME	0.04606 *** (0.01586)	0.04587 *** (0.01560)	0.05072 *** (0.01578)
Orders	0.27888 ** (0.11475)	0.27787 ** (0.11508)	0.30611 *** (0.11364)
Expected demand	-0.28924 *** (0.11273)	-0.28735 ** (0.11350)	-0.25448 ** (0.11302)
Dummy Size	0.75762 * (0.39488)	0.57281 ** (0.28077)	
Google's mobility	0.01268 * (0.00655)	0.01439 ** (0.00653)	0.01666 ** (0.00661)
Log(Productivity 2019)	-0.12231 (0.20264)	0.02589 (0.19762)	
Emp. with graduate studies	-0.02602 (0.01875)		
% of sales invested (2019)	-0.03336 (0.03432)		
% obtained credits	-0.02096 *** (0.00565)	-0.01873 *** (0.00558)	-0.00732 * (0.00410)
% of sales exported (2019)	0.09438 *** (0.03171)	0.06433 ** (0.02608)	0.06593 *** (0.02285)
Dummy Food			0.63474 *** (0.20096)
Dummy Paper			0.93339 *** (0.31362)
Dummy Rubber and Plastic			0.85812 *** (0.33464)
N	316	318	318
Wald Chi2 (df)	136.46(11)	136.34(9)	139.58(10)
p-value	0.0000	0.0000	0.0000

Source: Conjuncture Survey to manufacturing SME (second quarter) plus additional variables
Robust SE reported. Significance level: ***=1%, **=5%, *=10%

Table 14: Ordered Probit estimations of probability of degree of operation (Q2) (cont)

Variable	Model (7)	Model (8)
Expected duration	-0.25275 *** (0.03770)	-0.25028 *** (0.03777)
ICEPYME	0.04595 *** (0.01553)	0.04832 *** (0.01555)
Orders	0.25023 ** (0.11501)	0.25727 ** (0.11794)
Expected demand	-0.21371 ** (0.11530)	-0.19215 * (0.11554)
Dymmy ATP (may)	-0.71268 *** (0.16218)	-0.71024 *** (0.16479)
Google's mobility	0.01287 ** (0.00651)	0.00904 (0.00698)
% obtained credits	-0.01109 ** (0.00437)	-0.01103 ** (0.00481)
% of sales exported (2019)	0.04107 * (0.02409)	0.03938 (0.02614)
Legal habilitation (june)		0.66616 ** (0.26864)
N	318	318
Wald Chi2 (df)	138.56(8)	159.60(9)
p-value	0.0000	0.0000

Source: Conjuncture Survey to manufacturing SME (second quarter) plus additional variables
Robust SE reported. Significance level: ***=1%, **=5%, *=10%

Table 15: Ordered Probit estimations of probability of degree of operation (Q2) (cont)

Variable	Model (9)	Model (10)
Expected duration	-0.24766 *** (0.03817)	-0.25119 *** (0.03845)
ICEPYME	0.04869 *** (0.01522)	0.05037 *** (0.01530)
Orders	0.27446 ** (0.11542)	0.27161 ** (0.11487)
Expected demand	-0.22684 * (0.11652)	-0.24017 ** (0.11638)
Dymmy ATP (may)	-0.76396 *** (0.16551)	-0.73910 *** (0.16547)
% obtained credits	-0.01026 ** (0.00426)	-0.01067 ** (0.00427)
Log(COVID Q2)	-0.08368 (0.06568)	
Log(COVID Q3)	0.00684 (0.09859)	
Log(COVID Q2 per 100th hab)		-0.09471 (0.06733)
Log(COVID Q3 per 100th hab)		-0.04990 (0.14973)
N	306	306
Wald Chi2 (df)	137.95(8)	137.31(8)
p-value	0.0000	0.0000

Source: Conjuncture Survey to manufacturing SME (second quarter) plus additional variables
Robust SE reported. Significance level: ***=1%, **=5%, *=10%

Table 16: Ordered Probit estimations of probability of degree of operation (Q2) (cont)

Variable	Model (11)	Model (12)
Expected duration	-0.25953 *** (0.03769)	-0.26188 *** (0.03765)
ICEPYME	0.04640 *** (0.01531)	0.04705 *** (0.01539)
Orders	0.24787 ** (0.11341)	0.24367 ** (0.11289)
Expected demand	-0.21192 * (0.11538)	-0.21712 * (0.11529)
Dymmy ATP (may)	-0.76854 *** (0.16486)	-0.75386 *** (0.16608)
% obtained credits	-0.01020 ** (0.00426)	-0.01019 ** (0.00425)
Log(COVID Q2 accum)	-0.17303 * (0.09011)	
Log(COVID Q3 accum)	0.13162 (0.11434)	
Log(COVID Q2 per 100th hab) (accumulated)		-0.18847 ** (0.08757)
Log(COVID Q3 per 100th hab) (accumulated)		0.12038 (0.13841)
N	313	313
Wald Chi2 (df)	139.39(8)	138.25(8)
p-value	0.0000	0.0000

Source: Conjunction Survey to manufacturing SME (second quarter) plus additional variables
Robust SE reported. Significance level: ***=1%, **=5%, *=10%

Table 17: Ordered Probit estimations of probability of degree of operation (Q2) (cont)

Variable	Model (13)	Model (14)
Expected duration	-0.25116 *** (0.03786)	-0.24627 *** (0.03783)
ICEPYME	0.04703 *** (0.01550)	0.04711 *** (0.01550)
Orders	0.26333 ** (0.11794)	0.27589 ** (0.11803)
Expected demand	-0.18710 (0.11492)	-0.18232 (0.11609)
Dymmy ATP (may)	-0.74039 *** (0.16159)	-0.68769 *** (0.16556)
Google's mobility	0.00006 (0.01107)	-0.00408 (0.01093)
% of sales exported (2019)	0.03862 (0.02612)	0.03982 (0.02599)
% obtained credits	-0.01141 ** (0.00477)	-0.01045 ** (0.00483)
Legal habilitation (june)	0.51376 * (0.30744)	0.73464 *** (0.27174)
Pop. density	-0.00003 (0.00003)	
Dummy AMBA		-0.41820 * (0.24870)
N	318	318
Wald Chi2 (df)	164.99(10)	161.11(10)
p-value	0.0000	0.0000

Source: Conjuncture Survey to manufacturing SME (second quarter) plus additional variables
Robust SE reported. Significance level: ***=1%, **=5%, *=10%

Table 18: Tobit estimations of expected duration of pandemic (Q2)

Variable	Model (1)	Model (2)	Model (3)
Degree of operation	-1.60678 *** (0.24815)	-1.68842 *** (0.24421)	-1.65613 *** (0.24810)
Orders	-0.88816 *** (0.20940)	-0.91093 *** (0.20945)	-0.90216 *** (0.21334)
ICEPYME	-0.11629 *** (0.03161)	-0.12414 *** (0.03182)	-0.11904 *** (0.03179)
Expected demand	-0.94202 *** (0.19998)	-0.87873 *** (0.20236)	-0.89124 *** (0.20189)
Dummy size	1.40161 *** (0.43450)	1.32280 *** (0.43819)	1.33950 *** (0.42658)
Google's mobility	-0.01161 (0.01090)		-0.01156 (0.01093)
% of sales exported (2019)	-0.03156 (0.04108)		-0.03880 (0.04329)
% obtained credits	-0.02027 ** (0.01006)	-0.01966 ** (0.00977)	-0.01828 * (0.01043)
Dummy ATP (april)			-0.49135 (0.35768)
Dummy ATP (may)			-0.01612 (0.34899)
N	318	319	318
F(#vars,N-#vars)	23.87	31.04	19.35
p-value	0.0000	0.0000	0.0000

Source: Conjuncture Survey to manufacturing SME (second quarter) plus additional variables

Robust SE reported. Significance level: ***=1%, **=5%, *=10%

Constant not reported

Table 19: Tobit estimations of expected duration of pandemic (Q2) (cont)

Variable	Model (4)	Model (5)	Model (6)
Degree of operation	-1.66314 *** (0.25259)	-1.56660 *** (0.25365)	-1.59777 *** (0.25632)
Orders	-0.90047 *** (0.21370)	-0.87832 *** (0.21312)	-0.82380 *** (0.21426)
ICEPYME	-0.11867 *** (0.03177)	-0.11746 *** (0.03224)	-0.12095 *** (0.03202)
Expected demand	-0.88893 *** (0.20269)	-0.87842 *** (0.20483)	-0.87263 *** (0.20324)
Dummy size	1.33955 *** (0.42631)	1.42833 *** (0.43792)	1.42133 *** (0.43873)
Google's mobility	-0.01214 (0.01140)	0.02392 (0.02374)	-0.00918 (0.02281)
% of sales exported (2019)	-0.03991 (0.04399)	-0.03252 (0.04096)	-0.03328 (0.04141)
% obtained credits	-0.01808 * (0.01041)	-0.02126 ** (0.00986)	-0.02161 ** (0.01012)
Dummy ATP (april)	-0.49067 (0.35758)		
Dummy ATP (may)	-0.01836 (0.34868)		
Legal habilitation (june)	0.11266 (0.65410)		
Log(COVID Q2)		0.14389 (0.16278)	
Log(COVID Q3)		0.04832 (0.20271)	
Log(COVID Q2 per 100th hab)			0.06267 (0.16315)
Log(COVID Q3 per 100th hab)			-0.18701 (0.26048)
N	318	306	306
F(#vars,N-#vars)	17.67	18.00	17.75
p-value	0.0000	0.0000	0.0000

Source: Conjuncture Survey to manufacturing SME (second quarter) plus additional variables

Robust SE reported. Significance level: ***=1%, **=5%, *=10%

Constant not reported

Table 20: Tobit estimations of expected duration of pandemic (Q2) (cont)

Variable	Model (7)	Model (8)
Degree of operation	-1.61272 *** (0.24599)	-1.63440 *** (0.24632)
Orders	-0.88589 *** (0.21128)	-0.85745 *** (0.21054)
ICEPYME	-0.11400 *** (0.03187)	-0.11603 *** (0.03127)
Expected demand	-0.90437 *** (0.20476)	-0.88882 *** (0.20177)
Dummy size	1.43055 *** (0.44275)	1.38561 *** (0.44017)
Google's mobility	0.00631 (0.02299)	-0.02660 (0.02247)
% of sales exported (2019)	-0.02929 (0.04087)	-0.03065 (0.04125)
% obtained credits	-0.02209 ** (0.00993)	-0.02200 ** (0.01010)
Log(COVID Q2 accum)	0.03075 (0.20039)	
Log(COVID Q3 accum)	0.10514 (0.21697)	
Log(COVID Q2 per 100th hab) (accumulated)		-0.11939 (0.20848)
Log(COVID Q3 per 100th hab) (accumulated)		-0.03365 (0.23245)
N	313	313
F(#vars,N-#vars)	18.97	18.69
p-value	0.0000	0.0000

Source: Conjuncture Survey to manufacturing SME (second quarter) plus additional variables

Robust SE reported. Significance level: ***=1%, **=5%, *=10%

Constant not reported

Table 21: Tobit estimations of expected duration of pandemic (Q2) (cont)

Variable	Model (9)	Model (10)
Degree of operation	-1.61326 *** (0.24850)	-1.58841 *** (0.24736)
Orders	-0.88199 *** (0.21054)	-0.89850 *** (0.21147)
ICEPYME	-0.11646 *** (0.03166)	-0.11556 *** (0.03168)
Expected demand	-0.93995 *** (0.20001)	-0.94392 *** (0.20029)
Dummy size	1.40952 *** (0.43659)	1.39364 *** (0.43595)
Google's mobility	-0.01604 (0.01796)	-0.00394 (0.01856)
% of sales exported (2019)	-0.03233 (0.04114)	-0.03246 (0.04106)
% obtained credits	-0.02040 ** (0.01004)	-0.02034 ** (0.01000)
Pop. density	-0.00001 (0.00005)	
Dummy AMBA		0.25450 (0.47347)
N	318	318
F(#vars,N-#vars)	21.25	21.25
p-value	0.0000	0.0000

Source: Conjuncture Survey to manufacturing SME (second quarter) plus additional variables

Robust SE reported. Significance level: ***=1%, **=5%, *=10%

Constant not reported

Table 22: IV Tobit estimations of expected duration of pandemic (Q2)

Variable	Model (1)	Model (2)
Second stage (instrumented: Expected demand)		
Expected demand	-2.15557 *** (0.64067)	-2.01369 *** (0.67562)
Degree of operation	-1.47166 *** (0.26961)	-1.47046 *** (0.26621)
Orders	-0.96838 *** (0.25653)	-0.95064 *** (0.25875)
act_cond	-0.29980 *** (0.09355)	-0.29826 *** (0.09398)
Dummy ATP (april)	-0.33282 (0.37087)	-0.39648 (0.36601)
Dummy ATP (may)	0.10061 (0.36969)	0.08148 (0.36833)
Dummy Size	0.86504 ** (0.38390)	0.92680 ** (0.37580)
N	320	319
Wald Chi2 (df)	139.25(7)	141.70(7)
p-value	0.0000	0.0000
First stage (instrument: expec_futur - Google's mobility)		
Degree of operation	0.00057 (0.06599)	0.00773 (0.06697)
Orders	-0.15561 *** (0.05728)	-0.15269 *** (0.05752)
act_cond	0.03243 (0.02189)	0.03457 (0.02154)
ATP (april)	0.16523 (0.09491)	0.16011 * (0.09480)
ATP (april)	0.09970 (0.09768)	0.09235 (0.09740)
Dummy Size	0.07289 (0.09830)	0.08583 (0.09745)
Google's mobility (Q3)		-0.00201 (0.00283)
expec_futur	0.05706 *** (0.00987)	0.05764 *** (0.00969)

Source: Conjunction Survey to manufacturing SME (second quarter) plus additional variables

Robust SE reported. Significance level: ***=1%, **=5%, *=10%

Constant not reported

Table 23: Ordered Probit estimations of probability of degree of operation (Q4)

Variable	Model (1)	Model (2)	Model (3)
Expected duration	-0.22951 *** (0.03695)	-0.22726 *** (0.03764)	-0.23673 *** (0.03890)
ICEPYME	0.00147 (0.01739)	0.00180 (0.01738)	0.00080 (0.01765)
Orders	0.20667 ** (0.09886)	0.20726 ** (0.09882)	0.22063 ** (0.09885)
Expected demand	0.00038 (0.10138)	0.00234 (0.10151)	0.04022 (0.10382)
Dummy Size	-0.06397 (0.20512)	-0.06983 (0.20570)	0.11657 (0.35239)
Google's mobility (Q4)		0.00155 (0.00743)	-0.00411 (0.00761)
Log(Productivity 2019)			-0.38100 * (0.22124)
Emp. with graduate studies			-0.02334 (0.02070)
% firms invested			-0.07177 * (0.03693)
% sales exported 2019			0.06467 ** (0.02842)
% obtained credit			-0.00709 (0.00689)
N	349	348	346
Wald Chi2 (df)	63.86(5)	63.47(6)	68.36(11)
p-value	0.0000	0.0000	0.0000

Source: Conjuncture Survey to manufacturing SME (fourth quarter) plus additional variables
Robust SE reported. Significance level: ***=1%, **=5%, *=10%

Table 24: Ordered Probit estimations of probability of degree of operation (Q4) (cont)

Variable	Model (4)	Model (5)
Expected duration	-0.21641 *** (0.03781)	-0.22299 *** (0.03737)
ICEPYME	0.00056 (0.01744)	0.00145 (0.01738)
Orders	0.21384 ** (0.10053)	0.20148 ** (0.09858)
Expected demand	0.01551 (0.10401)	0.00856 (0.10301)
Google's mobility (Q4)	0.00055 (0.00763)	0.00610 (0.01257)
Log(Productivity 2019)	0.01541 (0.16339)	0.04242 (0.16053)
ATP (april)	0.17097 (0.19170)	
ATP (may)	-0.07875 (0.20825)	
ATP (june)	-0.16993 (0.20991)	
ATP (july)	-0.02927 (0.22046)	
ATP (august)	-0.00345 (0.21776)	
Log(COVID Q3)		0.01610 (0.11010)
Log(COVID Q4)		0.02924 (0.11167)
N	348	347
Wald Chi2 (df)	66.08(11)	64.37(8)
p-value	0.0000	0.0000

Source: Conjecture Survey to manufacturing SME (fourth quarter) plus additional variables
Robust SE reported. Significance level: ***=1%, **=5%, *=10%

Table 25: Ordered Probit estimations of probability of degree of operation (Q4) (cont)

Variable	Model (6)	Model (7)	Model (8)
Expected duration	-0.22633 *** (0.03758)	-0.22365 *** (0.03747)	-0.22741 *** (0.03758)
ICEPYME	0.00076 (0.01737)	0.00212 (0.01744)	0.00088 (0.01745)
Orders	0.21204 ** (0.10016)	0.20019 ** (0.09831)	0.20892 ** (0.09954)
Expected demand	0.00009 (0.10365)	0.01240 (0.10323)	0.00880 (0.10364)
Google's mobility Q4	0.00301 (0.01006)	0.00845 (0.01307)	0.00995 (0.01039)
Log(Productivity 2019)	0.03303 (0.15961)	0.03174 (0.15990)	0.02598 (0.15949)
Log(COVID Q3 per 100th hab)	0.12048 (0.11038)		
Log(COVID Q4 per 100th hab)	0.25102 (0.16355)		
Log(COVID Q3 accum)		0.09257 (0.17220)	
Log(COVID Q4 accum)		-0.06915 (0.18570)	
Log(COVID Q3 accum) (per 100th hab.)			0.07162 (0.17444)
Log(COVID Q4 accum) (per 100th hab.)			0.22951 (0.29408)
N	347	347	347
Wald Chi2 (df)	65.23(8)	63.04(8)	63.56(8)
p-value	0.0000	0.0000	0.0000

Source: Conjuncture Survey to manufacturing SME (fourth quarter) plus additional variables
Robust SE reported. Significance level: ***=1%, **=5%, *=10%

Table 26: Ordered Probit estimations of probability of degree of operation (Q4) (cont)

Variable	Model (9)	Model (10)
Expected duration	-0.22368 *** (0.03713)	-0.22110 *** (0.03730)
ICEPYME	0.00247 (0.01742)	0.00265 (0.01721)
Orders	0.20104 ** (0.09861)	0.20969 ** (0.10026)
Expected demand	0.00208 (0.10229)	-0.00842 (0.10242)
Google's mobility Q4	-0.00056 (0.01294)	-0.01149 (0.01193)
Log(Productivity 2019)	0.03028 (0.15872)	0.04187 (0.16045)
Dummy AMBA		-0.34552 (0.25334)
Pop density	-4.66e-06 (0.00002)	
N	348	348
Wald Chi2 (df)	63.40(7)	66.19(7)
p-value	0.0000	0.0000

Source: Conjecture Survey to manufacturing SME (fourth quarter) plus additional variables
Robust SE reported. Significance level: ***=1%, **=5%, *=10%

Table 27: Tobit estimations of expected duration of pandemic (Q4)

Variable	Model (1)
Degree of operation	-2.69031 *** (0.38055)
Orders	0.08546 (0.25179)
ICEPYME	-0.31802 *** (0.04096)
Expected demand	0.33260 (0.25304)
Dummy size	0.02137 (0.85804)
Google's mobility Q4	-0.09306 *** (0.01947)
Log(Productivity 2019)	0.23768 (0.61887)
Emp. with graduate studies	-0.18018 *** (0.06097)
% of sales invested	-0.01342 (0.08662)
% obtained credit	-0.01088 (0.01747)
% sales exported 2019	0.01693 (0.06990)
N	346
F(#vars,N-#vars)	13.80
p-value	0.0000

Source: Conjuncture Survey to manufacturing SME (fourth quarter) plus additional variables

Robust SE reported. Significance level: ***=1%, **=5%, *=10%

Constant not reported

Table 28: Tobit estimations of expected duration of pandemic (Q4) (cont)

Variable	Model (2)
Degree of operation	-2.37323 *** (0.36177)
Orders	-0.06701 (0.24774)
ICEPYME	-0.29339 *** (0.04201)
Expected demand	0.20376 (0.25525)
Dummy size	-1.31960 *** (0.49160)
Google's mobility Q4	-0.06536 *** (0.01982)
Dummy ATP (april)	0.21892 (0.55272)
Dummy ATP (may)	0.40376 (0.52866)
Dummy ATP (june)	0.60073 (0.53572)
Dummy ATP (july)	1.2175 ** (0.52772)
Dummy ATP (august)	-0.00849 (0.57528)
N	348
F(#vars,N-#vars)	14.41
p-value	0.0000

Source: Conjunction Survey to manufacturing SME (fourth quarter) plus additional variables
Robust SE reported. Significance level: ***=1%, **=5%, *=10%
Constant not reported

Table 29: Tobit estimations of expected duration of pandemic (Q4) (cont)

Variable	Model (3)	Model (4)	Model (5)
Degree of operation	-2.41062 *** (0.35551)	-2.44257 *** (0.35121)	-2.41627 *** (0.35600)
Orders	0.00920 (0.25253)	0.01645 (0.25064)	0.01183 (0.25261)
ICEPYME	-0.29479 *** (0.04162)	-0.29532 *** (0.04126)	-0.29456 *** (0.04165)
Expected demand	0.19682 (0.25435)	0.19963 (0.25195)	0.19337 (0.25410)
Dummy size	-1.50369 *** (0.49165)	-1.40989 *** (0.49275)	-1.50886 *** (0.49142)
Dummy ATP (july)	1.73518 *** (0.38988)	1.73487 *** (0.38735)	1.73328 *** (0.38942)
Log(COVID Q3)	0.00002 * (0.00001)		
Log(COVID Q4)	-0.00002 (0.00001)		
Log(COVID Q3 per 100th hab.)		0.00052 ** (0.00024)	
Log(COVID Q4 per 100th hab.)		0.00003 (0.00016)	
Log(COVID Q3 accum)			0.00003 (0.00002)
Log(COVID Q4 accum)			-0.00002 (0.00001)
N	348	348	348
F(#vars,N-#vars)	17.67	17.96	17.75
p-value	0.0000	0.0000	0.0000

Source: Conjuncture Survey to manufacturing SME (fourth quarter) plus additional variables

Robust SE reported. Significance level: ***=1%, **=5%, *=10%

Constant not reported

Table 30: Tobit estimations of expected duration of pandemic (Q4) (cont)

Variable	Model (6)	Model (7)	Model (8)
Degree of operation	-2.4585 *** (0.35024)	-2.42464 *** (0.35501)	-2.3844 *** (0.35440)
Orders	0.03132 (0.25145)	0.00285 (0.25095)	-0.02078 (0.24951)
ICEPYME	-0.29807 *** (0.04099)	-0.29566 *** (0.04205)	-0.29499 *** (0.04157)
Expected demand	0.21548 (0.25172)	0.17305 (0.25405)	0.19452 (0.25287)
Dummy size	-1.44263 *** (0.49362)	-1.44096 *** (0.49108)	-1.45402 *** (0.49589)
Dummy ATP (july)	1.72680 *** (0.38572)	1.76590 *** (0.39097)	1.73718 *** (0.38956)
Google's mobility Q4	0.00067 (0.03215)	-0.04580 (0.03281)	-0.03589 (0.02797)
Log(COVID Q3 accum) per 100th hab.	0.00053 ** (0.00024)		
Log(COVID Q4 accum) per 100th hab.	0.00005 (0.00016)		
Pop. density		0.00005 (0.00006)	
Dummy AMBA			0.91422 (0.58487)
N	348	348	348
F(#vars,N-#vars)	18.30	19.64	19.58
p-value	0.0000	0.0000	0.0000

Source: Conjunction Survey to manufacturing SME (fourth quarter) plus additional variables

Robust SE reported. Significance level: ***=1%, **=5%, *=10%

Constant not reported

Table 31: IV Tobit estimations of expected duration of pandemic (Q4)

Variable	Model (1)	Model (2)
Second stage (instrumented: Expected demand)		
Expected demand	-2.78009 ** (1.20172)	-2.56094 ** (1.17698)
Degree of operation	-2.27625 *** (0.41273)	-2.29175 *** (0.40408)
Orders	-0.21613 (0.28315)	-0.20664 (0.27800)
act_cond	-0.49756 *** (0.10949)	-0.50566 *** (0.10684)
Dummy Size	-1.49000 *** (0.56731)	-1.50325 *** (0.55546)
Google's mobility Q4	-0.06633 *** (0.02211)	-0.06607 *** (0.02159)
Dummy ATP (july)	2.01392 *** (0.56733)	1.96602 *** (0.55450)
N	348	348
Wald Chi2 (df)	120.38(7)	123.61(7)
p-value	0.0000	0.0000
First stage (instrument: expec_futur - Google's mobility Q121)		
Degree of operation	0.02257 (0.08788)	0.01657 (0.08768)
Orders	-0.06702 (0.05726)	-0.06961 (0.05714)
act_cond	-0.00323 (0.02048)	-0.00051 (0.02023)
Dummy Size	0.00553 (0.10017)	0.00294 (0.10048)
Google's mobility Q4	0.00164 (0.00413)	-0.01935 (0.01711)
Google's mobility Q121	0.00164 (0.00413)	0.02342 (0.01854)
Dummy ATP (july)	0.17148 * (0.09619)	0.17440 * (0.09555)
expec_futur	0.06361 *** (0.01376)	0.06499 *** (0.01340)

Source: Conjunction Survey to manufacturing SME (fourth quarter) plus additional variables

Robust SE reported. Significance level: ***=1%, **=5%, *=10%

Constant not reported

Table 32: Marginal effects for Oprobit Model (7) - (Q2)

Variable	Outcome 1 Eval. closing	Outcome 2 Temp. closed	Outcome 3 Part. open	Outcome 4 Open
Expected duration	0.00740 **	0.01763 ***	0.04127 ***	-0.06631 ***
ICEPYME	-0.00134 *	-0.00320 ***	-0.00750 ***	0.01205 ***
Orders	-0.00733 *	-0.01746 **	-0.04086 **	0.06565 **
Expected demand	0.00626	0.01491 *	0.03489 *	-0.05657 *
Dummy ATP (may)	0.02088 **	0.04973 ***	0.11637 ***	-0.18699 ***
Google's mobility	-0.00037 *	-0.00089 *	-0.00210 *	0.00337 **
% obtained credit	0.00032 *	0.00077 *	0.00181 ***	-0.00290 ***
% sales export. (2019)	-0.00120	-0.00286	-0.00670 *	0.01077 *

Absolute changes in probabilities are reported

Table 33: Marginal effects for Oprobit Model (12) - (Q2)

At	Outcome 1 Eval. closing	Outcome 2 Temp. closed	Outcome 3 Part. open	Outcome 4 Open
Log(COVID Q2 accumulated per 100000 inhabitants)				
Percentile 25	0.00318 **	0.01017 ***	0.03854 *	-0.05191 **
Mean	0.00481 *	0.01284 **	0.01744 **	-0.05201 **
Median	0.00595 *	0.01432 *	0.03129 **	-0.05156 **
Percentile 75	0.00714	0.01562 *	0.02811 **	-0.05088 **

Absolute changes in probabilities are reported

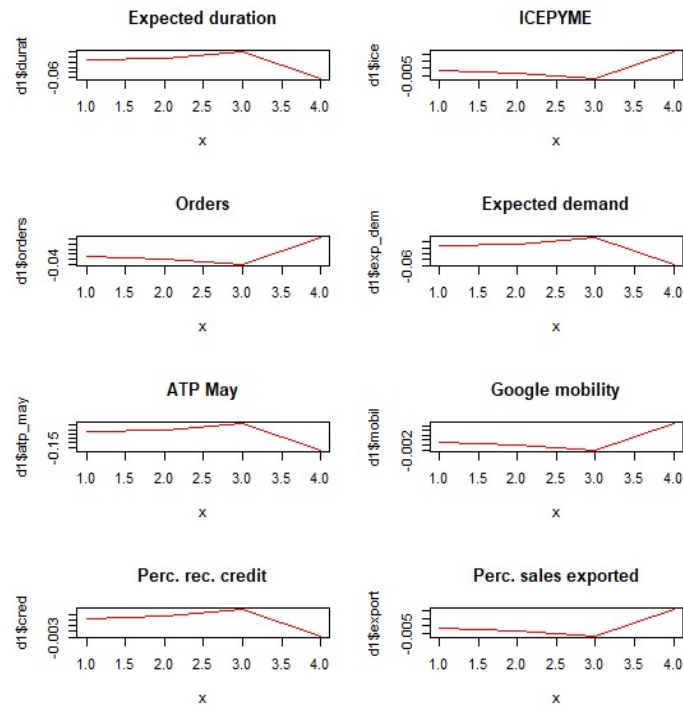


Figure 27: Marginal effects for Oprobit Model (7) (Q2)

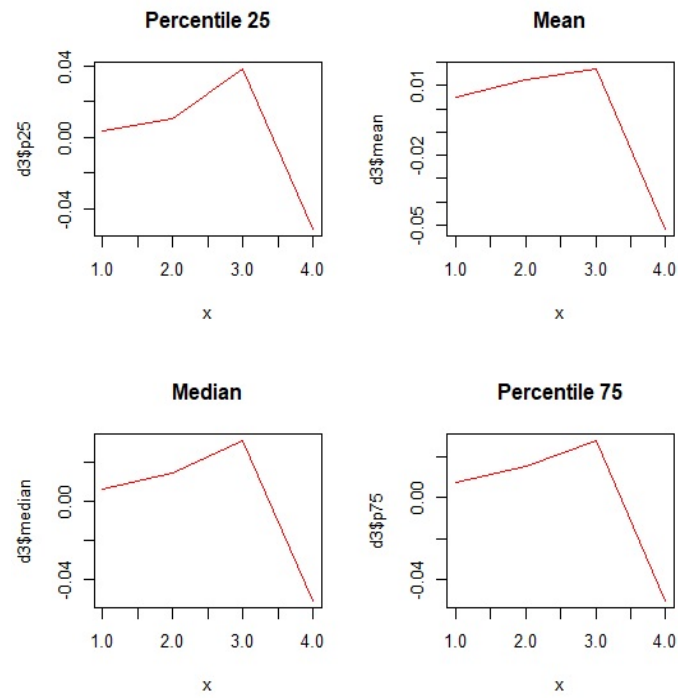


Figure 28: Marginal effects for Oprobit Model (12) (Q2) evaluated at different values of Covid cases

Table 34: Marginal effects for Tobit Model (2) - (Q2)

Variable	Censored at top duration dep. var. ≤ 9
Degree of operations	-1.58996 ***
Orders	-0.85781 ***
ICEPYME	-0.11691 ***
Expected demand	-0.82749 ***
Dummy Size	1.24567 ***
% obtained credit	-0.01851 **
Dependent variable varies from 1 to 9, and it is censored at 9	

Table 35: Marginal effects for IV Tobit Model (1) - (Q2)

Variable	Censored at top duration dep. var. ≤ 9
Degree of operations	-1.35227 ***
Orders	-0.88981 ***
cond_act	-0.27547 ***
Dummy ATP (april)	-0.30582
Dummy ATP (may)	0.09245
Dummy Size	0.79487 **
Dependent variable varies from 1 to 9, and it is censored at 9	

Table 36: Marginal effects for Oprobit Model (3) - (Q4)

Variable	Outcome 1 Eval. closing	Outcome 2 Temp. closed	Outcome 3 Part. open	Outcome 4 Open
Expected duration	0.00450 **	0.00265	0.05311 ***	-0.06027 ***
Orders	-0.00419	-0.00247	-0.04950 **	0.05617 **
Log(Productivity 2019)	0.00724	0.00427	0.08548 *	-0.09701 *
% obtained invested	0.00136	0.00080	0.01610 **	-0.01827 **
% sales export. (2019)	-0.00123 *	-0.00072	-0.01451 **	0.01646 **

Absolute changes in probabilities are reported

Table 37: Marginal effects for Tobit Model (2) - (Q4)

Variable	Censored at top duration dep. var. ≤ 7
Degree of operations	-2.15939 ***
ICEPYME	-0.26696 ***
Dummy Size	-1.20069 ***
Google's mobility	-0.05947 ***
Dummy ATP (july)	1.10779 **

Dependent variable varies from 0 to 7, and it is censored at 7

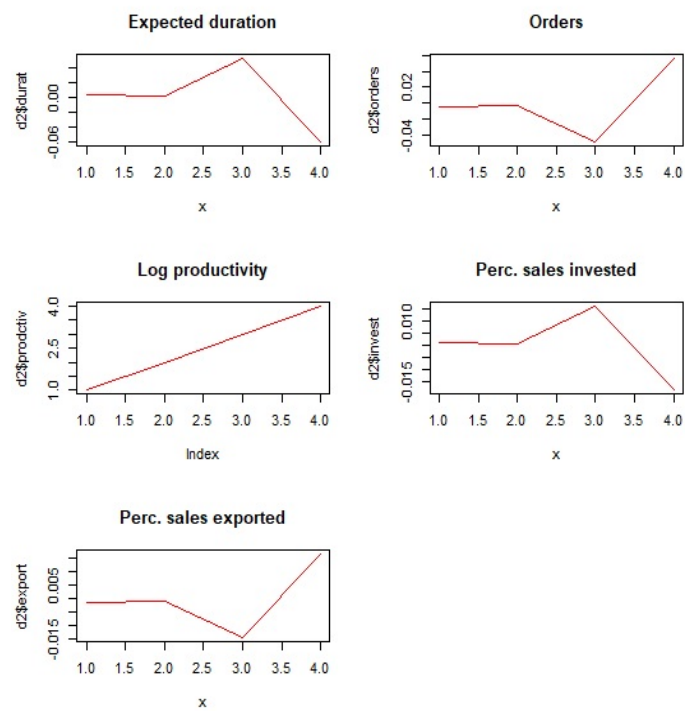


Figure 29: Marginal effects for Oprobit Model (3) (Q4)

Table 38: Marginal effects for Tobit Model (4) - (Q4)

At	Censored at top duration dep. var. ≤ 7
Log(Covid Q3 per 100000 inhabitants)	
Percentile 25	0.22100
Mean	0.22015
Median	0.21944
Percentile 75	0.21892
Dependent variable varies from 0 to 7, and it is censored at 7	

Table 39: Marginal effects for IV Tobit Model (1) - (Q4)

Variable	Censored at top duration dep. var. ≤ 7
Expected demand	-2.41162 **
Degree of operations	-1.97456 ***
cond_act	-0.43161 ***
Dummy Size	-1.29252 ***
Google's mobility	-0.05754 ***
Dummy ATP (july)	1.74700 ***
Dependent variable varies from 0 to 7, and it is censored at 7	