Effect of government regulation on labor competitiveness: Study of nine major Indonesian companies

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Abstract. Free trade that drives competition in the industrial world drives the need for welding power by 45,000 against a background of specifications [1]. Indonesia has a professional welding force of no more than 15,000 people spread across various countries triggering a deficit in domestic labor that should handle infrastructure development, sea tolls, power plants, and railways. The problems currently being faced by the industry in the context of increasing the competence and competitiveness of the welding industry workforce. The study purposes to analyze the effect of government regulation to labor competitiveness. This research was conducted in November 2016 - March 2017. Data obtained through interviews with 117 respondents distributed in 12 government companies with purposive sampling approach. Data statistical analysis technique is using Structural Equation Modeling. Government Regulation significantly and positively influences the competitiveness of workers with structural coefficient is 0.450 and p-value < 0.05. Indonesian Government can provide added value to the competitiveness of Indonesian workers through the use of authority to draw up regulations in the field of welding, set standard operational production and assist the recruitment process of workers.

1. Introduction
Free trade that drives competition in the industrial world drives the need for welding power by 45,000 against a background of specifications [1]. Indonesia has a professional welding force of no more than 15,000 people spread across various countries triggering a deficit in domestic labor that should handle infrastructure development, sea tolls, power plants, and railways [2]. This gap encourages training needs and the availability of technology becomes increasingly important to support work productivity [3].

The problems currently being faced by the industry in the context of increasing the competence and competitiveness of the welding industry workforce are as follows; the still limited number and low quality of competent certified human resources in the field of welding, the limited number of skilled operators (operators) in the field of welding, the intense competition in the welding sector of goods, and the lack of equipment and machinery to support the smooth running of products.

World trade agreements, including ASEAN Economic Community (AEC), ASEAN Free Trade Agreement (AFTA) and World Trade Organization (WTO), have determined that welding workers must have the ability to improve products so that competitiveness is a key requirement. The development of manufacturing competencies in particular welding to support the improvement of the quality of production is a major need. The welding industry, universities or related research institutions, welding equipment providers, welding service providers and expertise certification
providers must work together for advanced welding workers and technology and be able to keep abreast of the latest technological developments [4].

2. Materials and Methods

2.1. Study location

This research was conducted in November 2016 - March 2017 in six regions; Jakarta, Bandung, Makassar, East Luwu, and Tangerang. The study population is spread over eight government institution: Ministry of Industry, Ministry of Manpower, Vocational Training Center, Central for Material and Technical Products, National Professional Certification Board, Professional Welding Certification Institute, Indonesian Welding Association, PT. Indonesian Ship Industry, PT. Vale, Eastern Pearl Flour Mills, PT. Dirgantara Indonesia, PT. Garuda Maintenance Facility, and PT. Pindad.

2.2. Data Collection and Analysis

Data were collected by interview using a structured questionnaire of 117 respondents drawn by purposive sampling. Measurement of data validity using confirmatory factor analysis of indicators of each latent variable (government regulations and labor competitiveness) (Figure 1).

![Figure 1. Hypothesis Testing Result using GeSCA](image)

2.3. Statistical Analysis

Data were analyzed using GeSCA as a component-based Structural Equation Modeling (SEM) method [5][6]. The steps for modelling GeSCA structural equations through the following stages; designing structural models, designing measurement models, constructing path diagrams, converting path diagrams to equation systems, estimating and evaluating the goodness of fit, and testing hypotheses [7][8].

3. Results

3.1. Validity test of research instruments
Before the questionnaire was used as a data collection tool, testing the validity and reliability of the instrument was carried out. Testing the validity of the Pearson correlation, the instrument is declared valid if the correlation value > 0.3 (Table 1).

| Indicators                        | Item       | Correlation | Valid/Not Valid |
|-----------------------------------|------------|-------------|-----------------|
| Government Regulation (X1)        | X1_01      | 0.390277778 | Valid           |
|                                   | X1_02      | 0.388194444 | Valid           |
|                                   | X1_03      | 0.397222222 | Valid           |
|                                   | X1_04      | 0.386805556 | Valid           |
|                                   | X1_05      | 0.384722222 | Valid           |
|                                   | X1_06      | 0.389583333 | Valid           |
|                                   | X1_07      | 0.396527778 | Valid           |
|                                   | X1_08      | 0.389583333 | Valid           |
|                                   | X1_09      | 0.394444444 | Valid           |
| Operational Standards (X1.2)     | Y2_01      | 0.288888889 | Valid           |
|                                   | Y2_02      | 0.319444444 | Valid           |
|                                   | Y2_03      | 0.306250000 | Valid           |
|                                   | Y2_04      | 0.284027778 | Valid           |
|                                   | Y2_05      | 0.311805556 | Valid           |
|                                   | Y2_06      | 0.302777778 | Valid           |
|                                   | Y2_07      | 0.272916667 | Valid           |
|                                   | Y2_08      | 0.333333333 | Valid           |
|                                   | Y2_09      | 0.317361111 | Valid           |
|                                   | Y2_10      | 0.272916667 | Valid           |
|                                   | Y2_11      | 0.342361111 | Valid           |
|                                   | Y2_12      | 0.295833333 | Valid           |
|                                   | Y2_13      | 0.322222222 | Valid           |
|                                   | Y2_14      | 0.299305556 | Valid           |
|                                   | Y2_15      | 0.301388889 | Valid           |
|                                   | Y2_16      | 0.340972222 | Valid           |
|                                   | Y2_17      | 0.315277778 | Valid           |
|                                   | Y2_18      | 0.310416667 | Valid           |
|                                   | Y2_19      | 0.318055556 | Valid           |
|                                   | Y2_20      | 0.275000000 | Valid           |
|                                   | Y2_21      | 0.289583333 | Valid           |
|                                   | Y2_22      | 0.274305556 | Valid           |
|                                   | Y2_23      | 0.336805556 | Valid           |
|                                   | Y2_24      | 0.323611111 | Valid           |
|                                   | Y2_25      | 0.313888889 | Valid           |
|                                   | Y2_26      | 0.297222222 | Valid           |
|                                   | Y2_27      | 0.318750000 | Valid           |
|                                   | Y2_28      | 0.314583333 | Valid           |
|                                   | Y2_29      | 0.334722222 | Valid           |
|                                   | Y2_30      | 0.293750000 | Valid           |
|                                   | Y2_31      | 0.284722222 | Valid           |
|                                   | Y2_32      | 0.290972222 | Valid           |
|                                   | Y2_33      | 0.306250000 | Valid           |
|                                   | Y2_34      | 0.289583333 | Valid           |
|                                   | Y2_35      | 0.343750000 | Valid           |
|                                   | Y2_36      | 0.320138889 | Valid           |
|                                   | Y2_37      | 0.290277778 | Valid           |
|                                   | Y2_38      | 0.349305556 | Valid           |
|                                   | Y2_39      | 0.307638889 | Valid           |
|                                   | Y2_40      | 0.282638889 | Valid           |
Based on Table 1, all indicators on each variable have a correlation value greater than 0.30 therefore the research instrument is declared valid. Meanwhile, the Cronbach’s alpha value for all variables is greater than 0.60 thus it can be said that the research instrument is also reliable.

### 3.2. Structural model

Testing the structural model essentially tests the hypothesis in the study. Hypothesis testing is done by T-test (T-statistic) on each path of direct influence partially. The results of the complete analysis contained in the results of SEM analysis. Table 2 presents the results of testing the direct influence hypothesis.

**Table 2. Hypothesis testing results in structural model**

| Relationship                  | Path Coefficient | p-value | Information |
|-------------------------------|------------------|---------|-------------|
| Government regulation (X1)   | 0.450            | 4.32    | 0.000       |
| Labor competitiveness (Y2)   |                  |         |             |

**Figure 2.** Hypothesis testing result in WarpPLS inner model
The Effect of Government Regulation (X1) on Labor Competitiveness (Y2), obtained a structural coefficient of 0.450, and a P-value of 0.000. Because the P-value <0.05, indicates that there is a significant and positive influence between Government Regulation (X1) on Labor Competitiveness (Y2). The higher the value of Government Regulation can affect the high Workforce Competitiveness (Y2). Thus, hypothesis 2 of this study was accepted.

4. Discussion
Government regulation is generally defined as a law that is imposed by the government on individuals and companies in the industrial sector to regulate and modify economic behavior. Conflicts can occur between public services and commercial procedures (e.g. maximizing profits), the interests of people who use these services (see market failures), and also the interests of those not directly involved in transactions (externalities) [9]. Therefore, most governments have some form of control or regulation to manage this possible conflict. The ideal goal of economic regulation is to ensure the safe and appropriate delivery of services, while not hampering the functioning and effective business development [10].

Labor competitiveness occurs when workers have entered the highly competitive labor market, where the level of wages is determined in the welding industry, not by each company, each company is a wage taker [10]. This means that actual equilibrium wages will be set in the market, and the supply of labor to each company is very elastic at the market level [11].

The results of this study complement various theoretical studies that reveal the relationship between government regulations and the competitiveness of Indonesian Workers. The results of data analysis and testing between variables found that government regulations which gave a significant and positive caregiving towards the competitiveness of Indonesian workers. The implication of labor competitiveness in this research is to get a formula that increases the competitiveness of workers is done by increasing government regulations. The theoretical implications of the study found that government regulation can improve the competitiveness of the workforce, both directly and indirectly to the use of technology. This indicates that the importance of government regulations in terms of authority, operational standards, and the recruitment process.

Welding technology management, worker characteristics and involvement of professional institutions encourage labor competitiveness. Without the management of welding technology, there is no visible effect between the characteristics of workers and professional institutions on the competitiveness of the workforce. The welding industry in Indonesia must apply government policy-based welding technology measurements (Decree of the Minister of Manpower and Transmigration of the Republic of Indonesia Number: KEP.342/MEN/X/2007 concerning the Establishment of Indonesian National Work Competency Standards) to ensure the high competitiveness of welding workers [12].

5. Conclusions
This study found that government regulations have a significant and positive effect on the competitiveness of Indonesian workers. The Indonesian government should develop and implement regulations that can provide added value to the competitiveness of Indonesian workers. The government can utilize the authority in determining regulations in the field of welding, setting standardized and clear operational standards, and the recruitment process (government officials) that can accommodate the competitiveness of welding workers in Indonesia.

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