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Delphi Method in Analyzing of Minimum Wage Setting in Indonesia: Formula vs. Negotiation Model

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Abstract

Many countries set their minimum wages based on two models, through negotiation or mathematical formulas. In Indonesia, the negotiation model has been used to determine the minimum wages since 2003. In 2015, the law introduced the simple formula model that was further revised in 2016 with additional variables. Using the Delphi method, this study aims to find experts' consensus regarding whether the governance of the formula model is superior to that of the negotiation model in terms of transaction cost minimization. Using the transaction cost economics approach, the two governances were compared in their performance in facilitating the negotiation, coordination, and dispute prevention between employers and workers. This study finds that most experts reached a consensus, claiming that the mathematical formula model is more efficient than the negotiation model. In addition, most of the experts argue that data from the Central Statistic Agency (BPS) and the elimination of the role of regional heads increase the efficiency of the formula model. However, no consensus was reached regarding whether the mathematical formula can outperform the negotiation model in minimizing the risk of future disputes.

Key words : Minimum Wage Setting, Transaction Cost, Negotiation, Mathematical Formula

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INTRODUCTION

For decades, labour economists have debated the effect of the minimum wage policy (see Neumark & Wascher, 2008). A comprehensive literature review reveals that most research focuses on the impact of marginal changes in minimum wage levels. Most countries use the minimum wage policy to protect workers from unduly low pay (ILO, 2017). Hence, Belser & Sobeck (2012) argue that policymakers need to focus on how minimum wage policy should be implemented. Kaufman (2010) also argues that discussing the effect of the minimum wage on employment is too narrow.

Two commonly used governance models for setting minimum wages are the negotiation (bargaining) and (mathematical) formula models. The negotiation model is a form of negotiation between the trade unions and the employers' associations to determine the minimum wage for all workers. According to the ILO (2017), the negotiation model is widely used in countries where most workers are members of trade unions, and hence, they can generate collective bargaining agreements. Countries that use negotiation include Germany, where 60% of the workers are union members; Sweden, 89%; and Denmark, 84%. In comparison, the mathematical formula models are used by countries like Brazil, Malaysia, France, and the Netherlands (Boeri, 2012; Dickens, 2015).

However, studies comparing the efficiency of the two governances in concluding the value of the minimum wage is still limited. Previous studies showed that the negotiation and formula models have advantages and disadvantages. According to Dickens (2015), the negotiation model provides flexibility and space for dialogue between workers and employers. However, the process is long, and the magnitude is difficult to predict, especially when there is a political intervention. Meanwhile, the formula model provides timeliness, transparency, and certainty in the process but needs more flexibility in responding to the dynamic conditions of the labour markets. In addition, the established formula often cannot sufficiently include all the very complex economic and labour factors (ILO, 2017). Boeri (2012) found that when the government sets the minimum wage with a mathematical formula, the value will be lower than the minimum wage set by the negotiation model.

Furthermore, Saget (2008) argues that if the minimum wage is the only way to negotiate salaries, there is a risk that the minimum wage will become a maxi-minimum wage, which cannot be considered as an actual minimum wage. Therefore, a country needs to find a model that matches the capacity of the country's institutions, the capability of statistical agencies, and the ability of stakeholders to achieve the minimum wage policy objectives (ILO, 2017). Additionally, North (1990) shows that institutions can affect transaction costs. Therefore, the government needs to consider the transaction costs that arise from a policy.

Indonesia serves to compare the efficiency between those two governances since the negotiation model was previously used from 2003 until 2015 and upshifted to the mathematical formula model until now. In 2021, the formula was revised, adding new variables and a formula to limit the minimum wage increase. Although the mathematical formula is currently in use, research has yet to compare the two models in the Indonesian context.

The primary objective of this study is to compare the efficiency of the two governances of minimum wage setting in concluding the value of minimum wage and the risk of future disputes, taking the case of Indonesia.

Indonesia used the negotiation model based on Law 13/2003, where the minimum wage is negotiated in a meeting of the regional wage council. The regional wage council consists of the trade unions (*Serikat Pekerja/ Serikat Buruh*), the Indonesian Employers Association (APINDO), representatives of the regional manpower office, and experts. The regional wage council submits the results of the negotiations to the regional head to be set as the minimum wage in the region. The governor will determine the provincial minimum wage (UMP) based on the recommendation of the Provincial Wage Council. For the city/district minimum wage (UMK), the governor's decision will be based on the recommendation from the regent/ mayor who received the recommendation from the city/ district wage council.

Nonetheless, when the people directly elect regional heads through elections, the trade unions negotiate with the regional leader or the candidates ahead of the election. They demanded a higher minimum wage by promising workers' votes in the elections. The workers ' voices can be signi-ficant for industrial areas like Jakarta, Karawang, Purwakarta, and Surabaya. Caraway et al. (2019) noted that the politicization of the minimum wage could lead to a significant high minimum wage increase from 2011 to its peak in 2013; it was up to an average of 45% in some of these areas. Please refer to Figure 1.
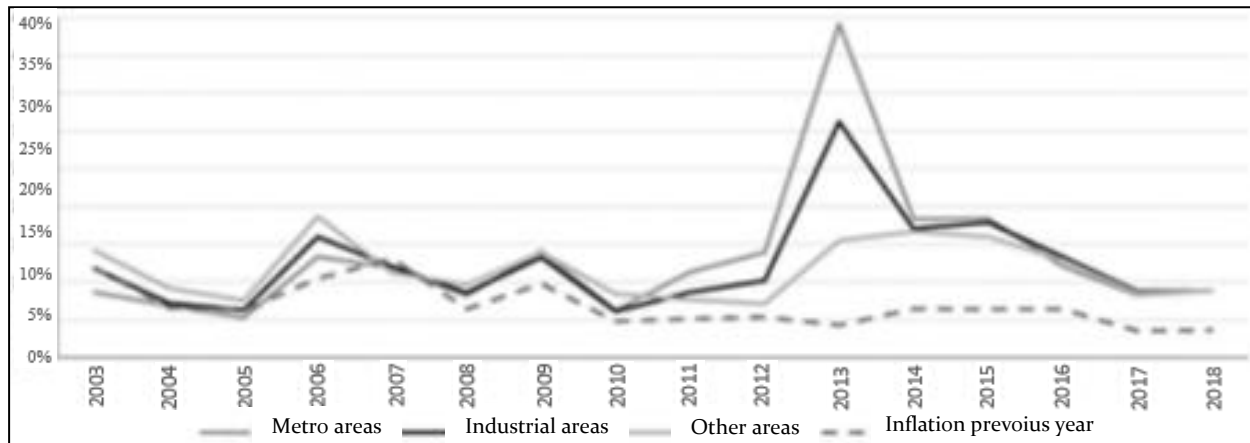
*Metro areas: Jakarta and its surrounding areas, Karawang and Purwakarta; Industrial areas: Surabaya and its surrounding areas; Other areas: other areas on Java island

Figure 1. The Percentage of Minimum Wage Increase

Source: Caraway et al. (2019)

This high minimum wage increase in a short time directly impacts labour-intensive sectors, such as export-oriented garments, that must comply with local minimum wage policies as a condition of international buyers (Cowgill & Huynh, 2016). Unable to pay the minimum wage, garment companies closed their operations in West Java and moved to other areas with lower minimum wages. For example, the Indonesian Textile Association (2018) noted that an increase in the minimum wage in West Java caused 120 garment companies to move to Central Java and caused around 400,000 workers to lose their jobs.

In response, the government replaced the negotiation model with a mathematical formula model based on Government Regulation No. 78/2015. The regulation diminishes the roles of the trade unions and employers in negotiating minimum wages at the regional wage council. The trade unions challenged the regulation, but in the end, the court rejected the lawsuit. In 2016, based on the new regulation, the Minister of Manpower calculated the wage increase for 2017, with a formula consisting of inflation and national economic growth, and set a minimum wage increase of 8.25% for all regions in Indonesia. Manning & Pratomo (2018) argue that changes to the minimum wage policy have reduced the percentage increase in minimum wages, and employment in the formal sector continues to grow in several industrial areas.

Changes in the minimum wage policy occurred on Law 13/2003 with Government Regulations No. 78/2015, to become Law 11/2020 with Government Regulations No. 36/2021. However, Law 11/2020 is being challenged by the trade unions, so the court's decision can also affect Government Regulations 36/2021, which is its derivative. Government Regulations 36/2021 regulates all aspects of remuneration, not only minimum wage. It also governs the structure and scale of wages, overtime pay, wages when workers are absent from work, forms and meth-

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ods of payments, and other wages-related matters. This study focuses on the changes in minimum wage setting with a mathematical formula compared to the negotiation model. Government Regulations No. 36/2021 uses a different mathematical formula than Government Regulations 78/2015. This new formula uses regional indicators on purchasing power parity, labour absorption rate, median wage, economic growth, and inflation. Government Regulations No. 36/2021 also introduces a formula to calculate the upper limit so that the regional minimum wage would not exceed its upper limit. The variables used to calculate the upper limit are the average consumption per capita, the average number of household members, and the average number of working household members. The regulation also includes sanctions for regional heads who fail to comply with the regulation. Please refer to table 1.

Table 1. Differences between Formula and Negotiation Models

Change	Mathematical Formula	Negotiation
Mathematical Formula	The formula uses more variables and regional data. Previously, Government Regulation No. 78/2015 used a more straightforward formula with national data.	Negotiations are carried out by representatives of trade unions and employers' associations in the Regional Wage Council, who have one-to-one voting right. Representatives of regional governments are also on the Regional Wage Council with double voting rights.
Minimum Wage Upper Limit	A formula calculates the upper limit. When the minimum wage is higher than the upper limit, there will be no increase in the minimum wage.	No formula to limit the minimum wage increase.
Stakeholder roles	The regional wage council calculates the minimum wage based on a predetermined formula. The regional head determines the amount of the minimum wage based on a predetermined formula. The sanction for failure to comply.	The trade unions and employers' associations negotiate at the Regional Wage Council. The regional head has the most votes through its representatives within the Regional Wage Councils.
Data Provision	Provided by the Central Statistics Agency (BPS).	Surveyed by members of the Regional Wage Council.

In addition to the changes in the minimum wage setting model, the government also remove the sectoral minimum wage (UMS) while maintaining the provincial minimum wage (UMP) and district/ city minimum wage (UMK). Micro and small businesses are excluded from the obligation to follow minimum wage because they can not afford to pay their workers at the minimum wage. They have a lower limit: 50% of the average community consumption and 25% above the provincial poverty line. Whereas, in the previous regulation, companies that could not afford to pay their workers at the minimum wage cou-

ld pay lower, with approval from the governor. In the new regulation, this minimum wage suspension policy no longer exists.

METHOD

The research uses the Delphi method to obtain experts' views on comparing the mathematical formula model and the negotiation model. The Delphi method is a qualitative research method that aims to get consensus from subjective opinions with respondents from an expert group (Murry & Hammonds, 1995). Although initially developed for military purposes by the RAND Corporation, this method is widely used in health research (Hasson et al., 2000), climate change (Doria et al., 2009), and educational development (Murry & Hammonds, 1995). The Delphi method assumes that decisions by a group of people are more acceptable than decisions made by one person, especially if those people are experts in the fields (Murry & Hammonds, 1995).

Preparation Stage. At this stage, there are two activities, questionnaire development and selecting experts who will be the informant in this study.

The questionnaire was developed based on transaction cost economics (TCE). According to Williamson (1985), transaction costs are ex-ante and ex-post. The ex-ante costs include seeking and obtaining the information needed before making a contract/agreement, costs to negotiate and make contracts/ agreements, and costs to implement the contracts/agreements. The ex-post costs are all costs to evaluate and measure the output of the contracts/ agreements and costs to monitor and ensure compliance with the agreed contracts/ agreements.

To compare the two governances of minimum wage settings, transaction cost economics suggests that minimizing transaction costs drive the decision-making process. In this study, ex-ante costs are the transaction costs needed to obtain data on employment and economics to determine the minimum wage. In the negotiation model, the regional wage councils consisting of trade unions, employers associations, and the regional government conducted a market survey to determine decent living standards. The Central Statistics Agency (BPS) provides all information based on regular surveys. In the negotiation model, the transaction cost is the cost to negotiate in the meetings at the regional wage council, including negotiations outside the wage council. The mathematical formula model minimizes these costs since there is no negotiation process. The process of calculating the minimum wage is based on a predetermined formula with the provided variables.

The ex-post transaction costs in this study are the costs that arise after the minimum wage is determined. This cost includes costs to ensure the company's compliance with the minimum wage and address risks of disputes. There is also the cost of monitoring and evaluating the minimum wage policy.

As part of the preparation, the researcher conducted several in-depth interviews with open-ended questions to sharpen the statements in the questionnaire. This stage is also an experiment to determine whether experts understand the structure and content of the questionnaire. The final questionnaire consists of eleven statements for the experts.

The selection of the expert is a critical aspect of the Delphi method. The diversity of backgrounds and expertise in research themes is essential to reduce bias from informants (Murray & Hammonds, 1995). In this study, the selected experts work as an official of a trade union, employer representatives, and academia in labour economics, labour law, and industrial relations from various universities and research institutions. In addition, there are experts in the labour market who are the special staff for the governor and the president. Murray & Hammonds (1995) suggest the number of sources bet-

ween 10 and 30 experts. Furthermore, Brooks (1979) also argues that more than 25 experts as sources will not produce better data. Therefore, we invited 33 experts via email for this study, and 23 experts, consisting of 16 men dan seven women, were willing to be the informants.

Data Collection Stage. This method includes anonymous interactions and responses in several rounds of data collection. The results of each round were summarised and presented statistically for the experts to respond in the next round. This study carried out two rounds of data collection, following Lanford (1972), who found that we could get expert consensus in the first and second rounds. According to Brooks (1979), the Delphi method must be carried out at least two rounds, but not more than four rounds, to get consensus or data stability.

In the first round, the researcher provided a research context to provide a background, purpose, and initial analysis to guide the informants in understanding the minimum wage issues. Thus, it can make it easier for experts to provide their opinions on the eleven statements. The experts gave their opinion in the Likert choice, which is measured by numbers: agree (1), agree with the note (2), disagree with the note (3), disagree (4), and others (0). The experts may also write their arguments for their choice or add new ideas. In this first round, 23 experts gave their opinions from May to June 2021.

In the second round, the researcher focused on statements that had yet to reach a consensus in the first round. The researcher provides the result of the first round. It anonymously presented statistical data from the Likert scale and a summary of the arguments. The experts need to read the summary and give their opinion on the follow-up statement. The experts can provide the same view as in the first round or change their opinion. The experts may write their argum-

ents. In the second round, 17 experts responded from June to July 2021.

Data Analysis Stage. According to Murray & Hammonds (1995), little literature provides clues about the minimum percentage of agreements/ disagreements to reach a consensus. They argue that data collection is sufficient when consensus is reached, or data are stable. Doria et al (2009), for example, uses 80% as the minimum limit for achieving expert consensus. Hasson (2000) suggests a study to reach a consensus when the results are 51% to 80%. This study reached a consensus when 75% of the experts agreed to a statement lower than Doria et al (2009) because the minimum wage is a sensitive issue in Indonesia; hence it is harder to reach a consensus.

This method received criticism from Weaver (1971), who considered that the expert's perception was not the truth even though there were many. He also argues that the perception of experts when assessing the future (forecasting), researchers need to separate between expectations (hope) and likelihood (likelihood). Even so, the Delphi method is still widely used as a research method.

RESULTS AND DISCUSSION

The experts reached a consensus on the formula's efficiency compared to the negotiation model, data provision by the statistic agency, roles of the regional head and the effectiveness of the formula used in Government Regulation No. 36/2021. However, the experts failed to reach a consensus on the upper minimum wage limit and the risk of future disputes.

The research aims to answer the main question of whether the formula model is more efficient than the negotiation model. In the first round, the experts reached a consensus when most experts (78%) agreed, or agreed with a note, that the formula model is more efficient than the negotiation model. In the second round, the number of experts who agreed increased to 88%. This change from a negotia-

tion model to a formula model is in line with Mankiw (2010) and Vredenburgh (2023), who argue that if policymakers' discretion does not result in effective public policies, stricter regulation will replace the discretion of the policymakers. Table 2 summarises experts' response on comparing the formula model versus the negotiation model.

Table 2. The Percentage of Expert Agreements on the Use of the Mathematical Formula Model rather than the Negotiation Model

Agreements	First Round n=23	Second Round n=17
Agree	43	53
Agree with a note	35	35
Disagree with a note	9	6
Disagree	13	6
Others	0	
Mean	1.91	1.65
SD	1.04	0.86

Most experts (88%) agreed that the mathematical formulas would increase time and coordination efficiencies compared to the negotiation model, making transaction costs lower. In addition, the experts argue that mathematical formulas provide certainty for the minimum wage. The experts further explain that negotiation took too long and delayed the regional leaders to determine the minimum wage amount. Moreover, this expert opinion also aligns with ILO (2017) and Dickens (2015) findings that the negotiation model is more time-consuming than the formula model.

On the other hand, 12% of experts disagree with the use of mathematical formulas. They argue that the elimination of negotiations resulted in a worsening of social dialogues between workers and employers. Fealy (2020) argue that the current government abandoned commitments to streng-

then political and civil rights. The experts further explained that the mathematical formulas could not take into account the workers' basic needs.

The experts reach a consensus on providing data from the Central Statistics Agency (BPS) to replace the wage council's role in conducting surveys. In the first round, the agreement rate was already 96%; in the second round, it became 100%. All experts agree or agree with a note that the provision of data by BPS will reduce survey costs; previously, the regional wage council conducted the survey. The survey is conducted annually by representatives of each trade union, employers association, and regional labour office. Meanwhile, BPS conducts surveys regularly, so there is no need for a specific survey to support the determination of minimum wages. The experts also argue that the BPS data collection methodology is scientifically justified. Hence it will prevent disputes from the different survey results obtained by the trade unions, employers' associations, and the regional manpower office.

The use of mathematical formulas reduces the role of the regional heads, and they will be sanctioned if they do not follow Government Regulations No. 36/2021 in setting the minimum wage. The experts reached a consensus in the first and second rounds, with the same agreement at 83%. Table 3 shows experts' responses on the roles of the regional head.

Table 3. The Percentage of Expert Agreements on the Reducement of the Regional Head's Role

Agreements	First Round n=23	Second Round n=17
Agree	61	71
Agree with a note	22	12
Disagree with a note	13	0
Disagree	4	12
Others	0	6
Mean	1.61	1.41
SD	0.89	1.06

In their explanations, most experts (83 %) argue that the primary purpose of using mathematical formulas was to reduce the role of regional heads. The experts explained that the reasons the negotiation model used previously could not work correctly, mainly because of the interventions of electoral politics on the regional head's direct election. Nordhaus (1975) called this phenomenon 'a political business cycle' when politicians manipulate economic considerations to gain electoral interests. Praščević (2020) added that in transition economies with weak institutional mechanisms and rules, and naive voters, specific political motives of politicians become apparent.

One expert with academic background argues that regional heads do not have sufficient technical capability to set minimum wages. Determining minimum wages is complex; when it is too low, the minimum wage can not protect workers and their families from poverty, but if it is too high, companies can not comply, and workers will lose their jobs (ILO, 2017). Furthermore, the regional heads and other stakeholders have 'bounded rationality' depending on their access to information and their ability to process it (Simon, 1955). Hernandez & Ortega (2019) argue that individuals or organizations have bounded resources, including information on the results of their decision. Most experts agree that removing the role of regional heads will improve time efficiency and coordination and reduce the risk of disputes. In addition, using the mathematical formula method reduces political pressures driven by the direct regional head elections.

On the other hand, 12% of experts disagree within the first and second rounds. They argue that minimum wage policy could not be isolated from political considerations. One expert mentioned that the sanctions for regional heads who do not comply with this policy violated the principles of democracy

and conflicted with the law on the authority of local governments.

Government Regulation No. 36/2021 uses a new formula different from the previous Government Regulation No. 78/2015. The new formula uses the regional indicator of purchasing power parity, labour absorption rate, median wage, economic growth, and inflation. Table 4 shows experts' responses to the formula.

Table 4. The Percentage of Expert Agreements on the Mathematical Formula Used

Agreement	First Round n=23	Second Round n=17
Agree	39	71
Agree with a note	26	12
Disagree with a note	13	6
Disagree	13	6
Others	9	6
Mean	1.83	1.35
SD	1.19	0.93

In the first round, the experts did not reach a consensus because only 65% (n=23) of experts agreed and agreed with a note. And then, in the second round, 83% (n=17) of experts agreed and reached a consensus that the formula was good enough to cover workers' basic needs and the company's capabilities. Most of the experts (83%) agree, and agree with a note, that the new formula is better than the previous one. They considered the new formula is more comprehensive in describing the basic needs of workers and the company's ability to pay. Moreover, since it uses regional indicators, the minimum wage reflects the economic growth and inflation from the region, which is not the case with the previous formula, when the government uses national economic growth and inflation to calculate the regional minimum wages.

One of the academic experts says, *"...this new formula needs to be tried and used for several years while continuously being monitored and evaluated, and if necessary, we can adj-*

ust the formula...." Most expert respondents (95.6%) suggested developing a monitoring and evaluation system for the minimum wage policy. Minimum wage policy is so complex that adaptation and improvement will always be needed in response to the dynamic labour market.

The expert who disagreed (12%) argued that the mathematical formulas and their variables are too complicated, and purchasing power parity and inflation could be duplicated. In addition, the experts were concerned that the variables and the formula could not reflect the complex labour market conditions. This argument aligned with ILO (2017), who argued that it is impossible to incorporate all critical considerations in a formula.

The new minimum wage policy introduces an upper limit determined by a formula. The variables are the average consumption per capita, the average number of household members, and the average number of working household members in each household. If the minimum wage in an area exceeds the upper limit of the minimum wage for that area, there will be no increase for the following year.

Table 5. The Percentage of Expert Agreements on the Upper Limit

Agreement	First Round n=23	Second Round n=17
Agree	39	18
Agree with a note	17	35
Disagree with a note	26	18
Disagree	4	0
Others	13	29
Mean	1.70	1.41
SD	1.15	1.12

As shown in Table 5. in the first round, 39% of experts agreed with the upper limit but dropped to 18% in the second round. Meanwhile, 17% of experts agreed with a no-

te in the first round and 35% in the second round. The percentage of experts who chose 'others' increased from 13% to 29%. Thus, the experts failed to reach a consensus.

Experts who agree with the upper limit (53%) argued that the minimum wage in some areas is already too high and might increase the number of unemployed. They added that the upper limit could reduce inequalities between districts and cities. Nevertheless, one of the experts suggested having the upper limit on the city/district level but not on the provincial level, as it is still relatively low. Meanwhile, experts who disagreed with the upper limit (18%) argued that there would be no increase in the minimum wage for some areas as they had already reached the upper limits. This situation could increase the risk of industrial relations disputes, be it demonstrations, strikes, or court lawsuits, which would be detrimental to all parties.

Some experts (29%) chose 'others' regarding the upper limit formula in the second round. Instead, they wait to implement this new upper limit formula and monitor it closely, which can be revised later if necessary. Other experts recommended that the upper limit be applied only to areas where the minimum wage is already too high. At the same time, the percentage of the increase should be higher in areas where the minimum wage is still too low.

There is a risk of dispute in any contract, agreement, or public policy, which is an ex-post transaction cost. In the minimum wage policy, we have to consider the cost of addressing the disputes in the implementation stage of the policy. Therefore, there will be costs to monitor and manage the risk of conflicts. Government Regulation No. 36/2021 was issued in February 2021, and the regional heads will use it to set the minimum wage for 2022. This study asked the experts to predict if implementing the new policy would reduce the risk of disputes, and the results are shown in Table 6.

Table 6. The Percentage of Expert
Agreements on the Risk of Dispute

Agreement	First Round n=23	Second Round n=17
Agree	22	12
Agree with a note	22	29
Disagree with a note	13	18
Disagree	17	24
Others	26	18
Mean	1.74	2.18
SD	1.45	1.42

In the first round, 44% of experts agree and agree with a note, 30% disagree and disagree with a note, and 26% have other opinions. In the second round, those who agreed declined (41%), those who disagreed inclined (42%), and those with other views reduced (18%). Thus, the experts fail to reach a consensus because they might have different information and respond differently based on their different information. Most experts agree (44%) in the first round but shift in the second round when most experts disagree (42%) if the new policy will reduce the risks of disputes. Some experts who chose 'other' in the first round shifted to 'disagree' in the second round. In addition, some experts shift from 'agree' to 'agree with a note' in the second round. Nevertheless, the experts fail to reach a consensus because none of the responses gets 75%.

Some experts agree (41%) that the formula used in Government Regulation No. 36/2021 reduces the risk of disputes. They argue that, in principle, the mathematical formula should minimize the risk of disagreement because there is no negotiation. In addition, one expert argues that even when negotiations end with an agreement, disputes may still happen. Furthermore, an expert claims that compliance with the minimum wage has improved since Indonesia used the formula in 2015. Hence the formula

might minimize the risk of industrial relation disputes. The study also asked experts' opinions about the labour inspection system, and 82.6% of experts agreed to have a better strategy to improve compliance. Though it incurs transaction costs, the inspection system is essential for policy implementation (Basu et al., 2010). Hamid & Hasbullah (2021) also argue that sanctions are essential for workers' basic rights. However, the experts (41%) further explained that some protests may still occur in some areas, but they will be insignificant, and the government will control those disputes.

Nonetheless, some experts (42%) believe the risk of industrial relation disputes has increased because of the new minimum wage policy. They argue that the minimum wage's upper limit formula and eliminating the sectoral minimum wage (UMS) in the new policy mean wages will stay the same in some areas. For example, one expert calculated that several regions, such as Bogor and Purwakarta regencies, will keep their minimum wages the same in 2022 because they already exceed the upper limit. Meanwhile, the Bekasi regency, which has a sectoral minimum wage for the electronics and automotive sectors, will lose its sectoral minimum wage.

The experts explained that industrial relations are currently "in bad shape." They reflected this situation from many demonstrations and lawsuits in Government Regulation No. 78/2015, followed by demonstrations and lawsuits against Law 11/2020 concerning Job Creation.

CONCLUSION

Although Indonesia has used the mathematical formula since 2015, research has not compared this governance to the negotiation model before 2015. Previous studies found the advantages and disadvantages of those two governances, but they were never analyzed in Indonesia. Hence, this study's main objective is

to use the Delphi method to analyze the governance of minimum wage setting from the transaction cost economics perspective.

This research collected data from 23 experts as informants using the Delphi method. There is a consensus on the experts' opinion that the mathematical formula model can improve coordination and time efficiency compared with the negotiation model. The efficiency improved by eliminating negotiations, data provision by the Central Statistic Agency (BPS), and the reduced role of regional heads. Compared to annual surveys by the Regional Wage Council, using BPS is more efficient in time, cost and coordination. Experts also agree that BPS can provide good-quality data, and it will help minimize the risk of disputes. Reducing the role of regional heads also reduces the risk of conflicts because there will be no political interest in determining the minimum wage. Most experts agree that the current formula is reasonable, provided that a proper monitoring system enables adjustments where necessary. Compared to the negotiation model, the mathematical formulas also provide certainty for the business and reduce ex-ante transaction costs.

Nonetheless, the experts failed to reach a consensus regarding the efficiencies of the mathematical formulas in reducing the risk of 'future' disputes. The experts are mainly concerned about the upper limit formula in this model, which will prevent minimum wage increases in some areas where the minimum wage reaches the upper limits. In addition, eliminating the sectoral minimum wage will also prevent minimum wage increases in some areas. These will raise the risks of disputes in some areas and the stakeholders' ex-post transaction costs.

The government, employers, and work-ers must address the higher risk of industrial relation disputes in the short term. They must sit down together to find solutions to prevent industrial disputes. The highest risk of conflicts is in some areas that may miss the opportunity to increase their minimum wage. By November 2021, all governors must set their provincial and city/district minimum wages for 2022. Hence, the stakeholders must find a solution as soon as possible.

The study also found that in the medium and long term, the government needs to regularly monitor the implementation of the minimum wage policy as part of a national strategic program. The monitoring and evaluation system must be in place to observe the impact of the minimum wage policy within the dynamic labour market. Thus, the minimum wage policy achieves its objectives and minimizes the negative consequences.

Experts also suggest that the minimum wage policy alone cannot help workers get a decent living. They entitle to have other rights that are currently still missing. The government needs to improve compliance by improving the advisory and inspection system. Therefore, workers can reclaim their rights according to the regulations such as festivity allowance (*tunjangan hari raya/ THR*) and social security. The government also needs to ensure that workers have the right to unionize and negotiate, as written in the national law. When workers unionize, they can negotiate with their employers to improve their welfare according to the company's capabilities.

Indonesia should continue using the formula model as it offers better efficiency than the negotiation model used until 2015. However, the government, employers, and trade unions should prevent the risk of conflicts in some areas because of the current formula.

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