International Labour Organization

Economic factors for wage setting

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Introduction

Introduction

The setting of adequate wages is an essential mechanism to foster decent living standards for workers and their families, while at the same time ensuring the sustainability of the enterprises which provide jobs for the workers. This is why wage-setting processes should take into account both the needs of workers and their families and economic factors. This principle is reflected in the ILO tripartite agreement on wage policies, including living wages, which considers that "*the needs of workers and their families and economic factors are the two pillars of wage-setting processes*"[1]. The same agreement also calls for using robust data and statistics for an evidence-based approach to wage setting, which means that information and data are needed to support wage-setting institutions. Indeed, an evidence-based approach implies that there should be clear criteria as well as reliable statistical indicators to support wage-setting processes.

The principle of taking into account the two wage-setting pillars and the importance of an evidence-based approach are enshrined in the ILO *Minimum Wage Fixing Convention, 1970 (No. 131)* and its accompanying *Recommendation No. 135*[2], which remain the most recent ILO standards on the establishment of minimum wages. Convention No. 131[3] provides that the elements to be taken into account when determining minimum wages are:

a. the needs of workers and their families, taking into account the general level of wages in the country, the cost of living, social security benefits, and the relative living standards of other social groups;

b. economic factors, including the requirements of economic development, levels of productivity and the desirability of attaining and maintaining a high level of employment.

Recommendation No. 135 calls for sufficient resources to be devoted to the collection of statistics and other data needed for analytical studies for the information of wage fixing authorities.

The two pillars for wage setting are relevant for both minimum wage established by law and through collective bargaining - which is the negotiation between one or more employers and one or more workers' organisations. The ILO *Review of Wage Setting through Collective Bargaining* indicates that "*negotiating and determining adequate wages requires an evidence-based approach and solid data and information on the needs of workers and their families as well as on economic factors*" (p.ix). Taking these two sets of criteria into account can ensure that workers get a fair share of the fruits of economic progress, while not impairing the capacity of employers to operate profitably[4].

The ILO tripartite agreement on *wage policies, including living wages*, considers that initiatives that promote living wages should also align with ILO principles of wage-setting. This means that living wage estimates, which are based on the needs of workers and their families[5], should be used alongside information on economic factors when operationalizing living wages.

What are these economic factors, and how can they be used to support wage growth for workers while ensuring the economic sustainability of enterprises? The answer depends, of course, on the specific circumstances and on whether economic factors are looked at in the context of a country, a sector, an enterprise, or a supply chain. When considering economic factors, it is important to take into account the scope of application of a wage setting process. Minimum wages can for example be set at country level, regional level, city level, or sectoral level – or a combination of levels in parallel. Similarly, collective bargaining can also take place at different levels, including at enterprise level, at multi-employer or industry level, or at national level. Living wages may also be operationalized by a single enterprise, through multi-employer collective bargaining, or by incremental progressions of minimum wage levels.

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1 See the Conclusions of the Meeting of experts on wage policies, including living wages adopted by the Governing Body at its 350th Session in March 2024 https://www.ilo.org/resource/adopted-conclusions
2 The minimum Wage Fixing Recommendation, 1970 (No. 135)
3 The same text is used in the *Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy.*
4 See the ILO Review of Wage Setting through Collective Bargaining: https://www.ilo.org/publications/review-wage-setting-through-collective-bargaining
5 For principles that the estimation of living wages should follow, see the Conclusions of the Meeting of experts on wage policies, including living wages adopted by the Governing Body at its 350th Session in March 2024 https://www.ilo.org/resource/adopted-conclusions

The report therefore proposes and discusses a list of economic indicators that can be taken into account in wage setting, but does not prescribe which indicators should be used in different contexts, which is ultimately the choice of those who are involved in the wage-setting process. Table 1 nonetheless presents a list of relevant economic indicators, distinguishing between national, sectoral and enterprise level indicators.

The present report complements the ILO methodology to estimate the needs of workers and their families[6]. While the latter focuses on assessing the cost of a decent standard of living for workers and their families, the present document addresses the second wage-setting pillar, i.e. the economic factors for wage setting. The two documents are meant to be read in conjunction to provide a comprehensive overview of the key elements to be considered in the wage-setting process.

Some caveats. The relationship between wages and economic variables is complex and multi-directional. While some economic variables may be regarded as enabling factors for higher wages, other variables may be considered as both contextual information but also as variables on which higher wages may have an impact. While the report presents and describes a list of indicators that can be considered in wage setting, it does not explore all the multiple ways in which those indicators can be analysed. Nor does the report pretend to provide an exhaustive list of relevant economic indicators, or a hierarchy of indicators to consider. Even if some indicators are in practice much more frequently used than others, it is ultimately up to the social dialogue process to focus or privilege some variables over others - taking also into account the fact that, in some countries, statistics may not be available for all variables.

Also, while the report discusses different economic variables separately, in practice, wage changes often influence multiple economic factors simultaneously, which may also interact with one another in complex ways. So, while this document outlines the possible link between wages and each economic factor, these explanations represent a simplification of reality, intended to clarify why each factor matters in the wage-setting context. Capturing the full complexity of each relationship would require detailed, technical analyses beyond the scope of a single report. The aim here is to provide a foundation that supports informed wage-setting decisions, rather than an exhaustive treatment of each factor. Finally, this report limits itself to the economic dimension of wage setting. Nonetheless, it is important to recognize that wage changes also have social effects, which should be considered in wage-setting, notably in terms of the effects on social cohesion, living standards, and overall well-being.

This report is organized as follows. Chapter 1 discusses the importance and possible characteristics of an evidence-based approach to wage-setting, highlighting the role of social dialogue and the principles derived from international labour standards. It outlines how decision makers can integrate economic considerations in wage determination while ensuring that decisions are grounded in reliable data and analytical rigor. Chapter 2 delves into the key economic factors to consider in wage-setting, taking the ILO *Minimum Wage Fixing Convention, 1970 (No. 131)* and its accompanying *Recommendation No. 135*, as the point of reference. By doing so, the document provides a comprehensive assessment framework intended to help decision makers and social partners to take wage-related decisions that contribute to both social and economic sustainability.

6 ILO (2025) A methodology to estimate the needs of workers and their families for the purpose of wage setting, including living wages at: https://www.ilo.org/sites/default/files/2025-04/254_499_EN07.pdf

1. Establishing evidence-based wage setting processes and monitoring of relevant variables

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1.1 Types of Wage-Setting Mechanisms

To the extent possible, this document investigates the key economic factors that should be considered in wage setting. Distinguishing between different types of wage policies is particularly important, as the reach and impact of wage changes can vary significantly depending on the type of policy considered. For the purpose of the current discussion, wage changes can be broadly classified into those resulting from statutory minimum wage adjustments and those negotiated through collective bargaining. Each of these can then be further differentiated based on the level at which it applies, whether across the entire economy, within specific sectors, or regions, or in the case of collective bargaining , also at the enterprise level. For example:

1. **Statutory minimum wages which apply to the overall economy**. In this case, the change affects the entire economy and all enterprises operating within it. Since all national actors are subject to the adjustment the overall economic impact may be substantial. However, some of the effects that will be discussed later, such as potential loss of client base for enterprises that raise prices in response to a minimum wage increase, may be less pronounced when all market participants have to implement the same policy. That said, it is important to note that enterprises differ in terms of cost structures, profit margins, and market positioning, therefore the effect may still vary across enterprises. The magnitude of the overall effect also depends on the structure of the labour market, particularly the prevalence of wage employment in the country. In low-income countries, where non-wage work often dominates, the reach of a national minimum wage adjustment may be limited. In contrast, in high-income countries where most workers are dependent employees, a minimum wage increase has the potential to produce broader effects across the labour market and the economy.
2. **Statutory minimum wages which apply only to some sectors**. In this case, wage adjustments apply to specific sectors or industries rather than the entire economy. The impact of such policies may therefore be more contained and largely depends on the characteristics of the sectors involved, including their cost structure and productivity level. While the impact may be significant within the sector the adjustment applies to, it is less likely to produce large effects on the overall economy unless the covered sectors represent a substantial portion of national employment or output. Because only certain parts of the economy are affected, this may alter the competitive balance between enterprises, particularly where goods and services are substitutable across sectors, possibly leading to reallocation of labour or capital between sectors. As in the case of national minimum wages, the effects at the enterprise level may vary based on size, access to capital, and capacity to absorb higher labour costs. Finally, as with national minimum wages, the structure of the labour market and the prevalence of wage employment matter.
3. **Wage adjustments resulting from collective agreements signed at the national level**. When wage adjustments have been negotiated through a collective agreement signed at the national level those conditions apply across all sectors and regions. However, it is important to note that, unless an extension mechanism is in place, collective agreements only apply to workers covered by the agreement. Since national agreements may cover the entire economy, nationally negotiated wage adjustments can potentially have a broad impact. As with national minimum wages, while all firms are subject to the same wage-setting framework, the actual impact on individual enterprises may vary depending on their characteristics. Without an extension mechanism, the overall economic impact may be more limited than that of a universal statutory minimum wage, which applies by law to all workers. Finally, the impact, particularly the distributional effects, will likely be different in the case of wage adjustment resulting from collective bargaining, as these can be used to establish wage floors and to set wages above an existing floor.

4. **Wage adjustments resulting from a collective agreement signed at the sectoral level**. When wage adjustments result from collective agreements which apply to one or more specific sector, as discussed above, their impact will likely be more contained than a collective agreement signed at national level. The extent of their effect depends on the economic weight of the sector, the coverage, and whether the agreement is extended to non-signatory parties.
5. **Wage adjustments resulting from collective agreements signed at the enterprise level**. Compared to collective agreements negotiated at national or sectoral level, wage adjustments that are negotiated directly between individual employers and a trade union or elected worker representatives within a specific enterprise, have a more limited scope and affect only workers within the enterprise in question. While they allow wages to align with company-specific conditions, such as productivity, their impact on the overall economy is generally more limited, unless such agreements are widespread.

Living wages can be operationalised in practice either through gradual progression of statutory minimum wages or through collective bargaining. When introduced through minimum wage progression, the effects are broader, potentially affecting wage floors across the entire economy. When living wages are operationalised through collective agreements, the impact is likely to be more contained and highly dependent on the level at which the collective bargaining takes place, being most limited when it takes place at the level of a single enterprise.

1.2 The central role of social dialogue

Tripartite social dialogue is at the heart of an adequate statutory minimum wage system. Tripartite social dialogue is a crucial element in fostering mutual understanding and cooperation among governments, employers' organizations, and workers' representatives[7]. Engaging in tripartite social dialogue enables all parties to contribute directly to policy discussions, ensuring that regulatory frameworks are realistic and informed by operational realities. When functioning effectively, such social dialogue helps to reduce tensions, prevent conflict and promote industrial peace and social and economic stability.

One form of social dialogue is collective bargaining– the voluntary negotiation between one or more employers and/or their organizations and one or more workers' organisations. Wage fixing is the most frequently encountered subject in collective agreements[8]. While differences in perspective may arise between employers and workers, collective bargaining is usually grounded on a share interest of ensuring both the sustainability of enterprises and the well-being of workers and their families. Collective wage bargaining can be a means to set minimum wages by giving the force of law to provisions of collective agreements. However, there are only a few countries, mostly in the Nordic European countries, that rely exclusively on collective bargaining for minimum wage fixing with broad coverage of workers.

Almost 90 per cent of ILO members, have in place a system of statutory minimum wages. Statutory minimum wages can be fixed in different ways. ILO Convention No. 131 offers flexibility on this point to the extent that the coverage offered is broad and that the machinery complies with the principle of full consultation with social partners during the establishment, operation, and modification of the mechanisms. In line with Convention No. 26 and Convention No. 131, countries with statutory minimum wages may compose a competent authority for minimum wage setting with a tripartite structure. Governments can play a key role in establishing and maintaining conditions conducive to the involvement of social partners, as well as other stakeholders when relevant. This inclusive process enhances the likelihood of wage policies aligning with the diverse needs of different parties and contributing to national development.

There can be different configurations of minimum wage bodies, depending on the scope of their obligations, their composition, or their autonomy. These institutions have taken different names as well: minimum wage boards, minimum wage commissions, national wage councils or committees, among others. In addition to the involvement of social partners, Convention No. 131 encourages the possibility

7 See the ILO "Review of Wage Setting through Collective Bargaining": https://www.ilo.org/publications/review-wage-setting-through-collective-bargaining
8 See the ILO Social Dialogue Report 2022: Collective bargaining for an inclusive, sustainable and resilient recovery

to appoint independent experts, after consultation of the representative organisations of employers and workers.

In the context of statutory minimum wage setting, provisions should be made for governments, employers, and workers' organizations to be included on an equal footing, in line with what prescribed by Article 4 of the *Minimum Wage Fixing Convention, 1970 (No. 131)*. In the case of wages set through collective bargaining, in accordance with Article 4 of the *Right to Organise and Collective Bargaining Convention, 1949 (No. 98)* measures should be taken to promote voluntary negotiations between employers and their organizations and workers' organizations to regulate terms and conditions of employment, including wages.

1.3 What is an evidence-based approach?

When it comes to wage-setting, social dialogue should be evidence-based. An evidence-based approach entails designing, implementing, and evaluating policies using reliable data, research, and empirical analysis. By relying on objective and measurable indicators, this approach ensures that decisions are grounded in factual evidence, enhancing policy effectiveness and sustainability. Continuous monitoring and evaluation allow for timely adjustments if a policy produces unintended consequences. Monitoring and evaluation are also particularly important in a constantly evolving context, which may be affected by economic shocks and uncertainties — such as geopolitical risks, supply chain disruptions, or other external events.

Several ILO Conventions and Recommendations emphasize the importance of an evidence-based approach, advocating for the use of data and research in the design, implementation, and evaluation of labour policies. In the context of wage-setting, the *Minimum Wage Fixing Convention, 1970 (No. 131)* and the *Minimum Wage Fixing Recommendation, 1970 (No.135)* call on Member States to consider objective criteria, including the needs of workers and their families and economic factors, when setting and adjusting minimum wages. An evidence-based approach is also advocated for in the *ILO Conclusions of the Meeting of experts on wage policies, including living wages*, adopted by the Governing Body at its 350th Session in March 2024. The document emphasized that the utilization of robust data and statistics for an evidence-based approach is a key principle of wage setting. In doing so, the conclusions recognized that "*Designing and implementing adequate wage policies require representative data, timely and reliable statistics and data analysis. Unfortunately, in many countries, national statistical offices are under-resourced and timely data is not available*".

It must be acknowledged that the availability of timely and granular data remains a challenge, especially for Small and Medium-sized Enterprises (SMEs) and in countries where national statistical offices are under-resourced. Efforts to improve the collection of such data should therefore be strengthened. However, it should also be noted that, especially when collective bargaining takes place at the enterprise level, relevant data do not necessarily come from official statistics. In such contexts, employers are encouraged to share information, as stated in the Collective Bargaining Recommendation, 1981 (No. 163, para. 7.2.a): "public and private employers should, at the request of workers' organisations, make available such information on the economic and social situation of the negotiating unit and the undertaking as a whole, as is necessary for meaningful negotiations, where the disclosure of some of this information could be prejudicial to the undertaking, its communication may be made conditional upon a commitment that it would be regarded as confidential to the extent required; the information to be made available may be agreed upon between the parties to collective bargaining;"

An effective evidence-based wage setting process should be based on social dialogue and should preferably have the following characteristics:

- **Utilizes robust, accessible data and statistics as well as transparent methodologies**: Policies are more effective when based on accurate, up-to-date, and comprehensive data, coming from reliable sources. It is important that data be open and accessible to all parties involved in wage setting processes, and that the methodologies used are transparent and easily understood.
- **Maintains objectivity**: An evidence-based approach implies that there should be clear criteria, as well as reliable statistical indicators, to support and inform deliberations. This can be achieved for

instance by involving independent experts to inform the discussion or through analysis of labour market data and commissioning academic research.

- **Uses robust research methods**: Quantitative statistical analysis to inform policy decisions can be complemented by qualitative research, such as case studies and interviews, as well as comparative analysis, which looks at policies across countries or sectors.
- **Undergoes continuous monitoring and evaluation**: Regular assessment of policies helps ensure that they achieve the intended outcomes, without generating unintended effects.
- **Allows for flexibility and adaptability**: It is advisable for policies to be responsive to economic conditions. If a policy has unintended negative effects, adjusting it based on new evidence can help improve its effectiveness.
- **Considers and promotes equality, and equal opportunity**: Gender equality, equity, and non-discrimination are important considerations in policy development and implementation.

1.4. Different phases of an evidence-based approach, data sources and statistical techniques

As previously mentioned, an evidence-based approach to wage setting is an iterative process that evolves alongside the changing economic landscape. This process broadly involves three key phases of evaluation, which help policymakers and social partners assess both the potential and actual impacts of an intervention:

- Monitoring the context: Some indicators are best used as contextual variables, which help the parties engaged in wage-setting processes to gather a clear picture of the economic context in which the wage setting takes place. For example, is a minimum wage increase being discussed in the context of strong economic growth and low inflation, or rather in a context of high unemployment and informality?
- Ex-ante evaluations: An ex-ante evaluation is conducted before a policy is implemented. It assesses the appropriateness of a specific policy before its implementation and aims at predicting the potential effects of an intervention using historical data, simulations, forecasting models, and counterfactual analysis. In the context of wage setting, for instance, an ex-ante evaluation would analyse the feasibility of different minimum wage levels or the economic viability of a living wage under current economic conditions.
- Ex-post evaluations: Ex-post evaluation takes place after a policy has been implemented and focuses on measuring its actual effects by analysing real-world data. At this stage, causal analysis should be carried out whenever possible. This phase is crucial for determining whether the policy is meeting its objectives and for identifying any unintended consequences. Insights from this phase can inform future policy discussions, allowing for necessary adjustments and improvements.

An evidence-based approach relies on the availability of reliable data to support governments and social partners in their deliberations. Data used for this purpose benefit from being timely, comprehensive, and, preferably, disaggregated by sex. Data that can be used in an evidence-based approach to wage policies include at least four types of data (see Appendix A for a more detailed discussion of data sources):

1. **Survey data**: This category encompasses data sources which collect information at the micro level and includes for instance, labour force surveys, household income and expenditure surveys and enterprise surveys.
2. **Administrative data**: This group includes for instance payroll tax records, social security records, business registries, and social insurance databases.
3. **Aggregated data**: Examples include national account statistics, which provide information on GDP, consumption and investments, among others, as well as Consumer Price Indices (CPI) series.

4. **Qualitative data**: In cases in which survey data are not available and time constraints prevent the collection of quantitative information, it might be useful to collect qualitative information through face-to-face interviews for instance.

An evidence-based approach relies on rigorous statistical analysis to support decisions-making. While supplementing quantitative analyses with qualitative insights is both possible and advisable, quantitative analysis remains the primary approach. In the context of wage policies, various quantitative analyses can be employed, each offering complementary insights. While incorporating a diverse range of analytical methods is ideal, the most effective and desirable approach depends on the availability and quality of the data, as well as the critical areas identified. Additionally, different statical techniques may be more relevant for ex-ante or ex post evaluations.

The quantitative methods often used in an evidence-based approach to wage setting can be categorized into three groups (see Appendix A for a more detailed discussion of quantitative methods):

1. **Descriptive statistics**: Descriptive statistics summarize and describe available data and can be based on cross-sectional or time series data, typically without controlling for other influencing factors. This approach is particularly valuable in the ex-ante phase, as it helps contextualize policy implementation.
2. **Simulations**: Simulation techniques are valuable for investigating the potential long-term effects of policy implementation on aggregate measures. They enable policymakers to explore hypothetical scenarios and estimate outcomes that may not be observable in the short term. While simulations are particularly useful during the pre-implementation phase of policy development — such as determining the appropriate level for a minimum wage — their relevance extends to the ongoing monitoring and evaluation process.
3. **Conditional analysis**: Conditional analysis requires at least two data points, one before and one after policy implementation, and encompasses statistical techniques particularly useful in the ex-post phase of policy evaluation. These methods are used to assess the effects of wage policies on specific aspects such as poverty, compliance, wage inequality, and employment, among others.

Ideally, the different approaches described above should ultimately lead to an evidence-based wage setting process, which is iterative in nature and in which findings from rigorous impact assessment studies should find their way back and inform subsequent rounds of wage setting processes. Such an information system can serve as foundation for genuine and evidence-based social dialogue and help guide future wage adjustments.

2. Key economic factors and indicators

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Taking as a reference the *Minimum Wage Fixing Convention, 1970 (No. 131)* and the *Minimum Wage Fixing Recommendation,1970 (No. 135)*, Table 1 presents a selection of the key economic factors and their corresponding indicators relevant to an evidence-based approach to wage setting. While not exhaustive, this list highlights critical variables to consider in the process. To keep the table clear and readable, the indicators are shown as values at a specific point in time. However, in practice, the evolution of these indicators—such as rising or falling inflation, changes in employment, or trends in the labour income share—are often more useful for understanding economic dynamics and guiding wage decisions.

For reminder, the ILO Convention *Minimum Wage Fixing Convention, 1970 (No. 131)* in Article 3 provides that the elements to be taken into account when determining minimum wages are:

a. the needs of workers and their families, taking into account the general level of wages in the country, the cost of living, social security benefits, and the relative living standards of other social groups;

b. economic factors, including the requirements of economic development, levels of productivity and the desirability of attaining and maintaining a high level of employment.

Aligning with the Convention, our table thus identifies different indicators and variables which are explicitly listed as economic factors in Article 3(b), namely the "*requirements of economic development*", "*levels of productivity*" and "*the desirability of attaining and maintaining a high level of employment*". However, as indicators classified under the category of the needs of workers and their families can also be considered as economic variables or useful contextual information for wage setting, the table also includes a fourth category grouped under the name of "*General level of wages in the country and relative living standards of other social groups*", as in the *Minimum Wage Fixing Recommendation,1970 (No. 135)*[9].

The next sections provide a discussion of these factors, along with the theoretical framework supporting their inclusion. Appendix B includes a brief definition and formula for each of the indicators included in Table 1.

9 The list of indicators in Table 1 draws upon previous ILO work, including Table 3 from the publication "A Review of Wage Setting through Collective Bargaining".

Table 1: Key economic factors and indicators relevant to an evidence-based approach to wage setting

Economic factors	Possible indicators	Variables to consider		
		National	Sectoral	Enterprise
Requirements of economic development (C 131)	Economic growth & sustainability of enterprises	• GDP per capita (growth and level) • Components of GDP (consumption, investment, government spending, and net export) • GDP at factor costs • Adjusted labour income share as a % of GDP • Net business growth rate • Business survival rate	• GDP per capita at industry/ sectoral level (growth and level) • Net business growth rate at industry/ sectoral level • Business survival rate at industry/ sectoral level	• Value added growth • Wage-to-Value Added Ratio • Total labour cost • Tax and contribution wedge • Labour costs as a % of production costs • Net profit margin • Unit labour cost • Cash flow and liquidity ratios: – Current ratio – Free cash flow
		When possible, is advised that the analysis be carried out at disaggregated level: by formal or informal status, size, age, ownership (...) so to capture different enterprise demographics		
	Prices & competitiveness	• CPI (Consumer Price Index) • PPI (Producer Price Index) • FDI as a % of GDP • Trade balance • Export to GDP ratio • Exchange rate • Interest rate	• CPI for specific goods and services which are outputs of a certain industry/sector • PPI for specific goods and services which are inputs in a certain industry/sector • Trade balance at industry/ sectoral level • Export to GDP ratio at industry/sectoral level • Sectoral/industrial export share	• Market share • Enterprise average price compared to market average • Enterprise labour cost compared to competitor's labour cost • Customer base and concentration
	Government expenditures & revenues as a share of GDP	• Public sector wages • Pensions and retirement benefits • Health expenditure • Social benefits • Direct contribution to social security • Indirect and direct tax collection • Public debt as a % GDP		

Table 1: Key economic factors and indicators relevant to an evidence-based approach to wage setting

Economic factors	Possible indicators	Variables to consider		
		National	Sectoral	Enterprise
Productivity (C131)	**Productivity**	• GDP per worker • GDP per hour worked • Capital Productivity ratio • Total factor productivity	• GDP per worker at industry/sectoral level • Value Added/Output per worker by industry/sector	• Labour productivity (Value Added/Output per worker/ per hour worked) • Capital Productivity ratio • Total factor productivity
Desirability of attaining and maintaining a high level of employment (C 131)	**Employment**	• Employment rate • Unemployment rate • Net employment change • Labour force participation of men • Labour force participation of women • Potential labour force • Vacancy rate • Jobs gap	• Employment rate within an industry/sector • Unemployment rate within an industry/sector • Net employment change within an industry/sector	• Net employment change • Turnover rate
		When possible, is advisable that analysis be carried out at disaggregated level: by formal or informal status, gender, size, age, ownership (...) so to capture different enterprise demographics		
	Labour market conditions	• Share of informal employment • Share of own-account workers and unpaid family workers • Share of workers by sex • Share of underemployment • Share of workers under different contracts	• Share of informal employment within an industry/ sector • Share of own-account workers and unpaid family workers by industry/sector • Share of workers by sex within an industry/sector • Share of underemployment within an industry/sector • Average number of hours worked within an industry/ sector • Share of workers under different contracts within an industry/sector	• Average number of hours worked • Share of part-time jobs
		When possible, is advisable that analysis be carried out at disaggregated level: by sector, gender, age, education level, urban vs rural (...) so to capture different demographics or different parts of the economy		

Table 1: Key economic factors and indicators relevant to an evidence-based approach to wage setting

Economic factors	Possible indicators	Variables to consider		
		National	Sectoral	Enterprise
General level of wages in the country and relative living standards of other social groups (R 135)	Prevailing wages	• Total wage bill • Mean or median wage • Share of low paid wage workers • Ratio between the minimum wage level (or where applicable living wage) and the mean (or median) wage • Inequality measures • Gender pay gaps • Other pay gaps	• Total wage bill by industry/ sector • Mean or median wage by industry/ sector • Wage distribution by industry/ sector • Wage increases at different decile of the wage distribution in a given industry/ sector • Share of low paid wage workers within an industry/ sector • Ratio between the minimum wage level (or where applicable living wage) and the mean (or median) wage within an industry/sector	• Wage distribution • Total wage bill • Total wage bill by decile • Mean or median wage • Wage increases at different decile of the wage distribution • Ratio between the minimum wage (or where applicable living wage) and the mean (or median) wage • Share of low paid wage workers
		When possible, is advisable that analysis be carried out at disaggregated level: by sector, gender, formal or informal status (...) so to capture different parts of the economy		
	Earnings of non-wage workers and income of persons outside the labour force	• Earnings of non-wage workers • Poverty rate, with specific attention to working poverty • Ratio between the minimum wage (or living wage) and average and median pension • Ratio between the minimum wage (or living wage) level and remuneration of own-account workers • Ratio between minimum wage level and the level of social transfers to working age population	• Earnings of non-wage workers within an industry/ sector • Ratio between the minimum wage (or living wage) and average and median pension within an industry/ sector • Ratio between the minimum wage (or living wage) and remuneration of own-account workers within an industry/sector	• Earnings of non-wage workers • Ratio between the minimum wage (or living wage) and average and median pension • Ratio between the minimum wage (or living wage) and remuneration of own-account workers

Some of the areas identified are broad and heterogeneous. Therefore, in the discussion which follows, we propose a further breakdown to discuss specific, concrete, and relevant indicators for wage setting. Broadly speaking, depending on the type of intervention and the scope of application, wage policies and wage-setting practices impact the economy at three levels:

- **National level**: Economy-wide effects
- **Sectoral level**: Sectoral or industry-level effects
- **Enterprise level**: Individual and firm-level effects

While the analysis presents these levels separately for the sake of clarity, they are in fact deeply interconnected, as development at one level influence and are influenced by dynamics at the others. For instance, wage-setting at the enterprise level directly impacts labour costs and employment decisions within enterprises, but, when aggregated, these enterprise-level outcomes shape trends at the sectoral and national level. At the same time, macroeconomic conditions such as national economic growth and inflation rates constitute the environment within which both sectoral and enterprise-level wage decisions are made, exerting a significant influence on their outcomes.

The focus of wage-setting may vary, targeting one or all the above levels. For instance, the introduction of a national or sectoral minimum wage may affect a significant portion of the population, with potential economy-wide implications or sector-specific effects. This is why, it is essential to consider national circumstances when assessing the appropriateness of a minimum wage level and to monitor its potential impact on the broader economy or specific industries. Conversely, a requirement for living wage payments along a supply chain may impact a limited number of suppliers, without necessarily having a noticeable economy-wide effect. Here, the viability of specific enterprises and their ability to pay a living wage become the central concern, making micro-level effects the primary focus.

While the previous paragraph provides examples that illustrate the need to consider different economic factors under different scenarios, these need to be considered in the light of national circumstances. Indeed, national contexts play a crucial role in shaping the impact of wage policies as a similar policy may have very different impacts when implemented in different countries. For instance, adjusting a minimum wage in a country where the majority of the workforce consists of wage employees is likely to have a far greater economic impact than in a country where wage employees represent a smaller fraction of the total workforce. Similarly, the level at which a wage floor is set (and how far it is from prevailing wages) will significantly influence its economic effects. It is important to keep in mind that each scenario presents distinct features and necessitates a tailored approach.

The remainder of the chapter explores the possible indicators within the three key areas highlighted earlier, their theoretical background and real-life examples. Additionally, it presents a non-exhaustive list of variables at the national, sectoral and enterprise level, which can be used to quantify indicators and serve as the basis for the statistical analysis.

2.1 The requirements of economic development

The requirements of economic development in the context of wage setting encompass a broad set of economic conditions aimed at ensuring that wages provide fair remuneration for workers, while simultaneously supporting the sustainable and inclusive growth of the economy and a well-functioning labour market. To better understand the role of economic development in wage-setting, it can be useful to further break it down into a number of key indicators:

- Economic growth & sustainability of enterprises
- Prices & competitiveness
- Government expenditure and revenues as a share of GDP

Although not exhaustive, the next sections provide a discussion of some of the main variables that can be monitored under these categories.

2.1.1 Economic growth & sustainability of enterprises

Economic growth and the prevalence of sustainable enterprises can be considered as important enabling factors for wage increases. Conversely, higher wages may also have an effect on economic growth and the sustainability of enterprises. However, this effect depends on the specific wage intervention, national circumstances and other factors such as the labour market structure. For example, in countries where self-employment is more prevalent, the direct impact of wage policies may be more limited, though indirect effects can still play a sizeable role.

At the macro level, the most widely used indicator of economic growth is the evolution of the **Gross Domestic Product (GDP) per capita**. As an indicator of the overall economic status, GDP per capita provides valuable insights into a country's economic performance and living standards. GDP can be measured in different ways, including at market price and at factor cost. While GDP at market prices measures the total value of all goods and services produced in an economy, GDP at factor cost reflects the income earned by labour and capital, excluding taxes on products and including subsidies. The key difference between the two lies in the treatment of taxes and subsidies. GDP at market prices include these elements, while GDP at factor cost removes their effect to show the actual earnings of producers. In other words, it reflects the underlying value added by enterprises before any fiscal redistribution. This makes it, in general, the more relevant measure in a wage-setting context, as it provides a clearer picture of the real economic capacity and the value added by enterprises. GDP per capita can be measured at the national or sectoral level.

Given that wages interact with all four components of the GDP, namely consumption, business investment, government spending, and net exports, it is advisable to evaluate and monitor each component separately.

- **Consumption**. Higher wages can boost consumption, the largest component of GDP, as workers who benefit from them have more disposable income to spend on goods and services. In the case of increases at the base of the wage distribution, this effect is further amplified by the fact that households at the lower end of the income distribution, where low-wage workers often reside (ILO, 2020), tend to have a higher marginal propensity to consume. As a result, rising wages can contribute to stronger aggregate demand and economic growth. However, the extent of this positive effect may vary. For example, some low-wage workers may choose to allocate a portion of their increased earnings toward repaying debt, particularly if they face high debt-to-income ratios. While this may moderate the immediate impact on consumption, it still contributes to long-term financial stability and spending capacity. On the other hand, if wage increases exceed the ability of enterprises to absorb higher labour costs, this could create pressures on employment or prices, with may in turn negatively impact on overall consumption.
- **Investment**. Wage increases affect an enterprise's labour costs, which can in turn affect its investment decisions. On one hand, if labour costs rise significantly, enterprises may reduce or delay investments to offset higher expenses and maintain competitiveness. On the other hand, when wage growth and productivity gains are aligned, they can be mutually reinforcing and help support sustained investment in technology, innovation and business expansion.
- **Government spending**. Wages can influence government revenues and expenditures through tax and contribution collection and spending, including on social protection. Higher wages increase tax revenues, particularly in systems with progressive tax brackets, where individuals contribute a larger share as their income rises. This can enable governments to expand public services, social transfers, and infrastructure. Additionally, higher wages might contextually reduce the need for social security benefits by both decreasing reliance on income support programs and incentivizing labour market participation. However, if wage increases above the enterprise's capacity to pay lead to higher unemployment, tax revenues could decline and social security spending may rise instead.
- **Net exports**. Higher wages can increase the cost of production, which may influence the pricing of goods and services across both domestic and international markets. This can have implications on exports and competitiveness, especially in sectors that are sensitive to price pressures. While

wages have the potential to affect exports, competitiveness is shaped by a broad set of factors beyond wages and production costs, including productivity, product quality, and exchange rates. The overall effect will depend on whether wage increases are accompanied and enabled by productivity gains and value creation.

In addition to GDP and its components, it is also useful to consider other key variables related to economic growth and the sustainability of enterprises at both the national and sectors level. These may include:

- **Net business growth rate**, which measures the change in the number of active businesses over a given period, accounting for both new business entries and exits, provides insights on the overall dynamins of the business environment. However, since this metrics focuses on the number of businesses rather than the quality or sustainability of such enterprises, it is useful to complement it with the **business survival rate**, which tracks the percentage of businesses that remain active after a given period. A positive net business growth rate or high business survival rate may suggest that enterprises might be able to absorb higher wages. That said, these indicators should be interpreted with caution. While there may be a connection between enterprise survival and wages levels, high survival rates may be mostly driven by other factors, such as improved access to credit. Conversely, a declining growth rate or low survival rate may signal economic downturns, which could be partially driven by high operational costs including wages, that challenge business viability. In this context, it is critical to track the mortality of businesses separately by their size, as the impact of wage increases tend to be more significant for micro and small enterprises that tend to have lower productivity level or across different industries.
- The **Adjusted labour income share as a percentage of GDP** measures the proportion of a country's GDP that is distributed as compensation to workers, as opposed to capital or landowners. It is important to focus on the adjusted labour income share rather than the unadjusted measure, as the latter metric omits the labour income of own-account workers. Since this group of workers contributes to generate GDP, their exclusion results in an underestimation of the labour share, especially in countries or sectors with high levels of non-wage employment. In contrast, the adjusted labour income share includes an imputed labour component for the self-employed (ILO, 2019), hence providing a more accurate depiction of the income distribution between labour and capital. Tracking the evolution of the labour income share provides important insights on the evolution of the relative share of GDP which is paid as compensation to workers compared with the share paid to capital. A declining labour income share may reflect a disconnect between economic growth and wage growth. Various factors have been proposed as contributing to the evolution of the labour share, including compositional shifts in economic activity, technological change, globalization, financialization, and the strength of labour market institutions. In recent decades, the decline in the labour income share in many countries has also been linked to higher levels of inequality, as capital income tends to be more concentrated. This disparity may result in workers and their families receiving a diminishing share of economic gains, potentially fuelling frustration and discontent, which, in turn, may have broader negative repercussions on social cohesion, economic and political stability.

Of course, at the sectoral level these factors must be investigated within the specific context of individual industries or sectors. Different areas of the economy may grow at different pace, may have varying levels of labour intensity, and unique productivity patterns that influence how wage adjustments affect the sustainability of enterprises that operate within it. For instance, labour-intensive industries may be more heavily impacted by wage increases compared to capital-intensive sectors, where technology plays a greater role. Similarly, sectors exposed to international competition may face different challenges than those serving primarily domestic markets. Additionally, it may be important to consider the consequences that a wage increase which affects only a specific part of the economy may have on the expenditure patterns across different sectors.

At the micro level, the sustainability of enterprises serves as the foundation for economic growth by ensuring that businesses operate profitably. Sustainable enterprises contribute to job creation, productivity improvements, and market competitiveness, all of which are essential drivers of broader economic expansion. At the enterprise level it is then important to monitor variables such as:

- **Value added growth**: The value added can be defined as the value of its output (usually measured as the total revenue or market value of goods and services produced by the enterprise) minus the inputs cost (such as raw materials, intermediate goods and services purchased by the enterprise and used in production, and other operational expenses). Tracking the evolution of value added provides valuable insights into an enterprise's productivity improvements, competitiveness, and overall performance, helping to determine whether wage increases are economically sustainable within a firm. In practice, it is often useful to distinguish between **gross value added** and **net value added**. Net value added is obtained by further subtracting taxes and capital depreciation from gross value added. Depreciation accounts for the decline in value of fixed capital assets over time. The importance of such element varies significantly by sector. In capital-intensive industries, such as the railway sector for instance, depreciation represents a large share of total costs. As with any indicator, net value added is better interpreted in context and alongside other metrics, given its inherent limitations.
- **Wage-to-value added ratio**: At the enterprise level, the wage-to-value added ratio serves a similar purpose to the labour income share, offering insight into how the economic value created is distributed between labour and capital. While the labour income share captures this dynamic at the national level, the wage-to-value added ratio focuses specifically on the compensation of employees relative to value generated in a particular enterprise.
- **Labour costs**: Wages are only one component of total labour costs, which also includes taxes and social security contribution, training costs, and other non-wage labour costs. Possible indicators of the sustainability of enterprises may therefore include **labour costs as a percentage of total production costs** or **unit labour costs**. Unit labour cost is the ratio of total labour costs to total output, indicating how much it costs to produce one unit of output in terms of labour. It is a relevant indicator in the wage-setting process, as it reflects the relationship between labour costs and productivity. Monitoring unit labour costs also helps to assess whether wage growth is aligned with productivity gains.
- The **Tax and contribution "wedge"** measures the difference between total labour costs and employees' net take-home pay. The tax and contributions wedge includes income tax and both employer and employee social security contributions and can have a significant impact on the cost of employment for enterprises. In countries with high tax and contributions wedges, even modest wage increases can result in significant additional costs for employers, while workers see only a limited improvement in disposable income. For micro, small and medium sized enterprises (MSMEs) in particular, this may limit their ability to offer higher wages without reducing staff or other operating costs. An assessment of the tax and contributions wedge also helps to determine the level of gross wages required to ensure an adequate take-home pay without jeopardising business continuity and employment levels.
- **Net profit margins**: The net profit margin measures how much profit an enterprise makes per unit of revenue, after all expenses have been deducted. In the short term, an increase in wages and labour costs may shift a proportion of value-added towards workers' compensation and away from profits, thereby reducing the enterprise's net profit margin. In the context of wage setting, the consequences for enterprises can vary widely. At one extreme, higher wages may only marginally increase the share of the gross value added dedicated to labour compensation at the expense of profits. At the other extreme, high wages could push margins into negative territory, increasing the risk of downsizing, informality or even market exit if no adaptation strategies are viable. Hence, whether the existing level of value added of an enterprise is sufficient to pay the increased wages is an essential question.
- **Cash flow and liquidity indicators**: They are particularly important for MSMEs, which often operate with limited cash reserves and are more vulnerable to short-term financial pressures. Unlike profitability ratios, which reflect long-term viability, cash flow and liquidity ratios provide a real-time view of a company's ability to meet immediate financial obligations, including payroll. Indicators such as the current ratio, the acid test ratio and operating cash flow help to determine whether a company can afford a wage increase without jeopardising its operations, delaying

payments to suppliers or defaulting on obligations. These indicators also support decisions on the timing of wage adjustments - allowing companies to implement increases when cash positions are stable - or to link wage progression to improved liquidity or seasonal cash surpluses. Integrating these indicators into wage discussions can therefore help to align wages levels with business realities.

2.1.2 Prices & competitiveness

Two related indicators that are important to consider in wage-setting decisions (ex-ante) and during the evaluation phase (ex-post) are prices and competitiveness.

- At the macro level, the **Consumer Price Index (CPI)** is the most relevant variable for analysing price trends. While CPI and its changes are often used as an input in wage adjustment formulas to help maintain workers' purchasing power, wage policies with a broad scope of application may, in turn, influence inflation dynamics. When wages across an economy increase significantly, without a corresponding increase in productivity or other adjustments, businesses may pass on the higher labour costs to consumers in the form of higher prices, which may contribute to inflationary pressures. In extreme cases, this can create a wage-price spiral, where wage increases — intended to keep up with inflation but not supported by productivity growth — lead to further price increases, fuelling the inflationary cycle.
- The **Producer Price Index (PPI)** provides valuable complementary insights to the CPI for wage-setting decisions. Since it reflects changes in producer-level prices, PPI can serve as an early indicator of inflationary pressure and shifts in production costs. This is particularly critical in cases where the PPI rises faster than CPI, which could indicate a reduced profit margin for enterprises and limited capacity to accommodate wage increases without passing costs on to consumers. Considering PPI alongside CPI ensures a balanced and forward-looking approach to wage-setting, considering both workers' purchasing power and employers' costs.

Prices are also a key channel through which wages can affect competitiveness of countries, sectors, and firms. Rising labour costs through increases in wages can pose challenges to competitiveness if they are consistently not matched by corresponding gains in productivity. When rising wages and production costs are not supported by productivity gains, this can lead to higher prices for goods and services, which, in turn, may reduce the competitiveness of domestic enterprises in both local and international markets. In highly competitive global industries, even small increases in production cost can translate into reduce demand, shrinking market share and lost export opportunities, especially if competitors in other countries remain at lower price points. If prices rise faster than those of competitors, businesses may face reduced demand, lower export potential, and shrinking market share. This underscores the need to monitor both prices and competitiveness in wage-setting decisions to ensure economic sustainability and business viability.

- **Competitiveness indicators**. At the macroeconomic level, variables that can be used to monitor competitiveness include the **trade balance** — the difference between a country's exports and imports over a specific period — and the **export to GDP ratio**, which measures the relative importance of exports in the overall economy. Additionally, the **Foreign Direct Investment (FDI) to GDP ratio** can serve as an indicator to assess a country's attractiveness to international investors, reflecting its ability to integrate into global markets. At the micro level, it is useful to compare **average prices** as well as **average labour costs** across similar enterprises to understand their competitive positioning. Other variables to consider could include the enterprise **market share** as well as the **customer base and market concentration**. Enterprises with greater market shares, a larger costumer base or enterprises operating in highly concentrated markets often face lower demand "elasticity", meaning they are more likely to offset wage increases through price adjustments without significant reductions in sales.

Additionally, in the context of paying living wages within global supply chains, purchasing practices pay a crucial role. The way businesses source, negotiate, and contract with suppliers directly affects the wage-setting capacity of employers, particularly in labour-intensive industries.

As pointed out in Clemens (2021), the effect of a wage increase on competitiveness also depends on the scope or jurisdiction in which the measure applies, depending in particular on whether competition across product markets extends beyond the jurisdiction in which the wage increase occurs. If equivalent goods or services can be imported from producers elsewhere, where the wages did not increase, firms that raise their prices may risk losing their customers.

At the enterprise level, the propensity of price adjustments – or the "price pressure" – resulting from a wage increase is proportional to the impact of wages on production costs, particularly where profit margins are very thin. In reality, some enterprises may have limited flexibility in adjusting prices, or at least not without consequences. The impact of a price increase depends on the elasticity of demand for the goods or services the enterprise provides. This operates at both the aggregate (economy-wide) level and the enterprise (firm-specific) level and is also shaped by cross-price elasticity of demand, which captures the extent to which a good is substitutable with other. At the macro level, the elasticity of demand reflects how much overall demand for a product responds to price variations. This is influenced by the product type (for instance necessity vs. discretionary) and its substitutability (i.e., whether consumers can easily switch to alternatives). At the enterprise level, demand elasticity determines how well an individual business can continue to sell its products following a price increase. The degree of demand elasticity at the enterprise level depends on the market conditions, the level of competition in the market in which an enterprise operates and whether a price increase is industry-wide or firm-specific. If price increases result from wage hikes, income elasticity of demand may also come into play. Higher wages can lead to increased consumer spending, potentially boosting demand, thus partially or fully offsetting the impact of higher prices.

Enterprises which operate in the global market, where production is dispersed and goods and services are widely traded, may face large elasticities of demand, meaning even modest price increases could lead to lost contracts or diminished sales. Other enterprises, which produce less tradeable goods or services or products with limited offer, typically for local or domestic markets, may face smaller elasticities and therefore have greater ability to adjust prices without severely affecting sales volume. In some cases, it might also be impossible to revise prices in the short term if those have been previously agreed on with the buyer, especially for large orders in sectors such as garment or retail. Additionally, labour-intensive industries are more likely to experience price increases than capital-intensive sectors, where labour costs are a smaller fraction of total production costs.

Box 1: The effects of minimum wage increases on prices, empirical findings

The economic literature mostly investigated the price effect of minimum wage increases and distinguishes between two effects (Neumark and Wascher, 2008): a) the increase in the relative prices of goods and services produced by enterprises which employ minimum wage workers – making them more expensive compared to other goods and services; and b) the effect of a minimum wage increase on aggregate inflation.

Looking at relative prices, different studies in the US, Canada, UK, France or other advanced countries over the last decades found that a 10 per cent increase in the minimum wage is typically associated with a 0.3 to 0.7 per cent increase in the price of "food away from home" (i.e. in restaurants) where a relatively large proportion of employees are paid at the minimum wage[10]. One study in the U.S. found, for example, that for every 10 per cent increase in the minimum wage, prices of "food away from home" increased by 0.36 per cent (McDonald and Nilsson, 2016). Some other studies find a somewhat larger effect, particularly when looking at sub-sectors like fast-food restaurants[11]. Looking

10 Aaronson (2001); Aaronson, French, and McDonald (2008); McDonald and Aaronson (2006).
11 Lee and O'Roark (1999) estimate that a 10 per cent minimum wage increase raises prices among eating and drinking places – industries overpopulated by minimum wage workers – by 0.74 per cent; when they re-estimated their model allowing for different degrees of spillover effects, they found that the larger the extent of spillover effects, the larger the price effects, up to a maximum of 1.5 per cent (see Lemos, 2004). MaCurdy and McIntyre (2001) analyzed the 1996-1997 US minimum wage increase and estimated that a 10 per cent minimum wage increase raises prices of food consumed outside and inside home by, respectively, 1.2 per cent and 0.8 per cent. Card and Krueger's

at the grocery sector, which is particularly relevant given the high share of minimum wage labour in its marginal costs and the fact that groceries represent a large share of consumer expenditures, empirical evidence suggests a measurable price effect from minimum wage increases. A study which leverages multiple state-level increases in minimum wages in the U.S. between 2001 and 2012 found that a 10 per cent minimum wage hike translated into a 0.36 per cent increase in the prices of grocery products (Renkin et al 2020). In Hungary a sharp and sustained minimum wage increase in 1999 was primarily linked to price increases rather than a decline in profitability. It is estimated that in the manufacturing sector a 1 per cent increase in wages led to a 0.18 per cent increase in prices in said sector, with firms exposed to the minimum wage raising their prices more than the other ones (Harasztosi and Lindner 2019).

Looking at the aggregate level of prices, estimates of the effect of a 10 per cent increase in the minimum wage in advanced economies vary between an increase of 0.15 and 0.4 per cent on aggregate consumer price indices; others find no effect at all[12]. When the U.K. introduced a national minimum wage in 1999, the price effect was also modest[13], while the 2015 introduction of the national minimum wage in Germany lead to an estimated price increase of 0.85 per cent (Link 2022). This study also finds that firms that implemented smaller employment reductions tended to react more strongly through price increases, and vice versa. A separate study attributes the relatively modest aggregate price effect in Germany to substantial gains in labour and total factor productivity, which likely offset part of the upward cost pressure stemming from the minimum wage (Hälbig et al 2024). More recently, it was estimated that the 15 per cent increase in Germany's minimum wage in October 2022 would result in an increase of 0.8 per cent in the wage bill and an increase[14] overall prices by approximately 0.25 per cent.

In emerging economies, the evidence is more limited but recent studies found that in Viet Nam there was no effect of the minimum wage on inflation (Nguyen 2011), and in the border region of Mexico a decrease in VAT from 16 per cent to 8 per cent in 2019 more than offset any possible negative effect of the doubling of the minimum wage on prices (Calderón et al 2023). In Brazil, however, the effect of a higher minimum wage on prices was somewhat larger[15].

It is important to note that the heterogeneous effect of minimum wage increases on prices reported in the literature are shaped by market structure, the broader economic context, and the magnitude of the wage increase. In developing countries, the generally lower pass-through effect may be attributed to the smaller share of wage employment and the high prevalence of informality. In such settings, the ability of minimum wage hikes to raise average labour costs across the economy is more limited. Supporting this, a recent study from Mexico finds that higher levels of labour informality dampen the increase in labour costs, thereby constraining the extent of price adjustments in response to minimum wage changes (Calderón et al 2023).

(1995) findings are mixed but suggest that a 10 per cent minimum wage increase raises prices in fast foods by up to 4 per cent. See also Card (1992), Katz and Krueger, 1992; Power, Baiman, and Persky (2007).

12 Lemos concludes: Despite the different methodologies, data periods and data sources, most studies found that a 10 per cent US minimum wage increase raises food prices by no more than 4 per cent and overall prices by no more than 0.4 per cent. This is a small effect. Sellekaerts in the Minimum Wage Commission Report (1981) estimated that a 10 per cent increase in the minimum wage prices by 0.2 per cent. Frye and Gordon (1981) found that a 10 per cent increase in the minimum would increase inflation by 0.02 percentage points (say from 2 percent to 2.02 percent).

13 Machin et al. (2003) for the UK.

14 Deutsche Bundesbank, Monthly Report, February 2022 at https://www.bundesbank.de/resource/blob/885500/1a2a200e54e2a0dc59d3a44b68d56e44/472B63F073F071307366337C94F8C870/2022-02-konjunktur-data.pdf.

15 Lemos (2008).

2.1.3 Government expenditures and revenues as a share of GDP

The third key indicator related to economic growth and sustainability that deserve close consideration in wage-setting decisions — especially when the policy has a large scope of application and a potentially large impact — is government expenditure and revenues as a share of GDP. Wage increases impact government finance through multiple channels. While the first two channels apply to any wage increase, the latter two are specific to minimum wage increases:

1. **Reduction in social transfers**: Higher wages may reduce the need for means-tested benefits via two channels. To some extent, higher wages can reduce the need for transfers to low-income households, where low-paid workers are disproportionally represented, therefore lowering economic expenditure on social assistance programs. The second channel is that higher wages serve as an incentive for workers to enter the labour market, which may limit the need for transfers to individuals outside of the labour force. However, it must be acknowledged that in some contexts, low wages do not necessarily discourage labour market participation. On the contrary, individuals may have no real choice but to work in the absence of other means of livelihood, even in poor conditions or at very young ages. In extreme cases, children may be forced to leave school prematurely to contribute to household income, as their parents' earning are not sufficient to meet the basic needs of the family.

2. **Increase in tax and social security revenues**: As wages rise, government may see an increase in revenues through two channels. One is through social security contributions, which increase with nominal wages, though the overall impact also depends on eventual employment effects. Higher contributions can strengthen social protection systems, improving their sustainability and potentially allowing for expanded coverage or higher benefits. The other channel is through tax revenues, including direct taxes (like income tax) and indirect taxes (like VAT), in case higher wages also boost consumption. The extent to which tax revenues increase also depends on the structure of the tax system, particularly its progressivity or regressivity.

3. **Impact on public sector wage bill**: In many cases, public sector pay scales are linked to the minimum wage, often set as a multiple of it. As a result, an increase in the minimum wage can lead to upward adjustments across public pay grades, potentially increasing the public sector wage bill. However, this is not always the case, as public wage-setting mechanisms vary across countries. In some contexts, public sector workers themselves may be employed at or near the minimum wage, making the impact more immediate. In others, public sector wages are established independently, meaning that changes in the minimum wage may not directly affect the public wage bill.

4. **Linkages to Social Protection Programs**: In some cases, the level of social protection benefits, such as basic pensions, disability or maternity benefits, are automatically linked to the level of minimum wages. In practice, this means that retirement and other benefits will be adjusted upwards when the minimum wage increases, putting pressure on government finance[16].

The Government expenditures and revenues as a share of GDP is inherently a macro-level indicator, and key variables that warrant consideration include:

- **Total Public Sector Wage Bill**: This reflects the proportion of government expenditure allocated to wages and compensation.

- **Level of Pensions and Retirement Benefits**: Both eligibility criteria (entrance) and payout amounts (disbursements) should be considered.

16 Refer to the ILO "Minimum wage policy guide" (2016) at https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40ed_protect/%40protrav/%40travail/documents/publication/wcms_508566.pdf for more information on the link between minimum wages and government finances

- **Level of Social Security Benefits**: These would include programs like unemployment benefits, disability payments, and maternity leave.

- **Public Debt as a Percentage of GDP**: If higher wages expand the tax base, they can improve fiscal sustainability. However, if they significantly increase government expenditures, they could contribute to higher public debt levels, requiring careful policy consideration.

Another important aspect of government expenditure to consider in wage-setting is health expenditures as a proportion of GDP. This is relevant not only because health spending often represents a large expenditure in terms of national resources, but also because it directly influences the availability and access to healthcare services, which is a key factor in determining the needs of workers and their families. When public healthcare is widely accessible and affordable, household healthcare costs are lower, reducing the financial burden on workers and, consequently, the wage levels required to maintain an adequate standard of living. Conversely, low government health expenditure shifts healthcare costs onto households and, indirectly, onto employers, as workers may require higher wages to cover medical expenses. The ILO Conclusions of the Meeting of experts on wage policies, including living wages recognize that "*Governments should invest in the quality and delivery of public services, including health, education, social protection and infrastructure to contribute to realizing a decent standard of living*". When taking wage-setting decision, it is important to assess whether this aligns with reality and how it impacts workers' ability to afford essential services without excessive financial strain.

2.2. The level of productivity

The level of productivity, both at the enterprise level as well as in the overall economy, is a key indicator to consider in wage-setting decisions. While labour productivity is a fundamental indicator in this context, it is also important to consider other productivity measures, particularly capital and total factor productivity, to provide a more comprehensive perspective on economic performance and sustainability.

- **Labour productivity**

Labour productivity can be defined as the number of unit of outputs produced per unit of labour input – where the latter can be measured by the number of workers and/or by the number of hours worked. An example would be the number of tons of steel produced by a worker in one hour, or the number of T-shirts produced by a worker in one hour. Productivity is widely regarded as a key driver of prosperity, and productivity growth – producing more with existing resources – is generally seen as a fundamental pathway to achieving sustainable improvements in real wages and in the standard of living of workers and their families. Higher productivity tends to support higher wage level and can enhance an enterprise's capacity to create jobs, although the strength of this relationship depends on various factors, including labour market institutions, business models, and the broader economic context.

At the macro level, the most commonly used variable to approximate labour productivity is the **GDP per worker**, which is obtained by dividing the GDP by the total number of employed people. At the micro level, labour productivity can be approximated using the **value added per worker** – the total value an enterprise generates after subtracting intermediate inputs, divided by the number of employees – or the **output per worker** – the total physical or monetary output produced per worker in a given period . In addition to these measures, **productivity per hour worked** may offer a more accurate picture, especially when working hours vary significantly across workers, sectors, or countries. This measure accounts for differences in working time and can better capture efficiency and intensity of labour use, making it particularly relevant in wage-setting discussions.

Wages and labour productivity are interconnected through a two-way relationship:

1. **Labour productivity growth creates the potential for higher wages**: When workers produce more output with the same or fewer resources, enterprises are better positioned, in the middle to long term, to offer higher wages without compromising profitability. However, while higher

labour productivity creates the potential for wage increases, the process is not automatic and depends on several aspects, including the bargaining power of workers. The extent to which workers benefit from productivity gains in the form of higher wages largely depends on how value added is distributed following the increase. In the absence of social dialogue, including collective bargaining, or other mechanisms that ensure a fair share of the distribution of productivity increases, it may be possible that productivity gains result in an increased share of profits in value added and stagnating wages, or just in lower prices. In other cases, such as in capital-intensive manufacturing, for example, where enterprises often rely on continuous reinvestment in machinery, automation, and technology to maintain competitiveness, productivity gains may be primarily reinvested in machinery and technology, rather than being allocated to wage increases. This distribution varies depending on industry dynamics, labour policies, and the bargaining power of workers. Moreover, while productivity increases enable wage growth and the two trends are expected to follow similar trajectories in the medium to long term, short-term deviations between productivity and wage growth are common. This can be because an enterprise's ability to share the benefits of productivity gains with workers through higher wages depends on both the economic context and its investments plans. Since the need for investments fluctuates throughout an enterprise's life cycle, there may be circumstances in which an enterprise must prioritize investment to maintain long-term competitiveness.

2. **Higher wages can influence labour productivity**: Wage increases may boost worker motivation, reduce turnover, and encourage skill development, leading to productivity gains. Regarding the potential effects of higher wages on productivity, in 1982, Akerlof formulated the "efficiency wage" theory, which suggests that employees consistently provide higher effort levels when they receive wages above the market level and that they considered as a fair compensation (Akerlof 1982). Furthermore, higher wages have been associated with reduced worker turnover, allowing employees to gain valuable experience and fostering an environment where both employers and employees invest in productivity-enhancing training. When employers can better retain their workforce, workers accumulate on-the-job knowledge and receive ongoing training, ultimately leading to higher productivity over time. Box 2 provides additional empirical evidence on how higher wages may enhance labour productivity at the macroeconomic level. This occurs through the disappearance of less productive enterprises and the reallocation of resources towards more efficient and profitable ones. By incentivizing structural shifts in the economy, higher wages can contribute to overall productivity growth and improved economic efficiency.

Therefore, it is important to analyse labour productivity and its evolution both as an input before making wage-setting decisions, ensuring that wages promote a fair distribution of the fruits of economic progress to all while remaining sustainable, and as an output that might be affected by an intervention.

Of course, while higher wages have been associated with increased labour productivity, this is neither the sole nor the primary driver of productivity growth. Other critical determinants include the creation of an enabling environment for entrepreneurship and sustainable enterprises, as well as strong public support for technological innovation and skills development. It is also important to note that increases in labour productivity are often assumed to result from increased workers' effort requirements, such as supervisors pressuring employees to work faster. However, in reality, low productivity is more often a structural issue. Research by Bloom and Van Reenen (2010) highlights that poor management practices can play a significant role in limiting productivity growth. Additionally, the quantity and quality of equipment and machinery available to workers are also crucial determinants of productivity. These structural challenges are particularly pronounced in economies with widespread informality, as in the case of many developing countries. In such context enterprises often operate with limited access to capital, rely on outdated technology, and face inefficient management systems, all of which contribute to low productivity levels. Low productivity is intricately related with informality, with low productivity being a driver of informality and informality holding back productivity growth. There is, therefore, a need to strengthen policies and measures that foster an enabling environment for sustainable enterprises while simultaneously promoting productivity, decent work and the formalization of the informal economy.

Box 2: The relationship between minimum wages and labour productivity, empirical findings

Effects of minimum wages on turnover and productivity

A large number of experimental studies have supported the hypothesis formulated by Akerlof in 1982 that employees could provide higher effort levels in response to wages higher than the market level and that they considered as a fair compensation, the so-called "efficiency wage" theory. Most of these studies have focused on pay levels of individual firms, showing that higher pay in one enterprise compared to other enterprises can attract more experienced and motivated applicants. Higher pay can also elicit greater commitment and productivity from existing employees (Ehrenberg and Smith, 2009). The effect of minimum wages - as opposed to higher wages in individual enterprises - on workers' motivation has also been found to be positive. Georgiadis (2013) for example found that the U.K. national minimum wage has operated as a kind of "efficiency wage" in the residential care homes sector, increasing motivation and leading to a reduction in the level of worker supervision required. Experimental evidence in the U.S. by Owens and Kagel (2010) also points to a positive relationship between minimum wages and workers' effort.

Another area that has been increasingly researched in recent years is the link between minimum wages and reduced turnover, i.e. the flow of workers in and out of jobs (or the rate of employee separations and hires). Dube, Lester and Reich (2012) found that in the U.S. a 10 per cent increase in the minimum wage results in a reduction of 2.1 per cent in turnover for restaurant workers and a 2.0 per cent reduction in turnover for teenagers. They attribute this finding to the reduction in wage competition between low-paying enterprises. Coviello et al. (2022) similarly find that minimum wages decrease turnover. In Canada, Brochu and Green (2013) found that hires, quits and layoffs of young workers with low education declined in the year after a minimum wage increase. In Portugal, a study documents how separations of young workers fell substantially after a youth-specific minimum wage increase (Portugal and Cardoso, 2006). All this evidence suggests that with higher wages, employers more easily retain their workforce, as a result of which workers can learn on the job and be trained to become more productive over time.

At the enterprise level, Riley and Bondibene (2017) exploited the introduction of the National Minimum Wage in the U.K. and subsequent increases to identify the effects of minimum wages on productivity. They found that companies responded to these increases in labour costs by raising labour productivity. These labour productivity changes did not come about via a reduction in enterprise workforce or via capital-labour substitution. Rather they were associated with increases in total factor productivity, consistent with organisational change, training and efficiency wage responses to increased labour costs from minimum wages. These conclusions align with findings of some previous studies, such as those of Croucher and Rizov (2012) who found an improvement in labour productivity in all of U.K.'s low-paying sectors as a result of the introduction of the national minimum wage, and particularly so in larger firms.

The reallocation of labour and aggregate productivity

At the macro-economic level, it has been observed that minimum wages may prompt low-productivity firms to leave the market and higher-productivity firms to expand – thereby raising overall efficiency of the economy. Mayneris, Poncet and Zhang (2014), using data for more than 160,000 manufacturing firms in China found that increases in city-level minimum wages resulted in lower survival probability of low-productive firms. For surviving firms, wage costs increased without negative repercussions on employment. They explain this finding by the fact that productivity in surviving enterprises improved significantly, allowing firms to absorb the higher labour costs without hurting their employment or profitability. They conclude that minimum wage growth allows more productive enterprises to replace the least productive enterprises and forces incumbent enterprises to strengthen their competitiveness.

Using semi-structured interview with 80 senior representatives of employers' organizations and trade unions, senior civil servants and industrial relations academics, McLaughlin (2007) examined how minimum wage regulations could raise productivity in Denmark, New Zealand and Ireland. He found that higher minimum wages are important for productivity but in the long-term other supporting institutions – such as collective agreements that enable training outcomes - can contribute to encourage firms to adopt the "high road" strategy through training and higher quality-based products market strategies.

A recent study on Germany's minimum wage policy[17] reveals that when the government set a nationwide minimum wage, not only did pay checks get bigger, but job quality improved. Interestingly, rather than hurting job numbers, the wage increases actually helped workers move into better, more productive jobs at larger, higher-paying companies. Essentially, the minimum wage acted like a springboard, pushing workers up into higher quality jobs

Collective bargaining and the link between productivity and wage growth

It is well documented that the translation of productivity gains into higher wages depends significantly on the sector's competitive dynamics and the bargaining power of workers, as illustrated in the study by Ilmakunnas and Maliranta (2005). Conversely, research findings from the study of Belgian firms[18] highlight that firm-level collective agreements, which often result in higher wages than sector-level agreements, not only elevate wage levels but also enhance productivity. However, these benefits are more pronounced in less competitive sectors where firms enjoy greater market power and can afford significant rent-sharing without sacrificing competitiveness. This is consistent with theories that suggest rent-sharing is more feasible in environments where firms have greater market power and can afford to distribute more of their profits to employees without risking their competitive position. This would mean that while increased wages can indeed raise production costs, they also contribute to higher worker productivity and morale, potentially offsetting the negative impacts on competitiveness, especially in sectors with higher market concentration.

- **Other productivity measures**

In addition to labour productivity, other key measures of productivity to consider include:

- Capital productivity: It measures how effectively capital inputs, such as equipment and machinery, are used to produce output. Capital productivity can be measured by the amount of economic output generated per unit of capital stock, commonly referred to as the Capital Productivity ratio. At the national level, this reflects the ratio between the GDP and the gross capital stock, while at the enterprise level, it is measured as the ratio between an enterprise's output (such as sales or production volume) and capital employed to generate that output. Capital productivity is important in a wage setting context as higher capital productivity can enhance overall economic efficiency and profitability, which in turn may increase the enterprise's capacity to support higher wages or expand employment opportunities.

- Total factor productivity (TFP): Also known as multifactor productivity, it assesses how efficiently an enterprise or economy transforms inputs into outputs. It reflects the combined efficiency of labour and capital, capturing gains from innovation, better management, improved processes and other factors not directly linked to input quantities. While TFP is more difficult to measure, and can be estimated indirectly, it offers a strategic view of long-term efficiency improvements and competitiveness. TFP growth reflects on enterprise or economy's ability to innovate, enhance resource allocation and sustain higher wages without triggering cost inflation.

17 Dustmann, C., Lindner, A., Schönberg, U., Umkehrer, M., & Berge, P. V. (2021)
18 Garnero, A., R ycx, F., & Terraz, I. (2020)

Given the complementarity of labour and capital in the production process, considering capital productivity alongside labour productivity provides a more comprehensive perspective and allows for an informed decision-making. An increase in capital productivity enables enterprises to generate higher revenues, which in turn increases their ability to sustain higher wages. On the contrary, low capital productivity can limit wage growth, and in cases of declining capital productivity, employers may struggle to afford wage increases without reducing investment or employment. Furthermore, incorporating TFP allows to account for returns of innovation, efficiency gains, and the economy's ability to sustain higher wages without inflationary pressures.

2.3 The desirability of attaining and maintaining a high level of employment

The third important dimension to consider in the context of wage-setting is the desirability of attaining and maintaining a high level of employment. When analysing employment, it is important to consider two indicators:

- **Employment and labour market participation level**: Refers to the total number of people who are employed or participate in the labour market in an economy, industry, or enterprise at a given time. It is used as a proxy for the quantity of jobs available and serves as a core indicator of labour market performance.

- **Labour market conditions**: In this context, it reflects the quality of employment, encompassing factors such as job security, working time, and the extent of informal employment.

2.3.1 Employment and labour market participation level

When analysing the employment level, the **unemployment rate** is a core variable to consider. Before implementing wage policies, the unemployment rate serves as a key economic indicator, reflecting the balance between labour supply and demand. A low unemployment rate suggests that competition for workers is high and, in these circumstances, enterprise may have to offer higher wages to attract and retain talent. In such conditions, businesses may be better equipped to absorb wage increases without significant negative effects on employment. Conversely, a high unemployment rate is indicative of an excess of labour supply, meaning more workers are available than jobs. In such scenario, wage increases may exacerbate unemployment if businesses reduce hiring or cut jobs to offset higher labour costs. Given the high policy priority of ensuring a high level of employment and given the uncertainty surrounding the employment effects of wage increases (see Box 3), continuous monitoring and post-evaluation are essential to assess the real-world impact of wage policies.

While the unemployment rate is a key variable of interest, it is important to consider it alongside other closely related measures, including **job vacancy rate**[19], **labour market participation** and the **jobs gap** (the ILO's summary estimate for the overall number of jobs missing). Monitoring the job vacancy rate, the labour force participation rate, the jobs gap, and the unemployment rate together provides a more comprehensive picture of the labour market dynamics. Looking at the job vacancy rate may signal whether an economy is expanding or contracting. A high vacancy rate typically indicates strong labour demand, suggesting economic growth, but could, in some cases, also imply a skill shortage. Conversely, a low vacancy rate may reflect reduced hiring activity. Similarly, the labour force participation rate provides insight into whether individuals are entering or exiting the labour market, which can influence unemployment figures. A decline in unemployment, for example, may result from discouraged workers leaving the labour force rather than genuine job creation. It is also important to monitor the labour force participation rate for specific groups, such as by gender or by age group, as certain wage policies, such as the introduction of a minimum wage, may disproportionately impact particular segments of the population. This is why it is important to also monitor the jobs gap, which - in addition to unemployed

19 The job vacancy rate measures the share of unfilled positions within an organization or labor market.

people - includes people who are discouraged from looking for a job and those who are in the potential labour force but who have either not searched for a job recently or who are not available to work.

At the microeconomic level employment can be monitored by looking at variables such as the **net employment creation** within a given enterprise, which refers to the overall change in the number of jobs over a specific period, accounting for both new hires and job separations, or the **turnover rate**, which measures the percentage of employees who leave the company over a specific period, whether due to voluntary resignations, layoffs, retirements, or terminations. These two variables are related and provide complementary insights into a company's labour dynamics. Whereas the turnover rate focuses on workforce stability and retention, net employment creation is also related to overall job growth. Although both net employment creation and turnover rate are valuable indicators also measured at the national level, they become particularly insightful when the focus is on a specific enterprise or group of enterprises.

Box 3: The relationship between minimum wages and employment, theories and empirical evidence

The effect of wage increases on employment has mostly been studied through the lens of minimum wage increases. Neoclassical economic theory predicts that in a world of perfect competition, higher minimum wages will lead to lower employment, notably through two channels:

- The "**scale effect**": If higher wages lead to higher prices, and the enterprise loses some of its customers, it may decide to adjust employment downwards.
- The "**substitution effect**": In case of a wage increase, an enterprise may decide to substitute workers paid at the minimum wage level – who have become more expensive – with machines or by reorganizing production processes. For example, a fast-food chain may replace employee-operated cash registers with automated ordering kiosks (Clemens, 2021). However, whether and to what extent such substitution occurs depends largely on the degree of substitutability between labour and technology in a given sector or enterprise.

Even if an enterprise does not actively reduce its current workforce, it may respond to higher labour costs by limiting new hires and not replacing departing employees. This strategy slows the rate of employment growth, meaning that over time, the enterprise operates with fewer workers than it otherwise would have.

If these effects are significant, the aggregate employment levels of low-wage workers may decline. However, a decrease in employment within some enterprises does not automatically imply a net reduction in total employment, or this might just be temporary. In the long term, the labour market may undergo a reallocation process, where workers move from exiting low-productivity enterprises to more competitive and efficient enterprises. Similarly, this process can drive labour reallocation across sectors with different productivity levels, contributing to structural shifts in the economy.

Other theories, based on different assumptions, take a different view. If employers exercise a degree of 'monopsony power' – where a single or few enterprises have significant control over hiring and hence a disproportionate influence over wage-setting – they may be able to set wages below what would prevail in a competitive market. While this can result in wages not fully reflecting labour productivity, some theoretical models suggest that, under such conditions, moderate increases in wages may lead to higher employment. This is partly because higher wages help reduce staff turnover, attract more skilled or motivated workers, and increase job satisfaction and productivity. So-called "search models" also show that in imperfectly functioning labour markets, wage increases at the lower end can, up to a certain point, be compensated by a combination of reduced profits, moderate wage growth for higher paid staff or managers, or other cost-saving or productivity-enhancing measures.

Finally, Keynesian macro-economic theories highlight the fact that higher wages not only raise labour costs for employers, but they also increase consumption and aggregate demand among the low-income workers and their families, who tend to have a higher marginal propensity to consumer. In this framework, the increase in demand can lead to higher investment by firms, as they respond to stronger sales and improved market prospects. This combination of rising consumption and investment can generate a virtuous cycle that supports both employment and economic growth. While some low-productivity firms may reduce employment or go out of business, this effect can be more than compensated by the increased demand for the goods and services produced by enterprises which remain in the market.

Empirical evidence

The employment effects of minimum wage policies have been the subject of extensive research but remain a debated topics in labour economics. While the issue is widely studied, the evidence is far from conclusive. A recent World Bank overview found that "*although the range of estimates from the literature varies considerably, the emerging trend in the literature is that the effects of minimum wages on employment are usually small or insignificant (and in some cases positive).*" (Kuddo et al., 2015). However, other meta-analyses arrive at different conclusions and highlight that results are highly sensitive to methodological approaches, data quality, and model specifications (Jiménez-Martínez and Vera-Valdés, 2021). Moreover, a significant share of empirical studies and meta-analyses focus on high-income countries, where institutional contexts, enforcement capacity, and labour market structures may differ substantially from those in low- and middle-income economies. As pointed out in the minimum wage policy guide (ILO 2016), "*differences in findings across countries and studies point towards the importance of country-specific programmes for monitoring the employment effects of minimum wages, particularly on vulnerable workers and enterprises*".

While findings are very varied, a growing proportion of research – as well as various meta-analyses – concluded that the employment effects of moderate increases in minimum wages in the U.S. and other high-income countries are frequently close to zero and too small to be observable in aggregate employment or unemployment statistics (Belman and Wolfson, 2019). For example, in their detailed analysis across various sectors, including traditionally vulnerable ones like hospitality and retail, Arnadillo et al. (2024) concluded that the 22 per cent increase in Spain's minimum wage in 2019 did not result in job losses. Some studies, however, still find that adverse employment effects can be sizeable and that minimum wages can reduce employment opportunities for categories of workers who are most impacted by the minimum wage. In Lithuania, for example, Garcia-Louzao and Tarasonis (2023) find that while the overall employment was not adversely affected, certain groups, like young workers and those in highly exposed municipalities or tradable sectors, faced some negative employment effects. In Hungary, Harasztosi & Lindner (2019) find that of the 290,000 minimum wage workers, approximately 30,000 lost their jobs—equivalent to 0.076 percent of total employment—while the rest experienced a 60 percent wage increase in the minimum wage.

In developing countries, the evidence is more limited, and similarly mixed findings have been reported (Barcia de Mattos, 2024). In their literature review, Neumark and Munguia Corella (2021) find mixed evidence on employment effects, with adverse effects mostly observed where minimum wage hikes were high. Broecke at.al (2017), who reviewed studies in ten major economies (Brazil, Chile, China, Colombia, India, Indonesia, Mexico, the Russian Federation, South Africa and Turkey), found small or no impact on employment, except in circumstances where the minimum wage was set at excessively high levels.

Some studies have focused on possible reductions in working hours. For instance, the introduction of the minimum wage in Germany in 2015 effectively raised the lower bound of the wage distribution, resulting in reduced wage inequality. However, the expected benefits in monthly earnings were somewhat counteracted by reductions in working hours (Caliendo et al., 2023). Similarly, the sectoral

minimum wages in South Africa were generally not associated with reduced employment, except for the agricultural sector. However, in some instances, hours of work declined.

Azar et al. (2023), underscoring the varied implications of minimum wage policies across different contexts, conclude that "*There is no such thing as 'the' employment effect of the minimum wage applicable everywhere.*" Manning (2021) highlights that inquiry should extend beyond whether minimum wages hinder employment to determine the threshold up to which minimum wages can be raised without negative employment effects.

2.3.2 Labour market conditions

While monitoring the number of jobs created or sustained within an economy is crucial, it is equally important to consider the specific characteristics of the labour market and the workforce, which offer insights in addition to job quantity. In this context, several key variables can be taken into account, including but not limited to:

- **Prevalence of the informal economy**: This prevalence could be assessed by indicators related to informal employment, informal enterprises (informal sector) and informal productive activities[20]. Available evidence shows that wage variations have impact on the three dimensions of informality. Formal micro and small enterprises tend to have a lower productivity than the larger ones. Their capacity to absorb minimum wage increases is lower and some of them can be pushed to informality when such increases happened. Additionally, sharp wage rises — especially if not based on solid economic evidence — risk pushing workers in these enterprises out of formal jobs into informal employment. El Badaoui et al. (2022) found that a significant share of informal enterprises, especially in developing countries, would not be viable if they had to comply with minimum wage regulations, as their productivity levels are too low. As shown, by the Global Wage Report 2020-2021, a large share of wage workers are paid at or below the minimum wage, either because they are not legally covered or because of non-compliance. One of the most significant factors of non-compliance is the incidence of informal employment. At the same time, higher wages in the formal economy might increase wages in the informal economy through the so called "lighthouse" effect. Positive spillovers on wages in the informal sector following a minimum wage increase have been observed in several economies, particularly in developing countries with significant informal employment.[21]

- **Prevalence of underemployment**: Monitoring time-related underemployment rates, which measures the share of workers who are working fewer hours than they are willing and available to (part-time workers seeking for full-time positions, for instance), is also useful to provide a more comprehensive picture of the labour market. At the enterprise level, wage increases may not always lead to job losses but instead might result in a reduction of working hours of employees, sharing the cost impact across the workforce. This mechanism effectively distributes the impact of higher wages across employees rather than resorting to layoffs. This underscores the importance of tracking underemployment to understand how businesses and workers may adapt to a wage increase.

- **Share of own-account workers and unpaid family workers**: Monitoring the proportion of own-account workers and contributing family members is important because, while they are not classified as employed, they often face severe decent work deficits. A stable unemployment rate

20 21st International Conference of Labour Statisticians, Resolution concerning statistics on the informal economy, 2023.

21 Empirical evidence of such spillover effects has been documented, among others, in Mexico (Bosch and Manacorda 2010), Colombia (Pérez 2020) and Brazil (Boeri et al. 2011). In the Brazilian case, around one third of the increase in average wages within the informal sector could be attributed to the reallocation of workers between the formal and informal sectors (Boeri et al. 2011).

may mask changes in workforce status, as individuals might shift from wage employment to more vulnerable work arrangements. Ensuring that high levels of employment are accompanied by improvements in job quality is essential for inclusive economic growth and long-term productivity gains.

- **Share of workers under different contracts**: The share of workers under different contracts refers to the proportion of workers working under various types of employment agreements — such as, permanent, fixed-term, temporary, part-time, zero-hours, apprenticeship, and freelance contracts. Monitoring this variable is relevant because the type of contract frequently correlates with working conditions, including job security, benefits, working hours and wages. In the context of wage determination, many countries set lower minimum wage levels for certain types of contracts or exclude them entirely from the provision, as is often the case with apprenticeships. Conversely, in some countries, casual workers receive higher minimum wages to compensate for the lack of benefits like sick leave and job security. Since different types of contracts can define eligibility for wage increases, they may also be used to grant or withhold them, making their monitoring highly relevant.

When evaluating and monitoring the labour market in the context of wage-setting, it is crucial to conduct gender disaggregated analyses that examine specific parts of the economy as well as specific groups of workers. These analyses provide a deeper understanding of the unique conditions affecting each group in the economy and help identify the individuals, regions or industries that are impacted, either positively or negatively, by a given wage policy. The variables considered in such analyses depend on country-specific circumstances and the objectives of a given intervention. However, it is advisable to include at least the following factors: **gender**, **sector** (and/or industry), **age**, and **education level** to effectively capture different demographics or different parts of the economy. These indicators are relevant because certain groups are concentrated in specific segments of the wage distribution. For example, evidence show that women are overrepresented among low-paid wage workers (ILO, 2024). As a result, if a wage floor is raised, women are likely to be among the most affected – whether in terms of income gains or employment adjustments. Similarly, younger or less-educated workers, who are also concentrated at the lower end of the wage distribution, may experience a larger impact. Sectoral analysis is also crucial for two reasons. First, a wage policy may target specific sectors. Second, even when an intervention is implemented across the entire economy, sectoral differences — such as varying levels of productivity or employment — can lead to different outcomes in different sectors.

2.4 General level of wages in the country and relative living standards of other social groups

Complementary to the economic factors discussed so far, another important aspect to consider when making wage-setting decisions is the prevailing wage level and the relative living standards of different social groups. This requires analysing and monitoring two complementary aspects:

- **Prevailing wages**: This implies assessing the current wage levels earned by workers across the economy while accounting for gender and for variation by occupation, sector, region, and informality status. Understanding these differences is essential to ensuring that interventions are tailored to the realities of different labour market segments. Prevailing wages have a dual role, as they both reflect and influence the economy. On one hand, wages reflect economic conditions and wage-setting mechanisms. At the same time, wages are a key economic factor, as they influence multiple aspects of the economy such as inflation, consumer spending, and income distribution.

- **Earnings of non-wage workers and incomes of persons outside the labour force**: This primarily involves assessing the earnings of own-account workers but may also include investigating incomes of pensioners and social transfers received by individuals outside the labour market. Examining these income sources provides a more comprehensive view of the economic landscape and ensures that wage-setting decisions consider broader income distribution patterns.

2.4.1 Prevailing wages

When taking wage-setting decisions it is advisable to conduct an in-depth analysis of prevailing wages and their evolutions. This would include looking at variables such as those listed in box 4.

Box 4: Statistical terms used in the analysis

The **mean**, also known as average, is a measure of central tendency calculated by dividing the sum of all values in a dataset (such as hourly wages) by the number of units (workers) to whom it applies.

The **percentiles**, **median**, **quartiles** and **quintiles** are indicators derived by ordering the wages of each paid employees from the lowest to the highest value. The nth percentile represents the value below which n% of wage employees earn, meaning that n% of employees are paid less than the value at the nth percentile.

The **median** is the threshold that divides a distribution in two parts each of which contains half of the population. The median corresponds to the 50th percentile.

The **Kaitz Index** is the percentage ratio of the minimum wage to the median wage.

The **total wage bill** is the aggregate sum of all wages paid to workers within an economy or sector.

The **quartiles** divide the total set of ordered units into four groups each containing 25 per cent of the population. The first and third quartiles are equivalent to the 25th and 75th percentile respectively, while the second quartiles correspond to the median (i.e. 50th percentile). Thus, 25 per cent of the wage employees are paid below the first quartile and 75 per cent are paid below the third quartile.

Similarly, the **deciles** divide the total set of ordered units into ten groups each containing 10 per cent of the population. They represent the values of the 10th, 20th, 30th, 40th, 50th, 60th, 70th, 80th, and 90th percentiles.

Analysing the wage distribution offers crucial insight, as it is the result of the complex interplay between economic performance, institutional frameworks, labour demand and supply, and policy choices that shape labour market outcomes. Monitoring its evolution is equally important, as significant shifts or widespread changes affecting a large share of the population can lead to unintended economic consequences. As was the case in the analysis of employment, it is crucial, where the prevalence of informality is high, to consider separately and compare the wage distribution among workers in the formal economy and those in the informal economy. Since wage patterns and compliance differ significantly across these segments, and data from the informal economy are often limited, parallel assessment can offer more accurate insights.

To effectively assess and monitor the evolution of the wage distribution, it is useful to examine a series of summary indicators:

- **Mean and median wage**: These measures are useful synthetic indicators to assess how a specific wage — such as the target wage of an intervention —compares to wages in the overall economy. Analysing mean and median wages across gender and different sectors is particularly useful. Additionally, examining average (or median) wages for various professions can highlight disparities and assess feasibility.
- **Wage relativity measures**: Like mean and median wages, these indicators evaluate how a target wage from an intervention compares to prevailing wages within an economy. Depending on the specific intervention, these indicators may include:

- Share of low paid-wage workers: The proportion of wage workers earning less than two-thirds of the median wage
- Ratio between the minimum wage level (or where applicable living wage) and the mean (or median) wage

In the context of minimum wage-setting, the Kaitz ratio, that is the ratio between the minimum wage and the median wage is a particularly popular measure. While the ILO does not prescribe a specific target for the Kaitz index, an empirical study (ILO, 2020) found that, on average, minimum wages are set at around 55 per cent of the median wage in developed countries and around 67 per cent of the median wage in developing and emerging economies. Despite being a useful summary indicator, caution is required when using these measures for decisions making. Wage distribution can vary considerably across countries, meaning that setting a minimum wage to achieve a specific Kaitz index can have very different effects depending on countries circumstances.

- **Measures of dispersion**: Inequality measures provide essential insights into wage disparities within an economy. Key indicators include the Palma ratio, the Gini coefficient, and the decile ratios, among others. Since many wage interventions aim to promote a fair and equitable distribution of wages, evaluating both the initial level of inequality and its evolution over time is crucial in assessing the effectiveness of such policies. Beyond considerations of fairness and political stability, monitoring inequality is also relevant from an economic standpoint. Reducing wage inequality can help strengthen aggregate demand, boost productivity and support more balanced and inclusive economic growth.
- **Wage gaps**: Wage gaps are another measure of inequality, but rather than assessing vertical inequalities, which look at inequalities along the wage distribution, they focus on horizontal inequalities, that are inequalities between different groups. Wage gaps which may be helpful to measure include:
  - **Gender pay gap**: The gender pay gap quantifies wage differential between men and women. As previously highlighted, men and women often cluster at different location of the wage distribution, meaning that wage decisions affecting certain segments of the distribution may disproportionally impact women or men, including in terms of earnings. To gain a more comprehensive understanding, it is beneficial to complement the estimation of the traditional gender pay gap (referred to as the raw gender pay gap) with a more refined measure, such as the factor-weighted gender pay gap[22]. By analysing gender pay gaps in more homogeneous subgroups, this complementary measure controls for key composition effects, resulting in a more accurate representation of wage disparities. This is especially important when women's labour force participation is low or concentrated in particular sectors and occupations.
  - **Migrants pay gap**: Wage gaps can also be calculated to assess wage differentials between national and foreign workers, for example. This is particularly relevant in the context of wage policies that are likely to disproportionately affect one of these two groups.
- **The total wage bill**: the total wage bill is the sum of all wages paid to employees within a country, a sector or an enterprise. Assessing the possible impact of a certain minimum wage level (ex-ante) may involve simulating its effects on the total wage bill — that is, calculating the change in the aggregate sum of all wages paid to workers within an enterprise, sector or the economy. This process typically includes both pre-implementation simulations and post-implementation analyses to evaluate the actual effects of a wage intervention on the total wage bill. The bigger this effect, the more likely the magnitude of economic effects. It is also possible to look at the impact on the total wage bill at different deciles of the wage distribution to get valuable insights into the distributional effects of a wage intervention.

22 For a detailed explanation of how to estimate the factor-weighted gender pay gap, see Box 3 in the *Global Wage Report 2018/19. What lies behind the gender pay gap?*

2.4.2 Earnings of non-wage workers and income of persons outside the labour force

Alongside considerations of prevailing wage levels, wage-setting decisions may also want to take into account:

- **Earnings of non-wage workers**: It is important to consider the earnings of own-account workers, especially in developing economies, where they can represent a substantial share (and, in some cases, the majority) of the workforce and where informality rates can be very high. As a result, the earnings of non-wage workers play a crucial role in shaping overall living standard. Additionally, wage and non-wage workers operate within the same labour market, meaning that an intervention affecting one group may have significant repercussion on the other or increase inequality between them. For instance, if unsustainable wage increases lead to higher prices, the intended benefits for wage earners may be eroded by rising costs of living. At the same time, non-wage workers — who face greater risk to vulnerable situations — may see their situation deteriorate. Decision-makers should also recognize that own-account workers, who often operate in the informal economy, tend to be concentrated at the lower end of the labour income distribution and face limited access to social protection, legal safeguards or earning stability. Although they are not directly affected by wage policies, they coexist in the same labour market as wage workers, and therefore wage interventions can have indirect but significant effects on their livelihoods.
- **Pensions and social security transfers**: To fully understand the incentive structure facing potential and current workers, it is also advisable to consider non-labour incomes including:
  - The average (or median) pension.
  - The average (or median) level of social transfers to working age population, including unemployment benefits.

These factors are important for maintaining labour participation and guaranteeing economic sustainability. Wage levels that fall below or near to the median pension or the median level of social transfers received by individuals outside the labour market could undermine labour force participation by reducing the financial incentive to engage in formal employment. Furthermore, workers may prefer informal or non-wage activities, especially if wage work does not offer a clear financial advantage. Persistently low wages weaken contributions to social security systems, threatening the long-term sustainability of pensions and public welfare schemes.

- **Poverty rate**: Monitoring the poverty rate, which typically refers to the share of the population living below a defined income threshold—either in absolute terms (e.g. below a fixed poverty line) or relative to median income—is important from an economic perspective in the context of wage setting. The prevalence and evolution of in-work poverty, which specifically refers to individuals who are employed but still live in poverty due to low earnings, insufficient working hours, or unstable employment, is particularly relevant in providing valuable insight into the state of the labour market. A high prevalence of in-work poverty among wage workers can indicate wages which are inadequate to support a decent standard of living, not only for workers but also for their families. From a broader economic standpoint, high poverty undermines aggregate demand, limits human capital development, and increases reliance on social assistance, creating long-term costs for the economy. To assess the impact of wage policies on poverty, both absolute and relative poverty rates should be regularly monitored and disaggregated by factors such as employment status, gender, and age group. This allows for more targeted and effective wage-setting that responds to the realities faced by different segments of the population

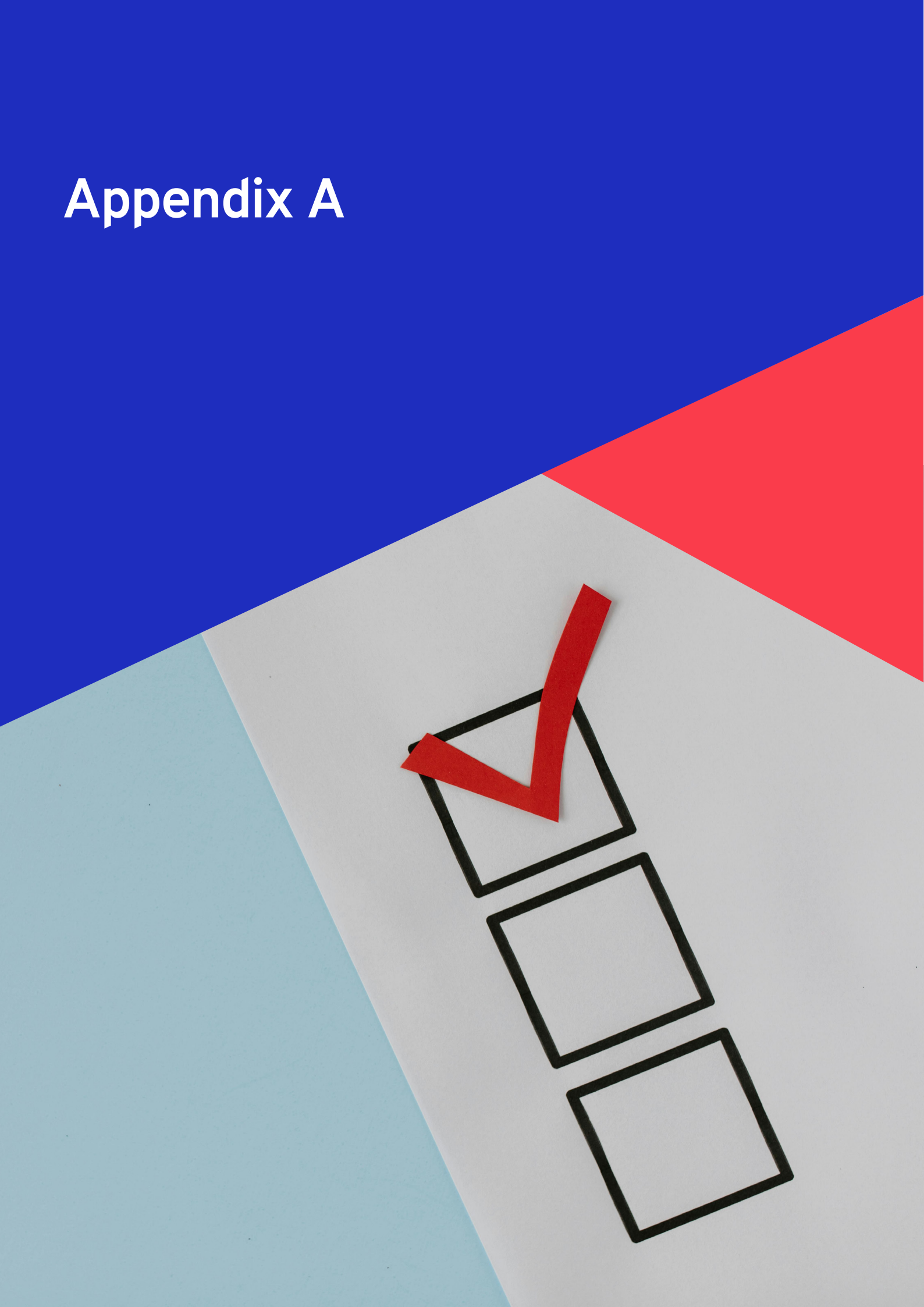
Conclusion: bringing together the pieces of the puzzle

This document offers a structured and evidence-based framework for considering economic factors in wage-setting processes. It complements the ILO methodology for estimating the needs of workers and their families, and as such, should be read in conjunction with that document. Together, they provide a comprehensive view of the two essential pillars of wage setting: the needs of workers and their families and economic factors.

The report outlines a wide array of economic indicators that can inform wage-setting discussions. However, it does not prescribe a fixed set of indicators, nor does it assign them universal relevance. The selection and prioritization of indicators should emerge through social dialogue, allowing governments, employers, and workers' organizations to identify the most relevant variables in light of the specific wage-setting method—whether statutory or through collective bargaining—and the level at which wage setting occurs (national, sectoral, or enterprise).

This flexibility reflects the diversity of institutional arrangements and labour market conditions across countries and sectors. It acknowledges that effective wage-setting processes must be rooted in local realities, guided by transparent methodologies and supported by reliable data. Ultimately, this document serves as a foundation for informed, context-sensitive, and negotiated wage policies that balance fairness for workers with the economic sustainability of enterprises.

Appendix A



Appendix A: Data sources for evidence-based wage setting processes

As previously mentioned, an evidence-based approach relies on the availability of reliable data to support governments and social partners in their deliberations. Data used for this purpose benefit from being timely, comprehensive, and, preferably, disaggregated by sex. Data that can be used in an evidence-based approach to wage policies include at least four types of data:

1. **Survey data**: This category encompasses data sources which collect information at the micro level and includes for instance, labour force surveys, household income and expenditure surveys and enterprise surveys. This group probably constitutes the most desirable source, as they provide disaggregated information on wages together with detailed information on characteristics of the population (e.g., the informality status of workers, the size of enterprises, the gender of the wage earner, etc.). The main limitations of this type of data are availability and timeliness. While survey data collections are routinely conducted in advanced economy, this is not always the case in developing countries[23]. Even when data are collected, the collection schedule might be inadequate for the purpose of monitoring a specific wage policy. Additionally, survey data often take time to become available, limiting their effectiveness as a timely tool to respond to the rapidly evolving economic landscape. Box A1 describes the three most commonly used types of survey data in the implementation and evaluation of wage policies.
2. **Administrative data**: This group includes for instance payroll tax records, social security records, business registries, and social insurance databases. This data source has the advantages of being readily available, cost-effective and span long timeframes, but also have limitations in terms of level of granularity. Additionally, access to administrative records may be restricted due to privacy regulations, limiting their availability for research. Furthermore, the informal economy may not be reflected in such data.
3. **Aggregated data**: This kind of data is typically readily available and regularly produced, allowing for the acquisition of long data series. Examples include national account statistics, which provide information on GDP, consumption and investments, among others, as well as Consumer Price Indices (CPI) series. The main limitation of aggregate data is related to its level of granularity. For instance, national accounts data may not be broken down by region, while CPI data may lack details by specific goods and services or on inflation experienced by households at different locations of the income distribution. Additionally, aggregated data often investigate only one dimension at a time, making it challenging to identify causal relationships. Aggregate data may also derive from administrative records and survey data when these are provided in aggregate form. Consequently, they may inherit the same limitations present in the original data sources.
4. **Qualitative data**: In cases in which survey data are not available and time constraints prevent the collection of quantitative information, it might be useful to collect qualitative information through face-to-face interviews for instance. This approach may also be particularly beneficial for monitoring the effects on indicators that are not easily quantifiable, such as workers attitude and morale. Additionally, qualitative methods are efficient in exploring outcomes within specific context that may not adequately represented in labour force surveys. This is for instance the case when policymakers aim to study the effects of a policy on a specific population, type of enterprise or sector that is underrepresented in survey data, and it is not cost-effective or possible to

23 Data quality and availability varies significantly across developing countries, reflecting differences in national circumstances and statistical capacity. While many emerging economies, such as those in Latin America and parts of Asia, have made substantial progress in data collection, challenges persist in least developed countries, particularly in Africa. These challenges often stem from limited financial and technical resources, with gaps in survey coverage sometimes further exacerbated by conflict and political instability.

collect such data. However, it is important to note that, in general, quantitative data cannot fully substitute qualitative evidence in wage-setting. Instead, it complements it by providing context and a deeper understanding of the underlying issues.

Box A1: Different types of survey data

The most common types of survey data used in wage-setting include the following:

a. **Labour Force Surveys**: In many countries, a labour force survey generally meets the requirement of being reliable, and representative of the overall economy, and provides information that are disaggregated by gender. Among many other things, it includes information on individuals' characteristics, their employment status, working time, wages and (in some cases) the earnings of non-wage workers (i.e, own-account workers, employers and contributing family members). Occasionally, in cooperation with national statistical offices, the survey can be adapted to include additional wage-related questions or to oversample specific populations, such as domestic or migrant workers, if they are specific policy targets. While household surveys, like labour force surveys, have limitations, such as susceptibility to measurement error, particularly with regards to self-reporting of income, wages and hours, they remain highly valuable. Unlike other data sources, they often capture information on workers who might otherwise be excluded, such as those in the informal economy and non-wage workers.

b. **Establishment surveys**: Establishment surveys collect firm-level data directly from businesses and are useful to complement analyses undertaken using labour force surveys. Their key advantage is the collection of actual wage data, along with additional firm-level information not captured in labour force surveys. However, wage data are often presented in aggregate form, limiting detailed analysis. Moreover, certain group — particularly sizeable in developing economies — are frequently not represented, including workers in the informal economy, the non-wage workers and workers in small or medium-sized establishments. The exclusion of these groups from surveys also means that they are omitted from subsequent data analyses used to inform wage policies.

   When both a labour force survey and establishment survey are available for a given year, comparing estimates obtained from the two sources may provide valuable insights. Specifically, labour force survey data can offer a deeper understanding of the wage distribution underlying establishment surveys. More importantly, it can help identify potential differences in wage levels between enterprises represented in the establishment survey— which typically focuses on formal and larger establishments— and the broader labour market. This comparison can shed light on how representative establishment survey data are in capturing overall wage dynamics, particularly in relation to smaller, informal, or less structured segments of the economy. This has important implications when such surveys are used to estimate the effects of introducing a minimum wage on a specific sector or the overall economy, as excluding or underrepresenting certain segments may lead to biased or incomplete assessments of the policy's potential impact.

c. **Household consumption and expenditure surveys**: These are nationally representative surveys that provide valuable insights into poverty levels, income inequality, and overall living standards within a country. While the type and detail of information collected vary across countries, these surveys typically include:

   - household income sources (wages, earnings of non-wage workers, social benefits...),
   - household expenditures (food, housing, healthcare, education...),
   - household demographics (family composition, employment status, education levels), and
   - living conditions and poverty indicators (proxied by access to basic services or consumption habits for instance).

These surveys are key components of the ILO methodology to estimate the needs of workers and their families for the purpose of determining a minimum or operationalizing a living wage (ILO, 2021). While some household income and expenditure surveys collect wage data at the individual level, most focus on total household income without distinguishing between sources. Additionally, even when explicit wage data is collected at the individual level, crucial variables may be missing, the most significant being the number of hours worked. This makes household surveys less desirable for wage analysis compared to labour force surveys, which provide more precise data on earnings, employment status, and working hours.

An evidence-based approach relies on rigorous statistical analysis to support decisions-making. While supplementing quantitative analyses with qualitative insights is both possible and advisable, quantitative analysis remains the primary approach. In the context of wage policies, various quantitative analyses can be employed, each offering complementary insights. While incorporating a diverse range of analytical methods is ideal, the most effective and desirable approach depends on the availability and quality of the data, as well as the critical areas identified. Additionally, different statical techniques may be more relevant for ex-ante or ex post evaluations.

The quantitative methods often used in an evidence-based approach to wage setting can be categorized into three groups:

1. **Descriptive statistics**: Descriptive statistics summarize and describe available data and can be based on cross-sectional or time series data, typically without controlling for other influencing factors. This approach is particularly valuable in the ex-ante phase, as it helps contextualize policy implementation. For instance, it is possible to estimate the wage distribution, which can serve as a foundation for discussions among tripartite stakeholders on the appropriateness of a minimum wage level or the economic feasibility of a living wage estimate. Key indicators such as the Kaitz index (the ratio of the minimum wage to the median wage), the decile distribution of wages, the proportion of workers earning at or below the minimum wage, and the gender wage gap can also provide critical insight. Moreover, disaggregated analysis can be conducted to examine wage patterns across different sectors as well as comparing employees in the formal and informal economy. When multiple data points are available—some preceding and others following policy implementation—descriptive statistics also play an important role in ex-post evaluation. By observing how key variables evolve over time, policymakers will be better positioned to understand potential policy impacts and improve their policies accordingly. However, while descriptive statistics are essential for exploring data and identify trends and areas that warrant further investigation, they have important limitations. They do not establish causality and may oversimplify complex relationships. Hence, when data are available, descriptive analysis should be complemented with more rigorous methods, such as those described in the following sections, to draw robust conclusions and inform effective policymaking.
2. **Conditional analysis**: Conditional analysis requires at least two data points, one before and one after policy implementation, and encompasses statistical techniques particularly useful in the ex-post phase of policy evaluation. These methods are used to assess the effects of wage policies on specific aspects such as poverty, compliance, wage inequality, and employment, among others. The key advantage of this approach — from which the name conditional — is its ability to account for specific variables that may simultaneously influence outcomes (commonly referred to as covariates). By incorporating these variables, conditional analysis provides a more precise understanding of policy impacts, helping isolate effects that might otherwise be confounded by external factors. The availability of data over several periods — either in the form of repeated cross-section or panel data — allows to more reliably assess the effects of a certain intervention as the passing of time is used as an identification strategy. A commonly used method within conditional analysis is regression modelling, which examines the relationship between the policy variable and the outcome variable while controlling for relevant covariates. While regression analysis is a powerful tool for identifying association and making predictions, establishing a causal relationship between policy

intervention and outcomes remains a challenge. Definitive causal inference typically requires alternative methods, which also fall under the umbrella of conditional analysis, such as natural experiments. Box A2, for instance, presents the case of Mexico, where exogenous increases in the minimum wage rate applied to different zones within the country created a quasi-experimental scenario, enabling a causal interpretation of the results. Like other analytical approaches, conditional analysis has both strengths and limitations. On the positive side, it allows controlling for multiple factors, making it adaptable to complex policy environments. It also uses existing data, which can be cost-effective and timely. However, a major limitation is that the accuracy of these techniques, especially regression analysis, depend on the quality and completeness of data and the model specification. If relevant variables are omitted or poorly measured, results may be biased. Furthermore, without a clear identification strategy, such as a natural experiment, results from conditional analysis often reflect correlations rather than definitive causal effects. Finally, the application of certain techniques, such as randomized controlled trials, in monitoring and evaluating wage policies is not feasible as wage policies, such as minimum wages are intended to apply equitably. In such cases, well-specified regression models remain highly valuable tools for generating meaningful policy insights.

Box A2: The experience of Mexico, the difference in difference approach

Until mid-2012, Mexico had a three-tier minimum wage system – Zones A, B and C – where the level of the minimum wage was determined by the economic development of municipalities. Traditionally, minimum wages were adjusted annually on January 1st, with changes announced in December of the previous year.

However, in November 2012, authorities unexpectedly decided to unify the minimum wage levels of zones A and B. Effective November 28, 2012, all municipalities in Zone B saw their minimum wage increase from 60.57 to 62.33 pesos per day, which represented a 2.9 per cent real increase. This change was exogenous (independent from other policies) and unanticipated by the public.

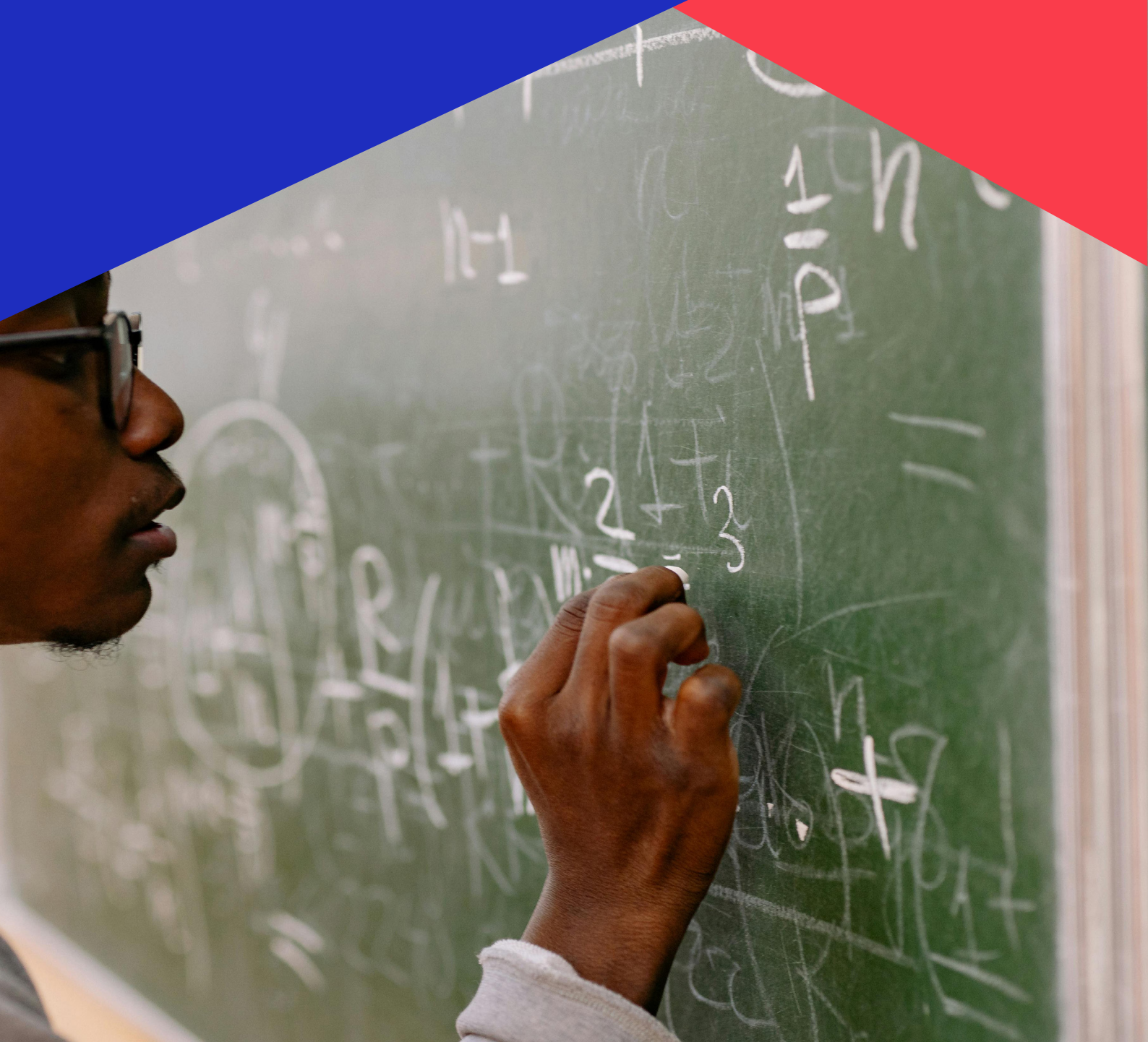
A second unexpected wage adjustment took place on April 1, 2015, when authorities increased the minimum wage in Zone C from 66.45 to 68.28 pesos per day (a 2.75 per cent real increase). Finally on October 1, 2015, the minimum wage was fully unified across the country, with Zone C municipalities experiencing a further increase from 68.28 to 70.1 pesos per day (a 2.7 per cent real increase). Mexico then became a country with a single national minimum wage system.

The three exogenous and unanticipated adjustments created conditions similar to that of a natural experiment, providing the ideal setting to identify the causal effects of minimum wage changes. In order to estimate the impact of these adjustments on various outcomes, it is possible to employ the so-called Difference-in-Difference (DiD) method. This approach uses the passing of time as the key identification strategy and compares changes in outcomes before and after the policy between individuals in municipalities affected by the hike (the “treated”) and individuals in municipalities that did not experience the unexpected hike in the minimum wage (the “controls”).

Identifying a causal relationship in this case is possible for the following reason. The difference in outcomes for treated individuals includes both the effect of the minimum wage hike (δ) as well as that of other changes occurring over time, such as macroeconomic shifts or policy adjustments (κ). In contrast, since the control group is not affected by the minimum wage hike, any changes in their outcomes solely capture time-related effects (κ). By subtracting the outcome change observed in the control group from that of the treated group, this method effectively isolates the causal impact of the minimum wage increase (δ), distinguishing it from other concurrent influences.

3. **Simulations**: Simulation techniques are valuable for investigating the potential long-term effects of policy implementation on aggregate measures. They enable policymakers to explore hypothetical scenarios and estimate outcomes that may not be observable in the short term. Common applications of this technique include assessing the impact of minimum wage adjustments on wage distribution or household income distribution and, consequently, its effect on income inequality, poverty, employment, and inflation. While simulations are particularly useful during the pre-implementation phase of policy development — such as determining the appropriate level for a minimum wage — their relevance extends to the ongoing monitoring and evaluation process. Given the iterative nature of policy assessment, simulations can be applied at various stages to estimate potential impacts and inform necessary adjustments. One of the key advantages of simulations is that they can integrate multiple data sources, providing a comprehensive view of potential policy effects. Additionally, they allow for testing multiple scenarios without requiring real-world implementation, helping decision makers anticipate both risks and benefits in advance. Simulations are also adaptable, so that policymakers can adjust assumptions and parameters to observe how outcomes shift under different conditions. However, simulations also have limitations. They rely on simplifying assumptions, which may not fully capture the complexities of real-world dynamics, and their accuracy depends on data availability and granularity. When data is scarce, not frequent enough, or overly aggregated, the precision of simulations might be affected. The accuracy of simulations will depend on the precision with which parameters, such as labour demand for instance, are estimated. Moreover, because simulations are based on modelled behaviour rather than observed responses, their results should be interpreted with caution and complemented by empirical evidence whenever possible.

Appendix B



Appendix B: Formulas and definitions for indicators in Table 1

1. Macroeconomic and Productivity Indicators

GDP at market price = $Consumption + Investment + Government\ Spending + (Exports - Imports)$

Total monetary value of all final goods and services produced within a country's borders during a specific period, valued at the prices actually paid by consumers.

GDP at factor costs = $GDP\ at\ market\ price - Indirect\ taxes + Subsidies$

Total value of all goods and services produced within a country's borders during a specific period measured by the income received by factors of production, excluding indirect taxes and including subsidies on production.

GDP per capita = $\frac{Gross\ Domestic\ Product}{Population}$

Total value of all goods and services produced in a country divided by its total population. It reflects the average economic output per person.

GDP per worker = $\frac{Gross\ Domestic\ Product}{Total\ Number\ of\ Employed\ Persons}$

Total value of all goods and services produced in a country divided by the number of employed persons. It measures the average productivity of each worker.

Value Added = $Output\ -\ Intermediate\ Consumption$

It represents the additional value created through the production process.

Value added per worker = $\frac{Value\ Added}{Number\ of\ employees}$

It is a measure of labour productivity, showing how much economic value each worker contributes on average.

Value added per hour worked = $\frac{Value\ Added}{Number\ of\ hours\ worked}$

It measures the amount of economic value produced for each hour of labour, providing a more precise indicator of labour productivity than value added per worker.

Capital Productivity ratio = $\frac{Output}{Capital\ Input}$

Measures the efficiency with which capital is used to produce output. It indicates how much output is generated per unit of capital input.

Total factor productivity = $\frac{Total\ output}{Capital\ input^{output\ elasticity\ of\ capital} \times Labour\ input^{output\ elasticity\ of\ labour}}$

Measures the efficiency labour and capital are used together in the production process. It captures output growth that cannot be explained by the increase in inputs alone and is often attributed to improvements in technology, innovation, or organizational efficiency.

2. Labour Costs, Wages, and Income Distribution

Compensation of Employees = $Wages + Salaries + Employer\ Social\ Contributions$

Total remuneration, in cash or in kind, paid by employers to employees for work done. It includes wages and salaries, as well as employer social contributions (e.g. to pensions, health insurance, and unemployment benefits).

Unadjusted labour income share as a % of GDP = $\frac{Compensation\ of\ Employees}{GDP} \times 100$

Proportion of a country's GDP that is paid to employees in the form of compensation. It reflects how much of the total economic output is distributed as wages, salaries, and employer social contributions, excluding the income of self-employed workers.

Adjusted labour income share as a % of GDP = $\frac{Compensation\ of\ Employees + Imputed\ Labour\ Income\ of\ Own\ account\ workers}{GDP} \times 100$

Proportion of GDP that goes to all workers, including both employees and self-employed persons. It includes compensation of employees plus the estimated labour income of own-account workers, providing a more comprehensive measure of the total share of economic output allocated to labour.

Tax and contribution wedge = $\frac{Income\ Tax + Employee\ Social\ Contributions + Employer\ Social\ Contributions}{Gross\ Wage + Employer\ Social\ Contribution}$

Defined as the ratio of the total taxes and social contributions (paid by both employer and employee) to the labour cost. It measures the proportion of labour cost that does not reach the employee as take-home pay.

Unit labour cost = $\frac{Compensation\ of\ Employees}{Real\ Output}$

Average cost of labour per unit of output produced.

Total Labour Cost = $Wages\ and\ Salaries + Employer\ Social\ Contributions + Other\ Labour\ Costs$

Overall cost incurred by an employer for employing a worker. It includes wages and salaries, employer social security contributions, and other costs such as bonuses, training expenses, severance payments, and benefits in kind.

Wage to Value Added Ratio = $\frac{Compensation\ of\ Employees}{Value\ Added}$

Proportion of a firm's or sector's value added that is paid out as compensation to employees. It shows how much of the income generated through production is allocated to labour and is used to assess the labour cost intensity and distribution of income between labour and capital.

Labour costs as a % of production costs = $\frac{Total\ labour\ costs}{Total\ production\ costs} \times 100$

A measure of how much of the total cost of producing goods or services is spent on labour. It indicates the weight of labour expenses relative to the overall production cost.

Total Wage bill = $Average\ Wage(including\ employer\ social\ security\ contribution) \times Number\ of\ Employees$

The total amount of money paid by employers to employees over a specific period. It includes wages and salaries (in cash or in kind) paid for work performed, and employer social contributions.

Mean wage = $\frac{\sum wages}{Number\ of\ employees}$

Average amount of earnings received by employees over a given period. It provides a general measure of wage levels, though it can be skewed by very high or very low incomes.

Median wage

Middle value when all employees' wages are arranged in ascending order. The median wage may be more reliable than the mean in assessing typical earnings because it is not affected by extreme values.

Share of low paid wage workers = $\frac{Number\ of\ Wage\ Workers\ Earning\ Less\ Than\ 2/3\ of\ Median\ Wage}{Total\ number\ of\ Employees} \times 100$

Percentage of wage employees who earn less than a defined low-wage threshold, typically set at two-thirds of the median wage. It is an indicator of wage inequality and the prevalence of working poverty.

3. Labour Market Participation, Employment, and Informality

Employment rate = $\frac{Number\ of\ employed\ individuals}{Total\ labour\ force} \times 100$

Percentage of the labour force that is currently employed. It indicates the ability of an economy to provide jobs for people who are actively participating in the labour market.

Unemployment rate = $\frac{Number\ of\ unemployed\ individuals}{Total\ labour\ force} \times 100$

Percentage of the labour force that is not employed but is actively seeking and available to work.

Number of jobs created (or lost) = $Number\ of\ Jobs\ at\ End\ period - Number\ of\ Jobs\ at\ start\ period$

Measures the net change in employment over a specific period. It shows whether the economy or a sector is expanding or contracting in terms of job opportunities.

Labour force participation rate = $\frac{Labour\ force}{Working\ age\ population} \times 100$

Percentage of the working-age population that is actively engaged in the labour market, either by working or actively looking for work.

Potential labour force =

It refers to individuals of working age who are not currently part of the labour force, but who have a marginal attachment to it. These are people who are either available for work but not actively seeking or actively seeking work but not currently available to start a job. This concept helps capture labour underutilization beyond standard unemployment figures.

Vacancy rate = $\frac{Number\ of\ Job\ Vacancies}{(Number\ of\ Occupied\ Posts + Number\ of\ Job\ Vacancies)} \times 100$

Percentage of job posts that are currently unfilled and actively being recruited for. It reflects labour demand and can indicate the tightness or slack in the labour market.

Turnover rate = $\frac{Number\ of\ Separations\ during\ Period}{Average\ Number\ of\ Employees\ During\ Period} \times 100$

Measures the proportion of employees who leave an organization over a certain period relative to the average number of employees. It reflects workforce stability and employee retention.

Share of informal employment = $\frac{Number\ of\ informal\ jobs}{Total\ number\ of\ jobs} \times 100$

The percentage of total employment made up of informal jobs, regardless of whether they are in the formal or informal sector.

Share of undeclared workers = $\frac{Number\ of\ undeclared\ workers}{Total\ number\ of\ workers} \times 100$

Percentage of workers who are not officially registered with authorities for tax, social security, or labour law purposes. These workers are often part of the informal economy.

Share of own-account workers and unpaid family workers = $\frac{Own - account\ workers + Unpaid\ family\ workers}{Total\ employment} \times 100$

Proportion of workers who are at higher risk to lack formal work arrangements, social protection, and job security.

Share of underemployment = $\frac{Time-related\ underemployed\ persons}{Total\ employed\ Persons} \times 100$

Percentage of employed persons who are working fewer hours than they are willing and available to work. It captures hidden labour underutilization beyond unemployment.

Jobs gap = $\frac{Unemployed + Potential\ labour\ force}{Labour\ force + Potential\ labour\ force}$

Proportion of the extended labour force that represents people who are willing and available to work but are not employed, irrespective of whether or not they are actively seeking employment.

4. Business, Trade, and Financial Indicators

Net Business Growth rate = $\frac{Number\ of\ Business\ Births - Number\ of\ Business\ Deaths}{Total\ Number\ of\ Business\ (at\ the\ start\ of\ the\ period)} \times 100$

Percentage change in the number of active businesses over a period. It reflects the overall expansion or contraction of the business sector.

Business Survival Rate = $\frac{Number\ of\ Surviving\ Businesses\ after\ n\ years}{Number\ of\ Businesses\ born\ n\ years\ ago} \times 100$

Percentage of businesses that continue to operate after a specified number of years since their creation. It indicates the longevity and stability of enterprises over time.

Total production costs = $Direct\ Material\ + Direct\ Labour + Manufacturing\ Overhead$

Full costs incurred by a firm to produce goods or services.

Total Revenue = $Price\ per\ Unit \times Quantity\ Sold$

Total amount of money an enterprise earns from the sale of goods or services before any costs are deducted. It reflects the gross income generated from business operations.

Total Expenses = $Cost\ of\ Goods\ Sold\ + Operating\ Expenses + Interest\ Expenses + Taxes + Depreciation\ and\ Amortization + Other\ Expenses$

They represent the full cost incurred by a business in its operations over a specific period.

Net income = $Total\ Revenue - Total\ Expenses$

It is a key indicator of financial performance which measures the amount of profit an enterprise earns after subtracting all expenses from its total revenue.

Net profit margin = $\frac{Net\ income}{Total\ Revenue} \times 100$

A ratio that shows the percentage of total revenue that remains as net income after all expenses are deducted. It indicates the degree to which a company converts revenue into profit.

Current ratio = $\frac{Current\ assets}{Current\ liabilities} \times 100$

A financial metric that measures a company's ability to pay its short-term liabilities with its short-term assets. It indicates liquidity and short-term financial health.

Acid test ratio = $\frac{\boldsymbol{Current\ Assets - Inventories}}{\boldsymbol{Current\ Liabilities}}$

A measure that indicates an enterprise's ability to meet its short-term obligations without relying on the sale of inventory.

Free cash flow = $Net\ income\ + Depreciation - Changes\ in\ working\ capital - Capital\ expenditure$

It is the amount of cash a company generates from its operations after subtracting capital expenditures. It represents the cash available to the company for distribution to investors, debt repayment, or reinvestment.

Trade balance = $Total\ Value\ of\ Exports - Total\ Value\ of\ Imports$

It indicates whether a country is a net exporter (trade surplus) or net importer (trade deficit).

Sectoral Export Share = $\frac{Exports\ of\ sector\ i}{Total\ Exports} \times 100$

Proportion of a country's total exports that comes from a specific. It indicates the sector's contribution to the country's export performance and helps assess the structure and specialization of the economy.

Market Share = $\frac{Enterprise's\ sales}{Total\ Market\ Sales} \times 100$

Percentage of total sales in a market that is earned by a specific company, product, or brand. It indicates a firm's competitive position within an industry.

Bibliography

Aaronson, D. (2001). *Price Pass-Through and the Minimum Wage. The Review of Economics and Statistics*, 83(1), 158–169.

Aaronson, D., French, E., & MacDonald, J. (2008). *The Minimum Wage, Restaurant Prices, and Labor Market Structure. Journal of Human Resources*, 43(3), 688–720.

Akerlof, G. A. (1982). *Labor Contracts as Partial Gift Exchange. The Quarterly Journal of Economics*, 97(4), 543–569.

Arnadillo, J. J., Fuenmayor, A., & Granell, R. (2024). *The Relationship Between Minimum Wage and Employment: A Synthetic Control Method Approach. The Economic and Labour Relations Review*, 35(2), 1–21.

Azar, J., Huet-Vaughn, E., Marinescu, I., Taska, B., & von Wachter, T. (2024). *Minimum Wage Employment Effects and Labour Market Concentration. The Review of Economic Studies*, 91(4), 1843–1883.

Baiman, R., Cherry, R., & Persky, J. (2007). *The Impact of a $7.25 Minimum Wage on the Illinois Economy.* Center for Urban Economic Development, University of Illinois at Chicago.

Barcia de Mattos, F. (2024). *Minimum wages in developing and emerging countries: A literature review.* International Labour Organization. (mimeo).

Belman, D., & Wolfson, P. (2014). *What does the minimum wage do?* W.E. Upjohn Institute for Employment Research.

Belman, D., & Wolfson, P. (2016). *What does the minimum wage do in developing countries?* International Labour Organization.

Belman, D., & Wolfson, P. (2019). *15 years of research on US employment and the minimum wage. Labour*, 33(4), 488–506.

Bloom, N., & Van Reenen, J. (2010). *Why Do Management Practices Differ across Firms and Countries? Journal of Economic Perspectives*, 24(1), 203–224.

Boeri, T., Garibaldi, P., & Ribeiro, M. (2011). *The Lighthouse Effect and Beyond. Review of Income and Wealth*, 57(S1), S54–S78.

Bosch, M., and Manacorda, M. (2010). *Minimum wages and earnings inequality in urban Mexico. American Economic Journal: Applied Economics*, 2(4), 128–149

Brochu, P., & Green, D. A. (2013). *The Impact of Minimum Wages on Labour Market Transitions. The Economic Journal*, 123(573), 1203–1235.

Broecke, S., Forti, A., & Vandeweyer, M. (forthcoming). *The effect of minimum wages on employment in emerging economies: A literature review. OECD Social, Employment and Migration Working Papers*.

Calderón Cerbón, M., Cortés Espada, J. F., Pérez Pérez, J., & Salcedo, A. (2023). *Disentangling the Effects of Large Minimum Wage and VAT Changes on Prices: Evidence from Mexico. Labour Economics*, 80, 102294.

Caliendo, M., Fedorets, A., Preuss, M., Schröder, C., & Wittbrodt, L. (2023). The Short- and Medium-Term Distributional Effects of the German Minimum Wage Reform. *Empirical Economics*, 64(3), 1149–1175.

Card, D. (1992). *Using Regional Variation in Wages to Measure the Effects of the Federal Minimum Wage. Industrial and Labor Relations Review*, 46(1), 22–37

Card, D., & Krueger, A. B. (1995). *Myth and Measurement: The New Economics of the Minimum Wage.* Princeton University Press.

Cardoso, A. R., & Portugal, P. (2006). *Disentangling the Minimum Wage Puzzle: An Analysis of Worker Accessions and Separations. Journal of the European Economic Association*, 4(5), 988–1013.

Clemens, J. (2021). *How Do Firms Respond to Minimum Wage Increases? Understanding the Relevance of Non-employment Margins*. Journal of Economic Perspectives, 35(1), 51–72.

Coviello, D., Deserranno, E., & Persico, N. (2022). *Minimum Wage and Individual Worker Productivity: Evidence from a Large US Retailer. Journal of Political Economy*, 130(9), 2315–2360.

Croucher, R., & Rizov, M. (2012). *The Impact of the National Minimum Wage on Labour Productivity in Britain. E-Journal of International and Comparative Labour Studies*, 1(3-4), 263–289

Decramer, S., Fuss, C., & Konings, J. (2014). *How Do Exporters React to Changes in Cost Competitiveness?* (ECB Working Paper No. 1752). European Central Bank.

Deutsche Bundesbank (2022). *Monthly Report, February 2022. The German Economy*. Frankfurt am Main: Deutsche Bundesbank

DiNardo, J., Fortin, N. M., & Lemieux, T. (1996). *Labor market institutions and the distribution of wages, 1973–1992: A semi-parametric approach. Econometrica*, 64(5), 1001–1044.

Dube, A., Lester, T. W., & Reich, M. (2010). *Minimum Wage Effects Across State Borders: Estimates Using Contiguous Counties. The Review of Economics and Statistics*, 92(4), 945–964.

Dube, A., & Lindner, A. (2024). *Minimum Wages in the 21st Century*. National Bureau of Economic Research Working Paper No. 32878.

Dustmann, C., Lindner, A., Schönberg, U., Umkehrer, M., & vom Berge, P. (2021). *Reallocation Effects of the Minimum Wage. The Quarterly Journal of Economics*, 137(1), 267–328.

Ehrenberg, R. G., & Smith, R. S. (2009). *Modern labor economics: Theory and public policy* (11th ed.). Pearson/Addison Wesley.

El Badaoui, E., & Walsh, F. (2022). *Productivity, Non-compliance, and the Minimum Wage. Journal of Development Economics*, 155, 102778

Frye, J., & Gordon, R. J. (1981). Government Intervention in the Inflation Process: The Econometrics of 'Self-Inflicted Wounds'. *American Economic Review*, 71(2), 288–294.

Garcia-Louzao, J., & Tarasonis, L. (2023). *Wage and Employment Impact of Minimum Wage: Evidence from Lithuania. Journal of Comparative Economics*, 51(2), 592–609.

Garnero, A., Rycx, F., & Terraz, I. (2020). *Productivity and Wage Effects of Firm-Level Collective Agreements: Evidence from Belgian Linked Panel Data. British Journal of Industrial Relations*, 58(4), 936–972.

Georgiadis, A. (2013). *Efficiency Wages and the Economic Effects of the Minimum Wage: Evidence from a Low-Wage Labour Market. Oxford Bulletin of Economics and Statistics*, 75(6), 962–979.

Giupponi, G., Joyce, R., Lindner, A., Waters, T., Wernham, T., & Xu, X. (2024). *The Employment and Distributional Impacts of Nationwide Minimum Wage Changes. Journal of Labor Economics*, 42(S1), 293–333.

Hälbig, M., Mertens, M., & Müller, S. (2024). *Minimum Wages, Productivity, and Reallocation*. IWH Discussion Papers, No. 8/2023. Halle Institute for Economic Research (IWH).

Hallward-Driemeier, M., Rijkers, B., & Waxman, A. (2015). *Can minimum wages close the gender wage gap? Evidence from Indonesia. Policy Research Working Paper 7364*. World Bank Group.

Harasztosi, P., & Lindner, A. (2019). *Who Pays for the Minimum Wage? American Economic Review*, 109(8), 2693–2727.

Ilmakunnas, P., & Maliranta, M. (2005). *Technology, labour characteristics, and wage-productivity gaps. Oxford Bulletin of Economics and Statistics*, 67(5), 623–645

ILO. (2016). *Minimum Wage Policy Guide*. International Labour Office.

——. (2018). "*Global Wage Report 2018/19 What lies behind gender pay gaps*"

——. (2019). *ILO Centenary Declaration for the Future of Work*. https://www.ilo.org/about-ilo/mission-and-impact-ilo/ilo-centenary-declaration-future-work-2019

——. (2019). *Monitoring indicators for wage policy: a dashboard*. Mimeo

——. (2019). *The Global Labour Income Share and Distribution*. Geneva: ILO. https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40dgreports/%40stat/documents/publication/wcms_712232.pdf

——. (2020) *Global Wage Report 2020–21: Wages and Minimum Wages in the Time of COVID-19*. https://www.ilo.org/global/publications/books/WCMS_762534/lang--en/index.htm

——. (2021). *A methodology to estimate the needs of workers and their families*. https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40ed_protect/%40protrav/%40travail/documents/projectdocumentation/wcms_826326.pdf

——. (2022). *Tripartite Declaration of Principles Concerning Multinational Enterprises and Social Policy*. https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40ed_emp/%40emp_ent/%40multi/documents/publication/wcms_094386.pdf

——. (2023). *A Review of Wage Setting through Collective Bargaining*. https://www.ilo.org/publications/review-wage-setting-through-collective-bargaining

——. (2024). *Meeting of Experts on Wage Policies, Including Living Wages: Conclusions*. MEWPLW/2024/7. https://www.ilo.org/media/520466/download.

——. (2024). *Report of the Meeting of Experts on Wage Policies, Including Living Wages*. GB.350/POL/1. *https://www.ilo.org/resource/gb/350/report-meeting-experts-wage-policies-including-living-wages*.

——. (2024). *Global Wage Report 2024–25 Is wage inequality decreasing globally?* https://www.ilo.org/sites/default/files/2025-02/GWR-2024_Layout_E_RGB_Web.pdf

IMF. (2024). *Finance & Development, September 2024: Productivity and How to Revive It*. International Monetary Fund.

Jiménez-Martínez, M., & Vera-Valdés, J. E. (2021). *Are the effects of minimum wage on the labour market the same across countries? A meta-analysis spanning a century. Economic Systems*, 45(1), 100849.

Katz, L. F., & Krueger, A. B. (1992). *The Effect of the Minimum Wage on the Fast-Food Industry. Industrial and Labor Relations Review*, 46(1), 6–21.

Khamis, M. (2008). Does the minimum wage have a higher impact on the informal than on the formal labor market? Evidence from quasi-experiments. *IZA Discussion Paper No. 3911*. Institute for the Study of Labor.

Kuddo, A., Robalino, D., & Weber, M. (2015). *Balancing regulations to promote jobs: From employment contracts to unemployment benefits*. World Bank Group.

Lee, C., & O'Roark, B. (1999). *The Impact of Minimum Wage Increases on Food and Kindred Products Prices: An Analysis of Price Pass-Through*. Technical Bulletin No. 1877, United States Department of Agriculture, Economic Research Service.

Lemos, S. (2004). *The Effect of the Minimum Wage on Prices*. *IZA Discussion Paper No. 1072*.

Lemos, S. (2008). *The effect of the minimum wage on prices. IZA Discussion Paper No. 2892*.

Lemos, S. (2010). *Minimum wage in Brazil: The effect of the minimum wage on wages, employment, and prices in Brazil*. Marston Gate.

Link, S. (2024). *The price and employment response of firms to the introduction of minimum wages. Journal of Public Economics*, 239, Article 104074

Machin, S., Manning, A., & Rahman, L. (2003). *Where the Minimum Wage Bites Hard: The Introduction of the UK National Minimum Wage to a Low-Wage Sector. Journal of the European Economic Association*, 1(1), 154–180.

MaCurdy, T., & McIntyre, F. (2001). *Winners and Losers of Federal and State Minimum Wages*. Employment Policies Institute.

MacDonald, J. M., & Aaronson, D. (2006). *How Firms Construct Price Changes: Evidence from Restaurant Responses to Increased Minimum Wages. American Journal of Agricultural Economics*, 88(2), 292–307.

MacDonald, D., & Nilsson, E. (2016). *The Effects of Increasing the Minimum Wage on Prices: Analyzing the Incidence of Policy Design and Context* (Upjohn Institute Working Paper No. 16-260). W.E. Upjohn Institute for Employment Research.

Mayneris, F., Poncet, S., & Zhang, T. (2014). *The Cleansing Effect of Minimum Wage: Minimum Wage Rules, Firm Dynamics, and Aggregate Productivity in China* (CEPII Working Paper No. 2014-16). CEPII.

Manning, A. (2021). *The Elusive Employment Effect of the Minimum Wage. Journal of Economic Perspectives*, 35(1), 3–26.

McLaughlin, C. (2007). *The Productivity-Enhancing Impacts of the Minimum Wage: Lessons from Denmark, New Zealand and Ireland* (Centre for Business Research Working Paper No. 342). University of Cambridge.

Müller, T., & Méaulle, M. (2022). *Why the Directive on Adequate Minimum Wages is the right approach in a time of inflation*. European Trade Union Institute (ETUI).

Neumark, D., & Munguía Corella, L. F. (2021). *Do Minimum Wages Reduce Employment in Developing Countries? A Survey and Exploration of Conflicting Evidence. World Development*, 137, 105165.

Neumark, D., & Wascher, W. (2008). *Minimum wages*. MIT Press.

Nguyen, V. C. (2011). *Do Minimum Wage Increases Cause Inflation? Evidence from Vietnam. ASEAN Economic Bulletin*, 28(3), 337–359.

Oliveira, C. (2023). *The minimum wage and the wage distribution in Portugal*. Labour Economics, 85, 102459.

Owens, M. F., & Kagel, J. H. (2010). *Minimum Wage Restrictions and Employee Effort in Incomplete Labor Markets: An Experimental Investigation. Journal of Economic Behavior & Organization*, 73(3), 317–326.

Pérez Pérez, J. (2020). *The minimum wage in formal and informal sectors: Evidence from an emerging economy. World Development*, 132, 104979.

Renkin, T., Montialoux, C., & Siegenthaler, M. (2020). *The Pass-Through of Minimum Wages into US Retail Prices: Evidence from Supermarket Scanner Data. American Economic Journal: Applied Economics*, 12(1), 1–35.

Riley, R., & Rosazza-Bondibene, C. (2017). *Raising the Standard: Minimum Wages and Firm Productivity. Labour Economics*, 44, 27–50.

Sellekaerts, B. (1981). "*Effects of Minimum Wage Increases on Inflation*." In *Report of the Minimum Wage Study Commission*, Volume 6, U.S. Government Printing Office.

Stewart, M. B. (2012). *Wage inequality, minimum wage effects, and spillovers*. Oxford Economic Papers, 64(4), 616–634.

Royalty, A. B. (2001). *Do Minimum Wage Increases Lower the Probability that Low-Skilled Workers Will Receive Fringe Benefits?* JCPR Working Papers, Northwestern University/University of Chicago Joint Center for Poverty Research.

Sharpe, A., & Mobasher Fard, S. (2022). *The current state of research on the two-way linkages between productivity and well-being*. International Labour Organization Working Paper No. 56.

Velásquez Pinto, M. D. (2017). *Salario mínimo y empleo: Evidencia empírica y relevancia para América Latina*. International Labour Organization.

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Setting Adequate Wages a focus on Agriculture