

# The Contribution of Firm Profits to the Recent Rise in Inflation\*

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September 25, 2023

## Abstract

We measure the contribution to inflation from the growth in markups of Canadian firms. The dynamics of inflation and markups suggest that changes in markups could account for less than one-tenth of inflation in 2021. Further, they suggest that peak inflation was driven primarily by changes in firms' costs.

**JEL Codes:** E01, E24, E25

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\*We would like to thank Andrew Glover at the Federal Reserve Bank of Kansas City for helpful discussions. We also thank Carole Hubbard for her editorial support. Any errors are our own. The views expressed in this paper are those of the authors and do not necessarily reflect the official views of the Bank of Canada or its Governing Council.

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# 1 Introduction

Recently, inflation in Canada and worldwide has risen to levels not seen since the 1980s. Discussion about the reasons for this and what role firms have played is growing. In particular, the notion that firms exploited their market power to raise prices by more than their costs increased has been at the centre of this discussion (e.g. [Glover, Mustre-del Río, and von Ende-Becker, 2023](#); [Hansen, Toscani, and Zhou, 2023](#)). In this paper, we examine this hypothesis by documenting the recent changes in Canada in both inflation and markups—the ratio of firms’ prices to costs. We show that, counter to what we would expect if firms were using their market power to raise prices, increases in the markups of Canadian firms do not coincide with the high inflation in 2021 and 2022. Rather, the data suggest that the contribution of changes in markups to inflation was limited.

Firms’ prices are the product of their marginal costs and markup. Consequently, changes in firms’ prices—that is, inflation—can be broken down into changes in their costs and changes in their markups. Hence, both increases in costs and increases in markups may be passed through to consumers in the form of higher prices and, thus, inflation. This relationship forms the basis of our analysis and helps us determine the role markups played in the recent episode of high inflation.

To determine how much the growth in markups contributed to recent inflation, we use firm-level data provided by Statistics Canada to measure markup growth. We compare the average growth rate of markups for private non-financial firms with consumer price index (CPI) inflation for 2018–2022. Furthermore, we decompose the changes in our measured markups to determine whether markup growth was driven by demand or cost pressures.

We find that firms’ measured markups did grow after the onset of the COVID-19 pandemic. However, our results do not indicate that this markup growth was inflationary. Most of the growth in markups occurred during 2020, a year characterized by low inflation. Moreover, markup growth began to decline in 2021 as inflation started to increase, suggesting that the contribution of changes in markups was mild and decreasing. Specifically, our estimates suggest that markup growth accounted for less than one-tenth of inflation in 2021. Furthermore, by 2022, when inflation reached its highest levels in recent history, growth in markups was near zero or negative. The fact that markup growth was not aligned with the dynamics of inflation indicates that the recent rise in inflation was driven primarily by changes in costs rather than by firms leveraging their market power to increase prices.

Why did this increase in markups not contribute significantly to inflation? We show that markup growth reached its highest level because of a contraction in firms’ costs. More specifically, the declines in firms’ costs outpaced the declines in their sales, and markup growth peaked during the pandemic-related public health interventions. We observe a mild contribution of markup growth to inflation in 2021, partially explained

by demand rebounding faster than costs. However, the fact that markup growth fell to zero the following year indicates that firms were likely smoothing out their price increases in anticipation of high demand and rising costs rather than leveraging increases in market power. This evolution of markups, inflation, and costs is consistent with economic theories in which firms set prices in anticipation of future increases in costs.

## 2 The Contribution of Growth in Markups to Inflation

Measuring the growth rates of firm markups presents two difficulties: First, available data provide only measures of total costs and not direct measures of marginal costs. Second, the data show only reported total sales; they do not show the prices that firms charge separately from the quantity sold.

These issues can be addressed by assuming that firms equate their marginal costs to a constant proportion of their observed costs of production. In particular, the observed costs of goods and services sold which include variable costs such as labour, intermediate inputs and utilities. This assumption allows us to use the ratio of sales to cost of goods sold as our measure of markups, which provides an observable and useful proxy for firms' actual markups.<sup>1</sup> The growth of markups is then the growth in this ratio.<sup>2</sup>

We compute markup growth using data from Statistics Canada's Quarterly Survey of Financial Statements (QSFS). The QSFS includes data on sales and cost of goods sold for a broad and representative sample of non-financial incorporated businesses in Canada (Table [Table 1](#) provides the composition by sales). We measure the economy-wide growth in markups using the sales-weighted average growth in industry-level markups.<sup>3</sup> Figure [Figure 1](#) shows the economy's average yearly growth rate of markups plotted against annual CPI inflation from the first quarter of 2018 to the end of 2022.

The timing of the growth in markups and inflation stands out and can help us understand the extent to which growth in markups contributed to inflation. The two years preceding the pandemic were characterized by stable inflation and modest growth in markups. The highest growth in markups in our sample years occurred at the beginning of the pandemic and continued through 2020, coinciding with episodes of the most stringent pandemic-related restrictions on businesses and households. Furthermore, inflation was low in this period. At the beginning of 2021, as these restrictions were lifted, inflation began to accelerate and continued to rise into 2022. However, markup growth

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<sup>1</sup>We follow the methodology of [De Loecker, Eeckhout, and Unger \(2020\)](#).

<sup>2</sup>We focus on the growth rates rather than the level of markups because inflation depends directly and contemporaneously on the growth, not the level. Furthermore, measuring the level of markups requires stronger assumptions and additional data analysis that can introduce measurement error.

<sup>3</sup>Publicly available data for the QSFS is aggregated at the industry level. Analysis comparing firm- and industry-level markups using Compustat data shows that most of the variation in markup growth is across industries rather than across firms within industries.

**Table 1:** Industry composition by sales, 2018–2022

<b>Industry</b>	<b>Share of sales, %</b>
Agriculture	2.2
Construction	9.2
Energy	5.8
Information	3.4
Manufacturing	22.0
Retail trade	17.3
Services	13.1
Transportation and warehousing	5.6
Wholesale trade	21.4

Notes: Industry composition by sales of non-financial firms, excluding utilities..

started to decline and was eventually negative. That is, by the end of 2022, markups were shrinking.

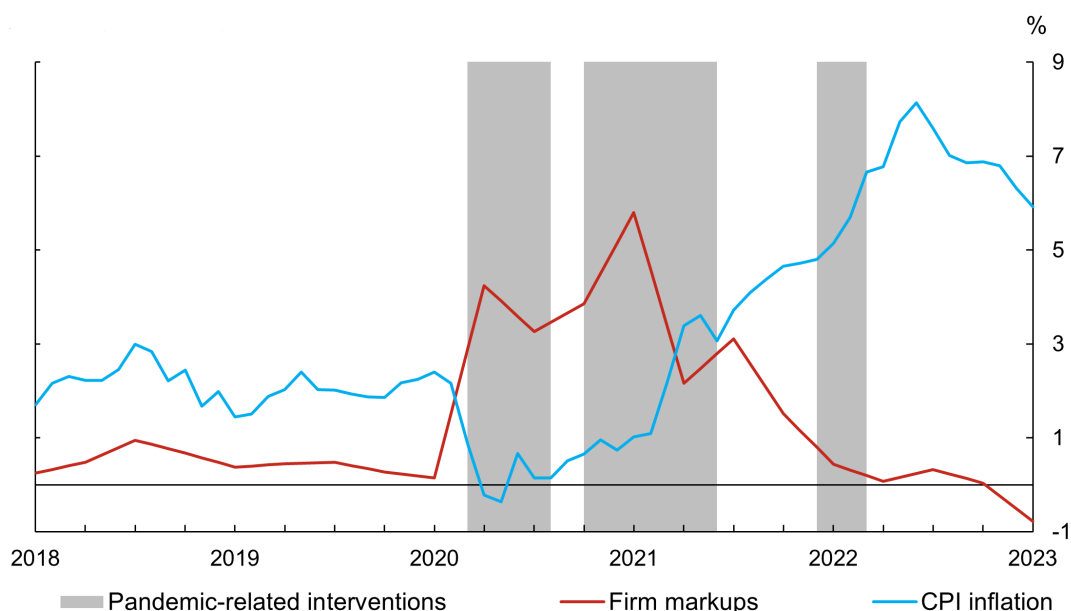
The growth in markups and inflation raises several points:

- The timing suggests that while changes in markups may have contributed to the initial rise of inflation in 2021, their contribution dissipated by the end of 2021 and growth in marginal costs was the driving force of peak inflation.<sup>4</sup> Comparing the inflation rate with the growth in markups during 2021 (Figure 1) shows that the contribution of markup growth to inflation was positive but mild — inflation during 2021 was 5.1%, whereas markup growth was only 0.44% (less than one-tenth the rate of inflation). When inflation peaked in 2022, growth in markups was near zero and negative.<sup>5</sup>
- The decline in markup growth in the period after 2021 suggests that the rise and peak in inflation were not fuelled by a steady increase in monopoly power and demand-driven growth in firms’ markups.
- The low inflation during the peaks of markup growth meant this markup growth was non-inflationary and primarily cost-driven (we explore the decomposition of measured markups below and find this to be the case).

<sup>4</sup>Faryaar, Leung, and Fortier-Labonté (2023), using the QSFS, also find that the contribution of growth in markups to recent inflation in Canada was limited. However, they focus on estimating the level of markups rather than its changes.

<sup>5</sup>Similar analysis by Glover et al. (2023) on markups in the United States finds that growth in markups could account for more than half of 2021 inflation. Their analysis finds a similar pattern in which quarterly growth in markups occurred in 2020 and early 2021 but then declined toward the end of 2021.

**Figure 1: CPI inflation and average growth in firm markups**



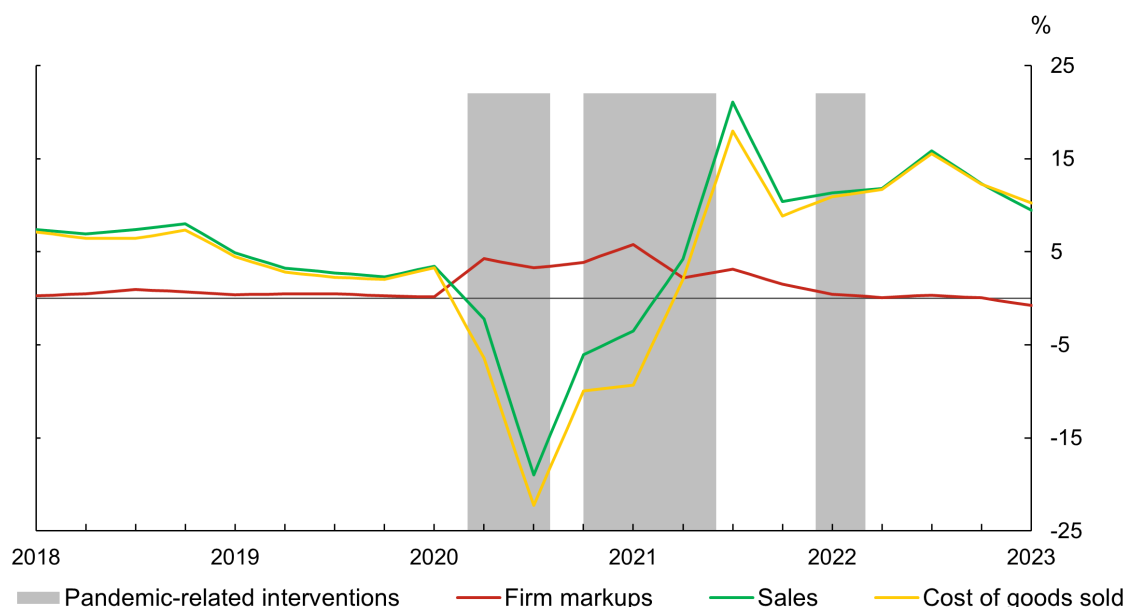
Notes: Yearly sales-weighted average growth rate of firms' markups and CPI inflation rate. The shaded regions denote the periods of significant pandemic-related public health interventions.

### 3 Breaking Down the Growth in Firms' Markups

Figure 2 shows the average growth in markups along with the growth of the ratio's components: sales and cost of goods sold. Comparing the growth in sales with the growth in costs during 2020, when markup growth was the highest, shows that both sales and costs declined substantially during this period (likely due to the onset of the pandemic and related interventions). The decline in firms' variable costs was greater than in their sales, which indicates that the higher growth in markups was driven primarily by cost-related factors. However, the low inflation in 2020 suggests that firms were not increasing their prices at this time. Concerns about existing overhead costs, uncertainty around the possible length and depth of the pandemic, and supply chain issues also meant that firms did not pass along these cost savings in the form of lower prices.

In 2021, as pandemic-related interventions eased and the economy began to recover, both sales and costs began to grow. The growth in sales outpaced the growth in costs at this time, and growth in measured markups remained positive, although much lower than in 2020. Furthermore, inflation started to rise alongside demand. This means the growth in markups may have been from firms adjusting their prices and could have contributed to the initial acceleration of inflation. However, markup growth declined as increases in costs caught up to sales. By 2022, sales and costs were growing at a similar

**Figure 2: CPI inflation and average growth in firm markups**



Notes: Yearly sales-weighted average growth rates of firms' markups, sales, and costs of goods sold. The shaded regions denote the periods of significant pandemic-related public health interventions.

pace, and the contribution of markup growth to inflation ceased. In fact, by the end of 2022, the growth of costs exceeded that of sales, and markups were declining.

The evolution of markups and inflation does not align with the explanation that the recent episode of inflation was fuelled by firms leveraging their market power to raise markups. Rather, the data can be understood in the context of economic theory about firms' expectations and their price-setting behaviour. That is, the dynamics of markups, costs and inflation are consistent with an explanation that firms increased their prices (and, therefore, markups) in anticipation of future increases in both their prices and their marginal costs. This behaviour reflects their desire to smooth price increases over time rather than abruptly raising prices when higher prices and marginal costs are realized.<sup>6</sup>

As the economy began to reopen in 2021, firms started to increase prices in anticipation of the growing demand and the expected increase in their marginal costs associated with meeting that demand.<sup>7</sup> This forward-looking behaviour meant that inflation started to rise in 2021 and coincided with markup growth fuelled by firms' raising prices

<sup>6</sup>Glover et al. (2023) find similar patterns for the United States which supports that US firms were also likely adjusting prices in anticipation of higher future costs.

<sup>7</sup>Supply chain constraints and disruptions were known at this time and were expected to continue as demand pressures increased.

above current cost—foreshadowing of the subsequent rise in prices and costs.<sup>8</sup> By 2022, increases in costs caught up to growing demand, and growth in markups became negative once growth in costs surpassed growth in sales. These dynamics in inflation and markups are consistent with the price-setting behaviour of forward-looking firms.

## 4 Conclusion

We show that growth in measured markups contributed modestly to inflation in 2021. The data do not support the notion that the recent high inflation is a consequence of firms leveraging their market power to increase their prices through higher markups. Using a representative sample of Canadian firms, we find that the observed increase in markups in 2020 was primarily cost-driven. While the subsequent positive but declining markup growth in 2021 could have contributed to inflation, this effect was mild and accounts for less than one-tenth of the sharp increase in inflation. Finally, we discuss how the periods in which we observe positive markup growth paired with increased inflation make sense in the context of the forward-looking behaviour of firms and their desire to smooth price increases.

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<sup>8</sup>Data on firms’ expectations from the Bank of Canada’s Business Outlook Survey show that, in 2021, many firms expected large input and output price increases, and faster wage growth.