

"The key variables determining the effect of COVID-19 on business performance: A cross-analysis"

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Résumé:

La crise sanitaire de la COVID-19 a profondément affecté l'économie nationale, touchant particulièrement les entreprises du secteur privé, en particulier les PME et les TPE, qui constituent 93 % de la structure économique du Maroc (Bennis et Oudda, 2021).

Cet article explore l'impact de cette pandémie sur les performances des entreprises marocaines, en tenant compte de leur taille et de leur secteur d'activité. À travers une approche quantitative, nous avons étudié un échantillon de 189 entreprises en utilisant des tableaux croisés et des tests statistiques.

Les résultats de l'étude soulignent l'importance d'élaborer des politiques spécifiques, adaptées aux réalités des différents secteurs et des petites entreprises, afin de renforcer leur résilience face aux crises.

Mots-clés : Performances économiques ; Entreprises marocaines ; Secteur d'activité ; Approche quantitative ; Résilience.

Abstract:

The COVID-19 health crisis has had a profound effect on the national economy, particularly affecting private sector companies, especially SMEs and VSEs, which make up 93% of Morocco's economic structure (Bennis and Oudda, 2021).

This article explores the impact of this pandemic on the performance of Moroccan businesses, taking into account their size and sector of activity. Using a quantitative approach, we studied a sample of 189 businesses using cross-tabulations and statistical tests.

The results of the study highlight the importance of developing specific policies, tailored to the realities of different sectors and small businesses, in order to strengthen their resilience in the face of crises.

Keywords: Economic performance; Moroccan companies; Activity sector; Quantitative approach; Resilience.

Introduction

A business's capacity to face up to a crisis depends on many factors, and evaluating its performance during this period becomes crucial to understanding its degree of resilience. Since 2019, the Moroccan economy has been profoundly affected by the COVID-19 health crisis, leading to unprecedented economic and social upheaval, particularly affecting businesses across various sectors and sizes.

The central issue of our study is to evaluate the extent of the impact of COVID-19 on the performance of businesses across various sectors and sizes. In order to answer this question, we have structured our study around the following questions:

- **What is the impact of the pandemic on the financial performance of businesses, in terms of turnover, profits and profitability?**
- **Which sectors are most affected by COVID-19 in terms of their economic performance?**
- **Is there a correlation between business size and the severity of the impact of the pandemic?**

In this paper, we explore the causal links between our dependent variable, the impact of COVID-19, and our explanatory variables, namely sector and business size.

We therefore use cross-tabulations to examine the relationships between these variables, using appropriate statistical tests to assess whether or not there is statistical dependence between the dependent variable and the variables selected as independent.

After analyzing our quantitative data and constructed the composite index measuring the impact of COVID-19 on business performance, our research objective is to identify the impact of the pandemic on businesses, taking into account their size and sector of activity.

Our model establishes a relationship between the composite resilience index and the variables sector and business size. To this end, we will examine the differentiated relationship of sector of activity and size with the impact of COVID-19, while taking into account the composite variable that measures the overall impact.

1. Methodology

To conduct this study, we adopted a quantitative approach to assess the impact of COVID-19 on the performance of Moroccan businesses, taking into account their sector and size. Our representative sample consists of 189 companies, taken from economic and financial sources. We took care to ensure the data's reliability, comparability and coherence by carrying out quality checks and making any necessary adjustments.

In order to produce a rigorous and complete statistical analysis, several steps will be followed:

- **In the first stage**, we will carry out a dependency analysis between our variables to determine whether there is a relationship between them. To do this, we will use

cross-tabulations and statistical tests to assess the relationship between our variables. These tests will enable us to determine whether the relationship observed is statistically significant. If the relationship is significant, this would suggest the existence of a dependency between the variables;

→ **In a second stage**, we will examine the relationship between the size of businesses and the extent of the impact of COVID-19 on their performance. We will evaluate if medium-sized businesses were more resilient or more vulnerable than small businesses to this economic crisis. This comparative analysis will provide a better understanding of the effect of size and organisational structure on businesses' ability to adapt to external shocks.

Cross-tabulations are an effective method for studying the relationship between two qualitative variables. In our case, we use them to cross-tabulate our dependent variable, the impact of COVID-19, with our explanatory variables: sector and business size. This approach will enable us to analyse how the distribution of the impact of COVID-19 on the performance of businesses differs according to their size and sector of activity.

The aim of this cross-analysis is to determine whether there is a significant association between the impact of COVID-19 and the explanatory variables (the sector and the size). To evaluate this association, **we use the Chi-square test**, which allows us to test the null hypothesis that the variables are independent. If the Chi-square test gives a significant value, this indicates a dependent relationship between the variables.

In addition to Chi-square, **we use Cramer's V indicator** to measure the strength of the relationship between the variables. The V indicator varies from 0 to 1, where 0 indicates no relationship and 1 indicates a perfect relationship. The closer the value of the V indicator is to 1, the stronger the relationship between the variables.

2. Binary cross-analysis of variables: Determining the impact of COVID-19 on business performance

2.1. Impact of Covid 19 and business size

The cross-tabulation of the variable impact_covid and the size of the business gives the following results:

Table1: Our cross-tabulation between the impact of covid and the size of the business carried out on the software.

Cross-tabulation Impact_covid * Size				
Impact_covid*size		Size		Total
		Small size	Medium size	
Impact_covid	Low impact	44	3	47
	Moderate impact	39	8	47
	High impact	39	9	48
	Very high impact	40	7	47
Total		162	27	189

Source: Developed by the author

Cross-analysis between the impact of COVID-19 and the size of the business allows us to explore the relationship between these two variables in more detail. We focus here on the categories of impact of COVID-19 (low impact, moderate impact, high impact, very high impact) as a function of the size of the business (small size, medium size).

→ **Small business**

The impact of COVID-19 is distributed as follows:

- **Low impact:** 44 businesses, representing 93.6% of small businesses.
- **Moderate impact:** 39 businesses, representing 82.9% of small businesses.
- **High impact:** 39 businesses, representing 82.9% of small businesses.
- **Very high impact:** 40 businesses, representing 85.1% of small businesses.

→ **Medium businesses**

The following distribution can be observed:

- **Low impact:** 3 businesses, representing 11.1% of medium-sized businesses.
- **Moderate impact:** 8 businesses, representing 29.6% of medium-sized businesses.
- **High impact:** 9 businesses, representing 33.3% of medium-sized companies.
- **Very high impact:** 7 businesses, representing 25.9% of medium-sized companies.

Among the small businesses, we find that the majority of the cases fall into **the high and very high impact categories. This suggests that small businesses were particularly affected by the COVID-19 crisis.** Several factors may explain this trend. Firstly, small businesses often have limited financial and operational resources, making them more vulnerable to economic disruption. **In addition, they are often more dependent on local interactions and local consumption, making them more vulnerable to mobility restrictions and changes in customer behaviour.**

On the other side, even though medium-sized businesses were also impacted by COVID-19, **we find relatively lower proportions in the high and very high impact categories compared to small businesses.** This can be explained by **the fact that medium-sized businesses generally have a greater capacity for resilience as a result of greater resources and a more solid organisational structure.** They may **be better equipped** to face economic challenges and implement more effective adaptation strategies.

This cross-analysis therefore highlights the importance of business size in determining the impact of COVID-19. **Small businesses are more vulnerable and face greater difficulties, requiring special attention and specific support measures to help them overcome the obstacles associated with the crisis.**

These results have important implications for economic recovery policies and programmes. They highlight the need for targeted measures to support small businesses in their recovery process. This may include initiatives such as financial assistance, training and advice programmes, as well as measures to stimulate local demand. It is crucial to recognise the specific challenges faced by small businesses and to provide them with the resources and support they need to help them recover and contribute to the overall economic recovery.

Thus, in terms of significance, cross-analysis of these two variables yields the following results:

Chi-square tests			
	Value	ddl	Asymptotic significance (two-tailed)
Pearson chi-square	3,48	3	0,323
Likelihood ratio	3,94	3	0,268
Linear by linear association	1,43	1	0,232
N° of valid observations	189		

The systemic measurements carried out on the software give the following results:

Symmetrical measurements		
	Valeur	Approximate significance
Phi	0,136	0,323
Cramer's V	0,136	0,323
Contingency coefficient	0,134	0,323
N° of valid observations	189	

Chi-square tests were used to assess the presence of a dependency relationship between the impact of COVID-19 (Impact_covid) and the size of the business (Taille_entreprise). The results of the tests are as follows:

- **The Pearson Chi-square** obtained has a value of 3.48 with 3 degrees of freedom. The associated p-value is 0.323. This p-value greater than 0.05 indicates that there is insufficient statistical evidence to conclude that there is a significant relationship between the impact of COVID-19 and the size of the business.
- **The likelihood ratio** has a value of 3.94 with 3 degrees of freedom. The associated p-value is 0.268. This p-value greater than 0.05 also suggests the absence of strong evidence to support a significant relationship between the variables.
- **The linear-by-linear** association test gives a value of 1.43 with 1 degree of freedom, and an associated p-value of 0.232. A p-value greater than 0.05 indicates that there is insufficient evidence to indicate a significant linear relationship between the variables.
- For the symmetric measures, we calculated **the Phi coefficient, Cramer's V coefficient and the contingency coefficient**. All these measures give close values, namely 0.136, with approximate p-values of 0.323. These values indicate a weak association between the impact of COVID-19 and business size.

Overall, **the results** of the chi-square and symmetric measures tests **suggest** that **there is insufficient evidence to conclude that there is a significant relationship between the impact of COVID-19 and the size of the business. This indicates that the size of the business does not appear to be a determining factor in the extent of the impact of COVID-19.** However, to obtain a more thorough and accurate assessment of this relationship, a more detailed econometric analysis is required.

2.2 Impact of Covid-19 and the business sector

The results are as follows:

Table 2: Our cross-tabulated analysis between the impact of covid and the sector, carried out on the software

Cross-tabulation Impact_covid * Sector					
Impact_covid * Sector		Sectors			Total
		Sector 1	Sector 2	Sector 3	
Impact_covid	Low impact	8	26	13	47
	Moderate impact	12	21	14	47
	High impact	7	20	21	48
	Very high impact	11	22	14	47
Total		38	89	62	189

Source: Developed by us

The cross-analysis between the impact of COVID-19 and the sector of business activity allows us to examine the distribution of the extent of the impact of COVID-19 in each sector. To examine this relationship, we used a crosstabulation table to cross-reference the impact categories of COVID-19 (low impact, moderate impact, high impact, very high impact) with the sectors of activity (sector 1, sector 2, sector 3). By analysing the results of the cross-tabulation, we can see the distribution of the extent of the impact of COVID-19 in each sector:

→ **Sector 1: Of the businesses in this sector, we find the following breakdown for the impact of COVID-19:**

- Low impact: 8 businesses
- Moderate impact: 12 businesses
- High impact: 7 businesses
- Very high impact: 11 businesses

→ □ **Sector 2: The breakdown of businesses in this sector is as follows:**

- Low impact: 26 businesses
- Moderate impact: 21 businesses
- High impact: 20 businesses
- Very high impact: 22 businesses

→ **Sector 3: In this sector, the breakdown is as follows:**

- Low impact: 13 businesses
- Moderate impact: 14 businesses

- High impact: 21 businesses
- Very high impact: 14 businesses

The results indicate a variation in the extent of the impact of COVID-19 depending on the sector of activity; **Sectors 2 and 3** appear to be the most affected, with relatively more businesses reporting a high and very high impact. **Sector 1**, on the other hand, shows a more balanced distribution between the different impact categories.

The Chi-square test between the variable Impact_covid and the variable Sector gives the following results:

Chi-square tests			
	Value	Ddl	Asymptotic significance (two-tailed)
Pearson chi-square	5,32	6	0,503
Likelihood ratio	5,18	6	0,521
Linear by linear association	0,07	1	0,790
N° of valid observations	189		

Our calculations using systemic measurement software give the following results:

Symmetrical measurements		
	Valeur	Approximate significance
Phi	0,168	0,503
Cramer's V	0,119	0,503
Contingency coefficient	0,165	0,503
N° of valid observations	189	

Chi-square tests were also used to assess the existence of a dependency relationship between the impact of COVID-19 (**Impact_covid**) and the business sector (**Sector**).

The results of the tests are as follows:

- **Pearson Chi-square test:** The Pearson Chi-square obtained has a value of 5.32 with 6 degrees of freedom. The associated p-value is 0.503. This p-value greater than 0.05 indicates that there is a significant relationship between the impact of COVID-19 and the business sector.

→ **Likelihood ratio test:** The likelihood ratio has a value of 5.18 with 6 degrees of freedom. The associated p-value is 0.521. This p-value greater than 0.05 also suggests the existence of a significant relationship between the variables.

→ **Linear by linear association test:** The linear-by-linear association test gives a value of 0.07 with 1 degree of freedom, and an associated p-value of 0.790. A p-value greater than 0.05 indicates that there is a significant linear relationship between the variables.

Symmetrical measures, such as **the Phi coefficient, Cramer's V coefficient and the contingency coefficient**, were also calculated. All these measures give close values of 0.168, 0.119 and 0.165 respectively. The p-values associated with these measures are all approximately 0.503. These results indicate a strong association between the impact of COVID-19 and the sector of activity.

In sum, the chi-square tests and the symmetrical measures reveal a significant relationship between the impact of COVID-19 and the business sector. However, it is important to note that these results are not definitive and must be interpreted with caution. This finding remains to be confirmed by econometric analysis.

3. Triangular cross-analysis between the impact of covid, sector and business size:

Taking into consideration the dependent variable crossed at the same time with the size and the sector, we find the following results:

Table 3 : Cross-analysis between the impact of covid, sector and business size

Size			Sector			Total
			Sector 1	Sector 2	Sector 3	
Small size	Impact_covid	Low impact	8	24	12	44
		Moderate impact	10	18	11	39
		High impact	5	18	16	39
		Very high impact	10	19	11	40
		Total	33	79	50	162
Medium size	Impact_covid	Low impact	0	2	1	3
		Moderate impact	2	3	3	8
		High impact	2	2	5	9
		Very high impact	1	3	3	7
		Total	5	10	12	27
Total	Impact_covid	Low impact	8	26	13	47
		Moderate impact	12	21	14	47
		High impact	7	20	21	48
		Very high impact	11	22	14	47
		Total	38	89	62	189

Source: Developed by the author

The three-way cross-analysis between the impact of COVID-19, the sector of activity and the size of the business allows us to examine the distribution of the impact of COVID-19 according to these two variables:

- **For small businesses**, we find significant differences in the impact of COVID-19 depending on the sector of activity. In sector 1, we note a relatively balanced distribution of impact, with similar proportions of businesses reporting a low impact, a moderate impact, a high impact and a very high impact. However, in sectors 2 and 3, there is a more marked tendency towards high and very high impact.
- **For medium-sized businesses**, the distribution of the impact of COVID-19 is more limited. In sector 1, only a few businesses report a low impact, while in sector 2 and sector 3, we observe a more balanced distribution between the different impact categories.

If we analyse all the businesses (small and medium-sized), we find that the differences in the impact of COVID-19 according to sector of activity are maintained. Sectors 2 and 3 seem to be more affected, with a greater number of businesses reporting a high and very high impact. Sector 1 shows a more balanced distribution of impact.

It is important to note, however, that these observations are based on descriptive analyses and do not allow us to conclude that there is a causal relationship between the variables. For a more in-depth assessment and a more precise understanding of the factors influencing the impact of COVID-19 on businesses according to sector and size, **a more rigorous econometric analysis and the use of appropriate models would be required.**

In summary, the tripartite cross-analysis shows variations in the impact of COVID-19 depending on the sector of activity and the size of the business. Sectors 2 and 3 appear to be more strongly affected, while sector 1 shows a more balanced distribution. Further analysis is required, however, to confirm these trends and examine the factors underlying these variations.

Based on the various analyses carried out using cross-tabulations and dependency tests, we can draw the following conclusions:

Conclusion

The analysis of the relationship between the impact of covid and the size of the business showed a significant association between the impact of COVID-19 and the size of the business. The frequencies varied considerably between the different impact categories for the two business sizes. The Chi-square tests, though, did not provide sufficient evidence to conclude that there was a significant dependence between these two variables.

As for the relationship between the impact of covid and the sector of activity, the cross-tabulation revealed differences in the distribution of the impact of COVID-19 according to sector of activity. Frequencies varied between the different impact categories for each sector. However, **the Chi-square tests did not provide sufficient evidence to conclude that there was a significant dependency between these two variables.** Despite these observations, it is important to emphasise at the end that:

“The results of the cross-tabulations and dependence tests do not permit a definitive conclusion as to the absence of a significant relationship between the impact of COVID-19, the size of the business and the sector of activity”.

These preliminary analyses provide interesting indications, **but an econometric analysis must be carried out in future scientific investigations.**

Annexes:

The **database** we use, consisting of **raw data**, **coded data** and **our index table**.

Current result	CA	logca	Net profitability ratios	Ratios Debt	Ratios de solvabilité	Net profitability ratios	Ratios Debt	Solvency ratios	Impact_COVI D	Impact_COVI D	Impact_COVI D	
5,16	1940000	6,28780173	2,65979E-06	0,625296759	1,607640857	0,069887881	0,000975809	0,098566037	0,057817706	impact modéré	2	1
13,1	2122630	6,326874298	6,17159E-06	1,365169068	0,734644452	0,070206772	0,00237955	0,044978528	0,042290132	faible impact	1	1
14,26	760980	5,881373243	1,8739E-05	1,282685106	0,782300566	0,071347965	0,002223055	0,047903824	0,04357725	faible impact	1	2
11,69	556340	5,745340286	2,10123E-05	1,234569002	0,812523148	0,071554397	0,002131766	0,049758989	0,044188985	faible impact	1	2
12,85	2499000	6,397766256	5,14206E-06	1,422257234	0,705211775	0,070113285	0,002487862	0,04317185	0,041743227	faible impact	1	2
13,5	7674860	6,885070462	1,75899E-06	1,929105968	0,519707335	0,069806083	0,003449493	0,031784952	0,038492767	faible impact	1	2
61,36	215040	5,332519251	0,000285342	0,342598498	5,310753599	0,095557077	0,000439452	0,325875778	0,1361174	impact élevé	3	2
442,97	4800000	6,681241237	9,22854E-05	0,271886144	4,715404329	0,078026404	0,000305292	0,289331201	0,118101509	impact élevé	3	2
442,97	2730000	6,436162647	0,00016226	0,271886144	4,715404329	0,084380505	0,000305292	0,289331201	0,12064315	impact élevé	3	2
13,1	11721420	7,068980228	1,11761E-06	1,023885456	0,9803505	0,069747842	0,001732041	0,060060807	0,046436991	faible impact	1	2
11,13	10872750	7,036339402	1,02366E-06	1,828234437	0,54850557	0,069739311	0,003258112	0,033552686	0,038938964	faible impact	1	2
4,7	1800000	6,255272505	2,61111E-06	0,612904667	1,640124588	0,06988346	0,000952298	0,10056	0,058407073	impact modéré	2	2
12,35	9348920	6,970761443	1,32101E-06	1,295973721	0,774231182	0,069766311	0,002248267	0,047408497	0,042803554	faible impact	1	2
652,640625	371000	5,56937391	0,001759139	0,697437269	4,988748087	0,229386322	0,001112679	0,306109977	0,183921325	très fort impact	4	2
483,46	1657390	6,219424714	0,0002917	0,273746421	4,804802854	0,09613436	0,000308821	0,294818789	0,126992027	impact élevé	3	2
11,62	6454530	6,809864624	1,80029E-06	1,568998253	0,639028516	0,069809833	0,00276627	0,039109295	0,040486602	faible impact	1	2
1186,27	1364000	6,13481437	0,000869699	0,246307984	6,587818216	0,148620071	0,000256763	0,404266377	0,180804971	très fort impact	4	2
1027,79	682000	5,833784375	0,001507023	0,291413778	6,107129553	0,206492765	0,000342341	0,374760061	0,195127827	très fort impact	4	2
72,66	900000	5,954242509	8,07333E-05	25,67693702	0,04414	0,076977408	0,048505659	0,002593	0,046120561	faible impact	1	2
442,97	2100000	6,322219295	0,000210938	0,271886144	4,715404329	0,08880075	0,000305292	0,289331201	0,122411248	impact élevé	3	2
11,9	2100750	6,322374372	5,66464E-06	1,224711861	0,818950114	0,070160739	0,002113064	0,050153498	0,043744264	faible impact	1	2
447,4	1302000	6,114610984	0,000343625	0,274106926	4,766683917	0,100849503	0,000309505	0,292478918	0,128176328	impact élevé	3	2

442,97	2100000	6,322219295	0,000210938	0,271886144	4,715404329	0,08880075	0,000305292	0,289331201	0,122411248	impact élevé	3	2
1105,65	4848000	6,685562611	0,000228063	0,316432202	4,891047096	0,090355801	0,000389808	0,300112756	0,126293089	impact élevé	3	2
442,97	2200000	6,342422681	0,00020135	0,271886144	4,715404329	0,087930096	0,000305292	0,289331201	0,122062986	impact élevé	3	2
1074,69	487350	5,68784097	0,002205171	0,272075271	5,909548124	0,269888566	0,00030565	0,362631836	0,216836672	très fort impact	4	2
442,97	4700000	6,672097858	9,42489E-05	0,271886144	4,715404329	0,078204702	0,000305292	0,289331201	0,118172829	impact élevé	3	2
15625	21000000	7,322219295	0,000744048	0,710622711	1,895833333	0,137210165	0,001137696	0,116256278	0,090102258	impact modéré	2	2
460,69	1344000	6,128399269	0,000342775	0,276350274	4,618200236	0,100772327	0,000313761	0,283364481	0,125412404	impact élevé	3	2
11,64	9604000	6,982452151	1,212E-06	1,714103648	0,585008608	0,069756412	0,003041575	0,035793368	0,039553048	faible impact	1	2
1609,875	11445000	7,058615797	0,000140662	0,375985308	14,04397037	0,082419263	0,000502796	0,861950529	0,291703703	très fort impact	4	2
1209,3	900000	5,954242509	0,001343667	0,269412938	6,124422041	0,191659027	0,000300599	0,375821533	0,189500251	très fort impact	4	2
442,97	2100000	6,322219295	0,000210938	0,271886144	4,715404329	0,08880075	0,000305292	0,289331201	0,122411248	impact élevé	3	2
442,97	8244620	6,916170644	5,37284E-05	0,271886144	4,715404329	0,074525202	0,000305292	0,289331201	0,116701029	impact élevé	3	2
442,97	4800000	6,681241237	9,22854E-05	0,271886144	4,715404329	0,078026404	0,000305292	0,289331201	0,118101509	impact élevé	3	2
442,97	2100000	6,322219295	0,000210938	0,271886144	4,715404329	0,08880075	0,000305292	0,289331201	0,122411248	impact élevé	3	2
14,01	7853350	6,895054953	1,78395E-06	1,125883244	0,891229583	0,069808349	0,001925559	0,05459026	0,044878085	faible impact	1	2
4,91	332010	5,521151165	1,47887E-05	0,664925777	1,511521229	0,070989256	0,001050996	0,092665885	0,056510767	impact modéré	2	2
463,52	2000000	6,301029996	0,00023176	0,287265402	4,322476175	0,090691499	0,00033447	0,265211925	0,115940518	impact élevé	3	2
53,07	208540	5,319189369	0,000254484	0,356014669	5,233444181	0,092754928	0,000464907	0,321130261	0,133580522	impact élevé	3	2
13,76	11502130	7,060778272	1,1963E-06	1,703811169	0,588458489	0,069754987	0,003022047	0,036005133	0,039610149	faible impact	1	2
1094,13	900000	5,954242509	0,0012157	0,299347178	5,512	0,180038917	0,000357393	0,338228971	0,173591476	très fort impact	4	2
1162,109375	196000	5,292256071	0,005929129	3,198394743	1,080087273	0,608045456	0,005857683	0,066182991	0,264830385	très fort impact	4	2
13,23	11270600	7,051947037	1,17385E-06	1,122414309	0,893849977	0,069752949	0,001918977	0,054751109	0,044902205	faible impact	1	2
59,71	872190	5,940611103	6,84599E-05	0,39506777	4,603487119	0,075862905	0,000539001	0,282461339	0,115245264	impact élevé	3	2
13,33	2257250	6,353579662	5,90542E-06	1,553336591	0,645302368	0,070182602	0,002736556	0,039494405	0,040742329	faible impact	1	2
442,97	2100000	6,322219295	0,000210938	0,271886144	4,715404329	0,08880075	0,000305292	0,289331201	0,122411248	impact élevé	3	2
1036,55	900000	5,954242509	0,001151722	0,252291354	6,625009044	0,174229366	0,000268115	0,406549278	0,191736964	très fort impact	4	2
12,22	2120900	6,326520192	5,7617E-06	1,412605254	0,710306905	0,070169552	0,002469549	0,043484606	0,041854068	faible impact	1	2
429,68	1911000	6,281260687	0,000224846	0,263780483	4,850127828	0,090063634	0,000289913	0,297600991	0,125392725	impact élevé	3	2

-788,5368429	1989619,924	6,298770121	-0,000396325	2,452049368	0,957663774	0,033657731	0,004441661	0,058668218	0,032396056	faible impact	1	2
82,13	918000	5,962842681	8,94662E-05	19,65298346	0,057735	0,077770405	0,037076563	0,003427508	0,043259383	faible impact	1	2
1151,72	2100000	6,322219295	0,000548438	0,538332975	3,065020576	0,119447694	0,000810815	0,188024995	0,10442982	impact modéré	2	2
78,19	990000	5,995635195	7,89798E-05	19,43084784	0,057735	0,076818177	0,036655111	0,003427508	0,042752056	faible impact	1	2
10,8	10100000	7,004321374	1,06931E-06	1,37637186	0,728726852	0,069743456	0,002400805	0,044615286	0,042002209	faible impact	1	2
11,51	2251990	6,352566458	5,11104E-06	1,647691422	0,608606687	0,070110468	0,002915573	0,037241899	0,040091428	faible impact	1	2
2812,5	3570000	6,552668216	0,000787815	1,412282045	2,90820096	0,141184507	0,002468936	0,17839887	0,110734144	impact élevé	3	2
442,97	2100000	6,322219295	0,000210938	0,271886144	4,715404329	0,08880075	0,000305292	0,289331201	0,122411248	impact élevé	3	2
1448,71875	6650000	6,822821645	0,000217852	0,375184169	12,18178899	0,089428613	0,000501276	0,747643459	0,260214866	très fort impact	4	2
4,75	365780	5,563219956	1,29859E-05	0,516541073	1,94703535	0,070825555	0,000769469	0,119399233	0,064380833	impact modéré	2	2
74,24	945000	5,975431809	7,85608E-05	19,49450832	0,05827	0,076780134	0,036775892	0,003460348	0,042782925	faible impact	1	2
442,97	4700000	6,672097858	9,42489E-05	0,271886144	4,715404329	0,078204702	0,000305292	0,289331201	0,118172829	impact élevé	3	2
1036,546875	492800	5,692670699	0,002103382	0,255517075	12,68556833	0,260645596	0,000274235	0,77856716	0,337910657	très fort impact	4	2
88,7	9730800	6,988148546	9,11539E-06	20,86042483	0,054845	0,070474086	0,039367411	0,00325011	0,040974891	faible impact	1	2
4593,75	13137600	7,118516035	0,000349664	0,896271122	1,192258065	0,10139789	0,001489922	0,073068419	0,062926658	impact modéré	2	2
12,36	9975000	6,998912904	1,2391E-06	1,827760711	0,548510019	0,069758874	0,003257214	0,033552959	0,038946601	faible impact	1	2
13,36	2000000	6,301029996	0,00000668	1,959917899	0,511287327	0,070252939	0,003507952	0,031268103	0,038533992	faible impact	1	2
1119,47	1254880	6,098602198	0,000892093	0,246248539	6,496382207	0,150653562	0,00025665	0,398653722	0,179934537	très fort impact	4	2
416,39	2079000	6,317854489	0,000200284	0,285957899	4,398011065	0,087833278	0,00033199	0,269848516	0,116187463	impact élevé	3	2
12,04	1881800	6,274573464	6,39813E-06	4,038855358	0,248274165	0,070227343	0,007452268	0,015123455	0,034863654	faible impact	1	2
53,07	170300	5,231214648	0,000311627	0,380307397	5,261295866	0,097943841	0,000510997	0,322839893	0,136182803	impact élevé	3	2
171,7	6835500	6,834770288	2,51189E-05	0,110975558	10,52819147	0,071927294	0	0,646139981	0,222612912	très fort impact	4	2
398,59	1600000	6,204119983	0,000249119	0,280774604	4,355809323	0,092267773	0,000322155	0,267258028	0,117181164	impact élevé	3	2
12,96	2308640	6,363356216	5,61369E-06	0,821749932	1,221901615	0,070156112	0,001348534	0,074888041	0,050933418	faible impact	1	2
412,4	1070710	6,029671859	0,000385165	0,297692659	4,18492854	0,104621555	0,000354254	0,256768781	0,118985532	impact élevé	3	2
483,46	2000000	6,301029996	0,00024173	0,240144566	5,528107138	0,091596832	0,000245069	0,339217682	0,138477558	impact élevé	3	2
995,09	4107800	6,613609291	0,000242244	0,309079625	5,103702378	0,091643509	0,000375858	0,313166265	0,13072004	impact élevé	3	2
14,44	4196160	6,62285204	3,44124E-06	1,778520015	0,563942972	0,069958841	0,00316379	0,034500287	0,03928276	faible impact	1	2
-4774,07	6224490	6,794103774	-	527,1826992	0,001897319	0	1	0	0,3	très fort	4	2

			0,000766982							impact		
425,25	2300200	6,361765599	0,000184875	0,262855927	4,715410638	0,086434092	0,000288159	0,289331588	0,121459561	impact élevé	3	2
451,83	2200000	6,342422681	0,000205377	0,264333453	4,850127828	0,088295795	0,000290962	0,297600991	0,124685904	impact élevé	3	2
1175,44	846030	5,927385763	0,00138936	0,274306113	5,845896651	0,195808219	0,000309883	0,358724691	0,18603366	très fort impact	4	2
11,11	3965400	6,598287002	2,80174E-06	1,371943233	0,731223759	0,06990077	0,002392402	0,044768554	0,042108595	faible impact	1	2
11,13	2400050	6,380220289	4,6374E-06	1,494091319	0,6709812	0,070067459	0,002624151	0,04107066	0,041135427	faible impact	1	2
12,97	2794580	6,446316547	4,64113E-06	1,275521772	0,786326555	0,070067797	0,002209464	0,048150953	0,043135244	faible impact	1	2
10,12	6728140	6,82789502	1,50413E-06	1,64004713	0,611353887	0,06978294	0,002901069	0,037410531	0,040006656	faible impact	1	2
14,71	2671730	6,426792567	5,5058E-06	1,781536985	0,562611657	0,070146314	0,003169514	0,034418566	0,03933495	faible impact	1	2
1209,304688	2058000	6,31344537	0,000587612	0,52942065	3,093665628	0,123004874	0,000793905	0,189783326	0,106375119	impact élevé	3	2
11,63	2383170	6,377155023	4,88005E-06	1,53467434	0,653715776	0,070089493	0,002701148	0,040010849	0,040849396	faible impact	1	2
442,97	3628670	6,559747474	0,000122075	0,271886144	4,715404329	0,080731472	0,000305292	0,289331201	0,119183537	impact élevé	3	2
1232,34	2592000	6,413634997	0,00047544	0,270886775	6,570993796	0,112819029	0,000303396	0,403233637	0,166188721	très fort impact	4	2
2687,34375	6440000	6,808885867	0,000417289	0,589617426	2,481207133	0,107538637	0,000908115	0,152188526	0,088944447	impact modéré	2	2
1151,71875	2100000	6,322219295	0,000548438	0,538332438	3,065020576	0,11944764	0,000810814	0,188024995	0,104429798	impact modéré	2	2
48828,125	70000000	7,84509804	0,000697545	0,80952381	1,75	0,132987427	0,001325338	0,107304529	0,085783931	impact modéré	2	2
218,7	903000	5,95568775	0,000242193	1,392082616	1,26911315	0,091638847	0,002430612	0,077786047	0,060720537	impact modéré	2	2
702,84375	392000	5,593286067	0,001792969	0,626641282	4,693990755	0,232458244	0,00097836	0,288016763	0,179681834	très fort impact	4	2
3652,34375	3850000	6,58546073	0,000948661	1,47809635	6,41146789	0,155790212	0,002593804	0,39344139	0,181126643	très fort impact	4	2
1476,5625	3500000	6,544068044	0,000421875	0,71656051	2,442222222	0,107955036	0,001148961	0,149795499	0,088465352	impact modéré	2	2
590,625	1645000	6,216165902	0,000359043	0,635192833	2,506491228	0,102249488	0,000994584	0,153740551	0,087320336	impact modéré	2	2
-12445,3125	58800000	7,769377326	-0,000211655	0,280032468	4,666666667	0,050426866	0,000320747	0,286339516	0,106168825	impact élevé	3	2
27832,03125	35000000	7,544068044	0,000795201	0,852650494	1,627192982	0,141855177	0,001407161	0,099766213	0,087094083	impact modéré	2	2
3320,3125	350000	5,544068044	0,009486607	3,364627101	1,107781818	0,931084915	0,006173072	0,067882978	0,394650781	très fort impact	4	2
1151,71875	2100000	6,322219295	0,000548438	0,538332438	3,065020576	0,11944764	0,000810814	0,188024995	0,104429798	impact modéré	2	2
202,5	700000	5,84509804	0,000289286	1,136142857	1,529051988	0,095915165	0,001945024	0,093741983	0,067072168	impact modéré	2	2
99,140625	1750000	6,243038049	5,66518E-05	0,280121015	10,32769395	0,074790665	0,000320915	0,633832756	0,220162367	très fort impact	4	2

78,975	273000	5,436162647	0,000289286	2,790714286	0,458715596	0,095915165	0,005084201	0,02804107	0,048303647	faible impact	1	2
198,45	665000	5,822821645	0,000298421	1,163083451	1,544342508	0,096744706	0,001996138	0,094680568	0,067700894	impact modéré	2	2
1683,28125	4060000	6,608526034	0,000414601	0,599686126	2,486419753	0,107294541	0,000927218	0,152508495	0,08894853	impact modéré	2	2
1095,703125	136500	5,135132651	0,008027129	3,885975346	0,941614545	0,798555906	0,007162213	0,057683061	0,338875945	très fort impact	4	2
64,8	406000	5,608526034	0,000159606	2,591820276	0,474006116	0,084139492	0,004706845	0,028979655	0,043761747	faible impact	1	2
1792,125	13020000	7,114610984	0,000137644	0,272319448	15,47573946	0,082145225	0,000306114	0,949837419	0,31790115	très fort impact	4	2
1625,0625	10080000	7,003460532	0,000161217	0,264357952	16,29294023	0,084285745	0,000291009	1	0,3338016	très fort impact	4	2
3003,75	32200000	7,507855872	9,32842E-05	0,280470714	5,070927621	0,078117095	0,000321579	0,311154438	0,124689643	impact élevé	3	2
100,1953125	1232000	6,090610708	8,13274E-05	0,377821795	6,612674897	0,077031349	0,000506281	0,405792165	0,152702074	très fort impact	4	2
2191,40625	2590000	6,413299764	0,000846103	1,539317869	3,953738532	0,146477363	0,002709958	0,242577546	0,132177196	impact élevé	3	2
- 654,7484252	2550289,666	6,406589511	- 0,000256735	3,192505587	0,788424403	0,046333347	0,00584651	0,048279726	0,034771209	faible impact	1	2
609,609375	434000	5,63748973	0,00140463	0,617802454	6,281118299	0,19719484	0,00096159	0,385440086	0,194798439	très fort impact	4	2
3375	35000000	7,544068044	9,64286E-05	0,257065806	5,786823285	0,078402626	0,000277173	0,355098565	0,137973772	impact élevé	3	2
2953,125	7000000	6,84509804	0,000421875	0,570958647	2,627160494	0,107955036	0,000872714	0,161147644	0,091788122	impact modéré	2	2
-775,01732	2322997,95	6,366048827	- 0,000333628	3,022955171	0,833450681	0,039351006	0,005524826	0,051043593	0,032710928	faible impact	1	2
79,734375	1113000	6,046495164	7,16392E-05	1,436842105	1,23470948	0,076151604	0,002515533	0,075674232	0,053917571	faible impact	1	2
1113,75	13300000	7,123851641	8,37406E-05	0,290039268	4,918799792	0,077250485	0,000339733	0,301816311	0,121547007	impact élevé	3	2
36,9140625	535500	5,728759475	6,89338E-05	1,755703915	0,842507645	0,075905944	0,003120502	0,05159954	0,04677839	faible impact	1	2
4691,25	48300000	7,683947131	9,71273E-05	0,268559388	5,740896116	0,078466077	0,00029898	0,352279399	0,137159944	impact élevé	3	2
1792,96875	175000	5,243038049	0,010245536	3,159466912	1,107781818	1	0,005783826	0,067882978	0,422100041	très fort impact	4	2
1284,609375	4095000	6,612253906	0,000313702	0,698028772	2,50705998	0,098132297	0,001113801	0,153775463	0,085719698	impact modéré	2	2
1579,5	9345000	6,970579306	0,000169021	0,440787146	11,76456699	0,084994424	0,000625743	0,722032944	0,250795376	très fort impact	4	2
3948,75	28700000	7,457881897	0,000137587	0,199573133	7,692240708	0,082140058	0,000168094	0,472059612	0,174524335	très fort impact	4	2
16113,28125	23800000	7,376576957	0,000677029	0,871428571	1,640625	0,131124454	0,001442788	0,100590717	0,083059833	impact modéré	2	2

166,05	812000	5,909556029	0,000204495	1,160413534	1,452599388	0,088215687	0,001991072	0,089049061	0,062598315	impact modéré	2	2
885,9375	560000	5,748188027	0,001582031	0,251116071	11,37777778	0,213303904	0,000265885	0,698290498	0,294888477	très fort impact	4	2
249,0234375	742000	5,870403905	0,000335611	1,264968797	1,806933333	0,100121777	0,002189443	0,110799292	0,073945331	impact modéré	2	2
5416,03125	29120000	7,464191371	0,00018599	0,272295918	9,679012346	0,086535327	0,000306069	0,594014458	0,212910289	très fort impact	4	2
87,85546875	1428000	6,154728207	6,15234E-05	1,213595916	1,583333333	0,075233039	0,002091974	0,097073958	0,059842995	impact modéré	2	2
770,765625	537600	5,73045926	0,001433716	0,249499978	13,05858586	0,199836009	0,000262819	0,801464253	0,320452525	très fort impact	4	2
73,828125	1050000	6,021189299	7,03125E-05	1,322819549	1,452599388	0,076031136	0,002299201	0,089049061	0,057816933	impact modéré	2	2
2742,1875	5145000	6,711385379	0,000532981	1,784022784	2,86203904	0,118044105	0,003174231	0,175565293	0,100839499	impact modéré	2	2
3484,6875	8050000	6,90579588	0,00043288	0,646249897	2,11567792	0,108954393	0,001015563	0,129751092	0,082811753	impact modéré	2	2
1233,5625	6230000	6,794488047	0,000198004	0,340838177	10,36520642	0,087626224	0,000436113	0,6361354	0,226021944	très fort impact	4	2
1506,09375	3325000	6,52179165	0,000452961	0,701506717	2,678566308	0,110777781	0,0011204	0,164303108	0,093938165	impact modéré	2	2
6640,625	7000000	6,84509804	0,000948661	1,41570814	10,68577982	0,155790212	0,002475437	0,655813293	0,259802704	très fort impact	4	2
9466,796875	6440000	6,808885867	0,00147	1,275590729	2,289135484	0,203130778	0,002209595	0,140398511	0,124034743	impact élevé	3	2
4697,578125	38080000	7,58069694	0,000123361	0,378482143	8,296296296	0,080848225	0,000507534	0,509138612	0,185233134	très fort impact	4	2
956,8125	520800	5,716670976	0,001837198	0,248921853	12,60119474	0,236474476	0,000261722	0,77338802	0,326684713	très fort impact	4	2
14839,84375	15120000	7,179551791	0,000981471	1,485989443	1,96502069	0,158769588	0,002608779	0,120503235	0,10044144	impact modéré	2	2
25585,9375	28000000	7,447158031	0,000913783	1,357886905	2,1504	0,152623159	0,002365734	0,131882452	0,101323719	impact modéré	2	2
1463,0625	6790000	6,831869774	0,000215473	0,402819692	9,830917431	0,089212557	0,000553709	0,603338913	0,216852809	très fort impact	4	2
185,546875	630000	5,799340549	0,000294519	1,541255665	1,513917117	0,096390364	0,002713635	0,092812953	0,067214122	impact modéré	2	2
1113,75	7350000	6,866287339	0,000151531	0,288675517	4,960134244	0,083406209	0,000337146	0,304353561	0,124769695	impact élevé	3	2
1477,40625	9310000	6,968949681	0,00015869	0,380178711	11,8612156	0,084056345	0,000510752	0,727965566	0,252165434	très fort impact	4	2
616,78125	420000	5,62324929	0,001468527	0,645575105	5,028058361	0,202997045	0,001014282	0,308522976	0,174059996	très fort impact	4	2
27,50762109	412477,8	5,615400579	6,66887E-05	2,774199435	0,464645872	0,075702077	0,005052868	0,028405091	0,040318219	faible impact	1	2
7675,78125	8680000	6,938519725	0,000884307	1,317949055	2,215563636	0,149946488	0,002289961	0,135882419	0,101430309	impact modéré	2	2

488,28125	1400000	6,146128036	0,000348772	1,291322314	1,806933333	0,101316892	0,002239442	0,110799292	0,074438377	impact modéré	2	2
190,4296875	462000	5,664641976	0,000412185	1,535304871	1,647498039	0,107075171	0,002702344	0,101012607	0,073944554	impact modéré	2	2
5084,4375	22960000	7,360971884	0,000221448	0,341009852	9,842424242	0,089755076	0,000436438	0,60404524	0,217246534	très fort impact	4	2
103,275	420000	5,62324929	0,000245893	1,632780612	0,856269113	0,091974844	0,002887283	0,052444266	0,053389402	faible impact	1	2
97,03125	1428000	6,154728207	6,79491E-05	0,268093557	8,052705665	0,075816522	0,000298096	0,494186185	0,178671893	très fort impact	4	2
354,375	224000	5,350248018	0,001582031	0,295453753	9,84024024	0,213303904	0,000350006	0,603911178	0,266599917	très fort impact	4	2
1491,328125	3920000	6,593286067	0,000380441	0,773559641	2,127876788	0,104192576	0,001257104	0,1304999	0,081204132	impact modéré	2	2
354,375	162400	5,210586025	0,002182112	0,25148536	10,74567901	0,267794698	0,000266586	0,659490111	0,305044888	très fort impact	4	2
1992,1875	2170000	6,336459734	0,000918059	1,396385347	3,953738532	0,153011378	0,002438776	0,242577546	0,134709448	impact élevé	3	2
1299,375	4865000	6,687082845	0,000267086	0,614194722	2,836924804	0,093899333	0,000954745	0,174023695	0,090053265	impact modéré	2	2
4476,515625	26040000	7,41564098	0,000171909	0,346055672	8,723940435	0,085256702	0,000446012	0,535388874	0,194853146	très fort impact	4	2
460,6875	296800	5,472463897	0,001552182	0,255703769	11,60087146	0,210593384	0,000274589	0,711984752	0,297915156	très fort impact	4	2
114,9609375	1540000	6,187520721	7,465E-05	0,294067296	7,338098332	0,076425003	0,000347375	0,45032114	0,165770556	très fort impact	4	2
744,1875	750400	5,875292825	0,000991721	0,21356824	13,57575758	0,159700342	0,000194647	0,833210024	0,313901538	très fort impact	4	2
7031,25	10500000	7,021189299	0,000669643	1,511449883	3,2313344	0,130453784	0,002657085	0,198233907	0,112448811	impact élevé	3	2
22,88671875	556500	5,745465169	4,11262E-05	2,546679198	0,52293578	0,07338085	0,0046212	0,031983125	0,040333637	faible impact	1	2
3510	37100000	7,56937391	9,46092E-05	0,259496366	5,786823285	0,078237413	0,000281785	0,355098565	0,13790907	impact élevé	3	2
2805,46875	8330000	6,920645001	0,000336791	0,431942628	3,554393609	0,100228916	0,000608963	0,218064387	0,105693571	impact modéré	2	2
17,32497188	990000	5,995635195	1,75E-05	115,1411538	0,183721183	0,071235455	0,218243881	0,011160971	0,097315637	impact modéré	2	2
590,625	1330000	6,123851641	0,000444079	0,643826924	2,900138889	0,109971282	0,001010966	0,177903992	0,097663	impact modéré	2	2
1721,25	20300000	7,307496038	8,47906E-05	0,253945086	5,786823285	0,077345835	0,000271253	0,355098565	0,137549279	impact élevé	3	2
3937,5	5985000	6,777064155	0,000657895	1,485832088	3,287047062	0,129386987	0,002608481	0,201653741	0,113033461	impact élevé	3	2
1033,59375	3920000	6,593286067	0,000263672	0,570958647	2,627160494	0,093589281	0,000872714	0,161147644	0,08604182	impact modéré	2	2
27,31640625	357000	5,552668216	7,65165E-05	2,640507519	0,493883792	0,076594499	0,004799218	0,030199814	0,041137509	faible impact	1	2
797,34375	1960000	6,292256071	0,000406808	0,707082196	2,397818182	0,106586869	0,001130978	0,147069827	0,087094989	impact modéré	2	2
232,875	679000	5,831869774	0,000342968	1,066988417	1,697247706	0,100789789	0,001813819	0,104066412	0,072079985	impact modéré	2	2

72,3515625	987000	5,994317153	7,33045E-05	1,415565122	1,350917431	0,076302829	0,002475165	0,082807474	0,056105923	faible impact	1	2
1151,71875	2100000	6,322219295	0,000548438	0,538332438	3,065020576	0,11944764	0,000810814	0,188024995	0,104429798	impact modéré	2	2
364,8645	237081,6	5,37489785	0,001538983	0,295489658	9,485584031	0,209394855	0,000350074	0,582141166	0,258505314	très fort impact	4	2
-10230,46875	71400000	7,853698212	-0,000143284	0,301973684	4,478114478	0,056635355	0,000362376	0,274765537	0,105192516	impact modéré	2	2
264,515625	900000	5,954242509	0,000293906	0,852758671	1,542487265	0,096334736	0,001407367	0,094566686	0,06732611	impact modéré	2	2
-720,7057166	2319574,585	6,365408342	-0,000310706	1,869549328	1,331915346	0,041432463	0,003336498	0,081641061	0,042066253	faible impact	1	2
3484,6875	9800000	6,991226076	0,00035558	0,508813488	2,959330211	0,1019351	0,000754808	0,181537358	0,09546169	impact modéré	2	2
62,75390625	892500	5,950608225	7,03125E-05	1,191729323	1,612385321	0,076031136	0,002050487	0,098857268	0,060684781	impact modéré	2	2
-8648,4375	96600000	7,984977126	-8,95283E-05	0,218541389	6,935185185	0,061516668	0,000204082	0,425588951	0,152344577	impact élevé	3	2
-10019,53125	78400000	7,894316063	-0,0001278	0,269878706	5,496296296	0,058041367	0,000301483	0,337265024	0,124486499	impact élevé	3	2

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