HOW COULD FLEXIBLE LABOR IMPACT ON INNOVATION?

Laurencia S. Krismadewi

Abstract

The concept of flexibility can be used in reference to production processes and the labor market that refers to a strategy where an enterprise can adjust the number and type of workers it employs, alongside wage levels, as market conditions change. An important element within this was to open a discussion on how exactly 'flexibility' should be defined and how it could be put into effect in different economic environments.

This paper aims to shed light on the controversial relationship between labor market flexibility and innovation in Indonesia.

A set of hypotheses concerning the context-dependent relationship between labor market flexibility and innovation have been formulated by combining the main results of the theoretical literature concerning this topic. Non-parametric models and dynamic structural specification of panel data have been estimated to test the hypotheses.

The results will show that in sectoral and regional context labor flexibility has (or does not have) a positive influence on innovation plays a key role in the decisions of policy makers.

Keywords: Flexible, Labor, Innovation

JEL Code: J23, O15, M54

Introduction

A sound understanding of labor market conditions is key to understanding the impact of reforms on workers. It is also key in designing more effective policy interventions aimed at generating sustainable employment opportunities and for providing more effective safety nets. The magnitude of the shift of the relative demand for skilled labor, yielding a new equilibrium characterized by a higher relative wage and a higher share of skilled employment. According to this point of view, wage inequality has been seen as a direct consequence of higher innovation activities.The competition in high technology and very dynamic markets require greater combinations of innovation and flexibility capabilities. In this study, flexibility could

be defined and put into effect in different economic environments is analyzed. Flexibility can also be an active approach to introducing more uncertainty in the marketplace. Related to labour market flexibility refers to the willingness and ability of labour to respond to changes in market conditions, including changes in the demand for labour and the wage rate.

This study is organized along the lines of the following four questions:

- What the economic trends and prospects in Indonesia?
- How does the flexibility labor market effect on economic growth?
- To what extent do flexibility of labor market effect on economic growth?
- What the policy implications of the proliferation of labor market flexibility platforms?

1 Economic Trends and Prospects in Indonesia

Innovation is a key factor in achieving sustainable social and economic development. The government of Indonesia is focusing on the development of economic of three breakthrough steps, which are reduce poverty, unemployment, and social imbalances and inequality. These three steps are needed to accelerate the infrastructure development of any industry or sector, including industrial manufacturing. The policies to stimulate innovation broader, economy wide policies that operate through financial conditions, education, openness to foreign trade and investment, as well as product and labor market regulation (Paul, 2010:34)

1.1 Economic performance

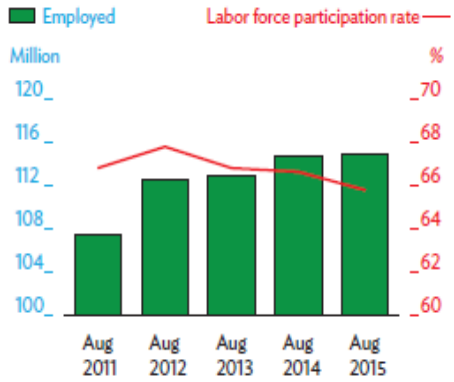
Despite a pickup in government spending that lifted economic growth in the second half of 2015, the pace of GDP growth for the year was, at 4.8%, the slowest since 2009.

Growth in private consumption, by far the biggest contributor to GDP growth, decelerated to 4.8% last year on a decline in rural incomes, higher inflation, tighter consumer credit, and a weaker labor market. The labor market weakened in 2015 (see Figure 1). Fewer than 200,000 jobs were created in the 12 months to August 2015, during which the working-age population aged 15 years and over increased by 3.1 million. The labor force participation rate fell to 65.8% in August 2015, the lowest on record, and the unemployment rate rose to 6.2% in August 2015 from 5.9% a year earlier, with youth unemployment climbing to 22.6%.

Labor market, which is a market that distributes workers to jobs and coordinates employment decision, in general, can be a market that brings together all the buyers (employers) and sellers (workers). The labor market problems that Indonesia have to face right now are noted as follows: limited employment opportunity, low quality of labor force,

relatively high unemployment rate, globalization effect on employment, and lack of awareness regarding the application of industrial relations.

Fig. 1: Labor indicators



Source : CEIC Data Company, Asian Development Bank, 2016

1.2 Economic prospects

Recent reforms are designed to diversify growth sources and address growth constraints. From September 2015 to February 2016, the government unveiled 10 packages of reforms to attract investment, particularly in manufacturing. It opened an additional 35 sectors to foreign ownership, eliminated or simplified various regulations, improved procedures for land title registration, and accelerated business licensing. A new formula for setting minimum wages aims to make annual adjustments more simple and predictable. Tax breaks are provided to new manufacturing and labor-intensive industries, while credit subsidies are expanded for small and medium-sized enterprises.

According to Bird and Manning [2008 : 930], "The main income distribution effect in countries like Indonesia is unlikely to be the impact on jobs, but on prices…", as the increased production costs are passed fully on to prices. Port logistics services are to be reformed, and special economic zones further developed. The projected, as well as Indonesia's working-age population will increase steadily until 2030. To take full advantage of this demographic dividend, further investment is needed in education and training that will help the economy make the transition to activities that add more value. Longer term, changes are required to improve the quality and relevance of education and training, and to address skill shortages and mismatches in the labor market (see Figure 2).

Fig. 2 : Skills mismatch

Source : Statistics Indonesia, 2016. Labor force survey, Statistics Indonesia, Jakarta.

By 2035 two thirds of the population will be living in urban areas. Table 1 highlights that in 2010 half the population lived in urban areas, and with the increasing pace of urbanization it is expected that an additional 85 million people will be living in urban areas by 2035. This shift will have profound implications for the labor market. In particular, rural labor force participation tends to be higher than urban labor force participation, and urban unemployment tends to be higher than rural unemployment. If these trends continue, there is a risk of lower labor force participation and higher unemployment in the years to come.

Tab. 1: Population projections for urban and rural areas, 2010-2035

Variable	2010	2015	2020	2025	2030	2035
Number of people (millions)						
Urban	118.8	136.2	153.7	170.9	187.9	203.6
Rural	119.7	119.3	117.4	113.9	108.5	102.1
Total	238.5	255.5	271.1	284.8	296.4	305.7
Percentage of the population (%)						
Urban	50%	53%	57%	60%	63%	67%
Rural	50%	47%	43%	40%	37%	33%

Source: BPS (2013) Indonesia population projection, 2010-2035, Badan Pusat Statistik, Jakarta

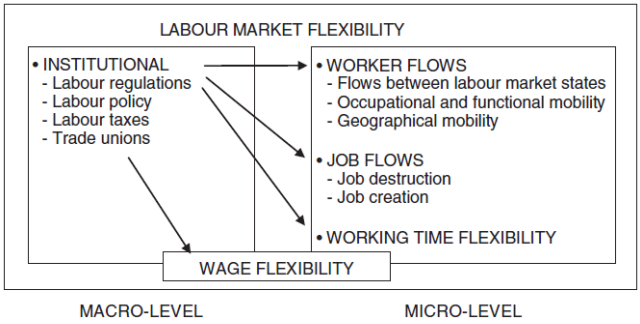
1.3 Labor market flexibility and Innovation

Labour market flexibility is an important aspect of how labour markets function to adjust supply to demand. Labour market flexibility is central to the supply-side of the macro-economy, and to its overall performance in achieving macro-economic objectives. The most common interpretation of labor market flexibility is connected with labor market regulations and institutions (Freeman, 2009). According to Howell (2011:189) there are factors that can affect labour market flexibility are mobility of labour, the extent of labour migration, wage flexibility, local vs national pay bargaining, making work pay, skills and training, barriers to

entry and exit, ability to hire and fire, information, flexi-work, the amount of part-time and temporary work.

According to Eamets and Paas (2007), one possibility is to distinguish between two distinct levels of labor flexibility are the macro- and micro-level (see Figure 3). The macro-level (institutional flexibility) shows to which extent state institutions and trade unions are involved in the regulation of the labor market. Institutional flexibility covers labor market regulations, labor policy, trade union activities and labor taxes. Micro-level flexibility relates to three types of labor market mobility are worker flows, job flows and working time flexibilty.

Fig. 3: Measurement model of labor market flexibilty



Source: Adjusted from Eamets et al. (2007)

From a theoretical point of view, the relationship between labor market flexibility and innovation has been mainly treated in the context of labor turnover and job-search theories (Pieroni, Luca and Fabrizio Pompei, 2008) aiming to explain unemployment variability. The focus is on the labor mobility-wage structure as a result of imbalances between flows into and out of the job market. Lower wages cause a higher cost of labor mobility that, in turn, negatively affects labor costs, productivity and the human capital accumulation of workers.

The impact of the labor market on innovation has been explored in some empirical analyses. For example, Bassanini and Ernst (2002) carried out a comparative survey among OECD countries in which the impact of product and labor market regulations on innovation was highlighted. Michie and Sheehan (2003), using a survey of UK firms, explicitly investigated firms' use of various practices of flexible work connected with the innovative activities.

Indonesia's labor markets have been characterised by a considerable degree of turbulence and structural change. Labor markets are extremely flexible in Indonesia. Most of

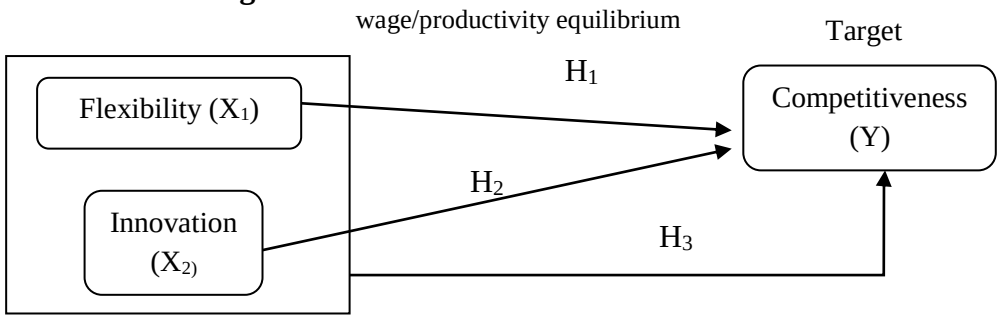
the poor are "unskilled" workers in rural areas. These workers are helped by a development strategy that favours rapidly expanding demand for labor and allows labor to reap the maximum rewards the market will bear. Public sector employment, however, is not a viable tool to increase the long-term standard of living of workers. In the longer term, the demand for labor can change as a result of large scale and deep-seated changes to the structure of an economy, often brought about by changing technology or through globalisation and deindustrialization.

2 Theoritical Framework and Hyphotesis Formulation

The main objective of the study is to analyze labor market flexibilty on competitive. Authors address and formulate the key issues in the study as follows (see Figure 4):

a) Real labour cost flexibility at the economy wide level;
b) Adaptability of relative labour costs across occupations and enterprises;
c) Labour mobility;
d) Flexibility of working time and work schedules.

Fig 4. : Research Paradigm



Source : Author's concept

The hyphoteses of this research as follows :

H_1 : Flexibility has positive effect in competitiveness

H_2 : Innovation has positive effect in competitiveness

H_3 : Flexibiltity and Innovation have positive effect in competitiveness

The samples of this study are workers in Indonesia through random sampling from the variety of industries. Data statement has been taken from the samples through questionnaires from the period January 2017 to March 2017.

3 Data Analysis and Findings

Data analysis was performed using Statistical Packages of the Social Science (SPSS). Multiple regression analysis was utilized to determine the relationship between the independent variables and the dependent variable. The results of data processing using SPSS are based on the following calculation:

Tab. 2 : Analysis of Multiple Linear Regressions

Independent Variable	Regression Coefficient	Beta	t-value	Sig
(Constant)	15.976		4.676	0.000
Flexibility	0.295	0.334	4.435	0.000
Innovation	0.251	0.314	4.297	0.000
R	0.447			
R Square	0.542			
F	31.82			
Sig F	0.000			

Table 2 depicted that the numbers R obtained 0.447 and it explained the correlation between variables of flexibility and innovation affect on competitiveness is 0.447, that denoted a strong relationship. The R square is also known as the coefficient of determination; to determine the contribution of independent variable (X) simultaneously in explaining the dependent variable (Y) may also indicate a wide. R square indicated the increase or decrease of the dependent variable explained by the linear influence of independent variable. The value of R square of 0.521 means contribution percentage of the flexibiltiy and innovation affect on innovation amounted to 54.2%, whilst the remaining 45.8 % is influenced by other variables not included in this research model.

The significant value of F is 0.000 so compared with $\alpha = 5\%$, then the significance of F <0.05 (0.000 <0.05), it can be concluded that flexibility and innovation simultaneously have a significant effect on competitiveness.

The value of Fcount> Ftable, then H0 is rejected and Ha accepted. Thus there is the effect of flexibility and innovation simultaneously have a significant effect on competitiveness, so the hypothesis is accepted.

Tab. 3: Dimension Correlation

Dimension	Indicators	Average of indicators	Average of dimensions	Average of variables
Mobility of labor	Willingness	4.33	4.39	4.12
	Ability	4.44		
Migration	Allowing	4.42	4.50	
	Encouraging	4.57		
Wage flexibility	Adjustment of wage rates	4.01	4.15	
	Real wage	4.28		
Rates of pay	Local	3.35	3.72	
	National	4.09		
Making work pay	Reward	4.64	4.58	
	Compensation	4.52		
Improve ability of labor	Skills	4.36	4.25	
	Training	4.13		
Barriers to entry and exit	Requirement	4.02	4.06	
	Agreement	4.10		
Ability to hire and fire	Freedom to hire	3.89	3.51	
	Freedom to fire	3.12		
Information	Vacancies	4.21	4.27	
	Promotion	4.32		
Flexible working	Environment	3.72	3.76	
	Patterns	3.80		
The amount of time	Part-time	4.13	3.12	
	Full-time	4.10		
Innovation relationship	Accumulation of skills	4.41	3.42	3.27
	Innovative performance	4.43		

Table 3 depicted that the average value of variable flexibility is 4.12, while the variable of innovation is 3.27. It indicates that flexibility labor market is good enough, while the innovation is still lacking. The average value of dimension of flexibility has lowest value is 3.12 of the amount time of time working. That indicate the labor market is more flexible when there is a larger proportion of part-time work relative to full-time work. Flexibility also improves when temporary contracts can be used. In dimension of flexibility that making work pay has the highest average is 4.58. For making work pays, if the reward gap between work and non-work is too small, there may be little incentive to work. Hence, excessively generous unemployment benefits may reduce labour market flexibility. The amount of tax paid from wages (the tax wedge) can also affect flexibility via its effect on incentives. In secondary data as a reference, a few econometric studies of the impact of minimum wages [e.g. Rama, 2001 and Suryahadi et al., 2003] did not find a significant negative impact on minimum wages on overall employment. However, the upward adjustments of minimum wages were found to change the composition of employment. In Rama‟s study, the rise in minimum wages adversely affected employment in smaller enterprises, but employment expanded in larger firms. In the study by Suryahadi et al., the adverse employment impact was greatest for

female, young and less educated workers, while the employment prospects of white-collar workers were enhanced by increases in minimum wages.

Conclusion

From the results of the study, there are three important points that are important and worthy of attention in labor market flexibility in Indonesia that is in need of innovation that is Remuneration and conditions, Information exchange, Regulatory requirements for participation. A more flexible labor market is needed to ensure that the ongoing structural transformation process does create quality jobs. Ensuring that the regulatory framework provides the right combination of flexibility for enterprises and security for workers is critical. Current incentive systems in the labor market tend to discourage stable employment and career progression. Labor law provisions on short-term contracting, worker dismissal, severance payment and unemployment insurance, should be should be reviewed in the light of the need to accelerate skills formation and foster productivity gains. Over the long run, the government should allow the labor union movement to develop in healthy and productive ways that allow labor to bargain on an equitable basis. The other important the role of government in the labor market is to formulate and enforce appropriate protective legislation especially regarding worker safety, environmental protection, and prevention of abusive child labor practices.

The impact of labor market institutions, defined broadly as government regulations and union activity on labor outcomes in developing countries. It finds that: 1) Employment protection regulations and related laws shift output and employment to informal sectors and reduce gross labor mobility, 2) Mandated benefits increase labor costs and reduce employment modestly while the costs of others are shifted largely to labor, 3) Contrary to the Harris-Todaro two sector model in which rural-urban migration adjust to produce a positive relation between unemployment and wages across regions and sectors, wages and unemployment are inversely related by the "wage curve", 4) Unions affect non-wage outcomes as well as wage outcomes, 5) Labor institution can be critical when countries experience great change, as in China's growth spurt and Argentina's preservation of social stability and democracy after its 2001-2002 economic collapse. Cooperative labor relations tend to produce better economic outcomes, 6) The informal sector increased its share of the work force in the developing world in the past two decades. The persistence of large informal sectors throughout the developing world, including countries with high rates of growth, puts a

premium on increasing our knowledge of how informal sector labor markets work and finding institutions and policies to deliver social benefits to workers in that sector.

Acknowledgment

We are grateful to both the participants of The 10th International Days of Statistics and Economics (MSED), Prague, September 8-10, 2016 and those of the Discussion of Doctoral Communities "(BRKD) and" Indonesian Master and Bachelor Scholar Insight "(IMBSI), Wien, Austria, 25 March 2017 for their suggestions.

References

Bassanini, A. and Ernst, E. (2002), "Labor market institutions, product market regulation and innovation: cross-country evidence", Working Paper No. 316, Economic Department,Organisation for Economic Co-operation and Development, Paris.

Bird, K. and Manning, C. (2008), "Minimum Wages and Poverty in a Developing Country: Simulations from Indonesia‟s Household Survey", World Development, Vol. 36, No. 5, pp. 916-33.

De grauwe, Paul. (2010), "Dimensions of Competitiveness", Massachusetts : MIT Press.

Eamets, R. and Paas, T. (2007), "Labor Market Flexibility, Flexicurity, and Employment". Lessons of the Baltic States, Nova Science, New York, NY, pp. 41-60.

Howell, Chris. (2011), "Regulating Labor: The State and Industrial Relations Reform in Postwar France". New Jersey: Princeton University Press.

Martı´nez, Angel and Marı´a Jose´ Vela. (2008). "Innovation and labor flexibility". International Journal of Manpower, Vol. 30 No. 4, 2009, pp. 360-376.

Michie, J. and Sheehan, M. (2003), "Labor market deregulation, flexibility and innovation",

Cambridge Journal of Economics, Vol. 27 No. 1, pp. 123-43.

Pieroni, Luca and Fabrizio Pompei. (2007). "Evaluating Innovation and Labor Market Relationships: The Case of Italy". Cambridge Journal of Economics; Oxford32.2: pp. 325-347.

Pieroni, Luca and Fabrizio Pompei. (2008). "Labor market flexibility and innovation: geographical and technological determinants". International Journal of Manpower, Vol. 29 No. 3, pp. 216-238.

Suryahadi, A., Widyanti, W., Perwira, D. and Sumarto, S. (2003), "Minimum Wage Policy and Its Impact on Employment in the Urban Formal Sector", Bulletin of Indonesian Economic Studies, Vol. 39, No. 1, pp. 29–50.

Contact

Laurencia S. Krismadewi
University of Economics, Prague
Náměstí Winstona Churchilla 4, 130 67 Praha 3, Czech Republic
kril02@vse.cz