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LABOUR EMPLOYMENT IN PADDY, WHEAT AND VEGETABLES IN KATHMANDU VALLEY, NEPAL

Prahlad Kumar Thapa

FEP 1986 1

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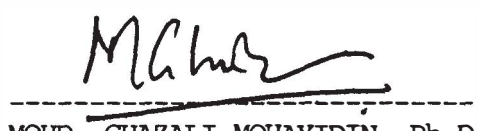

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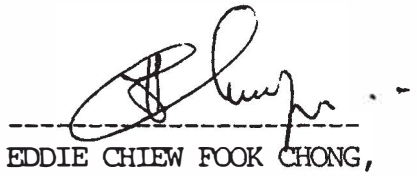

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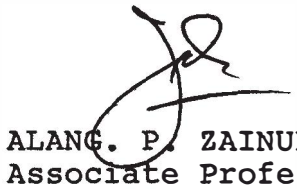

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LABOUR EMPLOYMENT IN PADDY, WHEAT AND VEGETABLES IN KATHMANDU VALLEY, NEPAL

by

Prahlad Kumar Thapa

A thesis submitted in partial fulfilment of the
requirements for the degree of Master of Science
in the Faculty of Economics and Management
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April 1986

Dedicated to my mother who left for heaven

leaving me alone at the age of eleven months.

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Unemployment and under-employment are major problems in Nepal resulting from growth in agricultural labour, insufficient agricultural land, small farm size and low cropping intensity. One way to alleviate such problems would be to adopt a more intensive system of agriculture. This requires a knowledge on the labour absorption capacities of different crops. This study examines the employment of farm labour in vegetable cultivation as compared to cereal cultivation in Kathmandu valley. More specifically, it examines the influence of production function

variables, cropping intensity and price of labour on the employment of total labour and, employment of family and hired labour separately in paddy, wheat and vegetable cultivation.

The employment of total labour is modelled using a single equation model and the employment of family and hired labour is modelled using a simultaneous equation system. The total labour model is estimated by ordinary least squares technique and the simultaneous equation model is estimated by the instrumental variable estimation procedure.

Variables such as farm size, tractor use, bullock power and price of labour are found significantly and negatively related to the employment of farm labour. The other set of variables such as seed-manure-fertilizer-pesticide, irrigation, high yielding varieties and cropping intensity are found significantly and positively related to the employment of farm labour. In addition, vegetable cultivation is found more profitable and more labour intensive than cereal cultivation.

Vegetable cultivation is recommended as a possible solution to ease the problems of unemployment and under-employment in Nepal. Hired labour is found to be an important beneficiary of vegetable cultivation. Vegetable cultivation would therefore provide more employment opportunities to the landless and marginal farm workers in Nepal.

Abstrak tesis yang dikemukakan kepada Senat Universiti Pertanian Malaysia sebagai memenuhi sebahagian daripada syarat-syarat untuk mendapatkan ijazah Master Sains.

LABOUR EMPLOYMENT IN PADDY, WHEAT AND VEGETABLES IN KATHMANDU VALLEY, NEPAL

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Pengangguran dan pengangguran tidak ketara merupakan masalah utama di Nepal disebabkan oleh peningkatan bilangan buruh di sektor pertanian, kekurangan tanah pertanian, ladang-ladang yang kecil saiznya dan kekerapan penanaman yang rendah. Satu cara penyelesaian ialah melalui pengamalan pertanian berbentuk intensif. Ini memerlukan pengetahuan tentang kunpayaan penyerapan tenaga buruh keatas tanaman yang berlainan. Penyelidikan yang dijalankan ini mengkaji tentang penggunaan tenaga buruh dalam pananaman bijirin di Lembah Kathmandu. Secara khusus, penyelidikan ini bertujuan mengkajipengaruh angkubah-angkubah

fungsi pengeluaran, kekerapan penanaman upah buruh keatas jumlah gunatenaga buruh keluarga, dan buruh upahan berasingan di dalam penanaman padi, gandum, dan sayur-sayuran.

Dalam kajian ini, bagi menganggar angkubah-angkubah tersebut, model satu persamaan dan penganalisaan kaedah kuasa dua terkecil digunakan terhadap gunatenaga jumlah buruh.Dan bagi buruh keluarga dan buruh upahan, dianggarkan dengan mengguna model sistem persamaan serentak dan kaedah angkubah instrumental.

Angkubah-angkubah seperti saiz ladang, penggunaan traktor, kuasa kerbau dan upah buruh didapati berpengaruh serta berhubungan negatif dengan gunatenaga buruh ladang. Angkubah-angkubah lain seperti benih-baja asli-baja kimia-racun serangga, pengairan, biji benih hasil-tinggi dan kekerapan penanaman didapati berpengaruh serta berhubungan positif dengan gunatenaga buruh ladang. Juga penanaman sayur-sayuran didapati lebih menguntungkan, dan lebih intensif dalam penggunaan buruh di bandingkan dengan pananaman bijirin.

Penanaman sayur-sayuran disyorkan sebagai kaedah terbaik bagi menyelesaikan masalah pengangguran dan pengangguran tidak ketara di Nepal. Oleh kerana penanaman sayur-sayuran memberi kesan yang baik ke atas buruh upahan, penanaman sayur-sayuran boleh meningkatkan peluang pekerjaan bagi mereka yang tidak mempunyai tanah atau tanah yang terhad di Nepal.

CHAPTER 1

INTRODUCTION

Background Information

Agriculture is an important sector of Nepal's economy and contributes 62 per cent of the national gross domestic product, generates 90 per cent of national employment and produces 80 per cent of the exports (Ali, 1982: 4). Geographic elevation varies from 50 metres above sea level to the highest peak of the world, Mount Everest, at 8848 metre above sea level. Climate varies from tropical in the South to alpine type in North region. Temperature in cultivated area ranges from - 15°C to 41°C. The annual rainfall ranges from 250 millimetre to 2800 millimetre. The major portion of the rain is received in summer. Due to such extreme variations in the elevation and the climate, there is a wide variety of crops grown. Crops are grown up to the elevation of 4000 metre.

Nepal faces a serious problem of both unemployment[1] and under-employment.[2] As agriculture is the main occupation of the

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[1] Unemployed persons are those who fall in the working group of 10 years of age and above and are not at work, but are seeking work (National Planning Commission (NPC), 1978).

[2] Under-employment means working less than a prescribed number of working hours in a day during the year, or there being more persons engaged in a particular work than actually required according to a given standard (NPC, 1978).

people, employment is solely dependent on available cultivable land. In Nepal, almost all of the arable land has been brought under cultivation by 1980 (see Table 1.1). Despite the

TABLE 1.1

LAND USE IN NEPAL[1]

Use	1975 * sq.km.	1975 * %	1980 * sq.km.	1980 * %	1985 ** sq.km.	1985 ** %
Forest	48,230	34.19	40,997	20.06	53,900	36.62
Cultivated land	23,260	16.49	31,268	22.17	29,590	20.10
Permanent snow	21,121	14.97	21,121	14.97	22,470	15.27
Pasture land	17,857	12.66	17,857	12.66	19,780	13.44
Settlements and roads	300	0.21	300	0.21	1030	0.70
Water bodies	4,000	2.84	4,000	2.84	4,000[2]	2.70
Others	26,291	18.64	25,516	18.09	16,410[3]	11.15
Total	141,059	100.00	141,059	100.00	147,180	100.00

1 Until 1980, the break-down of land use was on the basis of 141059 sq. km. Recent survey showed the total area of 147180 sq. km. The data on the break-down of land use could not be found for 1985 from the same source. Hence, the difference in the total area is due to the different sources of data.

2 This figure was derived by assuming that the water bodies do not change in 1985.

3 This figure was derived after substracting water bodies from the subgroup 'others' for this particular year.

(Source: * Asian development Bank/His Majesty's Government Nepal (ADB/HMGN) (1982) Nepal Agriculture Sector Strategy Survey, Vol. II, p.5

** Agricultural Projects Services Centre (APROSC) (1985 a) Perpective Land Use Plan, Annex. II, Table 2.2.1)

demands for new land for agriculture, there is no additional land to bring under cultivation in Nepal (Pant and Thapa, 1981: 1). Table 1.1 shows the land utilisation pattern in Nepal. It shows the government's effort to save forest area. The forest area decreased drastically from 34.19 per cent in 1975 to 20.06 per cent in 1980. This would have repercussions on the ecological system. Realising this, the Nepalese government has increased the forest area from 20.06 per cent in 1980 to 36.60 per cent in 1985. However, the need for settlement and roads is increasing very fast. This would inevitably mean a reduction in the agricultural land.

If the rate of population growth is high and labour absorption by non-agricultural sectors is low, particularly in an agriculture dominant country, then more of the labour has to be absorbed by the decreasing cultivated land. Table 1.2 shows the population growth in Nepal. It is increasing at an increasing rate. More specifically, during the period of 1961 to 1981, the population growth was very fast (2.84%). Therefore, adoption of some preventive measures to control the population could be helpful in this context.

If government efforts are successful and the population growth is reduced, the population of Nepal is expected to reach 21.42 million persons by the year 2000. Otherwise, at the present growth rate, the population of Nepal is predicted to reach 23.65 milliion by the year 2000 (ADB/HMGN, 1982: 194). This increased population has to be supported by the agriculture sector. Table 1.3 shows the economically active population in Nepal.

TABLE 1.2

POPULATION GROWTH
(1911-1981)

Year	Population (,000)	Average Annual Growth Rate
1911	5,639	-
1921	5,574	-0.10
1931	5,533	-0.10
1941	6,284	1.20
1952-54	8,257	2.30
1961	9,413	1.80
1971	11,556	2.07
1981	15,020	2.66

(Source: ADB/HMGN (1982), Nepal Agriculture Sector Strategy Survey, Vol. 1, p. 7)

TABLE 1.3

ECONOMICALLY ACTIVE POPULATION
(In Millions)

Description	1975/76	1979/80	1984/85
Total population	12.84	14.26	16.00
Population of 10 years and above	9.31	9.81	11.14
Economically active population	6.20	6.52	7.40

(Source: NPC, (1981) The Sixth Plan)

The distribution of the economically active population[3] by major industry groups is shown in Table 1.4. The table shows that the major portion (91.1%) of the economically active population is absorbed by agriculture sector, whereas, non-agricultural sectors absorb about 8.9 per cent. Therefore, it is clear that agriculture is the mainstay of Nepal's economy.

TABLE 1.4

ECONOMICALLY ACTIVE POPULATION
ACCORDING TO MAJOR INDUSTRY GROUP
(1981)

Industry Group	Per cent of Economically Active Population
Agriculture, Forestry and Fisheries	91.1
Manufacturing	0.5
Commerce	1.6
Transport and Communication	0.1
Finance and Business	0.1
Personal and Community Service	4.6
Others	0.1
Industry not stated	1.9
Total	100.0

(Source: Central Bureau of Statistics (CBS) (1984) Population Census, The Geographic Regions Vol. II, p.11)

[3] Economically active population includes all able bodied persons in the age group of 10 years and above (NPC, 1978).

The distribution of economically active population in Table 1.4 does not reflect the level of unemployment and under-employment in the country. In a survey conducted by the National Planning Commisssion (Nepal) in 1977, it was found that 63.07 per cent of the rural and 44.71 per cent of the urban households were under-employed. Unemployment and under-employment in Nepal are shown in Table 1.5.

TABLE 1.5

UNEMPLOYMENT AND UNDER EMPLOYMENT IN NEPAL

Region	Per cent Unemployment			Under-employed days per households (as percentage of annual working days)
	Male	Female	Total	
Rural	5.47	5.68	5.57	63.07
Urban	4.52	10.20	5.98	44.71

(Source: NPC (1978) A Survey of Employment, Income Distribution and Consumption Patterns in Nepal, p. 54-58)

Following the population growth rate in Table 1.2, and distribution of economically active population in Table 1.4, we can predict that by the year 2000 the level of unemployment and under-employment will increase. With the majority of the population residing on and deriving their income from farms, much of the population growth occuring here would cause a higher level of under-employment. The labour absorption by the agriculture sector in Nepal is much higher than many of the other less developed (LDCs) neighbouring countries. Table 1.6 shows

the comparative statistics on it. The percentage of labour force absorbed by the industrial sector has remained constant. The services sector absorbed only small percentage of the labour force. This implies that the increased labour force has to be absorbed by agriculture sector.

TABLE 1.6

GROWTH OF LABOUR FORCE IN SOME LDC'S

Countries	Percentage of Population of working age 15-64 years		Percentage of labour force in						Average annual growth of labour force in %
			Agriculture		Industry		Services		
	1960	1978	1960	1978	1960	1978	1960	1978	1970-80
Bangladesh	53	54	87	74	3	11	10	15	2.4
Bhutan	56	55	95	93	2	2	3	5	2.0
Burma	59	55	68	53	11	20	21	27	1.5
India	57	56	74	74	11	11	15	15	1.7
Nepal	57	55	95	93	2	2	3	5	2.0
Pakistan	52	51	61	58	18	19	21	23	2.5
Sri Lanka	54	58	54	54	14	15	30	31	2.1

(Source: World Bank (1980) World Development Report, p.146)

The increase in aggregate production in Nepal in the last decade (1975-85) has been only three per cent against the population growth rate of 2.66 per cent (NPC, 1984: 6). Table 1.7 shows the growth rate of gross domestic product (GDP) in