Original Article

# Manpower Mix in Private Hospitals in Thailand : A Census Report

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**Abstract**

This paper provides detailed information on manpower in private hospitals in Thailand. Results were drawn from the 1990-1992 private hospital census. Results showed that hospitals registered in the Stock Exchange of Thailand had the highest numbers of full time physicians and professional nurses compared with other types of hospitals, such as non-profit foundations, companies and polyclinics. We found variation in staffing patterns in terms of full and part time categories between hospitals in Bangkok and upcountry. Hospitals in the Stock Exchange Market had the highest productivities. During 1990-1992, the percent increase per annum of throughput showed high demand for private hospital services. In Bangkok, outpatient visits increased by 19% per annum ; hospitalisation by 13% ; hospital days by 7%. Increase in demand for intensive care was extra-ordinarily high during this period ; it rose by 31% during 1990-1992, requiring further indepth exploration to explain in the phenomena.

The study provided the first comprehensive information on the number of different part time and full time hospital manpower categories in the private sector in 1992 and the percent increase per annum during 1990-1992. It can be used to forecast demand for manpower in private hospitals both in Bangkok and different regions as well as the possible impact on public hospital staffing.

## Introduction

During the early 1990s, there was a significant shifting of qualified trained doctors from the public to private sector, as a result of the private hospital industry boom which stimulated great demand for specialists, nurses, pharmacists and others. Doctors in private hospitals earned a great deal from professional fees for services rendered to patients, in the higher socio-economic band, such as outpatient consultations, inpatient visits and surgical fees. Hospitals deduct part of the physicians' fees (10-20%) to be remitted to the hospital.

In contrast, doctors in public hospitals are salary paid. The salary scale depends totally on years of employment, and never reflects real workload assigned. Overtime for extra-work was paid per session of service, up until recently when the Ministry of Public Health (MOPH) introduced a workload incentive payment. But that scheme is still insignificant. **Public doctors are allowed to conduct private practice outside office hours to earn extra-income either through (solo or multiple) private clinics or part time work in private hospitals.** A significant gap of total income (from primary and secondary professional services) earned in the two sectors is one of the major causes of brain drain of qualified specialists from public to private hospitals[(1)]. **Table 1** demonstrates average income differential in the two sectors. The issue of the emerging role of private health care in Thailand was well described in Nittayaramphong et al[(2)].

**Table 1** Average monthly income differentials of public and private physician (in Baht)

| Source | University hospital | MOPH hospital | Private hospital | Private clinic | Average |
|---|---|---|---|---|---|
| Main job | 14,002 | 11,652 | 43,302 | 81,020 | 15,534 |
| Second job | 20,426 | 23,467 | 23,574 | 15,205 | 22,585 |
| Total | 27,392 | 29,377 | 51,853 | 84,749 | 31,517 |

Source: Chunharas et al (1990).

This partial (part time work in private sector) and total (resignation from public sector) drainage of manpower has potential negative consequences to the availability and quality of services in public hospitals. The society bears the cost of training for almost all categories of health manpower, as undergraduate and post-graduate tuition fees paid by trainees are negligible in the total production cost. Unless Thailand establishes a clear policy towards the role of the public and private sectors in health financing and provision, manpower production and utilisation, the gap of the social divide will widen.

Apart from the MOPH Medical License Division (MLD) data on the number of private hospitals and beds by province, there is a severe lack of information on types of beds, manpower mix for both part time and full time staff, and throughput for both curative and preventive services. Moreover, the pattern and behaviour of private hospitals under various types of ownership (e.g. for profit, not for profit) was totally left unknown.

The 1992 private hospital census by Tangcharoensathien et al[3] was launched aiming to assess the number and type of beds, categories of medical staff both part time and full time, ownership of certain major high cost medical technologies, service productivities (throughput), hospital exemption policies to the poor, and volume of exemption during 1990-1992. This short paper extracts issues on manpower in private hospitals in Thailand in order to shed light on short and long term manpower policy development.

This type of inventory study is fundamental, especially in a country like Thailand, where the private sector's role in financing and provision of care is emerging rapidly, for both policy analysis and formulation.

**Methods**

The census frame of the total 320 hospitals registered with the MLD in 1992 was used. Mail questionnaires were distributed to hospitals in Bangkok through MLD, and hospitals outside Bangkok received questionnaires through Provincial Health Offices. Hospitals responded to the questionnaire on a voluntary basis. Follow up work, including second and third round notification letters and lastly telephone calls for non-respondents consumed 12 months during October 1993-94. Interactive validation and assessment of data quality by researchers with the hospital administrators was made to improve data reliability.

**Definition**

1. Full time staff are defined as working more than 40 hours per week. Part time staff worked less than 40 hours.
2. In this report, private hospitals are classified into four categories:
    - Type I: owned by a company or an individual.
    - Type II: owned by not-for-profit Foundation which is waived from paying corporate tax.
    - Type III: public company registered in the Stock Exchange of Thailand (SET).
    - Type IV: smaller hospitals reffered to as clinics or polyclinics.

**Results**

The census results from the three year trend (1990-1992) of beds, types of bed, geographical distribution, room rate, exemption policy and volume of exemption was reported elsewhere[3]. This paper concentrates only on three year trend of manpower by categories. Ratio analysis provides a better understanding of private hospital staff performance.

A total of 222 valid questionnaire was received, with an overall response rate of 69% (Type II 85%, Type III 75%, Type I 72% and Type IV 58%). To facilitate readers, we present the latest figures from 1992 and produce the average percent increase during three year period of 1990 to 1992.

## 1. Manpower

### 1.1 Number of full and part time professional staff

**Table 2** Average number of medical staff (full time & part time) by types of hospital in Bangkok and Upcountry, 1992

| CATEGORY | Type I | | Type II | | Type III | | Type IV | | TOTAL | | Sample | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BKK | Up-country | BKK | Up-country | BKK | Up-country | BKK | Up-country | BKK | Up-country | BKK | Up-country |
| Doctor (F)* | 8 | 4 | 23 | 6 | 39 | 15 | 2 | 1 | 12 | 4 | 58 | 158 |
| Doctor (P)** | 37 | 17 | 113 | 16 | 143 | 123 | 15 | 3 | 50 | 16 | 46 | 134 |
| Dentist (F) | 2 | 2 | 7 | 2 | 4 | 2 | 1 | 1 | 3 | 2 | 36 | 30 |
| Dentist (P) | 13 | 3 | 6 | 2 | 15 | 9 | 4 | 0 | 11 | 3 | 29 | 24 |
| Pharmacist (F) | 3 | 1 | 3 | 1 | 8 | 4 | 2 | 1 | 4 | 1 | 38 | 91 |
| Pharmacist (P) | 5 | 2 | 7 | 2 | 15 | 12 | 3 | 1 | 7 | 2 | 28 | 67 |
| RN (F) | 18 | 7 | 92 | 22 | 160 | 40 | 3 | 2 | 43 | 9 | 54 | 139 |
| RN (P) | 38 | 28 | 19 | 18 | 74 | 117 | 6 | 5 | 35 | 25 | 42 | 112 |
| Nurse aid (F) | 79 | 29 | 92 | 27 | 132 | 89 | 8 | 7 | 73 | 26 | 39 | 127 |
| Nurse aid (P) | 6 | 9 | 3 | 5 | 3 | 22 | 2 | 3 | 4 | 7 | 5 | 20 |

Source: Tangcharoensathien et al 1997: The 1992 Private Hospital Census in Thailand
Note: * Full time, ** Part time

**Table 2** shows the number and proportion of full and part time professional staff in the four types of private hospitals. In Bangkok, Type III has the highest number of full time doctors at 39, Type II 23, Type I 8 and Type IV the least with only 2 full time doctors. In terms of ratio between full and part time doctors, it was 1:3.7, 1:4.9; 1:4.6 and 1:7.5, respectively. In upcountry areas, Type III has the highest at 15 full time doctors, Type II 6, Type I 4 and Type IV the least, with one full time doctor. The ratio between full and part time was, however, lowest in Type II (1:2.7), then Type IV (1:3), Type I (1:4.25) and Type III (1:8.2). The number of part time doctors is four times as high as that of full time doctors whether in Bangkok or outside Bangkok. These part time doctors came mainly from public hospitals.

The average number of full time dentists is 3 in Bangkok and 2 upcountry. There are on average higher numbers of part time dentists in Bangkok (11) and upcountry (3). The ratio between full time and part time dentists was 1:3.7 in Bangkok and 1:1.5 upcountry.

The average number of full time pharmacists is 4 in Bangkok and 1 upcountry. There are on average two times more part time than full time pharmacists; 7 in Bangkok and 2 upcountry. Private hospitals both in Bangkok and upcountry, depend twice as much on part time pharmacists.

The average number of full time registered nurses (RN) is 43 in Bangkok and 9 upcountry. There are on average, 35 and 25 part time professional nurses in Bangkok and upcountry, respectively. The ratio is 1:0.81 for Bangkok and 1: 2.7 for upcountry. This reflects that private hospitals outside Bangkok rely more on part time than full time registered nurses. In other words, private hospitals in Bangkok maintain a higher number of full time professional nurses than that of part time. This phenomenon is significant in not-for-profit hospitals and hospitals listed in the SET in Bangkok. Type III has the highest number of professional nurses both part time and full time. It was noticeable that most private hospitals upcountry, except for Type II, depended more on part time nurses than full time, a situation quite different from those in Bangkok.

The average number of full time nurse aids is 73 in Bangkok and 26 upcountry. There are on average, 4 part time nurse aids in Bangkok and 7 upcountry. Most of the nurse aids are full time, as part time nurse aids play an insignificant role. This was true for both Bangkok and upcountry.

### 1.2 **Rate of change in the number of full and par time professional staff**

**Table 3** Average percent increase of medical staff by types of hospital in Bangkok and Upcountry, during 1990-92

| CATEGORY | Type I | | Type II | | Type III | | Type IV | | TOTAL | | Sample | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BKK | Up-country | BKK | Up-country | BKK | Up-country | BKK | Up-country | BKK | Up-country | BKK | Up-country |
| Doctor (F) | 4.7 | 22.3 | 4.0 | 4.5 | 1.6 | 7.4 | 2.6 | -1.0 | 3.6 | 15.4 | | |
| Doctor (P) | 6.2 | 15.7 | 0.1 | -1.1 | 7.0 | 9.2 | 6.1 | 5.1 | 6.6 | 11.7 | 49 | 124 |
| Dentist (F) | 0.6 | 22.0 | 7.2 | 12.5 | 1.3 | - | 10.0 | 0 | 3.1 | 16.6 | | |
| Dentist (P) | 6.4 | 12.5 | -16 | 25.0 | 3.5 | - | 9.3 | 0 | 4.3 | 13.6 | 28 | 15 |
| Pharmacist (F) | 13.3 | 2.5 | -2.5 | 0 | 31.6 | 0 | 50.0 | 0 | 15.8 | 1.9 | | |
| Pharmacist (P) | 6.4 | 4.4 | -7.5 | 0 | 13.8 | - | 5.5 | 0 | 7.5 | 3.3 | 28 | 61 |
| RN (F) | 10.7 | 14.2 | 7.0 | 6.2 | 11.4 | 15.0 | 0.3 | 3.4 | 7.7 | 11.0 | | |
| RN (P) | 6.8 | 14.2 | 0 | 6.7 | 19.5 | 8.7 | 8.6 | 2.6 | 8.9 | 11.0 | 8 | 48 |

Source: Tangcharoensathien et al 1997: The 1992 Private Hospital Census in Thailand

The percent increase per annum during 1990-92 among four key staff is very interesting as shown in **Table 3**. It reflects an increasing demand for manpower in private hospitals.

- For all private hospitals, the number of full time doctors increased by 3.6% in Bangkok and 15.4% upcountry. The number of part time doctors increased by 6.6% in Bangkok and 11.7% upcountry. Private hospitals outside Bangkok were booming and required both full and part time doctors at a significantly higher rate than their counterparts in Bangkok during this period. As part-time doctors came from the public sector, this has, to a certain extent, a major implication on public hospital care.
- The number of full time dentists increased by 3.1% in Bangkok and 16.6% upcountry. The number of part time dentists increased by 4.3% in Bangkok and 13.6% upcountry. Demand of full and part time dentists among private hospitals outside Bangkok is significantly higher than that in Bangkok.
- The number of full time pharmacists increased by 15.8% in Bangkok and 1.9% upcountry. The number of part time pharmacists increased by 7.5% in Bangkok and 3.3% upcountry, particularly influenced by Type III hospitals. This finding contrasts with demand for doctors and dentists. It reflects a higher demand in Bangkok than from outside
- The number of full time professional nurses increased by 7.7% in Bangkok and 11% upcountry. The number of part time professional nurses increased by 8.9% in Bangkok and 11% upcountry.
- It is worth noting that type II hospitals faced a negative rate of increase for pharmacists (both full and part time), and also for part time dentists. The rate of change, however, was quite small (2.5% and 7.5%, respectively)

The authors feel that it would be inappropriate to project the number of full and part time manpower in private hospitals based on the three year trend during 1990-92, as there are quite a number of major determinants such as demand for private care, household income and income elasticity of demand on private care, and finally profitability of the private hospital industry.

## 2. Throughput in 1992

**Table 4** Average number of curative services by types of hospital in Bangkok and Upcountry, 1992

| Curative Services | Type I | | Type II | | Type III | | Type IV | | TOTAL | | Sample | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BKK | Up-country | BKK | Up-country | BKK | Up-country | BKK | Up-country | BKK | Up-country | BKK | Up-country |
| OP visit | 78,750 | 50,990 | 128,132 | 39,503 | 281,743 | 154,033 | 45,105 | 12,659 | 107,251 | 44,021 | 49 | 142 |
| IP case | 5,462 | 3,608 | 7,408 | 5,004 | 16,734 | 10,875 | 691 | 714 | 6,374 | 3,347 | 47 | 141 |
| IP day | 10,044 | 9,055 | 17,565 | 17,782 | 47,260 | 32,504 | 512 | 1,942 | 16,638 | 9,667 | 27 | 162 |
| ICU case | 1,300 | 387 | 565 | 1,539 | 1,220 | 2,007 | 179 | 136 | 1,115 | 570 | 21 | 59 |
| Surgery | 19,747 | 1,041 | 2,976 | 1,400 | 8,792 | 3,757 | 313 | 175 | 3,182 | 992 | 39 | 114 |
| Dental visit | 5,811 | 1,969 | 14,149 | 2,454 | 16,174 | 11,792 | 4,094 | 1,434 | 9,274 | 2,361 | 31 | 31 |

Source: Tangcharoensathien et al 1997: The 1992 Private Hospital Census in Thailand

It's inevitable that we compare manpower with productivity as shown in **Table 4.**

In 1992, a private hospital in Bangkok provided an average of 107,251 outpatient visits; 6,374 admission cases occupying 16,638 hospital bed-days; 1,115 intensive care in-patients; 3,182 surgeries and 9,274 dental visits.

In the same year, a private hospital outside Bangkok provided an average of 44,021 outpatients visits; 3,347 admissions occupying 9,667 hospital bed-days; 570 intensive care in-patients; 992 surgeries and 2,361 dental visits.

In terms of relative size of service, Type III hospitals had the highest output per hospital, both for Bangkok and upcountry. It is worth noting, however, that Type I hospitals had the highest number of surgical and ICU cases per hospital, even higher than Type III hospitals which had about 3 times the number more outpatients and inpatients per hospital.

During 1990-92, the percent increase per annum of throughput in **Table 5** shows high demand for private hospital services.

**Table 5** Average percent increase in curative services by types of hospital in Bangkok and Upcountry, during 1990-92.

| Curative Service | Type I | | Type II | | Type III | | Type IV | | TOTAL | | Sample | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BKK | Up-country | BKK | Up-country | BKK | Up-country | BKK | Up-country | BKK | Up-country | BKK | Up-country |
| OP visit | 22 | 13 | 33 | 1 | 12 | 13 | 8 | 9 | 19 | 11 | 49 | 142 |
| IP case | 12 | 16 | 37 | -2 | 8 | 11 | 2 | 7 | 13 | 12 | 47 | 141 |
| IP day | 11 | 17 | 14 | 1 | 5 | 6 | 4 | 11 | 7 | 13 | 27 | 162 |
| ICU case | 58 | 33 | 12 | 28 | 3 | 19 | - | -9 | 31 | 29 | 21 | 59 |
| Surgery | 20 | 17 | 13 | 5 | 7 | 1 | 13 | 12 | 15 | 15 | 39 | 114 |
| Dental visit | 15 | 130 | 13 | 38 | 17 | 19 | 12 | 9 | 15 | 80 | 31 | 31 |

Source: Tangcharoensathien et al 1997: The 1992 Private Hospital Census in Thailand

In Bangkok, outpatient visits increased by 19% per annum; hospitalisation 13%; hospital days 7%; intensive care patients 31%; surgeries 15% and dental services 15%. Increase in demand for intensive care is extra-ordinary during this period.

Outside Bangkok, outpatient visits increased by 11% per annum; hospitalisation 12%; hospital days 13%; intensive care patients 29%; surgeries 15% and dental services 80% (which is mostly the results of Type I hospital).

## 3. Ratio analysis

**Table 6** Ratio analysis in private hospitals by type in Bangkok and Upcountry, 1992

| Indicators | Type I | | Type II | | Type III | | Type IV | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | BKK | Up-country | BKK | Up-country | BKK | Up-country | BKK | Up-country | BKK | Up-country |
| 1. Hospital bed/MD | | | | | | | | | | |
| Full time | 10 | 18 | 13 | 10 | 9 | 8 | 11 | 15 | 11 | 16 |
| Part time | 4 | 9 | 4 | 19 | 2 | 1 | 2 | 10 | 3 | 10 |
| 2. Hospital bed / RN | | | | | | | | | | |
| Full time | 9 | 13 | 4 | 5 | 2 | 3 | 10 | 9 | 8 | 11 |
| Part time | 6 | 5 | 19 | 24 | 5 | 2 | 3 | 6 | 6 | 6 |
| 4. OP visit / day | 216 | 140 | 351 | 108 | 772 | 422 | 124 | 37 | 294 | 121 |
| 5. OP visit / MD/ day | 30 | 52 | 15 | 17 | 26 | 30 | 82 | 32 | 39 | 44 |
| 6. LOS (day) | 2 | 3 | 10 | 6 | 3 | 3 | 2 | 3 | 3 | 3 |
| 7. Occupancy rate (%) | 34 | 49 | 101 | 82 | 52 | 77 | 14 | 34 | 43 | 51 |
| 8. IP case /MD / day | 3 | 10 | 2 | 7 | 4 | 6 | 1 | 5 | 5 | 7 |
| 9. IP case /RN / day | 3 | 7 | 3 | 4 | 1 | 2 | 3 | 3 | 3 | 6 |
| 10. RN / MD | 2 | 2 | 4 | 3 | 5 | 3 | 1 | 2 | 2 | 2 |

Source: Tangcharoensathien et al 1997: The 1992 Private Hospital Census in Thailand

Ratio analysis in **Table 6** produces some crucial hospital indicators. On average, hospital beds to full time doctor ratio is 15 (Bangkok 11, outside Bangkok 16). Beds to full time professional nurse ratio is 10 (Bangkok 8, outside Bangkok 11). A hospital provided 294 outpatient visits per day in Bangkok, almost double of that outside Bangkok, at 121 visits. A full time doctor provided services to 39 outpatient visits a day in Bangkok and 44 visits a day outside Bangkok. This means private hospitals outside Bangkok have slightly higher productivities and lower staff intensity (in terms of staff bed ratio) than those in Bangkok, with very little variations among different types of hospitals.

Average length of stay is 3 days both in Bangkok and upcountry. Type II has a longer stay of 7 days on average. Bed occupancy rate was 49% (Bangkok 43%, outside Bangkok 51%). Type II has higher bed occupancy rate of 86% and Type IV has the lowest at 49%.

In terms of manpower mix, the ratio of registered nurses to doctors is 2 to 1 in most cases. Except for Type III hospitals in Bangkok which can afford the highest ratio of 5 nurses to each doctor. In Type I hospitals in Bangkok, which have the highest number of ICU and surgical cases among the private hospitals, the ratio of RNs to doctors is also only 2 to 1.

## 4. Discussion

As the problem of access to private hospital data was anticipated, the overall response rate in our study (69%) was quite satisfactory. Specifically the response rate for non-profit hospitals was 85%, hospitals registered in the SET 75%, and hospitals owned by companies 72%. Smaller hospitals, calling themselves polyclinics and clinics, had the lowest response rate of 58%. Non-respondents among Type IV hospitals were mostly ten bed facilities. Therefore the figures of Type IV are rather biased towards 30 and 50 bed hospitals.

### 4.1 Policy implications

The private sector in Thailand has been closely linked with the public sector with regards to manpower. In the days when private clinics were the most common form of private providers, most public doctors also work in private clinics. When private hospitals started to grow, they also depended heavily on public hospital doctors and other types of staff to work part time. With the recent growth of private hospitals in Thailand, more staff have been required to work full time. This, undoubtedly, affects

the number of staff in the public sector. On the other hand, public hospital administrators had to find effective strategies to ensure that priority health services would not be adversely affected.

The study provided the first comprehensive information on the number of different part time and full time hospital manpower categories in the private sector in 1992 and the percent increase per annum during 1990-1992. This can be used to forecast demand for manpower in private hospitals both in Bangkok and different regions as well as the possible impact on public hospital staffing. These data are important inputs for the development of manpower policy regarding public and private mix.

The MOPH Health Statistics Division's routine annual Health Resource Survey covering both the public and private sectors suffered from a very low response rate and unreliable data. Establishment of a compulsory reporting system for a minimal set of essential data from the private sector, as shown partly in this study, will prove to be more useful and may also replace both annual surveys and census, as it was very well evidenced in other countries. We believe that compulsory reporting, especially of full and part time staff inputs and annual hospital throughput, is needed for manpower policy development and planning as well as government policy in relation to the private hospital sector.

Ratio analysis reflected important hospital indicators. Some quality and efficiency indicators served as baseline information for monitoring. There is a clear distinction of hospital characteristics between Bangkok and upcountry, including types of ownership. Specific and relevant policy instruments can be further developed accordingly. Hospitals registered in the SET have the highest number of all categories of manpower and highest throughput compared with other types of private hospitals. Other studies confirm this findings. Charges for services in these hospitals are also the highest[4]. Smaller hospitals who consider themselves as polyclinics (Type IV) had the smallest number of manpower.

There is neither simple answers nor standard figures to indicate how many staff of different categories would be required for a certain volume of services. Without an indepth study on how different categories of manpower were used in the private sector, it is not easy to determine the efficiency or productivity between the public and private sectors.

In terms of trends for private hospital full time and part time manpower requirements, it is unpredictable how the ratio between the two will shift in the future. More recently, the public sector started certain measures to ensure that their full time staff contributes more to the public and to discourage staff from holding two jobs. These measures include initiation of evening clinics in public hospitals and supplementary payments for all related staff. Recently, the MOPH introduced a non-private practice incentive with a monthly allowance aimed at improving public hospital quality of care. This will certainly affect the ratio of full time and part time staff in private hospitals. We felt that empirical evidence is still lacking for policy formulation regarding manpower utilisation and remuneration in the two sectors. We need further more research on this subject.

### 4.2 Research on public and private manpower mix

The paper raises more questions that will require further research into factors determining private hospital growth and its consequence on demand for manpower and its impact on public sector manpower. A repeat study, as done by Chunharas et al[1] to reflect income differential and performance in the two sectors, including not only medical doctors but with increased scope of study into nurses, intensive care unit teams, cardiac care unit teams, anaesthesiological nurses, pharmacists and dental doctor, is urgently needed especially focusing on the first half of the 1990s. With changing practices in public hospitals in terms of the staff remuneration system and the tendency to compete with the private sector, we require a better understanding of manpower management and service organisation changes in both sectors. This will shed light on proper policy instruments in relation to remuneration and better use of the scarce manpower resources. The dilemma remains if the two sectors should compete to attract as many staff to work full time with them.

Certain types of services in private hospitals may also require further indepth studies. This study showed unusually high throughput in ICU and surgical cases. There are also questions on the

performance in terms of surgical workload among various categories of surgeons in the private sector. For example, orthopaedic surgeon workload per capita in private hospitals may be significantly lower than those in public hospitals, as not many fracture patients from traffic accidents can afford to pay the high fee charged by private hospitals. This kind of research will produce proper policy instruments to manage part time and full time practices in the two sectors.

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