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Wages Structure in the in the United Arab Emirates

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Abstract

This paper analyzes wages in the United Arab Emirates (UAE). A small, open and fast-growing economy, the UAE presents an interesting case with regard to its labor economics. This is an emerging economy staffed primarily by foreign workers, with rather narrow industrial focuses mainly in the energy and service sectors but thin in manufacturing and technology sectors. This is also a transitional economy that tries to diversify away from hydrocarbon-based to non-hydrocarbon-based economic growth. One of the main constraints during the transition is the scarcity of skilled knowledge workers from the local population while there are abundant supply of imported unskilled foreign workers. By analyzing the size and distribution of wages across economic sectors, this paper sheds light on labor conditions and labor market dynamics in this country. The analyses in the paper are built on two data sources: Dubai Economic Council's 2008 labor force survey, and the Ministry of Labor's Wage Protection System (WPS) data base.

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Introduction

Wage and salaries are the main part of labor costs for employers and main source of income for the employed. They are crucial information in business decision making and policy making. In an increasingly globalized world economy where capital, know-how, and talents are more mobile than ever before, wages and salaries are not immune to the impact of globalization and international competition. Workers compete not only with their fellow workers on domestic labor markets for better jobs and better pay, but also compete with foreign workers in foreign countries or with migrant workers who have come to the host countries for work. International competition has the tendency of driving down the gap of labor costs along certain dimensions but exacerbates the gap along other dimensions. As a result, wages reflect not only the supply and demand on domestic markets but on international markets as well, especially for countries with an open labor market.

This paper analyzes wages in the United Arab Emirates (UAE). A small, open and fast-growing economy, the UAE presents an interesting case with regard to its labor economics. This is an emerging economy staffed primarily by foreign workers, with rather narrow industrial focuses mainly in the energy and service sectors but thin in manufacturing and technology sectors. This is also a transitional economy that tries to diversify away from hydrocarbon-based to non-hydrocarbon-based economic growth. One of the main constraints during the transition is the scarcity of skilled knowledge workers from the local population while there are abundant supply of imported unskilled foreign workers. By analyzing the size and distribution of wages across economic sectors, this paper sheds light on labor conditions and labor market dynamics in this country. The analyses in the paper are built on two data sources: Dubai Economic Council's 2008 labor force survey, and the Ministry of Labor's Wage Protection System (WPS) data base.

I. The 2008 Labor Force Survey

The 2008 labor force survey is a representative household survey of the UAE population, using geographic sampling technique but excluding labors living in labor camps. For every household sampled, researchers investigated the employment status for every adult member of that household, generating a sample of 22,416 employed people from 9,654 households. We analyze the annual salaries received by these people and the length of their work time by breaking down the data by respondents' age, gender, education, skill levels, industries, sectors, place of work and nationalities. After that, we run a regression analysis of the effects of these factors on salaries and working hours. Finally, we study the effects of skills and education on salaries and working time in different industries and in different emirates. The gender inequality in pay and benefits is also analyzed at the end.

Overall, there is a huge variation of salaries, benefits and length of work time among workers in the UAE. While a small portion of high-skilled workers, i.e. professionals and managers, enjoy internationally competitive pay, the majority of workforce are low-skill, low-paid, making on average one-sixth of salaries the former group is making. Salaries and benefits also differ widely across age, gender, education, industries, sectors, emirates, and workers' nationalities. Salaries paid in kind are around 13% of salaries paid in cash, and vary significantly like the latter do. The two types of salaries are positively correlated at a statistically significant level. The number of working hours on the other hand has a negative correlation with salaries: the higher the salaries, the fewer hours of work. While the payoff of education and skills are strong and significant, their effects on salaries, benefits and working hours also depend on the industries and emirates the workers are working in. Female workers are making significantly less than male workers, but the gender gap is worse for high-skill and high-education women than for the low-skill and low-education ones.

1. Summary statistics

Table 1 shows that annual employee salaries in the UAE are not symmetrically distributed. Low-paid workers make as little as AED 1,320 during 2008 whilst the highest-paid workers make 5454 times more than the former. The presence of high-income workers have skewed up the average annual salaries: the mean salary number reaches as high as AED 90K, but the median salary is around AED 39K only. Cash salaries are the main part of the overall salaries ranging around AED 36K (median); the rest are salaries paid in kind. The majority of the workforce, however, do not receive any in-kind benefits (median: 0). On average, workers work for 52 hours (mean) per week in the UAE. A small number of respondents have also reported overtime work in the week preceding the survey. If we divide the total annual salary by the total number of working hours in a year (in median term), we get an estimate of effective working hour wage (EWHW) at AED 15.625/hour. (From now on, we use median numbers in the analysis unless otherwise specified.)

$$\text{EWHG} = \text{Annual salary}/(\text{N of weekly working hours} * 52 \text{ weeks}) = 39,000/(48*52) = 15.625$$

Table 1: Summary statistics of annual salaries in the UAE (2008 Labor force survey)¹

	Annual salary for paid employees	Annual cash salary	Annual in-kind salary	% of In-kind vs..cash salary	Number of weekly working hours	Overtime work hours last week
N	22416	22416	22416	22416	23539	648
Mean	90484	82609	7870	0.135	52	8.0
Median	39000	36000	0	0	48	7.0
Std. Deviation	136772	127614	23238	0.215	15	4.4
Skewness	8.136	9.126	7.424	2.504	1.701	3.184
Minimum	1320	1320	0	0	2	.0
Maximum	7200000	7200000	600000	2.57	168	60.0

¹ The sample has been weighted to generate the statistics reported in this and other tables in the paper.

Geographically, workers' salaries differ significantly from some emirates to others. The Emirate of Dubai has the highest annual salaries on average (52K), followed by the Emirates of Abu Dhabi (42K) and Sharjah (30K). The Emirate of Ras Al Khaimah has by far the lowest salaries on average (13K). The difference between the highest and lowest pay is striking for such a small country. The other three northern emirates, Ajman, Umm El Quawain, and Fujairah, have similar salary levels ranging from 18K to 20K in 2008, and their differences are not statistically significant. In terms of the structure of salaries, the Emirate of Fujairah stands out for having the highest level of in-kind benefits than the others (AED 3600/year). In terms of the length of work, five of the seven emirates, except for Ras Al Khaimah and Fujairah, have reported average working hours of 48 per week. The median chi-square statistics at the bottom of the table shows cross-emirate differences in salaries, benefits and working time are statistically significant.

Table 2: The median salaries and working hours across 7 emirates

Emirates	N	Annual salary	Salary in cash	Salary in kind	N	Working hours
Dubai	7012	52,800	48,000	2,400	7435	48
Abu Dhabi	8229	42,000	42,000	0	8429	48
Sharjah	2954	30,000	24,000	1,200	3211	48
Ajman	870	20,400	18,000	600	967	48
Umm El Quawain	476	18,000	18,000	0	500	48
Ras Al Khaimah	1765	13,440	12,000	0	1849	54
Fujairah	1092	18,000	14,400	3,600	1118	54
Chi-Square		1132.495	1042.823	2530.023		654.209
Asymp. Sig.		.000	.000	.000		.000

The salaries differ a lot between the public and private sectors too. Compared to the AED 36K/year in the private sector, government jobs pay much higher salaries. The median salaries at the federal government are above AED 188K in 2008; local government jobs (AED 84K/year) pay significantly less than the federal government does, but still three times the median salaries in the private sector. The number of weekly working hours are also significantly less in the public sector (40h/week) than in the private sector (48h/week). Jobs that receive the lowest pay

(AED 10K) but require the longest working hours (70h/week) are those working in the private households such as maids and servants.

Table 3: The median salaries and working hours in public and private sectors in the UAE

	N	Annual salary	Salary in cash	Salary in kind	N	Working hours
Federal government	3224	188,868	180,000	0	3224	40
Local government	3574	84,000	78,000	2,400	3574	40
Joined sector	968	120,000	120,000	0	972	45
Private sector	10313	36,000	36,000	0	11376	48
Foreign sector	267	120,000	120,000	2,400	267	45
Without establishment	128	13,200	10,800	3,000	175	63
Private household	3910	10,800	8,400	900	3910	70
Chi-Square		6146.463	6116.186	302.552		6073.703
Asymp. Sig.		.000	.000	.000		.000

Not so surprisingly, female workers in general are making significantly less than male counterparts at work. In the UAE, the median salaries for female workers are around AED 24K but 42K for male workers. The average number of working hours also tends to be longer for women than for men.

Table 4: The median salaries and working hours for male and female workers

	N	Annual salary	Salary in cash	Salary in kind	N	Working hours
Female	6033	24000	24000	600	6112	48 (mean: 57)
Male	16383	42000	36000	0	17418	48 (mean: 51)
Chi-Square		95.397	62.985	5.911		109.875
Asymp. Sig.		.000	.000	.015		.000

Young workers below the age 40 dominate the UAE workforce. The median annual salaries are AED 31K for workers between 15-39, AED 66K for those between 40-59, and AED 120K for those above 60. The median number of working hours is the same for all three age groups, but the mean number decreases as age increases.

Table 5: The median salaries and working hours for workers in different age groups

	N	Annual salary	Salary in cash	Salary in kind	N	Working hours
Age 15-39	16040	31,200	30,000	0	16444	48 (mean: 53)
Age 40-59	6039	66,000	60,000	0	6624	48 (mean: 51)
Age 60 & above	337	120,000	120,000	0	462	48 (mean: 48)
Chi-Square		943.309	975.813	22.071		71.551
Asymp. Sig.		.000	.000	.000		.000

The payoff of education for workers in the UAE is significant. One-fifth of the labor force are illiterate and their median salaries are around AED 14K. Another one-fifth of the labor force have finished primary education and receive a median salary of AED 19K in 2008. The salaries more than doubled for workers who manage to finish a secondary education, reaching AED 48K per year. For the rest 30% of the workers who have a university degree, their median annual salaries are as high as AED 120K. The length of working time decreases consistently as the education level increases.

Table 6: The median salaries and working hours for workers at different education levels

Education	N	Annual salary	Salary in cash	Salary in kind	N	Working hours
Illiterate	4032	14400	12000	840	4116	56
Primary	5001	19200	16800	1200	5216	54
Secondary	6524	48000	42000	0	6885	48
University	6859	120000	111000	0	7313	45
Chi-Square		11958.538	11796.559	172.769		3020.925
Asymp. Sig.		.000	.000	.000		.000

While education provides a proxy for the value of labor, skills are what labor markets care about most in the end. Unskilled labors doing elementary jobs earn a median salary of AED 18K only in 2008. The bulk of the labor force are low-skilled clerks, service workers and craftsmen, making AED 24K a year. By contrast, the skilled workers like professionals and managers earn from AED 84K to 144K.

Table 7: The median salaries and working hours for workers at different skill levels

Skill	N	Annual salary	Salary in cash	Salary in kind	N	Working hours
Elementary	1885	18000	14400	2400	1892	48
Clerk/Services/Crafts	11428	24000	19200	0	11648	54
Semi-professional	3008	84000	72000	0	3046	48
Senior-professional	4900	144000	127458	0	5749	48
Chi-Square		11272.078	11522.927	270.580		2737.355
Asymp. Sig.		.000	.000	.000		.000

Industry-wise, we once again find significant cross-group differences. Mining (AED 192K) , finance (120K) and real estate (103K) have the highest paid jobs, while agriculture (12K), housework (12K), construction (33K), and manufacturing (39K) are among the lowest paid industries.

Table 8: The median salaries and working hours in different industries

Industry	N	Annual salary	Salary in cash	Salary in kind	N	Working hours
Agro fishery	829	12,000	9,600	0	843	60
Mining	485	192,000	156,000	0	487	40
Manufacturing	1442	39,600	36,000	0	1607	48
Utilities & Energy	284	84,000	72,000	0	291	40
Construction	2222	33,758	30,000	0	2385	48
Trade and Repair Services	2546	42,000	36,000	996	3009	48
Hotels and Restaurants	559	20,400	15,600	2,400	584	56
Logistics	1505	48,000	42,382	0	1584	48
Financial Services	757	120,000	114,000	0	766	45
Housing and rent services	5298	103,200	96,000	697	5411	42
Education	1341	96,000	84,000	0	1350	40
Health & Social services	632	96,000	84,000	0	646	45
Other services	4486	12,000	9,600	960	4535	70
Chi-Square		6806.180	6667.894	343.175		6127.033
Asymp. Sig.		.000	.000	.000		.000

Workers in the UAE come from diverse nationalities, and the differences in their salaries and working hours are striking. Western and Emirati workers are paid way above the national average, at AED 312K and 216K respectively, followed by GCC nationals (78K) and non-GCC Arab workers (72K). Asian workers are paid the least and work the longest hours.

Table 9: The median salary and working hours for workers from different nationalities

	N	Annual salary	Salary in cash	Salary in kind	N	Working hours
Emirati	4754	216,000	204,000	0	4891	40
Other GCC nationals	130	78,000	72,000	0	142	40
Non-GCC MENA	3247	72,000	70,800	0	3619	48
Rest of Africa	1059	20,400	18,000	986	1089	54
Asian tigers	1072	10,704	8,400	1,200	1087	70
Bang, Ind, Pak, Phi	10954	25,200	24,000	1,200	11427	48
Western (EU, USA, etc)	445	312,000	273,332	12,000	481	40
Rest of Asia	533	21,600	18,000	1,200	556	49
Chi-Square		5619.296	5931.184	672.350		2266.775
Asymp. Sig.		.000	.000	.000		.000

2. OLS regressions

To estimate the effects of above-mentioned socioeconomic factors on salaries, benefits and working hours, we run a set of OLS regressions and report the results in Table 10. Gender is confirmed to have a negative impact on salaries for female workers, both cash and non-cash salaries, but not on the hours of work. Similarly, age is found to have a negative impact on salaries for young workers, but no impact on the length of work. The positive effects of education and skills on pay are strong and significant, especially for the highest-paid jobs. Workers with a university degree makes nearly 39K more a year than those with a secondary degree; and high-skilled managers and professionals make 78K more than low-skilled clerks and craftsmen. The gaps decrease as one moves down the ladder of education and skills. This is also the case for the number of working hours.

Using housing services as the reference group, we find that mining industry has the highest pay amongst all industries, followed by housing and financial services. A large part of the pay premium in the mining industry consists of in-kind benefits. Energy and health services are two other industries that have above-average non-cash benefits. One notable finding is that jobs in education pay significantly worse after we control for everything else, despite the fact that average salaries are fairly high in that industry. In terms of hours of work, agriculture and hospitality have longer hours than the others while educational jobs enjoy shorter time at work.

The previous finding that salaries differ across emirates has been confirmed by the regression results. What is interesting is, after controlling for other factors, Abu Dhabi, instead of Dubai, turns out to be the one that pays the highest salaries, and workers in Dubai work the longest hours. In terms of benefits, jobs in Abu Dhabi, Sharjah, and Fujeirah pay higher than those in Dubai do.

The regressions also confirm a well-known fact that government jobs pay much better than private sector jobs and have shorter time of work as well. Everything else being equal, however, it is the foreign sector and joined sector that have the highest pay, rather than the federal and local governments.

Given the above findings, it may not be surprising to find out that western expatriate workers are by far the highest paid, followed by the UAE nationals. Workers from Bangladesh, India, Pakistan and Philippine are the lowest paid, and as noted earlier, they are also the majority of labor force in the UAE. In terms of hours of work, nationals from the UAE, GCC and western countries work significantly less than the others.

Table 10: The OLS regression results

	Annual salary		Salary in cash		Salary in kind		Working hours	
	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>
Female	-32821.2	0.000	-28901.4	0.000	-3919.51	0.000	-0.19455	0.386
Age (Base: 15-39)								
Age 40-59	29925.79	0.000	27160.88	0.000	2760.022	0.000	-0.01473	0.928
Age above 60	34171.74	0.000	26865.64	0.000	7312.502	0.000	0.001613	0.998
Education (Base: University & above)								
Illiterate	-56658.1	0.000	-52148.7	0.000	-4513.33	0.000	4.705634	0.000
Primary	-48814.3	0.000	-45250.9	0.000	-3566.87	0.000	4.327806	0.000
Secondary	-38983	0.000	-36174.2	0.000	-2809.72	0.000	1.938932	0.000
Skill (Base: clerk/servicework/crafts)								
Elementary	-14686.2	0.000	-14321.6	0.000	-362.573	0.435	-1.01771	0.000
Semi-professional	26629	0.000	23933.19	0.000	2697.135	0.000	-2.20088	0.000
Senior/Professional	78059.97	0.000	69618.75	0.000	8429.834	0.000	-2.16236	0.000
Industry (Base: Housing & rent services)								
Agro Fishery	-21547.8	0.000	-21019.2	0.000	-533.722	0.509	4.118544	0.000
Mining	51289.07	0.000	29764.19	0.000	21508.14	0.000	-0.64152	0.229
Manufacturing	-13889	0.000	-13568.2	0.000	-316.912	0.604	0.904441	0.007
Utilities & energy	-10110.4	0.080	-12772.5	0.019	2671.145	0.032	-2.10312	0.002
Construction	-14662.1	0.000	-14287.8	0.000	-368.33	0.500	-0.3558	0.233
Trade & repair services	-21334.9	0.000	-20444.9	0.000	-891.662	0.095	2.263911	0.000
Hotels & restaurants	-27528	0.000	-28144.4	0.000	618.3871	0.412	5.721446	0.000
Logistics & transport	-13700.8	0.000	-11678.3	0.000	-2020.61	0.000	2.589806	0.000
Financial services	-713.886	0.854	773.0596	0.834	-1483.39	0.078	-1.27249	0.006
Education	-60088	0.000	-57454.8	0.000	-2620	0.000	-4.39591	0.000
Health and social services	-11960.8	0.003	-15070.2	0.000	3106.712	0.000	0.489964	0.303
Other services	-15001.8	0.000	-14854.2	0.000	-143.427	0.864	4.526709	0.000
Industry not defined	-11498.4	0.757	-22649.6	0.519	11166.15	0.165	5.755659	0.190
Emirate (Base: Dubai)								
Abu Dhabi	9142.97	0.000	6606.478	0.000	2535.845	0.000	2.182394	0.000
Sharjah	-9079.49	0.000	-10510.5	0.000	1423.863	0.001	2.754362	0.000
Ajman	-15566.6	0.000	-14531	0.000	-1038.29	0.184	4.077151	0.000
Umm Al Quawain	-22591	0.001	-19182.1	0.003	-3407.61	0.022	6.697342	0.000
Ras El Khaimah	-19145.8	0.000	-17295.7	0.000	-1851.67	0.005	5.767994	0.000
Fujeirah	-14280.1	0.000	-19810.7	0.000	5529.563	0.000	2.898447	0.000
Sector (Base: Private sector)								
Federal government	6991.664	0.031	3734.832	0.223	3255.378	0.000	-6.86789	0.000
Local government	15156.13	0.000	11147.14	0.000	4010.053	0.000	-7.2762	0.000
Government outside the UAE	-10515.1	0.810	-25471	0.539	14957.47	0.114	9.545247	0.065

Joined sector	21787.63	0.000	16053.69	0.000	5740.115	0.000	-3.7195	0.000
Foreign sector	23514.32	0.000	19125.6	0.000	4393.85	0.000	-2.73424	0.000
Diplomatic agency	39979.64	0.319	36586.87	0.335	3390.451	0.696	-12.5542	0.008
Without establishment	12555.85	0.172	11245.37	0.195	1320.476	0.506	5.534213	0.000
Private household	1573.771	0.708	859.1878	0.829	712.693	0.433	10.71527	0.000
Nationality (Base: Ban, Ind, Pak & Phi)								
UAE national	157688.2	0.000	153980.4	0.000	3699.659	0.000	-4.25391	0.000
Other GCC national	38296.76	0.000	38737.06	0.000	-480.02	0.818	-3.71368	0.001
Non-GCC MENA	17639.58	0.000	14999.31	0.000	2632.805	0.000	-0.45586	0.033
Rest of Africa	19910.31	0.000	15404.84	0.000	4505.121	0.000	1.301224	0.001
HK, Indo, SK, ML, SG, Tai, Thai	22741.4	0.000	19151.02	0.000	3590.457	0.000	2.200959	0.000
Western (EU, USA, Aust, etc)	227936.2	0.000	208587.5	0.000	19351.2	0.000	-2.61988	0.000
Rest of Asia	12546.74	0.001	11686.09	0.001	860.4935	0.293	-1.02278	0.022
Rest of Europe	45550.08	0.000	37909.74	0.001	7643.584	0.003	-1.39983	0.327
Latin America and Caribbean	87796.8	0.012	59895.4	0.070	27902.45	0.000	-0.20046	0.961
Rest of Oceania	299698	0.000	288249.9	0.000	11458.32	0.316	11.02587	0.077
Constant	83048.01	0.000	79041.24	0.000	4009.717	0.000	48.80449	0.000
N of obs	27050		27050		27050		27050	
F-statistics	529.76		499.84		102.95		395.84	
p-value	0.000		0.000		0.000		0.000	
R-square	0.4744		0.4599		0.1492		0.4027	

3. The interaction effects

In this part, we examine the effects of interaction among a few important factors. Specifically, we look at the impact of two structural variables, industry and emirate, on the effects of individual merits, i.e. skills and education, on job pay. On an efficient job market, we would expect to see meritocratic pay play a more important role in pay determination as supply and demand would drive out any inefficiency caused by unsound segmentation of labor markets. Of course, labor markets are never perfect: wages could be sticky, mobility could be undercut by contracts or regulations, and skills could be difficult to transfer from one job to another, and so on. Hence, we add a number of interaction variables to the previous regression models, and report the results of these interaction effects below.

Note that in Table 11, the location of jobs make a lot more differences for high-skill workers than for low-skill ones. Senior managers and professionals receive higher pays for their skills if they are working Abu Dhabi than in Dubai, and subsequently, those in Dubai earn more than those in the other five Emirates. This is not the case for lower-skill workers. Although semi-professionals also receive a higher pay in Abu Dhabi than in Dubai, the differences between Dubai and the other five Emirates disappear. For unskilled labors, the difference between working in Dubai and Abu Dhabi disappear too, but Sharjah appears to offer a higher pay for elementary jobs than in Dubai.

Table 11: The effects of interaction between skills and emirates

	Annual salary	Salary in cash	Salary in kind	Working hours
Elementary/Abu Dhabi	7075.79	7087.20	-6.81	-0.69
Elementary/Sharjah	12277.85*	13518.62*	-1236.72	4.904***
Elementary/Ajman	5479.61	6078.64	-594.99	4.17
Elementary/UAQ	9790.39	10782.96	-993.86	-10.08***
Elementary/RAK	6580.97	6648.92	-65.00	0.82
Elementary/Fujeirah	13434.94	17148.50	-3711.12	1.72
Semi-professional/A.D	12984.02**	8380.20*	4606.979***	-2.083***
Semi-professional/Sharjah	-4225.54	-3571.62	-647.84	-3.442***
Semi-professional/Ajman	-20592.27	-17528.04	-3058.46	-5.656***
Semi-professional/UAQ	-19364.70	-12557.52	-6804.22	-7.49**
Semi-professional/RAK	-18991.06	-13543.75	-5445.083*	-6.925***
Semi-professional/Fujeirah	-10531.73	-21925.37	11397.85***	0.48
Senior professional/A.D.	34151.7***	18347.17***	15797.14***	-0.81
Senior professional/Sharjah	-30299.65***	-30939.47***	617.59	-2.204***
Senior professional/Ajman	-54398.64***	-50368.63***	-4021.40	-3.208**
Senior professional/UAQ	-52898.49*	-44074.38*	-8820.43	-5.504*
Senior professional/RAK	-58832.89***	-52993.62***	-5849.954**	-3.947***
Senior professional/Fujeirah	-60755.92***	-67371.22***	6622.789**	0.43

Similarly, industry matters more for high-skilled workers than for low-skilled ones. Being in the mining industry increases the salaries of senior professionals and managers by over 54K, while being in the education industry decreases them by over 73K, compared to those

working in the real estate sector. The effects of industry on the relationship between salaries and skills decrease for low-skilled jobs. For elementary jobs, industry makes almost no differences to the payoff of skills, except for the agriculture and construction industry. In terms of the length of work, the interaction effects between skills and industry are relatively more even. Certain industries such as agriculture, hospitality, and logistics tend to shorten the hours of work for workers at all skill levels. Some other industries have no impact on the effect of skills on working hours, and still others have some impact at one or two skill levels. Note that elementary jobs in education industry tend to have significantly longer hours.

Table 12: The effects of interaction between skills and industries

	Annual salary	Salary in cash	Salary in kind	Working hours
Elementary/Agro fishery	18445.58*	20317.77**	-1,876.02	-4.297***
Elementary/Mining	-710.67	2,116.44	-2,829.03	-2.40
Elementary/Manufacturing	15,940.55	14,917.07	1,022.09	-2.514*
Elementary/Utilities & energy	-4,093.32	326.50	-4,422.78	3.76
Elementary/Construction	17827.38**	19263.01**	-1,439.86	-0.34
Elementary/Trade & repair	15,360.56	17902.61*	-2,544.14	-2.76*
Elementary/Hotels & restaurant	14,941.93	18,334.79	-3,396.40	-7.83***
Elementary/Logistics	10,199.55	11,604.24	-1,407.19	-3.147**
Elementary/Financial services	442.41	3,785.58	-3,345.73	1.30
Elementary/Education	-4,435.02	-1,359.89	-3,078.92	5.103903**
Elementary/Health & social services	17,494.02	20,516.67	-3,021.22	-5.365*
Elementary/Other services	9,934.93	13265.15*	-3332.83*	-6.663***
Semi-professional/Agro fishery	-48866.65*	-47116.37*	-1,753.85	-7.270**
Semi-professional/Mining	9,669.65	-2,227.10	11891.82***	0.92
Semi professional/Manufacturing	-18897.1*	-17692.88*	-1,209.56	-1.32
Semi professional/Utilities & energy	-25,862.41	-26,891.17	1,020.40	2.76
Semi professional/Construction	-13,733.22	-13181.31*	-559.33	0.67
Semi professional/Trade & repair	-21692.07***	-18487.46**	-3211.148*	-0.89
Semi professional/Hotels & restaurant	-39733.57**	-35853.16**	-3,885.91	-4.750**
Semi professional/Logistics	-12,212.89	-8,898.31	-3318.843*	-3.013**
Semi professional/Financial services	-8,383.23	-6,742.70	-1,647.77	0.97
Semi professional/Education	-28937.03*	-32154.19**	3,210.38	-2.21
Semi professional/Health & social services	-9,407.76	-12,868.72	3,458.73	0.27
Semi professional/Other services	-33221.99**	-27038.46**	-6187.532**	-3.233**
Semi professional/Industry not defined	-53,894.45	-55,391.74	1,485.70	-6.82

Senior-professional/Agro fishery	-28,843.06	-27,675.48	-1,533.34	-8.595**
Senior-professional/Mining	54627.11***	29795.17**	24792.29***	-1.49
Senior-professional/Manufacturing	-6,561.04	-7,035.76	482.00	-0.83
Senior-professional/Utilities & energy	24,290.69	8,283.34	16010.98***	1.22
Senior-professional/Construction	-18404.94**	-16796.53**	-1,603.02	0.66
Senior-professional/Trade & repair	-38068.11***	-32644.68***	-5445.132***	-2.759***
Senior professional/Hotels & restaurant	-57595.7***	-57680.12***	68.03	-6.605***
Senior professional/Logistics	-16802.66*	-13027.24*	-3768.079*	-2.814***
Senior-professional/Financial services	25323.23**	24473.4**	855.07	0.77
Senior-professional/Education	-75312.01***	-72775.35***	-2,528.42	-1.90
Senior-professional/Health & social services	-2,630.38	-8,865.37	6225.304*	2.33
Senior-professional/Other services	-524.91	1,909.79	-2,425.02	-5.840***
Senior-professional/Industry not defined	31,013.04	22,349.14	8,667.93	-4.17

In Table 13 and 14, we present the interaction effects between education and emirates, and the interaction effects between education and industry. Generally speaking, people with low education (illiterate and primary) are more affected by the place of work and the industry in terms of their salaries and working hours. Working in Abu Dhabi, instead of in Dubai, tend to drive down the pay of workers without a university degree, while working in the other five emirates tend to drive up the pay of these workers, compared to those in Dubai. The impact of location appear stronger at the lower echelon of the educational ladder.

Industry-wise, construction, trade, hospitality, and logistics all have a positive effect on the pay at different educational levels. The education industry itself benefits workers with a primary or secondary education, but not illiterate workers. Agriculture on the other hand benefits workers with below secondary education, not above. In terms of working time, the interaction effects mostly occur at the illiterate and primary education levels. For workers with a higher education, the location or industry of their jobs do not have major impact on the hours of work.

Table 13: The effects of interaction between education and Emirates

	Annual Salaries	Salaries in cash	Salaries in kind	Working hours
Illiterate/Abu Dhabi	-23765.33***	-12104.9**	-11659.4***	2.138***
Illiterate/Sharjah	33387.31***	34047.83***	-641.4283	8.786***
Illiterate/Ajman	56915.16***	51315.3***	5598.605*	4.497**
Illiterate/UAQ	57443.81*	47986.44*	9452.887	5.612
Illiterate/RAK	57823.3***	51835.34***	5985.422**	8.593***
Illiterate/Fujeirah	55505.1***	66125.78***	-10625.67***	-0.1337953
Primary/Abu Dhabi	-19750.14***	-8147.956*	-11600.47***	3.065***
Primary/Sharjah	33322.22***	33241.93***	90.8934	2.965***
Primary/Ajman	59729.98***	54169.48***	5546.239*	5.436***
Primary/UAQ	57973.14**	49580.51*	8387.551	6.289*
Primary/RAK	55110.01***	49120.81***	5984.574**	4.268***
Primary/Fujeirah	54395.57***	64339.96***	-9951.462***	2.225
Secondary/Abu Dhabi	-11366.41**	-2135.061	-9229.675***	-0.3643778
Secondary/Sharjah	20854.09***	20685.63***	188.2298	-0.294394
Secondary/Ajman	46877.66***	42687.75***	4186.956	-2.196628
Secondary/UAQ	38912.65	33675.28	5235.96	2.419642
Secondary/RAK	38208.24***	35178.7***	3017.567	1.84636
Secondary/Fujeirah	33999.6**	38224.59***	-4237.198	-0.3613634

Table 14: The effects of interaction between education and skills

	Annual salaries	Salaries in cash	Salaries in kind	Working hours
Illiterate/Agro fishery	64279.28**	66260.89**	-1999.091	5.303*
Illiterate/Mining	-56218.13	-22443.89	-33738.32***	1.654586
Illiterate/Manufacturing	22339.61**	22348.6**	-9.570288	3.727***
Illiterate/Utilities & energy	-25090.2	-9891.924	-15200.02**	-3.59205
Illiterate/Construction	35941.25***	34360.47***	1577.535	-2.206**
Illiterate/Trade & repair	45190.74***	41889.31***	3319.181*	5.031***
Illiterate/Hotels & restaurant	60238.25***	61735.88***	-1492.238	1.722081
Illiterate/Logistics	26317.19**	23549.57**	2768.678	4.383***
Illiterate/Financial services	-20550.66	-13262.43	-7289.504	-1.56188
Illiterate/Education	37540.16	40092.65*	-2559.202	9.154***
Illiterate/Health & social services	10014.77	18317.13	-8290.068	-6.313*
Illiterate/Other services	25898.32**	24267.17**	1630.703	2.480*
Illiterate/Industry not defined	-41877.77	-17856.54	-24015.34	4.060521

Primary/Agro fishery	63580.81**	63500.22**	79.03987	6.732**
Primary/Mining	-52267.54**	-25792.45	-26432.76***	6.264**
Primary/Manufacturing	24513.63**	22744.47**	1766.832	0.4240913
Primary/Utilities & energy	-7815.994	4560.826	-12372.85***	-4.356*
Primary/Construction	34919.27***	31246.22***	3674.531**	-0.8569136
Primary/Trade & repair	43697.82***	38196.9***	5522.251***	3.554***
Primary/Hotels & restaurant	66358.87***	61022.67***	5346.095*	1.218224
Primary/Logistics	21507.24**	17812.02**	3701.891*	0.0817609
Primary/Financial services	21578.46	13582.64	8001.341	-3.711827
Primary/Education	67895.07***	67181.67***	710.8387	3.130*
Primary/Health & social services	8240.525	10806.56	-2542.5	-3.2135
Primary/Other services	22703.55**	18735.97*	3970.924*	0.7088686
Secondary/Agro fishery	39716.76	42397.9	-2691.63	4.871074
Secondary/Mining	-935.4054	6940.713	-7847.944***	2.296*
Secondary/Manufacturing	10125.52	8897.987	1221.84	-0.8991908
Secondary/Utilities & energy	-34645.04*	-21271.88	-13378.26***	2.17746
Secondary/Construction	17950.05**	14005.02*	3936.575**	-0.3487736
Secondary/Trade & repair	25092.78***	20458.46***	4645.584***	2.343***
Secondary/Hotels & restaurant	44436.41***	41560.67***	2869.259	1.769816
Secondary/Logistics	3699.302	1442.328	2246.564	1.670*
Secondary/Financial services	-15124.69	-18989.9*	3862.592*	-1.214389
Secondary/Education	45399.91***	45867.27***	-476.9907	1.351996
Secondary/Health & social services	14681.73	16964.58*	-2275.354	-1.757973
Secondary/Other services	2493.061	-1081.119	3566.721*	1.653465
Secondary/Industry not defined	-9963.278	-1934.747	-8024.584	4.568905

Finally, we examine the issue of gender discrimination by adding an interaction between gender and skills, and an interaction between gender and education. We find that gender gaps in salaries are enlarged for female workers with higher skills, but high-skill women also work shorter hours. Female workers doing elementary jobs do not receive significantly more or less salaries than their male counterparts, but they do appear to work longer hours. Female workers without a university degree actually enjoy a salary advantage over their male counterparts, but some of them have to work longer.

Table 15: The effects of interaction between gender and skills & education

	Annual salary	Salary in cash	Salary in kind	Working hours
Female/Elementary	17183.590	16998.300	184.747	4.373**
Female/Semi-professional	-19577.68***	-17446.85***	-2132.33*	-2.732***
Female/Senior professional	-57887.01***	-49056.61***	-8820.164***	-2.095***
Female/Illiterate	50716.91***	45098.96***	5615.122***	6.503***
Female/Primary	42023.12***	36573.99***	5444.558***	3.505***
Female/Secondary	29043.58***	25224.85***	3810.796***	0.307

II. The Ministry of Labor's 2010 WPS Data Set

The 2008 Labor Force Survey excludes workers living in labor camps, who are a major part of the labor force. Hence, the labor costs obtained in the survey overestimate the average salaries in the UAE. To correct for that, we analyze another source of data on wages obtained from the Ministry of Labor Wage Protection System and Administrative Database in March, 2010.

Starting from 2010, the MOL has requested all private sector businesses in the UAE to pay their workers electronically via a monitored bank transfer payment system, and the policy has been first implemented in large establishments and gradually expanded to all firms, big or small. The MOL salary data analyzed in this paper contain the information of 1.7 million private sector employees, including their contract salaries and real salaries made through the payment system in March 2010. The total number of observations (workers) in our sample is 1,765,570, and the total number of establishments is 16,110.

Compared to the labor force survey, the MOL data have the following advantages:

- The size of the data set is much greater than the survey data
- The data set contains the most accurate real salary information made by employers to employees
- The data set covers all private sector workers, including those living in the labor camps
- The data set include workers' contract salary information based on the year of contract signed, thus providing longitudinal information of wages in the UAE

The downsides of the MOL data are the following:

- The data set excludes public sector employees and employees working in free zones and private households
- The salary data included in this study are not a random sample of the population, as large companies are more likely to participate in the electronic payment system than the small ones. In the sample, 90% of workers are working in companies that hire more than 50 employees, while the percentage in the population is 64%.
- While companies enrolled in the electronic payment system are supposed to pay all their employees electronically, in actuality only 80% of employees in these firms received salaries via the system. The reason why firms paid 20% employees outside the system and how this would affect our costs of labor estimates are not clear at this moment.

Table 16: Distribution of firm sizes in the sample & population

Size	MOL Sample, 2010				Nationwide, 2008			
	N of firms	%	N of employees	%	N of firms	%	N of employees	%
1	145	0.9%	157	0.01	50,335	19.39	50,335	1.23
4 - 2	713	4.4%	1,828	0.10	103,271	39.79	295,399	7.24
9 - 5	1194	7.4%	6,785	0.38	53,891	20.76	347,492	8.52
49 - 10	7613	47.3%	161,455	9.14	42,668	16.44	844,498	20.70
99 - 50	3115	19.3%	176,894	10.02	5,477	2.11	379,942	9.31
499 - 100	2595	16.1%	446,170	25.27	3,093	1.19	631,583	15.48
999 - 500	389	2.4%	219,532	12.43	407	0.16	287,044	7.04
+ 1000	346	2.1%	752,868	42.64	394	0.15	1,243,160	30.47
Total	16110	100.0%	1,765,689	100.00	259,536	100	4,079,453	100

Keeping the differences in mind, we do a similar set of analysis for the MOL data. We first summarize the wage information in different categories, and then break them down according to workers' age, gender, education, skills, occupation, industrial sectors, firm sizes and

work places. After that, we run a set of regressions to identify important factors in the size of wages and their longitudinal trends.

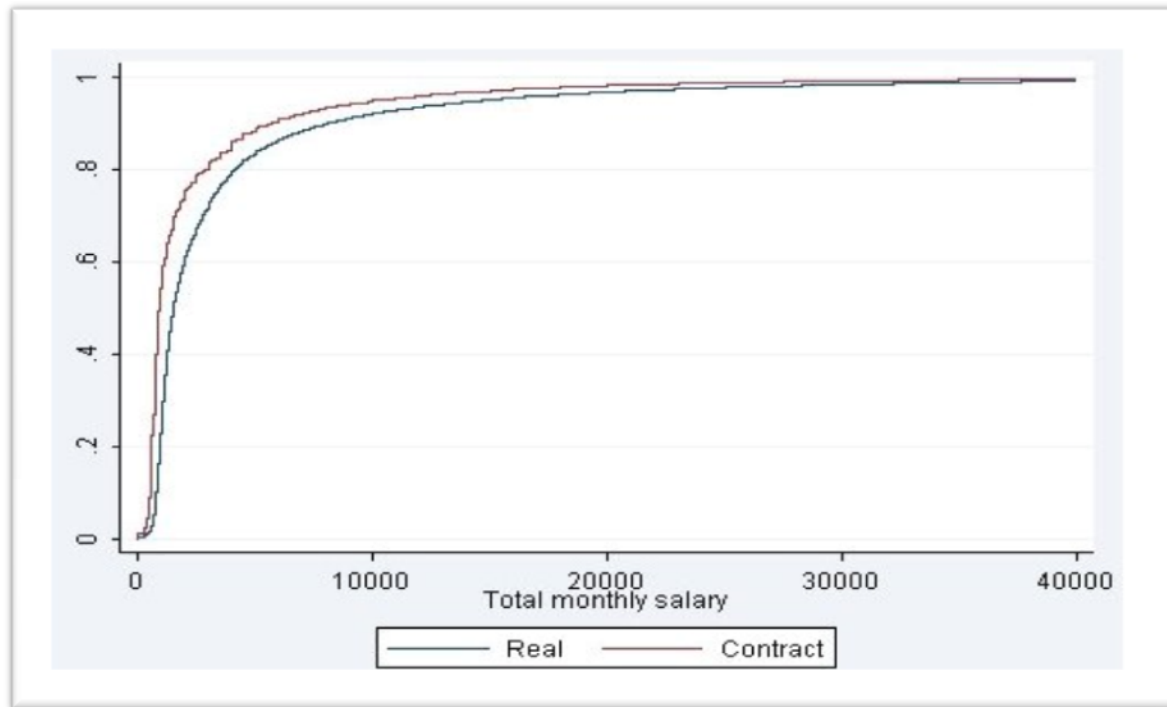
1. Summary Statistics

Compared to the labor force survey, the average wages found in the MOL data set are significantly lower, after including labor camp workers. The median real salary is only AED 17,767 per year, compared to the AED 39,000 in previous section. The median contract salary is even lower, at around AED 10,800 per year. The discrepancies between the contract salary and real salary may be attributed to overtime pay, bonus, cash allowance, refund, and so on. On average, the real salaries are 1.67 times the contract salaries. Like in the labor force survey, the distributions of salaries are skewed, with 75% of workers made less than AED 40K and 1% made more than AED 450K each year. This is illustrated very clear in Figure 1.

Table 17: Average Salaries in the MOL data

Total	Obs	Mean	Median	Std. Dev.	Min	Max
Contract basic salary	1,752,398	1,837	750	4,031	0	600,850
Contract total salary	1,743,804	2,622	900	5,704	0	900,750
Monthly fixed income	1,760,563	3,537	1,287	10,740	0	3,372,312
Monthly allowance	1,761,731	433	0	7,231	0	5,273,844
Monthly total income	1,760,454	3,970	1,509	13,125	0	5,273,844
Yearly fixed income	1,760,563	41,646	15,153	126,450	0	39,700,000
Yearly allowance	1,761,731	5,093	0	85,136	0	62,100,000
Yearly total income	1,760,454	46,746	17,767	154,540	0	62,100,000

Figure 1: Cumulative distribution of total monthly salary



The gender composition is extremely unbalanced. Female workers are only 7% of the total workforce. The actual participation of female workers might be higher if we take into account women working in public sectors and in private households. On average, female workers make AED 2500 more than male workers do each month, but that appears to result from better human capitals that female workers have over their male counterparts. For example, over 80% of female workers have a high school degree compared to 40% of male workers. After we control for education, the average salaries for women tend to be smaller than men.

Table 18: Median salaries across gender.

Gender	N	Contract basic salary	Contract total salary	Monthly fixed income	Monthly total income	Yearly fixed income	Yearly total income
Male	1,636,253	750	840	1,217	1,450	14,329	17,073
Female	116,145	2,000	3,250	3,800	4,030	44,742	47,450
Chi ² significance		0.000	0.000	0.000	0.000	0.000	0.000

The workforce is very young; over 75% of workers are below the age 40. Elderly workers make significantly more than young workers.

Table 19: Median salaries across age groups.

Age	N	Contract basic salary	Contract total salary	Monthly fixed income	Monthly total income	Yearly fixed income	Yearly total income
Young (15-39)	1,328,786	700	800	1,150	1,342	13,540	15,800
Middle (40-59)	412,020	1,000	1,300	2,000	2,420	23,548	28,493
Elderly (>60)	11,592	3,767	5,000	6,470	7,269	76,179	85,592
Chi ² significance		0.000	0.000	0.000	0.000	0.000	0.000

The general educational levels of the workforce are low; 30% of workers are either illiterate or receive elementary education only; another 60% of workers finished preparatory or secondary education. Only around 13% of workers have completed post-secondary education. The payoff of education is significant, however. Workers with a university degree make five times more than those with a high school degree on average. If we group workers into two groups: unskilled (high-school education & below) and skilled (post high-school), then the skilled workers make nearly seven times more than unskilled ones on average.

Table 20: Median salaries across educational levels

Education	N	Contract basic salary	Contract total salary	Monthly fixed income	Monthly total income	Yearly fixed income	Yearly total income
Illiterate	8,304	300	600	840	1,092	9,895	12,859
Read & write	362,433	600	750	1,055	1,233	12,421	14,517
Elementary	133,256	600	741	995	1,141	11,715	13,434
Preparatory	451,247	700	780	1,007	1,200	11,856	14,129
High-school	520,732	900	1,024	1,517	1,850	17,872	21,782
Post high school	26,327	3,000	4,500	5,900	6,400	69,467	75,360
University	177,089	4,500	7,000	8,716	9,500	102,623	111,854
Above university	9,079	7,500	12,400	14,408	15,418	169,649	181,540
Chi ² significance		0.000	0.000	0.000	0.000	0.000	0.000

The skill levels of workers can be approximated by their occupations as well. As the table below shows, managers make 16 times more than low-skill workers.

Table 21: Median salaries across occupation

Occupation	N	Contract basic salary	Contract total salary	Monthly fixed income	Monthly total income	Yearly fixed income	Yearly total income
Low-skill workers	1,348,769	650	750	1,050	1,241	12,362	14,611
Semi-professional	210,498	2,000	3,092	3,600	4,000	42,387	47,096
Professionals	159,946	4,000	6,500	8,000	8,680	94,193	102,200
Managers	33,164	10,800	16,500	18,626	20,000	219,312	235,483
Chi ² significance		0.000	0.000	0.000	0.000	0.000	0.000

Like other GCC countries, the UAE is known for its reliance on foreign labors for economic development. Most foreign labors come from South Asia, particularly, India, Pakistan and Bangladeshi. In this sample, workers from these three countries constitute 76% of the total workforce. The UAE nationals constitute a minority group in the population and their employment in the private sector is miniscule. Not surprisingly, the average salary of Emirati workers is significantly higher than expatriates. The median monthly salary is AED 9185 for

Emirati workers, AED 1326 for south Asian workers, and AED 2956 for expatriate workers from other nationalities.

Table 22: Median salaries across nationalities

Nationality	N	Contract basic salary	Contract total salary	Monthly fixed income	Monthly total income	Yearly fixed income	Yearly total income
Emirati	5,676	4,295	4,300	8,683	9,185	102,230	108,147
South Asians	1,322,801	700	800	1,136	1,326	13,371	15,619
Other expats	418,676	1,500	2,000	2,500	2,956	29,435	34,805
Chi ² significant		0.000	0.000	0.000	0.000	0.000	0.000

Geographically, the average salaries in four northern emirates are 20% lower than in Abu Dhabi, Dubai and Sharjah. However, the number of workers in northern emirates is only 4% of the work force.

Table 23: Median salaries across emirates

Emirates	N	Contract basic salary	Contract total salary	Monthly fixed income	Monthly total income	Yearly fixed income	Yearly total income
Abu Dhabi	623,123	750	900	1,298	1,520	15,282	17,896
Dubai	900,032	800	900	1,318	1,550	15,519	18,250
Sharjah	157,704	750	800	1,197	1,460	14,093	17,190
Northern Emirates	71,539	750	800	1,087	1,274	12,798	15,000
Chi ² significance		0.000	0.000	0.000	0.000	0.000	0.000

Industrially speaking, financial services is the highest paid sector of all (median monthly salary: AED 7149) while agriculture (AED 1225), construction (AED 1207), mining (AED 1862) and manufacturing (AED 1613) are paid the least. Construction sector hires nearly 50% of the workforce, followed by trade (15%) and manufacturing (11%).

In terms of tenure, 65% of workers joined their companies less than three years ago. While contract salaries are lower for those with long tenure, their actual salaries are higher than workers with less than three year service. The high salary levels for “New hire” is misleading, as it reflects the average salaries of workers coming to the UAE in the first three months of 2010.

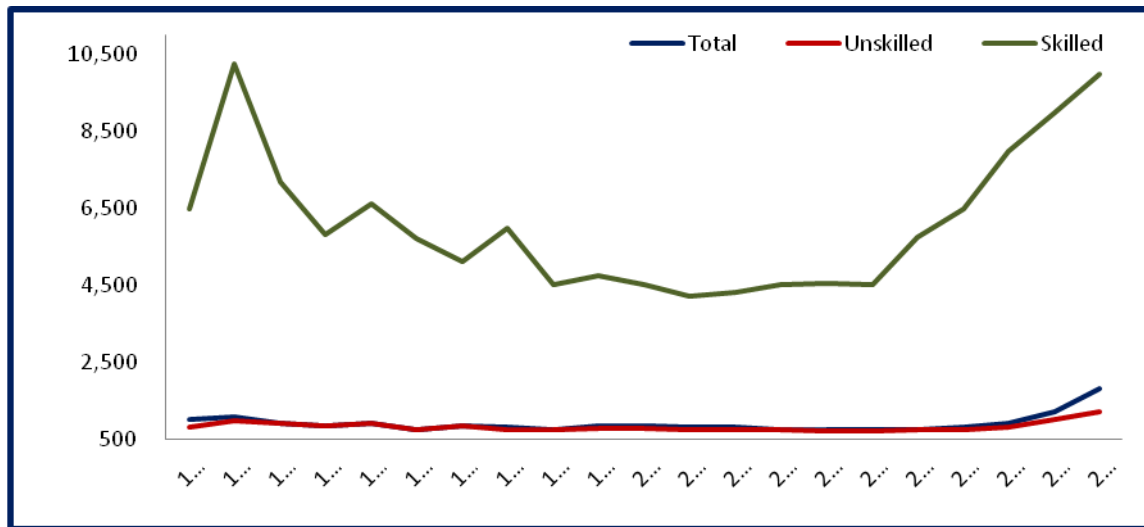
Table 26: Median salaries across tenure

Tenure	N	Contract basic salary	Contract total salary	Monthly fixed income	Monthly total income	Yearly fixed income	Yearly total income
New hire	20,001	1,500	2,000	2,000	2,250	23,548	26,491
Junior (1-3 year)	1,116,806	800	900	1,195	1,374	14,078	16,177
Senior (> 3 years)	615,591	702	800	1,500	1,789	17,661	21,064
Chi ² significance		0.000	0.000	0.000	0.000	0.000	0.000

Finally, the longitudinal trends of labor costs are of enormous interests to us. Although we do not have the real salary information across years in the data set, we do have contract salary information in different years². Figure 9 shows that nominal contract salary had been stable at around AED 800 per month for up to 2008, and started to rise in 2009. This change may result from a change in the labor force after the financial crisis struck the UAE. Before 2009, the percentage of unskilled workers is around 80% of the workforce. In 2009, the percentage dropped to 72%, and the total number of contracts signed decreased from a peak of 512,709 in 2008 to 348,656 too, as a lot of construction projects came to a halt. The green line on Figure 2 shows that average salaries for skilled workers started to rise sharply in 2006, while salaries of unskilled workers stayed stable till lately.

² The contract salary information may be biased, though, as workers who have left their jobs before the sample was drawn from MOL’s WPS system are not included. In other words, our contract salary data do not reflect the influence of labor attrition over the past. However, the effects, if there are, are likely to be downwardly influencing our estimate of contract salaries.

Figure 2: Change of salaries across years



2. Regression analysis

In this part, we run four OLS regressions of salaries on workers' personal characteristics by controlling for companies they are working for. The model fits quite well with contract salaries. All personal characteristics are found to have significant impact on salaries. Specifically, female workers, junior workers, workers with low education or low skills are making significantly less than their counterparts. Age has a curvilinear relationship with salaries in that salaries tend to decrease first and then increase with age at around 20. The UAE nationals receive significantly more salaries in payment than expatriates do, but not in terms of contract salaries. Tenure has a positive relationship with real salaries too.

Table 27: Regressions of individual workers' monthly salaries

	Total real salary		Fixed real salary		Total contract Salary		Basic contract Salary		
	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	
Age	-89.9	0.000	-94.6	0.000	Age at contract	-120.9	0.000	-101.2	0.00
Age^2	2.4	0.000	2.4	0.000	Age at contract ^2	2.9	0.000	2.2	0.00
Tenure	94.1	0.000	68.5	0.000					
Education (Base group: secondary)					Education (Base group: secondary)				
Illiterate	-1382.1	0.000	-1392.0	0.000	Illiterate	-500.3	0.000	-434.7	0.00
Read & write	-686.8	0.000	-709.4	0.000	Read & write	-525.9	0.000	-366.3	0.00
Elementary	-640.4	0.000	-636.0	0.000	Elementary	-436.5	0.000	-306.4	0.00
Preparatory	-388.8	0.000	-428.1	0.000	Preparatory	-387.9	0.000	-269.6	0.00
Post high school	338.5	0.000	136.7	0.018	Post high school	391.8	0.000	252.3	0.00
University	2807.0	0.000	2490.8	0.000	University	2,000.8	0.000	1251.1	0.00
Above university	5620.5	0.000	5272.6	0.000	Above university	4,886.8	0.000	2934.5	0.00
Female	-1836.5	0.000	-1623.5	0.000	Female	-1,129.0	0.000	-823.3	0.00
Occupation (Base group: low-skill)					Occupation (Base group: low-skill)				
Semi-professional	1734.6	0.000	1564.8	0.000	Semi-professional	1,364.0	0.000	917.3	0.00
Professional	4399.8	0.000	4108.3	0.000	Professional	3,199.5	0.000	2074.2	0.00
Manager	14913.6	0.000	13379.6	0.000	Manager	11,581.2	0.000	7762.7	0.00
Region (Base group: South Asia)					Region (Base group: South Asia)				
East Asia	275.5	0.000	244.1	0.000	East Asia	152.5	0.000	181.1	0.00
GCC	2499.9	0.242	1911.1	0.234	GCC	554.5	0.815	-2634.3	0.12
MENA	2525.2	0.000	2185.0	0.000	MENA	1,582.9	0.000	1038.9	0.00
OECD	16461.4	0.000	15258.9	0.000	OECD	13,630.6	0.000	10255.6	0.00
Rest Asia	1083.6	0.000	1032.1	0.000	Rest of Asia	832.4	0.000	648.7	0.00
Africa	904.7	0.000	734.6	0.000	Africa	640.7	0.000	506.7	0.00
UAE	6954.1	0.000	7102.7	0.000	UAE	497.3	0.712	315.1	0.74
Company No	(absorbed, 16085 categories)				Company No	(absorbed, 16048 categories)			
					Contract Year	(absorbed, 20 categories)			

N of obs	1,687,923	1,688,029	N of obs	1,646,436	1,654,167
F statistics	9185***	13494***	F statistics	31010***	28295***
R square	0.286	0.385	R square	0.659	0.642

Again, women are found to make significantly less than men do and the gap increases as one moves up the occupational levels. Female managers are paid 8K less per month than male managers are on average. Similarly, on the educational ladder, it is women with higher education that suffer more in salaries than their male counterparts. Low-educated women on the other hand are paid slightly better than low-educated men.

Table 28. The effects of interaction between gender and occupation & education

Interaction	Total real salary		Fixed real salary		Interaction	Total contract Salary		Basic contract Salary	
	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>		<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>
Female/Semi-professional	-1207.9	0.000	-	0.000	Female/Semi-professional	-791.7	0.000	-597.2	0.000
Female/Professional	-4502.7	0.000	-	0.000	Female/Professional	-2786.8	0.000	-1916.2	0.000
Female/Manager	-8292.4	0.000	-	0.000	Female/Manager	-5626.9	0.000	-4279.5	0.000
Female/literate	-739.4	0.593	-581.6	0.576	Female/literate	-368.9	0.386	-228.6	0.457
Female/read & write	323.7	0.030	213.0	0.057	Female/read & write	216.0	0.000	222.9	0.000
Female/elementary	460.6	0.066	334.3	0.076	Female/elementary	228.6	0.003	198.8	0.000
Female/preparatory	491.2	0.000	411.9	0.000	Female/preparatory	316.3	0.000	208.8	0.000
Female/post-secondary	-2110.1	0.000	-	0.000	Female/post-secondary	-1440.0	0.000	-901.8	0.000
Female/university	-4187.9	0.000	-	0.000	Female/university	-2665.6	0.000	-1810.5	0.000
Female/above university	-5388.6	0.000	-	0.000	Female/above university	-2868.1	0.000	-2180.9	0.000

Secondly, we calculate the median salary payments for each company, and regress them on firm characteristics such as average age and tenure of workers, number of female workers, number of national workers, number of skilled workers, total number of workers, as well as firms' location and industrial sector.

Similarly, for contract salaries, we create a panel data set by calculating the median contract salaries for each company in each contract year, and then regress them on a number of company characteristics using a random-effect model.

The results confirm the previous findings about lower salary levels for female workers, and higher salary level for skilled workers and Emirati workers. However, opposite to the previous results, we find that average tenure of workers have a negative impact on salaries, the reason for which might have to do with the age of companies instead of employee turnover or retention. Like in previous models, we fit a non-linear model to the relationship between average age and median salaries. Upon examinations of the shape of the curves, we find that the relationships are better fit with positive linear models. For reporting purpose, we keep the quadratic term of age in the models. In terms of the size of businesses, large companies tend to offer smaller salaries. In terms of location, salaries in Dubai appear to be higher than other emirates except for Abu Dhabi. Industry-wise, financial services sector is confirmed to be the highest paid one while construction and hospitality sectors are among the lowest.

Table 29: Regressions of companies' median salaries

	Real total salary		Real fixed salary		Contract total salary		Contract basic salary	
	Coef.	p	Coef.	p	Coef.	p	Coef.	p
Average age	810.20	0.000	668.72	0.000	-20.74	0.168	-51.42	0.000
Average age^2	-4.41	0.000	-2.98	0.002	2.49	0.000	2.30	0.000
N of female workers	-9.05	0.000	-8.99	0.000	-16.01	0.000	-11.03	0.000
N of local workers	29.84	0.004	32.04	0.001	-645.11	0.651	-429.38	0.672
N of skilled workers	16.57	0.000	16.23	0.000	23.84	0.000	11.91	0.000
Average tenure	-690.35	0.000	-656.50	0.000				
N of employees	-0.77	0.000	-0.72	0.000	-0.26	0.000	-0.18	0.000
Emirates (Base group: Dubai)								
Abu Dhabi	-121.90	0.204	-103.09	0.253	-98.78	0.149	-21.87	0.670
Sharjah	-698.84	0.000	-610.37	0.000	-1006.25	0.000	-677.26	0.000
RAK	-1280.06	0.000	-1162.70	0.000	-1503.32	0.000	-1011.58	0.000
Ajman	-901.14	0.000	-803.60	0.000	-1160.90	0.000	-802.62	0.000
Fujeriah	-1267.10	0.000	-1137.98	0.000	-1254.85	0.000	-734.59	0.000
UAQ	-1128.88	0.030	-871.60	0.075	-1160.35	0.004	-797.32	0.005
Sector (Base group: construction)								
Agriculture	691.46	0.326	719.77	0.277	743.45	0.130	491.63	0.182
Oil	2077.46	0.000	1843.76	0.000	1759.44	0.000	1270.16	0.000
Mining	398.61	0.746	323.36	0.780	572.42	0.521	523.98	0.429
Manufacturing	183.64	0.197	131.73	0.326	-78.28	0.438	-40.45	0.592
Utilities	1756.73	0.039	1740.08	0.030	1462.20	0.015	821.34	0.068
Trade	1902.60	0.000	1769.06	0.000	1292.88	0.000	818.20	0.000
Hotel & Restaurant	508.66	0.011	507.40	0.007	-317.95	0.027	-208.97	0.052
Transportation & communication	448.50	0.019	491.25	0.006	724.88	0.000	463.59	0.000
Financial services	6485.52	0.000	6200.42	0.000	5759.47	0.000	3679.72	0.000
Real estate & business services	4940.49	0.000	4630.13	0.000	4790.72	0.000	3250.69	0.000
Social & personal services	827.52	0.000	970.01	0.000	1354.05	0.000	836.58	0.000
Constant	-17385.53	0.000	-14822.53	0.000	230.37	0.390	840.92	0.000
N of observations	16118		16118.00		84929.00		85510.00	
N of groups					16075.00		16082.00	
F statistics	213.46		213.52					
Wald statistics					9992.00		9361.00	
P value	0.000		0.000		0.000		0.000	
R square (overall)	0.2415		0.2415		0.1981		0.1779	

Conclusion

Combining above analyses, we obtain a good and comprehensive picture of wages in the UAE. Overall, the defining characteristics of UAE's wage system is its high level of inequality and segmentation across various sections of the economy. The primary reason for the high income inequality lies in the high diversity of human capitals in the labor force measured in terms of education, occupations, skills, age, tenure, and so on. The payoff of education and occupational skills are significantly huge in the country when the vast majority of low-skill, low-education labors in construction sector earn on average AED 1000 per month and managers in the finance sector make an average monthly salary at above AED 33K. Factors that are unrelated to human capitals but government policies are important too. The wage gaps between public and private sectors as we have found out in the labor force survey are significant enough to suggest the presence of stratified labor markets for government employees versus non-government employees. Policies such as the Emiratization program grant special employment and wage protection to the UAE nationals, the effectiveness of which is demonstrated in our wage analysis. Wages are not equally distributed across emirates either: wages in Dubai and Abu Dhabi are significantly higher than in the other smaller northern emirates, reflecting different levels of development and/or resourcefulness in the federation. Meanwhile, the gender unbalance in the workforce is exacerbated by gender inequality in wages too. Female employees tend to make significantly less than male employees do, especially at the high end of female labor force.