

Dual job holding by public sector health professionals in highly resource-constrained settings: problem or solution?

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Abstract This paper examines the policy options for the regulation of dual job holding by medical professionals in highly resource-constrained settings. Such activity is generally driven by a lack of resources in the public sector and low pay, and has been associated with the unauthorized use of public resources and corruption. It is also typically poorly regulated; regulations are either lacking, or when they exist, are vague or poorly implemented because of low regulatory capacity. This paper draws on the limited evidence available on this topic to assess a number of regulatory options in relation to the objectives of quality of care and access to services, as well as some of the policy constraints that can undermine implementation in resource-poor settings. The approach taken in highlighting these broader social objectives seeks to avoid the value judgements regarding dual working and some of its associated forms of behaviour that have tended to characterize previous analyses. Dual practice is viewed as a possible system solution to issues such as limited public sector resources (and incomes), low regulatory capacity and the interplay between market forces and human resources. This paper therefore offers some support for policies that allow for the official recognition of such activity and embrace a degree of professional self-regulation. In providing clearer policy guidance, future research in this area needs to adopt a more evaluative approach than that which has been used to date.

Keywords Health manpower; Physician's practice patterns/legislation; Professional practice/legislation; Motivation; Physician incentive plans; Public sector; Private sector; Quality assurance, Health care; Health policy; Developing countries (*source: MeSH, NLM*).

Mots clés Personnel santé; Attitudes diagnostique et thérapeutique (Economie santé)/législation; Pratique professionnelle/législation; Motivation; Plan d'intéressement praticiens; Secteur public; Secteur privé; Garantie qualité soins; Politique sanitaire; Pays en développement (*source: MeSH, INSERM*).

Palabras clave Recursos humanos en salud; Pautas en la práctica de los médicos/legislación; Práctica profesional/legislación; Motivación; Planes de incentivos para los médicos; Sector público; Sector privado; Garantía de la calidad de atención de salud; Política de salud; Países en desarrollo (*fuentes: DeCS, BIREME*).

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Introduction

Dual job holding by civil servants is a common practice in developing countries and is often seen as a response to the low salaries paid to workers in the public sector. A recent study, examining the moonlighting activities of civil servants in a number of countries, found that 87% of them supplemented their salaries through second jobs, with such activities adding between 50 and 80% to their incomes (1).

Perhaps not surprisingly it has been found to be common for doctors who work in the public health sector to engage in private practice or to be employed at facilities elsewhere (although nurses, midwives and other health workers also engage in dual practice). Gruen and colleagues examined dual practice in Bangladesh through interviews with government-employed doctors. They found dual job holding to be widespread and to be adopted largely in response to the low pay offered by the

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public sector. The results indicated that most of the doctors surveyed were able to double their incomes through such activities (2). Likewise, in a study conducted in Portuguese-speaking African countries, which was also based on interviews with public sector doctors, it was reported that two thirds of those doctors interviewed were involved in alternative income-generating activities (3).

Although the main reason why individuals carry out dual practice in the health sector is to supplement the income they derive from public work (2, 4–7), non-financial incentives such as status and recognition, strategic influence, control over work and professional opportunities have also been identified as contributory factors (8). However, opportunities for such work are not always readily available (5, 9).

Internationally, there are wide variations in the ways in which dual practice is regulated. For instance in Canada, such activities appear to be contrary to official regulations although there is a degree of vagueness as to how they are dealt with due to a lack of explicit guidelines (10). Although in Thailand there also appears to be a lack of specific acknowledgement of dual practice, it seems to be an accepted activity (9). In China, although dual practice is not condoned under official regulations, there is evidence that it occurs on a significant scale and is widely acknowledged (4). In other settings, such as France, Germany and the United Kingdom (11–13), the right to engage in private practice is enshrined in the conditions of employment for health professionals in the public sector.

Concerns about dual practice can be seen to be based on two types of adverse incentives faced by the practitioner, namely, to misappropriate public sector resources and, to divert patients into private treatment (7). So far, studies on dual practice have tended to focus on the scale and nature of such activities (2, 3, 14). The limitation with previous studies on this topic is that the assessment of policy options has not generally entailed any consistent normative criteria and has been based on ad hoc observations as to the negative consequences of dual practice.

In this study we identified appropriate criteria and aimed to examine various policy options with particular reference to these and the institutional context in which dual practice activities are carried out, particularly in low- and middle-income countries. The potential implications of such activities are discussed below and the discussion is followed by a critical analysis of available policy options. Finally, some conclusions are drawn.

What impact does it have?

From the point of view of the public sector, allowing health professionals to engage in private practice can be a means of minimizing the budgetary burden required to retain skilled staff. In low- and middle-income countries, given the often acute scarcity of public sector resources, this is an important policy option that allows the public sector to compete with both private and overseas employers for the services of medical staff (15).

However, dual job holding by public sector health professionals is potentially a problem because it may create inappropriate incentives as the boundaries between a public health professional's day-to-day job and his or her private practice can become blurred. Firstly, it can encourage the misappropriation of scarce public sector resources into the private sector. An example might be the unauthorized use of facilities, drugs

and maybe even support staff within a public facility in the conduct of private practice — a situation for which some evidence exists among obstetricians and ophthalmologists in Thailand (9). The drain on public resources caused by such practices can significantly hamper the capacity of such facilities to treat patients adequately.

The second reason why private practice by public health workers has been posited as a problem is because it may lead to doctors diverting patients from public facilities into private services. Indeed there is evidence, for example in Peru and Zimbabwe, that some overt patient diversion does occur (5, 6). According to the United States Agency for International Development (USAID), this is a common problem in Africa due to the low pay in the public sector and an overall shortage of doctors (7).

The mechanisms that health workers use to divert patients can vary in their complexity. Perhaps the crudest means, as mentioned above, is through direct referral of patients by doctors (5–7). A more subtle means is through increasing waiting times or waiting lists for services in the public sector (16) and a still more subtle approach to patient diversion may be through manipulating the quality of service so that clear differences exist between those that the professional provides through the public sector and those that he or she provides privately. This is done by deliberately downgrading the quality of service provided in the public sector, for example, in terms of a provider's demeanour and the way he or she communicates with the patient. Such behaviour has clear negative consequences and would be viable only if poor quality in the public sector *did not* have adverse consequences for an individual's professional reputation, and thus income earning potential, in private practice.

Policy options

An important first step in examining the policy options available is to identify the objectives to which they would be geared and thus, the basis on which they can be assessed. These objectives can be inferred from the preceding discussion where, in particular, the potentially negative consequences of dual practice on quality of care and access to services were highlighted. The aim of focusing on these broader objectives is to avoid *ex ante* value judgements about the rights and wrongs of dual practice per se or the activities sometimes associated with it, such as the use of public sector resources by dual practitioners and the diversion of public patients into private practice.

An additional consideration is the constraint posed on various policy options by their costs and the resources available to meet these: i.e. simply paying doctors enough to match total public and private income is unlikely to be either feasible or sustainable in resource-poor settings. Therefore any assessment of policy options needs to recognize the impact of costs on one side of the equation, and, of quality of care and access to services on the other. This evaluative framework broadly resembles that of regulatory impact analysis (17, 18) where policy change is assessed on the basis of cost and social outcomes.

In the following discussion, a number of options are highlighted and some of the evidence from the literature relating to their cost and ability to meet the above social objectives is discussed. Given the paucity of information in this area and because much of it is influenced by highly specific contextual factors, the options set out below are necessarily examined in general terms.

Regulatory controls or bans

As mentioned in the first section, dual practice is commonly regulated by means of bans or strict limitations on such activity. The evidence from some low-income settings, however, is that such regulations are often not properly enforced and when they are, may lead to problems manifesting elsewhere in the system such as the “brain drain” of doctors to other countries, the growth of the informal health sector or increase in informal payments (7, 14, 19). In practice, bans do not prevent these activities, but instead take them outside the regulatory and policy jurisdiction of government (4).

A variation on bans is the use of exclusive contracts. These are payments to public sector staff in return for their agreement not to engage in private practice. These contracts are employed in a number of countries including Spain (13) and Thailand (9). The problem with this measure is that in the context of the strict resource constraints that often exist within low- and middle-income countries, such payments can be prohibitively costly — particularly if incomes in the private sector are high and thus there is a need for greater levels of compensation. Furthermore, the experience in Thailand indicates that such payments to one group of providers (doctors) and not others (e.g. nurses and other health staff) can create resentment in other professional groups (9).

In contrast to these measures, the potential value of recognizing and legitimizing dual medical practice is that, at one level, it enables some degree of control to be exercised over quality and safety. For instance, this may occur through continuing education programmes conducted within the public sector which could directly filter through into at least that section of the private sector where individuals hold dual positions. At another level, dual job holding can provide policy-makers with the means of transmitting public health initiatives to the private sector via those individuals who straddle both. There is greater scope to influence behaviour and set priorities when there are mechanisms that can be invoked that link it with remuneration or non-financial rewards. An example of how this can be employed is found in South Africa, where private practitioners are offered part-time contracts by the state to service rural towns (20). In contrast, in settings where private practice is not recognized and there is thus no explicit link between what an individual does in his or her public capacity and what he or she does as a private practitioner, this policy option is lost. The importance, therefore, of providing official recognition is that it allows policy-makers to incorporate such activity within the bounds of its regulatory and policy jurisdiction.

Payment systems

Public sector physicians are typically paid a fixed salary whereas the work carried out in private practice is paid on a fee-for-service basis. The incentive on the provider in such situations is to concentrate effort away from public into private work. Furthermore, it may lead to the deliberate channelling of patients away from physicians’ public to their private practice either through overt referral, or less overtly, through maintaining quality differentials. An alternative means of structuring payments may be to remunerate public sector providers on the basis of output-related pay rather than through fixed salaries. There is some evidence in the human resources literature to suggest that individuals tend to moonlight when hours of work in their primary job are constrained (21, 22). This gives

some support to the notion that providing individuals with discretion over income and effort will offset the incentive to seek outside work.

The economic rationale for this is that the effectiveness of incentives to encourage certain activities is a function not only of how they are paid, but also the mode of payment for competing activities (23). In this case, influence can be exerted on decisions by individuals as to whether to undertake dual practice not through change in the way private practice is remunerated (this would be difficult to enforce from a public policy perspective), but through changes in the mode of public sector remuneration. On this basis, the incentive to shift effort from public-sector to private-sector work would be offset by making remuneration for public practice, like that of private practice, related to effort or output.

The most immediate and overriding constraint on the feasibility of this option however is the cost to the public sector. In circumstances where there are tight resource constraints in the public sector, this option is unlikely to be feasible. This is because implementing this option in such circumstances would require the unlikely condition that significant number of individuals would be happy to accept incomes through this arrangement that were only equal to or below existing salary levels.

Self-regulation

Regulatory responses in many low- and middle-income countries must take into account the constraint imposed by low regulatory capacity within their governments, particularly when significant resources are required for monitoring and enforcement (24, 25). As indicated earlier, one issue of concern is that dual practice may encourage doctors to reduce the quality of care in the public sector to divert patients into private practice.

In the UK as in many high-income settings, this issue of quality is largely a matter of professional self-regulation. Self-regulation of this nature works because significant weight is given to an individual’s reputation as a doctor in public practice, which influences his or her income-generating capacity in private practice. The role of professional bodies is to link accreditation, certification and other means of performance assessment with certain core competencies and participation in various activities *within the public sector*. The incentive created enables competitive pressures within private practice to spill over into the public sector in terms of improved quality, because a fall in quality in an individual’s public sector work is translated into reduced private practice earnings. Indeed, in certain circumstances, this could lead to an incentive to “overprovide” quality in the public sector, particularly in high-income settings, because the health facility rather than the individual doctor bears the cost of providing additional quality (13).

The role of such regulation could be viewed as addressing the uncontrolled proliferation of private providers and, in a sense, establishing barriers to entry. For example, in Bangladesh, strong support was expressed by providers for the introduction of some form of regulation that would control quality (2). There are few published examples of successful self-regulation in the health sector in low- and middle-income countries. An exception is that documented by Wadee and Gilson, who undertook a case-study of the regulation of the pharmaceutical sector by the South African Pharmaceutical

Council (SAPC) and highlighted the effectiveness with which this body has, over a number of years, ensured safe drugs and restricted informal and illegal drug retailing. Key to this success was that the organization was designed to be highly responsive to consumer complaints — 90% of complaints were lodged by individual consumers (26).

A feature of professional self-regulation is that it is seen as a means of overcoming the collective action problem (sometimes referred to as the prisoners' dilemma) of maintaining professional standards without recourse to action by the state (this may be necessary, for instance, when there is a weak state as is the case in many low-income settings or where there is some ideological resistance to government control). The problem, as we have characterized it, is that some of the adverse consequences of dual practice occur when there is no set of institutional arrangements that will ensure the cooperative behaviour of self-interested agents (27, 28) (e.g. behaviour such as channelling public patients to private practice through deliberately lowering standards of care in public practice occurs because the doctors are acting out of self-interest). The rationale for professional self-regulation is that it recognizes the *collective* interest in instituting some form of cooperative behaviour among individual agents. It works to varying degrees in different settings because over a number of iterations, individuals have the opportunity to develop reputations for cooperation by maintaining certain professional standards. Thus deviating from such patterns of behaviour becomes more and more costly the more individuals have invested in developing and protecting their reputations and consequently the more weight attached by external agents to such reputations. The latter point highlights the need for mechanisms within regulatory bodies for input from consumers or third parties — in some settings such input may be more appropriately elicited through civil society organizations such as consumer representative forums, through insurers or indeed government. As mentioned above, what was seen as crucial to the success in South Africa of the SAPC in its self-regulatory role was that it was set up to be responsive to consumer complaints.

Despite these features, it is worth considering the impact of such a measure on access to services. This is likely to be mixed because minimum quality controls tend to maintain prices above a certain level. When services in the public sector are mandated to be free or charged at below market prices, such measures may instead lead to reduced service availability (and longer waiting times) or increased informal fees. Consequently, there is a certain trade-off between quality and access to health care because higher-quality services will tend to be more costly, and thus specific measures addressing financial access need to be considered when proposing such forms of self-regulation.

Conclusion

Dual practice is a complex phenomenon which, in the context of low- and middle-income countries, reflects various wider systemic characteristics such as limited public sector resources, low pay for government employees, and limited regulatory

capacity within government. In framing appropriate regulation and public policy to control this activity, it should be recognized that dual practice is more than simply a means by which public health workers generate extra income, and greater consideration should be given to the wider social objectives of access, affordability and quality of care.

When viewed in isolation from this wider context, there is a tendency to see dual practice as necessarily a problem, and the regulatory framework and its capacity to be enforced taken as given. In practice, when regulatory capacity is weak, the prospect of regulatory failure is high. This paper has sought to explore various means by which dual practice can be embraced as part of an effective and sustainable policy response that focuses on defined objectives of access and quality of care and also takes into account the institutional constraints imposed by these weak government regulatory structures, the limited capacity of the public sector to meet the income expectations of doctors and the interplay between market forces and human resources. In effect, the aim of this article was to look beyond some of the more immediate consequences of dual practice and examine options that see dual practice as part of a solution rather than *necessarily* a problem. In doing so it has sought to avoid the *ex ante* value judgements about the ethics of dual practice or some of the immediate forms of behaviour it may encourage. As emphasized above, the evidence to date does not point unequivocally to any specific policy measure that will promote the social objectives identified in this paper, although it does suggest that policies that allow for the recognition of dual practice and that embrace some degree of professional self-regulation warrant further consideration within resource-constrained settings.

An important reason why evidence in this area is inadequate is that past research has tended to focus on describing the nature of this “problem”; focusing on issues such as the motivations of individual actors, the extent of dual working, the characteristics of participants and the level of income earned. To fill the gaps in existing knowledge, future research needs to take on a more evaluative perspective by assessing, in particular, the costs and benefits of different policy options. As indicated earlier, regulatory impact analysis is one framework that can be used although there does not seem to be any reason why conventional forms of economic evaluation cannot also be applied. Finally, issues of implementation as discussed in this paper are crucial to assessing the viability of policy options, and the analytical perspectives provided by the political science literature on implementation would also be worth exploring empirically (29, 30). ■

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Résumé**Exercice d'un double métier par les professionnels de la santé du secteur public dans les pays à ressources très limitées : problème ou solution ?**

Le présent article étudie les options possibles dans la réglementation de l'exercice d'un double métier par les membres des professions médicales des pays à ressources très limitées. La deuxième activité est généralement motivée par le manque de ressources et le faible niveau de rémunération dans le secteur public. Une relation a été établie entre l'exercice d'une deuxième activité et le détournement de fonds publics et la corruption. Cette activité est habituellement peu réglementée : il n'existe souvent pas de réglementations ou celles en vigueur sont vagues ou rarement appliquées, en raison de la faible compétence de réglementation. L'article s'appuie sur les éléments limités disponibles à ce sujet pour évaluer un certain nombre d'options, en tenant compte des objectifs de qualité des soins et d'accessibilité des services, ainsi que de certaines contraintes politiques susceptibles de compromettre l'application de ces réglementations dans les pays à ressources limitées. L'approche

adoptée pour dégager des objectifs sociaux plus larges s'efforce d'éviter les jugements de valeurs portés sur l'exercice d'un double métier et sur certaines des formes de comportement pouvant lui être associées, jugements qui tendaient à caractériser les analyses antérieures. La pratique d'un double métier est considérée comme une solution organisationnelle possible à des problèmes tels que le manque de ressources (et de revenus) du secteur public, la faible compétence de réglementation et l'interaction entre les forces du marché et les ressources humaines. Le présent article propose donc un document d'appui pour l'élaboration de politiques autorisant la reconnaissance officielle d'un tel double métier et prévoyant un certain degré d'autorégulation de la profession. Les futurs travaux de recherche dans ce domaine devront adopter une démarche plus évaluative que celles appliquées jusqu'à présent, ce qui fournira des éléments d'orientation plus éclairants.

Resumen**La doble práctica entre los profesionales sanitarios del sector público en los entornos con recursos muy limitados: ¿problema o solución?**

En este artículo se examinan las opciones de política para la regulación de la doble práctica profesional entre el personal médico en los entornos con recursos muy limitados. Tal actividad se debe en general a la falta de recursos del sector público y a las bajas remuneraciones y se ha asociado al uso no autorizado de recursos públicos y a problemas de corrupción. Es también un ámbito tradicionalmente mal regulado; las normas al respecto son inexistentes, y cuando existen son vagas o se aplican mal debido a la escasa capacidad reguladora. En el presente artículo se utiliza la escasa evidencia disponible sobre este tema para evaluar varias opciones normativas en relación con los objetivos de calidad de la atención y acceso a los servicios, así como algunas de las limitaciones de política que pueden socavar la aplicación en los entornos con pocos recursos. En la perspectiva adoptada para

destacar estos objetivos sociales amplios se ha procurado evitar los juicios de valor, frecuentes en análisis anteriores, respecto a la doble práctica y algunos de los comportamientos asociados. La doble práctica se considera una posible solución de los sistemas ante problemas tales como unos recursos (y unos ingresos) públicos limitados, una escasa capacidad reguladora y la interacción entre las fuerzas del mercado y los recursos humanos. En consecuencia, en este artículo se tiende a apoyar las políticas que permiten reconocer oficialmente esas actividades y se aboga por un cierto grado de autorregulación profesional. Para proporcionar una orientación normativa más precisa, las futuras investigaciones en este terreno deberán adoptar un enfoque más evaluativo que el utilizado hasta la fecha.

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References

1. Macq J, Ferrinho P, De Brouwere V, Van Lerberghe W. Managing health services in developing countries: between ethics of the civil servant and the need for moonlighting: managing and moonlighting. *Hum Res Health Dev J* 2001;5:17-24.
2. Gruen R, Anwar R, Begum T, Killingsworth J, Normand C. Dual job holding practitioners in Bangladesh: an exploration. *Soc Sci Med* 2002;54:267-79.
3. Ferrinho P, Van Lerberghe W, Julien MR, Fresta E, Gomes A, Dias F, et al. How and why public sector doctors engage in private practice in Portuguese-speaking African countries. *Health Policy Plan* 1998;13:332-8.
4. Bian Y, Sun Q, Jan S, Yu J, Meng Q. Dual practice by public health providers in Shandong and Sichuan Province, China. London: Health Economics and Financing Programme, London School of Hygiene and Tropical Medicine; 2003.
5. Jumpa M, Jan S, Mills A. Dual practice of public sector health care providers in Peru. London: Health Economics and Financing Programme, London School of Hygiene and Tropical Medicine; 2003.
6. Nyazema N, Marondedze TF, Hongoro C. Dual practice in Zimbabwe, a policy and regulatory dilemma. London: Health Economics and Financing Programme, London School of Hygiene and Tropical Medicine; 2003.
7. United States Agency for International Development. The health sector human resource crisis in Africa: an issues paper. Washington, DC: United States Agency for International Development, Office for Sustainable Development; 2003.
8. Humphrey C, Russell J. Motivation and values of hospital consultants in southeast England who work in the national health service and do private practice. *Soc Sci Med* 2004;59:1241-50.
9. Prakongsai P, Chindawatana W, Tantivess S, Muges S, Tangcharoensathien V. Dual practice among public medical doctors in Thailand. London: Health Economics and Financing Programme, London School of Hygiene and Tropical Medicine; 2003.
10. Flood CM, Archibald T. The illegality of private health care in Canada. *Can Med Assoc J* 2001;164:825-30.
11. UK Monopolies and Mergers Commission. Private medical services. A report on agreements and practices relating to charges for the supply of private medical services by NHS consultants. London: Her Majesty's Stationery Office; 1994.
12. Rickman N, McGuire A. Regulating providers' reimbursement in a mixed market for health care. *Scot J Polit Econ* 1999;46:53-70.
13. Gonzalez, P. Should physicians' dual practice be limited? An incentive approach. *Health Econ* 2004;13:505-24.
14. Ferrinho P, Van Lerberghe W, Fronteira I, Hipolito F, Biscaia A. Dual practice in the health sector: review of the evidence. *Hum Res Health* 2004;2:14.
15. Roenen C, Ferrinho P, van Dormael M, Conceicao MC, van Lerberghe W. How African doctors make ends meet: an exploration. *Trop Med Int Health* 1997;2:127-35.
16. Iversen T. The effect of a private sector on the waiting time in a national health service. *J Health Econ* 1997;16:381-96.
17. Kirkpatrick C. Regulatory impact assessment in developing countries: research issues. University of Manchester: Centre on Regulation and Competition; 2001. Working Paper No. 5.
18. UK Cabinet Office. Imaginative thinking for better regulation. London: Better Regulation Taskforce, Cabinet Office, Whitehall; 2004.
19. Berman P, Cuizon D. Multiple public-private jobholding of health care providers in developing countries. An exploration of theory and evidence. London: Department for International Development, Health Systems Resource Centre; 2004.
20. Palmer N, Mills A. Classical versus relational approaches to understanding controls on a contract with independent GPs in South Africa. *Health Econ* 2003;12:1005-20.
21. Kimmel J, Conway KS. Who moonlights and why? Evidence from SIPP. *Ind Relat* 2001;40:89-120.
22. Paxson CH, Sicherman N. The dynamics of dual job holding and job mobility. *J Labor Econ* 1996;14:357-93.
23. Holmstrom B, Milgrom P. Multitask principal-agent analysis: incentive contracts, asset ownership and job design. *J Law Econ Org* 1991;7:24-52.
24. Kumaranayake L, Mujinja P, Hongoro C, Mpembeni R. How do countries regulate the health sector? Evidence from Tanzania and Zimbabwe. *Health Policy Plan* 2000;5:357-67.
25. Organisation for Economic Co-operation and Development. Reducing the risk of regulatory failure. Challenges for regulatory compliance. Paris: Organisation for Economic Co-operation and Development; 2000.
26. Wade H, Gilson L. Non-state provision of public services: South African health sector case studies. London: Department for International Development Resource Centre; 2004.
27. Olson M. The logic of collective action. public goods and the theory of groups. Cambridge, MA: Harvard University Press; 1965.
28. Axelrod R. The problem of co-operation. In: Cowen T, editor. The theory of market failure: a critical examination. Fairfax, Virginia: George Mason University Press; 1988:pp.237-54.
29. O'Toole LJ. The theory-practice issue in policy implementation research. *Public Adm* 2004;82:309-29.
30. Pressman JL, Wildavsky A. Implementation, 3rd ed. Berkeley, CA: University of California Press; 1984.