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# 11

# "Mental Health Services are Different": Economic and Policy Effects

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## 1. Introduction

Health economics, like other applied fields of economic study (such as transport economics, regional and urban economics, international trade), draws on a common body of economic and econometric theory. However some scholars, such as Blaug (1998), argue that health economics involves more than the standard application of the tools in the economists' toolkits. One of his emphases was on the complications arising from the fact that medical practitioners demand health services on behalf of patients, given the imperfect information that patients have about diagnosis and therapy, i.e. the imperfect agency relationship. In addition, he emphasised the difficulties of measuring (and evaluating) health outcomes, as well as the work in defining (and measuring) equity, following Le Grand's (1987) pioneering paper.

But it is Arrow's (1963) seminal article that points out the differences in health care that make economic analysis somewhat difficult. The eleemosynary dimension of the health sector (involving not-for-profit institutions), as well as other factors (such as various dimensions of uncertainty), explain societal responses to the numerous market failures in the health sector. Thus, work in the health sector is somewhat different from economic analysis of the meat industry (Beggs, 1988), the car industry (Madden, 1988) etc.

However, mental health economics is even more difficult than health economics. This point is indicated by the following statement: "Mental health economics is like health economics only more so: uncertainty and variations in treatments are greater; the assumption of patient self-interested behaviour is more dubious; response to financial incentives such as insurance is exacerbated; the social consequences and external costs of illness are more formidable" (Frank & McGuire, 2000, p. 895).

This chapter is concerned with another dimension of "difference" (and difficulty) that exists in the analysis of mental well-being. In general reference to all societies, the following statements are axiomatic: vegetarians do not buy meat for their own consumption; people who do not own cars do not buy petrol; and so forth. Such axiomatic statements cannot be made in the context of mental health sectors. Some people with no clinical mental illness consume mental health services; and simultaneously some other people who have clinical manifestations of mental illness do not consume mental health services for various reasons. The term that can be applied to these two problems is "structural imbalance".

The next section will provide some further background on structural imbalance. Section 3 will elaborate on the economic dimensions of structural imbalance commencing with a 2 x 2 matrix. Enumerating the cells of this matrix forms the basis of empirical work. Section 4 discusses the trends that are exacerbating structural imbalance, and their economic basis. Section 5 discusses various policy matters. The Chapter then provides some qualifications in Section 6 and draws conclusions in Section 7.

## 2. The economic 'mismatching' tendency of mental health services

The term, structural imbalance, is applied to describe the resource misallocation between "need" and "service use". The problem has been noted in the United States (U.S. Department of Health & Human Services, 1999), Ontario (Canada) (Lin *et al*., 1996), New Zealand (Oakley Browne & Wells, 2006), and also Australia [Doessel *et al*., 2010) using cross-sectional data, and in time-series data (Doessel & Williams, 2011)]. The purpose of this Chapter is to describe this particular source of resource misallocation in mental health sectors under health insurance, to present some empirical results, and to discuss policy implications of this structural imbalance.

Resource misallocations of various types are ever-present in any economy and in this sense mental health services are no different; however the structural imbalance in mental health services is "a little different". This mismatch in mental health services is not found in other sectors of the economy, as commented in the introduction above: some people without a mental illness do consume mental health services. It is not suggested here that service use and illness are completely misaligned in mental health sectors. Some people with no current symptoms are prone to relapse and require a "maintenance" approach to therapy (Druss *et al*., 2007).

It is instructive to note that the connotation of "need" here is epidemiological, i.e. a synonym for "people with a mental illness/disorder" or "people having a diagnosis"; and "non-need" means "people without a mental illness/disorder", i.e. no diagnosis of mental illness. The use of this terminology is not to ignore the perspective of the economic literature on "need", which is but one factor in consumer demand. The term "need" with respect to health has several connotations, and an economic classification is now available (Williams & Doessel, 2011). Note also that an optimal implementation of existing therapies, given the current state of knowledge, is implied in the present study. See Andrews (2006).

The evidence from both time-series and cross-sectional data indicates that the structural imbalance in mental health services is extensive. Given that the economic nature of structural imbalance, and its sources, warrants further investigation, and that appropriate policy approaches have not yet been devised to address the problem, it is appropriate here to begin to fill the lacuna.

## 3. Economic dimensions and empirical evidence

This Section considers structural imbalance first with the conceptual tool of a 2 x 2 matrix. When "need" and "service utilisation" are cross-classified, structural imbalance can be clearly delineated, and it can be measured. There are four (co-existing) concepts that are relevant to the analysis of this problem. "Unmet need" is a term in clinical use which is applied by Andrews (2000) and Whiteford (2000) to describe non-use of services by someone who has a diagnosable mental illness. See also Cosgrove *et al*. (2008). Andrews (2000) and

Whiteford (2000) applied "met non-need" to the case where some people with no mental disorder consume mental health services. There are two other components to this analysis, met need and unmet non-need. The major proportion of a population is in the "unmet non-need category": people without any illness and not receiving services is of little interest here. "Met need" is the term that applies where people with illness are receiving services. These terms complete the four elements that cross-classify need and service use.

To quantify structural imbalance, several steps are undertaken. The first step involves an exercise in enumerating these four above-mentioned components using the cross-classified population sub-groups of "need" (i.e. presence of mental illness) and "service utilisation" (i.e. consumption of mental health resources). See Table 1. This Table suggests an exercise like the tabular form conceived of by Yerushalmy (1947) in his cross-classification approach for determining the sensitivity and specificity of diagnostic tests in medicine. In this Table, the Total population can be summed by rows that form the final column "Total utilisation" and "Total non-utilisation". The columns can also be summed according to the presence of mental illness i.e. "Total need" and "Total non-need", as indicated by the final row.

A useful technique for depicting structural imbalance is to employ Venn diagrams, as shown in Fig. 1. This figure establishes in a visual manner the polar cases, which serves as a structural framework. Conceiving of the polar cases enables the definition of the extreme or "perfect" cases i.e. "structural balance" and "structural imbalance", which then allows us to measure the degree of structural imbalance. The use of polar cases is often employed in economics such as in the Public Finance literature on pure public goods and pure private goods. This approach is also somewhat like establishing maximum and minimum values of an index, such as the Hirschman-Herfindahl Index, the Gini Index etc. In addition, Venn diagrams are relevant to conceive of resources shortages, as shown in Doessel *et al.* (2010).

| **Consumption of mental health resources** | **Presence of mental illness** | | ***Totals by row*** |
|---|---|---|---|
| | Present ($MI^+$) | Absent ($MI^-$) | |
| $MHR^+$ | *Cell 1* "met need" | *Cell 2* "met non-need" | Total utilisation |
| $MHR^-$ | *Cell 3* "unmet need" | *Cell 4* "unmet non-need" | Total non-utilisation |
| ***Totals by column*** | Total need | Total non-need | Total population |

**Source** Doessel, Williams & Nolan, 2009

**Notes** $MI^+$ Persons with mental illness; $MI^-$ Persons without mental illness; $MHR^+$ Persons consuming mental health resources; $MHR^-$ Persons not consuming mental health resources

Table 1. A 2x2 matrix showing mental illness and consumption of mental health resources

The data on both need and utilisation to implement this conceptual approach, which is indicted above in Table 1 and Fig. 1, are available from the Australian Bureau of Statistics (ABS). The first epidemiological survey by the ABS, *Mental Health and Wellbeing...*, was undertaken in 1997 (ABS, 1998). Another survey was conducted in 2007 (ABS, 2008). Table 2 reproduces the structural imbalance quantified on 1997 data (which were the available data at the time of the study). The numbers in the cells can also be shown as proportions, and these are reproduced in Figure 2. Details are available in Doessel *et al.* (2010).

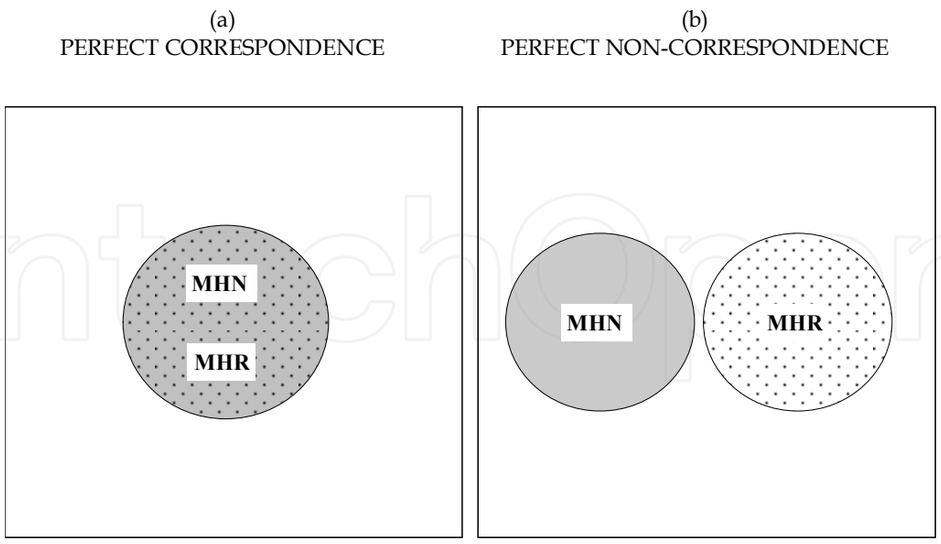
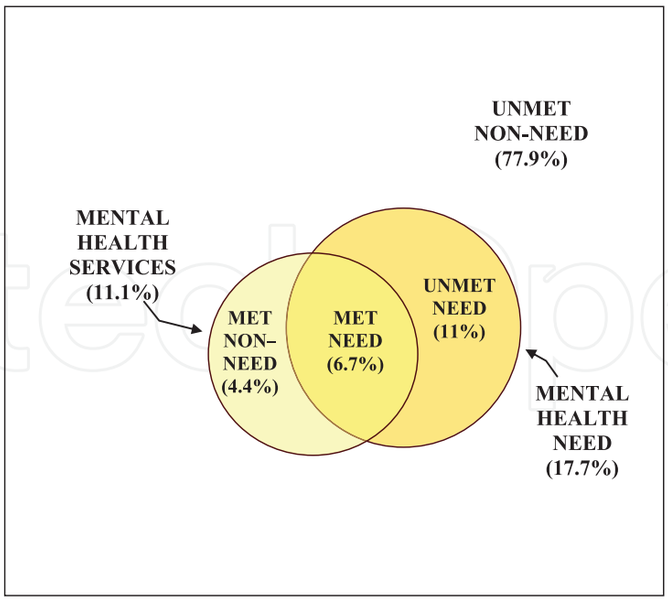



Fig. 1. Two polar cases: structural balance and structural imbalance in the mental health sector (with sufficient resourcing)

| **Consumption of mental health resources** | **Presence of mental illness** | | ***Totals by row*** |
|---|---|---|---|
| | Present ($MI^+$) "need" | Absent ($MI^-$) "non-need" | |
| Consumption $MHR^+$ | 905,600 "met need" | 591,600 "met non-need" | 1,497,200 |
| Non-consumption $MHR^-$ | 1,477,500 "unmet need" | 10,490,100 "unmet non- | 11,967,600 |
| ***Totals by column*** | 2,383,100 | 11,081,700 | 13,464,800 |

**Source** Doessel *et al.* (2010)
**Notes** i. The notation is as for Table 1. ii. In this epidemiological study Mental Illness includes Anxiety Disorders (panic disorder, agoraphobia, social phobia, generalised anxiety disorder, obsessive-compulsive disorder and post-traumatic stress disorder), Affective Disorders (depression, dysthymia, mania, hypomania and bipolar affective disorder) as well as Substance Abuse. iii. Mental health services include the following: the services of GPs, psychiatrists, psychologists, nurses, pharmacists, ambulance officers etc. iv. The data employed here relate to Australian adults, i.e. persons 18 years and over, not the total Australian population.

Table 2. Utilisation of "mental health resources" by adults with, and without, mental illness, Australia, 1997




**Source** Doessel *et al.* (2010)

Fig. 2. Structural Imbalance between the Australian Adult Population with Mental Illness, and the Australian Population Consuming Mental Health Resources, Australia, 1997

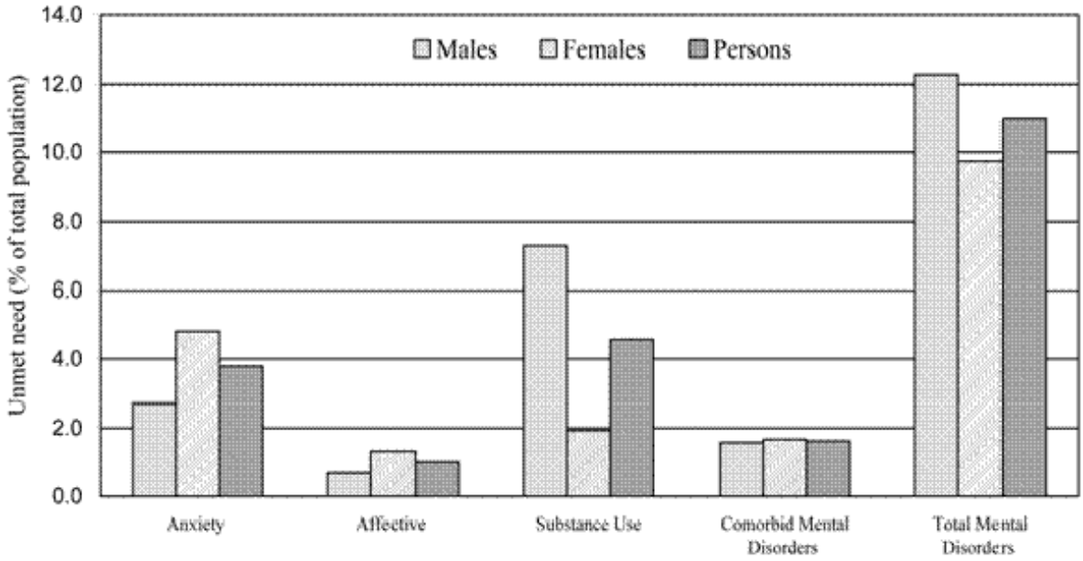
Table 3 and Fig. 3 indicate that structural imbalance has a gender-related dimension. The proportions relating to the met non-need and unmet need are not constant across males and females from the 1997 ABS cross-sectional data. Further details are in Doessel *et al.* (2010).

| | Male (%) | Female (%) | All Adults (%) |
|---|---|---|---|
| Mental health need | 17.4 | 18.0 | 17.7 |
| Mental health resources | 8.1 | 14.0 | 11.1 |
| Met need | 5.1 | 8.3 | 6.7 |
| Unmet non-need | 79.6 | 76.3 | 77.9 |
| Unmet need | 12.3 | 9.7 | 11.0 |
| Met non-need | 3.0 | 5.7 | 4.4 |

**Source** Doessel *et al.* (2010)
**Notes** The relevant denominator for these calculations is male adults, female adults and all adults, respectively.

Table 3. Percentage shares of six categories of mental health/illness to the relevant population, male, female and all adults, Australia, 1997.

Empirical evidence of structural imbalance in Australia's mental health sector is found also in time-series data (Doessel & Williams, 2011). The results of that study determine that the "structural imbalance" is extensive, a result that reflects a sector beset with incomplete information (discussed briefly in Section 3). These results will be summarised here briefly. The research hypothesis in that study is that if there is high correspondence between the people with diagnosed mental disorders, as determined by ABS epidemiological surveys, and the consumers of mental health services, then structural balance exists. It follows that if




**Source** Doessel *et al.* (2010)
**Notes** See Fig. 2

Fig. 3. Unmet Need for Four Groups of Mental Disorders and Total Mental Disorders as a Percentage of the Population (Males, Females and Persons), Australia, 1997

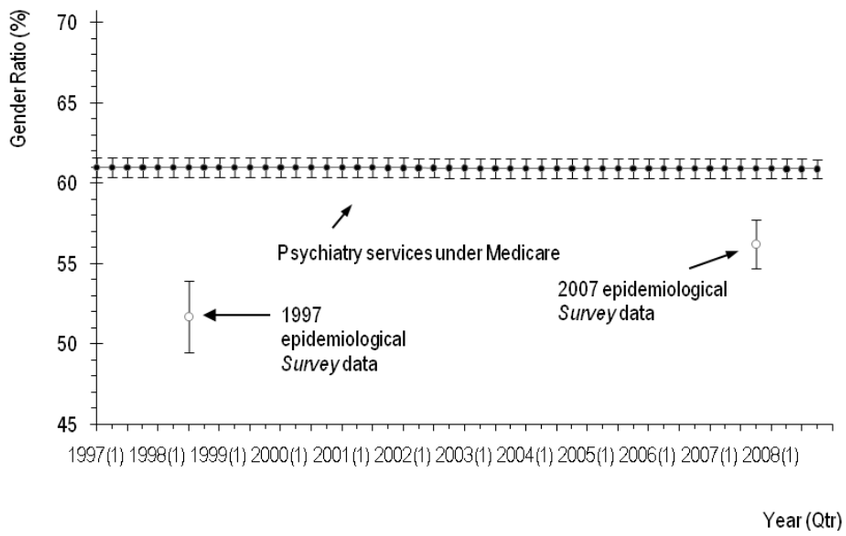
there is "correspondence" between the two populations, some measurable characteristic of both groups would be similar. To determine "correspondence", a variable that can be measured in both groups is analysed: the ratio of females to total persons[1], expressed as a percentage. If statistical evidence indicates that the "gender composition" for the available epidemiological data on people with mental disorders is not consistent with the "gender composition" for the available Medicare[2] data on utilisation of mental health services, then we conclude that evidence of structural imbalance exists. The study measures the correspondence of the two above-mentioned ABS (representative sample) epidemiological surveys of mental disorders (ABS, 1998; 2008) and the data that provides an enumeration of consumers of mental health services under Australia's universal health insurance scheme, i.e. Medicare. The results are summarised here briefly.

Table 4 is a summary of the data from the two data-sources and Figs 4, 5 and 6 are reproduced here from the data analysis in Doessel & Williams (2011). The data analysis, involving several steps, will be outlined briefly. First, the data were modelled by applying Ordinary Least Squares regression. Three equations were estimated describing the temporal variation in the data for the three categories of mental health services. A set of fitted values (in which some confidence can be placed) for each of these data sets, were

[1] It makes no difference whether the female, or the male, ratio is analysed.

[2] Medicare is Australia's universal, compulsory health insurance scheme. It is financed from general taxation revenue and an ear-marked tax. Medicare enables the payment of subsidies for private fee-for-service medical services (in and out of hospital), the provision of subsidies for private fee-for-service allied services (which, in terms of mental health services, includes psychologists, occupational therapists etc), hospital services to "public patients" at zero prices at "recognised public hospitals", and subsidies for approved pharmaceuticals.

obtained; various extraneous factors associated with modelling these data (seasonal variation, serial correlation etc.) were taken into account, and two dummy variables were inserted for the outliers. Linear equations were found appropriate for all three data sets. We then constructed confidence intervals (CIs) around the fitted values for each of the three data sets. These three Figures depict the comparisons of the gender composition of consumers of three types of mental health services with the gender composition, in percentages, of people with mental disorders. Figure 3 depicts a comparison of the gender composition of consumers of specialist Psychiatry services with the gender composition, in percentages, of people with mental disorders (as determined from the two epidemiological surveys of the prevalence of mental disorders). There are 48 fitted observations depicted in Figure 3 for the time-series data on Psychiatry services from Medicare Australia with 99% upper and lower CIs, and two data points for the 1997 and 2007 epidemiological surveys with their 99% CIs. Figs 4 and 5 present the gender comparison for two other types of service utilisation, the mental health plans prepared by general practitioners (primary care physicians) and allied mental health services. For further details about the statistical estimation and the figures, see Doessel & Williams (2011).




**Source** See Doessel & Williams (2011).

**Notes**
- ● Point estimates (fitted values) with 99% CI, equation estimated on Medicare data as analysed in Doessel & Williams (2011)
- ○ Point estimates with 99% CI from sample epidemiological survey data, as analysed in Doessel & Williams (2011)

Fig. 4. A Comparison of the Gender Share (Female/Persons) of CIDI-diagnosed Mental Disorders in the 1997 and 2007 Epidemiological Surveys for Australia, and the Gender Share for Specialist Psychiatry Services under Medicare, for 1997(1) to 2008(4).

| | Temporal Coverage [b] | Unit of Analysis | No. of Obs. | Mean F/P (%) | Range F/P (%) | SE F/P (%) | SD F/P (%) | 95% CIs | | 99% CIs | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Upper | Lower | Upper | Lower |
| **Epidemiological Data** | | | | | | | | | | | |
| 1997 *Survey* (ABS, 1998) | 1997 | 1 year | 1 | 51.7 | na | 0.8 | na | 53.3 | 50.0 | 53.9 | 49.5 |
| 2007 *Survey* (ABS, 2008) | 2007 | 1 year | 1 | 56.2 | na | 0.6 | na | 57.4 | 55.1 | 57.7 | 54.7 |
| **Service Utilisation Data** | | | | | | | | | | | |
| Specialist Psychiatry Services [a] | 1997(1) –2008(4) | Quarters | 48 | 61.0 | 60.4–61.9 | na | 0.4 | na | na | na | na |
| GP Preparation of Mental Health Plans [c] | 2006(11)–2008(10) | Months | 24 | 65.1 | 64.1–66.4 | na | 0.6 | na | na | na | na |
| Allied Mental Health Services [d] | 2006(11)–2008(10) | Months | 24 | 69.4 | 68.7–70.4 | na | 0.5 | na | na | na | na |

**Source:** Doessel & Williams (2011)

**Notes:** F: females; P: persons; F/P: female-to-persons ratio; SD: standard deviation (for the population-based Medicare data-sets); SE: standard error (for the sample-based ABS epidemiological surveys); CI: confidence interval; na: not applicable.

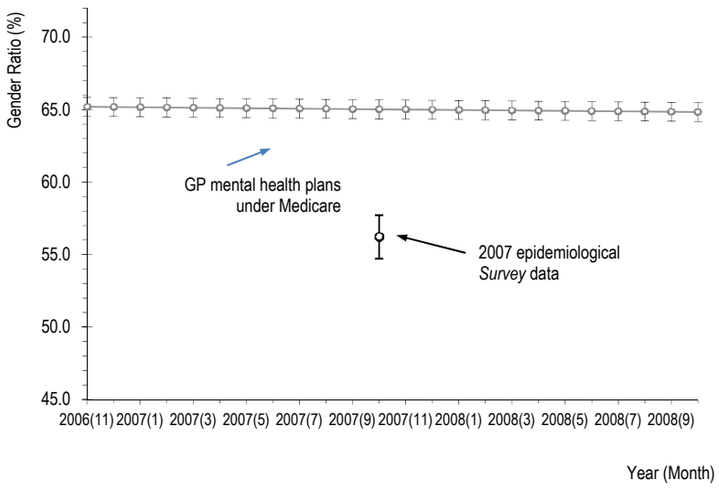
a. The Psychiatry Items covered by Medicare in this analysis are those listed in Doessel & Williams (2011).

b. The notation in brackets in this column refers either to the relevant quarterly data (March, June, September and December) or to monthly data (Jan., Feb. etc.).

c. The GP Item numbers for the preparation of mental health plans are as follows: 2710, 2712 and 2713.

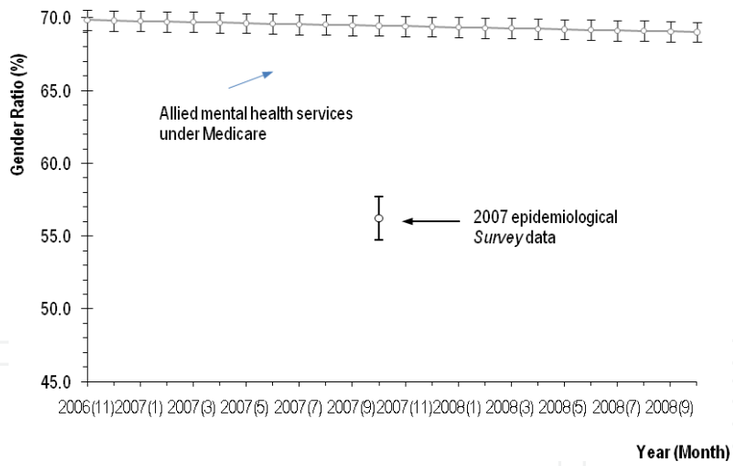
d. These services are provided by Psychologists, Occupational Therapists and Social Workers. The relevant Allied Health Item numbers are as follows: Psychological Therapy Services (Clinical Psychologists) 80000, 80005, 80010, 80015, 80020; Focussed Psychological Strategies (Registered Psychologists) 80100, 80105, 80110, 80115, 80120; Occupational Therapists 80125, 80130, 80135, 80140, 80145; Social Workers 80150, 80155, 80160, 80165, 80170.

Table 4. Some Characteristics of Two Epidemiological Data Sets and Three Mental Health Service Utilisation Data Sets on Gender Composition (Female-to-Persons Ratio), Australia, 1997-2008




**Source** Doessel & Williams (2011)
**Notes** See Fig. 4.

Fig. 5. A Comparison of the Gender Share (Female/Persons) of CIDI-diagnosed Mental Disorders in the 2007 Epidemiological Survey for Australia, and the Gender Share for GP-prepared Mental Health Plans under Medicare, for 2006(11) to 2008(10)




**Source** Doessel and Williams (2011)
**Notes** See Fig. 4.

Fig. 6. A Comparison of the Gender Share (Female/Persons) of CIDI-diagnosed Mental Disorders in the 2007 Epidemiological Survey for Australia, and the Gender Share for Allied Mental Health Services under Medicare, for 2006(11) to 2008(10).

It is clear from these three figures, indicating the location of the fitted observations and the CIs, that the consumers of the three types of mental health services are statistically different from the people with mental disorders, as determined by a population-based, representative sample survey of adult Australians. Further details are in Doessel & Williams (2011).

Some scholars, e.g. Jorm (2006), contend that unmet need is a "myth" (his term): imperfect data lead to phenomena that are artefacts of "data imperfection". There has been no empirical research reported to substantiate Jorm's assertion.
It is noted earlier that the other main economic problem in mental health is under-resourcing. This is a separate economic problem from structural imbalance, and yet both problems have a similar effect: under-resourcing of the sector also results in some people who need services not being served adequately by the system. For further details, see Doessel *et al*. (2010).

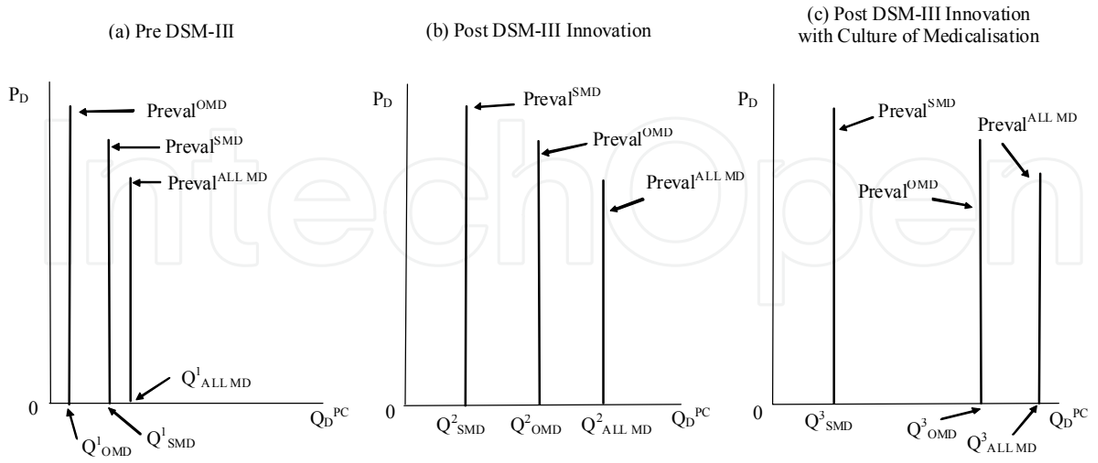
## 4. The economics of structural imbalance

Several forces underlie structural imbalance and they arise from different sources. The relevant economic analysis is in Williams & Doessel (2010), which gives an economic account of the effect of two trends in the West, one trend being towards the medicalisation of normal sorrows and the other major force relevant to psychiatric diagnosis, the impact of the *DSM-III* innovation. The emphasis in this Section is placed upon **information** and **diagnostic efficacy**. The efficient allocation of resources in mental health depends not only on the use of efficacious therapies, but also on correct diagnosis.

### 4.1 Two concurrent trends in western countries

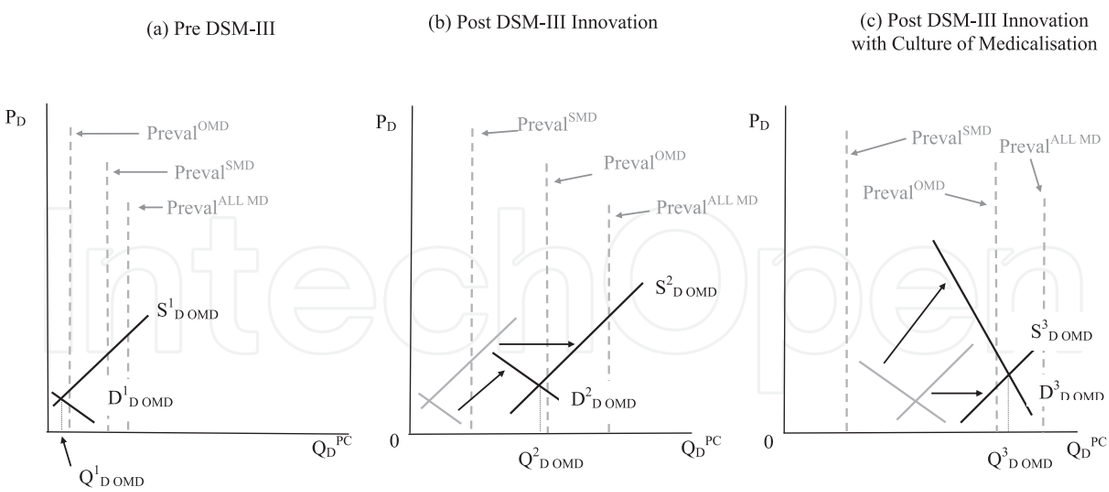
The first of the two trends is the medicalisation of normal sorrows. Among those having no clinical mental illness but using mental health services are the "worried well" (Bell, 2005). The growth of the "worried well" is a result of the "depression culture" that has developed in Western society (Horwitz & Wakefield, 2007; Williams, 2009; Williams & Doessel, 2010). Empirical evidence is now available about the "worried well" and related issues (Wagner & Curran, 1984; Horwitz & Wakefield, 2007). Another group comprises some mental health professionals taking an interest in issues other than mental illness, such as managerial performance (Sperry, 1993) and sport (Begel, 1992). Various studies have sought to enumerate the problem of mental health services not being taken up by those in need of services (e.g. Cosgrove *et al*., 2008; Byles *et al*., 2011). While these approaches help to indicate a problem of some type, the underlying economic processes need to be elucidated and measured in conceptually appropriate ways. Effective policy responses also can thereby be developed.
The second trend is a widening of the diagnostic net of mental illness which has occurred as a by-product of the paradigm shift brought about after 1980, with the publication of the third revision of the diagnostic manual, the *Diagnostic and Statistical Manual of Mental Disorders*, by the American Psychiatric Association (APA). The third edition and later revisions (APA, 1980, 1987, 1994, 2000) incorporated a major innovation.
A detailed account of the demand-side and supply-side effects of the *DSM-III* innovation in psychiatry is in Williams & Doessel (2010). Figs 7 and 8 tell an abbreviated version of that economic analysis. Although the *DSM-III* has improved the diagnosis of mental illness to some extent (thus lowering the false negative rate), it has also been one mechanism by which the diffusion of some misconceptions associated with mental illness has occurred (Williams, 2009). Using conventional price–quantity space, with a focus on the quantity dimension in this space, Williams & Doessel (2010) consider the impact of the concurrent forces on the false positive rate in the diagnosis of mental illnesses in the West. They show that diagnostic efficacy is relevant to resource allocation in the mental health sector. The

policy implication is that diagnostic practices in the mental health sector need to improve and funding innovation in these practices is of vital importance.




**Notes** $Preval^{SMD}$ is the per capita prevalence of "serious mental disorders", and is constant in the three time periods; $Preval^{OMD}$ is the per capita prevalence of "other mental disorders", and is not constant in the three time periods; $Preval^{ALL\ MD}$ is the per capita prevalence of "all mental disorders", and is not constant in the three time periods; $Preval^{ALL\ MD}$ is the sum of $Preval^{SMD}$ and $Preval^{OMD;}$ $P_D$ is the price of a diagnosis of a mental disorder; $Q_D^{PC}$ is the per capita quantity of diagnoses of mental disorders.

Fig. 7. The (Stylised) Per Capita Prevalence of SMD, Other MD and All MD in Three Periods of the Twentieth Century




**Notes** See Fig. 7. Note also that the per capita prevalence lines in (a), (b) and (c) are the same per capita prevalence lines indicated in Figure 1. $D^1{}_{D\ OMD}$ is the demand curve for per capita diagnoses of other mental disorders in period 1. $S^1{}_{D\ OMD}$ is the demand curve for per capita diagnoses of other mental disorders in period 1, and so on.

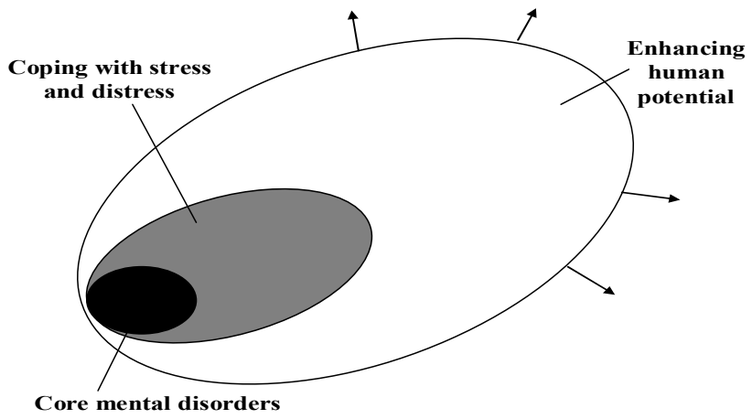
Fig. 8. A Stylisation of the Markets for Per Capita Diagnoses of Mental Disorders in Three Periods of the Twentieth Century

One way of understanding these matters is in terms of there being a continuum. Fig. 9 illustrates a diagnostic continuum, which conceives of a spectrum from mental illness, mental health to human potential at any point in time. Note that ''medicalisation'' over time can be shown by enlarging the area of ''core mental illness'', while performance enhancement can be shown by expanding the boundaries of human potential. The specification of "cut-offs" becomes an important variable in achieving the optimal use of resources. At a very general level, these various societal trends indicate that concepts and practices in psychiatry are influenced by culture.

### 4.2 Moral hazard

A second aspect of the economics of structural imbalance is the suggestion of moral hazard in the mental health sector. Markets and organisations are both subject to moral hazard. For a review, see Milgrom & Roberts (1992). A very general definition of moral hazard is as follows:

...actions of economic agents in maximising their own utility to the detriment of others, in situations where they do not have to bear the full consequences or, equivalently, do not enjoy the full benefit of their actions... (Kotowitz, 1987, p. 549).




**Source**: Klerman & Schechter (1981)

Fig. 9. A diagnostic spectrum

Moral hazard is a type of economic behaviour that can occur in markets subject to imperfect information. It is particularly associated with an asymmetry in the distribution of knowledge between the buyer and seller, or a third party insurance carrier. Informational "incompleteness" takes several forms including an asymmetry in the distribution of knowledge in a market or organisation, or factors in the level or quantity of information being uncertain, missing, unavailable, or not yet known (Kotowitz, 1987).

Informational problems are noted in several contexts, e.g. quality uncertainty for various products, such as used cars (Akerlof, 1970), credit (Stiglitz & Weiss, 1981) etc, and in the labour market (Spence, 1974). However, the case of moral hazard described here is rarely, if at all, discussed in the health economics literature, or the general economics literature. Some have argued (e.g. Scitovsky, 1990) that asymmetric information gives scope for second-best contracting. Notwithstanding that case, and also ignoring for now the perspective that

moral hazed is so pervasive that one may as well be resigned to it, the general case is that information imperfections lead to inefficiency in resource allocation (Bator, 1958), which suggests an appropriate policy response.

The allocative inefficiency arising from moral hazard in the health sector can require government action. For example, Arrow (1963) argued the case for financing health services by health insurance. Those arguments were highly influential in the introduction of Australia's system of publicly financed, universal medical and hospital insurance (Medicare) (Scotton, 1968; Scotton & Deeble, 1968). In health insurance, the context in which moral hazard is often discussed is that of an insurance carrier having incomplete information about the health status of insured consumers. In such circumstances, the existence of insurance creates incentives for people to behave in an inefficient fashion, by consuming health services beyond the level at which the marginal benefit equals the marginal social cost. This inefficiency is measured by the welfare loss associated with this "extra" consumption (Pauly, 1968).

Moral hazard is usually described in terms of the effect it has on one party in a transaction. But it can also arise for both parties, i.e. both buyer and seller.[3] It could be argued that a multi-dimensional case of moral hazard exists in mental health sectors under insurance: moral hazard can be observed on all sides of transactions in private mental health services, i.e. buyers, sellers, and the insurer as well. A "three-sided" conception of moral hazard in this sector may help to illuminate the source of quite severe resource misallocation in this sector, for which empirical evidence is mounting. Mental health services present a more particular, and complex, sector: specific informational problems associated with mental health issues exist for all three parties to the transactions. On the demand side, consumers may be subject not only to their own incomplete knowledge about health status but misinformation as well. On the supply side, a veil of ignorance exists for the suppliers of mental health services for several reasons. Thirdly, the insurance carrier (say, government) adopts a particular stance on information. If insurance processes do not provide diagnostic information that delivers well-aligned resource allocation, then directing some attention to reforming the processes is relevant. Thus, it is conceivable for moral hazard to develop in these three contexts.

Some reflection indicates that mental health issues are characterised by imperfect information on the part of patients/consumers, mental health professionals and health insurance organisations. Consumers generally do not know what is wrong with them; mental health professionals, in large part, rely on what consumers tell them; and, furthermore, the "state of knowledge" of the aetiology of mental disorders is not perfect. There is an information armamentarium of efficacious therapies available. Also, health insurance carriers are subject to imperfect knowledge.

## 5. Policy effects

This Section will focus attention on two main policy issues. One issue relates to improving diagnostic efficacy in mental illness. The second point concerns institutional factors. However, to put these points in context, it can be said generally speaking that the adverse

[3] This is discussed in Rubin's (1978) study of franchising. The term, double moral hazard, or double-sided moral hazard, was subsequently applied in 1985 to discussions of share-cropping responses to market behaviour (Eswaran & Kotwal, 1985) and product warranties (Cooper & Ross, 1985).

achievements of mental health sectors internationally remain a societal disgrace. The resource insufficiency in these sectors can be alleviated with larger mental health budgets, but structural imbalance cannot be mitigated with more dollars. The misallocation of resources to which this sector is prone may even contribute to the persistent reluctance by governments to provide adequate budgets for people with a mental illness. However, an understanding of structural imbalance is fundamentally important for the economic development of this sector and the improved living standards of mentally ill people who are "in need". The political will to fund mental health sectors adequately is relatively weak, and resourcing waxes and wanes. It is therefore important that the economic causes of structural imbalance are well understood.

The point needs to be emphasised that diagnostic efficacy is not just relevant to treatment; it is relevant also to improving resource allocation in the mental health sector. The quantification of met non-need here provides the evidence that some people without mental disorders are consumers of mental health services. No public policy issue exists if such people fund these services from their own incomes, but if those mental health services are funded either by pooled private health insurance contributions or by partially, or fully, subsidised taxpayer-funded schemes, then there is a policy issue. This issue can be addressed by a requirement that a firm diagnosis of mental disorder is established (by valid psychological instruments) with a further requirement that the (positive) diagnosis so obtained is the pre-condition for receiving subsidised mental health services.

Inefficacy in the diagnostic processes of the mental health sector has two effects: met non-need is being funded; and mentally ill people are receiving inadequate treatment. It means that scarce mental health resources are not put to their highest possible use. Those resources are misallocated, i.e. wasted. There is a vital place for innovation in the diagnostic practices in the mental health sector and also for such innovation to be financed by government.

Institutional factors are specific to the institutional setting of a particular country. This Chapter reflects the economic forces present in **Australia's institutional setting**. In the Australian institutional setting, the major insurance carrier (the government) presently provides little financial incentive for implementing efficacious therapy for mental illness. In the *Medicare Benefits Schedule* (which lists *Schedule* fees for all medical services, and the relevant subsidies), separate diagnostic services of a mental health kind are not listed or subsidised. There are no financial incentives for diagnosis for private mental health services embedded in the Medicare system. Thus, it is correct to hold the view that "throwing more money" at the pre-existing structures may do nothing to address Australia's structural imbalance problem. It is relevant to note that, at the epidemiological level in Australia, diagnostic test instruments are applied i.e. at the population level!

## 6. Qualifications

There are other issues of concern in Australia's mental health system (Williams & Doessel, 2008). However, the qualifications relating to this Chapter will be mentioned here.

Ideally, a measure of expenditure would be applied in order to measure structural imbalance, but in the absence of such data, we use "people" as a proxy for the ideal concept of expenditure. Further work is also required on the extent to which services are "mismatched" with resources in public mental health services. Those services are also subject to information asymmetries amongst consumers, producers and the government funder. There is mounting anecdotal evidence of public sector mental health services not

"meeting" the "unmet need", but whether that phenomenon is due to resource misallocation or to resource shortages in this part of the public sector, or both, is a subject for further research. Also, it is not possible from available data to determine how much "met non-need" is due to the "worried well", and how much is due to those who use government-subsidised services for other reasons (sport, executive performance etc).

Where one "draws the line" between "mental health" and "mental illness" involves treating a continuous variable as discrete; cut-offs need to be implemented. A stylisation of this point is provided in Fig. 9. When "better" epidemiological data become available, sharper depictions of "met non-need" will become available.

The structural imbalance problem analysed here is a different type of problem from the inefficiency arising from the application of inefficacious therapies in this sector. Several large studies of Australian mental health service providers indicate evidence that, even with strong training and support systems, these providers have yet to adopt the concept of fidelity to evidence-based protocols (Deane *et al.*, 2006; Kavanagh *et al.*, 1993). Comparisons undertaken between prescriptions for medications and diagnosis find evidence suggesting the degree of inconsistency or "aberrant prescribing" is not trivial (Dodwell & Esiwe, 2008). Delivering inefficacious treatments, when known efficacious treatments exist, increases the size of the unmet need problem. Expenditures are being incurred for little, or zero, change in mental health status. The relevant conceptual economic framework is in Liebenstein (1966).

## 7. Conclusion

Some recent Australian studies demonstrate, on cross-sectional data as well as time-series data (albeit less-than-perfect data) that there is extensive structural imbalance for the adult Australian population between those with mental illness and those who use mental health resources. Our analyses of ABS *Mental Health and Wellbeing*... data, summarised here, find that 11 per cent of the adult population are subject to "unmet need" and 4.4 per cent of the adult population are consuming mental health resources despite not having a mental disorder. Those studies find also that the problem of "unmet need" is smaller for females than it is for males, and yet the problem of "met non-need" is larger for females than for males. Considerable differences exist between aggregations of disorders too. Substance Use has, by far, the largest problem of "unmet need", followed by Anxiety Disorders and Affective Disorders. The results suggest that re-allocating the resources used by the "met non-need" (4.6 per cent of the population) to the "unmet need" category (11 per cent of the population) would improve the mental health outcomes of this sector. Although it is imperative that better data are collected, this Chapter provides a benchmark for future exercises in quantifying structural imbalance.

The two sources of structural imbalance discussed in this Chapter are as follows: trends in Western society; and moral hazard. These forces are seldom mentioned in public discourse on mental health issues. In particular, the problem of "met non-need" in Australia, i.e. people with no mental illness consuming mental health resources, is hardly ever discussed. Those discussions are very relevant as they direct attention to the policy implications. Thus, the lack of public discourse is unfortunate. Through time, the self-interested forces underlying "unmet need" and "met non-need" solidify into service delivery practices in the mental health sector.

In general, the moral hazard problem arises from imperfect information, which in turn can lead to an imperfect agency relationship between the patient/consumer and the supplier of

services. These informational problems are more severe in the area of mental illness compared to physical illness. In physical medicine, medical professionals have access to a wide range of diagnostic procedures, whether radiology, other imaging technologies (MRI etc), pathology tests and so forth. These diagnostic technologies have the effect of reducing imperfect knowledge in the clinical context. By comparison, diagnosis in mental illness and in mental service delivery is embryonic.

As these problems are not self-correcting, two policy implications will now be outlined in conclusion. First, in order to alleviate the "unmet need", public education and awareness campaigns about mental illnesses and the services available are appropriate responses. Also, the systemic factors that continue to obstruct access to services by those who are mentally ill need addressing. "Unmet need" is alleviated also by imposing reform in this sector: public research funding into developing efficacious therapies that are not just developed, but are applied and adopted as well, and into the financing of efficacious public preventive strategies.

Second, of those people without mental disorders who are consumers of mental health services, it is important to realise that there is no public policy issue if such people fund these services from their own incomes. However, if those mental health services are funded either by pooled private health insurance contributions or by partially, or fully, subsidised taxpayer-funded schemes, then there is a policy issue. It can be addressed by a requirement that a firm diagnosis of mental disorder is established (by valid psychological instruments) with a further requirement that the diagnosis so obtained is the pre-condition for receiving subsidised mental health services.

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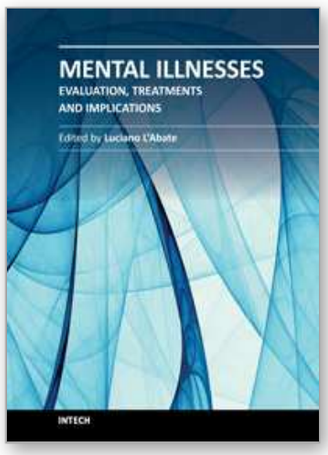
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Edited by Prof. Luciano LAbate

ISBN 978-953-307-645-4
Hard cover, 476 pages
**Publisher** InTech
**Published online** 13, January, 2012
**Published in print edition** January, 2012

In the book "Mental Illnesses - Evaluation, Treatments and Implications" attention is focused on background factors underlying mental illness. It is crucial that mental illness be evaluated thoroughly if we want to understand its nature, predict its long-term outcome, and treat it with specific rather than generic treatment, such as pharmacotherapy for instance. Additionally, community-wide and cognitive-behavioral approaches need to be combined to decrease the severity of symptoms of mental illness. Unfortunately, those who should profit the most by combination of treatments, often times refuse treatment or show poor adherence to treatment maintenance. Most importantly, what are the implications of the above for the mental health community? Mental illness cannot be treated with one single form of treatment. Combined individual, community, and socially-oriented treatments, including recent distance-writing technologies will hopefully allow a more integrated approach to decrease mental illness world-wide.

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Ruth F.G. Williams and D.P. Doessel (2012). “Mental Health Services are Different”: Economic and Policy Effects, Mental Illnesses - Evaluation, Treatments and Implications, Prof. Luciano LAbate (Ed.), ISBN: 978-953-307-645-4, InTech, Available from: http://www.intechopen.com/books/mental-illnesses-evaluation-treatments-and-implications/-mental-health-services-are-different-economic-and-policy-effects

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