

# A Decomposition of Forecast Trends in Employment in Vietnam



## Social Science

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### ABSTRACT

*The study is to examine the decomposition of factors on employment change by sector, type of occupation and skill in the Vietnam's labor market based on the national survey data and the ILSSA-MS model forecast simulation. The analytical results indicate the impacts of policy makers succeeding in training policy adjustments to ensure the trend of education attainment keeping pace with the demand of labor force are also shown.*

### INTRODUCTION

The Government of Vietnam's latest Socio-Economic Development Strategy (SEDS) always uphold education and training issues. The current plan recognises that an important factor in achieving its 2020 development goals is a skilled and adaptable workforce. The planning for the country's future workforce should take account of both the level and the composition of the country's forecast growth. This requires an analytical tool that can accommodate the large amounts of economic detail necessary for the production of convincing labour market forecasts. The methodology we employ is derived from that used in historical/decomposition analysis with ILSSA-MS models, but our focus is the future rather than the past. This paper describes briefly analyse simulation results for composition of forecast trends in employment until 2020.

### METHODS AND DATA

The theory of the ILSSA-MS is constructed on the ORANI-G model with an extension of a detailed modelling of the labor market. ILSSA-MS has a theoretical structure, which is typical of a static CGE model, it contains detailed modeling of labor demand and supply, distinguished by 113 industries, 26 occupations and 6 qualifications.

To forecast and decomposition of forecast by each individual exogenous factor, we conducted two simulations: "forecast" and "decomposition". Both simulations are used ILSSA-MS model.

The values of percentage changes in the exogenous variables are known from the forecasting simulation. This allows to be used the method pioneered by Johansen (1960) as Dixon and Rimmer (2002: 14) describe to decompose the movements in percentage changes in the endogenous variables into the individual contributions of each of the movements in percentage changes in the exogenous variables.

The ILSSA-MS model database is compiled from the input-output table for Vietnam for the year 2012. To update the model so that it describes the structure of the economy in 2012, we shock the model with observed changes in economic variables over the period 2006-2012.

### RESEARCH FINDINGS

In this section, we discuss our forecast results in detail, relying on the decomposition simulation to elucidate the individual impacts of our forecast changes in many variables describing structural, policy and external features of the Vietnamese economy.

**Table 1. Decomposition results, employment by sectors, 2013-2020 (%)**

Sector	Technical change	Aggregate employment growth	Foreign trading environment	Occupation-specific input requirements	Training	Household preferences	Import-domestic preferences	Agricultural land supply	Government spending	Import tariffs	Momentum	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1. Agriculture and forestry	5.36	11.20	-9.28	12.48	-0.56	-4.32	-1.68	-0.80	-0.56	0.00	-0.48	11.36
2. Fishery	-6.00	14.72	-3.68	7.20	2.48	3.36	-3.92	0.72	-1.28	0.08	-0.80	12.88
3. Mining	15.20	18.40	-16.32	-3.92	10.80	-0.64	-4.88	0.72	-1.76	0.08	-2.16	15.52
4. Food, beverage and tobacco products	-3.68	10.48	-5.60	6.40	1.60	-2.40	0.24	-0.56	-1.20	0.00	0.24	5.52
5. Non-metal products	2.72	17.68	-6.24	9.04	6.00	0.40	2.40	0.40	-0.96	0.08	-0.64	30.88
6. Metals, machines and equipment	5.04	25.36	-1.44	6.00	13.84	0.96	3.20	0.88	-2.24	-0.24	-2.24	49.12
7. Chemicals	5.60	25.84	-6.64	2.40	10.64	3.52	6.72	0.40	-2.64	-0.16	-1.04	44.64
8. Textile, clothing and footwear	2.48	17.28	16.96	7.36	3.28	0.16	-3.44	1.36	-0.56	0.40	-2.72	42.56
9. Other manufacturing products	0.16	18.96	1.28	11.36	6.24	0.72	1.76	0.72	-0.56	0.00	-0.64	40.00
10. Gas, electricity and water	8.16	23.12	-1.84	1.60	10.16	0.88	0.80	0.24	-1.84	0.00	-0.80	40.48
11. Construction	-10.48	9.36	8.56	5.68	3.68	0.72	1.28	0.00	-0.48	0.00	0.96	19.28
12. Trade and repair	-5.28	13.76	10.16	6.40	3.84	1.04	-1.12	0.16	-1.44	0.08	0.24	27.84
13. Hotels and restaurants	0.56	16.32	-5.84	8.56	3.52	6.88	-0.64	0.48	-1.52	0.00	0.24	28.56
14. Transport and communications	-4.72	20.03	-1.52	1.84	9.60	3.76	-0.24	0.00	-1.84	0.00	-0.08	26.83

15. Financial services	-0.72	30.96	-9.04	-2.48	14.08	5.28	5.28	0.40	-2.96	0.08	-0.40	40.48
16. Property and business services	-1.68	22.24	1.20	-1.28	9.44	-0.08	-0.72	0.24	-0.48	0.08	0.00	28.96
17. Public administration	3.12	13.28	13.52	1.92	5.04	0.00	1.44	-0.32	9.60	-0.08	2.80	50.32
18. Education	-5.12	17.12	6.32	0.88	7.60	0.40	0.96	-0.16	5.60	0.00	1.76	35.36
19. Health care	-1.44	19.68	3.52	0.00	9.04	1.52	0.96	0.00	1.44	0.00	1.36	36.08
20. Other services	-2.72	15.92	-1.52	8.32	4.40	2.48	0.88	0.32	-0.80	0.00	0.88	28.16

Table 2. Decomposition results, employment by occupations, 2013-2020 (%)

Occupation	Technical change	Aggregate employment growth	Foreign trading environment	Occupation-specific input requirements	Training	Household preferences	Import-domestic preferences	Agricultural land supply	Government spending	Import tariffs	Momentum	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1 Leaders and managers	1.04	14.48	6.32	-9.84	5.28	-0.24	0.72	-0.08	4.16	0.00	1.36	23.20
2 High-level professionals	0.24	32.32	0.80	21.28	14.24	0.88	0.80	0.08	0.80	0.00	0.24	71.68
3 Mid-level professionals	-0.56	10.00	2.64	-18.08	5.92	0.80	0.80	0.08	2.08	0.00	0.72	4.40
4 Elementary professionals and technicians	0.08	10.88	1.36	-46.16	4.80	1.68	0.56	0.08	0.56	0.00	0.32	-25.84
5 Skilled workers in services and sales	-1.52	13.36	3.20	11.04	4.16	2.08	0.08	0.24	-0.24	0.00	0.40	32.80
6 Skilled workers in agriculture	2.80	14.96	-9.36	55.68	1.04	-2.72	-2.80	-0.48	-0.88	0.00	-0.64	57.60
7 Skilled handicraftsmen and manual workers	-2.16	12.88	4.08	20.88	4.08	0.64	0.40	0.32	-0.64	0.00	-0.40	40.08
8 Assemblers and machine operators	-0.48	10.80	-0.72	4.72	7.52	-0.64	1.44	0.16	-0.48	0.00	-0.32	22.00
9 Unskilled workers in sales and services	-2.00	13.04	2.80	0.56	2.24	2.24	-0.16	0.24	-0.88	0.00	0.32	18.40
10 Unskilled workers in agriculture	3.20	9.68	-7.12	-11.76	-0.96	-3.04	-1.60	-0.56	-0.48	0.00	-0.40	-13.04
11 Other Unskilled workers	-2.08	9.28	0.80	-31.92	0.88	0.56	1.12	0.16	-0.32	0.00	0.08	-21.44

**DISCUSSION AND CONCLUSION**

According to the research findings, the decomposition of factors on employment change by sector, type of occupation and skill in Vietnam's labour market are shown as follows:

**(1) Technical change**

When there are changes in technology, agriculture, forestry and mining are forecast to achieve pretty high employment level in economy. These are the main sectors using unskilled workers and main occupations of workers who have no qualifications.

**(2) Aggregate employment growth**

When there are changes in aggregate employment growth, the employment is forecast to be focus on service sectors such as finance, real estate and business services using people who has specialization in university and college.

**(3) Foreign trading environment**

When there are changes in business environment, employment is forecast to decrease in some occupations such as technical workers in agriculture, machine managing and operating workers, unskilled workers in agriculture due to the increased demand of Vietnam's exports.

**(4) Occupation-specific input requirements**

When there are changes in demand for inputs by occupation, employment is forecast to increase significantly in group of technical workers in agriculture, technical craftsmen, high level specialists, technical workers in service and trade, at the same time increasing less in group of machine managing and operating workers.

**(5) Training**

When there are changes in training, employment is forecast to increase with vocational training in short term, long term, university and college, decrease with people without vocational training. Therefore, enhancing training, increasing qualifications for newbies in labor market will benefit country.

**(6) Household preferences**

The change in household preferences moves towards sector of services and away from primary goods, employment is forecast to increase with sectors (hotels and restaurants, financial, transport and telecommunications services, chemicals services) that recruit many technical workers and unskilled workers with commercial services; while employment fell for sectors (agricultural, mining and metals) respectively related occupations such as technical workers and unskilled workers in agriculture.

**(7) Preferences for imported/domestic varieties of each good**

When there is change through the decrease of preferences for imported/domestic varieties of goods, employment is forecast to decrease in sector of imports like agriculture, fishery, mining; occupations are mainly used in these sectors have reduction of technical and unskilled workers in agriculture due to import sector's reduction.

**(8) Agricultural land supply**

When there is change in demand of agricultural land, employment is forecast to decrease in agriculture and agricultural sectors that supply inputs such as food, drinks and tobacco because agricultural lands decrease which resulted agricultural outputs reduce.

**(9) Government spending**

When there is change in government spending, employment is forecast to increase for sectors providing goods and services for government such as public management, education and health. These sectors use a large percentage of occupations such as leadership, management, high and intermediate profession; mainly due to workers with university, college and professional degrees assume.

**(10) Import tariffs**

The pressure on labor market caused by tariff reduction spread for qualifications. This doesn't mean leading to the need of adjusting training policy.

**(11) Momentum**

When there are change of momentum, employment is forecast to decline to sectors such as agriculture, mining and manufacturing recruited many occupations such as technical workers in agriculture, technical craftsmen, manual laborers, assembly machine operating workers and unskilled workers in agriculture due to outputs and employment in export sector increase more slowly than in domestic services consumption sector. Employment increased in services sector with occupations such as leaders and managers, high level and intermediate specialists and technical services workers because this is a sector mainly benefits from high proportion of savings.

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**REFERENCE**

yearbook |

1. Dixon, P. B. and M. T. Rimmer (2002). Dynamic General Equilibrium Modelling for Forecasting and Policy: A Practical Guide and Documentation of MONASH. Amsterdam, North Holland. | 2. General Statistic Office (2015), Input-Output table in 2012 | 3. General Statistic Office, Statistical