

A Simple Model of Unpaid House-Work

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**Occupational Segregation and Gender Discrimination
in the Vietnamese, Thailand & South African
Labor Markets**

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Objective

A. Unpaid work in households

- An analytical framework (no empirical results)

B. Paid work in labor markets

- Analyze gender disparity in earnings in labor markets:
Vietnam, Thailand, & South Africa

Determinants of earnings

- Hours of work
- Education
- Work experience
- Regions & Area (urban/rural)
- Ethnicity

Disparity can be explained by two factors

- Occupational segregation
- Labor market discrimination

Data Source

- Vietnam: 2002 LSMS
- Thailand: 2004 Labor Force Survey
- South Africa: 2002 Labor Force Survey

A. Unpaid Work in Households (1)

w_{ij} = wage rate of i th person in j th household

h_{ij} = hours worked in labor market by i th person in j th household

$y_j = \frac{1}{n} \sum_i w_{ij} h_{ij}$ = per capita household income in labor market

h_{ij}^* = hours worked at home by i th person in j th household

$h_j^* = \frac{1}{n_j} \sum_i h_{ij}^*$ = per capita unpaid hours of work in j th household

w^* = monetary value of per hour household work

y_j^* = per capita consumption of household production

$l_{ij} = \frac{M - h_{ij} - h_{ij}^*}{M}$ = hours of leisure enjoyed by i th person in j th household
 $0 < l_{ij} < 1$, where 1 is the maximum leisure enjoyed

$g'(l_{ij}) > 0$, $g''(l_{ij}) < 0$, $g(1) = a$, $g(0) = 0$

A. Unpaid Work in Households (2)

$$c_{ij} = y_j + y_j^* + g(l_{ij})$$

$$g(l_{ij}) = a \left[1 - (1 - l_{ij})^{1+\delta} \right]$$

$$g'(l_{ij}) = a(1+\delta)(1-l_{ij})^\delta > 0$$

$$g''(l_{ij}) = -a\delta(1+\delta)(1-l_{ij})^{\delta-1} < 0$$

$$g(l_{ij}) = 0 \quad \text{and} \quad g(1) = a$$

This model provides welfare enjoyed by every person in the society.

Using this model, we can measure the welfare disparity between male and female.

B. Paid Work in Labor Market

1. Atkinson's Welfare Function

- *Equally distributed equivalent level of income*
- Welfare is measured in terms of money metric

x_{ε}^* = money metric Atkinson's welfare

ε = inequality aversion parameter

$x_{\varepsilon}^* = \mu$ = mean income when inequality aversion parameter is zero

$$A_{\varepsilon} = 1 - \frac{x_{\varepsilon}^*}{\mu} = \text{Atkinson's inequality measure}$$

2. Relative Gender Disparity Index (RGDI)

$x_{\varepsilon f}^*$ = welfare enjoyed by women

$x_{\varepsilon m}^*$ = welfare enjoyed by men

$$RGDI = \log(x_{\varepsilon m}^*) - \log(x_{\varepsilon f}^*)$$

= occupational *segregation*

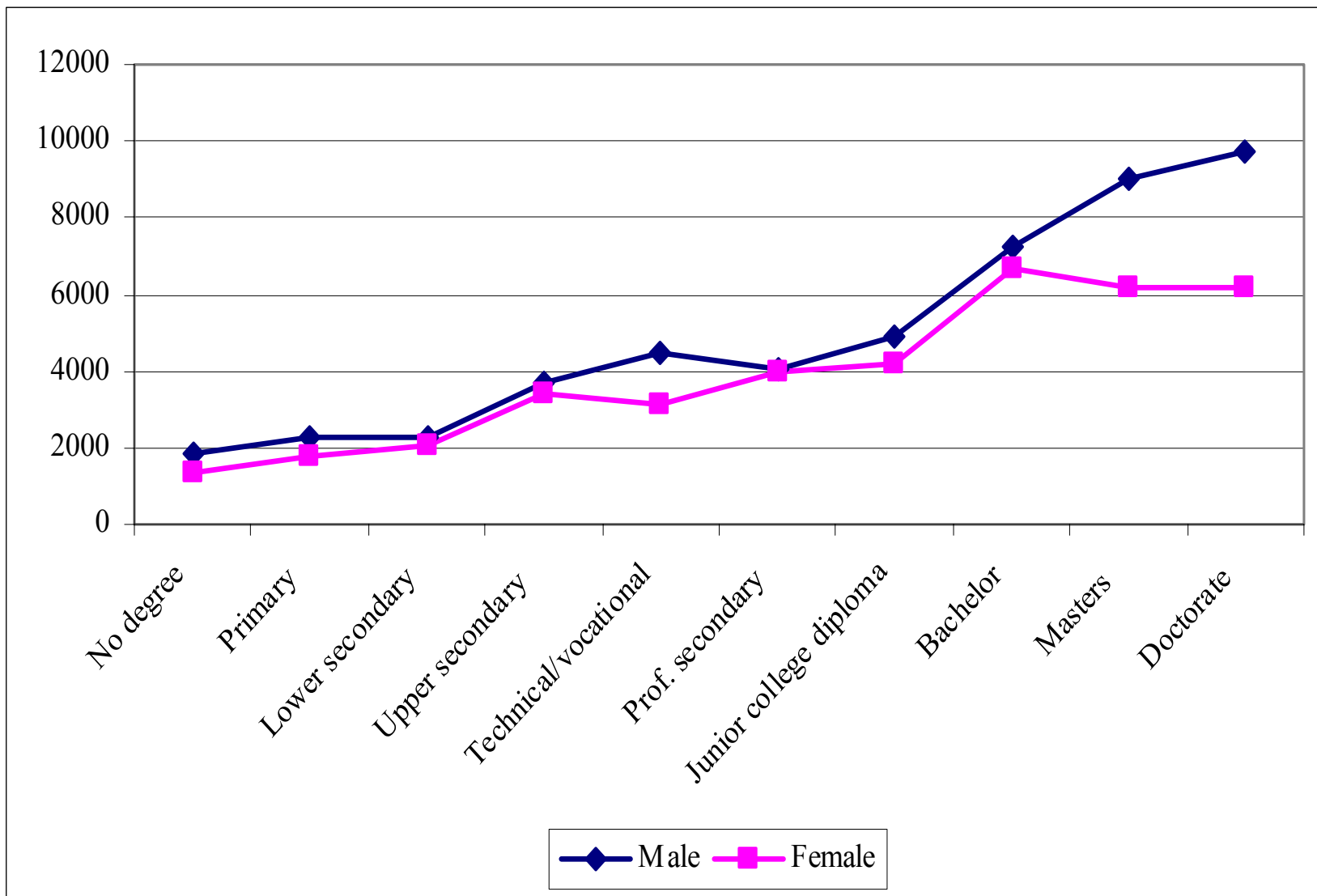
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labor market *discrimination*

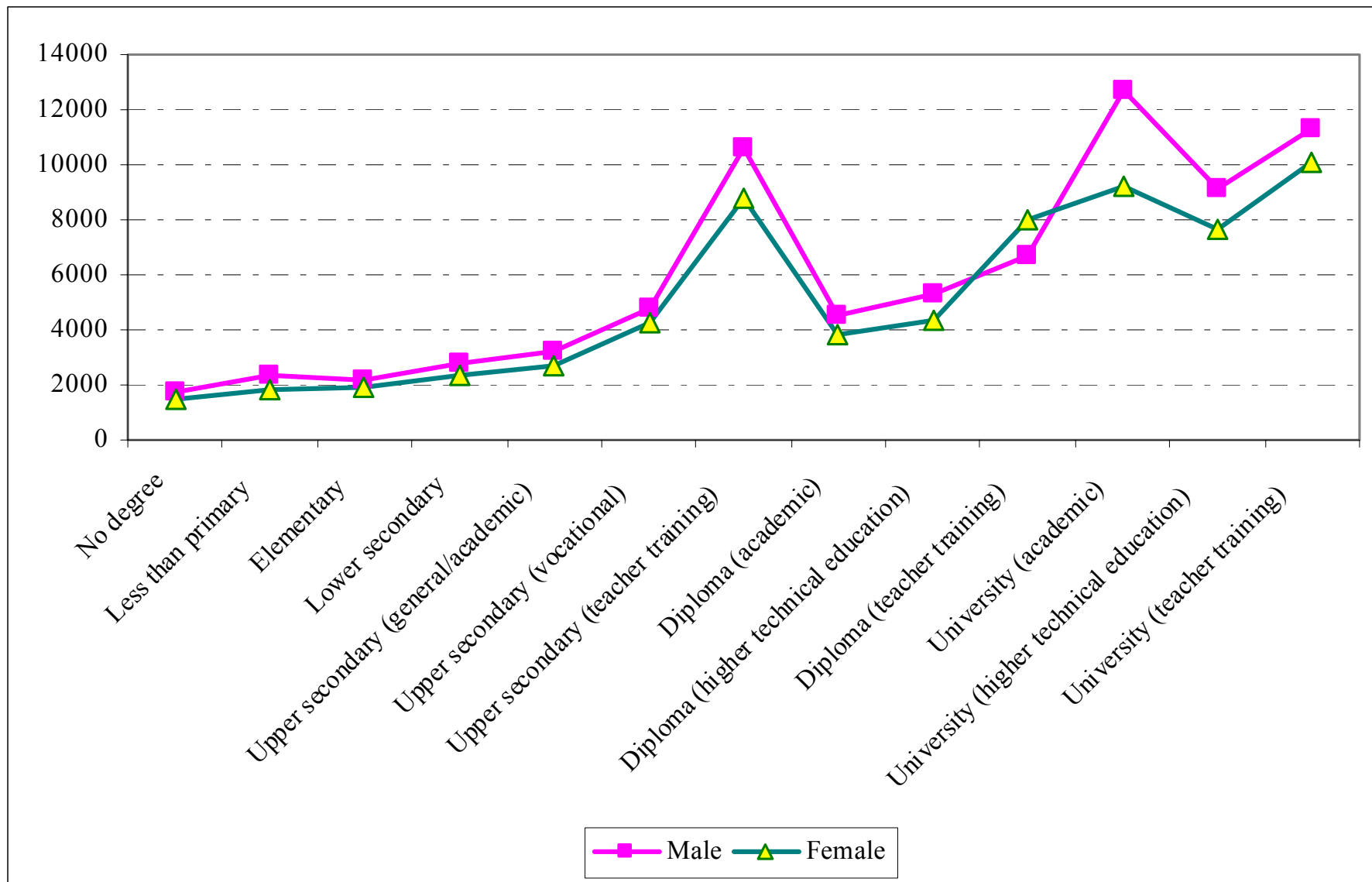
Average Hours of Work Per Week

Gender	Vietnam	Thailand	<u>South Africa</u>	
			Total	Black African
Male	45	46	49	49
Female	43	45	44	45
Average	44	45	46	47

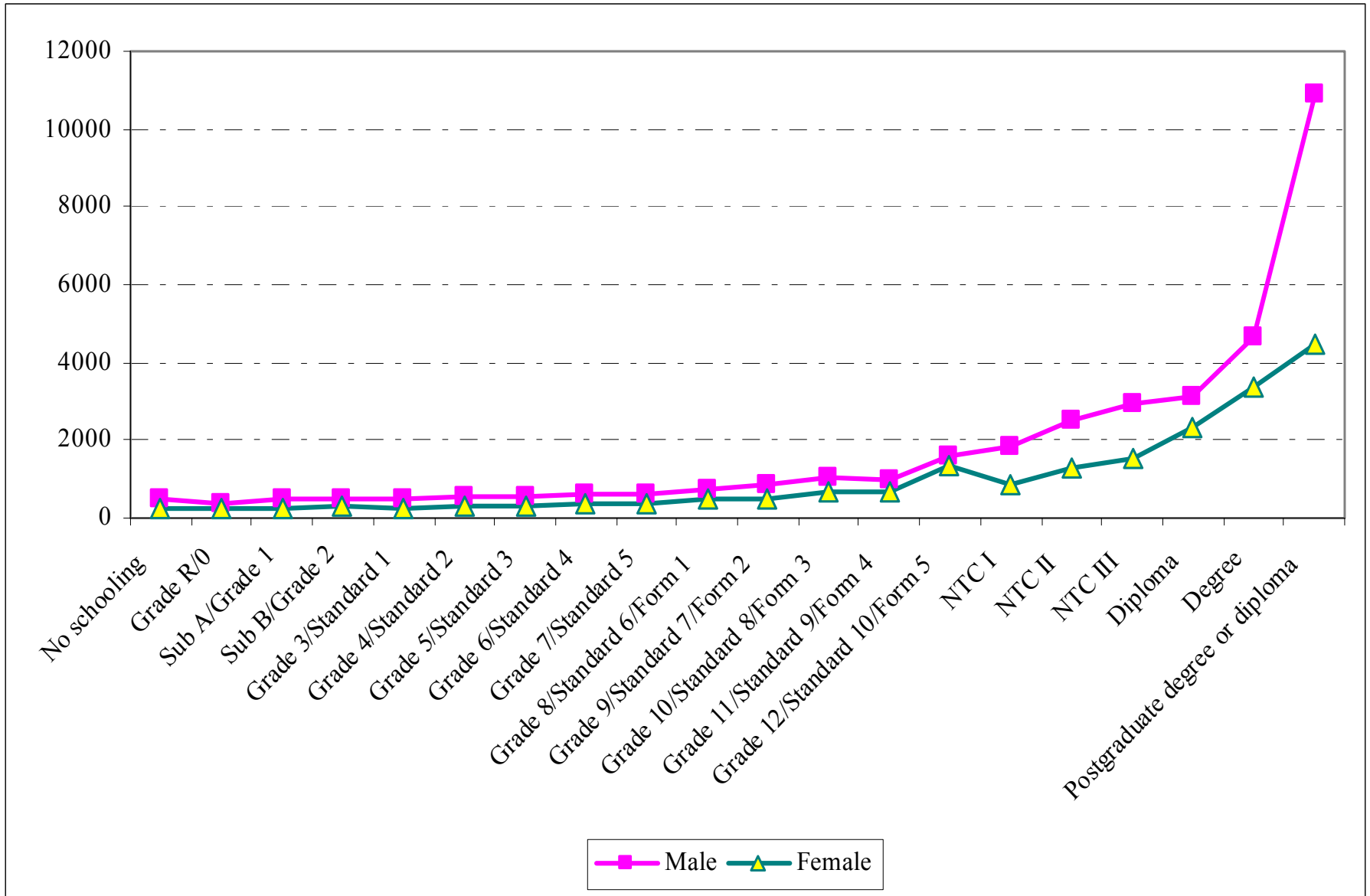
Per capita wage per hour by educational level: Vietnam



Per capita wage per hour by educational level: Thailand



Per capita wage per hour by educational level: South Africa



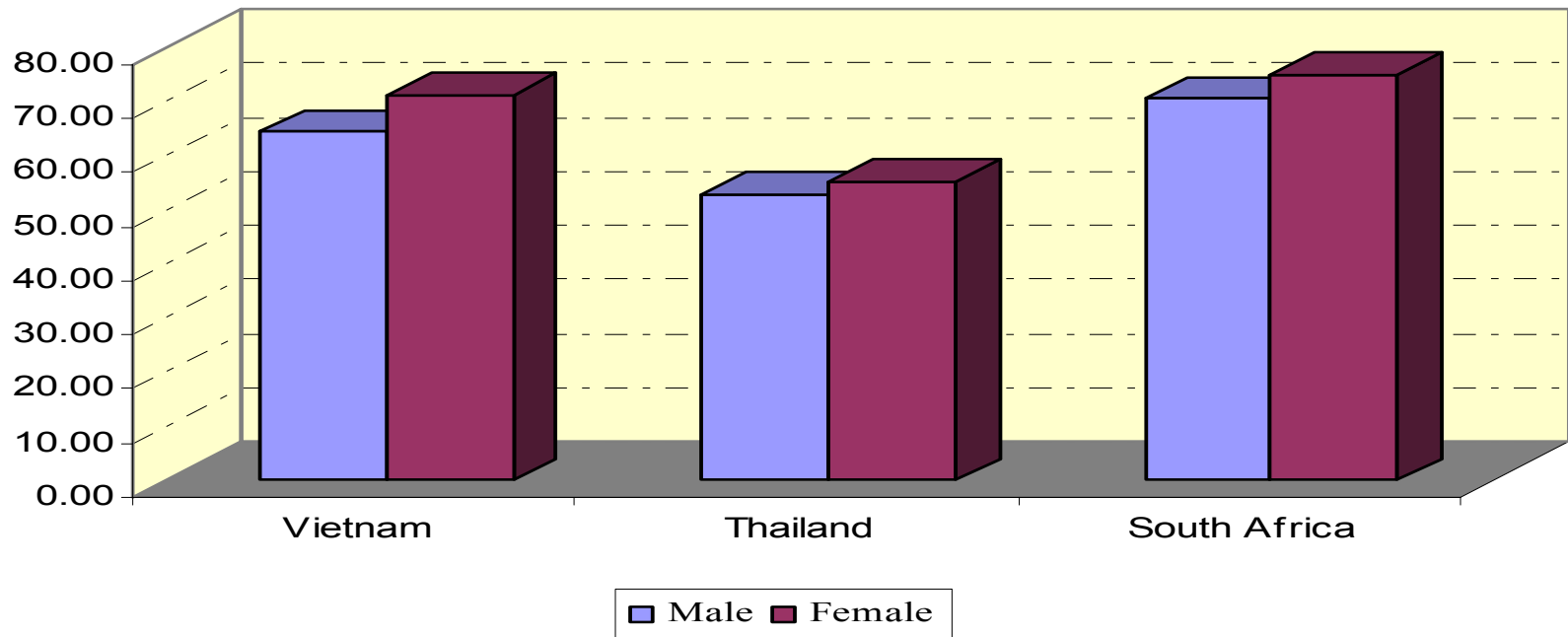
Per capita wage per hour by ethnic groups: South Africa

Ethnic groups	<u>Per capita hourly wage</u>			<u>Share of population</u>		
	Total	Male	Female	Total	Male	Female
African/Black	777	861	658	74.8	74.7	75.1
Colored	959	1006	893	11.7	11.6	11.7
Indian/Asian	1826	1974	1550	3.9	4.3	3.5
White	3435	3951	2706	9.5	9.4	9.5
Other	1112	1016	1147	0.1	0.1	0.2
Average	1087	1215	907	100.0	100.0	100.0

Atkinson's Inequality Measure

	Vietnam	Thailand	South Africa
$\varepsilon = 1$			
Male	36.38	36.24	47.52
Female	39.76	37.50	52.51
$\varepsilon = 2$			
Male	64.42	52.90	70.53
Female	71.26	55.22	75.14

Atkinson's inequality measure when aversion parameter = 2



Total disparity adjusted by education, experience, regions/areas, & race

	$\varepsilon = 0$	$\varepsilon = 1$	$\varepsilon = 2$
Vietnam			
Total disparity	14.44	16.84	29.88
Segregation	0.82	1.13	3.01
Discrimination	13.62	15.70	26.87
Thailand			
Total disparity	15.58	15.20	14.78
Segregation	3.42	2.70	2.19
Discrimination	12.16	12.50	12.59
South Africa			
Total disparity	32.81	36.83	39.63
Segregation	12.20	16.09	21.52
Discrimination	20.61	20.74	18.11

Kakwani & Son Decomposition result I: Vietnam

	Total disparity	Segregation	Discrimination
<i>$\varepsilon = 0$</i>			
Education	-4.97	-3.80	-1.17
Experience	2.93	1.03	1.89
Province & areas	0.04	0.03	0.01
All factors	-2.01	-2.74	0.74
<i>$\varepsilon = 1$</i>			
Education	-1.84	-3.77	1.93
Experience	2.92	0.91	2.01
Province & areas	-0.01	0.00	-0.01
All factors	1.07	-2.87	3.93
<i>$\varepsilon = 2$</i>			
Education	2.12	-1.81	3.92
Experience	1.74	0.73	1.01
Province & areas	0.07	0.01	0.05
All factors	3.92	-1.06	4.98

Kakwani & Son Decomposition result II : Thailand

	Total disparity	Segregation	Discrimination
$\varepsilon = 0$			
Education	-11.08	-10.63	-0.44
Experience	5.68	0.25	5.44
Province & areas	-3.90	-0.28	-3.62
All factors	-9.29	-10.66	1.37
$\varepsilon = 1$			
Education	-7.04	-9.83	2.79
Experience	4.05	1.95	2.10
Province & areas	-3.93	-1.76	-2.17
All factors	-6.92	-9.64	2.72
$\varepsilon = 2$			
Education	-2.23	-6.81	4.58
Experience	1.89	2.53	-0.63
Province & areas	-3.11	-2.48	-0.63
All factors	-3.44	-6.76	3.32

Kakwani & Son Decomposition result III : South Africa

	Total disparity	Segregation	Discrimination
$\varepsilon = 0$			
Education	-9.59	-9.60	0.01
Experience	1.52	-0.03	1.55
Province & areas	2.61	-0.89	3.50
Race	1.58	3.79	-2.22
All factors	-3.88	-6.72	2.83
$\varepsilon = 1$			
Education	-1.72	-5.24	3.52
Experience	0.31	-0.45	0.76
Province & areas	3.32	-3.97	7.30
Race	0.49	2.35	-1.86
All factors	2.40	-7.32	9.71
$\varepsilon = 2$			
Education	3.83	-2.46	6.29
Experience	-1.13	-1.38	0.26
Province & areas	2.34	-5.62	7.96
Race	1.41	2.41	-1.00
All factors	6.45	-7.06	13.51