Overview of inflation and wage dynamics in Mexico in the aftermath of the pandemic

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Inflation in Mexico, as in many other countries, has been severely affected by the confluence of multiple global inflationary shocks of considerable magnitude. These large global shocks have been atypical in nature and have had broad-based impacts on prices across many sectors, causing inflation in many countries to reach levels not seen in several decades.

The surge in inflation observed since 2021 has been driven by various factors. Firstly, supply has been affected by generalised disruptions in production and distribution networks as a result of restrictions to the operation of businesses and interruptions in the production process that resulted from measures adopted to contain the spread of Covid-19. In addition, the unsynchronised re-opening of economies also contributed to the scarcity of some inputs and generalised increases in input prices and operational costs. Second, considerable monetary and fiscal stimulus in advanced economies resulted in a vigorous increase in demand, particularly for goods, in a context in which consumer behaviour was already characterised by a reallocation of expenditure away from services. Finally, the recovery of global economic activity was fast which exacerbated the abrupt increase in demand. In this context, a severe imbalance between supply and demand in several world markets characterised the period of economic recovery, resulting in significant inflationary pressures. The effects of these shocks had not fully dissipated when, in addition, the Russia-Ukraine conflict increased uncertainty worldwide, exacerbated some of the disruptions in supply networks and further increased prices of several products that were already high, particularly food commodities, fertilisers and energy.

The aforementioned context has led to significant external inflationary pressures in Mexico. In particular, throughout 2022 food items (processed and unprocessed) consistently accounted for approximately half of annual headline inflation, which peaked at 8.70% in August and September. Towards the end of 2022, headline inflation showed lower levels led by declining annual rates of non-core inflation. This behaviour was also reflective of the fact that some pressures had begun to revert, such as those stemming from the prices of inputs and the functioning of production and distribution chains. In December, annual headline inflation reached 7.82%, and in its reading for January it was 7.91%. Annual core inflation registered 8.35% in December and 8.45% in January after peaking at 8.51% in November. It is worth noting that the decline in December came after 24 consecutive months of rises, pressured by both goods and services inflation that in turn reflected generalised increases in production costs.

Annual non-core inflation was elevated during the first half of 2022, influenced by pressures that affected the prices of agricultural products. Inflation of this component reached 10.65% in August 2022, but has declined since, and it stood at 6.27% in December of 2022 and at 6.32% in January. The lower levels of non-core inflation observed in the last quarter of 2022 resulted, mainly, from the reduction of energy and agricultural inflation. Throughout this inflationary episode, energy inflation has been influenced by the federal government's policies that insulate gasoline prices from fluctuations in their international references.

Global inflationary pressures observed last year appear to be easing. As a consequence, inflation in Mexico is expected to show more notable decrements throughout 2023. In the most recent forecasts published by the Bank of Mexico in February 9, 2023, headline inflation is expected to converge to its 3% target by the fourth quarter of 2024, with core inflation also expected to converge to 3% on the same horizon. The foreseen downward trajectories for inflation reflect, in part, the effect of the monetary policy actions that the Bank of Mexico has been implementing. These trajectories also incorporate the expectation that the effects on inflation of the shocks related to the pandemic and the Russian invasion of Ukraine will fade away gradually, so that the imbalance between supply and demand that has been driving the high levels of inflation globally will continue to be resolved. However, new external shocks affecting the path of inflation cannot be discarded and the balance of risks for inflation remains biased to the upside.

Until now, the outlook for inflation has been shaped by the shocks that have affected the global economy. However, it is important to remain vigilant to the possibility that, as external inflationary pressures ease, internal pressures will become more significant. Inflation has remained at high levels for a long period of time and this poses a risk of inflation becoming more entrenched, for example if wage revisions become more tightly linked to observed inflation.

Regarding internal pressures to inflation, a recent concern, both in Mexico and in other countries, has been the extent to which wage increases could become a driving factor of inflation. Business sentiment gathered by the Bank of Mexico suggests that labour costs have not been the main source of pressure on operational costs up to the present, but they are expected to exert more pressure going forward. As Graph 1 illustrates, from the perspective of firms, observed increases in production costs have exerted stronger pressures on prices than labour costs. However, pressures from the latter on operational costs are expected to increase (Graph 2). Therefore, it is important to monitor the evolving state of the labour market and wage dynamics in order to anticipate possible inflationary pressures. This is particularly relevant given that the continuous recovery of the labour market has taken place in the context of an economy that, for the most part, has recovered from the initial shock of the pandemic, which may facilitate the pass-through of increases in labour costs to final prices. For instance, nominal wages for formal jobs (proxied by jobs registered with the Mexican Institute of Social Security (IMSS)) increased 11% annually in December 2022. The average for the same month between 2017 and 2019 was 5.9%, it was 7.9% for December 2020 and 7.5% for December 2021 (see Graph 3).

The measurement of wages for IMSS-affiliated jobs has been affected by a reform to outlaw most forms of outsourcing, enacted in the second half of 2021.[1] Part of the

1 In April 2021, a reform to the legal provisions that regulate the subcontracting (ie outsourcing) labour regime was approved. The reform eliminates labour subcontracting, understood as a relationship in which a natural or legal person provides their own workers for the benefit of another, with the exception of specialised services or the execution of specialised works, provided that they are not part of the preponderant economic activity of the beneficiary. Originally, a 90-day period had been

explanation for the increase in the annual variation of formal wages is associated with higher reported wages for workers potentially affected by this reform, since direct employers generally pay (or report paying) higher wages than outsourcing firms.[2] In fact, the annual change in the average wages of this group of workers is estimated to have increased by 13.2% in July 2021, the month of the implementation of the reform, which is significantly higher than the increases of 4.9% for other workers in the same period.[3] Note that this does not necessarily mean that workers who are now directly registered by their employers are earning higher wages, as this could just be reflecting a change in the *reported* wage rather than the actual wage. Additionally, this effect is expected to be transitory. Indeed, as the labour market has adjusted to the short-term effects of this reform, this factor's contribution to wage growth has been gradually fading away.[4]

Beyond the effects of the reform on outsourcing, recent data and analysis performed by the Bank of Mexico indicate that there are several factors influencing the magnitude of wage growth in the country. Businesses surveyed by the Bank of Mexico[5] have confirmed that their latest wage revisions have responded to a number of factors, including changes to the minimum wage, observed and expected inflation, the difficulty of hiring and retaining workers, and the economic conditions in which their businesses operate (see Graph 4).

Regarding the role of the minimum wage, the federal government has maintained a policy aimed at restoring its purchasing power, which in turn has led to minimum wage increases of considerable magnitude. In 2019, the minimum wage increased by 100% in the cities bordering the United States and by 16% in the rest of the country. The minimum wage was further increased by 20%, 15%, 22%, and 20% in 2020, 2021, 2022 and 2023, respectively. In this context, since 2019 workers who are directly impacted by the minimum wage hikes have become an increasingly larger share of all formally employed workers. Thus, the increases for this group explain a large part of the variation in the average wage of formally employed workers. Consistent with this observation, the industries with the largest increases in average wages of formally employed workers have also been in industries with the largest shares of workers that are directly affected by minimum wage increases (Graph 5). In addition to their direct mechanical effects, the large magnitude of the minimum wage increase could also be exerting upward pressures on the average wages of formal workers more generally, to the extent that these changes are used as references for increases to non-minimum wage earners. Although evidence suggests that the

granted for companies to regularise subcontracted workers, recognising their seniority. In July 2021, the deadline was extended until 1 September.

2 In the available data it is not possible to categorically identify the workers and firms that were affected by this reform. The workers that are potentially affected by the reform are identified as those who moved simultaneously in groups of 20 or more workers from one employer to another (see Graph 3 and Box 4 in Bank of Mexico (2021)).

3 See Bank of Mexico (2022b).

4 Between January 2017 and June 2021, workers who simultaneously change in groups of 20 or more contributed 7% of all observed annual variation to the average base salary in IMSS. This contribution increased to 29% between July 2021 and June 2022, and is back down to 5% for the period between June 2022 and November 2022.

5 Encuesta Mensual de Actividad Económica Regional (EMAER). This is a monthly survey carried out by Bank of Mexico among businesses of more than 100 workers.

fraction of the latter group who receive a wage increment similar to the minimum wage revisions has been declining over the years, businesses do report that they use these revisions as a reference to set other wages. However, a factor that may contain the impact of minimum wage hikes on other wages is that since 2017 minimum wage revisions have been split between a nominal adjustment in pesos and a percentage increase. The first is known as the "independent recovery amount" (IRA) and is aimed at recovering the purchasing power of minimum wages without contaminating wage revisions along the rest of the wage distribution. This separation is intended to break the informal association between the minimum wage and other wages.

Wage dynamics may be responding to other factors as well. In this respect, it is important to note that formal indexation of wages to inflation in Mexico is relatively low, which suggests that the contribution of this channel to wage growth is restrained. According to businesses surveyed in the Monthly Survey of Regional Economies (EMAER), while 18.0% of firms report explicit indexation to inflation as a factor considered to determine the magnitude of wage adjustments to non-minimum wage earners, only 6.9% report this mechanism as the most important factor. Moreover, although inflation seems to be used as a reference because its observed level and expectations are reported to be relevant factors for determining wage revisions (Graph 4),[6] and because they influence workers' wage demands (Graph 6),[7] this does not mean that the size of wage revisions has been larger or even similar to observed inflation levels.

There have been signs of tightness in the Mexican labour market in the context of the post-pandemic economic recovery. While in general the labour market has recovered from the effects suffered since the onset of the pandemic, this recovery has occurred with heterogeneity across economic sectors and across workers that differ by age and sex. With seasonally adjusted figures, during the fourth quarter of 2022, both the labour force participation rate and the employment to working age population ratio continued to increase, yet remained slightly below their levels for the first quarter of 2020, prior to the health emergency. In the same period, the national and urban unemployment rates continued to decrease to levels well below those during the first quarter of 2020. For its part, the underemployment rate continued to display a downward trajectory, but remained above its average for 2019. Finally, in the last quarter of 2022, the creation of IMSS-affiliated jobs continued to grow with seasonally adjusted figures, although with some slowdown at the end of the year. In this context, slack conditions, as measured by the unemployment gap, suggest that unemployment between July and September 2022 was below the NAIRU and that it kept widening through November 2022, reaching more negative levels than those observed in early 2020 before the pandemic. Thus, measures of the unemployment gap suggest tightness in the labour market. In a similar fashion, the Bank of Mexico's indicator of slack conditions in the labour market (which is based on several indicators) has maintained an upward trajectory since June 2020 and is estimated to have been positive since October 2021 (ie indicating tightness), although not statistically different from zero. Firms have mentioned difficulties in hiring and retaining workers as a relevant factor for determining the size of wage adjustments (Graph 4), which also suggests that the labour market may be tight. It should be noted

[6] EMAER, information gathered in the December 2021 survey.

[7] Information gathered between 26 September and 20 October 2022.

that assessing labour market tightness may be difficult in such an atypical context. On the other hand, the fact that by December 2022 labour force participation remained below its pre-pandemic levels suggests that there could still have been some slack in the labour market, despite relatively low unemployment rates. While the labour force participation of certain groups, such as prime-age women, has fully recovered to pre-pandemic levels, there are groups, primarily younger and older workers (ie younger than 25 years of age and older than 55), who have been slow to reintegrate into the labour market and who could still do so. In terms of scarring effects, the pandemic has induced a reallocation of employment towards certain sectors and regions.[8] This could result in stronger wage pressures for some industries and geographical regions with higher labour demand. In fact, businesses in certain sectors and in the northern region of the country report more difficulty in hiring or retaining workers. Tightness may vary across locations, as suggested by the fact that a few local labour markets in the northern region of the country concentrated a large share of the employment reallocation observed between 2020 and 2022.[9]

The potential easing of labour market tightness that the reallocation of workers across sectors and regions could bring forth will depend on certain features of the economy, including the costs that workers face to move from shrinking sectors and regions to growing ones. If these costs are larger, employers may struggle to hire where production is expanding. Small responses in migration and sector-switching to wage differentials suggest that workers face large costs relating to changing sectors and locations, with heterogeneity between sectors, and with changes in location being costlier than changes in sectors.[10] Because the recovery of aggregate demand (that would drive labour demand) and the appeal of jobs in particular sectors (that would drive labour supply) is heterogeneous across industries, it is important to also analyse sector- and state-specific labour market indicators to assess whether particular sectors and/or regions are facing tight labour market conditions. For example, data for Mexico have shown that the declines in employment have been larger in sectors that require more physical proximity or those that are less likely to allow remote work. Going forward, analysing whether workers are moving towards better-paying jobs could also be informative about labour market tightness.

In the medium to long term, labour market tightness could also be determined by other forces, such as those that could affect labour supply. For instance, female labour force participation significantly contracted during the pandemic. While it has mostly recovered to its previous level, and done so fully for prime-age women, the pandemic interrupted the upward trend that it had been displaying. It will be crucial for female labour force participation to increase above its pre-pandemic levels in order to sustain higher levels of long-term GDP growth. In this sense, it will be important to understand the structural factors associated with the pandemic, as well as those that preceded it, that could be affecting both male and female participation rates. Businesses interviewed by the Bank of Mexico report that workers are demanding higher wages to take "less attractive jobs" (see Graph 6). While it is possible that this phenomenon is temporary, more permanent changes in preferences

[8] See Bank of Mexico (2022a).

[9] Ibidem.

[10] See Bank of Mexico (2022d).

could have increased reservation wages. Some of these changes may already be shaping the pace of recovery in labour supply. For example, as the pandemic recedes, the need to stay at home to take care of children or the elderly may have diminished. However, the time spent by workers at home with children may have made permanent changes in terms of their preferences regarding time allocation between work and family.[11] Other factors could be more industry-specific. For example, preferences may also have changed and workers may be more inclined to choose jobs that are more flexible regarding remote work.

Looking forward, remaining vigilant to the possible impacts of the pandemic on wages, and the labour market more generally, will be important in order to identify inflationary risks in a timely manner.[12] This shock has been atypical and has had different facets, so the direction of its long-term net effect is unclear. On the one hand, long-term labour productivity could be negatively affected by losses in human capital formation due to remote learning and student attrition. On the other hand, new work schemes and higher flexibility in the economy may increase productivity in the long term.

The pandemic may have also affected longer-term trends of technological adoption or automation because firms may have been forced to rapidly adopt new technologies in order to remain profitable. On the one hand, technology adoption and innovation could increase business productivity persistently, and this could increase labour demand in the future. On the other hand, automation, that may have shielded businesses from risks of absenteeism during the health emergency, may imply a decrease in demand for labour as machines substitute workers. This process would affect labour demand heterogeneously across sectors as the scope for automation is different. Up to now, the evidence is inconclusive as labour demand has recovered. Nonetheless, because these changes are bound to be slow, its occurrence may not be completely discarded.

Furthermore, the pandemic may have provided additional incentives for a reconfiguration of global production networks because the disruptions experienced during the period highlighted the risks associated with the international fragmentation of production. In fact, there is some evidence of relocation of production towards Mexico, both anecdotal and through information gathered in business surveys.[13] While this represents an upward risk for growth, there are some concerns in terms of inflation. The relocation of production could be inflationary in the short run given the inflexibility of infrastructure in the short term. For example, rental prices of industrial units and commercial space may experience price pressure in those areas to which businesses are relocating. Although these pressures could be eased as investment materialises, this would only happen in the medium term. Moreover, in the longer run, the reconfiguration of supply chains and the broader effort to strengthen the resilience of production and to make production more environmentally sustainable could come at the cost of efficiency, which may in turn

[11] The fact that the labour force participation and employment to population rates remain slightly below their pre-pandemic levels could be reflecting some of these trends.

[12] For example, it is important to understand whether wage growth is responding to changes in productivity in order to grasp whether it may be inflationary.

[13] See Bank of Mexico (2022c).

have negative implications for global productivity as cross-country comparative advantages would not be fully exploited, and may in turn translate into higher average prices for certain goods.

In sum, there are several factors that are influencing recent wage revisions in Mexico. Evidence gathered by the Bank of Mexico suggests that the high wage growth that has been observed recently is responding to the concurrence of several factors. In fact, firms that report higher average wage increases have also mentioned that they consider multiple factors in determining their revisions.[14] Some of these factors are more related to the current economic juncture, and have to do with stronger economic activity and the recovery of the pandemic in a context of high inflation. However, there are also more structural factors, such as the longer-term policy aimed at recovering the purchasing power of minimum wages, that have increased the pace of wage growth. Although available information suggests that the mechanisms behind wage increases are multi-faceted, the Bank of Mexico has remained vigilant about all of these trends in order to anticipate possible inflationary pressures. The concern regarding these revisions is twofold. First, wage growth may pose a risk for inflation, particularly at the current juncture because these pressures accumulate on top of generalised and significant increases in production costs, which increases the risk of pass-through to final prices. Second, this context increases the risk of contamination or of a feedback of high wage revisions to inflation. In this sense, the Bank of Mexico has acted forcefully and has increased the reference rate by 700 basis points since June 2021. These actions have contributed to keeping long-term inflation expectations anchored. The Bank of Mexico will continue assessing all incoming information and data to guide its policy going forward.

References

Bank of Mexico. 2021. Informe Trimestral Julio-Septiembre 2021. *Bank of Mexico July-September 2021 Quarterly Report.*

Bank of Mexico. 2022a. Reubicación del Empleo Formal en los Mercados de Trabajo Locales de México. Box 3, *Bank of Mexico January-March 2022 Regional Economic Report.*

Bank of Mexico. 2022b. Evolución Reciente de los Salarios Nominales de los Trabajadores Afiliados al IMSS. Box 3, *Bank of Mexico April-June 2022 Quarterly Report.*

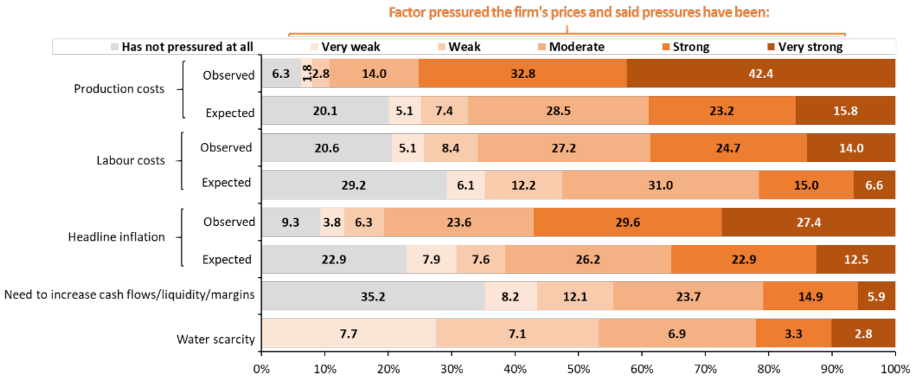
Bank of Mexico. 2022c. Opinión Empresarial sobre la Relocalización de las Empresas hacia México. Box 2, *Bank of Mexico April-June 2022 Regional Economic Report.*

Bank of Mexico. 2022d. Costos del Ajuste Geográfico y Sectorial del Empleo Formal Durante la Pandemia Diferenciados por Género. Box 3, *Bank of Mexico July-September 2022 Regional Economic Report.*

[14] EMAER, information gathered in the July and August 2022 surveys.

Factors pressuring firms' prices

Graph 1



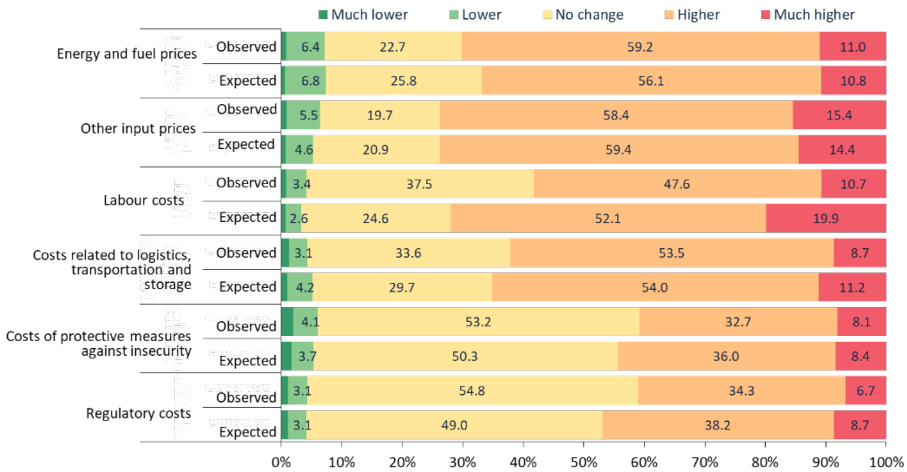
Firms were asked: "From the following factors, please point out how you would grade the pressures each has put in the selling prices of the goods/services provided by your firm." The graph reports the percentage of firms that rated each factor with each score.

Source: Interview programme conducted by the Bank of Mexico between 26 September and 20 October 2022

Observed and expected changes in operational costs

Percentage of firms that reported each category

Graph 2

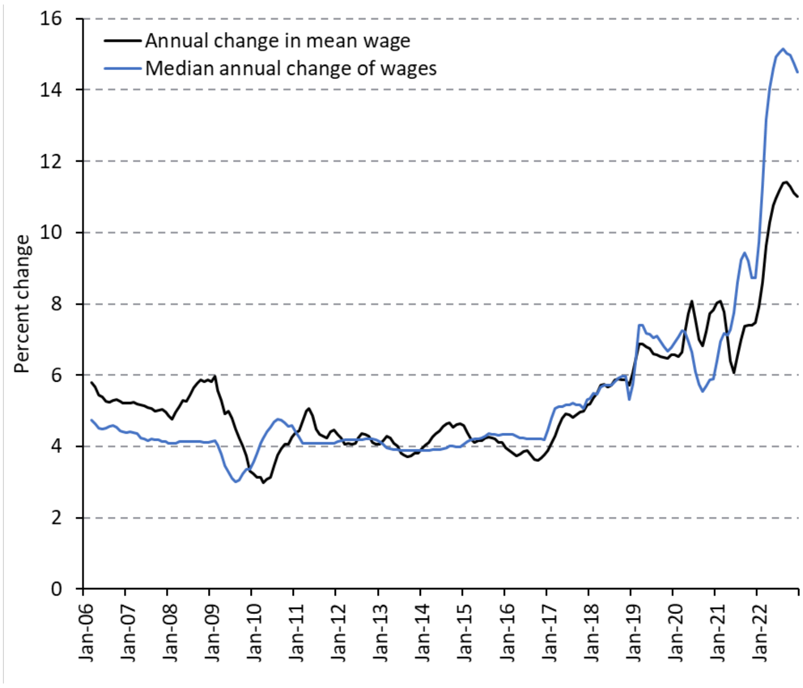


"Observed" refers to the change in pressures observed during the period October–November 2022 relative to July–September 2022. "Expected" refers to changes expected in pressures during the period January–March 2022 relative to October–November 2022.

Sources: Encuesta Mensual de Actividad Económica Regional conducted in December 2022; Bank of Mexico calculations.

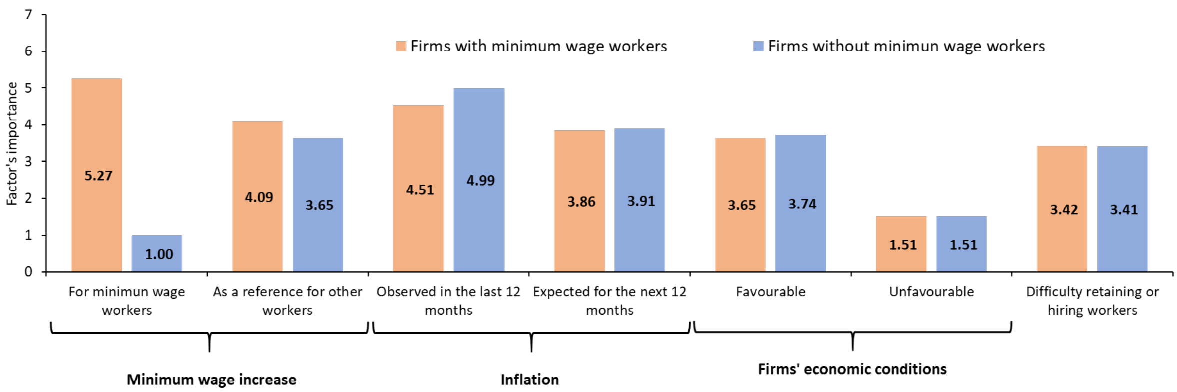
Average base contribution wage of IMSS-insured workers

Three-month moving average — Graph 3



The median of the monthly percentage change of the workers' wage distribution, 12 months apart. The median annual change of wages includes workers that are observed in the current month and 12 months before. Annual change in mean wage includes all IMSS-insured workers. Last observation: December 2022.

The importance of factors in determining the magnitude of the latest wage — Graph 4

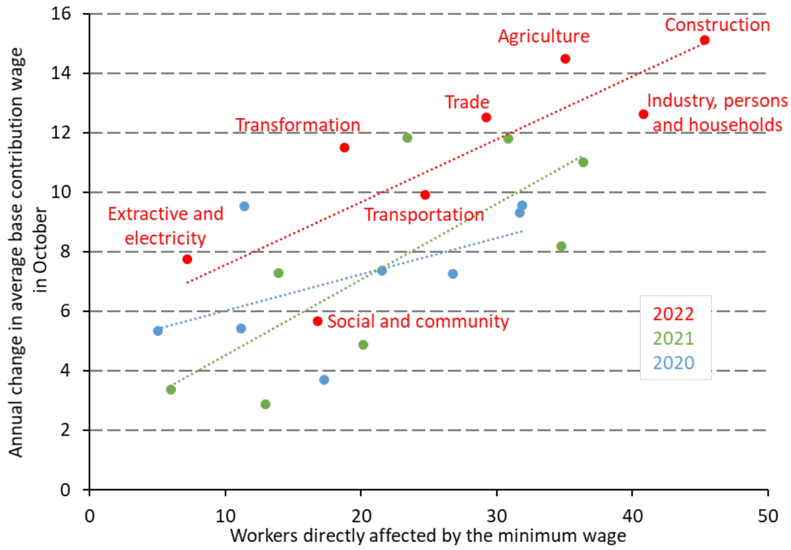


The question asked was: "Rate the importance the following factors played to determine the magnitude of the last wage revision of your firm. For your answer use a scale from 1 to 7, where 1 means the factor did not play a role at all and 7 means it played a significant role." The factors reported in the category "Other" were reviewed and some others were reclassified (those mentioning competition for workers were reassigned to the factor of difficulty retaining or hiring workers). The graph reports the average value assigned by firms that revised wages and rated any factor with an importance above 1. This importance was rated in a scale of 1 (meaning that the factor was not considered) to 7 (the factor was very important).

Sources: Encuesta Mensual de Actividad Económica Regional conducted in May 2022; Bank of Mexico calculations.

Relation between annual percent change in average base contribution wage and percentage of workers directly affected by the minimum wage

Graph 5



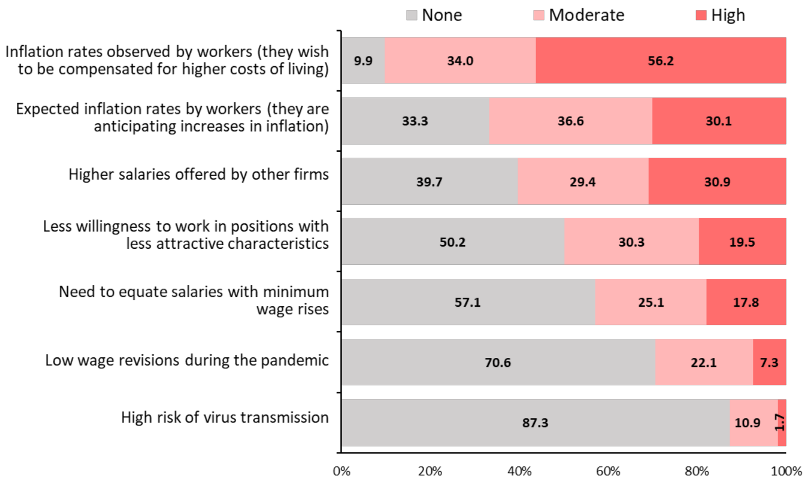
This figure shows the annual change in the Average Base Contribution Wage in October of the corresponding year and the percentage of workers directly affected by the minimum wage (MW) in October of the previous year. The average change in the minimum wage in 2020, 2021 and 2022 was 18%, 15% and 22%, respectively.

Sources: IMSS data; Bank of Mexico calculations.

The influence of factors on workers' demands for wage raises

Percentage of firms that reported each influence level

Graph 6



The question asked was: "In your opinion, how would you rate the influence of the following factors in the demand of workers for salary raises in the last 12 months?"

Source: Interview programme conducted by Bank of Mexico between 26 September and 20 October 2022.