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# Transnational Capital/Labour Flows Adapting Labour Market Policy to a Transformed Employment Structure

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**Abstract:** The shift towards recognition of a capital-labour flows have occurred within the broader context of a globalized knowledge economy and a global race for skills. Change in a country's employment structure is shaped by the evolution of skill supplies, implies that educational expansion and migration flows are crucial to understand occupational change. The local communities, Taiwan is in competition for its share of the intellectual capital and for the best skilled migrants. The aim is to disentangle the strategy applied by Taiwan to adapt its national labour markets to increasing globalization and flexibility demands. The paper is presented as follows. First, to compare national patterns of job growth in Taiwan, extending the discussion of the reach of job polarization. Second, to examine differential patterns, building on the analysis of educational patterns of employment growth. Third, to go about understanding the relationship between capital flows, labour flows and em/migrant resettlement patterns. The impact of economic globalization has on the flows of the highly educated, and documents incentive programs put into place by the government to tap highly educated talent abroad are assessed. A final summary reflects on the key finding, its contribution to the research arena, as well as open questions for future research. The paper delivers both quantitative and qualitative data as well as an account of the relevant labour market reforms.

**Keywords:** Capital/Labour Flows, Cross Border, Labour Market, Employment Structure

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## 1. Introduction

International economic links have strengthened due to growing trade and capital flows. Cross-border financial flows have become an important feature of the global economy, reflecting global financial integration. The global financial crisis has reinforced the financial linkages across countries, and the resulting rise in volatility generated by capital flows. Processes such as outsourcing, deregulation of the labour market, and growing demands for employee flexibility have combined to create an imperative of high mobility. Contemporary work calls for flexibility as the need for constant reskilling. The economic activity of the population can be improved by enhancing the labour force's pool of qualifications and investing more in human capital. While the goal of political reform and economic growth is a knowledge-based society, employees tend to be geographically flexible and mobile, contributing to the diversity of the workforce. The importance of investigating

the social context and personal circumstances of high mobility is underlined, and forces to think about the importance of economic, social, and political differences among territorially defined states versus the benefits of cross-border integration.

Innovation is the key factor in promoting competitiveness in a globalizing knowledge economy, and labor market mobility can be important for generating diversity of knowledge. At the heart of these changes was to produce available labor, to promote an entrepreneurial way of thinking, and to broaden the worker's capacity to acquire entrepreneurial competences. It is necessary to think about new ways to develop a high qualification level among the workforce. Strategies of youth, education, labour market and social policy emphasise the necessity to promote skills and competencies of young people that are seen as conducive to improving the economic productivity and competitiveness. The increased competition on labour markets and the shift towards the knowledge society will create demand for highly skilled labour, and increase the importance of education on

the labour market. Employment and education have become indicators of the conditions young people are facing during the period of financial crises and socio-political reform. It deserves to explore how educational strategies are implemented and if they enable young people to convert knowledge and skills into capabilities to act as participating active citizens.

The aging of the population and the evolution of the labour force as well as the migratory policy are explored. Indicators of human capital and industry composition perform, talent, and technology explain job and income growth and job instability. Without structural changes to global economic systems and broader opportunities for reskilling, the future of employment is dismal for many. The important feature of an educational system is the strength of the institutional linkages between education and labor market. Young people are confronted with an increasing fragmentation and flexibility and will have to cope with the rotation between diverse work fields and temporary flexible employment. The paper proposes alternative ways of rethinking the impact of mobility to embed young people's experiences of international mobility within a world characterized by diversity. This intertwining of the global and the local is discussed. The challenge is combining quantitative and qualitative data according to the methodological design and in the analytical phase. The article concludes with some policy recommendations.

## 2. Method

### 2.1. Aims & Underlying Assumptions

The important problems of the labour market will be the shrinking of the labour force and then aging of the labour force. This paper covers the period 1960–2016 and are formulated in terms of aging, capital/labour flows and em/migrant resettlement patterns. These predictions anticipate different effects depending on whether one considers the impact of aging on capital versus labour markets. In particular, capital flows seeks out young workers, locations with higher savings rates, and countries with lower social security taxes. This drives capital out of an aging country as investors seek low-cost workers. It is hope to find differing effects from the capital and labour market implications of aging. In order to explore how to enable young people to be capable as participants in labour markets, the factors that promote young people's capabilities for education and for work, have to be considered altogether. In particular, there has been a shift from labor market flexibility to the flexibility of educational systems. The fight against youth unemployment should start at school, not after school.

The paper is structured as follows. Section 1 consists of the themes: (a) capital and labour market implications of aging; (b) capital flows and impact of financial globalization; (c) educational patterns of employment growth; (d) relationship between capital/labour flows and em/migrant resettlement patterns and (e) impact economic globalization

has on the flows of the highly educated. Section 2 describes the data and empirical methodology used. Section 3 discusses the empirical evidence for the local communities, Taiwan. Section 4 summarizes the main findings and policy implications. The paper summarizes current thinking on what adapting labour market policy to the transformed employment structure can best address these issues. Some final remarks conclude the paper after discussing the main implications. The paper highlights the challenges posed by flexicurity and the integration of the educational system to the labor market. An emerging new form of social inequality as a consequence of changing education policies would also been explained.

### 2.2. The Data Sources and Measures

The author draws on empirical evidences to analyze the role of macroeconomic factors — technological change and globalization, and the role of structural policies — education policy, as well as labor and product market regulation, in shaping the transnational capital/labour flows. The importance of using mixed methods (i.e. combining both quantitative and qualitative methods) and complementing quantitative information by providing a deeper understanding about the “adapting labour market policy to a transformed employment structure” has been underlined. There is the necessity to frame and extend the analysis to other relevant qualitative aspects such as “capital and labour market implications of aging”, “educational patterns of employment growth”, “relationship between capital/labour flows and em/migrant resettlement patterns”, and “impact economic globalization has on the flows of the highly educated”. Social space, called the volume of global capital, is a product of the correlation between these variables that include education, income, and occupational status. The data used in this study comes from the database “Directorate General of Budget, Accounting and Statistics (DGBAS)” and “Workforce Development Agency, Ministry of Labor (MOL)”, provided by the Executive Yuan, R. O. C.. Using a time-series analysis to explore the relationship between changes in public policy and their effects on the adapting labour market policy to a transformed employment structure, has a varying impact on the incidence of those demands. This paper highlights inequality trends and assesses different policy approaches to reduce labor and disposable income inequality.

### 2.3. Theoretical Foundations

One feature of modern economies is the mobility of financial capital [1]. Financial globalization and cross-border capital raisings catalyze domestic financial market development and improve institutional governance [2]. Access to foreign capital would help the emerging markets grow faster [3]. Rapid economic growth will open up new possibilities of economic cooperation, and there will be an increased flow of people [4]. There is increasing competition to fight for the best intellectual capital [5]. In order to maintain economic prosperity, countries will have to rely on

immigration [6]. Such a reallocation poses a challenge for the labour market, since it requires mobility of workers across sectors [7]. Technological progress and economic activities are becoming skill-intensive, and will create demand for skilled labour force [8]. Active labour market policies promise investments in the potentials of individuals to promote labour and social integration [9]. Employment volatility and a globalized labor market will have an impact on future jobs [10]. Mobility reveals society dynamics more generally [11]. Mobility across organizational borders contributes to professional and social relationships [12]. Facilitating intergenerational mobility allows society to tap the talents of people [13]. Jobs requiring mobility serves as an instrument to accumulate human capital [14].

As globalization has proceeded, locals have become more prominent economic governance actors [15]. The impact of knowledge-intensive service firms is derived from their capacity to facilitate innovation [16]. The diversity of industries promotes the knowledge spillovers, the innovation and economic growth [17]. Foreign direct investment can benefit host economies through knowledge spillovers [18]. Geographical proximity enables firms to exchange knowledge among each other [19]. Clusters generate knowledge spillovers and draw upon a pool of skilled labor [20]. Clusters are becoming more vital in the global market where localities have to face with an increasing competition fostered by high mobility [21]. The clustering effect of human capital focuses on the capacity of localities to enable new knowledge to circulate more efficiently [22]. The knowledge-based capital is a source of regional innovation capacity which supports that regions differ in the way they capture talents [23]. Creative economy is expressed in the ability to create and circulate intellectual capital, with the potential to generate income and jobs [24]. With businesses making transactions beyond their borders, they want employees to maximize their pro-fit [25]. Jobs will be created for the well educated and highly skilled part of the workforce [26]. Competitive advantage is increasingly derived from investments in human creativity and innovation.

Human capital is used as a variable to explain differences and it is a proxy of education of individuals [27]. Education contributes to economic productivity through transmission of knowledge, national workforce development, and global competitiveness. Equity in access to higher education is positively correlated with human capital development and with the economic competitiveness of nations [28].

Knowledge-based economy highlighted the importance of investments in education [29]. Those individual possessing greater human capital are the ones more likely to recognize those opportunities, leading to economic change [30]. A country's productivity and economic growth are seen to depend on the education possessed by its labour force [31]. Education is a common that provides individuals with knowledge to deal with changes [32]. As the level of education of individuals increases, the more they participate in the workforce, and the risk of unemployment declines. The importance of educational resources is not concerned with increasing economic productivity but also with reducing inequalities and empowering young people to lead integrated lives [33].

### 3. Result: Local Community in Its Global Context

In the context of an increasingly globalized world which itself is undergoing a period of crisis and uncertainty, gross flows raise financial risks. A domestic credit boom may be amplified by cross-border debt inflows into the domestic banking system. By expenditures on gross domestic product, the amount (Million N. T. \$) of gross capital formation declines from 3,217,027 in 2008 to 2,580,249 in 2009 (-24.68%), and then 3,524,645 in 2010; the amount of GDP declines from 13,150,950 in 2008 to 12,961,656 in 2009 (-1.46%), and then 14,119,213 in 2010, which is shown in Table 1. At the peak, gross capital flows in Taiwan exceeded 30% of GDP. The collapse in capital flows in 2008–2009 was remarkable, falling to just 4.91% of GDP. According to the contributions to percent change in real Gross Domestic Product by expenditures, the rate of economic growth declines from 0.7 in 2008 to -1.57 in 2009, and then 10.63 in 2010; the percentage of exports of goods and services decrease from 0.39 in 2008 to -5.9 in 2009, and then 15.5 in 2010; the percentage of imports of goods and services decrease from -2.55 in 2008 to -8.59 in 2009, and then 14.4 in 2010, which is shown in Table 2. Capital inflows can make Taiwan more vulnerable to financial crisis. The worry on the financial stability side is that large inflows may lead to excessive foreign borrowing and foreign currency exposure, adding fuel to a domestic credit boom and domestic asset price bubbles. Dealing with capital flows requires lowering interest rates to discourage large inflows, but low interest rates are also expansionary for the domestic economy and may not be the right policy choice for an inflation-targeting central bank.

*Table 1. Expenditures on Gross Domestic Product in Taiwan, End of 1981–2016.*

Year	Gross Capital Formation	Gross Fixed Capital Formation	Changes in Inventories	Exports of Goods and Services	Imports of Goods and Services	GDP	Net Factor Income from Abroad
1981	548,768	512,978	35,790	917,245	881,965	1,805,043	-9,653
1982	508,185	519,884	-11,699	947,554	851,310	1,938,394	-682
1983	552,276	518,980	33,296	1,117,529	938,623	2,170,005	3,256
1984	590,421	549,267	41,154	1,322,253	1,071,559	2,418,884	29,975
1985	529,447	529,967	-520	1,345,492	1,018,088	2,536,012	47,154
1986	614,762	594,404	20,358	1,660,994	1,113,571	2,966,911	76,962
1987	792,809	715,520	77,289	1,856,820	1,335,944	3,344,962	73,351
1988	1,044,229	845,044	199,185	1,917,113	1,674,307	3,615,319	97,374
1989	1,029,656	992,183	37,473	1,957,029	1,710,910	4,033,071	100,769

Year	Gross Capital Formation	Gross Fixed Capital Formation	Changes in Inventories	Exports of Goods and Services	Imports of Goods and Services	GDP	Net Factor Income from Abroad
1990	1,142,092	1,111,414	30,678	2,020,064	1,833,356	4,480,288	117,307
1991	1,303,548	1,239,534	64,014	2,302,504	2,116,633	5,023,763	135,550
1992	1,583,571	1,491,975	91,596	2,347,562	2,265,853	5,614,679	120,762
1993	1,778,885	1,715,984	62,901	2,632,257	2,547,194	6,205,338	114,044
1994	1,898,164	1,843,656	54,508	2,857,679	2,763,130	6,784,442	107,517
1995	2,072,405	2,027,897	44,508	3,412,791	3,310,709	7,396,650	110,919
1996	2,043,855	2,033,277	10,578	3,692,075	3,446,367	8,036,590	109,502
1997	2,317,181	2,231,680	85,501	4,060,689	3,900,409	8,717,241	89,611
1998	2,571,393	2,482,879	88,514	4,352,253	4,264,488	9,381,141	68,551
1999	2,598,205	2,540,878	57,327	4,554,722	4,325,339	9,815,595	90,518
2000	2,815,099	2,722,595	92,504	5,373,337	5,167,343	10,351,260	139,558
2001	2,175,715	2,238,591	-62,876	4,942,685	4,413,478	10,158,209	192,024
2002	2,241,850	2,285,679	-43,829	5,427,124	4,691,827	10,680,883	242,502
2003	2,377,923	2,365,673	12,250	5,924,171	5,188,584	10,965,866	328,873
2004	2,954,277	2,853,709	100,568	6,982,430	6,580,684	11,649,645	372,099
2005	2,957,842	2,924,286	33,556	7,329,793	6,825,273	12,092,254	290,866
2006	3,110,995	3,063,352	47,643	8,316,084	7,588,087	12,640,803	311,699
2007	3,221,482	3,205,121	16,361	9,349,494	8,283,905	13,407,062	332,766
2008	3,217,027	3,045,433	171,594	9,230,775	8,548,202	13,150,950	314,646
2009	2,580,249	2,761,737	-181,488	7,827,336	6,677,161	12,961,656	413,994
2010	3,524,645	3,335,881	188,764	10,013,538	9,015,369	14,119,213	429,639
2011	3,382,866	3,346,945	35,921	10,419,700	9,456,937	14,312,200	388,372
2012	3,304,160	3,282,131	22,029	10,345,375	9,252,005	14,686,917	454,191
2013	3,360,196	3,378,731	-18,535	10,579,884	9,200,363	15,230,739	423,849
2014	3,521,157	3,493,834	27,323	11,254,123	9,594,908	16,111,867	470,538
2015	3,513,112	3,493,267	19,845	10,775,522	8,619,902	16,770,671	530,726
2016	3,569,704	3,584,910	-15,206	10,771,164	8,686,158	17,152,093	530,341

Source: Directorate General of Budget, Accounting and Statistics (DGBAS) of Executive Yuan, R. O. C. (Taiwan)

Unit: Million N. T. \$

Table 2. Contributions to Percent Change in Real Gross Domestic Product by Expenditures in Taiwan, End of 1981–2016.

Year	Economic Growth Rate	Domestic Demand			Demand of Rest of The World		
		Subtotal	Gross Fixed Capital Formation	Changes in Inventories	Subtotal	Exports of Goods and Services	Imports of Goods and Services
1981	7.11	2.73	1.57	-1.99	4.38	4.7	0.32
1982	4.8	2.25	0.36	-2.12	2.55	0.91	-1.64
1983	9.04	5.01	0.1	0.47	4.04	8.61	4.57
1984	10.05	6.37	1.59	-1.14	3.68	9.7	6.02
1985	4.81	1.72	-0.83	-1.17	3.09	1.19	-1.9
1986	11.52	5.86	2.67	-1.24	5.65	14.85	9.2
1987	12.7	11.74	3.96	0.88	0.96	11.41	10.44
1988	8.02	14.29	3.18	3.41	-6.27	3.64	9.91
1989	8.75	9.43	3.18	-2.88	-0.68	2.51	3.19
1990	5.65	7.46	2.17	-1.66	-1.82	0.34	2.16
1991	8.36	8.63	2.72	0.53	-0.27	5.91	6.18
1992	8.29	9.21	2.84	0.68	-0.91	3.13	4.04
1993	6.8	6.81	2.6	-0.65	0	2.89	2.89
1994	7.49	6.96	2.57	-0.33	0.53	2.32	1.79
1995	6.5	5.2	2.01	-1.01	1.3	5.36	4.07
1996	6.18	5.48	0.89	-0.41	0.69	3.25	2.55
1997	6.11	7.97	2.52	0.61	-1.86	3.75	5.61
1998	4.21	6.55	1.99	0.11	-2.34	1.13	3.47
1999	6.72	2.92	0.83	-0.34	3.8	5.66	1.86
2000	6.42	4.61	2.2	-0.57	1.81	8.35	6.54
2001	-1.26	-4.14	-4.58	-0.73	2.88	-4.4	-7.27
2002	5.57	2.69	0.4	0.02	2.89	5.66	2.77
2003	4.12	2.35	0.25	0.61	1.77	5.09	3.32
2004	6.51	6.35	3	0.25	0.15	8.5	8.35
2005	5.42	2.48	0.78	-0.23	2.93	4.57	1.64
2006	5.62	1.36	0.37	0.08	4.26	6.9	2.63
2007	6.52	1.38	0.28	-0.55	5.14	6.87	1.73
2008	0.7	-2.24	-2.66	1.11	2.94	0.39	-2.55
2009	-1.57	-4.25	-2.04	-2.7	2.68	-5.91	-8.59
2010	10.63	9.56	4.12	3.2	1.07	15.5	14.44
2011	3.8	0.53	-0.27	-1.14	3.27	2.98	-0.29

Year	Economic Growth Rate	Domestic Demand			Demand of Rest of The World		
		Subtotal	Gross Fixed Capital Formation	Changes in Inventories	Subtotal	Exports of Goods and Services	Imports of Goods and Services
2012	2.06	0.59	-0.61	-0.12	1.47	0.3	-1.18
2013	2.2	1.88	1.18	-0.46	0.32	2.46	2.14
2014	4.02	3.37	0.46	0.52	0.65	4.07	3.42
2015	0.81	1.71	0.36	-0.03	-0.91	-0.26	0.65
2016	1.41	1.94	0.47	-0.26	-0.53	1.24	1.77

Source: Directorate General of Budget, Accounting and Statistics (DGBAS) of Executive Yuan, R. O. C. (Taiwan)

Unit: Percentage Points

Taiwan exports have fared relative to world exports, and Taiwan's market specialization is towards products and markets which are dynamic. According to gross domestic product by kind of activity, the amount (Million N. T. \$) of information and communication develops from 34,377 in 1981 to 499,672 in 2016, and its% of GDP develops from.0190 in 1981 to.0291 in 2016; the amount of finance and insurance develops from 68,995 in 1981 to 1,118,794 in 2016, and its% of GDP develops from.0382 in 1981 to.0652 in 2016; the amount of professional, scientific and technical services develops from 19,733 in 1981 to 358,525 in 2016, and its% of GDP develops from.0109 in 1981 to.0209 in 2016; the amount of education develops from 48,103 in 1981 to 702,675 in 2016, and its% of GDP develops from.0266 in 1981 to.0410 in 2016; the amount of ICT industry develops from 76,106 in 1981 to 2,864,275 in 2016, and its% of GDP

develops from .0422 in 1981 to.1670 in 2016, which is shown in Table 3. Taiwan has a revealed comparative advantage in the product groups: high skill and technology-intensive manufactures, high-tech knowledge-intensive services and knowledge-intensive services. The first 2 groups are ones where multinational investment dominates economic activity, and the third also has a strong multinational presence. Taiwan attracts foreign direct investment (FDI) as a means of generating higher economic growth by providing to domestic firms both a source of capital financing and productivity externalities. Governments offer incentives calculated to attract foreign firms and foster relationships between multinational enterprises (MNEs) and local firms. As the government faces the criticism for the shortterm capital inflows, it would have been more hesitant to engage in the fiscal expansion.

Table 3. Gross Domestic Product by Kind of Activity in Taiwan, End of 1981—2016.

	Gross Domestic Product, Current Price (Million N. T. \$)					
	1981		1991		2008	
	data	% of GDP	data	% of GDP	data	% of GDP
A. Agriculture, Forestry, Fishing and Animal Husbandry	132,689	.0735	182,509	.0363	201,656	.0153
B. Mining and Quarrying	13,798	.0076	14,236	.0028	23,564	.0018
C. Manufacturing	589,905	.3268	1,548,505	.3082	3,567,420	.2713
D. Electricity and Gas Supply	75,725	.0420	139,386	.0277	39,959	.0030
E. Water Supply and Remediation Services	13,380	.0074	33,075	.0066	87,167	.0066
F. Construction	98,290	.0545	215,167	.0428	355,400	.0270
G. Wholesale and Retail Trade	226,275	.1254	649,116	.1292	2,319,485	.1764
H. Transportation and Storage	77,212	.0428	219,326	.0437	388,038	.0295
I. Accommodation and Food Services	15,548	.0086	80,772	.0161	257,029	.0195
J. Information and Communication	34,377	.0190	116,469	.0232	454,657	.0346
K. Finance and Insurance	68,995	.0382	334,155	.0665	912,828	.0694
L. Real Estate and Ownership of Dwellings	87,455	.0485	329,290	.0655	1,108,305	.0843
M. Professional, Scientific and Technical Services	19,733	.0109	73,705	.0147	293,136	.0223
N. Support Services	11,247	.0062	27,021	.0054	192,776	.0147
O. Public Administration and Defence; Compulsory Social Security	156,698	.0868	452,952	.0902	988,665	.0752
P. Education	48,103	.0266	158,064	.0315	630,999	.0480
Q. Human Health and Social Work Services	13,204	.0073	89,744	.0179	370,232	.0282
R. Arts, Entertainment and Recreation	9,042	.0050	34,024	.0068	111,528	.0085
S. Other Services	37,117	.0206	113,494	.0226	356,092	.0271
Subtotal	1,728,793	.9578	4,811,010	.9577	12,658,936	.9626
Import Duties	76,250	.0422	116,632	.0232	132,563	.0101
Total ( by production approach )	1,805,043	1.0000	5,023,763	1.0000	13,012,820	.9895
GDP	1,805,043	1.0000	5,023,763	1.0000	13,150,950	1.0000
By Major Activities; Agriculture	132,689	.0735	182,509	.0363	201,656	.0153
By Major Activities; Industry	791,098	.4383	1,950,369	.3882	4,073,510	.3098
By Major Activities; Services	881,256	.4882	2,890,885	.5754	8,737,654	.6644
ICT Industry	76,106	.0422	279,415	.0556	1,978,087	.1504

Table 3. Continued.

	Gross Domestic Product Current Price (Million N. T. \$)					
	2009		2010		2016	
	data	% of GDP	data	% of GDP	data	% of GDP
A. Agriculture, Forestry, Fishing and Animal Husbandry	215,109	.0166	224,828	.0159	307,133	.0179
B. Mining and Quarrying	18,030	.0014	19,008	.0013	15,018	.0009
C. Manufacturing	3,422,636	.2641	4,090,594	.2897	5,254,060	.3063
D. Electricity and Gas Supply	187,971	.0145	182,902	.0130	296,296	.0173
E. Water Supply and Remediation Services	86,432	.0067	94,504	.0067	112,316	.0065
F. Construction	319,550	.0247	367,044	.0260	408,495	.0238
G. Wholesale and Retail Trade	2,223,440	.1715	2,367,946	.1677	2,754,591	.1606
H. Transportation and Storage	363,325	.0280	427,866	.0303	504,082	.0294
I. Accommodation and Food Services	267,459	.0206	293,073	.0208	443,360	.0258
J. Information and Communication	453,945	.0350	465,419	.0330	499,672	.0291
K. Finance and Insurance	797,576	.0615	871,705	.0617	1,118,794	.0652
L. Real Estate and Ownership of Dwellings	1,148,078	.0886	1,188,787	.0842	1,388,749	.0810
M. Professional, Scientific and Technical Services	293,405	.0226	307,743	.0218	358,525	.0209
N. Support Services	185,199	.0143	197,194	.0140	265,849	.0155
O. Public Administration and Defence; Compulsory Social Security	994,245	.0767	1,034,284	.0733	1,084,030	.0632
P. Education	646,377	.0499	654,422	.0463	702,675	.0410
Q. Human Health and Social Work Services	384,205	.0296	392,829	.0278	525,798	.0307
R. Arts, Entertainment and Recreation	115,840	.0089	120,299	.0085	148,703	.0087
S. Other Services	360,257	.0278	372,513	.0264	438,521	.0256
Subtotal	12,483,079	.9631	13,672,960	.9684	16,626,667	.9694
Import Duties	117,195	.0090	152,107	.0108	199,740	.0116
Total ( by production approach )	12,806,679	.9880	14,074,747	.9969	17,134,738	.9990
GDP	12,961,656	1.0000	14,119,213	1.0000	17,152,093	1.0000
By Major Activities; Agriculture	215,109	.0166	224,828	.0159	307,133	.0179
By Major Activities; Industry	4,034,619	.3113	4,754,052	.3367	6,086,185	.3548
By Major Activities; Services	8,556,951	.6602	9,095,867	.6442	10,741,420	.6262
ICT Industry	1,841,564	.1421	2,111,024	.1495	2,864,275	.1670

Source: Directorate General of Budget, Accounting and Statistics (DGBAS) of Executive Yuan, R. O. C. (Taiwan)  
Unit: Million N. T. \$

The opening up of the Taiwan economy began in 1980 with the adoption of a range of policy measures, in particular relating to trade liberalization and the promotion of foreign direct investment. By major activities, the amount of agriculture develops from 132,689 in 1981 to 307,133 in 2016, and its% of GDP develops from .0735 in 1981 to .0179 in 2016; the amount of industry develops from 791,098 in 1981 to 6,086,185 in 2016, and its% of GDP develops from .4383 in 1981 to .3548 in 2016; the amount of services develops from 881,256 in 1981 to 10,741,420 in 2016, and its% of GDP develops from .4882 in 1981 to .6262 in 2016, which is shown in Table 3. The industrial sector has played a major role in the transformation of the economy, with growth in manufacturing value of 3.06% GPD in 2016. The services sector has also expanded rapidly during this period, accounting in 2016 for over half of employment and output in the economy. The majority of firms are in the services sector. The proportion of Gross Domestic Product by kind of activity in the agricultural sector declined steadily between 1981 and 2016 while the proportion of Gross Domestic Product by kind of activity in industry and services grew. Since the late 2000s the relative importance of the agricultural sector the overall economy has declined. In 2016, agriculture accounted for .0179 of GDP compared with .3548 and .6262, respectively, for industry and services. High-tech manufacturing employment accounted for an increasing proportion of total employment in the second half of the last

decade. The services sector is clearly the most important sector in terms of employment and capital in 2016.

Table 4 illustrates changes in the relative contributions of the “Intangible Investments, Professional Technique Trades and Product Innovation or Technique Upgrade of Enterprise Units in All Industries in Taiwan, end of 2011”. The grand total of proportion to operating revenues (%) of production innovation, technology upgrade is 11.10. By transactions of professional techniques, the 4 priority items in the amount of overseas purchasing (NT\$1,000) are follows: Manufacturing (161,251,490), Wholesale and Retail Trade (3,689,027), Information and Communication (2,843,994), Professional, Scientific and Technical Activities (349,304); the 4 priority items in the amount of overseas selling (NT\$1,000) are follows: Manufacturing (14,095,086), Information and Communication (1,001,420), Professional, Scientific and Technical Activities (789,393), Wholesale and Retail Trade (710,157). Table 5 illustrates changes in the relative contributions of the “Self-Branding Operations and Utilized/Expedited Dispatched Laborers of Enterprise Units in All Industries in Taiwan, end of 2011”. By self-branding operations, the 4 priority items in the number of enterprise units are follows: Wholesale and Retail Trade (17,400), Manufacturing (13,797), Information and Communication (1,975), Professional, Scientific and Technical Activities (1,464). By Dispatched laborers utilizing, the 4 priority items of the expenses of dispatched laborers utilized (NT\$1,000) are

follows: Manufacturing (17,598,698), Wholesale and Retail Trade (4,104,104), Financial & Insurance Activities, Information and Communication (2,708,157), Compulsory Social Security Activities (2,948,115),

**Table 4.** Intangible Investments, Professional Technique Trades and Product Innovation or Technique Upgrade of Enterprise Units in All Industries in Taiwan, End of 2011.

	Outline of Intangible Investments		Transactions of professional techniques				Prod innovation, technology upgrade	
	Research and Development		Amount of purchasing		Amount of selling		Amount of selling	Proportion to operating revenues (%)
	Number of enterprise units (Enterprise)		domestic	oversea	domestic	oversea		
Grand Total	19 136		11 505 675	169 465 108	19 334 194	16 628 945	6 124 686 198	11.10
Mining and Quarrying	7		-	-	-	-	-	-
Manufacturing	10 512		5 911 351	161 251 490	5 640 101	14 095 086	6 124 686 198	23.04
Electricity and Gas Supply	16		-	172 104	-	2 135	-	-
Water Supply and Remediation Activities	82		4 180	12 965	-	-	-	-
Construction	427		405 434	626 639	116 702	17 092	-	-
Wholesale and Retail Trade	3 850		2 696 619	3 689 027	2 789 212	710 157	-	-
Transportation and Storage	182		77 348	58 976	314 101	749	-	-
Accommodation and Food Service Activities	213		32 304	175 016	24 517	2 107	-	-
Information and Communication	863		1 510 282	2 843 994	3 195 151	1 001 420	-	-
Financial & Insurance Activities; Compulsory Social Security Activities	289		216 269	235 847	851	-	-	-
Real Estate Activities	157		896	30 956	-	-	-	-
Professional, Scientific and Technical Activities	546		451 338	349 304	7 240 987	789 393	-	-
Support Service Activities	140		188 729	3 734	1 361	10 806	-	-
Education	359		-	-	-	-	-	-
Human Health and Social Work Activities	987		316	9 436	2 671	-	-	-
Arts, Entertainment and Recreation	124		-	-	8 439	-	-	-
Other Service Activities	382		10 609	5 620	101	-	-	-

Source: Directorate General of Budget, Accounting and Statistics (DGBAS) of Executive Yuan, R. O. C. (Taiwan)

Unit: NT\$1,000

Notice: “-” means “No such item”.

**Table 5.** Self-Branding Operations and Utilized/Expedited Dispatched Laborers of Enterprise Units in All Industries in Taiwan, End of 2011.

	Number of enterprise units (Enterprise)	Self-Branding Operations	
		Number of enterprise units (Enterprise)	Revenues of self- branded products sold oversea (NT\$1,000)
Grand Total	1 184 811	39 663	3 912 230 334
Mining and Quarrying	431	1	-
Manufacturing	157 284	13 797	3 580 387 256
Electricity and Gas Supply	171	3	-
Water Supply and Remediation Activities	4 965	1	-
Construction	86 350	426	-
Wholesale and Retail Trade	495 700	17 400	331 843 078
Transportation and Storage	54 614	462	-
Accommodation and Food Service Activities	112 364	1 254	-
Information and Communication	13 165	1 975	-
Financial & Insurance Activities; Compulsory Social Security Activities	13 806	793	-
Real Estate Activities	20 313	551	-
Professional, Scientific and Technical Activities	47 591	1 464	-
Support Service Activities	21 607	389	-
Education	17 369	451	-
Human Health and Social Work Activities	29 342	228	-
Arts, Entertainment and Recreation	17 084	136	-
Other Service Activities	92 655	332	-

Table 5. Continued.

	Number of enterprise units (Enterprise)	Dispatched labors utilizing		
		Number of enterprise units utilizing dispatched labors (Enterprise)	Average number of dispatched labors utilized in enterprise units, each month (Person)	Expenses of dispatched labors utilized, year-round of 2011 (NT\$1,000)
Grand Total	1 184 811	7 428	131 296	35 094 581
Mining and Quarrying	431	7	18	2 469
Manufacturing	157 284	2 529	63 934	17 598 698
Electricity and Gas Supply	171	9	1 017	1 167 162
Water Supply and Remediation Activities	4 965	50	273	53 965
Construction	86 350	1 012	9 553	1 160 912
Wholesale and Retail Trade	495 700	1 854	16 026	4 104 104
Transportation and Storage	54 614	206	9 587	2 343 974
Accommodation and Food Service Activities	112 364	147	1 566	294 735
Information and Communication	13 165	221	7 770	2 708 157
Financial & Insurance Activities; Compulsory Social Security Activities	13 806	222	9 106	2 948 115
Real Estate Activities		122	858	138 393
Professional, Scientific and Technical Activities		267	1 892	490 718
Support Service Activities		243	4 582	770 903
Education		104	350	50 179
Human Health and Social Work Activities		220	3 327	943 980
Arts, Entertainment and Recreation		69	772	250 126
Other Service Activities		146	665	67 991

Source: Directorate General of Budget, Accounting and Statistics (DGBAS) of Executive Yuan, R. O. C. (Taiwan)

Unit: Enterprise, NT\$1,000, Person

Notice: “-” means “No such item”.

Table 6 illustrates changes in the relative contributions of the “Services or Labors Transacted across Borders, Direct Investments from Oversea and Personnel Activities across Borders of Enterprise Units in All Industries in Taiwan, end of 2011”. By services or labors transacted across border, the 4 priority items in the number of enterprise units are follows: Wholesale and Retail Trade (13,712), Manufacturing (7,463), Information and Communication (1,317), Professional, Scientific and Technical Activities (1,254). By “>=10% of enterprise equity held by single foreign shareholder”, the 4 priority items in the number of enterprise units are follows: Wholesale and Retail Trade (3,620), Manufacturing (1,498), Professional, Scientific and Technical Activities (684), Information and Communication (542). By personnel active across border, the 4 priority items of Domestic personnels go overseas for business reasons (enterprise) are follows: Wholesale and Retail Trade (15,391), Manufacturing (10,623), Professional, Scientific

and Technical Activities (1,732), Information and Communication (1,382); the 5 priority items of foreign personnels come in for business reasons (enterprise) are also follows: Wholesale and Retail Trade (4,140), Manufacturing (3,691), Education (978), Professional, Scientific and Technical Activities (589), Information and Communication (458). Table 7 illustrates changes in the relative contributions of the “Foreign Branches of Enterprise Units in All Industries in Taiwan, end of 2011”. With foreign branches established, the 5 priority items in the number of foreign branches established (enterprise) are follows: Wholesale and Retail Trade (1,733), Manufacturing (1,525), Financial & Insurance Activities; Compulsory Social Security Activities (298), Transportation and Storage (266), Professional, Scientific and Technical Activities (205); the priority items of the Regional distribution in percentage are follows: China (incl. Hong Kong and Macau) (58.00), Asia (excl. China) (22.43), America (8.40), Others (7.51), Europe (3.66).



**Table 6.** Services or Labors Transacted across Borders, Direct Investments from Oversea and Personnel Activities across Borders of Enterprise Units in All Industries in Taiwan, End of 2011.

	Number of enterprise units (Enterprise)	Services or labors	>=10% of enterprise equity held by
		Transacted across border	single foreign shareholder
		Number of enterprise units (Enterprise)	Number of enterprise units (Enterprise)
Grand Total	1 184 811	27 268	8 073
Mining and Quarrying	431	7	-
Manufacturing	157 284	7 463	1 498
Electricity and Gas Supply	171	11	9
Water Supply and Remediation Activities	4 965	48	15
Construction	86 350	811	170
Wholesale and Retail Trade	495 700	13 712	3 620
Transportation and Storage	54 614	694	284
Accommodation and Food Service Activities	112 364	162	109
Information and Communication	13 165	1 317	542
Financial & Insurance Activities; Compulsory Social Security Activities	13 806	334	507
Real Estate Activities	20 313	152	204
Professional, Scientific and Technical Activities	47 591	1 254	684
Support Service Activities	21 607	878	298
Education	17 369	129	40
Human Health and Social Work Activities	29 342	85	22
Arts, Entertainment and Recreation	17 084	91	32
Other Service Activities	92 655	120	39

*Table 6. Continued.*

	Number of enterprise units (Enterprise)	Personnel active across border		
		Number of enterprise units (Enterprise)	Domestic personnels go overseas for business reasons (Enterprise)	Foreign personnels come in for business reasons (Enterprise)
Grand Total	1 184 811	37 768	34 465	11 915
Mining and Quarrying	431	8	5	3
Manufacturing	157 284	11 298	10 623	3 691
Electricity and Gas Supply	171	18	14	11
Water Supply and Remediation Activities	4 965	75	70	14
Construction	86 350	1 536	1 435	324
Wholesale and Retail Trade	495 700	16 103	15 391	4 140
Transportation and Storage	54 614	611	570	234
Accommodation and Food Service Activities	112 364	352	281	148
Information and Communication	13 165	1 482	1 382	458
Financial & Insurance Activities; Compulsory Social Security Activities	13 806	866	660	437
Real Estate Activities	20 313	371	350	74
Professional, Scientific and Technical Activities	47 591	1 853	1 732	589
Support Service Activities	21 607	1 140	1 056	398
Education	17 369	1 115	196	978
Human Health and Social Work Activities	29 342	521	340	270
Arts, Entertainment and Recreation	17 084	169	148	73
Other Service Activities	92 655	250	212	73

Source: Directorate General of Budget, Accounting and Statistics (DGBAS) of Executive Yuan, R. O. C. (Taiwan)

Unit: Enterprise

Notice: “-” means “No such item”.

Table 7. Foreign Branches of Enterprise Units in All Industries in Taiwan, End of 2011.

	Number of enterprise units (Enterprise)	With foreign branches established, end of 2011						
		Number of enterprise units (Enterprise)	Number of foreign branches established (Enterprise)	Regional distribution in percentage				
				China (incl. Hong Kong and Macau)	Asia (excl. China)	America	Europe	Others
Grand Total	1 184 811	2 123	4 512	58.00	22.43	8.40	3.66	7.51
Mining and Quarrying	431	-	-	-	-	-	-	-
Manufacturing	157 284	777	1 525	56.26	20.33	8.26	5.97	9.18
Electricity and Gas Supply	171	2	2	-	-	-	-	100.00
Water Supply and Remediation Activities	4 965	2	2	50.00	50.00	-	-	-
Construction	86 350	67	102	41.18	56.86	-	0.98	0.98
Wholesale and Retail Trade	495 700	884	1 733	71.26	18.23	4.10	0.35	6.06
Transportation and Storage	54 614	49	266	57.52	24.44	7.52	4.51	6.02
Accommodation and Food Service Activities	112 364	20	43	-	100.00	-	-	-
Information and Communication	13 165	96	186	47.31	17.20	6.99	5.91	22.58
Financial & Insurance Activities; Compulsory Social Security Activities	13 806	73	298	28.52	33.22	19.46	10.74	8.05
Real Estate Activities	20 313	11	12	58.33	41.67	-	-	-
Professional, Scientific and Technical Activities	47 591	76	205	52.68	18.54	26.83	0.49	1.46
Support Service Activities	21 607	45	104	23.08	40.38	21.15	10.58	4.81
Education	17 369	6	14	42.86	-	57.14	-	-
Human Health and Social Work Activities	29 342	2	2	-	-	50.00	-	50.00
Arts, Entertainment and Recreation	17 084	6	8	87.50	-	12.50	-	-
Other Service Activities	92 655	7	10	30.00	30.00	40.00	-	-

Source: Directorate General of Budget, Accounting and Statistics (DGBAS) of Executive Yuan, R. O. C. (Taiwan)

Unit: Enterprise, %

Notice: “-” means “No such item”.

Table 8 illustrates changes in the relative contributions of the “Development Status of Five New Emerging Industries and International Logistics Industry in Taiwan, end of 2011”. By number of enterprise units (enterprise), the priority items are follows: Cultural creativity industry (45,168), Health and nursing care industry (26,969), International logistics industry (14,277), Biotechnology industry (3,515), Green energy industry (1,687). By number of persons engaged (person), the priority items are follows: Health and nursing

care industry (408,009), Tourism industry (276,799), Cultural creativity industry (212,656), International logistics industry (164,448), Green energy industry (70,863), Biotechnology industry (64,824). By total value of production (NT\$1,000,000), the priority items are follows: Health and nursing care industry (781,267), International logistics industry (755,304), Cultural creativity industry (709,269), Tourism industry (530,674), Green energy industry (360,414), Biotechnology industry (196,966).

Table 8. Development Status of Five New Emerging Industries and International Logistics Industry in Taiwan, End of 2011.

	Number of enterprise units (Enterprise)	Number of persons engaged (Person)	Total value of production (NT\$1,000,000)
Green energy industry	1 687	70 863	360 414
Biotechnology industry	3 515	64 824	196 966
Cultural creativity industry	45 168	212 656	709 269
Tourism industry	-	276 799	530 674
Health and nursing care industry	26 969	408 009	781 267
International logistics industry	14 277	164 448	755 304

Source: Directorate General of Budget, Accounting and Statistics (DGBAS) of Executive Yuan, R. O. C. (Taiwan)

Unit: Enterprise, Person, NT\$1,000,000

The amended statute for industrial innovation was approved by the Legislature November 3, 2017. The amendments consists of four components: promoting innovation, strengthening R&D, guiding innovation, and revitalizing the environment. Innovation policy had long been anchored in a type of technology-push policy. Industrial parks were built by the government and had the goal of fostering industrial location as a highway for economic growth and job creation. These technological parks are intended to be connected to the dynamic sectors of the third industrial revolution: electronics, computers, new materials, telecommunications, and later biotechnology. The government plays a key role in facilitating economic growth through its investment in infrastructure and stimulation of capacity development and mass production to ensure full employment. One important policy instrument has been restructuring programmes that guide firms from mass production to flexible specialization. Companies have to constantly develop cutting-edge products and processes to maintain a competitive edge in a global economy. This necessity to innovate and to find new sources of knowledge is reflected in the increasing internationalization of R&D activities. Local governments, workers and consumers welcome foreign investments, new knowledge and opportunities. Foreign firms are tapping into localized knowledge clusters to augment their competitive advantage. Major labor market reforms in Taiwan are essential to spur job creation, lower unemployment, and help prevent further sliding into cycles of long-term deterioration of output growth. The innovative performances such as ICT is connected to the flexibility of its labor markets, which promote diversity in the enterprise knowledge base. Industrial policies emphasize strengthening the capabilities of firms and developing their skills, knowledge, and networking abilities. Innovation policy had long been anchored in a type of technology-push policy. Taiwan has become the world's leading producer

and exporter of value-added creative products. Taiwan views creativity as vital to the economy to an innovation-driven global economy.

By 2009 Taiwan's unemployment rate was 5.85 per cent, which is shown in Table 9. These slightly improved unemployment rates understate the extent of hardship experienced by young people as a result of the crisis. In the 2009, youth (aged 15 to 24) unemployment had reached 14.49 per cent, compared with 5.93 per cent for the adults (aged 25-44 years). By 2009 Taiwan's labor force participation rate was 57.9 per cent, which is shown in Table 10. In 2009, youth (aged 15 to 24) accounted for 28.6 of labor force participation rate compared with 84.2 and 60.3, respectively, for the adults (aged 25-44 years) and the adults (aged 45-64 years) services. The major problem of the Taiwan labour market policies are the worryingly high level of unemployment and the development of atypical forms of employment. Young people are instead finding themselves without a job and potentially falling into long-term unemployment. This will raise crucial issues if it results in a process of increasing job insecurity and increasingly precarious living standards. Table 11 shows that the overall age structures of the population of Taiwan are far from being stationary. That economic landscape has now radically changed, with a complex web of production and supply links extending to manufacturing and services sectors, helped by rapid technological progress. While youth unemployed reached a record high, older workers, aged above 65 years, were badly affected, showing the big fall in that category since records began in 2010. The government is faced with a challenge to ensure that there are enough working-age people to provide a labour force needed for new investment and growth and to fund the pension system. The outflows of some of the best and brightest workers from Taiwan to China Mainland continue to grow.

*Table 9. Unemployment rate in Taiwan, End of 1998–2013.*

Year	Total (%)	age				educational level		
		15-24 years (%)	25-44 years (%)	45-64 years (%)	65 years and over (%)	Junior high & below (%)	Senior high & vocational (%)	Junior college & above (%)
1998	2.69	7.32	2.26	1.44	0.19	2.28	3.09	2.80
2009	5.85	14.49	5.93	3.90	0.13	5.84	6.19	5.57
2010	5.21	13.09	5.35	3.39	0.19	4.83	5.58	5.12
2013	4.18	13.17	4.27	2.25	0.14	3.53	4.11	4.50

Source: Directorate General of Budget, Accounting and Statistics (DGBAS) of Executive Yuan, R. O. C. (Taiwan)

*Table 10. Labor force participation rate in Taiwan, End of 1998–2013.*

Year	Total (%)	15-24 years (%)	25-44 years (%)	45-64 years (%)	65 years and over (%)	foreign workers in Taiwan (1,000)
1998	58.0	36.0	79.2	60.8	8.5	271
2009	57.9	28.6	84.2	60.3	8.1	351
2010	58.1	28.8	84.7	60.3	8.1	380
2013	58.4	29.6	86.6	60.7	8.3	489

Source: Directorate General of Budget, Accounting and Statistics (DGBAS) of Executive Yuan, R. O. C. (Taiwan)

Table 11. Population in Taiwan, End of 1998–2061.

Year	Population Composition				
	Percentage of population aged 0-14 (%)	Percentage of population aged 15-64 (%)	Percentage of population aged 65 and over (%)	Dependent ratio (%)	Index of ageing (%)
1998	22.0	69.8	8.3	43.3	37.6
2010	15.6	73.6	10.7	35.8	68.6
2013	14.3	74.2	11.5	34.9	80.5
2014	-	-	-	-	-
2017	-	-	-	-	-
2020	-	-	-	-	-
2023	-	-	-	-	-
2026	-	-	-	-	-
2029	-	-	-	-	-
2032	-	-	-	-	-
2035	-	-	-	-	-
2038	-	-	-	-	-
2041	-	-	-	-	-
2044	-	-	-	-	-
2047	-	-	-	-	-
2050	-	-	-	-	-
2053	-	-	-	-	-
2056	-	-	-	-	-
2061	-	-	-	-	-

Table 11. Continued.

Year	Population annual increase rate (%)	Population Projections			
		Total population (1,000)	Population aged 0-14 (1,000)	Population aged 15-64 (1,000)	Population aged 65 and over (1,000)
1998	8.5	-	-	-	-
2010	1.8	-	-	-	-
2013	2.5	-	-	-	-
2014	-	23419	3260	17347	2812
2017	-	23517	3020	17218	3279
2020	-	23559	2909	16846	3804
2023	-	23552	2825	16378	4348
2026	-	23497	2777	15810	4910
2029	-	23382	2644	15286	5452
2032	-	23192	2545	14745	5901
2035	-	22917	2440	14179	6297
2038	-	22554	2317	13650	6588
2041	-	22111	2178	13057	6876
2044	-	21601	2038	12387	7176
2047	-	21031	1912	11682	7437
2050	-	20414	1805	11070	7539
2053	-	19766	1720	10551	7495
2056	-	19097	1652	10000	7445
2061	-	17952	1556	9040	7356

Source: Directorate General of Budget, Accounting and Statistics (DGBAS) of Executive Yuan, R. O. C. (Taiwan)

Notice: “-” means “No such item”.

Population ageing is the important feature of the forecasted population change. In 2013, aged 0-14 (%) accounted for 14.3 of population composition compared with 74.2 and 11.5, respectively, for aged 15-64 (%) and aged 65 and over (%). The dependent ratio (%) decreases from 43.3 in 1998, to 35.8 in 2010, and to 34.9 in 2013. The changes are even more visible in the development of the population projections. Between 2014 and 2061, the population will shrink by almost 25%, from 23.419 million to 17.952 million people. The difficult situation of Taiwan is a result of a combination of two independent factors: low fertility levels and low labour force participation rates. The labour force aging problem is especially troublesome in the labour market, where

unemployment is high. This approach to modelling population of Taiwan was triggered by the factors: massive international migration flows have changed the dynamics of national populations and, some decision makers considered international migration as a remedy for population aging. These changes will decrease the proportions of middle age groups. Between 2014 and 2061, population aged 65 and over is expected increase by 262% (from 2.812 million people in 2014 to 7.356 in 2061). The share of the population aged 15-64 is envisaged to decrease by 50% (from 17.347 million people in 2014 to 9.040 in 2061). Such changes will require significant adjustments of labour markets in order to meet the needs of an increasing number of elderly workers.

Without immigrants from the other parts of the world, the labour force resources in Taiwan would not complete the gaps for the ageing. The demand for a highly educated workforce associated with Taiwan's growing knowledge economy has led to the increasing recruitment of skilled immigrants. To overcome Taiwan's technical talent shortage while supporting national policies, the government drafted the Act for the "Recruitment and Employment of Foreign Professionals" after a thorough examination of the difficulties and barriers encountered by foreign professionals seeking to work and live in Taiwan. This special law was passed on October 31, 2017, marking a major milestone in Taiwan's recruitment and retention efforts. Taiwan has an immigration system for recruiting immigrants based on skills and human capital using various programs under the economic immigration stream. A new law for knowledge migrants allowed highly skilled workers with job offers for a minimum of years to obtain a residence permit. The government brought about a remarkable shift in the Taiwan's migration policy towards more openness for labour migration. The Taiwan migration policy stemmed from the recognition of labour shortages in some sectors and as demographic concerns, and made a remarkable shift towards more openness based on economic needs assessment.

Taiwan has ranked 23rd among 63 countries in the IMD World Talent Report 2017. Despite its decent ranking, the report is an indication that Taiwan should be aware of its diminishing talent pool. Taiwan is placed at 23, the same ranking as last year after adjustments, but lags behind Hong Kong (12) and Singapore (13) while staying ahead of Malaysia (28) and Japan (31) among Asian countries. In the category of investment and development, Taiwan enterprises are noted to value employee training, but total public expenditure on education as well as Taiwan's pupil-teacher ratio in secondary education, are in inferior positions. Taiwan performs fairly well on effective personal income tax rate, but exhibits inconsistent performance on indicators like the cost-of-living index, brain drain and foreign highly-skilled personnel. The situation might become worse if Taiwanese professional talent continues to move out of the country, and if no foreign highly-skilled professionals arrive to balance their absence, which will further diminish an already drained

talent pool. The economies that perform the best in the evaluation share similar aspects of attractiveness, including high investment on education systems from primary to tertiary levels, substantial opportunities for career advancement and a superior life quality.

Taiwan has largely benefited from the transition from an agricultural to an industrial to post-industrial economy. Table 12 shows the percentage share of disposable income by quintile group of households and income inequality indices in Taiwan, as measured by the Gini Index (the statistical measure of income equality). The Gini's concentration coefficient slightly increased from 0.321 in 1964 to 0.336 in 2016. It shows a stable proportion of the population practising high mobility across age groups. Table 13 shows the income distribution in selected countries (or local communities), such as Singapore, Hong Kong, Japan, China, France, Germany, Italy, UK and USA. Taiwan made efforts in the changes of disposable income occurred by current transfers between households and government. Taiwan wants to achieve the kind of mobility that maximizes the development and returns on human capital that are important to spurring economic growth. The achievement of educational systems that bridge the socioeconomic gap between origin and destination still has a very long way to go. Access to education plays a role in upward intergenerational social mobility. Lack of appropriate level of education to perform advanced technology-required jobs caused some workers to experience downward mobility by taking lower-paying jobs. Table 14 shows the mean disposable income of income recipients by educational attainment in Taiwan. In 2016, graduate school and above accounted for -3.08 of change (%) compared with 1.34 and -0.58, respectively, for university and "primary school, supplementary school and illiteracy services". Access to higher education may contribute to increase opportunities for upward social mobility. But in a difficult economic climate with increasing job insecurity, social mobility is declining in Taiwan. Employable graduates take years to become financially independent from their families, and they become frustrated and pessimistic about the future. Not only does society lose the talents, skills, and energy of a host of otherwise high-performing young people, the result is economically disastrous.

**Table 12.** *Percentage Share of Disposable Income by Quintile Group of Households and Income Inequality Indices in Taiwan, End of 1964–2016.*

Year	Percent distribution of disposable income by quintile of households					Ratio of income share of highest 20% to that of lowest 20%	Gini's concentration coefficient
	Lowest 20%	Second 20%	Third 20%	Fourth 20%	Highest 20%		
1964	7.71	12.57	16.62	22.03	41.07	5.33	0.321
1970	8.44	13.27	17.09	22.51	38.69	4.58	0.294
1972	8.60	13.25	17.06	22.48	38.61	4.49	0.291
1974	8.84	13.49	16.99	22.05	38.63	4.37	0.287
1976	8.91	13.64	17.48	22.71	37.26	4.18	0.280
1977	8.96	13.48	17.31	22.57	37.68	4.21	0.284
1978	8.89	13.71	17.53	22.70	37.17	4.18	0.287
1979	8.64	13.68	17.48	22.68	37.52	4.34	0.285
1980	8.82	13.90	17.70	22.78	36.80	4.17	0.278
1981	8.80	13.76	17.62	22.78	37.04	4.21	0.281
1982	8.69	13.80	17.56	22.69	37.26	4.29	0.283
1983	8.61	13.64	17.47	22.73	37.54	4.36	0.287
1984	8.49	13.69	17.62	22.83	37.36	4.40	0.287

Year	Percent distribution of disposable income by quintile of households					Ratio of income share of highest 20% to that of lowest 20%	Gini's concentration coefficient
	Lowest 20%	Second 20%	Third 20%	Fourth 20%	Highest 20%		
1985	8.37	13.59	17.52	22.88	37.64	4.50	0.291
1986	8.30	13.51	17.38	22.65	38.16	4.60	0.296
1987	8.11	13.50	17.53	22.82	38.04	4.69	0.299
1988	7.89	13.43	17.55	22.88	38.25	4.85	0.303
1989	7.70	13.50	17.72	23.07	38.01	4.94	0.303
1990	7.45	13.22	17.51	23.22	38.60	5.18	0.312
1991	7.76	13.26	17.42	22.97	38.60	4.97	0.308
1992	7.37	13.24	17.52	23.21	38.66	5.24	0.312
1993	7.13	13.12	17.65	23.44	38.66	5.43	0.315
1994	7.28	12.97	17.41	23.18	39.17	5.38	0.318
1995	7.30	12.96	17.37	23.38	38.99	5.34	0.317
1996	7.22	13.00	17.50	23.38	38.89	5.38	0.317
1997	7.24	12.91	17.46	23.25	39.14	5.41	0.320
1998	7.12	12.84	17.53	23.24	39.26	5.51	0.324
1999	7.13	12.91	17.51	23.21	39.24	5.50	0.325
2000	7.07	12.82	17.47	23.41	39.23	5.55	0.326
2001	6.43	12.08	17.04	23.33	41.11	6.39	0.350
2002	6.67	12.30	16.99	22.95	41.09	6.16	0.345
2003	6.72	12.37	16.91	23.17	40.83	6.07	0.343
2004	6.67	12.46	17.41	23.25	40.21	6.03	0.338
2005	6.66	12.43	17.42	23.32	40.17	6.04	0.340
2006	6.66	12.37	17.42	23.51	40.03	6.01	0.339
2007	6.76	12.36	17.31	23.16	40.41	5.98	0.340
2008	6.64	12.37	17.43	23.40	40.17	6.05	0.341
2009	6.36	12.27	17.39	23.64	40.34	6.34	0.345
2010	6.49	12.21	17.39	23.72	40.19	6.19	0.342
2011	6.53	12.05	17.32	23.86	40.25	6.17	0.342
2012	6.53	12.27	17.54	23.68	39.98	6.13	0.338
2013	6.57	12.38	17.49	23.60	39.96	6.08	0.336
2014	6.63	12.28	17.36	23.59	40.13	6.05	0.336
2015	6.64	12.18	17.35	23.63	40.21	6.06	0.338
2016	6.63	12.42	17.35	23.24	40.36	6.08	0.336

Source: Directorate General of Budget, Accounting and Statistics (DGBAS) of Executive Yuan, R. O. C. (Taiwan)

*Table 13. Income Distribution in Selected Countries (or local communities).*

Countries (or local communities)	Year	Quintile shares of total income (%)		Ratio of income share of highest 20% to that of lowest 20% households	Gini's concentration coefficient
		Lowest 20%	Highest 20%		
A. Per household	-	-	-	-	-
Hong Kong	2016	-	-	20.20	0.524
Japan (a)	2016	6.6	41.8	6.31	-
Republic of China	2016	6.6	40.4	6.08	0.336
U.S.A (a)	2009	4.6	44.4	9.59	0.388
U.S.A (b)	2015	3.1	51.1	16.25	0.479
B. Per capita	-	-	-	-	-
Brazil	2013	3.3	57.4	17.39	0.529
Canada	2010	7.1	41.0	5.77	0.337
China	2012	5.2	47.9	9.21	0.422
Colombia	2013	3.4	58.0	17.06	0.535
Finland	2012	9.4	36.7	3.90	0.271
France	2012	7.8	41.2	5.28	0.331
Germany	2011	8.4	38.6	4.60	0.301
Italy	2012	6.2	41.7	6.73	0.352
Japan	2009	7.9	39.2	4.99	0.310
Korea, Rep.	2016	-	-	5.45	0.304
Luxembourg	2012	7.1	41.9	5.90	0.348
Malaysia	2009	4.6	51.4	11.17	0.463
Mexico	2012	4.9	54.1	11.04	0.481
Netherlands	2012	8.9	37.1	4.17	0.280
New Zealand	1997	6.4	43.8	6.84	0.362
Norway	2012	9.3	35.3	3.80	0.259
Republic of China	2016	9.6	37.5	3.89	0.278
Singapore	2016	4.4	50.8	11.66	0.458
Sweden	2012	8.7	36.2	4.16	0.273

Countries (or local communities)	Year	Quintile shares of total income (%)		Ratio of income share of highest 20% to that of lowest 20% households	Gini's concentration coefficient
		Lowest 20%	Highest 20%		
United Kingdom	2015	6.0	45.0	8.20	0.390
U.S.A	2015	3.4	49.8	14.65	0.462

Source: Directorate General of Budget, Accounting and Statistics (DGBAS) of Executive Yuan, R. O. C. (Taiwan)

Notice: “-” means “No such item”.

*Table 14. Mean Disposable Income of Income Recipients by Educational Attainment in Taiwan, End of 2015–2016.*

	2015		2016	
	Value (NT\$)	Change (%)	Value (NT\$)	Change (%)
All income recipient	525,285	0.07	532,864	1.44
Education Attainment				
Graduate school and above	935,478	2.73	906,699	-3.08
University	604,308	-0.74	612,400	1.34
Junior college	629,961	-0.19	639,273	1.48
Senior high school	496,886	-0.64	504,668	1.57
Junior high school	437,698	0.52	445,507	1.78
Primary school, Supplementary school and illiteracy	329,346	-0.17	327,422	-0.58

Source: Directorate General of Budget, Accounting and Statistics (DGBAS) of Executive Yuan, R. O. C. (Taiwan)

Taiwan has experienced a rise in income inequality over the past decades. The widening dispersion in income is shaped by the increasing concentration of income at the top end of the income distribution. The income of the bottom quintile of Taiwan stagnated during the 2010s while that of the top quintile surged. In 1970, for example, the highest 20% of households consumed 38.69 percent of disposable income of households; by 2016, that share slightly increased to 40.36 percent. The ratio of income share of highest 20% to that of lowest 20% increased from 4.58 in 1970 to 6.08 in 2016. The share of income going to the top earners has risen sharply in Taiwan. Taiwan was not only producing more poor; the poor were also getting poorer relative to everyone else. We have seen three decades of stagnant real wages for most workers despite rapid productivity growth and greater inequality. These problems get worse in societies that experience an increase in inequality. Since the 1980s, technological change has been concentrated in capital goods utilized by skilled workers. The increase in productivity from computers, the internet, and other similar technologies is exclusively captured by high skilled workers. The difference between wages for high and low skilled workers has increased since the 1980s. Skill biased technological change (SBTC) seems to explain the rapid increase in wage inequality. Wage income inequality depends on the relative progress of education and technology.

The idea that education is the means to social mobility has been around for a long time. Taiwan has acted to assure greater intergenerational advancement for the disadvantaged through education. Between 1968 and 2016, Taiwan undertook significant school reform to provide equal educational opportunities to all students irrespective of place of residence or social background. Taiwan implemented a unified curriculum for all students until age 18. It also postponed the age at which students are tracked according to their abilities, from age 12 to 15. Taiwan has adjusted their programs to avoid the pitfalls apparent in early tracking. The age of choice of educational track is a prime target for reform

to improve social mobility. Government makes education a key lever to provide opportunities to children of all social strata and to spur economic growth. It was thought that higher supply would increase equality of opportunities, and contribute to the creation of a more just system, with beneficial effects on social mobility. The efficiency of an education system should be measured in terms of the amount of social and occupational mobility. Schools work effectively when they enable students to achieve occupational and educational goals regardless of family background. Social mobility in increasingly knowledge-driven economies is powerfully linked to equitable access to higher education. Social mobility requires equally large-scale changes in the occupational structure, particularly if the education system is expanding. Policies aimed at enhancing social mobility, consider their links with future educational choices and equal opportunity for individuals.

A massive flow of foreign direct investment has triggered the process of technological change, and generated the need for skill upgrading of the workforce, especially of the youngest segments. Young people today must negotiate the new terrain of a life course that is unpredictable. The shift into postindustrial society has changed the nature of work, with the emergence of flexible and precarious employment in place of a career for life. As a result from the financial crisis, the worsened situation on the labor market reinforces the challenges to find meaningful education or labor. A stronger focus is now placed on the youth, education and better skill matching, as well as on labour market transitions. In the analysis of the current weaknesses of Taiwan labour market, Taiwan focuses on the need to improve employability (in particular of young people) and on the development of skills relevant for the labour market. Investments in human capital that enhance the development of competencies might well be perceived as investments in an area with relatively high social and economic returns. Such as the expansion of higher education and raising the age of compulsory participation in education or training, these measures were underpinned by

the view that social problems such as unemployment, poverty and social inequality could be alleviated by transforming them into problems of educational access, achievement and quality. Attainment levels in higher education in Taiwan meets the projected growth in knowledge-intensive jobs, reinforce Taiwan’s capacity to benefit from globalization. This puts schools in a very important position through their role in education of youth and in turn the future employment of young people.

Table 15 illustrates the trends in the “International Mathematics and Science Study, end of 2015”. Taiwan ranked third for both items of 8th Grade Mathematics and 8th Grade Science compared with fourth and sixth respectively, for 4th Grade Mathematics and for 4th Grade Science. Table 16 illustrates changes in the “Reading, Math and Science Scores of 15-Year-Olds on the PISA, end of 2015”. Taiwan

ranked 23<sup>th</sup> for Reading compared with fourth and fourth respectively, for Mathematics and Science. The deterioration of students’ scholastic abilities has been discussed intensively in the context of the deterioration of fundamental literacy skills. In an attempt to regain Taiwan status in reading skills in the world rankings, policies were developed to improve literacy skills. Many teachers encouraged their students to read more books and they developed learning materials to improve students’ reading skills. PISA has been introduced to create a change in the education system, which is based on a different type of education system in the global society. PISA seems to play a part in bringing this educational globalization about, and students can aspire for a better international career when they get higher scores in PISA tests.

Table 15. Trends in International Mathematics and Science Study, End of 2015.

Rank	8th Grade Mathematics		8th Grade Science		4th Grade Mathematics		4th Grade Science	
	Country	Mean Score	Country	Mean Score	Country	Mean Score	Country	Mean Score
1	Singapore	621	Singapore	597	Singapore	618	Singapore	590
2	South Korea	606	Japan	571	Hong Kong	615	South Korea	589
3	R. O. C. Taiwan	599	R. O. C. Taiwan	569	South Korea	608	Japan	569
4	Hong Kong	594	South Korea	556	R. O. C. Taiwan	597	Russia	567
5	Japan	586	Slovenia	551	Japan	593	Hong Kong	557
6	Russia	538	Hong Kong	546	Northern Ireland	570	R. O. C. Taiwan	555
7	Kazakhstan	528	Russia	544	Russia	564	Finland	554
8	Canada	527	England	537	Norway	549	Kazakhstan	550
9	Ireland	523	Kazakhstan	533	Ireland	547	Poland	547
10	United States	518	Ireland	530	England	546	United States	546
11	England	518	United States	530	Belgium	546	Slovenia	543
12	Slovenia	516	Hungary	527	Kazakhstan	544	Hungary	542
13	Hungary	514	Canada	526	Portugal	541	Sweden	540
14	Norway	512	Sweden	522	United States	539	Norway	538
15	Lithuania	511	Lithuania	519	Denmark	539	England	536
16	Israel	511	New Zealand	513	Lithuania	535	Bulgaria	536
17	Australia	505	Australia	512	Finland	535	Czech	534
18	Sweden	501	Norway	509	Poland	535	Croatia	533
19	Italy	494	Israel	507	Netherlands	530	Ireland	529
20	Republic of Malta	494	Italy	499	Hungary	529	Germany	528

Source: Ministry of Education, R. O. C. (Taiwan)  
Unit: Score

Table 16. Reading, Math and Science Scores of 15-Year-Olds on the PISA, End of 2015.

Rank	Country	Reading		Country	Mathematics		Country	Science	
		Mean	S. E.		Mean	S. E.		Mean	S. E.
1	Singapore	535	1.6	Singapore	564	1.5	Singapore	556	1.2
2	Hong Kong	527	2.7	Hong Kong	548	3.0	Japan	538	3.0
3	Canada	527	2.3	Macao	544	1.1	Estonia	534	2.1
4	Finland	526	2.5	R. O. C. Taiwan	542	3.0	R. O. C. Taiwan	532	2.7
5	Ireland	521	2.5	Japan	532	3.0	Finland	531	2.4
6	Estonia	519	2.2	China (B-S-J-G)	531	4.9	Macao	529	1.1
7	South Korea	517	3.5	South Korea	524	3.7	Canada	528	2.1
8	Japan	516	3.2	Switzerland	521	2.9	Vietnam	525	3.9
9	Norway	513	2.5	Estonia	520	2.0	Hong Kong	523	2.5
10	New Zealand	509	2.4	Canada	516	2.3	China (B-S-J-G)	518	4.6
11	Germany	509	3.0	Netherlands	512	2.2	South Korea	516	3.1
12	Macao	509	1.3	Denmark	511	2.2	New Zealand	513	2.4
13	Poland	506	2.5	Finland	511	2.3	Slovenia	513	1.3
14	Slovenia	505	1.5	Slovenia	510	1.3	Australia	510	1.5
15	Netherlands	503	2.4	Belgium	507	2.4	United Kingdom	509	2.6
16	Australia	503	1.7	Germany	506	2.9	Germany	509	2.7
17	Sweden	500	3.5	Poland	504	2.4	Netherlands	509	2.3



Rank	Country	Reading		Country	Mathematics		Country	Science	
		Mean	S. E.		Mean	S. E.		Mean	S. E.
18	Denmark	500	2.5	Ireland	504	2.1	Switzerland	506	2.9
19	France	499	2.5	Norway	502	2.2	Ireland	503	2.4
20	Belgium	499	2.4	Austria	497	2.9	Belgium	502	2.3
21	Portugal	498	2.7	New Zealand	495	2.3	Denmark	502	2.4
22	United Kingdom	498	2.8	Vietnam	495	4.5	Poland	501	2.5
23	R. O. C. Taiwan	497	2.5	Russia	494	3.1	Portugal	501	2.4
24	United States	497	3.4	Sweden	494	3.2	Norway	498	2.3
25	Spain	496	2.4	Australia	494	1.6	United States	496	3.2
26	Russia	495	3.1	France	493	2.1	Austria	495	2.4
27	China (B-S-J-G)	494	5.1	United Kingdom	492	2.5	France	495	2.1
28	Switzerland	492	3.0	Czech Republic	492	2.4	Sweden	493	3.6
29	Latvia	488	1.8	Portugal	492	2.5	Czech Republic	493	2.3
30	Czech Republic	487	2.6	Italy	490	2.8	Spain	493	2.1
	OECD (Ave.)	493	0.5	OECD (Ave.)	490	0.4	OECD (Ave.)	493	0.4

Source: Ministry of Education, R. O. C. (Taiwan)

Unit: Score

Table 17 illustrates the input of education and research in Taiwan. The tertiary education gross enrollment ratios (%) develops from 47.0 in 1998 to 83.9 in 2013; the number of students per teacher—primary education (person) develops from 20.1 in 1998 to 13.3 in 2013; the expenditure on educational institutions as% GDP (%) decreases from 6.3 in 1998 to 5.7 in 2013; the government expenditure on educational institutions as% GDP (%) decreases from 4.8 in 1998 to 3.7 in 2013; the number of annual papers in SCI (paper) develops from 8886 in 1998 to 27,699 in 2013; the number of U.S. patents granted (paper) develops from 3100 in 1998 to 11,071 in 2013. Taiwan has a multiple admission program. The education system makes sense only when children achieve the results necessary for passing the

entrance examination of good schools or universities. Table 18 illustrates the annual papers and rank by nationality in SCI and SSCI. In 2015, Taiwan 21th for SCI compared with 17th for SSCI. Table 19 makes international comparison by items, including population, fertility rate, education and research, enrollment ratio, expenditure on education, papers in SCI, patents, employment, and labor force, etc. It would be of value if social systems theory was applied not only to Taiwan society but also to the international or global society. In the context of globalization, those who are globally competent have greater possibilities to obtain a better social status in the world. Taiwan education policy becomes increasingly influenced by global organizations.

*Table 17. Education and Research in Taiwan, End of 1998—2013.*

year	Tertiary education gross enrollment ratios (%)	Number of students per teacher - Primary education (person)	Expenditure on educational institutions as% GDP (%)	Government expenditure on educational institutions as% GDP (%)	Number of annual papers in SCI (paper)	Number of U.S. patents granted (paper)
1998	47.0	20.1	6.3	4.8	8886	3100
2009	82.2	16.1	6.3	4.3	23778	6642
2010	83.8	15.3	5.7	3.8	24921	8239
2013	83.9	13.3	5.7	3.7	27699	11071

Source: Directorate General of Budget, Accounting and Statistics (DGBAS) of Executive Yuan, R. O. C. (Taiwan)

*Table 18. Annual Papers and Rank by Nationality in SCI and SSCI, End of 2015.*

Nationality	in SCI		Nationality	in SSCI	
	Paper	Rank		Paper	Rank
United States	421,397	1	United States	105,627	1
Mainland China	294,751	2	United Kingdom	35,163	2
United Kingdom	124,261	3	Australia	18,413	3
Germany	110,448	4	Canada	16,058	4
Japan	78,413	5	Germany	14,732	5
France	76,032	6	Mainland China	12,257	6
Canada	70,097	7	Netherlands	10,684	7
Italy	68,709	8	Spain	9,010	8
Australia	64,717	9	Italy	7,608	9
India	62,123	10	France	6,873	10
Spain	59,310	11	Sweden	5,638	11
South Korea	58,164	12	Switzerland	4,673	12
Brazil	43,635	13	Brazil	4,117	13
Netherlands	41,142	14	Belgium	4,057	14
Russia	35,387	15	South Korea	3,991	15
Switzerland	30,745	16	Japan	3,806	16

Nationality	in SCI		Nationality	in SSCI	
	Paper	Rank		Paper	Rank
Iran	29,695	17	R. O. C. Taiwan	3,645	17
Turkey	29,185	18	Denmark	3,448	18
Poland	28,123	19	Norway	3,408	19
Sweden	27,701	20	South Africa	3,133	20
R. O. C. Taiwan	26,715	21	Turkey	3,079	21
Belgium	23,220	22	India	3,052	22
Denmark	18,819	23	Israel	2,878	23
Austria	15,968	24	Finland	2,598	24
Israel	14,843	25	New Zealand	2,579	25
Portugal	14,705	26	Austria	2,080	26
Mexico	13,878	27	Portugal	2,077	27
Kingdom of Saudi Arabia	13,775	28	Singapore	2,041	28
Singapore	13,749	29	Ireland	1,899	29
Finland	13,630	30	Poland	1,591	30

Source: Ministry of Education, R. O. C. (Taiwan)

Unit: Paper

Table 19. International Comparison.

item	Period/unit	Taiwan	Singapore	China	South Korea	Japan	United Kingdom	Germany	United States of America
Population	-	-	-	-	-	-	-	-	-
Midyear population	2013/millions	23.3	5.4	1357.4	50.2	127.3	64.1	80.6	316.2
Population Projected for year 2025	2013/millions	23.7	6.4	1406.1	52.0	120.7	69.8	80.0	346.4
Age-specific distribution	-	-	-	-	-	-	-	-	-
0-14 years	2013/%	14	16	16	16	13	18	13	19
15-64 years	2013/%	74	74	75	73	62	66	66	67
65 years and over	2013/%	12	10	9	11	25	16	21	14
Dependent ratio	2013/%	35	35	33	37	61	52	52	49
Total fertility rate (per woman)	2013/rate	1.1	1.3	1.5	1.3	1.4	2.0	1.4	1.9
Education and Research	-	-	-	-	-	-	-	-	-
Tertiary education gross enrollment ratio	2012/%	84.4	-	26.7	98.4	61.5	61.9	61.7	94.3
Ratio of pupils to teachers at primary education	2012/ratio	14.1	17.4	18.2	17.9	17.1	18.3	11.7	14.4
Public expenditure on education as% GDP	2012/%	4.4	3.2	-	5.2	3.9	6.2	5.1	5.4
Number of annual papers in SCI	2013/ paper	27699	11636	219281	51051	78447	109026	102271	378625
Number of patents granted in U.S.	2013/ paper	11071	797	5928	14548	51919	5806	15498	133593
Employment	-	-	-	-	-	-	-	-	-
Total labor force	2013/1,000	11445	2139	788940	25873	65770	31784	42545	155389
Labor force participation rate	2013/%	58.4	66.7	70.7	61.5	59.3	62.8	60.3	63.2
Employment	2013/1,000	10967	2056	767040	25066	63110	29265	40278	143929
Agriculture	2013/%	5.0	-	33.6	6.1	3.7	1.2	1.4	1.5
Industry	2013/%	36.2	18.6	30.3	24.4	25.3	19.1	27.9	17.5
Service	2013/%	58.9	80.1	36.1	69.5	71.0	79.7	70.6	81.0
Unemployment rate	2013/%	4.2	2.9	4.1	3.1	4.0	7.9	5.3	7.4

Source: Directorate General of Budget, Accounting and Statistics (DGBAS) of Executive Yuan, R. O. C. (Taiwan)

Notice: “-” means “No such item”.

## 4. Discussion

The potential positive effects of capital flows include technology transfers, skill upgradation, and expanding its stock of human capital. The global economy is in the midst of change process affecting access to knowledge and technology. Globalization has defined new rules for competition of workers. It is essential to know how to attract, develop and retain intellectual capital. The local communities developed their distinctive social and political practices through their social diversity. Education must admit competent students from all sectors of the culturally diverse

society. It deserves to highlight the place of education in multicultural policies, and to reflect upon the debates about the future of multiculturalism and social equality. For the ageing society, activation policies have become a matter of growing importance in response to the converging pressure of economic globalisation and the political modernisation of social welfare. Given the persistent high youth unemployment rates, a focus is now placed on the youth, education and better skill matching, as well as on labour market transitions. Thus, employment policies should be undergone reforms.

Rising demand for skilled labor is rooted in a permanent change in the structure of the global economy. Analysis of

contemporary education policy reveals a concern with transforming education in the face of daunting challenges linked to globalization. Education is now seen as a vehicle of national competitiveness in which the economic policies have focused on the need for competitive human capital. The pressure resulting from expanding global competition has provoked educational reform measures that are focused on improving the quality of the labor force. The local communities need to think about closing the skills gap if they wish to continue to grow and develop employment opportunities. Education is a good investment for social mobility. To finish the job of increasing mobility, we must urge reform to improve educational mobility. We must lift up students who have the potential, whatever their parents' income, educational, or socioeconomic background, to realize the brightest possible future for our societies and economies. The government should target education as a way to improve social mobility and in turn bring more vitality to local economies.

High youth unemployment rates and a significant degree of instability in employment paths have become key characteristics of the societies. The inclusion of young people from disadvantaged backgrounds has become a priority on the agenda of the local. Rigid educational systems impose constraints on individual decisions of investment in human capital, and may affect negatively the transition from education to work. The coming decades are likely to be challenging times for researchers to comprehend the transformations occurring around and in relation to youth. Education is held to be desirable even beyond its role in fostering economic growth, further social integration and mobility, increasing productivity and promoting social justice. The government should make education a key lever to provide opportunities to children of all social strata and to spur economic growth. But the use of education to spur mobility is not straightforward and remains complicated by a number of social, financial, and political factors. Inequality remains a major challenge to development and the elimination of poverty.

## 5. Conclusions

This geo-political shift has been configured in terms of attenuating flows of capital and cross-border movement. Labor market mobility is likely to contribute to the development and accumulation of skills needed for innovations. In an intensifying global competition the talent, the labour markets should continue to absorb the increased supply of higher-educated workers. The importance of investments in human capital in offsetting the negative socio-economic consequences of population ageing should be underlined. Due to the progressive ageing of the society and the consequent decrease in economically active population, the local communities shall particularly focus on the improvement of the quality of its education and vocational training system as well as on tackling the problems associated with the growing number of young people

excluded not only from the labour market but from the integration into the society at large. Policy makers need to realize that to overcome the possible future consequences of ageing, and appropriate measures should be implemented soon.

Openness to new ideas, collaborations, and the development of absorptive capacities are the cornerstones of a successful innovation strategy. Higher education policy needs to be coordinated with a wider set of innovation policies. A principal task for higher education is to contribute to collective entrepreneurship, to general skills supporting interaction with others resulting in innovation. Public policies should be guided towards the creation of innovation flows and schools should teach young people how to be creative and resourceful, as these qualities are indispensable to promote entrepreneurialism. Educational strategies in the form of investments in human capital are increasingly regarded as the primary means to tackle the challenges of demographic and technological change but also the risk of social disruption. The government should present the solutions to the escalating demands of globalization and growing levels of economic competition.

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