Évaluation des effets du maximum à facturer sur la consommation et l'accessibilité financière des soins de santé

KCE reports 80B

Federaal Kenniscentrum voor de Gezondheidszorg
Centre fédéral d'expertise des soins de santé
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PREFACE

Le système de soins de santé belge repose historiquement sur la combinaison de quotes-parts personnelles relativement élevées associée à une politique de protection sociale des groupes sociaux plus faibles. Le Maximum à Facturer (MàF), instauré en 2002, est une de ces mesures structurelles qui recherche un compromis entre la protection sociale des groupes plus faibles de notre société et la responsabilité individuelle. Le maximum à facturer a pour intention de limiter le montant que chaque famille consacre aux dépenses de soins de santé nécessaires et couverts par l'assurance maladie et ce en fonction des revenus du ménage. Depuis sa création, le maximum à facturer s'est fortement élargi. Ainsi en 2008, le maximum à facturer a été étendu aux implants et aux maladies chroniques.

D'après certains, le maximum à facturer est un contrepoids nécessaire aux contributions personnelles élevées dans notre système de soins de santé. Pour d'autres, le maximum à facturer menace de faire exploser les dépenses de l'assurance maladie ou encore, il accroît la sélectivité de notre système de soins qui entraîne que ceux qui le financent le plus en bénéficient le moins.

Cette étude a pour objectif d'évaluer la performance du maximum à facturer. Le MàF est-il la manière la plus adéquate d'offrir un certain niveau de protection sociale ? Quels groupes cibles sont atteints ? Certains groupes sociaux sont-ils encore laissés pour compte ? Le MàF induit-il des changements de comportement des patients ou des prestataires de soins ? De quelle manière les effets redistributifs du MàF correspondent-ils aux caractéristiques structurelles du système ? Le MàF est-il cohérent avec les principes globaux de ce système ? Les résultats de cette étude nous permettent également d'estimer le coût et les effets redistributifs de réformes politiques fondamentales telles que la suppression de l'intervention majorée ou du MàF social.

Ebaucher et implémenter un système de protection sociale n'est certainement pas une simple question scientifique ou empirique. Il est impossible de se prononcer sur le MàF ou sur tout autre mécanisme de protection sans faire des choix éthiques explicites quant aux limites de la responsabilité collective et individuelle. De même, les ressources budgétaires et la faisabilité administrative jouent un rôle quant aux décisions concrètes d'implémentation de systèmes de protection sociale.

Le présent rapport a pu utiliser une banque de données dans laquelle, pour un échantillon représentatif de la population belge, les données de l'AIM, provenant des mutuelles, ont été couplées aux données fiscales. Le KCE remercie chaleureusement toutes les personnes et les institutions sans lesquelles ce couplage innovant de données n'aurait pas été possible.

Jean-Pierre Closon
Directeur Général Adjoint

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Résumé

INTRODUCTION

Historiquement, le système belge de soins de santé repose sur l'association de contributions personnelles relativement élevées à charge du patient et de mesures de protection visant à garantir l'accessibilité. L'intervention majorée (1963), la franchise sociale et fiscale (1994), le maximum à facturer (MàF, 2002) et le statut OMNIO récemment instauré (2007) sont des mesures destinées à protéger les personnes pauvres et malades contre une charge financière trop élevée à la suite d'une maladie.

PRINCIPES DE BASE DU MAXIMUM À FACTURER

Le maximum à facturer est une mesure structurelle visant l'établissement d'un compromis entre la protection sociale des groupes les plus faibles de la société et la responsabilité individuelle.

A la base du MàF, il y a l'idée que les tickets modérateurs ne sont plus socialement acceptables lorsque la charge financière devient trop grande pour le patient. À cet égard, une attention particulière est accordée aux groupes les plus faibles de la société et aux enfants. L'existence de tickets modérateurs n'est pas remise en question, ils reflètent une responsabilité individuelle. Les tickets modérateurs sont additionnés au niveau familial et comparés à un plafond qui dépend des revenus familiaux nets imposables. Les tickets modérateurs au-delà de la valeur du plafond sont remboursés. La protection sociale proposée par le MàF n'inclut pas les suppléments ni les frais non médicaux liés à la maladie.

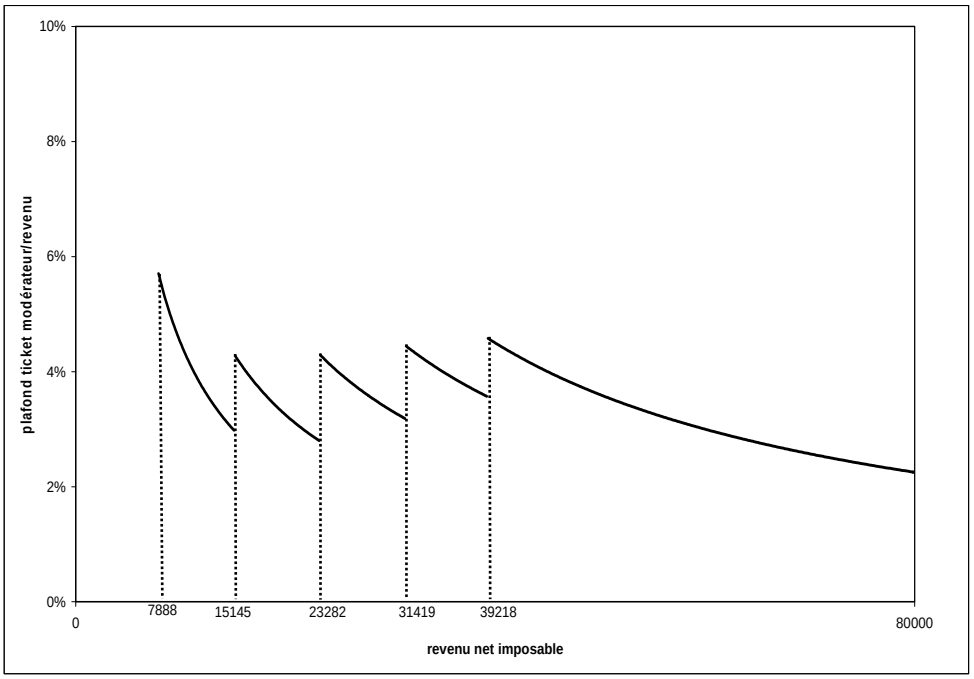
Le MàF (2007) se compose de trois sous-systèmes gérés par les mutualités:

- Le *MàF social* s'accompagne d'un plafond de tickets modérateurs de €450 pour toutes les familles dont au moins un des membres a droit à l'intervention majorée (désormais également OMNIO).
- Le *MàF-revenus* est d'application pour toutes les familles ou membres d'une même famille qui n'ont pas droit au MàF social. Le plafond de tickets modérateurs annuels dépend du revenu familial net imposable et varie de €450 à €1 800.
- Le *MàF pour enfants de moins de 19 ans* est un droit individuel grâce auquel les tickets modérateurs supérieurs à €650 sont remboursés.

Jusqu'à 2004 inclus, le MàF-revenus était uniquement d'application pour les deux catégories de revenus les plus basses, avec des valeurs pour les plafonds de, respectivement, €450 et €650. Le MÀF fiscal était d'application pour les groupes de revenus les plus élevés. Il était géré par l'administration fiscale.

La Figure I ci-dessous illustre le pourcentage que représente le plafond de tickets modérateurs par rapport au revenu net imposable pour tous les groupes de revenus. Sauf pour les revenus les plus bas et les plus élevés, ce pourcentage est assez stable. En 2007, il varie entre 3 et 4.5% pour la majeure partie des familles. Pour les revenus les plus bas, ce rapport est toutefois plus élevé (car le plafond le plus bas s'élève à €450), et inversement (en raison du plafond le plus élevé de €1 800).

Figure I. Plafond MàF par rapport au revenu net imposable (2007)



Le MàF ne couvre pas tous les frais médicaux. Depuis sa création, la couverture s'est étendue progressivement, lorsque l'espace budgétaire le permettait. En 2006, plus de 1 million de personnes ont bénéficié du MàF. Le coût budgétaire s'élevait à environ € 252 000 000, ce qui équivaut à 1.4% du budget total de l'assurance maladie.

Étant donné que le MàF a été introduit en tant que renforcement de la protection offerte par la franchise sociale et fiscale, puis a été étendu de manière incrémentielle, généralement sans préjudice des droits existants, c'est devenu un système très complexe sur le plan administratif. Cette complexité est encore accrue lorsque l'on tient également compte de l'interaction entre le MàF, l'intervention majorée et OMNIO, car ceux-ci sont basés sur un concept de revenu différent. Le chapitre 2 contient un aperçu détaillé des règlementations spécifiques.

QUESTIONS DE RECHERCHE

Cette étude contient un examen des effets du maximum à facturer sur la consommation et l'accessibilité des soins de santé. Cette question générale a été traduite en un certain nombre de questions plus spécifiques. Quel est le coût total du MàF ? Quelle est l'efficacité du MàF en tant que mesure de protection sociale ? Quels groupes sont atteints et pour quels groupes les contributions personnelles restent-elles problématiques ? Le MàF exerce-t-il une influence sur le comportement des patients et prestataires de soins ? Quelle serait l'évolution des coûts et de la protection sociale si certaines caractéristiques structurelles du système du MàF étaient modifiées ?

DONNÉES ET MÉTHODOLOGIE

Pour répondre à ces questions, nous recourons à une base de données où, pour un échantillon représentatif de la population belge de 2004, les données de l'AIM, en provenance des mutualités, sont couplées aux données fiscales et ce au niveau familial. Cette base de données a permis la réalisation d'une première en Belgique : la mise en relation des contributions personnelles des patients (tickets modérateurs et suppléments) avec leur revenu.

Si les informations relatives aux tickets modérateurs payés sont presque exhaustives, ce n'est pas le cas des données relatives aux suppléments. Nous ignorons si les familles de l'échantillon sont couvertes ou non par une assurance maladie complémentaire.

Étant donné qu'en 2004 les indépendants n'étaient pas assurés pour les petits risques dans le cadre de l'assurance maladie obligatoire, ils étaient soumis à une réglementation

spécifique qui n'est plus en vigueur aujourd'hui. De plus, étant donné que nous disposions seulement d'informations incomplètes sur les dépenses médicales des indépendants pour les petits risques, toutes les familles comptant au moins un indépendant n'ont pas été reprises dans l'analyse.

Nous utilisons essentiellement des méthodes de régression et des statistiques descriptives afin d'évaluer l'efficacité du MàF en tant que mécanisme de protection sociale ainsi que pour estimer l'importance des effets comportementaux éventuels. La technique de microsimulation a été utilisée pour dresser une image cohérente des coûts et des effets redistributifs des mesures mises en œuvre depuis 2004 et des éventuelles réformes structurelles à venir. Par le biais de cette méthode, on calcule séparément, pour chaque famille individuelle de l'échantillon, quels sont les tickets modérateurs à payer avant et après mise en œuvre d'une mesure. L'application de cette méthode à un échantillon représentatif permet de brosser un tableau détaillé des gagnants et des perdants.

FONCTIONNEMENT DU MAF EN TANT QUE MÉCANISME DE PROTECTION SOCIALE: SITUATION EN 2004

Notre analyse descriptive de l'efficacité du MàF considéré comme mécanisme de protection sociale est basée sur les données de 2004. Les résultats doivent dès lors être interprétés sur la base de la réglementation et de la consommation de soins de santé afférentes à cette période.

Le MàF fait en sorte que les familles avec des tickets modérateurs élevés par rapport à leur revenu reçoivent des remboursements élevés. Par conséquent, les caractéristiques socioéconomiques et de morbidité jouent un certain rôle dans l'analyse de l'efficacité du MàF au titre de mécanisme de protection.

Une analyse des caractéristiques socioéconomiques indique que les groupes économiquement faibles comme les familles monoparentales, les familles qui vivent d'un revenu garanti pour les personnes âgées, d'un revenu d'intégration ou d'une allocation de chômage sont en moyenne relativement bien protégées contre les conséquences financières de la maladie. Les groupes de revenus les plus bas manifestent toutefois des signes d'une possible sous-consommation des soins de santé. De toute évidence, ce problème ne peut être résolu via un système de protection financière (ex post) comme le MàF. Attendu que le MàF comprend uniquement des tickets modérateurs et établit un plafond qui est plus ou moins en proportion fixe avec le revenu, il ne permet pas d'éviter que les tickets modérateurs et les contributions personnelles (c'est-à-dire suppléments inclus) qui demeurent après les remboursements du MàF constituent, en moyenne, une proportion de plus en plus grande du revenu familial à mesure qu'il diminue.

En ce qui concerne les caractéristiques de morbidité, il semble que les familles confrontées à des frais de soins de santé élevés (avec un forfait de soins pour les malades chroniques, comme le forfait B ou C dans les soins à domicile, le forfait pour une affection grave dans le cadre d'une kinésithérapie ou d'une physiothérapie, d'hospitalisations de longue durée ou récurrentes) soient protégées efficacement par le système du MàF. Toutefois, ces mêmes familles sont encore souvent confrontées à des contributions personnelles élevées et à une plus grande probabilité que ces dernières constituent, après intervention du MàF, une charge extrême sur le revenu familial (défini comme des contributions personnelles supérieures à 5 ou 10% du revenu). Les patients psychiatriques en hôpital ou en maison de soins psychiatriques paient des tickets modérateurs et suppléments exceptionnellement élevés et ont la probabilité la plus élevée de devenir des personnes ayant de tels frais extrêmes.

De manière générale, il convient d'observer que le montant des tickets modérateurs non repris dans le MàF est relativement limité. Le séjour en hôpital psychiatrique ou en maison de soins psychiatriques constitue la principale exception à cet égard. Par conséquent, les contributions personnelles qui subsistent après l'intervention du MàF sont essentiellement des suppléments.

Pour autant, 3.3% des familles paient plus de 5% de leur revenu familial en tickets modérateurs. Si l'on tient également compte des suppléments, ce pourcentage passe à 10% des familles. Pour l'interprétation de ce dernier résultat, il faut tenir compte du fait que nous n'avons pas pu intégrer dans l'analyse les remboursements issus d'assurances maladie complémentaires.

Des contributions personnelles élevées pour les soins de santé peuvent plonger des familles sous le seuil de pauvreté. Environ 20% des familles qui devraient être dans ce cas si le MàF n'existait pas sont maintenues la tête hors de l'eau grâce aux remboursements du MàF. La persistance des contributions personnelles à travers le temps est préoccupante. Presque 3% de la population (sans les indépendants) affichait, en 2003 comme en 2004, des contributions personnelles, après intervention du MàF, supérieures à €500.

LE MAF MODIFIE-T-IL LE COMPORTEMENT DES PATIENTS ET PRESTATAIRES DE SOINS?

La littérature internationale regorge de résultats qui révèlent que les tickets modérateurs peuvent influencer le comportement des patients et prestataires de soins. Une hausse des tickets modérateurs entraîne dès lors une baisse de la consommation médicale, et vice-versa. De prime abord, on peut dès lors s'attendre à ce que le MàF (du fait des remboursements afférents aux tickets modérateurs au-delà du plafond) entraîne également une hausse des dépenses.

L'évaluation des effets comportementaux du MàF nous confronte directement à des problèmes méthodologiques difficiles. Les familles qui dépassent le plafond MàF ont en effet par définition des dépenses plus élevées. Cependant, nous devrions trouver dans les données une relation négative entre le montant des tickets modérateurs et la consommation des soins de santé, même si le fait d'atteindre le plafond MàF ne comporte, en soi, pas le moindre effet. Au niveau des données disponibles, nous nous sommes efforcés de tenir compte le plus possible de ce « problème d'endogénéité ». Pour autant, la prudence est de mise dans l'interprétation de nos conclusions.

Les effets comportementaux du MàF semblent être plutôt limités. Aucun élément ne laisse présager une augmentation des dépenses médicales des familles après le dépassement du plafond MàF. De même, rien ne laisse penser que l'insertion en 2003 de médicaments de catégorie C dans le compteur MàF a entraîné une hausse de l'utilisation de ces médicaments. À la lumière des informations limitées relatives aux patients, ces résultats ne sont peut-être pas surprenants.

D'un autre côté, nous trouvons quelques traces de ce que la littérature qualifie de « comportement anticipatoire ». Les dépenses semblent être plus élevées chez les malades chroniques qui, dès le début de l'année, savent qu'ils atteindront le plafond en cours d'année, que chez les patients comparables (autant que possible) et pour lesquels ce n'est pas le cas. Nos données ne nous permettent pas de juger si cette augmentation est raisonnable ou non du point de vue médical. Dans le cadre des soins à domicile, les prestataires de soins semblent avoir tendance à porter plus souvent en compte des tickets modérateurs chez les patients dont on peut supposer qu'ils atteindront leur plafond. Étant donné que ces tickets modérateurs sont remboursés par le MàF, au-delà du plafond, ce comportement des prestataires de soins entraîne également une augmentation des dépenses dans le cadre de l'assurance maladie.

Étant donné que nous avons seulement décelé des effets comportementaux très limités dans le cadre de notre analyse, nous les avons négligés dans l'évaluation des mesures politiques spécifiques. Il convient toutefois de souligner qu'il s'agit seulement de modifications du comportement de consommation, c'est-à-dire de la quantité de soins consommés. Même en l'absence de modifications ou face à de légères modifications de la quantité de soins consommés (ce que laissent penser nos résultats), de toute évidence une extension de la couverture MàF entraînera inéluctablement une hausse des dépenses de l'assurance maladie. En effet, une telle extension a pour conséquence que des coûts (tickets modérateurs) jusqu'ici supportés par les patients doivent désormais être financés par le système de l'assurance maladie.

LES EFFETS DES MESURES PRISES DEPUIS 2004

Depuis 2004, des modifications importantes ont été apportées au système du MàF. De ce fait, notre analyse descriptive sur base des données observées en 2004 n'est que partiellement applicable à la réglementation actuelle. De plus, une analyse purement descriptive ne convient pas pour examiner les effets de certaines mesures spécifiques. Nous avons donc utilisé la technique de la microsimulation pour calculer les effets budgétaires et redistributifs dus aux modifications opérées depuis 2004. Nous appliquerons ensuite la même technique pour évaluer quelques changements structurels hypothétiques plus fondamentaux.

Depuis 2004, il y a d'abord eu des modifications relatives au mécanisme du MàF. En 2005, le MàF fiscal a été supprimé et intégré dans le MàF-revenus. Puis, en 2006, des changements ont été apportés au concept de la famille: alors qu'avant le MàF social était attribué à toutes les familles ayant au moins un bénéficiaire du régime préférentiel, le MàF social a été limité à partir de 2006 au seul individu bénéficiant du régime préférentiel, son/sa partenaire et ses personnes à charge. Ensuite, la couverture du MàF a été élargie. En 2006, la marge de délivrance pour les implants a été considérée comme un ticket modérateur et reprise dans le compteur MàF; en 2008, c'est au tour de la marge de sécurité d'y être intégrée. Enfin, en 2007, le statut OMNIO a été introduit, avec lequel l'intervention majorée est étendue à toutes les familles disposant d'un revenu (brut) faible. La baisse des tickets modérateurs à payer qui en a résulté aboutit certes à une diminution des remboursements MàF, mais cette baisse doit évidemment être financée par le système de l'assurance maladie.

Nous avons simulé ces changements dans l'ordre chronologique et de manière incrémentielle. Cela signifie qu'une nouvelle mesure est introduite au niveau des données, compte tenu des effets des mesures précédentes déjà mises en œuvre. Notre résultat final nous donne donc forcément une image (certes grossière) de la situation actuelle. Les principaux résultats sont résumés dans le Tableau I.

Toutes ces mesures ont conduit, ensemble, à une hausse de 30% du coût de la protection sociale. Le nombre de familles avec un total de tickets modérateurs, après remboursements du MàF, supérieur à 5% de leur revenu net imposable a baissé de 40%. L'analyse de répartition montre que c'est essentiellement l'intégration des marges de sécurité et des marges de délivrance pour les implants qui ciblait très bien les familles confrontées à des dépenses de soins de santé élevées.

Tableau 1. Effets des mesures prises au cours de la période 2004-2008

	Total remboursements MAF	Nombre de familles avec			
		contributions personnelles >5%	contributions personnelles >10%	tickets modérateurs >5%	tickets modérateurs >10%
Situation de départ (2004)	€203 443 666	391 670	155 465	133 001	50 668
Intégration du MàF fiscal dans le MàF-revenus (2005)	€214 160 478 (+5.3%)	377 392 (-3.6%)	152 522 (-1.9%)	111 081 (-16.5%)	50 123 (-0.9%)
Limitation MàF social (2006)	€202 774 854 (-5.3%)	379 074 (+0.4%)	152 753 (+0.2%)	111 267 (+0.2%)	50 123 (+0%)
Intégration marge de délivrance (2006)	€218 036 109 (+7.5%)	369 758 (-2.5%)	148 237 (-3.0%)	103 315 (-7.1%)	49 292 (-1.7%)
Introduction OMNIO (2007) avec diminution des tickets modérateurs	€196 764 343 (-9.8%) *€255 689 772* *(+17.3%)*	344 611 (-6.8%)	140 460 (-5.2%)	82 885 (-19.8%)	42 759 (-13.3%)
Intégration marge de sécurité (2008)	€204 914 343 (+4.1%)	339 025 (-1.6%)	137 701 (-2.0%)	81 236 (-2.0%)	42 072 (-1.6%)
Total changements (en %) avec diminution des tickets modérateurs	+0.7% *(+29.7%)*	-13.4%	-11.4%	-38.9%	-17.0%

La limitation du MàF social a engendré une économie substantielle sans provoquer d'effets négatifs majeurs au niveau de la protection sociale. Enfin, l'introduction du statut OMNIO a entraîné une forte baisse du nombre de personnes avec des dépenses extrêmes, mais au prix d'une forte hausse des dépenses. Ces résultats concernant OMNIO doivent cependant être interprétés avec prudence. Les familles ne reçoivent le statut OMNIO que si elles le demandent explicitement. Jusqu'à présent, moins de la moitié des bénéficiaires potentiels ont franchi cette étape. Mais comme nos données ne nous permettent pas de savoir de quelles familles il s'agit, nous avons simulé pour notre analyse la situation à long terme où toutes les familles potentiellement bénéficiaires reçoivent le statut OMNIO.

Dans le budget INAMI de 2008, un montant de 10 millions d'euros a été inscrit pour le développement d'un MàF pour les malades chroniques. Son élaboration concrète n'a toutefois pas encore été fixée. De quelle manière la réglementation MàF peut-elle être adaptée pour les malades chroniques ? Et, corollaire à cela, de quelle façon définir un "malade chronique" ? Pour ces deux questions, différentes approches possibles ont été comparées entre elles. Trois modalités possibles ont été retenues pour débuter. Une première approche introduit un droit individuel pour les malades chroniques, analogue à la situation dans le MàF pour les enfants. Le plafond individuel de tickets modérateurs pour les malades chroniques a été fixé à €250, quelle que soit la situation familiale et des revenus. Dans une deuxième approche, le plafond MàF au niveau de la famille est diminué de €250 pour toutes les familles comportant au moins une personne malade chronique. L'idée centrale de la troisième approche consiste à rembourser les tickets modérateurs pour chaque malade chronique, immédiatement après consommation, jusqu'à un montant maximum de €200. Une fois ce seuil atteint, le droit individuel disparait et le MàF social ou le MàF-revenus s'applique, au niveau de la famille dont fait partie le malade chronique, pour les tickets modérateurs ultérieurs.

Ces trois modalités ont été combinées à cinq définitions possibles de "malade chronique". Mais seule la définition la plus restrictive permet de rester plus ou moins dans le budget établi de 10 millions d'euros. Dans cette définition, un malade chronique est défini comme quelqu'un qui a soit droit au forfait pour matériel d'incontinence, soit droit au forfait de soins[a] avec la condition complémentaire qu'il ait payé durant deux années consécutives un montant total de tickets modérateurs supérieur à un seuil minimum. Toutes les autres définitions de malade chronique (où la condition complémentaire de ticket modérateur et la restriction des catégories n'ont pas été appliquées, ou bien où les patients psychiatriques et les patients chroniques en MRS ont été repris) mènent à des dépenses beaucoup plus élevées. Le troisième système, introduisant une exemption individuelle pour les malades chroniques, est de loin le plus cher des trois, sans apporter de meilleurs résultats en termes de protection sociale.

MODIFICATIONS POSSIBLES DANS LA STRUCTURE DU MAF: CHOIX ET POSSIBILITES

Les questions concernant l'opérationnalisation du MàF pour les malades chroniques illustrent clairement que l'élaboration d'un système de protection sociale n'est pas simplement un problème scientifique. Des choix éthiques et sociaux doivent être faits, notamment concernant la délimitation de la responsabilité individuelle face à la responsabilité sociale. Le choix des plafonds de tickets modérateurs sera co-influencé par les conceptions relatives à une répartition équitable du bien-être. Ces choix doivent en outre être faits dans un environnement de limitations administratives, budgétaires et politiques. Nous tâtons les limites de cet espace de choix grâce à une série de simulations de mesures hypothétiques. Un aperçu des résultats se trouve dans le Tableau II.

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a Certains groupes ont été exclus: les bénéficiaires avec une pathologie grave dans le cadre de la kinésithérapie ou de la physiothérapie, ceux qui, durant l'année concernée et durant l'année précédente, ont été admis au moins 6x ou au moins 120 jours dans un hôpital général ou un hôpital psychiatrique et ceux qui ont droit aux allocations familiales majorées.

Dans certains cas, l'interprétation est plus intéressante quand le budget MàF est maintenu constant. Nous parlons alors d'une analyse "neutre pour le budget". Nous obtenons cette neutralité budgétaire en augmentant ou en abaissant proportionnellement tous les plafonds de tickets modérateurs.

Tout d'abord, il faut déterminer pour quelles dépenses de santé les patients pourront être jugés personnellement responsables. Il semble logique de reprendre tous les tickets modérateurs officiels dans le compteur MàF, car ils découlent de dépenses dont la société a estimé qu'elles devaient être intégrées dans l'assurance maladie obligatoire. Mais dans les simulations, il apparaît toutefois que cela engendrerait une forte hausse des coûts. La reprise de tous les suppléments ferait même progresser de 200% le coût du MàF. Il est clair que des choix non évidents devront être faits. Les patients psychiatriques en institution forment ici un groupe problématique spécifique avec des dépenses très élevées. L'intégration de leurs tickets modérateurs dans le compteur MàF ferait grimper le coût de ce dernier de 13%. Il semble par ailleurs que l'intégration de leurs dépenses dans le compteur MàF se situe à plus de 96% au-delà du plafond. Dans une telle situation, on est en droit de se demander s'il ne serait pas mieux de tout simplement supprimer les tickets modérateurs. Mais ici naît également une question éthique. Les frais de séjour des patients psychiatriques constituent-ils une dépense "médicale" qui doit être compensée, ou représentent-ils plutôt des dépenses qui devraient quand même être assumées ?

Deuxièmement, les seuils de revenus sont à l'heure actuelle définis en fonction du revenu net imposable sans aucune correction en fonction de la taille de la famille. Si l'on passe à des seuils en fonction d'un concept de revenus corrigé, la neutralité budgétaire étant mise en œuvre, tous les plafonds devraient être relevés. Cela peut conduire à des difficultés de paiement pour les petites familles avec un faible revenu. Il faut donc encore se pencher quant à la manière la plus adéquate de corriger pour la taille de la famille.

Troisièmement: quel doit être le niveau de sélectivité du système ? Les valeurs absolues du plafond augmentent avec le revenu, si bien que proportionnellement au revenu, elles restent plus ou moins constantes. Le remplacement de ces plafonds différenciés par un système avec un plafond unique pour toutes les familles aurait de graves répercussions pour les groupes de revenus les plus faibles. Au contraire, on pourrait envisager d'introduire un plafond complémentaire de €250 pour les revenus les plus modestes (revenu net imposable <€10 000). Cela conduirait à une amélioration notable de la protection de base, mais sans doute aussi à une forte hausse des coûts administratifs du système.

Quatrièmement, on peut se demander si un système d'intervention majorée (et OMNIO) est encore nécessaire quand le MàF est élargi et si, a fortiori, le plafond complémentaire de €250 est introduit. Ce changement de politique conduirait en effet à une meilleure protection des malades chroniques ayant un revenu moyen à important. Les résultats pour les faibles revenus semblent toutefois moins évidents. Et surtout lorsque l'on tient compte du fait que l'intervention majorée est fondamentalement différente du MàF: le MàF est une correction des frais financiers ex post, l'intervention majorée (et OMNIO) entraîne une baisse du prix au moment même de la consommation des soins.

La technique de microsimulation permet, pour chacune de ces mesures, de dresser un portrait concret des gagnants et des perdants. Les coûts budgétaires peuvent également être estimés assez précisément. Dans ce contexte, l'espace de choix politique est décrit clairement, afin que les décisions puissent être prises en toute connaissance de cause.

Tableau II. Aperçu des simulations hypothétiques

	Coût budgétaire (nouveaux plafonds)	N gagnants (gain moyen, P90 gain)	N perdants (perte moyenne, P90 perte)	Changement N personnes ayant des dépenses extrêmes (contributions personnelles >10% revenu)	Changement N personnes ayant des dépenses extrêmes (contributions personnelles > 5% revenu)
Elargissement de la couverture					
Meilleure protection des patients psychiatriques	€26 645 888	8 368 (3 184 / 7 683)	0	- 2 579	- 3 827
Intégration de tous les tickets modérateurs dans le compteur MàF	€53 326 023	424 360 (126 / 160)	0	- 7 497	- 22 504
Intégration de tous les suppléments dans le compteur MàF	€430 928 001	/	/	/	/
Intégration de tous les suppléments dans le compteur MàF - neutre pour le budget	€1 498 252 (1 395, 2 015, 3 100, 4 340, 5 580)	81 988 (1 575 / 4 017)	387 854 (-329 / -762)	+ 20 958	/
Seuils et plafonds					
Un seul plafond absolu - neutre pour le budget	€85 294 (760)	206 508 (298 / 640)	385 847 (-159 / -310)	+ 13 458	+ 72 688
Indexation des plafonds MàF	- €8 725 263 (465, 671,1 033,1 446,1 859)	0	445 085 (-20 / -33)	+ 1 239	+ 3 862
Suppression MàF social	- €12 433 406	0	52 591 (-236 / -522)	+ 584	+ 658
Introduction d'un plafond complémentaire de €250 pour les très bas revenus	€20 203 047	146 661 (138 / 200)	0	- 7 466	- 29 803
Suppression MàF social + Introduction d'un plafond complémentaire de €250 - EFFETS NETS	€7 769 641	146 661 (138 / 200)	52 591 (-236 / -522)	- 6 882	- 29 145
Redéfinition du concept de revenus					
Revenus équivalents: échelle OCDE - neutre pour le budget	€92 765 (599, 865, 1 330, 1 862, 2 394)	246 882 (149 / 401)	279 127 (-132 / -215)	+ 6 500	+ 37 995
Revenus équivalents: décompte fixe - neutre pour le budget	- €12 213 (488, 705, 1 085, 1 519, 1 913)	113 561 (173 / 295)	372 053 (- 53 / -85)	+ 1 104	+ 7 398
Revenus bruts plutôt que nets - neutre pour le budget	€1 150 147 (378, 546, 840, 1 176, 1 513)	380 102 (84 / 104)	140 770 (- 212 / - 522)	- 492	+ 10 680
Suppression IM - neutre pour le budget	€1 113 926 (300, 433, 667, 933, 1 200)	719 406 (164 / 262)	947 132 (- 123 / - 219)	+ 25 968	+ 51 584
En guise de comparaison					
Diminution plafond MàF pour familles avec un malade chronique - définition large de malade chronique	€47 025 204	229 732 (205 / 250)	0	- 11 627	- 27 071

RECOMMANDATIONS

En acceptant le principe des tickets modérateurs, le maximum à facturer représente un système de protection sociale flexible et élégant. Des améliorations peuvent toutefois lui être apportées.

En premier lieu, l'introduction et l'extension progressive du système avec maintien des droits existants a débouché sur une grande complexité administrative. Une simplification constituerait déjà en soi une amélioration. Il n'est, par exemple, pas cohérent de définir les seuils de revenus du MàF en fonction du revenu imposable net non corrigé selon la taille du ménage, alors que le statut OMNIO est attribué sur la base du revenu brut, corrigé selon la taille du ménage.

Deuxièmement, la protection sociale présente encore des carences majeures. Le nombre de familles qui doivent payer de leur poche plus de 5% (voire 10%) de leurs revenus en frais de santé reste élevé. Les malades chroniques et les patients psychiatriques constituent dans ce contexte des groupes problématiques spécifiques. Avec l'extension de la protection sociale, les choix éthiques concernant les limites de la responsabilité individuelle devront être clairement explicités. Plus qu'auparavant, il faudra également tenir compte de la persistance des contributions personnelles au fil du temps.

Troisièmement, on peut songer à l'amélioration de la protection pour les familles les plus pauvres en introduisant un plafond supplémentaire à €250. Mais les frais administratifs augmenteraient fortement en raison de cette mesure. De plus, le MàF, en tant que système de correction ex post, n'est vraisemblablement pas suffisant pour pallier les problèmes de sous-consommation.

Globalement, notre connaissance du comportement des familles avec les plus faibles revenus est loin d'être complète, également du fait que les données disponibles sont limitées. Une étude ciblée sur les plus pauvres, où l'on pourrait utiliser des techniques d'enquête plus qualitatives, livrerait assurément des informations utiles. Une lacune majeure de nos connaissances se situe au niveau de l'assurance maladie complémentaire. Sans de meilleures informations sur la diffusion de l'assurance complémentaire au sein de la population, il est difficile d'avoir une image précise des contributions personnelles entraînées par les suppléments, et de l'interaction entre ces suppléments et les tickets modérateurs intégrés au MàF.

Cette étude a montré à quel point il était important de coupler les données sur les dépenses de soins de santé aux données sur les revenus. Tant pout l'évaluation ex post de la protection sociale que pour la préparation des nouvelles mesures, il est essentiel de recueillir ces informations régulièrement. L'idéal serait également d'y ajouter les informations relatives à la morbidité. L'élaboration de cet ensemble de données ne génèrerait aucun problème technique. Si elles étaient disponibles, le modèle de microsimulation pourrait être affiné, afin que les futures propositions puissent être analysées de manière cohérente.

Scientific Summary

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1 INTRODUCTION

Belgium has a compulsory health insurance system covering a wide range of services. Payments are mainly fee-for-service. Historically, this fee-for-service financing has always been combined with relatively high out-of-pocket (OOP)-payments by patients. The most recent OECD figures, based on 2005 data, mention that only 72% of total health expenditures in Belgium are publicly financed, while 27% are direct out-of-pocket expenses. [a] These large OOP-payments are meant to mitigate the problem of overconsumption in a system with fee-for-service payments and with a large degree of freedom for patients and providers. At the same time, however, they create a problem of distributive justice as the financial burden for the poor and sick may become considerable. In some cases, this may even threaten access to the health care system for the weaker groups in society.

The tension between freedom, efficiency and equality of access has always been present in the Belgian system. In 1963 a system of preferential tariffs has been introduced, providing higher reimbursement levels to patients with a specific social status (pensioners, widow(er)s, persons with disabilities and orphans) if the gross taxable income of the household does not exceed a yearly adapted limit. This system of preferential treatment has been gradually extended over time. However, when the co-payments increased considerably in November 1993, mainly for visits and consultations of GPs, the system of preferential treatment turned out to be insufficient to cushion the social consequences of these measures. As a reaction, the government decided to introduce in 1994 the so-called system of "social and fiscal exemption", putting a ceiling on the total amount of co-payments to be paid by specified groups. In 2002, this measure was refined and improved through the introduction of the system of maximum billing (MAB), which then on its turn was further extended in the course of the following years. While the social and fiscal exemption were introduced in a more or less ad hoc way, the MAB was designed as a structural measure to find a compromise between social protection of the weakest groups in society on the one hand and individual responsibility on the other hand. We will describe its basic architecture in the next subsection. Our research questions then follow in subsection 1.2.

1.1 THE BASIC ARCHITECTURE OF THE MAB

The specific design and coverage of the MAB has been changing continuously over time. A detailed overview of this development and of the actual system is taken up in chapter 2. In this section we focus on the broad architecture of the MAB and on the specific underlying assumptions and value judgments, as these were described in the policy documents at that time.

In broad lines, one can summarize the main features of the MAB as follows:

1. The basic idea of co-payments is not questioned. Co-payments are seen as an acceptable mechanism to influence patient behaviour, to fight moral hazard and overconsumption and in some cases to give specific incentives. They reflect individual responsibility.
2. However, there are limits to individual responsibility. Therefore, co-payments are no longer socially acceptable as soon as the resulting financial burden for patients becomes too large. In this respect, special attention must be given to the weakest (or poorest) groups in society.
3. To measure the financial burden for patients, the household dimension should be taken into account. Therefore, social protection should be focused on the sociological (or de facto) household as the relevant unit. Children should even get a better protection.
4. The protection consists in granting to the (sociological) households that they will never have to pay more than a fixed absolute amount of official (legal) co-

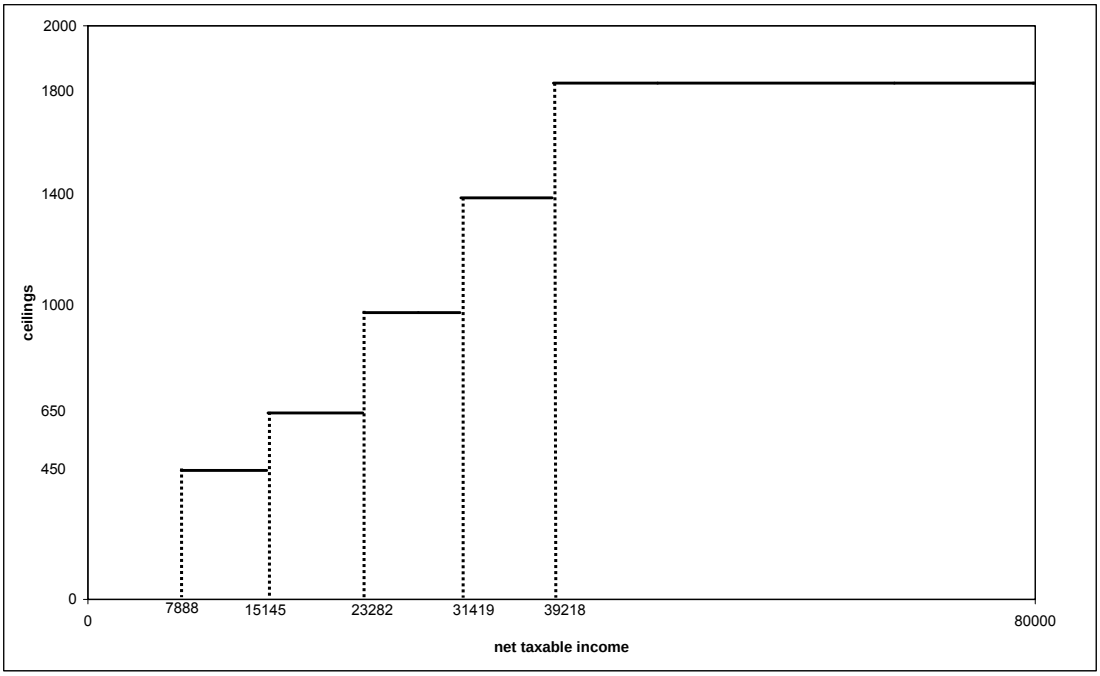
[a] The OECD uses a broad definition of out-of-pocket payments, including not only co-payments but also supplements and medical expenditures that are not covered in the compulsory insurance system (such as non-reimbursed drugs).

payments. Supplementary payments, i.e. payments by patients that are not included in the official tariff, are not covered by the MAB-protection. The same is true for non-medical expenditures, which may be related, e.g. to chronic illness. The idea is that the MAB is a social protection mechanism within the compulsory health insurance system – supplementary payments come on top of the legal co-payments and should be regulated separately (if this is deemed necessary).

5. Co-payments are added at the level of the sociological household and then compared to a ceiling. Co-payments above the ceiling are reimbursed. This reimbursement takes place ex post, i.e. patients first have to pay themselves out of their own pocket. The ceiling is made dependent on the net taxable income (NTI) of the households.

While the coverage of the MAB and the levels of the ceilings have changed over time, we can use the ceilings that were applicable in 2007 to illustrate some consequences of this last design feature. Figure 1a shows the discrete steps in the ceilings as a function of NTI. Figure 1b is a transformation of Figure 1a, in which the ceilings are expressed as a percentage of NTI. We show these relative ceilings starting at the guaranteed minimum income for a single person, which amounted in 2007 to €7 888. The decreasing pattern in each of the income ranges is of course due to the discrete steps shown in Figure 1a. Yet the figure nicely shows that the general effect of the MAB-ceilings is to restrict the co-payments for all income groups in a range between about 3-4.5% of NTI. There are two exceptions: for the households with very large incomes the fixed ceiling of €1 800 implies a decreasing share of co-payments in total NTI, and, more surprisingly, for the households with very low incomes the fixed ceiling of €450 implies that the share of co-payments in total NTI gets larger than 4.5%. The co-payments ceiling becomes 5.7% at the minimum income. Looked at from this angle, the MAB is less focused on the weakest groups in society (or less selective), than it may seem at first sight.

Figure 1a. Absolute MAB-ceilings as a function of NTI (2007)

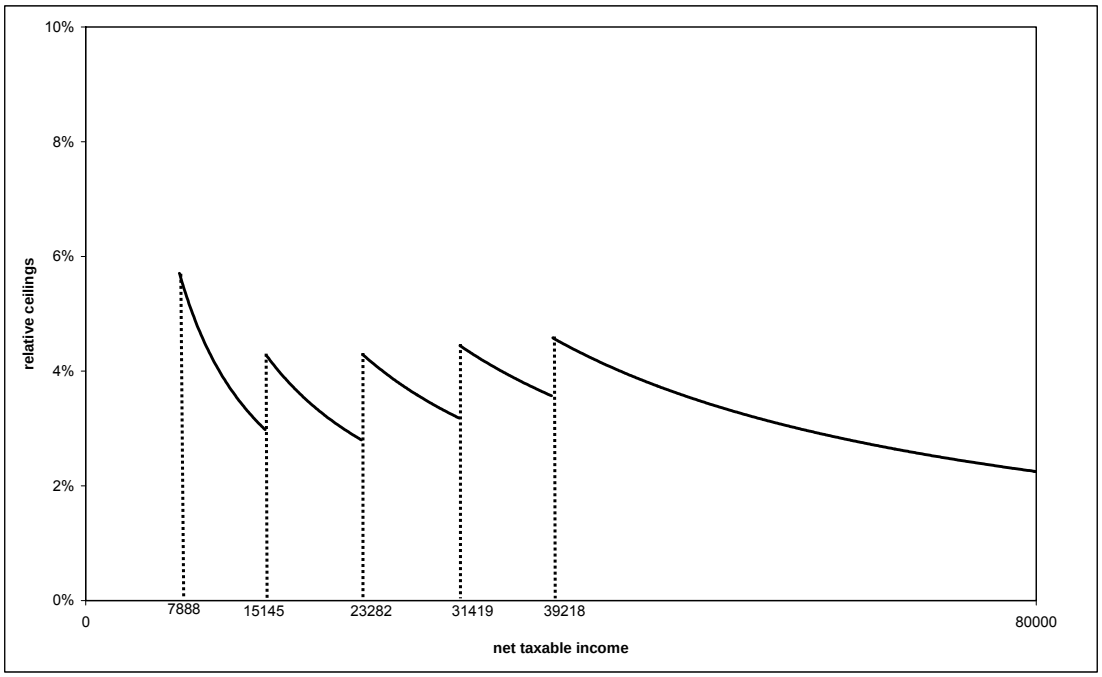


The MAB uses the net taxable income as an indicator of the socio-economic position of the households. It is well known, of course, that this NTI does not adequately capture all income sources, due to reporting problems related to tax avoidance and tax evasion.

Moreover, net taxable income as such is not a good indicator of the final disposable income of the households. To get at the latter concept, the tax system implements a system of progressive tax rates, operating through a rather complicated structure of tax credits and tax exemptions. If, as will in general be the case, the taxes paid are progressive as a function of NTI, the conclusion from Figure 1b has to be qualified.

Indeed, a more or less constant ceiling as a share of NTI will translate into an increasing ceiling as a share of disposable (after tax) income. This feature increases the selectivity of the MAB. Moreover, tax credits and exemptions vary with household size. To get at the disposable income one also has to add child allowances, which are not part of NTI. By focusing on the NTI, the MAB-regulation deliberately makes abstraction of all these specific redistributive features of the tax system. Formulated differently, the MAB-regulation implicitly assumes that the corrections for household size in the overall tax and social security system justify the use of the uncorrected NTI as a benchmark for the social protection in the health insurance system.

Figure 1b. Relative MAB-ceilings as a function of NTI (2007)



1.2 RESEARCH QUESTIONS

The introduction and extension of the MAB did not resolve completely the search for an acceptable equilibrium between efficiency, freedom and equality of access. Three considerations remain prominent in the actual debate.

First, despite the presence of the MAB, there is a growing concern about the remaining (and apparently increasing) OOP-payments for the weaker groups in society. Much of this concern has been triggered by the increase in supplementary payments, i.e. payments by patients that are not included in the official tariff and therefore by definition not included in the MAB.[b] This increase raises general questions on the best design of a system of social protection, including the MAB.

Second, extending the MAB has also increased its global cost for the health insurance system. The question arises whether this cost increase is affordable, or, more specifically, whether it is not possible to offer the same level of social protection at a lower cost to society. This efficiency issue is even more important, as differentiated OOP-payments have been used to a growing extent in order to influence the behaviour of the patients – we can mention here as examples the lower co-payment for patients who have a global medical file with their preferred GP, the larger co-payment for unjustified use of the emergency rooms in hospitals, and the introduction of financial incentives for the consumption of generics. In each case, policy makers were facing the question of whether these co-payments should or should not be included in the MAB.

This relates again to the trade-off between introducing incentives for individual responsibility on the one hand, and protecting socially vulnerable groups on the other hand.

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[b] For which, see De Graeve et al. (2006).[1]

Third, the debate about the selectivity (or universality) of the Belgian health insurance system has remained unsettled. While the selectivity of the MAB lowers its global cost, it raises the question of the long-run sustainability of a compulsory health insurance system with a broad coverage. What about the OOP-payments of the chronically ill, who are not poor? How to keep the political support of middle- and higher-income groups for a system of health insurance, in which they have to pay relatively large co-payments when they are ill, while at the same time having to pay relatively large contributions when healthy? And was it a good idea to keep (and even) extend the system of preferential treatment in granting lower co-payments to all low-income groups? How does this relate to the basic philosophy of the MAB?

Many of these questions are philosophical or political in nature and cannot be answered by any empirical analysis. Yet such an empirical analysis may yield useful information to enrich that political debate. This general background immediately suggests the following more specific (empirical) research questions:

1. What is the total cost of the MAB? How did it develop over time?
2. How effective is the MAB as a social protection mechanism?
   6. Which groups are well protected?
   7. For which groups do the OOP-payments remain problematic?
3. Does the presence of the MAB influence the behaviour of the patients and the providers?
4. What would be the consequences, both in terms of overall cost and in terms of social protection, of changing specific features in the design of the MAB?

To answer these questions, we have made use of different data sources. The first question can be answered based on the global figures available at RIZIV/INAMI.[c] For the other questions, data at the individual level are needed. For a large sample of individuals in 2004, we combined the detailed health expenditure data, provided by IMA (Intermutualistisch Agentschap - Agence Intermutualiste - Intermutualistic Agency)[d], with the fiscal data, provided by the Ministry of Finance. This dataset allows for the first time to analyse the link between the OOP-payments of the patients and their income position. We describe the available data in more detail in chapter 3.

Chapter 4 will then offer a first answer to question 2. We will describe the effectiveness of the MAB as a social protection mechanism by focusing on the situation of various groups in society. These groups will be defined on the basis of income, of other socio-economic indicators and of (indirect) information about morbidity. Chapter 5 describes the evidence on the behavioural effects of the MAB (question 3). Finally, in chapter 6 we look in detail at the consequences of specific measures, which have been introduced in the past, or could be introduced in the future (question 4). In that last chapter, we will use the technique of microsimulation. Chapter 7 concludes and relates the empirical findings to the broader design questions described in the previous subsection. Indeed, the design of a social protection mechanism within a health insurance system with (relatively large) OOP-payments raises issues with respect to efficiency and equity.

Key points

- **The system of maximum billing (MAB) puts a ceiling on the amount of co-payments to be paid by de facto households.**
- **These MAB-ceilings increase with net taxable income but are nearly constant as a share of that income.**
- **Supplements are not included in the MAB protection scheme.**

[c] National Institute for Health and Disability Insurance.

[d] IMA is a non-profit institution with all Belgian sickness funds as its members.

2 THE MAB IN THE CONTEXT OF THE BELGIAN HEALTH INSURANCE SYSTEM

In this chapter, we give a more detailed overview of the MAB within the overall context of the Belgian health insurance system. We first describe the system of preferential treatment and some additional protection measures that have been introduced for specific groups of the population. We then show in the second section how the MAB developed out of the social and fiscal exemption, introduced in the mid nineties. Section 3 explains the overall structure of the MAB in more detail. Section 4 clarifies the basic notions of "household" and "income" and section 5 describes the gradual extension of the coverage of the MAB and the remaining gaps. Finally, we summarize in section 6 some relevant aggregate figures. These will offer a first answer to the research question about the total financial cost of the MAB.

In this chapter, we will focus mainly on the rules as they were applicable in 2007. However, the reference period for the analysis in the later chapters will be the year 2004. We will therefore also describe in some detail the situation in the latter year.

2.1 OOP-PAYMENTS AND SOCIAL PROTECTION MEASURES FOR SPECIFIC GROUPS

The Belgian system of compulsory health insurance covers the entire population for a wide range of services. Historically, the coverage within the scheme of the self-employed (approximately 10% of the population) was more restricted than the coverage within the general scheme, in that the self-employed were not reimbursed within the compulsory system for the "minor risks".[e] This different coverage for the self-employed does no longer exist since January 1st, 2008.

Although some lump sum financing has been introduced in recent decades[f], the Belgian health care system mainly holds on to a publicly financed fee-for-service system for the providers. Official tariffs are given by the so-called "nomenclature", an extensive list of about 10 000 (para)-medical acts and procedures. This fee-for-service financing is combined with relatively high OOP-payments by patients. To protect the weakest socio-economic groups a system of preferential treatment has been implemented (section 2.1.1). Moreover, additional lump sum payments have been introduced for some groups of the chronically ill (section 2.1.2).

Co-payments, i.e. the part of the official tariff that is not reimbursed, are not the only element in the total OOP-payments of the patients. Some medical services are not included in the compulsory cover and in some cases, the providers can charge a fee above the official tariff. Amounts charged to the patients above the official tariff are called "supplements". They sometimes are covered by supplemental health insurance policies, which however are not taken up by the whole population. The regulation with respect to these supplements and the effects on OOP-payments are analysed in more detail in De Graeve et al. (2006).[1]

2.1.1 Co-payments and the system of preferential treatment

Patients with preferential treatment (verhoogde tegemoetkoming – intervention majorée) pay reduced co-payments. The reduction depends on the type of expenditure (GP, specialist, drugs, hospital…). As an approximation, the co-payment for preferential treatment beneficiaries amounts to about 10% for consultations with a GP, about 15% for consultations with a specialist, and about 20% for physiotherapy, speech therapy, podology and dietetics. The percentages for patients without preferential treatment are approximately 25% for consultations with a GP, 35% for home visits of a GP and 40% for consultations with a specialist, physiotherapy, speech therapy, podology and dietetics.

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e Basically – with some exceptions - all ambulatory care expenses.

f An overview of recent health care reforms is given in Schokkaert and Van de Voorde (2005)[2] and Corens (2007)[3].

The co-payments for drugs in an ambulatory setting are given in Table 1.[g] The basis for reimbursement is the classification within categories fixed by Royal Decree. The classification reflects the social importance of the drug, pharmacotherapeutic criteria and price criteria. Category A contains the vital life-saving drugs, category B contains "important" and category C "less important" drugs.

Table 1. Co-payments for ambulatory drugs (2007)

Reimbursement category	Preferential treatment	Non preferential treatment
Category A	No co-payment	No co-payment
Category B	15% with a maximum of €7.10	25% with a maximum of €10.60
Category B Large package size	15% with a maximum of €8.80	25% with a maximum of €13.30
***Category B ATC 4th level**	15% with a maximum of €10.60	25% with a maximum of €15.90
***Category B Large package size and ATC 4th level**	15% with a maximum of €15.90	25% with a maximum of €23.90
Category C	50% with a maximum of €8.80	50% with a maximum of €13.30
***Category C ATC 4th level**	50% with a maximum of €15.90	50% with a maximum of €23.90
Category Cs	60% without maximum	60% without maximum
Category Cx	80% without maximum	80% without maximum

Source: RIZIV/INAMI.

Originally, the system of preferential treatment was restricted to patients with a specific social status (pensioners, widow(er)s, persons with disabilities and orphans), for which the gross taxable income of the family did not exceed a yearly-adapted limit. In 1997 and 1998, the benefit of the preferential tariff system was extended to the following groups (still conditional on the income limit):

- (Controlled) long term unemployed, aged 50 and older with at least one year of full unemployment (according to the definition of the employment regulations)
- Persons entitled to one of the following allowances:[h]
  - Integration allowance for handicapped persons
  - Income replacement allowance for handicapped persons
  - Allowance for assistance for the elderly
  - Income guarantee for the elderly (gewaarborgd inkomen voor bejaarden of inkomensgarantie voor ouderen – revenu garanti aux personnes âgées ou la garantie de revenus pour personnes âgées)
  - Subsistence level income (leefloon; revenu d'intégration)
  - Support from the public municipal welfare centres (OCMW, CPAS)

Since 2007, the system is further extended. The newly introduced OMNIO-status guarantees preferential treatment to all households below a certain income level. We will return to the specific features of the OMNIO-status in chapter 6.

g The co-payment percentages are regularly adapted. Table 1 gives the percentages applicable in the course of 2007 (from April 1, 2007 onwards). The categories marked with a * were introduced on November 1, 2005 and refer to cases in which a generic alternative exists for branded drugs. We return to the regulations with respect to generic drugs in section 2.5.

h Persons in these categories are not subject to an additional means-testing by the health insurance system.

2.1.2 Lump sum subsidies

In order to compensate people who can be expected to have high medical expenditures, some *lump sum subsidies* have been installed. The most important of these is the lump sum for chronic illness (Royal Decree of June 2, 1998). The annual lump sum amounted to €247.89 in 2004 and has increased to €261.97 in 2008. Patients are entitled to this lump sum, if they belong to a category of dependent persons during the current calendar year, and if their total amount of co-payments exceeds a certain threshold during two consecutive years. Other lump sums are the one for palliative treatment at home, for incontinence material, for palliative care, for patients in a persistent vegetative state and for patients suffering from Sjogren's syndrome. More information about these lump sum subsidies is given in De Graeve et al. (2006).[l]

2.2 HISTORICAL OVERVIEW: FROM THE SOCIAL AND FISCAL EXEMPTION TO THE MAB

In 1993, the economic recession and the commitments accepted by the Belgian government to join the European Monetary Union put the social security budget under severe pressure. Within that context it was decided to shift about 7.5 billion Belgian Francs (BEF) from the public health care budget to the patients through a significant increase of the legal co-payments. This drastic measure (amounting to almost 2% of the total public health care budget) not only increased the financial burden of the patients, but it even induced a (short-term) volume decrease, especially for visits and consultations of GPs.[i] Confronted with these social consequences, the Government decided in 1994 to introduce a "social and fiscal exemption". The basic idea of these exemption schemes was to put a ceiling on the total amount of co-payments to be paid by the patients. We first describe the original social and fiscal exemption schemes and then show how the MAB was introduced as an attempt to remedy their main shortcomings.

2.2.1 The social and fiscal exemption

Patients were entitled to social exemption, if they were registered in a "sickness fund household"[j] of which the head was entitled to preferential treatment. If during a civil year such a household reached a total amount of official co-payments of at least 15 000 BEF (€372) for a specified list of medical and paramedical acts, they did not have to pay any additional co-payments for items on that list during the rest of that civil year. The sickness fund would reimburse the official co-payments for these acts.

The fiscal exemption applied to all other sickness fund households, i.e. those that did not benefit from the social exemption. Their official co-payments were also added up and the result of this addition was handed over to the tax administration. Different ceilings were determined, in relation to the taxable income of the household.[k] If the amount of the official co-payments was higher than the fixed ceiling for that household, the difference would be reimbursed by the tax administration, more than two years after those expenses were made. Afterwards, the tax administration would claim this amount from the RIZIV/INAMI.[l]

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i This volume effect has been analysed by Van de Voorde et al. (2001)[4] and by Cockx and Brasseur (2003)[5].

j Everyone with an actual (or past) professional activity - salaried worker or self-employed – becomes the head of a sickness fund household, consisting of him or herself and additional household members for which he/she is in charge: his or her partner (if not working) and his/her relatives in direct line (parents and/or children). So, a married couple, both working, with two children, would constitute two sickness fund households: one single, the other composed of one adult and two children. Later in this chapter and in chapter 3, we will come back in more detail to the different household concepts in the Belgian social security system.

k For instance, in 1994 the following ceilings (in BEF) were applied:
- NTI ≤ 538 000 BEF → ceiling of 15 000 BEF
- 538 000 BEF< NTI ≤ 828 999 BEF → ceiling of 20 000 BEF
- 829 000 BEF< NTI ≤ 1 119 999 BEF → ceiling of 30 000 BEF
- 1 120 000 BEF< NTI ≤ 1 410 999 BEF → ceiling of 40 000 BEF
- NTI > 1 411 000 BEF → ceiling of 50 000 BEF

l *"Fiscale vrijstelling van het remgeld. Dienstjaar 2002"*, note CGV 2005/236, 25 juli, 2002

Although the system of the social and fiscal exemption effectively introduced a protection mechanism for some weak socio-economic classes within the population, it was subject to three fundamental criticisms:

1. The criterion for being entitled to the social exemption, i.e. being entitled to preferential treatment, did not adequately cover all low-income groups. Those low-income groups who were not entitled to social exemption, were excluded from reimbursement within the year and had to wait more than two years to be reimbursed via the circuit of the fiscal exemption.
2. The "sickness fund household" is not a relevant concept to measure the financial strength of the households. The increase of the professional activity rate of the female population makes it even less and less relevant, as more and more "sociological" households consist of more than one sickness fund household.
3. The list of official co-payments taken into consideration to "feed" the social and fiscal exemption accounts excluded, amongst others, drug co-payments[m] and the costs of a prolonged hospital stay. The protection, offered by the fiscal and social exemption, was therefore very incomplete for some chronic patients.

2.2.2 2002: the transition from the social and fiscal exemption to the MAB

The Act of June 5th 2002 'Concerning the Maximum Billing (MAB) in Health Insurance"[n], introduced the MAB retroactively from January 1st 2002 onwards. Its ambition was to meet the three fundamental criticisms of the former social and fiscal exemption system:

1. To improve the safety net for low-income groups, the MAB does no longer exclusively use preferential treatment as an indicator, but explicitly introduced an income criterion. It originally consisted of four subsystems:
   - The social MAB was the prolongation of the social exemption and had the same reimbursement procedure via the sickness funds. The co-payments ceiling for this social MAB was set at €450.
   - The income MAB was the main innovation. It introduced the possibility for low-income and modest income households to have their official co-payments above the MAB-ceiling reimbursed via their sickness fund within the year, even if the head of the household did not benefit from a social status. The ceilings were set at €450 and €650 for low and modest incomes respectively.
   - For the other households with an income level above the modest income level, a similar procedure as foreseen in the fiscal exemption was applicable: this was called the fiscal MAB.
   - Finally, the MAB also introduced a specific protection mechanism for children.

Since 2002 the MAB has evolved towards an integrated system. Since January 1st 2005[o], the fiscal MAB does no longer exist and all income levels are integrated in the income MAB. This means that from the budgetary year 2005 onwards, every household, irrespective of its income, has its "excessive" co-payments immediately reimbursed via the sickness funds. However, since households entitled to the social MAB still have the lowest €450-ceiling, the MAB is not completely structured along the income dimension. We will describe the structure of the MAB in more detail in section 2.3.

2. In the MAB, co-payments are summed at the level of the sociological (or de facto) household and the income concept used is the net taxable income, also of the de facto household. A detailed description of the household and income concepts is given in section 2.4.

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m In fact, in that period the data on ambulatory drug consumption were not available at the level of the individual or the household.

n This act introduces a new Chapter IIIbis in Title III of the coordinated Health care Act of 14 July 1994.

o Articles 40 to 46 of the Program Act of December 30, 2005, 2nd edition.

3. Already from the start, the coverage of the MAB was broader than that of the social and fiscal exemption, in that it included the co-payments for the drugs of categories A and B. Over time, the coverage has further been broadened, although even now it is still incomplete. We return to that coverage in section 2.5.

Although the MAB in one interpretation is only a natural extension of the former social and fiscal exemption, it can also be interpreted more ambitiously as an attempt to introduce a coherent social protection mechanism in the Belgian health insurance system. At the same time, however, its launching was only possible because of at least three external factors:

1. The budgetary situation of the government had changed since the mid-nineties. Belgium joined the EMU in 1999, and in the period 1999-2001 the Belgian economy presented a strong economic growth. There was therefore some room to inject extra resources in the health care sector. Whereas between 1994 and 1999 the authorized real growth norm for the health care budget was limited to 1.5%, it was set at 2.5% in June 1999. In 2004 the norm was even further relaxed to 4.5%.
2. The late nineties saw a spectacular improvement in the ICT of the sickness funds. In 2002, they were able to recompose sociological households (household members living under the same roof), even if the sociological household was composed of several sickness fund households, dispersed over a number of sickness funds.[p]
3. Finally, the introduction of Farmanet–one track on January 1st 2001 made it possible for the sickness funds to allocate the consumption (and the related expenditures) of reimbursed ambulatory drugs at the level of the individual patient. As noted before, until that moment it had never been possible to evaluate the individual financial burden of ambulatory reimbursable drug consumption, which at that time represented about 15% of total public health care expenditures.

2.2.3 The "one-shot" MAB of 2001-2002

Some intermediate steps were taken in the transition from the social and fiscal exemption to the MAB. First, since the introduction of Farmanet-one track on January 1st 2001 had made it possible to allocate the ambulatory drug consumption at the level of the individual patients, the social exemption was extended in 2001 to the co-payments for life-saving drugs (the so-called A-category) and the useful drugs (B-category). Budgetary imperatives made it necessary to increase the initial ceiling of 15 000 BEF (€372) to €446.[q]

Second, the additional administrative complexity for the sickness funds introduced by the MAB (compared to the exemption system) and the relatively late publication of the MAB Act (June 2002), made it necessary to tolerate some parallelism with the exemption system during the first year of application of the income MAB. Therefore, instead of the ceiling of €450, the ceiling of €446 was applied for the lowest household income level.

2.3 THE STRUCTURE OF THE MAB

We mentioned before that the MAB, as introduced in 2002, consists of different subsystems. We will now explain in more detail the social MAB, the income MAB and the MAB for children. As we have seen, until 2005 there was a distinction between the income MAB for the low and modest incomes, and the fiscal MAB for the high incomes.

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[p] In 1994, sickness funds were obliged for the first time to allocate in their analytical accounting the health care expenses to the individual patient that generated them, rather than to the (sickness fund) household head to which the patient was assigned. It took until at least 1996 before reliable individualised expenditure data were made available by all sickness funds.

[q] However, if households had already reached the ceiling of 15 000 BEF (€372) and had been subject to reimbursements in the "normal" social exemption procedure of 2001, they received the surplus of drugs reimbursements due to the one-shot procedure on the basis of the original global €372 ceiling.

Since the fiscal MAB was therefore still in place in 2004 (the reference period for our study), we will explain its basic structure in section 2.3.4.

2.3.1 The social MAB

The social MAB is an extension of the former system of social exemption. Therefore, basically, the entitlement to social MAB is linked to the right to preferential treatment.[r] Until 2006, the entitlement to the social MAB was extended to all members of a de facto household, as soon as at least one household member was generating it. Since January 1st, 2006, however, the entitlement to the social MAB in a de facto household is restricted to the individual entitled to the preferential tariff, his/her partner and their dependents.

In section 2.1., we have already given an overview of the specific social categories, concerned.[s] In all cases, there is at least an implicit connection with low income. Either these individuals are living on an indemnity, which is considered as sufficient evidence for their modest means of existence, or there is an explicit means testing procedure. Households benefiting from the social MAB have their co-payments reimbursed once the global amount of co-payments reaches a ceiling of €450 during a civil year. In that case, they are reimbursed by their sickness fund.

2.3.2 The income MAB

The income MAB guarantees reimbursements to households with co-payments above given ceilings, where these ceilings are dependent on the net taxable income (NTI) of the household. In 2007 the following ceilings were applicable[t]:

- NTI ≤ €15 144.56 → MAB-ceiling of €450
- €15 144.56 < NTI ≤ €23 281.93 → MAB-ceiling of €650
- €23 281.93 < NTI ≤ €31 419.32 → MAB-ceiling of €1 000
- €31 419.32 < NTI ≤ €39 217.64 → MAB-ceiling of €1 400
- NTI > €39 217.64 → MAB-ceiling of €1 800

It was shown in section 1.1 that this system effectively puts the ceiling on the co-payments to be paid somewhere in between 3.5% and 4% of NTI, except for the very small and the very large incomes (see Figures 1a and 1b).

As already mentioned, in our reference year 2004, the mechanism of the income MAB was only applicable to the low and modest incomes. Higher income households were reimbursed through the fiscal MAB. The following income levels were applicable:

- NTI ≤ €14 178.07 → MAB-ceiling of €450 (Income MAB)
- €14 178.07 < NTI ≤ €21 796.13 → MAB-ceiling of €650 (Income MAB)
- €21 796.13 < NTI ≤ €29 414.21 → MAB-ceiling of €1 000 (Fiscal MAB)
- €29 414.21 < NTI ≤ €36 714.86 → MAB-ceiling of €1 400 (Fiscal MAB)
- €36 714.86 < NTI ≤ €52 480.02 → MAB-ceiling of €1 800 (Fiscal MAB)
- NTI > €52 480.02 → MAB-ceiling of €2 500 (Fiscal MAB)[u]

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r Except for children entitled to an increased child allowance.

s Since April 1st 2007, the OMNIO-status, which is an extension of the benefit of the preferential tariff to all households under a certain income level, entitles also the right to social MAB (Program Act of December 27, 2006, articles 198-203, executed by the Royal Decree of April 1st 2007).

t These income levels are indexed each year with the so-called "health index".

u Note that with the integration of the fiscal MAB, this maximum ceiling of €2 500 was abolished. Since 2005, the maximum ceiling is €1 800.

Briefly, in 2004 the administrative procedure of the income MAB worked as follows:

1. When a de facto household, which was not entitled to social MAB, reached the €450 level of total co-payments (included in the MAB-counter) during a civil year, the sickness fund administrating the household file sent in a request to the fiscal administration via RIZIV/INAMI to check if this de facto household could benefit from one of the two income MAB levels.
2. Via RIZIV/INAMI the fiscal administration could give three possible answers: income MAB €450 (which means that the NTI of the de facto household was smaller than €14 178.07), income MAB €650 (which means that the NTI of the de facto household was smaller than €21 796.13) or fiscal MAB (which means that the NTI of the de facto household was larger than €21 796.13).
3. Dependent on the answer given, the sickness fund started to reimburse, waited until the 650€ ceiling was reached or eventually handed over the total co-payment amount via RIZIV/INAMI to the fiscal administration, which then treated it in the fiscal MAB procedure.

The adaptation of the procedures after the integration of the fiscal MAB into the income MAB is straightforward: it is only the last possible step (back to the fiscal administration) that no longer has to be taken.

From the administrative point of view, there is an important difference between the social MAB and the income MAB. For the social MAB, sickness funds know ex ante how many households potentially could benefit from MAB-reimbursements and they can observe ex post how many households actually did benefit. This is not the case with the income MAB, where sickness funds only know the number of households who did benefit ex post from reimbursement.[v]

2.3.3 The MAB for children

In order to give a supplementary protection to children who are confronted with high health care expenses, an individual MAB-right for children[w] was installed. Irrespective of the MAB-ceiling for the de facto household they are living in, children are always entitled to individual reimbursement of their co-payments that exceed a ceiling of €650.[x] Because of the introduction of this MAB for children, handicapped children (under 21) entitled to an increased child allowance, are no longer entitled to social MAB (as was the case in the system of social exemption). However, as a transition measure, a lower ceiling of €450 applies for handicapped children who were entitled to increased child allowance on July 4, 2002 – and who still receive this increased child allowance.

2.3.4 The fiscal MAB

As mentioned before, 2004 (the reference year in our empirical analysis) was the last year with a fiscal MAB, by which all households with a NTI higher than €21 796.13 were reimbursed via the channel of the fiscal administration. The fiscal MAB being the extension of the former fiscal exemption, there were three essential differences between the fiscal MAB and the social and income MAB:

1. The most important difference was the delay in the reimbursement. With the fiscal MAB (executed by the fiscal administration), reimbursement took place in general more than two years after the co-payments were paid.
2. The fiscal MAB was based on the concept of the fiscal (and not the de facto) household. We will explain the complicated relationship between the different household concepts in more detail in the next chapter. In general, however, one might expect that the average NTI of fiscal households is smaller than that of de facto households.
3. For the application of the fiscal MAB in year T, one starts from the expenditures paid by the sickness funds and invoiced in year T. For the social

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[v] A fortiori, at the sickness fund level there was no information available at all about the number of households benefiting from the fiscal MAB.

[w] For 2002 and 2003, a child was defined as an individual below 16 years old, from 2004 on this age limit has been raised to 19 years.

[x] If the household has a ceiling of €450, it is obvious that this lower ceiling will apply.

and income MAB one takes into account all expenditures that are realized in year T.[y]

While 2004 officially was the last year with a fiscal MAB, the integration of the fiscal MAB into the income MAB required some intermediate steps in order to avoid budgetary problems in 2006. This problem is related to the delay in the reimbursement of the fiscal MAB. In fact, theoretically, in 2006 the fiscal MAB of 2004 would have to be reimbursed, plus the income MAB for the higher incomes for 2005 (due to the integration of the fiscal MAB in the income MAB from January 1st 2005 on), plus the income MAB for higher incomes for 2006. To avoid this accumulation of expenditures, it was decided that only the "higher income MAB" for 2005 would be reimbursed in 2006. In 2007, the "higher income MAB" of 2006 would be reimbursed. From 2007 onwards, the now fully integrated income MAB system is at cruising speed.

2.4 BASIC NOTIONS OF THE MAB: HOUSEHOLD AND INCOME

As we have seen, the MAB is based on the concepts of the sociological (de facto) household and of the net taxable income of that household. While this principle is clear (and sufficient to understand the basic working of the MAB), in practice there are some finer points which have to be settled.

2.4.1 The notion of "household" in the MAB

In principle, the MAB is an entitlement for a complete household. All members living under the same roof, the de facto household, benefit as a whole from the co-payments ceiling. This de facto household is defined by the address in the national register.[z] A "photograph" is taken of the situation on January 1st of each year. Modifications in the composition of a household during the civil year are not registered until the next year.

Some exceptions are made to this general rule:

1. During the civil year, a de facto household can be enlarged by individuals who are for the first time registered in the national register. This is the case for newborns and persons coming from abroad and settling in Belgium.
2. Some households are not integrated in the national register, but can benefit from MAB-entitlements. This is especially the case for cross-border workers, insured in Belgium but living abroad, and for diplomats who are exempted from registration in the national register. Those households fill in a declaration on honour, where they mention all the members of their de facto household.
3. Large communities, such as nursing homes and psychiatric clinics, are treated as one household in the national register. For the application of the MAB, each person living in those communities is considered as one separate de facto household. There is one exception to the exception though: married couples or partners living together in this larger community are considered as one de facto household.
4. Some individuals with a high dependency level can opt for constituting a de facto household on their own, even if they are living in a larger de facto household. Taking this option can be profitable for a dependent person with a sufficiently modest income (and high individual co-payments), granting him/her on his/her own a right to MAB-reimbursements, while (s)he is living in a de facto household with a large total income, excluding the possibility of (direct) MAB-reimbursement.
5. Individuals placed in a foster family can also be considered as a de facto household on their own, different from the foster family in which they are (temporarily) living.

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y Theoretically, three accounting years are needed to reconstruct the "realized" expenditures of one civil year. This is due to the fact that patients can wait up to 2 years after a (para-)medical act to bring in their bill and still get reimbursed.

z The national register is kept up to date by the administration of the Belgian municipalities and is registering all incoming and outgoing migration flows of residents in the municipalities.

6. Finally, persons with a collective address of reference or who are registered at the address of a OCMW/CPAS[aa], are grouped into a de facto household with their dependent persons.

An additional problem for the MAB-system is caused by the freedom to choose a sickness fund that is guaranteed in the Belgian compulsory health care system.[bb] This implies that many de facto households are composed of individuals that are members of different sickness funds.[cc] In this eventuality, the sickness fund of the oldest head of a sickness fund household (as defined in section 2.2.1) will administrate this de facto household.

2.4.2 The notion of "income" in the MAB

The basic concept within the MAB is the net taxable income (NTI) of the de facto household. Because a de facto household does not necessarily match with a fiscal household[dd] (as it does not need to match with a sickness fund household either), the calculation of that income may be difficult if it is not possible to individualise all fiscal revenues. These non-individualised fiscal revenues are divided in proportion to the revenues from professional activities of each fiscal household member.

In some cases, a declaration on honour[ee] is necessary:

- Some individuals (with a stable and low income) do not have to fill in a tax declaration. The sickness fund will then determine the revenue based on a reference year, namely the MAB-year minus 3.
- Some fundamental changes in the income status of an individual in the MAB-year compared to the reference period (e.g. retirement, long-term unemployment), can also lead to a declaration of honour about the actual income.

It is important to note that the reimbursements of the income MAB of year T are granted on the basis of the NTI of year T-3. This means that reimbursement decisions may be based on obsolete income information. If there are significant changes in the income position of the household between T-3 and T, it is possible that households receive MAB-reimbursements in year T that they would not have received if their (higher) NTI of year T were known – and, vice versa, that some households are not entitled to reimbursements to which they would be entitled on the basis of their (correct) lower income in year T. The former situation will occur more often in the normal situation of a growth of average incomes over time: this makes the MAB more generous. The problems related to the latter situation can to some extent be avoided by the possibility of the declaration of honour.

2.5 THE COVERAGE OF THE MAB

The MAB does not cover all co-payments for health care. Yet, from 2002 onwards, there has been a constant willingness of the government to integrate progressively into the MAB-counters the co-payments of more and more medical acts, at least in so far as this integration was possible within the limits of the budget (section 2.5.1).

The most important elements of the co-payments that are not yet covered are summarized in section 2.5.2. Since 2002, there has always been a complex interaction between the MAB and the drug reference pricing system (section 2.5.3).

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aa The most important of these groups are sea- and river men, gipsies, fairground people and persons without a domicile.

bb Basically, a head of a sickness fund household can change sickness fund every quarter if (s)he (and the household) has been member of his/her actual sickness fund for at least one year.

cc In our data this is true for 10% of the households in the general regime (i.e. without the self-employed).

dd A married couple (= one fiscal household) of which one of the partners is staying in a nursing home, will constitute two de facto households. A married couple (= one fiscal household), in which each of the partners has a professional activity, will constitute one de facto household, but two sickness fund households. We will discuss these different complications in more detail in the next chapter.

ee False declarations generate administrative fines of €90 (up to €370), with a possible doubling of these figures in case of multiple offences.

This issue illustrates in a subtle way the attitude taken by the policy makers towards the individual responsibility of the patients. Finally, we briefly return to the specific situation of the self-employed (section 2.5.4).

The consequences of taking up an additional medical act in the MAB-counter should be analysed carefully. To give an example: on March 1st 2003 it was decided to reimburse (only) 10% of the cost of endoscopic and viscerosynthesis materials, while the other 90% were included into the MAB-counter. It is important to realize that, despite the inclusion in the MAB-counter, these 90% still had to be paid by all patients with a total amount of co-payments below the ceiling. Moreover, the minimal public reimbursement led to large extra costs for the supplementary health insurers, who generally only reimburse patients' OOP-expenses if the compulsory health insurance reimburses the (para-) medical act. As a matter of fact, there are also situations in which a co-payment may be reimbursed twice, once by the MAB and additionally by the supplemental insurance. In 2006 a procedure was launched to avoid such double payments.

2.5.1 Gradual extension of the coverage since 2002

We already described how the MAB grew out of the social and fiscal exemption that had been introduced in the mid-nineties. While the coverage of these exemption schemes was incomplete, the coverage of the MAB has been gradually extended since 2002. The data that will be analysed in the following chapters refer to the year 2004. We therefore give first an overview of the coverage of the MAB in that year of analysis:

IN MAB	**NOT IN MAB**
AMBULATORY SECTOR	
Drugs	
Drugs category A	Drugs category Cs
Drugs category B	Drugs category Cx
Drugs category C	Some other specific items
Medical fees	
General Practitioner	Some specific items
Specialists	
Paramedical fees	
Nursing care	
Midwifes	
Physiotherapists	
Bandagers	
Orthopaedists	
Opticians	
Audiologists	
Speech therapists	
Dental Care	
Dentist fee	
Dentures	
Rest	
Lump sum emergency	Travelling expenses
Dialysis	Rest and nursing homes for the elderly
Radiology	Day-care centres for the elderly
Clinical biology	Psychiatric nursing care
Rehabilitation	
HOSPITAL SECTOR	
Medical and paramedical fees	**Some specific items**
Drugs	
Daily lump sum drugs	
Implants	

Implantable heart defibrillators	Implants article 28
Implants article 35	Delivery margin
Implants article 35 bis	
Daily lump sums	
General hospital	
Psychiatric hospital <= 1y	Psychiatric hospital > 1y
Medical paediatric centre	**Some specific items**
Rest	
Guard duty and supervision	
Clinical biology	
Dialysis	

We now give a chronological overview of the most important measures introduced since 2002. For the sake of completeness and transparency, we also repeat in this overview the major regulatory changes that have already been described in the previous sections.

2.5.1.1 Introduction of the MAB (2002)

- As a precursor of the MAB, a "one-shot operation", including the ambulatory drug co-payments of 2001 for the lowest income households, was launched. This operation took place in 2002. From 2002 onwards, co-payments for A- en B-class drugs were included in the "regular" MAB-counters.
- 10.09.2002: an (optional) co-payment that was invoiced to patients using unnecessarily the emergency rooms of hospitals, was integrated in the MAB-counters.

2.5.1.2 Measures taken in 2003-2004

- 01.01.2003: co-payments of C-class drugs are introduced in the MAB-counters
- 01.03.2003: a reimbursement of 10% of the cost of endoscopic and viscerosynthesis materials (article 35bis) is introduced. The remaining co-payments (up to 90% of total cost) are introduced in the MAB-counters. Since then – in line with the budgetary possibilities - the maximum co-payment of 90% has been lowered to 85% and most of the new materials were introduced with a 25% co-payment level.
- 01.01.2004: co-payments for hospital stays beyond the 91st day in an acute hospital are included in the MAB-counter. Before this date, there was an upper limit of 90 days.
- 01.01.2004: the individual right of a child to MAB-reimbursement, regardless of the family income, is brought from 16 years to 19 years (18 years and 364 days).

2.5.1.3 Measures taken in 2005-2006

- *01.01.2005*: integration of the fiscal MAB into the income MAB. The highest income level (with a reimbursement level of €2 500) is abolished.
- 01.01.2006: co-payments for drugs prepared by pharmacists (magistrale bereidingen, préparations magistrales) are integrated in the MAB-counters.
- 01.01.2006: benefit of social MAB in a family is restricted to those benefiting from the preferential tariff, their partner and their dependents.
- 2006: a procedure is launched to avoid double payments (by MAB and by the supplementary health insurance).
- 01.01.2006: integration of the delivery margin of medical devices and implants into the MAB.
- 2006: individuals living in an organized community (e.g. convents) are considered as an individual.

2.5.1.4 Measures taken in /decided for 2007 and 2008

- 01.01.2007: reimbursement of some classes of D-medication (painkillers) for chronically ill patients: the reimbursement rate is set at 20%, and the remaining 80% is integrated in the MAB-counters.
- A similar mechanism is also introduced for so-called "active bandages".
- 2008: the safety margin for medical devices and implants will be introduced into the MAB.

2.5.2 What is not (yet) covered?

Despite the gradual extension of the MAB-coverage, some important categories of OOP-payments still are not included. First, some (legal) co-payments remain out of the MAB:

1. Some co-payments are considered to be induced mainly by the patients themselves: this is the case for the (high) co-payments linked to medication with relatively low therapeutic added value (the so-called Cs, Cx and D-drugs[ff]), which is considered as "comfort therapy".
2. The co-payments of patients residing longer than a year in psychiatric institutions are not (yet) integrated in the MAB. Budgetary considerations certainly played a role in that choice. Moreover, to some extent these co-payments could be seen as accomodation expenses, similar to the hotel fees for residents of rest and nursing homes for the elderly, which are not covered either.

Second, there are the supplements, i.e. the amounts that are charged by the health care providers to the patients, but that are not officially registered as tariffs in the nomenclature. Quite logically, supplements are not taken into account in the MAB-counters and remain therefore at the expense of the patients (or of their supplemental insurance). In recent years, there has been a growing concern over the increase in these supplements.[I]

A special case are the OOP-payments for costly implants (like knee and shoulder prostheses). Officially, the delivery margin (10% of the price) and the safety margin are not considered as co-payments, but as supplements – however, they are very strictly regulated and, as we have seen before, have been integrated in the MAB (the delivery margin since 2006) or will be integrated in the MAB (the safety margin from 2008 onwards).[gg]

2.5.3 The drug reference pricing system

The drug reference pricing system was introduced on June 1st 2001, almost at the same time as the MAB. Not only was the timing of the launching of both structural measures similar, the constant interaction between the two measures and their parallel extension over the years make it almost impossible to evaluate the impact of the MAB without at the same time considering carefully the drug reference pricing system.

This drug reference pricing system uses the following mechanism: when in a class of drugs (ATC-5 level), the brand drug patent expires and generic alternatives are available on the Belgian market with the same chemical substance name, the same dose per unit, the same galenic form, the same administration route and the same biological effects, there must be a minimum price difference between the public price of the brand drug and its generic alternative.[hh] For this class of drugs, the maximum reimbursement level is then set at the maximal admitted public price level of the generic alternative. Patients buying the brand drug will have to pay the co-payment (the price of the generic alternative minus the reimbursement basis) plus the price difference between the brand price and the generic price.

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ff Remember that a special regulation for painkillers has been introduced in 2007 for the chronically ill.

gg Since January 1, 2006 the delivery margin is no longer defined as a supplement but as a co-payment. The effects of the integration of these margins in the MAB will be analysed in detail in chapter 6.

hh At the start of the system in June 2001, the minimum price difference was 16%. It gradually increased to 20% and 26% and finally reached 30% since July 1st 2005.

Every six months (on the 1st of January and the 1st of July), the government publishes a list of all the therapeutic classes falling under the reference pricing system. Every month, pharmaceutical firms are allowed to change (lower) their prices: once off patent, many brand drugs lower their public price to a level that is similar to that of the generic alternative, in order to maintain their market share. This combined possibility of a regularly changing number of therapeutic classes falling under the reference pricing and of monthly price changes for every drug in this therapeutic class, make it very hard to simulate the budgetary impacts of the system and the resulting financial burden for the patients.

At the introduction of the system, the government had three goals:

1. to realize substantial budgetary savings by lowering the reimbursement basis in all therapeutic classes where the brand drug was off patent and where a generic alternative was available;
2. to stimulate price competition between brand drugs and generic drugs, so that off patent brand drugs would adapt their prices to that of the generic competitor in its therapeutic class;
3. to stimulate the dialogue between the prescriber and the patient, inducing physicians to switch to cheaper drugs (generic drugs or brand drugs that are lowered in price), given the increased potential financial burden for the patient.

The first two (budgetary) goals were achieved in a quite successful way: the stagnation of drug expenditures observed in 2005 and 2006 was largely caused by the system of reference pricing. However, for the patient, the situation may be less positive: several studies of the Christian and Socialist Mutualities[ii] pointed out that, due to conservative prescription behaviour, the global financial burden for the patient had become more important in the reference pricing system than before. This was certainly the case for drugs reimbursed in reimbursement category A: although category A contains vital lifesaving drugs with no co-payment, an amount of nearly €3 million of supplements due to the reference pricing system was paid by the patient in 2005 in this specific category.[jj] In fact, the government had taken a somewhat ambiguous attitude towards the individual responsibility of the patients, since the difference between the brand drug price and the generic price – which has the official status of a "supplement" and not of a co-payment – is taken into account in the MAB-counters. This may seem surprising, since the price difference is clearly an avoidable expenditure. Such an avoidable expenditure should not have been included in the MAB-counters, if the government really had wanted to hold the patients responsible, or, had taken the more logical position of holding the doctors financially accountable for their expensive drug prescribing.[kk] In chapter 7, we will come back to the broader ethical issues concerning solidarity and individual responsibility that are raised by the present design of the MAB.

2.5.4 The self-employed

As mentioned before, the self-employed used to be uninsured for the minor risks in the compulsory health insurance system. For the MAB-counters, this situation led to a specific counting procedure. About 75% of the self-employed are covered by a voluntary insurance against those minor risks with their sickness fund. Therefore, for these persons, the sickness fund knows their co-payments for minor risks. These are then added in the MAB-counter together with the other co-payments until the MAB-ceiling is reached. Once the ceiling is reached, however, the sickness fund will only reimburse the co-payments of the acts reimbursed by the compulsory health care insurance (and not the co-payments linked to the minor risks). This specific rule is no longer relevant, however, as from January 1st 2008 on, all self-employed benefit from reimbursement of minor risks in the compulsory health care system.

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ii Cornelis (2006)[6]; Diels et al. (2004)[7]; Boutsen et al. (2003)[8].

jj Cornelis (2007)[9] p10 – Table 3 (Figures LCM extrapolated to national level estimates).

kk A similar ambiguity was already present when the co-payments for unnecessary visits to an emergency room were included in the MAB-counters in 2002.

2.6 THE WORKING OF THE MAB: SOME GLOBAL FIGURES

We conclude this chapter with a description of some aggregate data on total MAB-reimbursements and on the number of households and persons concerned. The data we discuss are the official RIZIV/INAMI figures on realized expenditures. We only focus on the MAB-reimbursements that are realized by the sickness funds. Therefore, until 2004 our figures do not include the fiscal MAB.

Table 2 shows the number of households and the number of individuals that have received MAB-reimbursements. In 2006 more than 561 000 households and more than 1 million individuals were concerned. Already in 2002, about 163 000 households with low and modest incomes received MAB-reimbursements and this number has kept increasing over time. Remember that before the introduction of the MAB, these households were only entitled to the fiscal exemption, with delayed reimbursements. Remark the shift of households and persons from the social to the income MAB in 2006, which is at least partly explained by the restriction of social MAB-entitlements, as described before.

Table 2. Number of households and persons with MAB-reimbursements in the period 2002-2006

	2002	**2003**	**2004**	**2005**	**2006**
Number of households					
Social MAB	165 249	194 667	204 456	230 787	168 865
Income MAB (€450)	163 294*	94 737	91 398	116 258	134 995
Income MAB (€650)		119 202	123 577	143 477	168 397
Income MAB (€1 000)				43 594	54 039
Income MAB (€1 400)				11 861	15 398
Income MAB (€1 800)				16 542	20 058
Total number of households	**328 543**	**408 606**	**419 431**	**562 519**	**558 647**
Number of persons					
Social MAB	397 625	418 458	425 967	484 054	296 242
Income MAB (€450)	295 217*	154 626	150 139	199 858	236 260
Income MAB (€650)		219 849	233 353	274 553	327 469
Income MAB (€1 000)				91 943	114 519
Income MAB (€1 400)				26 199	34 445
Income MAB (€1 800)				41 373	50 311
Children increased child allowance	1 036	1 609	774	795	776
Children	2 890	4 001	5 432	6 224	6 484
Total number of persons	**696 768**	**798 543**	**815 665**	**1 124 999**	**1 026 967**

*: combined figure for income MAB (€450) and income MAB (€650)
Source: RIZIV/INAMI.

Table 3 shows that total MAB-reimbursements have increased considerably over time. For the social, (low and modest) income and child MAB they increased from €154 million in 2003 to €203 million in 2006. The MAB-reimbursements for larger incomes (the extension of the fiscal MAB, as described before) amounted to €39 million in 2005 and €49 million in 2006. In 2006, MAB-reimbursements took about 1.4% of the total health care budget. It is obvious that the increase in total MAB-reimbursements over time is driven to a large extent by the different regulatory changes and extensions described in the previous section. Note again the shift from the social MAB to the (low and modest) income MAB in 2006. It is remarkable, however, that already before that shift, the income MAB has always been more important than the social MAB. This is another indication that the introduction of the MAB has really made a difference for the weaker socio-economic groups. We will analyse the effects of the different regulatory changes in more detail in chapter 6. In chapter 5 we will investigate how important have been the induced changes in consumption behaviour.

Table 3. MAB-reimbursements in the period 2002-2006

	2002	2003	2004	2005	2006
Total reimbursements					
Social MAB	50 599 410	62 870 445	75 641 720	77 699 677	52 815 981
Income MAB (€450)	68 162 136*	36 180 585	40 851 030	44 361 488	57 430 090
Income MAB (€650)		53 925 349	62 480 645	69 187 399	90 669 740
Income MAB (€1 000)				22 708 196	28 751 880
Income MAB (€1 400)				6 588 331	8 602 173
Income MAB (€1 800)				9 789 131	11 268 335
Increased child allowance	350 690	276 841	284 734	348 892	287 272
Children	708 292	983 734	1 567 316	1 814 462	1 905 216
Total	**119 820 528**	**154 236 953**	**180 825 444**	**232 497 596**	**251 730 686**
Average reimbursements per household (if >0)					
Social MAB	306.20	322.96	369.97	336.67	312.77
Income MAB (€450)	417.42*	381.91	446.99	381.58	425.42
Income MAB (€650)		452.39	505.60	482.22	538.43
Income MAB (€1 000)				520.90	532.06
Income MAB (€1 400)				555.46	558.66
Income MAB (€1 800)				591.77	561.79

*: combined figure for income MAB (€450) and income MAB (€650)
Source: RIZIV/INAMI.

Table 3 also shows the average reimbursements per household for those households that did receive reimbursements. The average amount of MAB-reimbursements is larger for the income MAB than for the social MAB. While the number of high-income households and individuals affected by the MAB is relatively low (see Table 2), the average reimbursements per household are relatively large for these groups (Table 3). A better insight into the possible reasons for these findings can only be obtained by a detailed analysis of individual data. Such an analysis will be the main subject of the following chapters.

2.7 CONCLUDING REMARKS

In this chapter, we have given an overview of the regulation with respect to the MAB and of its development over time. In 2006, more than one million individuals were benefiting from MAB-reimbursements and the aggregate budgetary cost of this operation was considerable: about €252 000 000. Moreover, since 2002 the cost of the MAB has been increasing steadily. While these aggregate budgetary figures are revealing, they do not allow us to evaluate the effectiveness of the MAB as a social protection mechanism. In the following chapters we will go beyond these aggregates and look in detail at the effects of the MAB on OOP-payments for the weaker social groups and on the accessibility of the health care sector. Our analysis will focus on two sets of questions:

1. Has the gradual extension of the MAB-coverage paid off in terms of a better protection for the weaker patients? How important are the main remaining gaps in the MAB-coverage? And how do co-payments interact with supplements?
2. The reimbursement structure of the MAB makes extensively use of socio-economic indicators and of income information. Does it succeed in protecting the weakest socio-economic groups? And what about the chronically ill in the higher income groups? Is the present targeting optimal from a social point of view? Would it be possible to improve the social performance of the MAB by fine-tuning the income thresholds and the co-payment ceilings?

Key points

- **The MAB consists of three subsystems: the social MAB which imposes a ceiling of €450 for households with an individual entitled to preferential treatment (now also OMNIO); the income MAB which guarantees reimbursements to households with co-payments above an income-dependent ceiling (varying from €450 to €1 800); the MAB for children which is an individual right guaranteeing reimbursement for co-payments exceeding €650.**
- **Until 2004 the income MAB was limited to the two lowest income categories. For higher income groups there was a fiscal MAB, executed by the fiscal administration and based on the concept of the fiscal (instead of the de facto) household.**
- **The coverage of the MAB has gradually been extended over time. This has also increased its budgetary cost.**
- **In 2006 more than one million persons were benefiting from MAB-reimbursements. The aggregate cost of the system was about €252 000 000, i.e. 1.4% of the total health care budget.**

3 DESCRIPTION OF THE DATA

As has been made clear in the previous chapter, a thorough analysis of the working of the MAB requires the use of individual data. Moreover, it is necessary to combine information about health care expenditures and about OOP-payments (available at the sickness funds) with income information (which is available through the fiscal administration). For the purposes of this project, a large sample of individuals has been drawn by the sickness funds and these have afterwards been linked to the fiscal data. Until now, such a linkage had never been realized in Belgium. We give a brief overview of the resulting dataset in section 3.1. As already explained in chapter 2, the MAB-regulation involves different household definitions, and when linking the data and interpreting the results it is important to distinguish these carefully. Some of the issues are described in section 3.2. Finally, section 3.3 describes the weighting procedure that has been used to extrapolate the sample information to the population level. In this chapter, we restrict ourselves to the information that is necessary for a correct interpretation of the results in the following chapters. More detailed information on the procedures followed for cleaning the data and selecting the relevant observations is given in the Technical Appendix.

3.1 LINKING SICKNESS FUND DATA AND FISCAL DATA

We first describe the IMA-data and then the fiscal dataset. The third subsection gives more details about the available information on health care expenditures and in the fourth subsection, we explain how we derived some indirect information about the morbidity of the individuals.

3.1.1 The sickness fund data

Since in principle all persons living in Belgium are insured by one of the sickness funds, the joint IMA-data cover the whole population. From this population a random panel of about 300 000 individuals for the years 2002, 2003 and 2004 was drawn. For our analysis of the working of the MAB, we mainly work with the data for 2004. Each individual had a chance of 1/40 of being included in the sample, except for the elderly (65 and older) that had a chance of about 1/20.[II] This oversampling was applied to get a larger number of observations of the elderly, which on average have larger health care expenditures. For all the individuals in this original sample we have, besides all the demographic and socio-economic information that is available at the level of IMA, also detailed information on health care expenditures.

For an analysis of the MAB, we need of course information at the household level. A MAB-household consists of all persons that are registered in the national register at the same address on January 1st of the year (see chapter 2). Therefore, for the individuals in the sample also all the members of their de facto household were drawn. For these additional observations, we have all the demographic and socio-economic variables that are also available for the original sample. However, the data on health care expenditures are less detailed. We return to this in section 3.1.3. The total original sample then consists of about 850 000 individuals. In the Technical Appendix, we explain in some detail how this sample was cleaned.

The IMA-dataset does not contain information on income. However, it contains a lot of other information on the socio-economic status of the individuals. This information can be derived from the administrative categories that are needed for application of the legal rules, including those of the MAB. In the following chapters, we will use the following variables:

- Age and gender. We group age in categories of five years (separately for males and females), with a special variable for the children of less than one year old.
- Retired.
- Early retired.

[II] More detailed information about the (over)sampling procedure is given in the Technical Appendix.

- Single-parent households (as these households are well known to be among the most vulnerable from an economic point of view).
- Entitled to preferential treatment (the categories that were relevant in 2004 have been explained in chapter 2).
- Entitled to the guaranteed minimum income, the guaranteed income for elderly or receiving a subsistence income from the Social Services (OCMW/CPAS).
- Persons with disabilities, with a specific additional variable for those who are in their first year of disability and have in that year more than 180 disability days.

We summarize some descriptive information about these variables in Table 4. The table shows the number of households with at least one individual in that situation and the extrapolation of that number of households to the overall population. The weighting procedure used for this extrapolation will be explained in section 3.3. Note that Table 4 also contains the variable "unemployed". This variable was derived from the fiscal dataset (described in the following subsection): it is an indicator for households that have to live exclusively from an unemployment benefit.

Table 4. Demographic and socio-economic variables

	# households in sample (no weights)	# households in overall population (using weights)
Total	**255 391**	**4 086 295**
0_M	3 976	46 232
0_V	3 720	43 036
01_05_M	20 248	203 498
01_05_V	19 480	194 662
06_10_M	21 764	205 916
06_10_V	20 984	199 037
11_15_M	23 475	222 157
11_15_V	22 618	213 859
16_20_M	22 248	220 456
16_20_V	21 098	209 905
21_25_M	19 518	241 880
21_25_V	19 527	246 973
26_30_M	17 353	266 130
26_30_V	18 397	262 845
31_35_M	21 136	295 387
31_35_V	23 169	285 530
36_40_M	24 369	308 401
36_40_V	26 216	301 238
41_45_M	25 507	309 098
41_45_V	26 660	309 980
46_50_M	22 978	293 785
46_50_V	22 749	294 859
51_55_M	18 862	271 282
51_55_V	18 094	277 006
56_60_M	15 449	256 683
56_60_V	15 297	265 634
61_65_M	12 737	224 141
61_65_V	14 678	235 898
66_70_M	18 450	191 163
66_70_V	20 718	231 679
71_75_M	17 145	180 934
71_75_V	19 519	232 893
76_80_M	12 541	137 082

	# households in sample (no weights)	# households in overall population (using weights)
76_80_V	15 379	200 425
81_85_M	7 396	84 534
81_85_V	10 654	152 010
86_90_M	2 017	25 047
86_90_V	3 878	60 817
91_95_M	710	9 860
91_95_V	2 116	33 610
95+_M	108	1 600
95+_V	549	8 622
retired	80 997	1 099 889
early retirement	6 426	110 091
single parent hh	12 435	194 673
unemployed	12 671	250 695
preferential tariff	56 165	910 190
guaranteed income	11 675	197 618
disability	18 279	295 720
first year disability	1 993	29 170

3.1.2 The fiscal data

Income is the most natural indicator of the economic power of households. Moreover, the net taxable income plays an essential role in the MAB-regulation and the fiscal MAB was in 2004 executed by the fiscal administration (see chapter 2). It was therefore essential to complement the IMA-data with information on incomes. For this purpose the extended IMA-sample for 2004 was linked (with a privacy-preserving procedure) to the IPCAL-dataset containing the fiscal information for the income year 2004 (year of taxation 2005), available at the Ministry of Finance. We therefore have received for all the individuals in the extended sample (i.e. including the MAB-household members) information on their incomes (as known to the fiscal administration) and on the fiscal MAB-reimbursements received. For individuals without an income tax assessment (and therefore not present in the fiscal data), the income was set equal to zero.[mm] The information from the Ministry of Finance is structured at the level of the fiscal household, and not at the level of the MAB-household. We could however start from this information to calculate the net taxable income (NTI) at the level of the MAB-households. More information on the exact relationship between the different household concepts is given in section 3.2.

In most of our analyses, we will work with the net taxable income as an indicator of the financial strength of the households. In some cases we will correct NTI for household size and composition. We then calculated equivalent incomes, where the equivalence scale used is the modified OECD-scale. This scale gives a weight of 1 to the first adult, a weight of 0.5 to additional adults and a weight of 0.3 to the children. Usually incomes will be grouped. In Table 5, we give some relevant descriptive information, both about the distribution of NTI and about the distribution of equivalent NTI in our sample.

[mm] A more detailed description of the characteristics of these individuals can be found in the Technical Appendix.

Table 5. Income variables

		no weights	using weights
		# households	
ALL		255 391	4 086 295
net taxable income	missing	1 007	41 827
	= € 0	10 120	253 668
	] € 0 - € 5 000]	3 053	72 219
	] € 5 000 - € 10 000]	13 210	321 498
	] € 10 000 - € 15 000]	38 995	730 359
	] € 15 000 - € 20 000]	30 492	494 792
	] € 20 000 - € 25 000]	26 269	412 313
	] € 25 000 - € 30 000]	20 706	317 899
	] € 30 000 - € 35 000]	17 926	257 792
	] € 35 000 - € 40 000]	16 610	228 698
	] € 40 000 - € 45 000]	14 769	196 331
	] € 45 000 - € 50 000]	12 556	162 328
	] € 50 000 - € 60 000]	18 506	230 770
	] € 60 000 - € 70 000]	11 627	139 270
	] € 70 000 - € 90 000]	11 671	134 535
	> € 90 000	7 874	91 995
equivalized net taxable income	missing	1 007	41 827
	= € 0	10 120	253 668
	] € 0- € 5 000]	7 943	116 353
	] € 5 000 - € 10 000]	40 511	644 503
	] € 10 000 - € 15 000]	63 109	988 958
	] € 15 000 - € 20 000]	45 042	665 038
	] € 20 000 - € 25 000]	32 748	497 446
	] € 25 000 - € 30 000]	22 153	345 354
	] € 30 000 - € 35 000]	13 227	209 533
	] € 35 000 - € 40 000]	7 793	125 113
	] € 40 000 - € 50 000]	6 766	112 114
	] € 50 000 - € 70 000]	3 424	58 283
	> € 70 000	1 548	28 105

3.1.4 The information available about health care expenditures, OOP-payments and MAB-reimbursements

3.1.4.1 Health care expenditures and OOP-payments

Health care expenditures consist of reimbursements of the RIZIV/INAMI, co-payments and supplements. For the individuals in the original sample, this information is available at the most detailed level possible, i.e. at the level of the specific services included in the nomenclature. In order to keep the dataset tractable, for the individuals in the extended sample (i.e. the MAB-household members), the expenditure data were aggregated in 22 categories. A detailed overview of the content of these 22 categories can be found in the Technical Appendix. For each category we can distinguish between the cost for ambulatory and for hospital services. Moreover, the total co-payments per category are divided into the co-payments included in the MAB and the co-payments excluded from it in 2004. Some specific services were kept separate because they had been the subject of political debate or of recent changes in the MAB-legislation. This makes it possible to analyze these changes in more detail with microsimulation techniques (see chapter 6).

The IMA-database is the most complete database available in Belgium with information on individual health care expenditures and OOP-payments of patients. However, there are some remaining weaknesses.

In the first place, we do not have information at the individual level on the RIZIV/INAMI-costs of a hospital stay due to the new financing rules of hospitals since July 1st, 2002. Our individualized RIZIV-expenditures are therefore a serious underestimate of the health care cost for all the individuals with a hospital stay in the relevant year. Fortunately, this problem does not hold for their OOP-payments (co-payments and supplements), as these are available at the level of the individual patient. Since the latter are the focus of our analysis, the lack of completely individualized information on total health care reimbursements is for us not really an important problem. [nn]

A second lacuna of the IMA-dataset relates to the self-employed without rights for their minor risks in the compulsory system. Since we do not have any information on their expenditures for minor risks, we crucially underestimate their OOP-payments. We therefore omitted from the sample with which we work all the households with at least one self-employed without rights for minor risks. These omitted households are 12.7% of the households in the sample. Omitting them does not really limit the relevancy of our work, because, as mentioned in the previous chapter, the distinction between minor and major risks for the self-employed is no longer relevant. Since January 1st 2008, all the self-employed are covered in the compulsory system.

Third, and most importantly for our purposes, an important gap in the IMA-data is the lack of information on some categories of OOP-payments. While the information on co-payments is generally reliable and complete, the information on supplements is necessarily incomplete. The supplements raised in a hospital setting are stated on the hospital's invoice. This document is made available to the patient, who has to pay the amount of co-payments and/or supplements, and to the sickness fund of the patient, who pays the part covered by the health insurance (third-party payer). Of course, there may be differential reporting behaviour between hospitals, but in general, the information on hospital supplements can be considered as reasonably complete and reliable. This is not true for the supplements in the ambulatory sector, however. There is no regulation on the information a GP or medical specialist should provide. [oo] Moreover, there is no information at all on non-prescription or OTC (over-the-counter) drugs. Other categories of personal payments (that cannot be considered as supplements in the strict sense) are not (or only partially) registered and are therefore not included in the data. A first example are items which are not taken up in the nomenclature, such as orthodontics for adults and acupuncture. A second (and more important) example are the hotel costs of nursing home patients, which may represent a very important financial burden for some specific socially fragile groups.

A fourth lacuna in our data is the lack of information on supplemental insurance. While we have information on the supplements invoiced by the hospitals, we do not know whether these had to be paid really "out-of-pocket" by the patients or were on the contrary reimbursed by supplemental insurance. Supplemental insurance premiums are usually risk-related. Moreover, a previous study has shown that the take-up of supplemental insurance is biased towards the higher income and more educated groups. [l]

3.1.4.2 MAB-reimbursements

The IMA-data contain information about the MAB-status of the individuals, more specifically, on whether they are entitled to the social MAB or to the income MAB. They also specify the exact amount of MAB-reimbursements that were paid by the sickness funds. The reimbursements from the fiscal MAB are given in the fiscal data per fiscal household, and were recalculated by us at the level of the MAB (de facto) household.

[nn] However, our data do not allow us to distinguish between stays for more than one year in general hospitals and in psychiatric hospitals. Co-payments related to the former are included in the MAB-counter, co-payments related to the latter are not. We treated them all as not included in the MAB. We will therefore underestimate the MAB-reimbursements for long hospital stays (by about 5%), and overestimate the OOP-payments after MAB for individuals with a long hospital stay.

[oo] The trend of shifting health care from the hospitals to the ambulatory sector has made (and will make) this lacuna more relevant over time.

One should be aware that not all MAB-reimbursements in our data are related to co-payments incurred in 2004. Co-payments paid at the end of the year t may be reimbursed by the sickness fund in the beginning of the year t+1. Consequently, part of the MAB-reimbursements realized in 2004, relate to co-payments made in 2003 and part of co-payments incurred in 2004 were reimbursed only in 2005. Moreover, the data for 2004 reflect to some extent the effects of the transition period related to the integration of the fiscal MAB. In the descriptive analysis of chapter 4, we will leave the data as they are. For the microsimulation analysis in chapter 6, the data must be cleaned. We will explain this cleaning procedure in section 6.1.

3.1.5 Morbidity information

Since the basic idea of the MAB is to impose a ceiling on co-payments, this by itself means that it protects the chronically ill against extreme co-payments. Some of the ceilings are rather high, however (in 2004 there was still a ceiling of €2 500). Moreover, not all OOP-expenses are included in the MAB-counter and it can be expected that the chronically ill have also larger expenses for these items not included in the MAB. On the other hand, the MAB-legislation heavily relies on socio-economic and income criteria and (apart from the lump sums mentioned in chapter 2) there were in 2004 no explicit measures for the chronically ill. It would therefore be interesting to consider explicitly their financial burden. Here we are confronted with another limitation of our data: we hardly have any direct information on the illness of the individuals in our sample.

Table 6. Morbidity variables

		# households in sample (no weights)	# households in overall population (using weights)
ALL		**255 391**	**4 086 295**
lump sum B or C		3 635	44 753
physiotherapy-E		7 810	105 795
increased child allowance		2 311	23 518
integration allowance handicap		5 123	76 155
help for the elderly		7 332	103 550
long hosp stay		2 544	43 476
multiple hosp stay		4 150	59 904
homes for the elderly		7 910	137 576
psychiatric nursing home		263	7 873
chronic dialysis		213	3 221
psychotherapy		16 012	273 471
psychiatric hospital	<= 1 j	1 337	29 863
	2 - 5 j	154	4 175
	>= 6 j	109	2 810
antibiotics DDD>=	1	102 178	1 591 467
	30	23 486	375 701
	90	2 677	43 240
	180	596	9 489
antihypertensives DDD>=	1	68 844	1 087 402
	30	65 242	1 028 180
	90	59 512	935 794
	180	51 480	806 612
cholesterol lowering medicine DDD>=	1	24 284	373 842
	30	24 205	372 488
	90	23 584	362 587
	180	20 452	313 277
COPD DDD>=	1	27 611	422 039
	30	21 255	328 014
	90	10 830	167 865
	180	7 001	109 163

		# households in sample (no weights)	# households in overall population (using weights)
antidepressants DDD>=	1	32 028	554 054
	30	26 673	464 058
	90	19 507	341 346
	180	13 847	242 424
antidiabetics DDD>=	1	13 637	213 794
	30	13 269	207 916
	90	11 606	181 659
	180	9 344	145 821
stomach medicine DDD>=	1	36 581	593 816
	30	27 318	443 353
	90	19 038	309 011
	180	12 858	208 500
Crohn DDD>=	1	1 369	22 509
	30	1 194	19 658
	90	934	15 426
	180	660	11 039

It is possible, however, to derive some indicators of chronic illness from the administrative and expenditure information that is available in the IMA-data. Descriptive information about these indicators is given in Table 6, which is constructed in the same way as Tables 4 and 5. More specifically, we will work with the following variables:

- Entitled to the lump sum B or C for nursing care at home.
- Entitled to an allowance for E-physiotherapy (reserved to patients with one out of a list of 11 chronic illnesses).
- Entitled to increased family allowances because of a handicap.
- Entitled to an integration allowance for the handicapped.
- Entitled to an allowance for help for the elderly (handicapped).
- Having had a long stay (≥ 120 days) in the hospital.
- Having had multiple stays (≥ 6) in the hospital.
- Resident in a rest or nursing home for the elderly (ROB/RVT, MRPA/MRS).
- Resident in a psychiatric nursing home (PVT, MSP).
- Chronic dialysis patient, defined as having had a minimum of six consecutive weeks of renal dialysis (*).
- Patients with positive expenditures for psychotherapy provided by a recognized specialist or psychiatrist (*).
- Patient in a psychiatric hospital (*):
  - for less than one year.
  - between two and five years.
  - for six years or more.

The asterisked variables are based on the detailed expenditure information in the nomenclature, and could therefore only be constructed for the individuals in the original sample (and not for the MAB-household members). The same is true for the information derived from the consumption of pharmaceuticals pointing to some pathology. We defined the following groups (where the symbols refer to the ATC-classification used):

- Antibiotics (J01) (*)
- Antihypertensives (C03, C07, C08, C09) (*)
- Cholesterol-lowering medicine (C10AA) (*)
- Asthma and chronic obstructive pulmonary disease (R03A, R03B) (*)

- Antidepressants (N06) (*)
- Antidiabetics (A10A, A10B) (*)
- Stomach medicine (A02A, A02B) (*)
- Medicine for Crohn disease (L04AA11, L04AA12, L04AA13, A07EC01, A07EC02) (*)

Since we know the doses bought by the individuals in the original sample, we will distinguish in each case four categories: at least one 1 DDD (daily defined dose), at least 30 DDD, at least 90 DDD, at least 180 DDD. In fact, only the two latter categories can really be seen as chronically ill. As Table 6 shows, some of the drugs in our list are very common even for high dosage (typical examples are antihypertensives and cholesterol-lowering medicine). In some of the other cases, however, consuming more than 90 and a fortiori more than 180 DDD is a real indication of chronic illness: this is probably the case for antibiotics, but also for COPD and antidepressants.

For all the asterisked variables, the extrapolated number of households in Table 6 has to be interpreted carefully: it gives the number of households with at least one member with the corresponding characteristic, as we can identify them in our sample. The information that we will give later on these specific groups is reliable as a description of the situation of these groups themselves. However, since information on other household members is missing, the extrapolated numbers are an underestimate of the number of households with the corresponding characteristic in the population.

3.2 THE DEFINITION OF HOUSEHOLDS

As shown before, the MAB-regulation involves different household concepts, and the many exceptions to the general rules complicate the system substantially. Moreover, for our analysis we had to combine the information from two administrative databases with sickness fund and fiscal data respectively. Both data sources have their own specific finality and their own logic. This section aims at describing the different household concepts and their interactions for the year 2004 in order to understand better the results and interpretations of the following chapters.

The de facto household is the relevant household concept for the social MAB. All reimbursements realized in 2004 are executed by the sickness fund administrating the file of that household. For co-payments realized in 2002, 2003 or 2004 and invoiced in 2004 there is an intervention from the fiscal administration and the fiscal household is the relevant household concept.

The de facto household is also the relevant concept for the income MAB, but there are some exceptions which explain the presence of MAB reimbursements from the fiscal administration. First, for co-payments realized in 2002, 2003 or 2004 and invoiced in 2004 there is an intervention from the fiscal administration and the fiscal household is the relevant household concept. Second, the low and modest income MAB can be applied only when the sickness fund is informed before the end of the year about the net taxable income of the de facto household. If this is not the case, the regulation of the fiscal MAB is implemented involving that the fiscal household becomes the relevant household concept.

According to tax law a fiscal household consists of a single person or a married couple or a couple legally living together.[pp] Since co-payments of (fiscally) dependent persons are taken into account in the fiscal MAB, we extended the tax law definition of a fiscal household for married couples or couples legally living together and included their fiscally dependent persons. The database received from the fiscal administration contained a variable denoting the fiscal household (c2000). For our purposes, this variable represented two main problems. First, for children below the age of 16 and for dependent adults the variable denoting the fiscal household was missing.

Second, children age 16 and over had a separate c2000 while they were still dependent on their parents.

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pp With regard to personal income tax legislation, a couple legally living together is a couple who made a statement of legal living together in accordance with article 1476 of the Civil Code.

Since the fiscal data also contained the variables 'number of dependent children' and 'number of other dependent persons', we gave priority to these variables in recomposing fiscal households reflecting the MAB-regulation. For children of divorced parents belonging to the de facto household of one parent but being fiscally dependent on the other parent (not in the fiscal or IMA-dataset) a missing value for the variable denoting the fiscal household was assigned.

For about 25 000 persons in the original dataset, all income information was missing. This group with missing income data consists of three categories of people. A first group are persons who went abroad during 2004. Their income and tax information is not included in our database. The individuals belonging to a household entitled to the social or income MAB were kept in the database. Households entitled to the fiscal MAB were removed, since for these households the income information was needed to assign them a MAB-ceiling. A second group are people dismissed from filing a tax declaration form, since their taxable income is zero or too low according to the tax administration. Since this practice varies between local tax offices, we assigned a NTI equal to zero to them. The third group are people whose income information was not yet available at the filing deadline. All households containing an individual with missing income information because of passing the deadline were removed from the database.

We refer to the Technical Appendix for a detailed description of the data manipulations to construct the fiscal households.

For many households, the de facto household coincides with the fiscal household. An example of this is a married couple with two non-working children. In some cases the de facto household consists of two or more fiscal households. The most typical examples are a couple not-legally living together or a married couple with one or more working children. Another example occurs when a parent in need of care goes to live with his children. The parent in need of care as well as the original household constitute separate fiscal households but together they make a de facto household. Moreover, as explained before, the parent in need can opt for becoming a MAB-household on his own, if (s)he expects to reach his/her MAB-ceiling faster than when (s)he is a member of the de facto household of his/her children. In that case the de facto household(s) coincide again with the fiscal household(s). There are some other cases in which one fiscal household may consist of several de facto households. The first case concerns children entitled to increased child allowance in 2002, who as a transition measure kept an individual right to the MAB if they still receive the increased child allowance. Their co-payments are reimbursed as soon as the total amount reaches €450 and they can opt to be their own MAB-household head. Since our dataset was built in two steps in which the second step added all members of the de facto household to the members in the original sample on the basis of the variable "head of the household", we lack the de facto household members of these children. For the second case we return to the parent in need of care living with his children and opting for being a MAB-household on his own. If the income of the parent in need of care is too low, he becomes fiscally dependent on his children. Here also, we lack the information on the de facto household members.

In exceptional cases, even more complex interactions between a de facto and a fiscal household may arise. We return again to the parent in need. Suppose the parent in need has a partner living in a rest or nursing home for the elderly. The parent in need of care and his partner constitute a fiscal household but the partner in the rest or nursing home makes a separate MAB-household.

As all our analyses will be situated at the level of the de facto household, we restructured the information about the fiscal households as well as possible in terms of the de facto households.

3.3 THE WEIGHTING PROCEDURE

The complicated sampling procedure described in section 1 has as a consequence that the resulting sample (with the household members included) is no longer representative for the Belgian population. First, persons older than 65 are oversampled. Second, given the way households are constructed, larger households have a higher probability to be in the sample. All the results that will be shown in the following chapters make therefore use of weighting coefficients that are based on the presence of a person older than 65 and on the number of persons in the household. In line with what has been said before, before calculating the weighting coefficients, we first omitted all the households with at least one self-employed without rights for the minor risks. The population data are derived from the total Belgian IMA-population in 2004.

Table 7. Sampling weights used for the extrapolations

aged < 65 years						
Household size	**in Belgian population**	**%**	**in sample**	**%**	**corrected sample weight**	**population weight**
1	1 003 673	21.93%	24 156	8.26%	2.66	41.55
2	704 673	15.40%	34 906	11.93%	1.29	20.19
3	513 102	11.21%	36 676	12.54%	0.89	13.99
4	434 963	9.50%	41 530	14.20%	0.67	10.47
5	153 733	3.36%	17 959	6.14%	0.55	8.56
6	45 084	0.99%	6 366	2.18%	0.45	7.08
7	13 579	0.30%	2 113	0.72%	0.41	6.43
8	5 217	0.11%	985	0.34%	0.34	5.30
9	2 283	0.05%	461	0.16%	0.32	4.95
10	913	0.02%	181	0.06%	0.32	5.04
11	421	0.01%	98	0.03%	0.27	4.30
12	205	0.00%	51	0.02%	0.26	4.02
13	99	0.00%	33	0.01%	0.19	3.00
14	60	0.00%	13	0.00%	0.30	4.62
15+	87	0.00%	36	0.01%	0.15	2.42

aged 65+ years						
Household size	**in Belgian population**	**%**	**in sample**	**%**	**corrected sample weight**	**population weight**
1	600 696	13.12%	29 676	10.14%	1.29	20.24
2	498 908	10.90%	46 557	15.91%	0.68	10.72
3	72 328	1.58%	8 153	2.79%	0.57	8.87
4	18 936	0.41%	2 503	0.86%	0.48	7.57
5	9 102	0.20%	1 369	0.47%	0.42	6.65
6	4 435	0.10%	749	0.26%	0.38	5.92
7	2 021	0.04%	405	0.14%	0.32	4.99
8	931	0.02%	205	0.07%	0.29	4.54
9	426	0.01%	109	0.04%	0.25	3.91
10	215	0.00%	56	0.02%	0.25	3.84
11	87	0.00%	19	0.01%	0.29	4.58
12	58	0.00%	23	0.01%	0.16	2.52
13	50	0.00%	20	0.01%	0.16	2.50
14	18	0.00%	9	0.00%	0.13	2.00
15+	121	0.00%	80	0.03%	0.10	1.51

Table 7 shows the resulting structure of weights. The lower part of the table shows the results for the households with at least one household member older than 65 years, the upper part summarizes the information for the other households. The second and the third column give the number of households and the shares of the different household types in the Belgian population respectively; the fourth and the fifth column give the corresponding figures for our sample. The overrepresentation of older and larger households is immediately clear. The sixth column (obtained by dividing the third column by the fifth) shows the relative weights necessary to correct for the unrepresentative nature of the sample. The last column inflates these weights by a constant (15.6) to extrapolate the number of households in the sample to the Belgian level.

To validate our weighting procedure we compared our extrapolated data with some external sources. Without weighting we would calculate the total MAB-reimbursements by the sickness funds to be €219 589 000, with weighting the corresponding figure becomes €172 388 000. This can be compared to the figure of €180 825 444, given in Table 2. Our approximation of 95.3% is satisfactory.

We did a similar exercise for the total health care costs for RIZIV/INAMI. If we work with the unweighted data, we estimate this cost to be €15 076 829 595; after weighting we get €12 937 068 310. As explained before, this sum does not include a large part of hospital financing. To get comparable figures, we therefore have to subtract from the aggregate RIZIV/INAMI data this same part of the costs. Including the hospital financing, total RIZIV_INAMI health care costs amounted in 2004 to €16 771 433 000. The total financing of hospitals was €3 790 030 000. The one-day lump sums (which are included in our data) cover 3.27% - and of the remaining amount, 80% is the collective financing element, which is missing in our data. Subtracting this missing amount gives as total RIZIV/INAMI -costs (excluding lump sum hospital financing) for the total Belgian population in 2004 the sum of €13 838 556 185. Our approximation of 93.5% seems again satisfactory.

In fact, there are reasonable explanations for our underestimation with 3.8% and 6.5% respectively. First, we omitted from our sample the households of the self-employed. Second, the IMA database was still incomplete at the date of delivery of the data. Our realized data for 2004 are based on invoices for 18 months, while they are only complete after 24 months. Third, our calculation of the hospitalization component in the total RIZIV/INAMI-figures is only an estimate. All in all, we can conclude that the weighting procedure performs reasonably well, so that we can use our sample to draw conclusions about the overall population figures.

4 EFFECTIVENESS OF THE MAB AS A SOCIAL PROTECTION MECHANISM: A DESCRIPTIVE ANALYSIS

We will now look at the data in more detail, with special focus on the "cross-sectional" effects: which groups are protected well? Which groups still have to pay large OOP-payments? This will offer a first insight into our second research question about the effectiveness of the MAB as a social protection mechanism. A deeper analysis of the design of the MAB and of possible approaches to improving that design is presented in chapters 6 and 7.

In the next section, we give a general overview of the effects of the MAB. In section 2, we analyze the level of MAB-reimbursements for different subgroups of the population. Section 3 focuses on the remaining OOP-payments after MAB and discusses the relationship between co-payments and supplements. Section 4 goes deeper into the characteristics of extreme payers. Section 5 presents a multivariate analysis and also summarizes the main results.

Let us first summarize our main methodological choices:

1. We situate the analysis at the level of the de facto (or sociological) household. This is the household concept underlying the present MAB-regulation. More importantly, it is also the most relevant concept from a social point of view. We explained in chapter 3 the main difficulties with constructing de facto households in our data. In some cases we will explore the consequences of differences in individual characteristics, such as being chronically ill. The specific content of these variables has been explained in more detail in chapter 3 (see also the Technical Appendix). We transferred these individual characteristics to the household level: a household is considered as "unemployed" or as "chronically ill" if at least one household member is unemployed or chronically ill.
2. To give a better idea of the number of households involved, all the numbers in the chapter will refer to the weighted data, i.e. they are extrapolations for the total population of Belgian households. We only show results, which are sufficiently reliable, i.e. where there are a sufficient number of observations in the original dataset. The weighting procedure has been explained in more detail in the previous chapter.
3. Our main dataset pertains to 2004. The analysis in this chapter therefore reflects the MAB-regulation and the health care expenditures for that year. The changes that have been introduced since 2004 have been documented in chapter 2 and their effects will be analyzed with microsimulation techniques in chapter 6. The most important change has been the integration of the fiscal MAB into the income MAB. In the data analyzed in this chapter, the two are still separate. For the purpose of this descriptive analysis, we preferred to work with real and not with simulated data. This has the advantage that we stay close to the raw data. Remember however that we must be cautious with the interpretation of these raw data. The MAB-reimbursements in 2004 do not always correspond to the co-payments of that year, because of the unavoidable lags. Moreover, specific transition measures were implemented for the incorporation of the fiscal MAB into the income MAB. The results in this chapter reflect these (messy) features of reality. A cleaner picture will be simulated in chapter 6.
4. All households with at least one self-employed are left out of the analysis. In 2004 their insurance status and hence their pattern of OOP-payments was very different from that of the rest of the population. Moreover, this differentiation in insurance status is no longer relevant, since all the self-employed are covered in the compulsory health care system for the so-called "minor risks" from January 1st 2008.
5. To show the results we will often make use of boxplots to give an idea of the overall distribution (for the population and for subgroups). The boxes

indicate the 25th and 75th percentiles of the distribution. In addition, we show the mean, the median, and the 10th and 90th percentiles. These boxplots generally speak for themselves and it did not seem necessary to take up all the information in the main text. Therefore, in the latter we will only point to the most striking findings. To improve the readability of the boxplots, we did not always include the exact numbers in the figures. To save space and make the boxplots better readable, the scaling differs from one figure to the other. *It is therefore important to take into account these scaling differences when interpreting the figures.*

It is not obvious what criterion should be used to describe (and possibly to evaluate) the working of the MAB. As described before, the basic objective of the MAB is to put a ceiling on the official co-payments to be paid by the households, in order to avoid a situation in which the financial burden of OOP-payments would become unacceptably large. Three specific questions arise when trying to give a specific content to this concept of the "financial burden of OOP-payments":

1. What to include in the definition of OOP-payments? From the perspective of the financial (and social) accessibility of health care, it seems most adequate to focus on the total personal financial burden of health care for the citizens. This personal burden consists of (a) co-payments, that are included in the MAB-counter; (b) co-payments, that are not included in the MAB-counter; (c) supplementary payments on top of the official tariff. As explained for generics, the distinction between these different notions has become somewhat blurred in the recent past. Not including the supplements would lead to a gross underestimate of the financial burden, mainly for the patients taken up in a hospital. On the other hand, the focus of our analysis will be on the effect of the MAB, which *by design* only includes (part of the) co-payments and therefore cannot tackle the supplements. In comparing the situation of the patients before and after application of the MAB, the supplements are a constant, and they only influence the level of own payments, not the change induced by the MAB.[qq] In the sequel we will show results both for the co-payments separately and for the total OOP-payments with the supplements included.
2. How to define the financial "burden" for the household? The MAB-regulation works with absolute ceilings, that increase with NTI. This latter feature reflects the idea that the same absolute (or per capita) amount may have very different effects depending on the income situation of the households. This again suggests a double approach in which the burden of OOP-payments is measured in two ways:
   - the absolute (uncorrected) *amount*.
   - the amount of *own payments as a percentage of net taxable income*. The calculation of this concept is possible in our data, since we were able to link the IMA-data with the fiscal dataset.

In this chapter, we will show results for both indicators. In section 4, in which we focus on the poverty risk, we will largely concentrate on the financial burden as a share of NTI.

3. The MAB-regulation focuses on households but defines the ceiling in terms of NTI, with no correction for household size. We explained before the implicit assumption behind this choice: that the corrections for household size are introduced in an adequate way through the fiscal and social security system (e.g. child allowances), or, at least, that it should not be the purpose of the MAB to correct for the shortcomings of this fiscal redistribution. We will largely focus on NTI, but we will discuss further the correction for household size in section 4.3.3.

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qq This terminology is a little confusing, since we do not analyse behavioural changes here. These will be the focus of the next chapter. In this chapter we simply compare co-payments and OOP-payments before and after MAB-reimbursements, as they are available in the data.

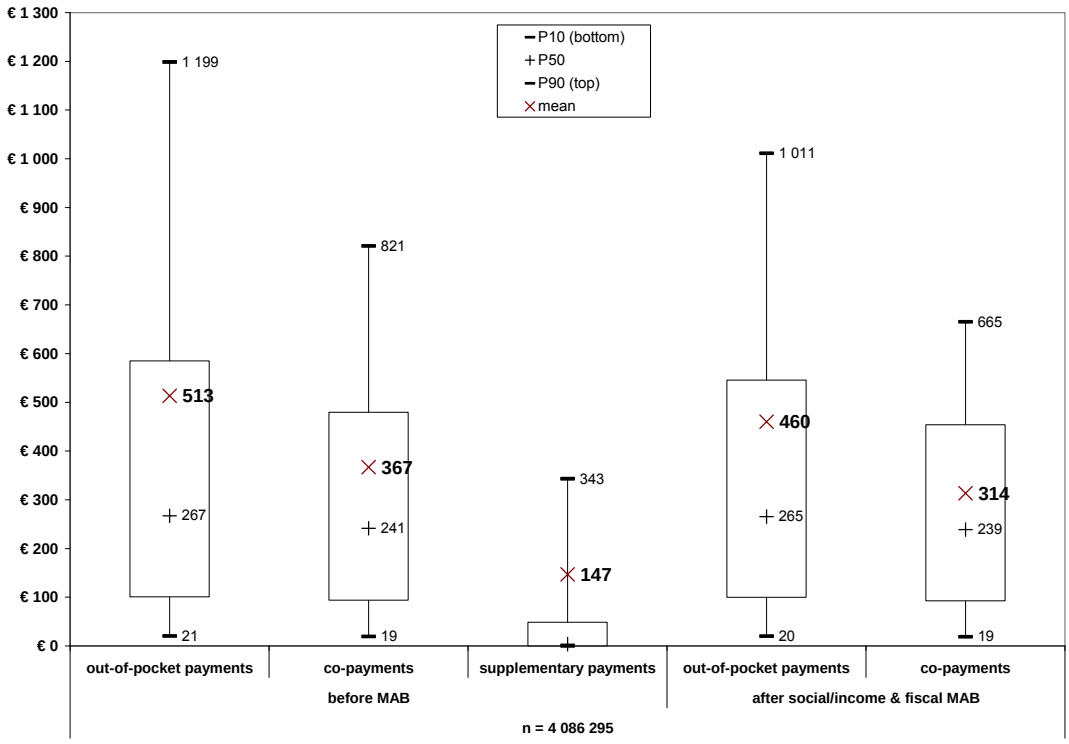
Even after defining what is the "financial burden" of OOP-payments, it still is not straightforward to define what is an "unacceptably large" financial burden, however. In chapter 7, we will discuss more thoroughly these value judgments.

A detailed analysis of the distributional effects of the MAB at the level of the individual households was not yet available for Belgium. Schokkaert et al. (2004)[10] have presented a first attempt but they had to work with data that were constructed on the basis of the budget survey for 1997-1998 and therefore could only sketch a rough picture. Our database allows a more detailed analysis.

4.1 A BIRD'S-EYE VIEW

We will first give a general overview of the effects of the MAB on OOP-payments, without focusing on interhousehold differences. Figures 2 and 3 show the distribution of OOP-payments before and after application of the MAB, first in absolute amounts and then as a percentage of net taxable income.[rr] Before MAB, an average Belgian household would have to pay about €513 out of its own pocket. The distribution is highly skewed, however, with a long right tail (and therefore with the median much smaller than the mean). Of the total amount of OOP-payments, €367 are co-payments, €147 are supplements. The latter distribution is even more skewed, with the median at zero. This is not really surprising, since most supplements are linked to a stay in the hospital. Without MAB, the average Belgian household would have own payments of 2.49% of net taxable income. The MAB reduces these OOP-payments – but less than might have been expected a priori. The average reduction is only €53. This overall average is somewhat misleading, however, in that considerably larger effects are observed in the right tail of the distribution, i.e. for large OOP-payments (consider, e.g., the effect at the 90th percentile). Of course, this is exactly what one would expect with a ceiling mechanism, in which only a fraction of the households get MAB-reimbursements.

Figure 2. OOP-payments before and after MAB



rr In all tables which express the burden as a percentage of income, we omit the observations of the households for which the net taxable income is less than €5 000/year. Dividing by very small incomes leads to extremely high percentages.

Table 8 gives an overview of the relevant numbers. The second column gives the absolute number of households in the different schemes, and the third column gives the relative proportions in the population. More relevant for our purposes are the last two columns: the fourth column shows the number of households in the different categories that have received MAB-reimbursements, and the last column relates these numbers of receivers to the total number of households in the group. Globally, 491 590 households (12% of the total number of Belgian households) have received MAB-reimbursements in 2004. Note, however, that only a fifth of the households qualifying for the social MAB have co-payments that exceed €450. As explained before, some households have received reimbursements both through the social/income MAB and through the fiscal MAB. In our data, the total number of households receiving social/income MAB reimbursements through the sickness funds is 374 742 (not in the Table).

Figure 3. OOP-payments (as a % of NTI) before and after MAB

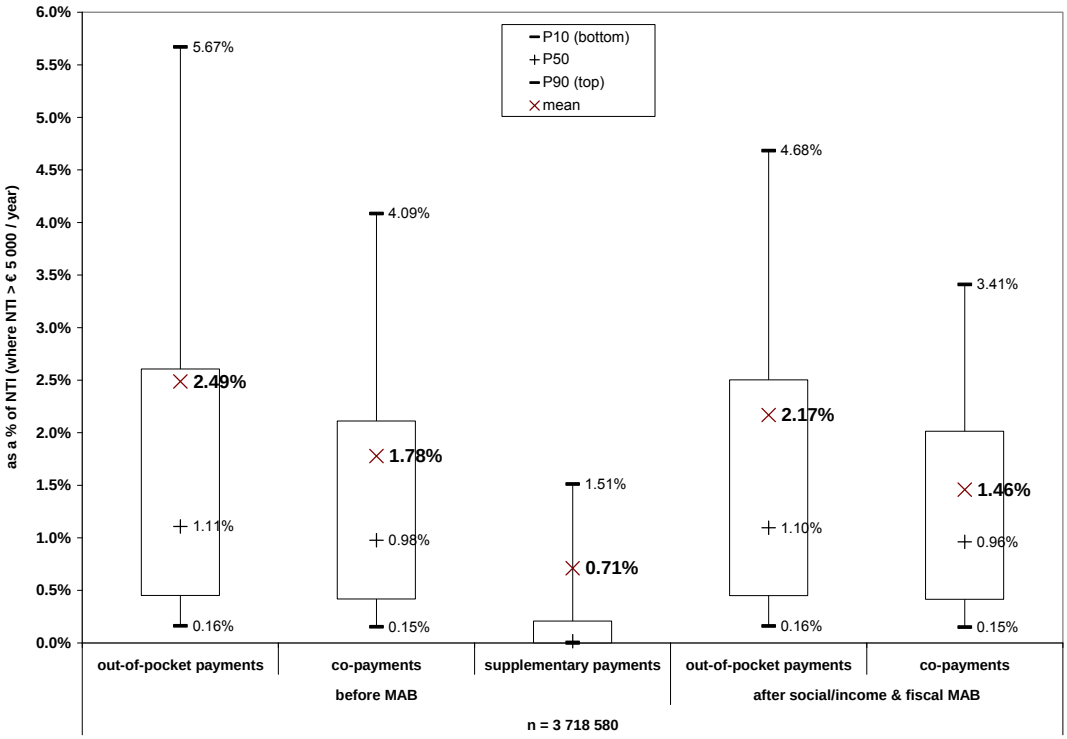
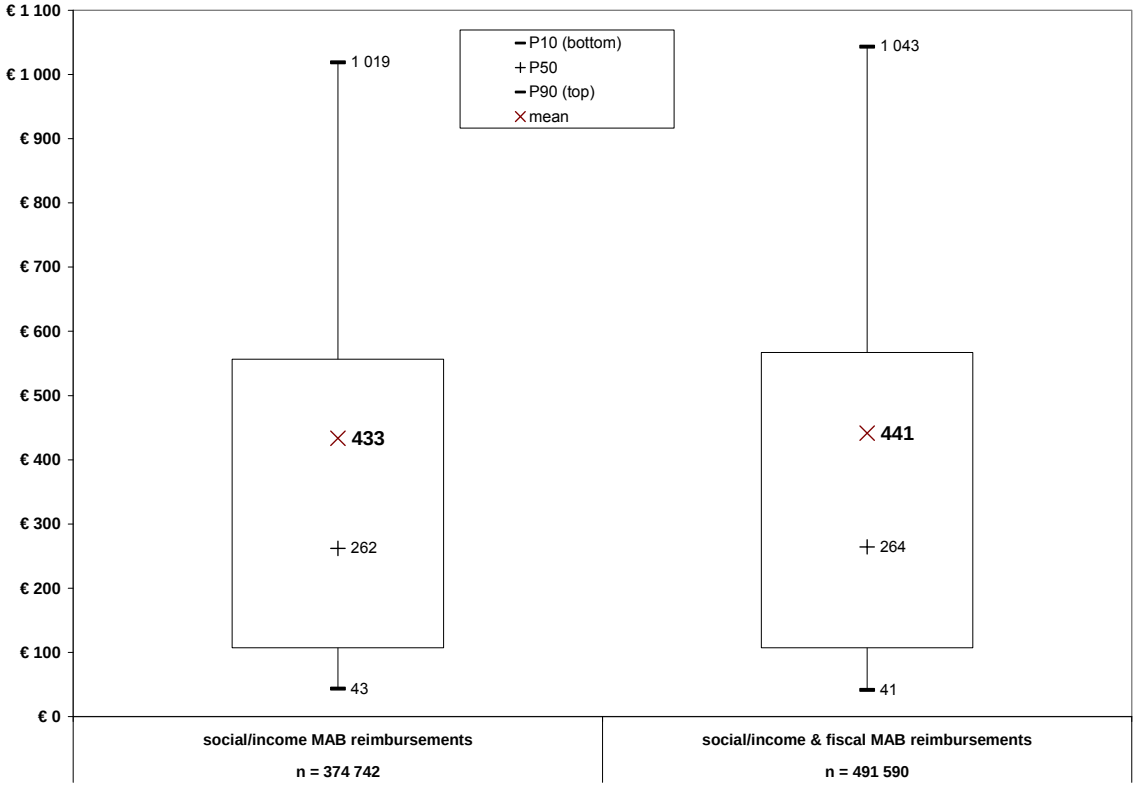


Figure 4 shows that, for the households with positive MAB-reimbursements, the reimbursed amounts are considerable: the average reimbursement amounts to about €440. We see again the skewed distribution of the reimbursements. Moreover, as could be expected, Figure 5 shows convincingly that households that are reimbursed would have had otherwise much larger co-payments and total OOP-payments than the average. The boxplots at the left in Figure 5 repeat the global boxplots in Figure 2. The following boxplots show the distributions of co-payments and total OOP-payments for the households that did not or did receive MAB-reimbursements. Note that households who benefit from MAB-reimbursements at the same time have considerably larger supplements than those who do not.

Table 8. Number of households benefiting from MAB-reimbursements

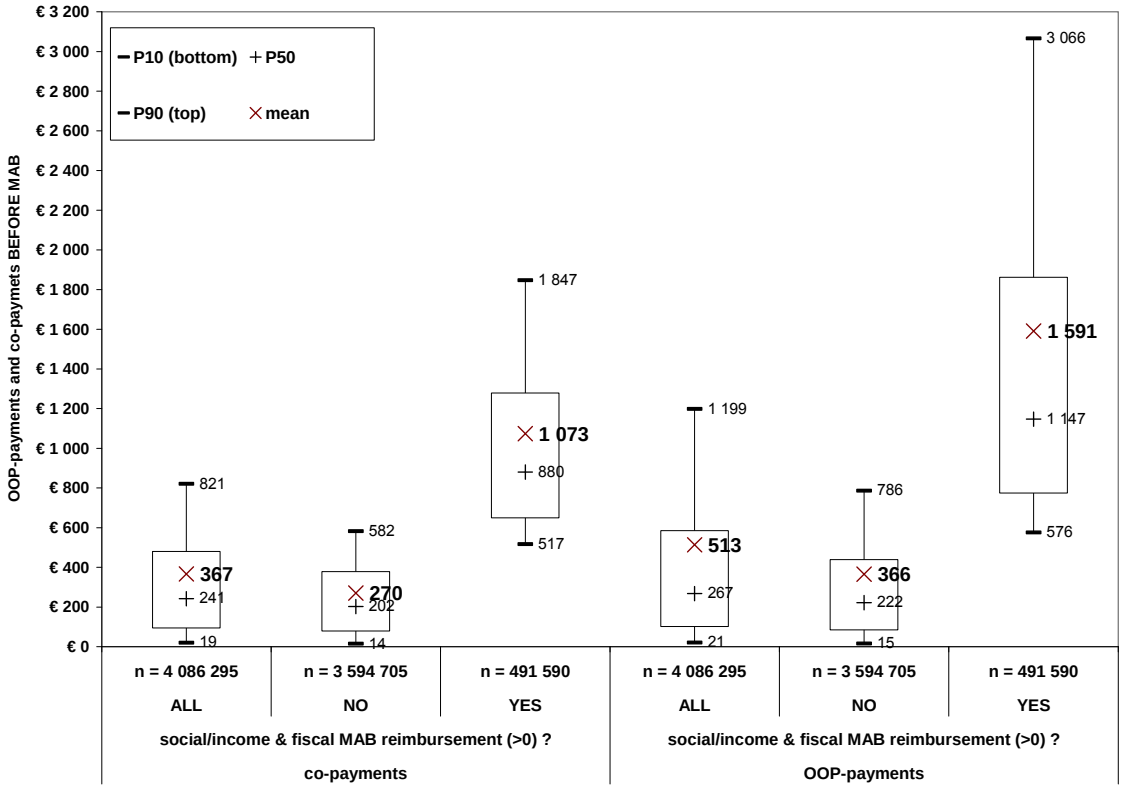
	(1) # households	= (1) as a % of all	(2) # households with positive reimbursements	% (2) as a % of (1)
All	4 086 295	100	491 590	12.03
Social MAB	895 769	21.92	174 166	19.44
Income and Fiscal MAB	3 190 526	78.08	317 424	9.95

Figure 4. MAB-reimbursements



These data can be compared to Tables 2 and 3 in chapter 2. Remember that the latter tables only give numbers for the social and the income MAB, and not for the fiscal MAB. The total number of households receiving reimbursement through the sickness funds is 419 431 in Table 2 – in our data it is 374 742. The relevant numbers for the social MAB are 204 456 in Table 2 and 174 166 in Table 8 respectively. The average reimbursement amount is €433 in Figure 3 – well within the range €370 - €506 in Table 3. Apart from the data problems described earlier, there is one main structural explanation for the differences. Tables 2 and 3 did include the self-employed households, while these are left out for the analysis in this chapter. All in all, the data data derived from our sample are closely comparable to the aggregate RIZIV/INAMI-statistics in chapter 2. This is additional support for the validity of the weighting procedure described in the previous chapter.

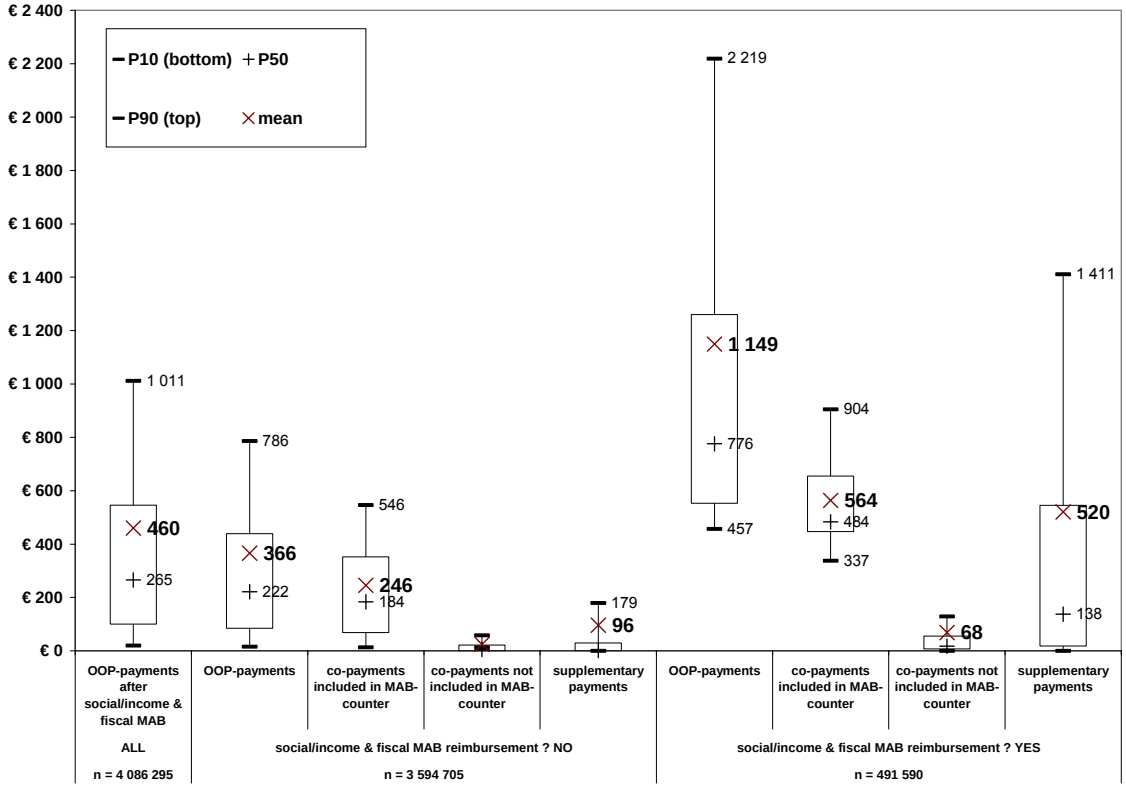
Figure 5. OOP-payments and co-payments before MAB: households who receive MAB-reimbursements versus households who do not receive MAB-reimbursements



Although the MAB indeed levels down some of the largest OOP-payments, Figures 2 and 3 show that for some households OOP-payments still remain considerable. 10% of the Belgian households had in 2004 OOP-payments (after MAB!) larger than €1 011, 10% of the Belgian households (not necessarily the same) had OOP-payments which took more than 4.68% of their NTI. This raises the immediate question: how is it possible that there remain such large OOP-payments after the MAB, when the MAB puts a ceiling on the co-payments to be paid?[ss] Three possible explanations have been put forward already in chapter 2: (a) not all households qualify for MAB-reimbursements (or, better formulated, the MAB-ceilings are quite high for high-income groups); (b) not all co-payments are included in the MAB-counter; (c) households also have to pay supplements on top of the official tariff. A first insight in the relative importance of these different factors is given in Figure 6, showing OOP-payments after MAB in absolute terms.

[ss] Moreover, remember that a considerable fraction of OOP is not even present in our data.

Figure 6. Components of OOP-payments



The first boxplot in Figure 6 repeats the overall result that was already shown in Figure 2. The next boxplots show total OOP-payments, co-payments included in the MAB, co-payments not included in the MAB and supplements for households that did not receive MAB-reimbursements. The boxplots at the right give the same information for households that did receive MAB-reimbursements. The figure shows some striking facts. First, despite the considerable reduction in their co-payments (compare Figure 5 and Figure 6), OOP-payments after MAB remain much larger for the households who did receive MAB-reimbursements than for the other households. This is not surprising since co-payments included in the MAB are now heavily concentrated around the MAB-ceiling for those that have received reimbursements[tt], while these co-payments must be smaller (by definition) for those without reimbursements. The difference is much larger in overall OOP-payments, however, because (as we had already seen) the households that receive MAB-reimbursements on average also have to pay large supplements. These supplements have an extremely skewed distribution and are apparently the main driving force for the largest OOP-payments. Second, the large OOP-payments after MAB are definitely not caused (on average) by the incomplete coverage of the MAB in terms of co-payments. In fact, the total amount of co-payments not included in the MAB-counter is almost negligible. Figure 6 gives already some first indications to answer two of our research questions: is the present coverage of the MAB in terms of households effective? And what would be the effect of extending the coverage of the MAB in terms of the co-payments included in the counter? We will further analyze these questions in the following sections and chapters.

[tt] In principle it seems impossible that households receive MAB-reimbursements if their co-payments included in the MAB-counter are less than €450. The observation that there are such households in Figure 5 is explained by the specific features of the data that have been mentioned before.

4.2 MAB REIMBURSEMENTS: HOW SELECTIVE IS THE MAB?

In this section, we analyse the level and the distribution of MAB-reimbursements for specific groups. These bivariate analyses in terms of specific groups can be interpreted easily, but care is needed: the groups considered differ in many other characteristics (e.g. age) which we do not control for. What we show are the results of a merely descriptive exercise, and it would be very dangerous to attach to it any causal interpretation. However, protection measures often focus on well-defined groups, and will therefore be subject to the same kinds of confounding influences. Therefore, we think that a bivariate analysis is relevant from a policy point of view. We will complement it with some multivariate results in section 5, and most of the findings in this section (and the following sections) will turn out to be very stable.

There is necessarily a direct link between health care expenditures and co-payments on the one hand and MAB-reimbursements on the other hand. In fact, the architecture of the MAB makes it easy to predict who will get large reimbursements: those who have large co-payments in proportion to their income. Both morbidity and socio-economic variables will therefore play a role. Special attention should go to the chronically ill, who can be vulnerable in both respects. We will first focus on socio-economic indicators and then turn to the effect of differential morbidity. In each case we will show two indicators. First, we give the share of the group that has received MAB-reimbursements (Tables 9 and 10). Second, we show the distribution of MAB-reimbursements if they are positive (Figures 7-10). To get a good idea about the effects of the MAB for different groups, one has to combine the information from the two indicators.

4.2.1 Socio-economic indicators and MAB-protection

The linkage of the IMA-dataset with the fiscal data allows us to draw specific conclusions about the relationship between income and MAB-reimbursements. We analyze the results with respect to net taxable income of the households, i.e. the concept which is also used in the MAB-legislation. In section 4.3.3., we will come back to the effect of differences in household size, but these will not be considered in this section.

In general, one would expect different conflicting effects of income on the level of co-payments (and therefore on the level of MAB-reimbursements). On the one hand, there are well-documented differences in morbidity. It is well known that poorer households on average are sicker, and that they therefore on average should have larger expenses. On the other hand, the system of preferential treatment favours the lower income groups. There may be also a direct income effect on expenditures, which would reflect itself in larger expenses for higher income households. It is an empirical question which of these conflicting effects is dominating. However, with respect to MAB-reimbursements, there is of course the mechanical effect built in into the regulation: that the ceilings are higher for higher income households.

The latter effect is crucial in understanding the differences in the fractions of households in the different income groups, that have received MAB-reimbursements (see the upper panel of Table 9). The last column indicates that the overall proportion of households receiving MAB-reimbursements shows a curvilinear relationship with NTI: it first increases and then starts decreasing from a NTI of €20 000 onwards. A comparison of the sixth and the seventh column confirms that the fiscal MAB is relatively more important for higher income groups. Remark, however, that the social and income MAB lead to reimbursements for households with large incomes. According to the regulation, this is possible for the handicapped and for those with preferential treatment. But we also mentioned already in chapter 2 the inefficiencies that may follow from the use of obsolete income information in allocating the income MAB.

Figure 7 shows the level of the MAB-reimbursements for those who did receive them. It is striking that there is no strong negative relationship between the amount of MAB-reimbursements and net taxable income. A priori one could have expected that the increase in the ceilings for higher incomes, would lead to larger MAB-reimbursements (corresponding to co-payments above the ceiling) for the lower income households.

This intuition is not confirmed by the data. While the level of MAB-reimbursements is somewhat smaller for the lowest income groups (due to the effects of preferential treatment and of differences in household size), it is surprisingly stable afterwards.

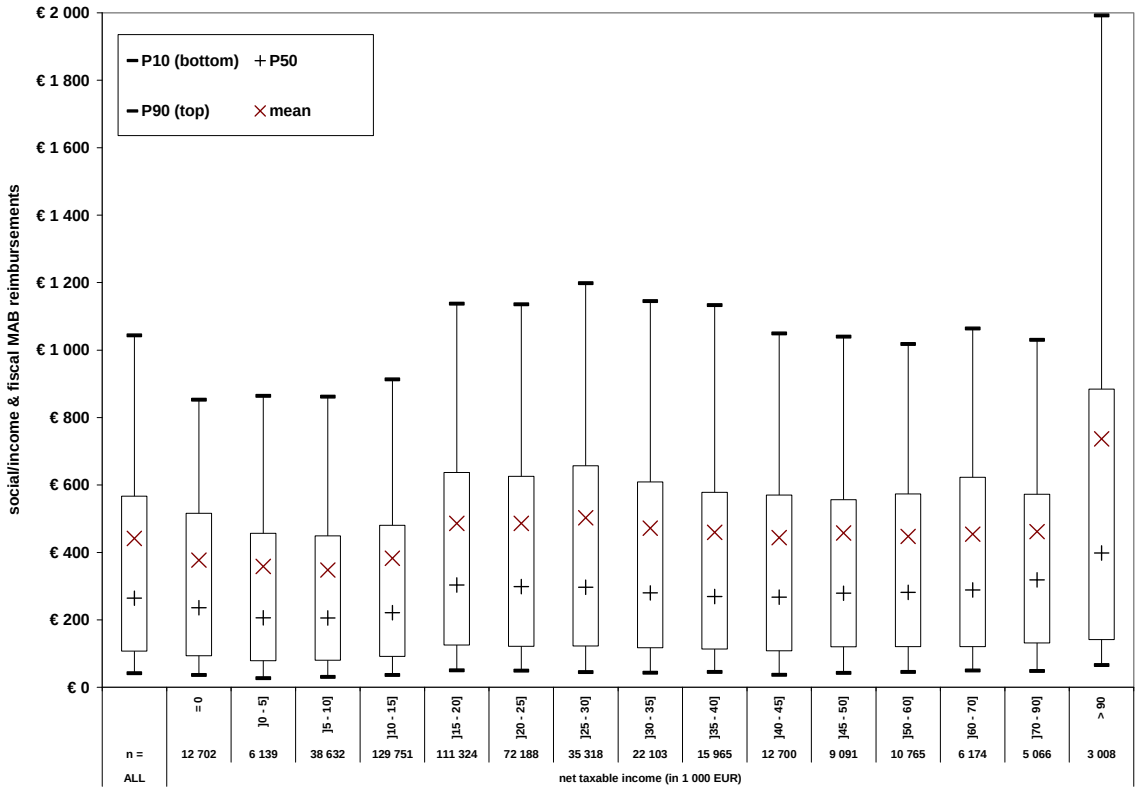
Table 9. Number of households with positive MAB-reimbursements (according to income)

using weights		(1)	(2)	(3)	(4)			
			# households with reimbursements (>0) from			%		
		# households	social/income MAB	fiscal MAB	social/income & fiscal MAB	= (2) / (1)	= (3) / (1)	= (4) / (1)
ALL °		4 044 468	374 077	184 276	490 925	9.25%	4.56%	12.14%
net taxable income	= € 0	253 668	11 495	2 462	12.702	4.53%	0.97%	5.01%
	] € 0 - € 5 000]	72 219	4 190	2 962	6.139	5.80%	4.10%	8.50%
	] € 5 000 - € 10 000]	321 498	32 244	15 370	38.632	10.03%	4.78%	12.02%
	] € 10 000 - € 15 000]	730 359	113 061	45 628	129.751	15.48%	6.25%	17.77%
	] € 15 000 - € 20 000]	494 792	99 760	28 955	111.324	20.16%	5.85%	22.50%
	] € 20 000 - € 25 000]	412 313	54 285	25 313	72.188	13.17%	6.14%	17.51%
	] € 25 000 - € 30 000]	317 899	15 498	20 665	35.318	4.88%	6.50%	11.11%
	] € 30 000 - € 35 000]	257 792	11 067	11 670	22.103	4.29%	4.53%	8.57%
	] € 35 000 - € 40 000]	228 698	7 707	8 631	15.965	3.37%	3.77%	6.98%
	] € 40 000 - € 45 000]	196 331	5 975	6 948	12.700	3.04%	3.54%	6.47%
	] € 45 000 - € 50 000]	162 328	4 300	4 917	9.091	2.65%	3.03%	5.60%
	] € 50 000 - € 60 000]	230 770	6 015	4 875	10.765	2.61%	2.11%	4.66%
	] € 60 000 - € 70 000]	139 270	3 445	2 757	6.174	2.47%	1.98%	4.43%
	] € 70 000 - € 90 000]	134 535	3 153	1 978	5.066	2.34%	1.47%	3.77%
	> € 90 000	91 995	1 884	1 144	3.008	2.05%	1.24%	3.27%
equivalized net taxable income	= € 0	253 668	11 495	2 462	12.702	4.53%	0.97%	5.01%
	] € 0- € 5 000]	116 353	10 711	7 320	14.822	9.21%	6.29%	12.74%
	] € 5 000 - € 10 000]	644 503	89 484	38 223	106.710	13.88%	5.93%	16.56%
	] € 10 000 - € 15 000]	988 958	177 372	62 763	205.223	17.94%	6.35%	20.75%
	] € 15 000 - € 20 000]	665 038	54 870	38 562	87.942	8.25%	5.80%	13.22%
	] € 20 000 - € 25 000]	497 446	18 427	18 653	35.743	3.70%	3.75%	7.19%
	] € 25 000 - € 30 000]	345 354	6 438	9 085	15.357	1.86%	2.63%	4.45%
	] € 30 000 - € 35 000]	209 533	2 481	4 057	6.520	1.18%	1.94%	3.11%
	] € 35 000 - € 40 000]	125 113	1 165	1 562	2.683	0.93%	1.25%	2.14%
	] € 40 000 - € 50 000]	112 114	910	917	1.828	0.81%	0.82%	1.63%
	] € 50 000 - € 70 000]	58 283	520	445	964	0.89%	0.76%	1.65%
	> € 70 000	28 105	204	227	431	0.73%	0.81%	1.53%

° where NTI not missing

Although income is perhaps the most natural indicator of social fragility, it is definitely not perfect. First, social exclusion may not only be due to income, but may also be influenced by other factors – such as retirement or unemployment status. Second, our income concept (and the income concept used for application of the MAB) is based on fiscal information, which is not necessarily reliable. We therefore also show some results for other socio-economic variables. This is also more or less in line with the historical background of the MAB. As described before, the fiscal and social exemptions were partially based on "indirect" social indicators, and the same is true for the system of preferential treatment. The analyzed groups have been described in more detail in chapter 3.

Figure 7. (Positive) MAB-reimbursements for different income groups



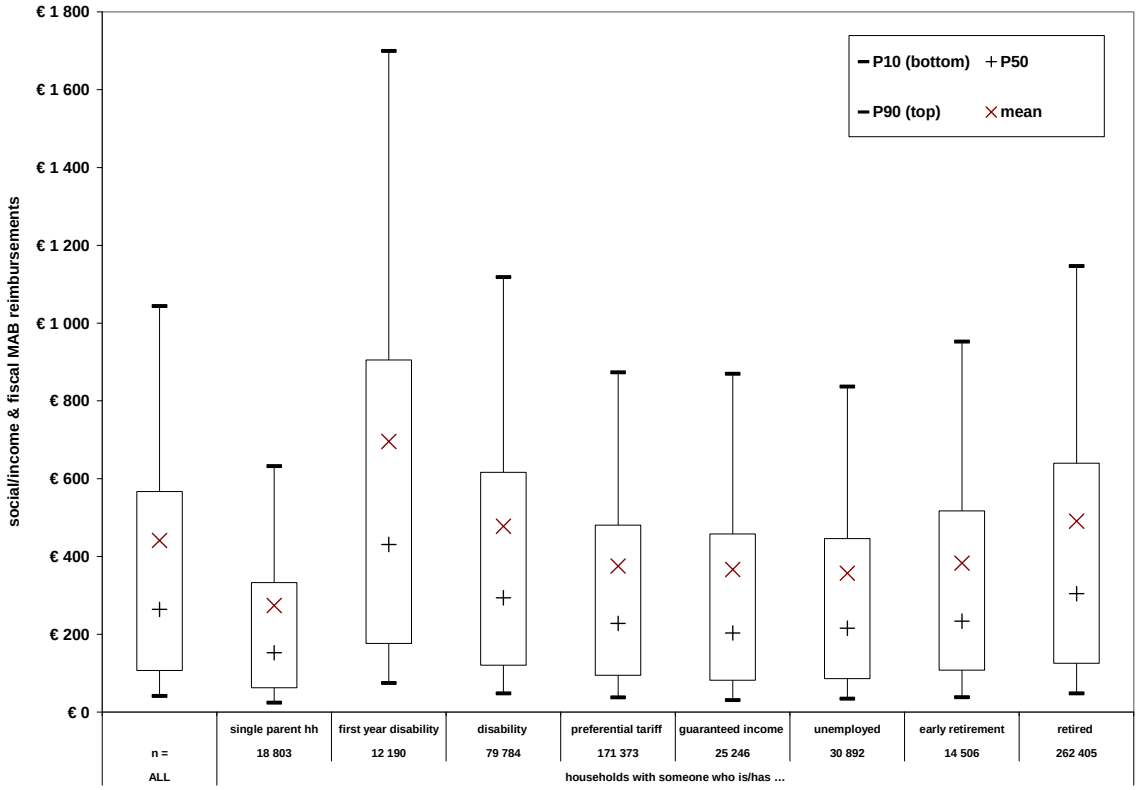
The first part of Table 10 shows the frequency of MAB-reimbursements for these different categories. For ease of reference we will compare the results for the various subgroups with the results for the overall population in the first row of the table. Table 10 shows that many of these socio-economic groups hardly differ from the overall population. The proportion of recipients of MAB-reimbursements is larger for the retired and those on preferential tariff, and much larger for the households with a person with disabilities. More than 40% of the households with someone in his/her first year of disability receive MAB-reimbursements. Many of these, in fact, are high-income households, that get reimbursements through the fiscal MAB. A similar pattern is found for the level of MAB-reimbursements (Figure 8). While these are in general not very different from those for the overall population, this is not true for the disabled, for whom the MAB-reimbursements are considerable. Those in their first year of disability have an average reimbursement of more than €600. A tenth of these households even get reimbursements of more than €1 700.

Table 10. Number of households with positive MAB-reimbursements (for different socio-economic and morbidity groups)

using weights	(1)	(2)	(3)	(4)	%		
	# households	**# households with reimbursements (>0) from**					
		social/income MAB	**fiscal MAB**	**social/income & fiscal MAB**	= (2) / (1)	= (3) / (1)	= (4) / (1)
ALL	**4 086 295**	**374 742**	**184 276**	**491 590**	**9.17%**	**4.51%**	**12.03%**
single parent hh	194 673	14 823	9 185	18 803	7.61%	4.72%	9.66%
first year disability	29 170	7 348	6 931	12 190	25.19%	23.76%	41.79%
disability	295 720	65 131	24 111	79 784	22.02%	8.15%	26.98%
preferential tariff	910 190	165 084	26 747	171 373	18.14%	2.94%	18.83%
guaranteed income	197 618	22 934	5 770	25 246	11.61%	2.92%	12.77%
unemployed	250 695	22 606	14 325	30 892	9.02%	5.71%	12.32%
early retirement	110 091	8 855	6 722	14 506	8.04%	6.11%	13.18%

using weights		(1)	(2)	(3)	(4)	%		
		# households	# households with reimbursements (>0) from					
			social/income MAB	fiscal MAB	social/income & fiscal MAB	= (2) / (1)	= (3) / (1)	= (4) / (1)
retired		1 099 889	204 664	91 093	262 405	18.61%	8.28%	23.86%
lump sum B or C		44 753	24 355	7 764	29 029	54.42%	17.35%	64.86%
increased child allowances		23 518	5 589	1 337	6 082	23.77%	5.68%	25.86%
integration allowance handicap		76 155	27 670	4 716	29 879	36.33%	6.19%	39.23%
help for the elderly		103 550	41 364	10 053	45 954	39.95%	9.71%	44.38%
physiotherapy-E		105 795	45 802	16 580	56 943	43.29%	15.67%	53.82%
long hosp stay		43 476	25 063	9 689	30 307	57.65%	22.29%	69.71%
multiple hosp stay		59 904	30 975	17 030	41 591	51.71%	28.43%	69.43%
psychiatric nursing home		7 873	1 865	1 038	2 362	23.69%	13.18%	30.00%
psychotherapy		273 471	58 461	27 741	76 074	21.38%	10.14%	27.82%
homes for the elderly		137 576	45 946	16 507	53 869	33.40%	12.00%	39.16%
chronic dialysis		3 221	1 748	1 043	2 370	54.27%	32.39%	73.57%
psychiatric hospital	<= 1 y	29 863	14 108	7 126	18 169	47.24%	23.86%	60.84%
	2 - 5 y	4 175	2 467	712	2 732	59.10%	17.06%	65.43%
	>= 6 y	2 810	440	176	480	15.65%	6.26%	17.09%
antibiotics DDD>=	1	1 591 467	202 023	96 228	261 233	12.69%	6.05%	16.41%
	30	375 701	77 757	33 567	97 852	20.70%	8.93%	26.05%
	90	43 240	15 445	5 977	18 842	35.72%	13.82%	43.58%
	180	9 489	3 814	1 400	4 683	40.19%	14.75%	49.36%
antihypertensives DDD>=	1	1 087 402	207 848	89 279	259 657	19.11%	8.21%	23.88%
	30	1 028 180	200 814	85 535	250 227	19.53%	8.32%	24.34%
	90	935 794	187 595	79 078	232 798	20.05%	8.45%	24.88%
	180	806 612	167 345	70 246	207 359	20.75%	8.71%	25.71%
cholesterol lowering medicine DDD>=	1	373 842	73 223	31 552	92 028	19.59%	8.44%	24.62%
	30	372 488	72 979	31 438	91 715	19.59%	8.44%	24.62%
	90	362 587	71 300	30 633	89 583	19.66%	8.45%	24.71%
	180	313 277	62 982	26 721	78 779	20.10%	8.53%	25.15%
COPD DDD>=	1	422 039	82 571	37 107	103 923	19.56%	8.79%	24.62%
	30	328 014	70 069	30 986	87 612	21.36%	9.45%	26.71%
	90	167 865	45 466	19 493	56 117	27.09%	11.61%	33.43%
	180	109 163	34 039	13 823	41 486	31.18%	12.66%	38.00%
antidepressants DDD>=	1	554 054	123 575	54 846	156 669	22.30%	9.90%	28.28%
	30	464 058	108 412	47 526	137 013	23.36%	10.24%	29.52%
	90	341 346	85 883	37 521	108 482	25.16%	10.99%	31.78%
	180	242 424	66 385	29 094	83 769	27.38%	12.00%	34.55%
antidiabetics DDD>=	1	213 794	50 045	20 320	61 461	23.41%	9.50%	28.75%
	30	207 916	48 836	19 755	59 855	23.49%	9.50%	28.79%
	90	181 659	43 018	17 541	52 517	23.68%	9.66%	28.91%
	180	145 821	35 230	14 209	42 838	24.16%	9.74%	29.38%
stomach medicine DDD>=	1	593 816	129 469	59 071	164 260	21.80%	9.95%	27.66%
	30	443 353	105 902	46 508	133 055	23.89%	10.49%	30.01%
	90	309 011	83 122	35 353	103 489	26.90%	11.44%	33.49%
	180	208 500	61 045	25 160	75 316	29.28%	12.07%	36.12%
Crohn DDD>=	1	22 509	4 581	2 361	6 041	20.35%	10.49%	26.84%
	30	19 658	4 009	2 192	5 321	20.39%	11.15%	27.07%
	90	15 426	3 153	1 875	4 276	20.44%	12.16%	27.72%
	180	11 039	2 258	1 335	3 055	20.45%	12.09%	27.68%

Figure 8. (Positive) MAB-reimbursements for different socio-economic groups

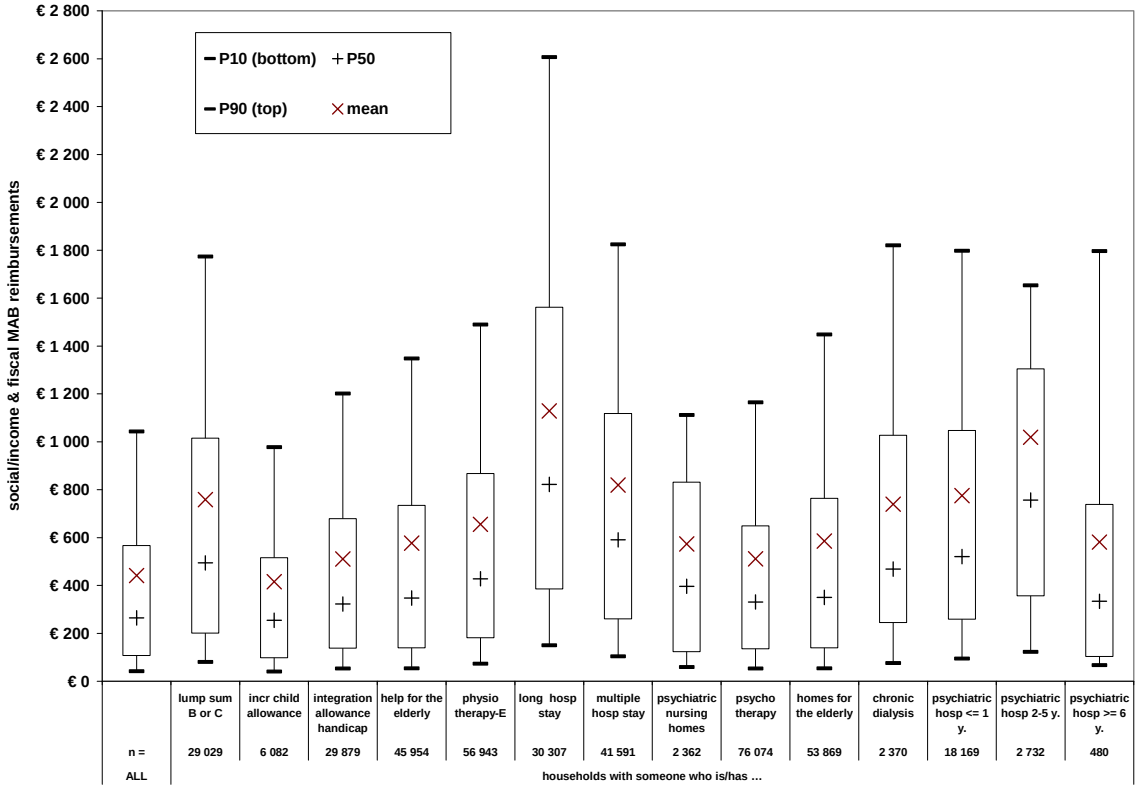


While it is admittedly dangerous to draw too strong conclusions from these results, it nevertheless seems possible to forward the hypothesis that the MAB is less selective along the socio-economic dimension than one might have thought a priori. While it is true that there is a larger fraction of beneficiaries in the lower income and the weaker socio-economic groups, the selectivity is not outspoken in terms of the level of MAB-reimbursements for those households that are entitled to them.

4.2.2 Protection of the chronically ill

The results with respect to disability suggest already that the MAB may be of crucial importance to the chronically ill. Let us now turn to the relationship between MAB-reimbursements and morbidity. Our dataset does not contain direct information on illness. However, as discussed in the previous chapter, indirectly we can derive useful morbidity information from some of the administrative variables, which are available in the IMA-dataset, and from the detailed information on health care consumption. The number of recipients of MAB-reimbursements is shown in the lower part of Table 10.

Figure 9. (Positive) MAB-reimbursements for different morbidity groups



Let us first look at the results for the indirect morbidity indicators. As could be expected, Table 10 shows that a large fraction of these groups indeed qualify for reimbursements. For all of them this fraction is larger than for the overall population. In fact, we can broadly rank the morbidity groups in terms of increasing number of recipients. We first have the different groups of the handicapped, the persons staying in rest and nursing homes for the elderly (ROB/RVT, MRPA/MRS), and those getting psychotherapy or staying in psychiatric nursing homes (PVT/MSP). We then have the chronically ill, identified through the lump sums B or C or the allowance for physiotherapy-E. More than 50% of these get MAB reimbursements. Finally, this fraction is even larger (70%) for households in which a member has stayed in the hospital more than once or for more than 120 days and for the patients with chronic dialysis.

Not only does a large fraction of these groups qualify for reimbursements. If they receive reimbursements, these tend to be considerable (Figure 9). To give an example: households with a patient with lump sum B or C, or with a patient with chronic dialysis receive reimbursements of, on average, between €700 and €800, and this amount even becomes more than €1 750 for 10% of these households. In general (and as could be expected), the differences with the overall population are larger at P90 than at the mean. Patients with psychotherapy or living in a psychiatric nursing home are remarkable exceptions to this finding: we will have to return to these groups later in this chapter.

Figure 10. (Positive) MAB-reimbursements for different pharmaceutical groups

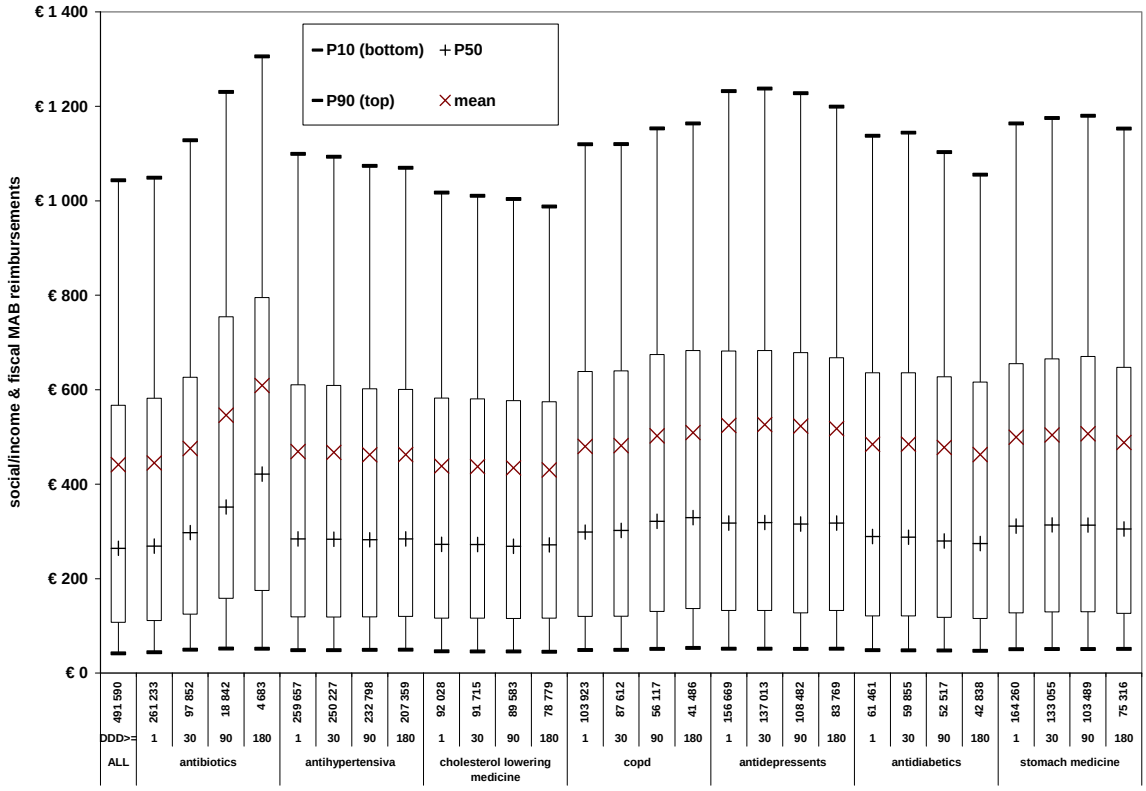


Table 10 and Figure 10 give the information that is derived from consumption of pharmaceuticals. We argued already in the previous chapter that this information can only cautiously be used as an indicator of illness. However, in spite of this qualification, the bottom part of Table 10 shows that overall, more than a quarter of these households receive MAB-reimbursements – and for the chronic users of antibiotics the fraction of receivers is even almost 50%. These fractions are larger than for the overall population.[uu] At the same time, the reimbursements made are on average not (e.g. for the anti-hypertension or the cholesterol-lowering drugs) or only slightly larger than the reimbursements for the overall population. In fact, the number of users of these pharmaceuticals is rather large and our indicators are therefore not very informative. The chronic users of antibiotics nevertheless get larger MAB-reimbursements and the differences between the morbidity subgroups and the overall population are somewhat larger at P90 than at the average. This corroborates our previous finding that the MAB is indeed targeting the chronically ill.

4.3 OOP-PAYMENTS AFTER MAB

The previous section has shown that the MAB-reimbursements are mainly targeting the chronically ill, and to a lesser extent, the weaker socio-economic groups. In fact, as we have seen, income-related differences have a stronger impact on the number of households that get MAB-reimbursements than on the average level of these reimbursements. However, to evaluate the results of the MAB, it is more important to look at the remaining OOP-payments. Since the basic objective of the MAB is to put a ceiling on the official co-payments to be paid by the households, we will first focus on the level of co-payments after MAB. We then raise two questions with respect to the overall protection offered by the MAB. First, by design the MAB targets only official co-payments. Yet, from a social point of view, supplements cannot be neglected. We will therefore show in section 4.3.2 the results for total OOP-payments.

[uu] This is perhaps a good place to remind that we are showing here the results of a bivariate analysis. Confounding influences (e.g. drug users will on average be older) are not controlled for.

Second, the MAB is built on the concept of the NTI, without further correction for household size. We will comment on the consequences of this choice in section 4.3.3.

As mentioned in the introduction to this chapter, one can look either at the absolute level of these OOP-payments, or at the OOP-payments as a share of NTI. The information from these two indicators is complementary. To avoid an oversupply of figures, we will only show the results for the absolute amounts in subsection 4.3.1, in which we are mainly interested in the working of the MAB-ceilings. In the next two subsections we will use information both on the absolute level of OOP-payments and on the OOP-payments as shares of NTI.

4.3.1 Co-payments

Figures 11-14 show the co-payments after MAB for the same social groups that appeared already in the previous section. In principle, these co-payments can only be larger than the ceilings for those groups that have to pay a considerable amount of co-payments not included in the MAB. In each figure the boxplot to the left shows the distribution of co-payments after MAB for the overall population. It is equal to the last boxplot in Figure 2 and is added for comparison purposes.

The figures suggest some interesting observations. First, co-payments after MAB increase with NTI. This is especially striking for the lowest income groups. This increasing pattern cannot be explained by the differential effect of preferential treatment, since a closer analysis (not in the figure) shows that the proportion of households with preferential treatment is very similar for all income groups below €15 000. It may therefore point to a problem of relative underconsumption of health care at the lowest income levels.

Second, the distributions of co-payments after MAB for the different (weak) socio-economic groups do not really differ from the distribution for the overall population. There is one exception: the remaining co-payments are larger for the disabled – but, as noted already before, disability is as much a morbidity as a socio-economic indicator.

Third, co-payments remain larger for most of our morbidity groups than for the overall population. (Note that the scale of Figure 13 may be somewhat misleading). There is one glaring outlier. Co-payments after MAB are much larger for the psychiatric patients (in all categories). The picture may be somewhat biased, because some of these co-payments are linked to accomodation expenses, while the latter are not included for example in the co-payments of patients staying in a rest or nursing home for the elderly. [vv] Yet our results still strongly suggest that psychiatric patients are considerably less protected than other groups.

Fourth, despite the presence of the MAB, co-payments remain considerable for some groups of households. This is especially clear when looking at P90 for some of the morbidity groups. Of course, this is partly due to the fact that these groups contain some chronically ill patients with large incomes. And, as was described in chapter 2, MAB-ceilings remain rather high for higher income groups – in 2004 the largest ceiling was not less than €2 500. We will further analyse in chapter 6 what would be the budgetary consequences of lowering the ceilings.

[vv] In addition to the OOP-payments included in our data, residents of rest and nursing homes for the elderly are confronted with hotel fees that amount at least to €1 000/month and that can easily go up to €2 000-€2 500/month.

Figure 11. Co-payments after MAB for different income groups

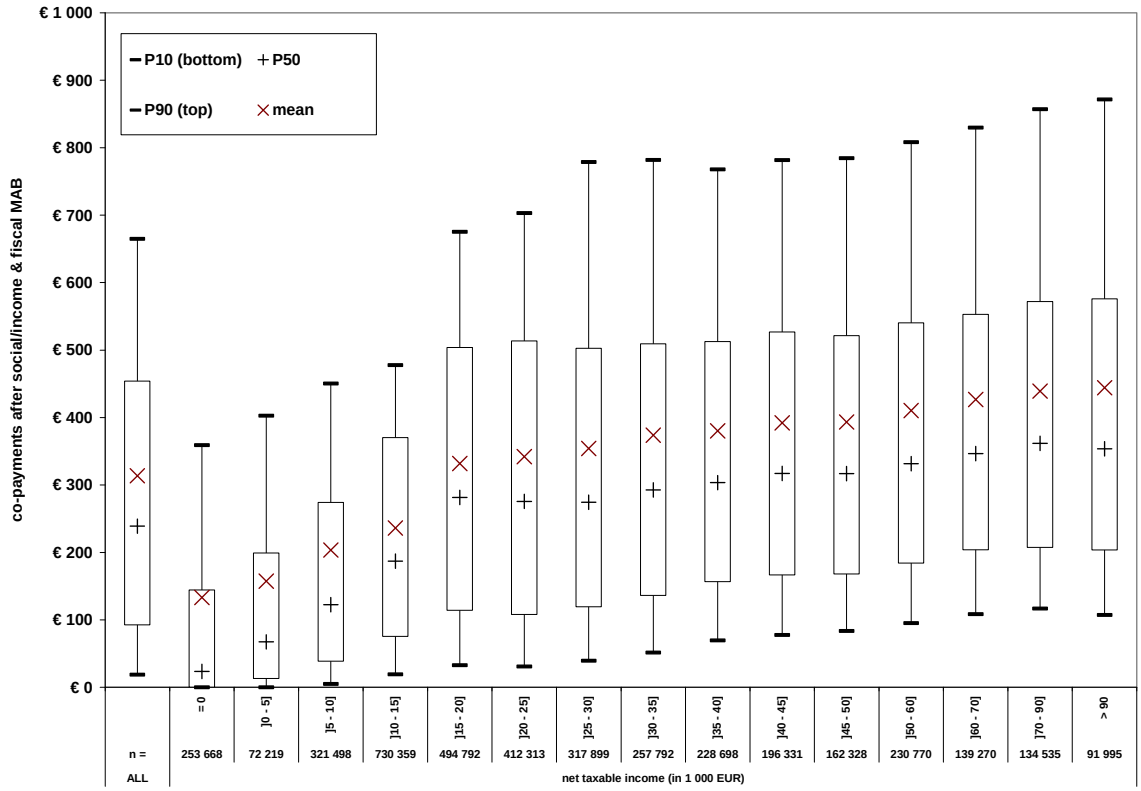


Figure 12. Co-payments after MAB for different socio-economic groups

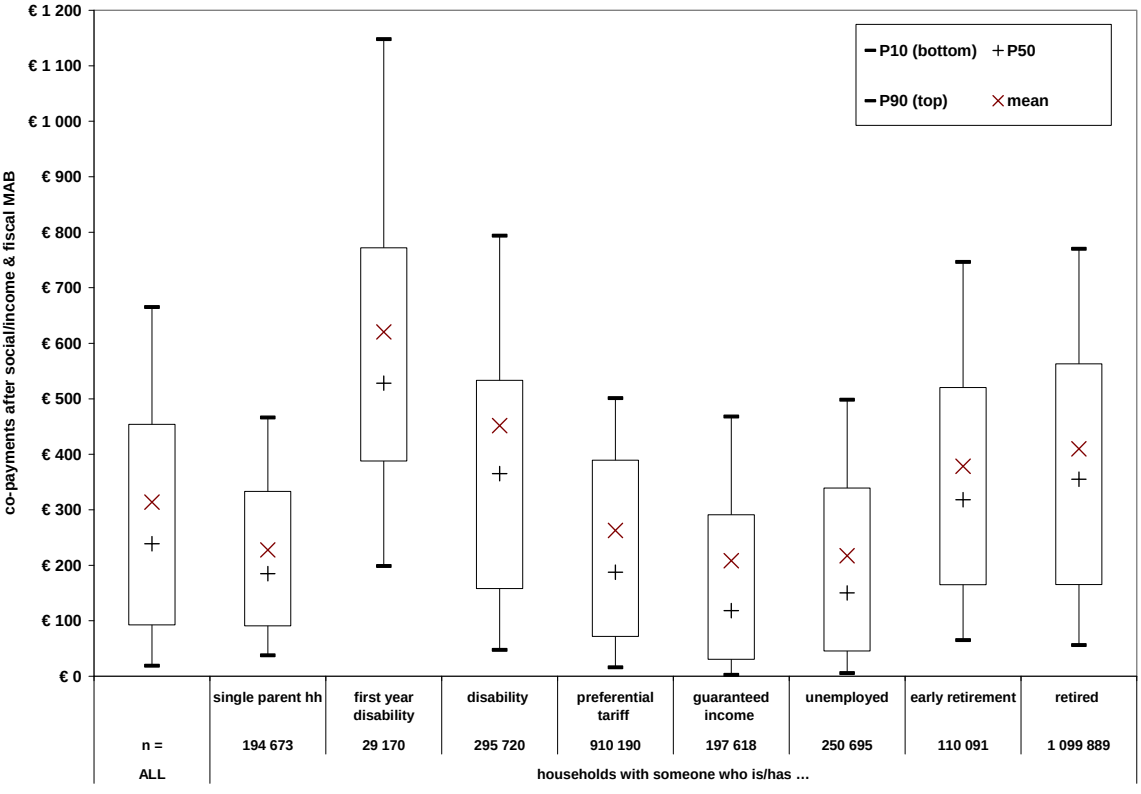


Figure 13. Co-payments after MAB for different morbidity groups

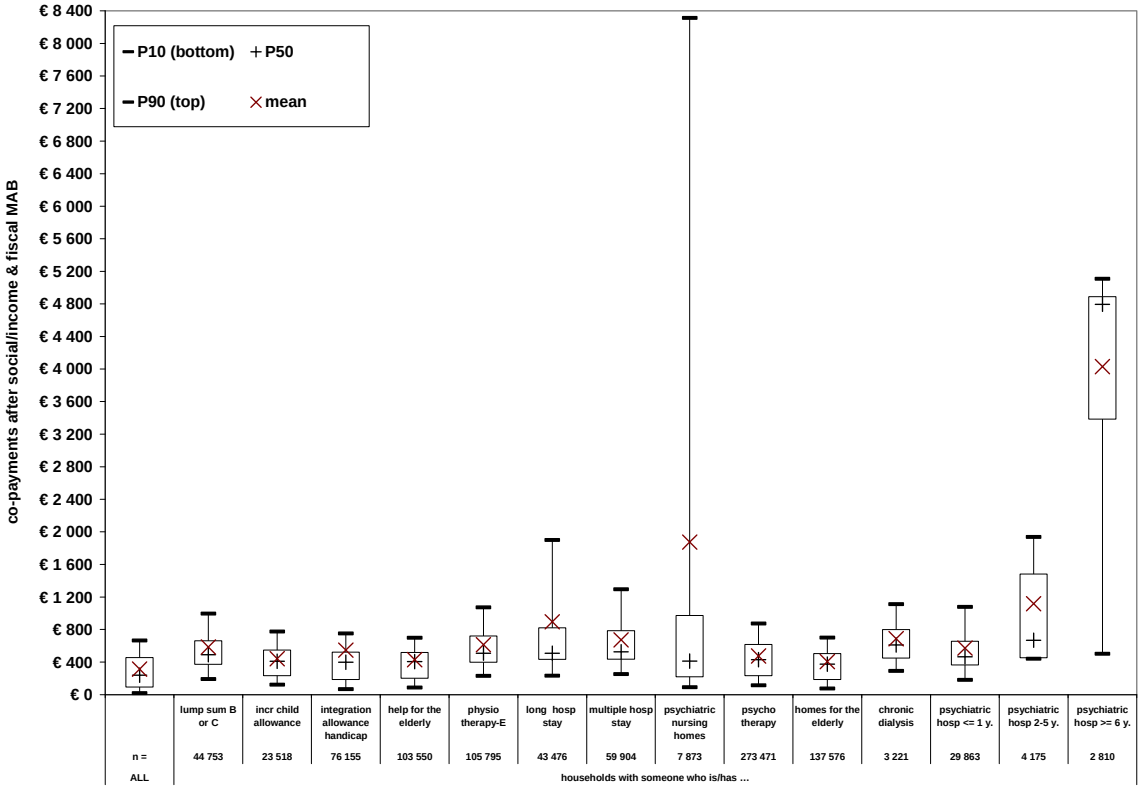
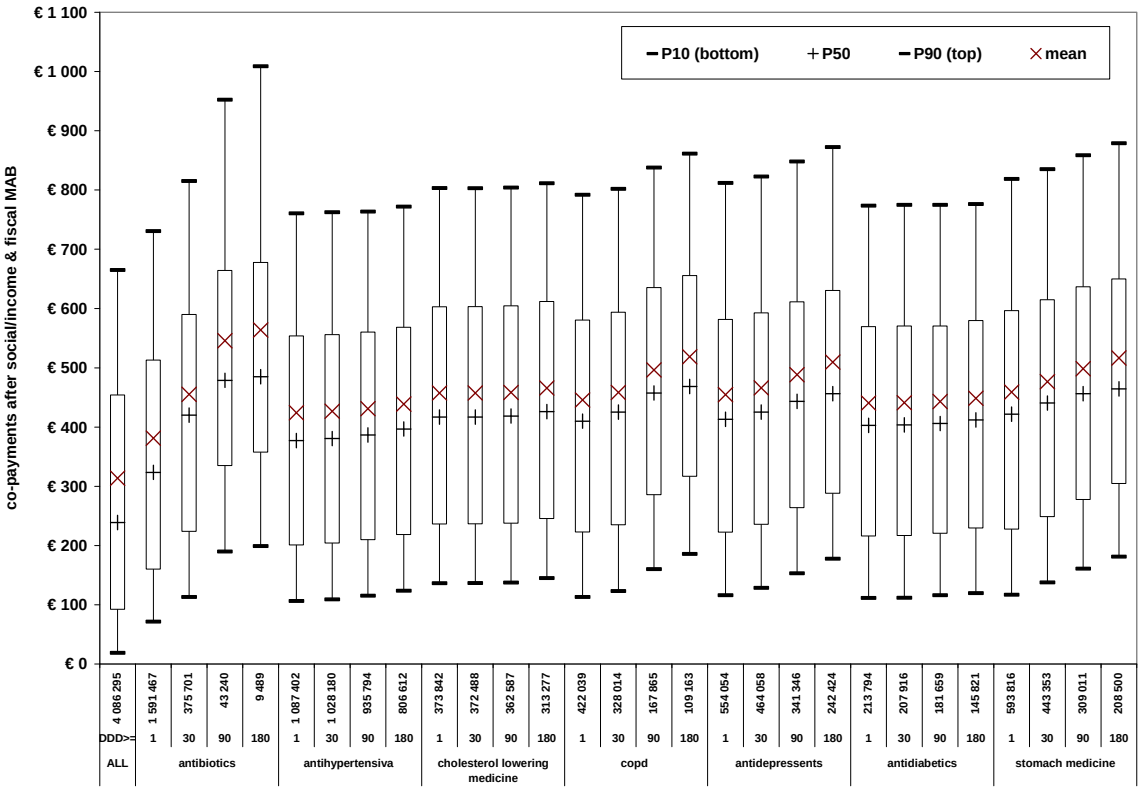


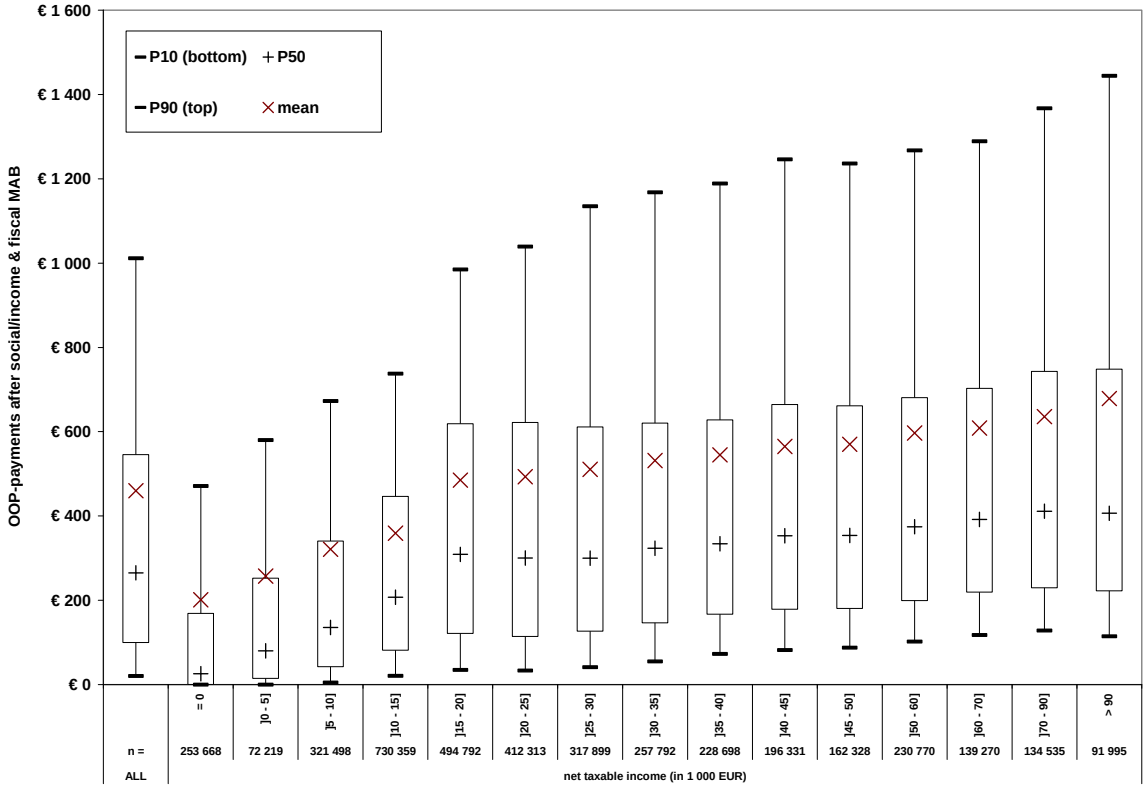
Figure 14. Co-payments after MAB for different pharmaceutical groups



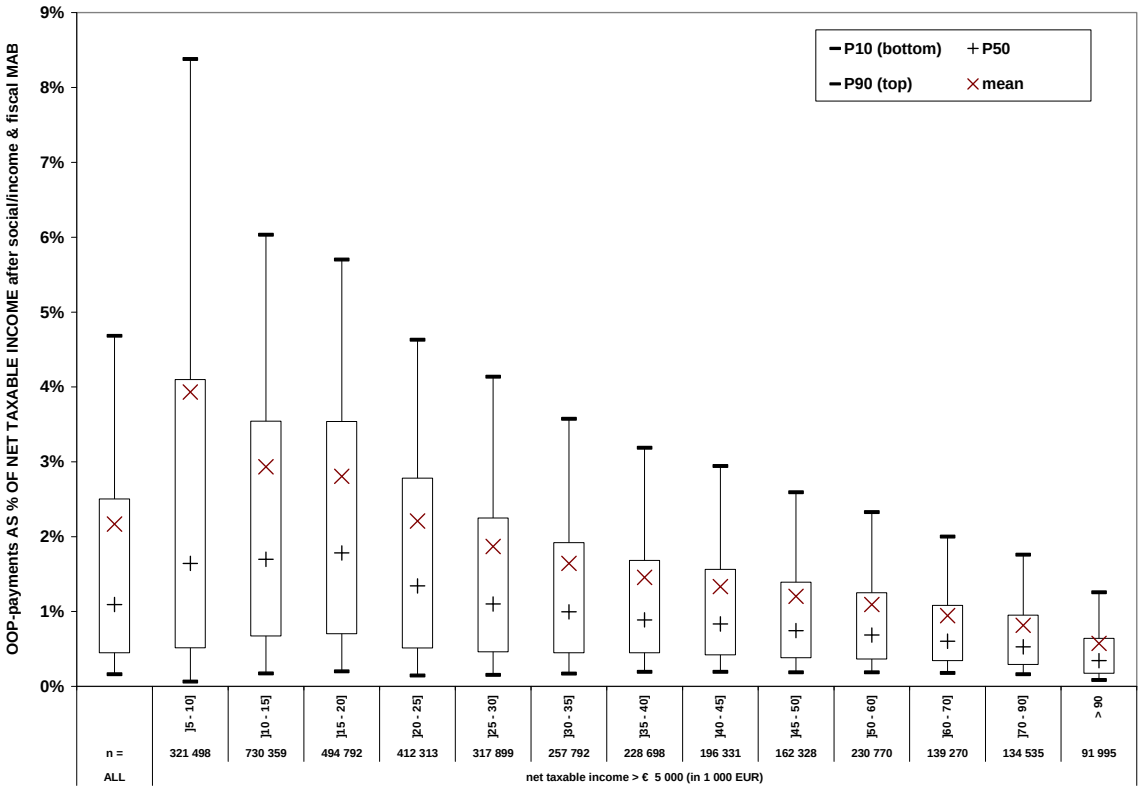
4.3.2 Total OOP-payments

From the point of view of financial accessibility, the legal status of different OOP-payments is not very relevant. What matters to the patients is their total OOP-payments, including the supplements.[ww] In this section we will therefore summarize the information on these total OOP-payments. Remember that our data have two limitations in this regard. First, the information on supplements in the ambulatory sector is not fully reliable. This incomplete registration leads to an underestimate of the total personal financial burden for patients. The error made may be different for different social groups. Second, we have no information on the take-up of supplemental (hospital) insurance. For a large fraction of the population, a considerable share of their supplements will be borne by insurers. In that sense our data overestimate the total financial burden. These insured patients will have to pay a premium, however – about which we do not have information either but which will in general be linked to personal characteristics. We will comment further on this issue at the end of this section.

Figure 15a-b. OOP-payments after MAB for different income groups



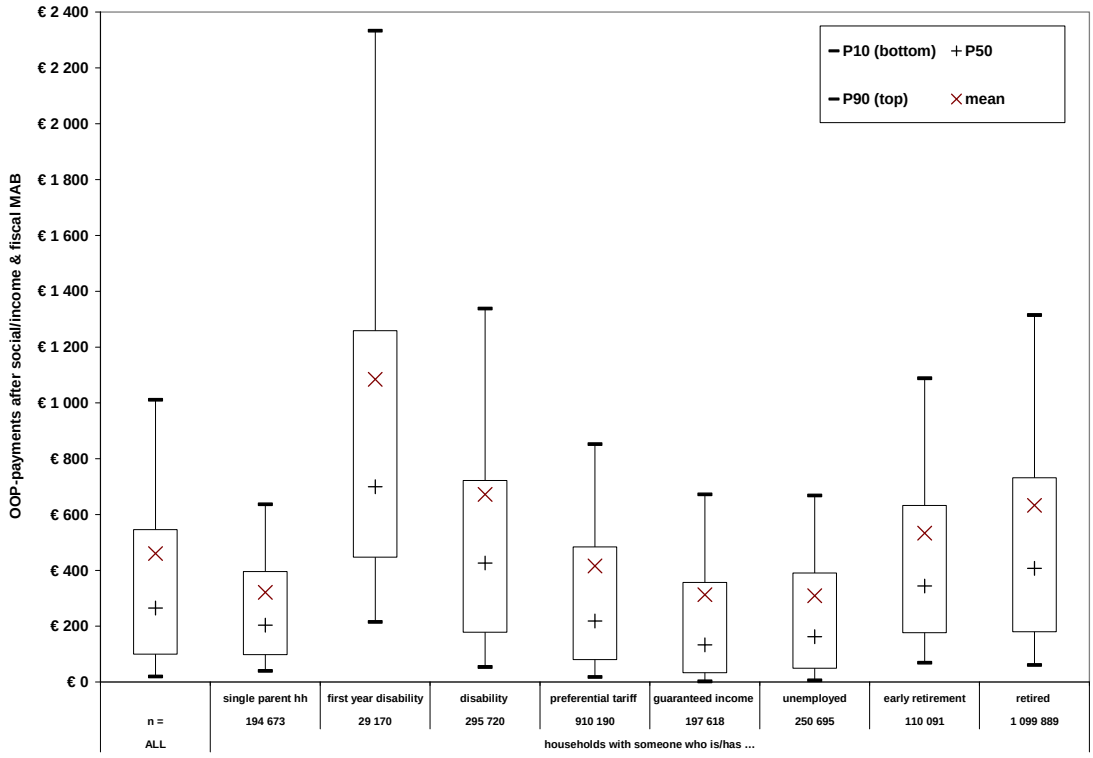
ww One could argue that it is only fair that patients themselves pay the supplements in so far as they reflect their own free choices. This is not true for all supplements, however. We will return to that discussion in chapter 7.



Let us first look at the results for the different income groups in Figures 15a-b. In principle, the MAB is focused on the lower income groups, and within these groups on the households with largest OOP-payments. In fact, we have seen in the previous section that the fraction of households with positive MAB-reimbursements is negatively correlated with income. Moreover, we know from Figure 11 that the co-payments after MAB increase with NTI. Figure 15a shows that, also after including the supplements, OOP-payments still increase with net taxable income both for the mean and (more outspoken) for the right tail (P90) of the distributions. However, Figure 15b (showing the OOP-payments as a share of NTI) indicates that this finding has to be interpreted carefully. Even after the MAB-reimbursements, OOP-payments for health care remain unambiguously and strongly regressive. In fact, as noted before, the relatively low absolute amounts of OOP-payments for the low income groups (in Figure 15a) may correspond to underconsumption, induced by the large weight of health care expenditures in the overall budget (in Figure 15b).

Figures 16a-b show the results for the various socio-economic groups. For none of the groups the 90th percentile is paying more than €2 500 (which was in 2004 the highest possible ceiling in the fiscal MAB). In fact, except for the disabled and the retired, none of these groups has to pay a larger amount of OOP-payments than the average population. The average OOP-payment for households with someone in his/her first year of disability is more than €1 000 and 10% of these households have OOP-payments larger than €2 300.

Figure 16a-b. OOP-payments after MAB for different socio-economic groups



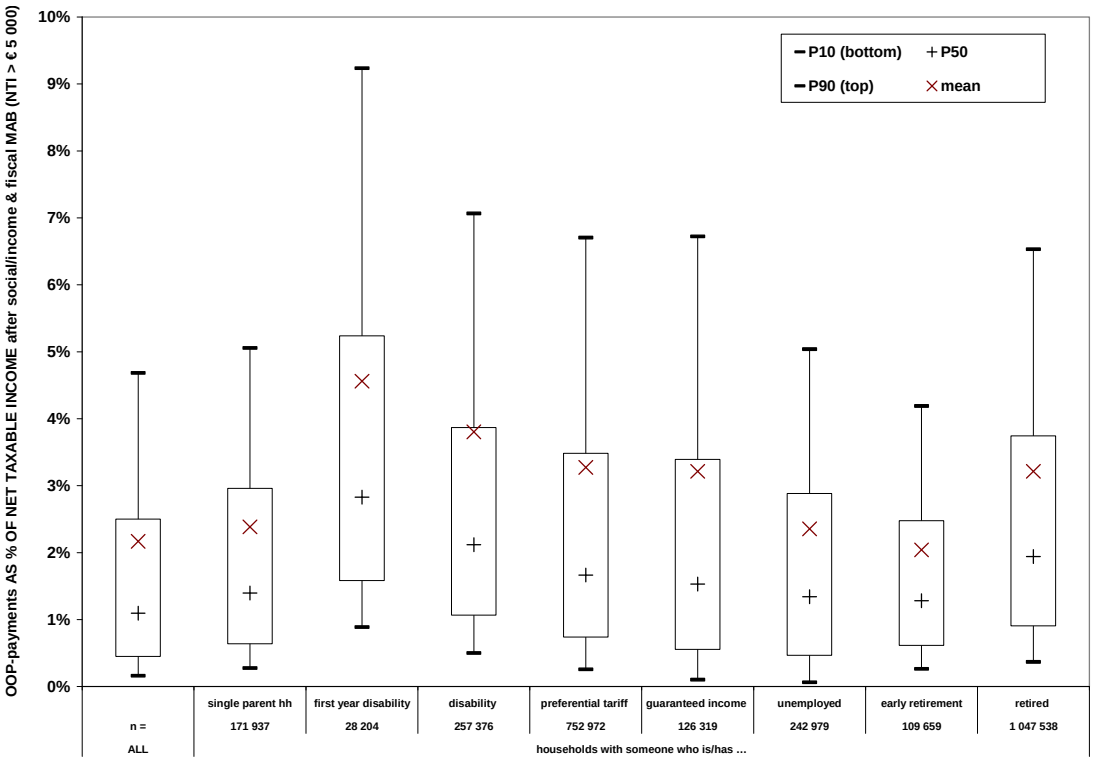


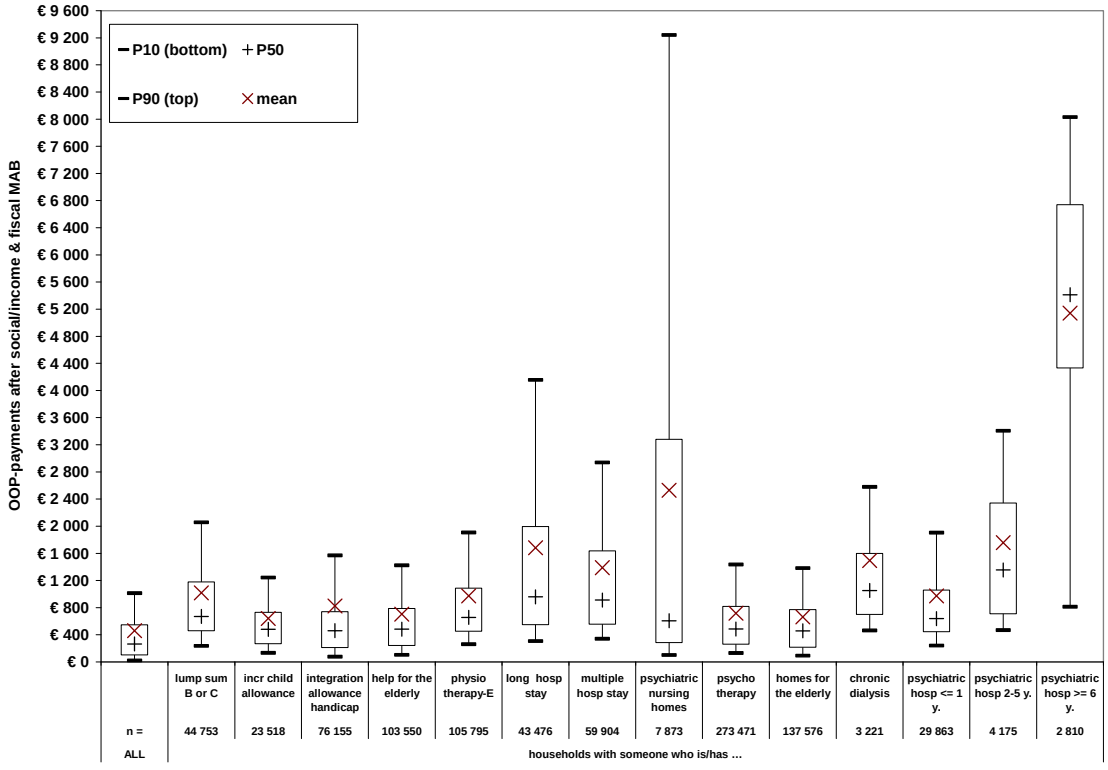
Figure 16b adds interesting new information. Since we focus here on weaker socio-economic groups, they have on average smaller incomes and therefore their situation is less rosy when we consider OOP-payments as a share of NTI. Now not only the disabled and the retired, but also the households with a guaranteed minimum income or with someone at preferential treatment (and to a lesser extent the one-parent households) have a significantly larger financial burden than the overall population.

Focusing on P90 in Figure 16b, we see that some of these households have to spend a large part of their income on OOP-payments for health care. This phenomenon of "extreme payments" as a fraction of income will be analysed in some detail in section 4.4.

Turning to the morbidity groups, Figures 17a-b suggest that, despite the large MAB-reimbursements described in the previous section, there still may remain a real problem of financial accessibility. Look at the results for P90 in Figure 17a. A considerable number of households have total OOP-payments (after reimbursement) larger than the highest €2 500-ceiling of the MAB in 2004.[xx] The strong financial implications of a hospital stay are largely due to supplements. As noted before, for the long term-psychiatric patients, however, the problem may also be due to the incomplete coverage of the MAB. Moreover, the problem of financial accessibility is not restricted to these groups only: 10% of the patients with a chronic illness (lump sum B or C) pay more than €2 000 per year and for 10% of the patients with chronic dialysis this even amounts to €2 400 per year. A considerable number of chronically ill have OOP-payments taking more than 10% of their income.[yy]

The results for the pharmaceutical groups are not very exciting. Comparing Figure 18a and 18b shows a strong similarity between the distributional patterns for the absolute OOP-payments and for the OOP-payments as shares of NTI. OOP-payments after MAB are for all these groups larger than for the overall population. Except for antibiotics, there is no strong relationship between OOP-payments and the number of DDD consumed. Increasing use of antibiotics, however, strongly increases OOP-payments after MAB – and for the chronic users (more than 90 DDD consumed), they can get rather worrying: the upper decile of this group has OOP-payments larger than 9% of their NTI.

Figure 17a-b. OOP-payments after MAB for different morbidity groups



xx As mentioned in chapter 2, the largest ceiling has now been reduced to €1 800.

yy As in all the figures with results for psychiatric patients, care is needed with the scaling of Figures 17a-b.

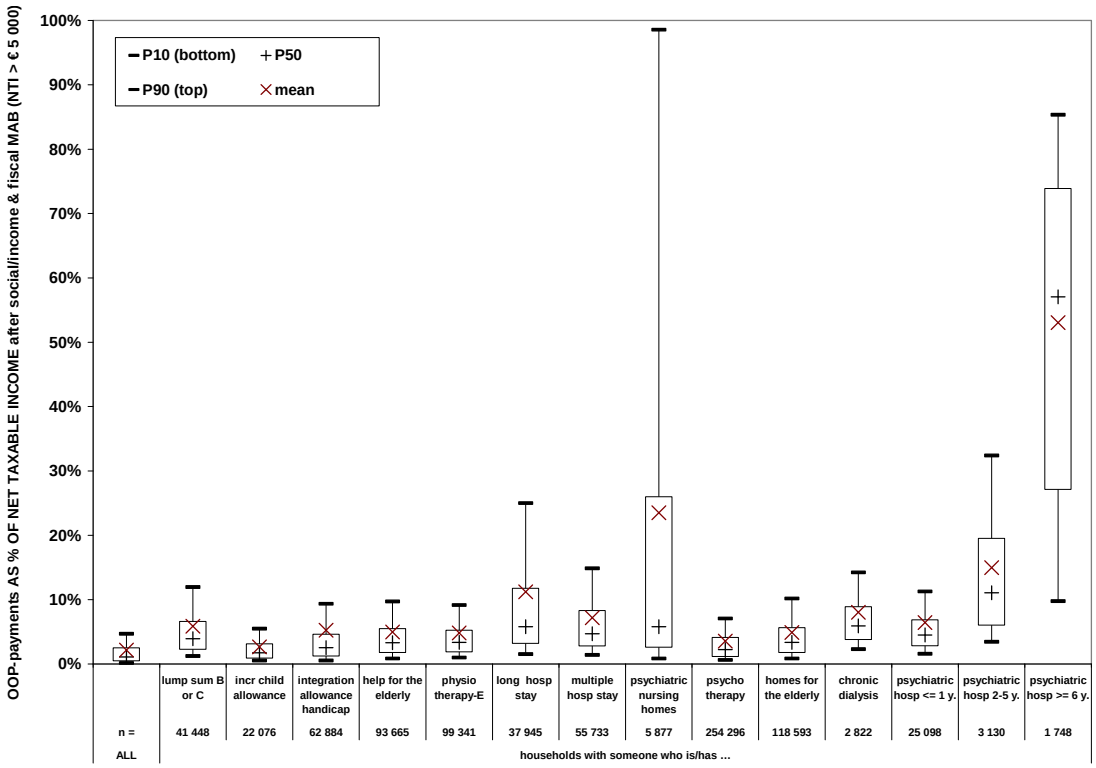
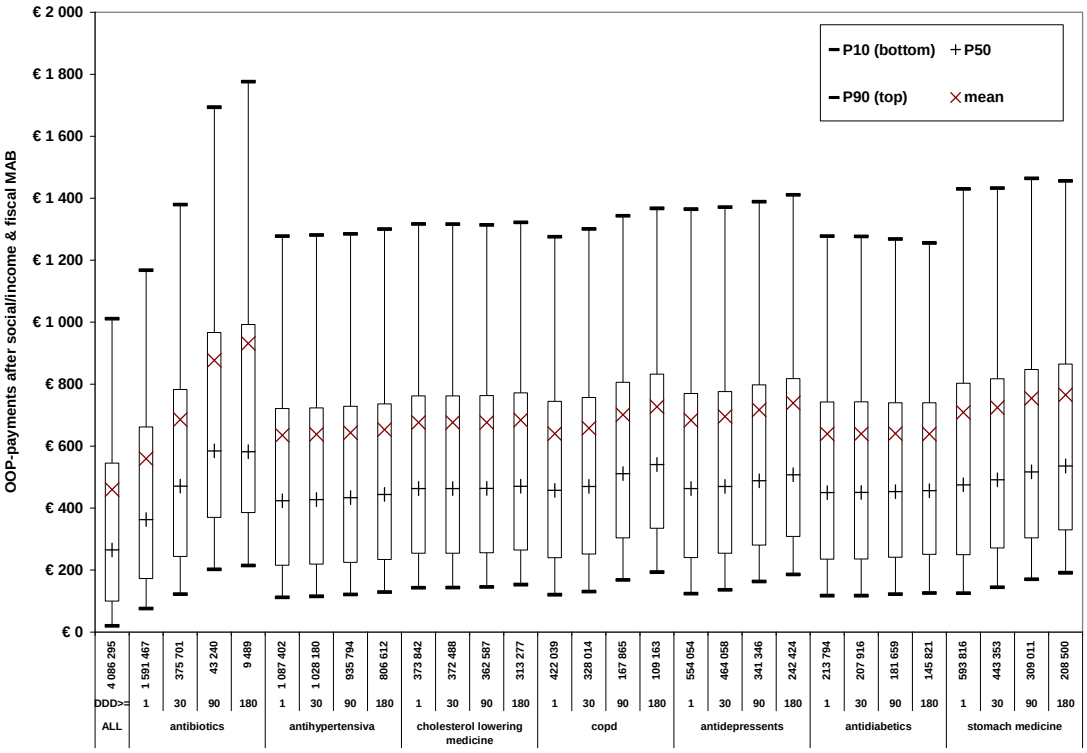


Figure 18a-b. OOP-payments after MAB for different pharmaceutical groups



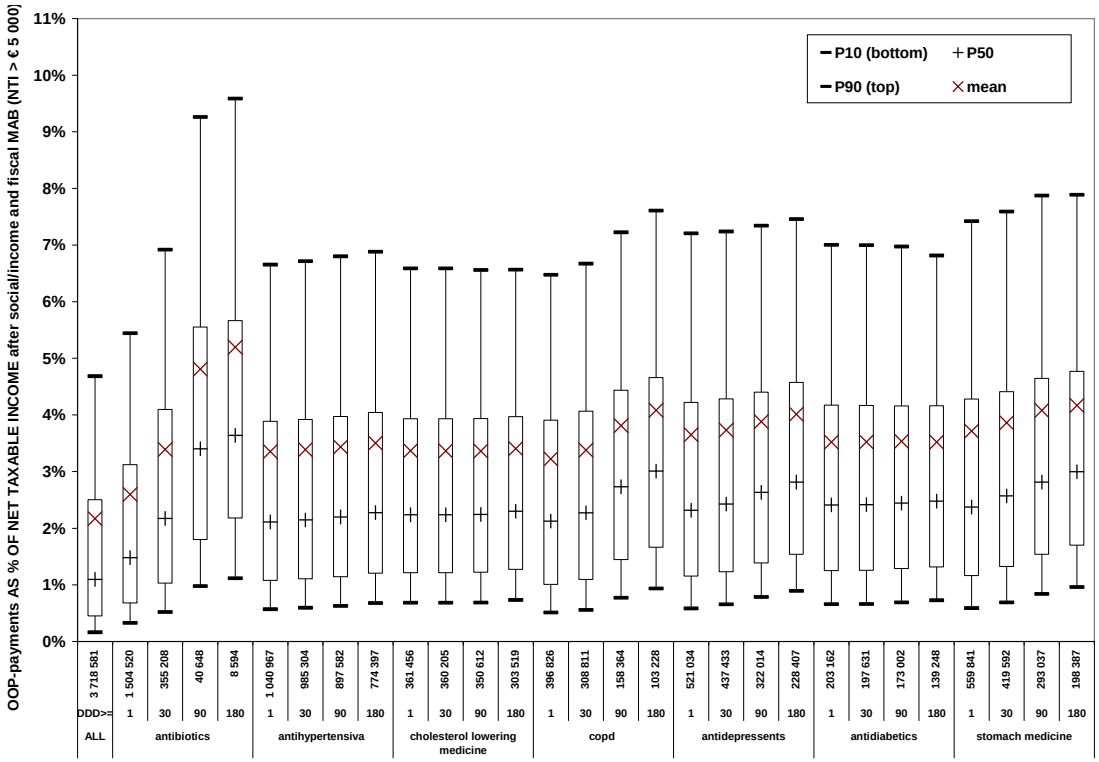
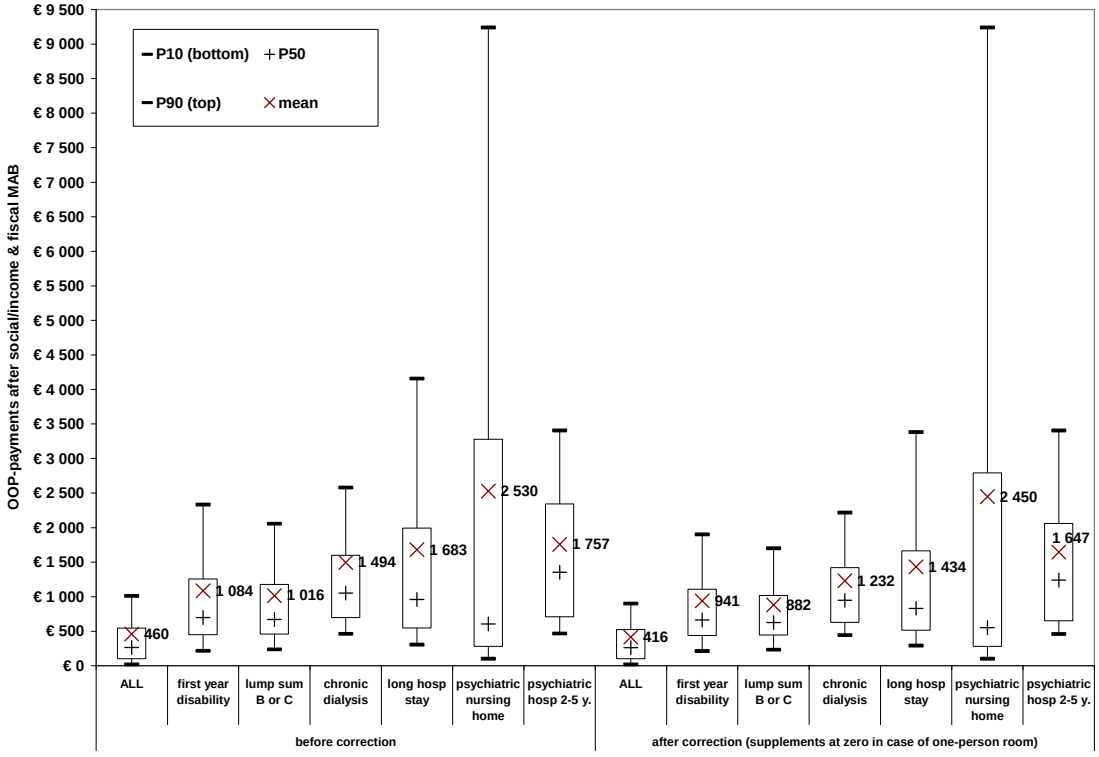


Figure 19. OOP-payments and supplemental insurance: a sensitivity analysis



Taking all the results in this section together, it is clear that looking at total OOP-payments rather than at co-payments only, yields a more worrying picture with respect to the financial consequences for households of getting ill. As mentioned before, a possible caveat is that we do not have any information on the availability of supplemental insurance.

Therefore, the figures on total OOP-payments in this section may be an overestimate of what sick people really have to pay.[zz] To get at least a very rough idea of this effect, we can assume that all the individuals that have opted for a one-person room when staying in the hospital, have supplemental insurance (which then also extends to the other household members). Figure 19 shows for the overall population and for some selected groups the results of a sensitivity analysis, in which we put for all these households the supplements paid at zero. This assumption has a strong effect, mainly in the right tail of the distribution. But it does not detract from our previous conclusion that supplements play an important role in the OOP-payments. Nor does it change the basic finding that OOP-payments after MAB remain considerable for some chronically ill. As such, this is not really a criticism of the MAB, which by design only focuses on the official co-payments. Yet it strongly suggests that additional protection measures with respect to the supplements may be a necessary complement to the MAB.[aaa]

4.3.3 Correcting for household size

Apart from the usual questions concerning the reliability of fiscal data, it is obvious that the NTI, uncorrected for household size, is not a very adequate welfare concept. Therefore, the MAB-regulation implicitly assumes that the corrections for household size in the other parts of the tax and social security system are sufficient to justify the use of the uncorrected NTI as a benchmark for the social protection in the health insurance system. An adequate test of this implicit assumption would require the calculation of the actual disposable income of the households, taking into account (at least) the working of the tax system and the system of child allowances. Our fiscal data are not sufficiently rich to perform these calculations.

To get a rough idea about the effect of household size, we will therefore look at MAB-reimbursements and OOP-payments after MAB as a function of equivalized net taxable incomes. The equivalence scale used has been explained in the previous chapter. Our results should be interpreted carefully. To some extent, they reflect a "worst-case" scenario, in which we do as if there are no corrections for household size in the rest of the system.

The lower part of Table 9 shows that the curvilinear relationship between income and the number of reimbursed households still holds when taking equivalized incomes. However, it is striking that the effect of the fiscal MAB is more important at lower levels of equivalized NTI than at lower levels of uncorrected NTI. Moreover, the sharply declining proportion of recipients in the higher equivalized income groups, suggests that the MAB is more selective in terms of equivalized incomes than in terms of uncorrected incomes.

Figure 20a (to be compared with Figure 7) shows that there is basically no relationship between the level of positive MAB-reimbursements and the equivalent NTI of the households. Figure 20b shows that the relationship between OOP-payments after MAB and equivalent income above a certain threshold is much flatter than the relationship between OOP-payments and uncorrected NTI (in Figure 15a). These findings of course lead to the conclusion that both MAB reimbursements as a fraction of NTI and total OOP-payments after MAB as a fraction of NTI sharply decline with equivalized income. The latter pattern is more outspokenly regressive than the one shown in Figure 15b.[bbb]

The exercise described in this section gives only a very rough idea about the consequences of using uncorrected NTI as the benchmark in the MAB. Some further insights will be gained in the microsimulation analysis of chapter 7.

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zz On the other hand, we have described before that our data underestimate the supplements to be paid in the ambulatory sector.

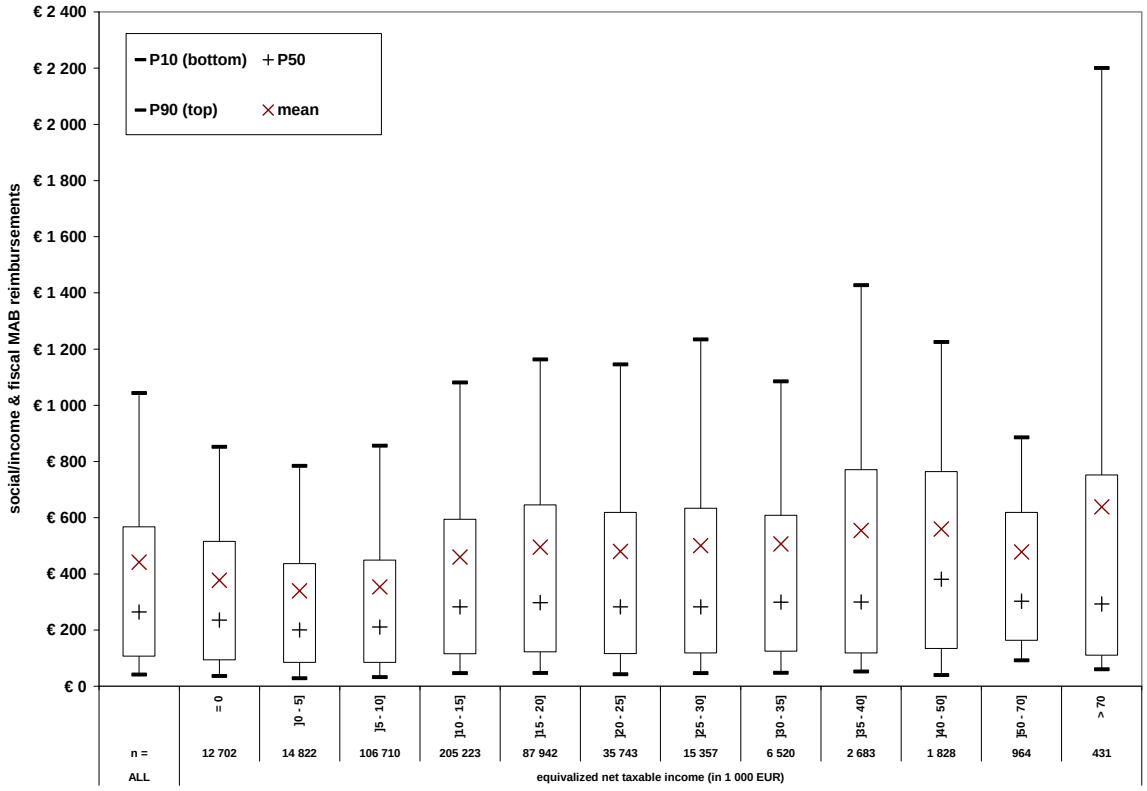
aaa See also De Graeve et al. (2006).[1]

bbb We do not show these results for reasons of space.

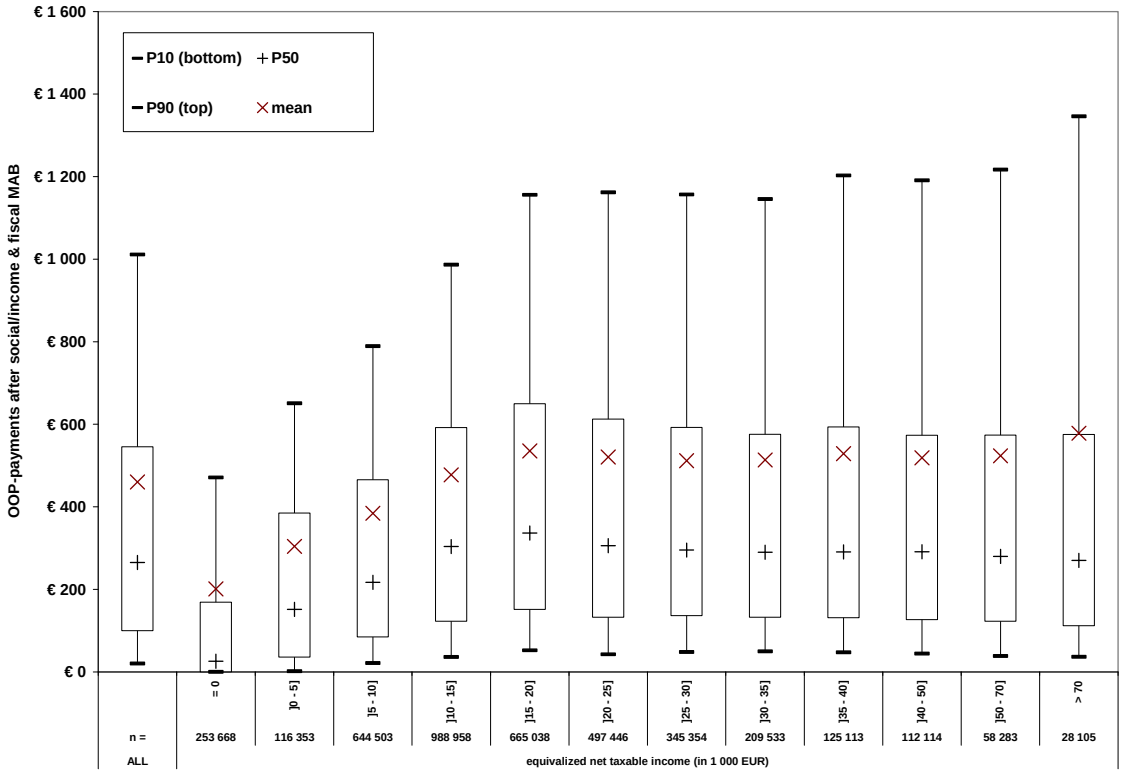
4.4 EXTREME PAYERS

In the previous section, we have mainly focused on the overall distribution of OOP-payments and MAB-reimbursements for different population groups. However, from the point of view of social and financial accessibility we are more interested in the number and the profile of the extreme payers, i.e. those households for which the financial burden remains considerable, even after the MAB. We could define "extreme payers" in terms of the absolute amount of OOP-payments.[ccc] However, given that we have also income information, a more relevant concept to measure the financial burden is the share of OOP-payments as a percentage of net taxable income. The definition of a threshold is to some extent arbitrary: in the first subsection, we will define extreme payers in principle as households with OOP-payments larger than 5% or 10% of NTI. This raises the issue of the zero or very low incomes. It is not very useful to define a household with a zero income and a very low amount of OOP-payments as an extreme payer. On the other hand, removing all the low income households from the analysis, would most probably lead to a serious underestimation of the number of extreme payers. We therefore included the low-income households in the analysis but imposed, in addition to the 5%- or 10%-limit, the additional requirement that OOP-payments must be at least €250 a year.

Figures 20a-b. OOP-payments after MAB and (positive) MAB-reimbursements according to *equivalized* NTI



ccc This approach was followed in De Graeve et al. (2006).[1]



In the first subsection, we will analyze the profile of these extreme payers. A second approach to financial accessibility is explored in the second subsection, in which we focus on the effect of OOP-payments on the poverty risk. In the third subsection, we look more closely at the persistence of OOP-payments over time.

4.4.1 Extreme payers

Table 11a gives a first general overview of the effectiveness of the MAB to hold households below the relevant thresholds. It shows that, despite the existence of the MAB, there are still many households with relatively large (possibly problematic) OOP-payments for health care: more than 397 000 households have OOP-payments (after MAB) of more than 5% of their NTI[ddd], more than 164 000 households have OOP-payments (after MAB) of more than 10% of their NTI. These numbers correspond to 9.83% and 4.07% of the total number of households respectively. Even more striking (and perhaps disappointing) is the relatively minor effect of the MAB on these numbers: without MAB, there would be 503 953 households with OOP-payments for health care larger than 5% of their NTI and 224 043 households with OOP-payments larger than 10% of their NTI. The MAB brings 21% of the former and 27% of the latter below the thresholds. The table shows that one reason for this is the important role played by the supplements, which of course are not reduced by the MAB. About 150 000 households would be 5%-extreme payers with supplements only, i.e. their supplements are larger than €250 and take more than 5% of their NTI. Remember that our data for supplements are underestimates of the real supplements, mainly in the ambulatory sector. On the other hand, many households have a supplemental insurance that covers their (mainly hospital) supplements. The central part of the Table shows the corresponding figures for co-payments only: neglecting supplements, before MAB 317 222 households would be extreme payers with the 5%-threshold and 108 671 would be extreme payers with the 10%-threshold. The MAB reduces these figures considerably. Still, even disregarding the supplements, 132 404 households have co-payments after the MAB that are larger than €250 and take more than 5% of their NTI.

ddd With the additional restriction that OOP-payments are larger than €250 a year.

Table 11a. Number of extreme payers

OOP-payments°	ALL	BEFORE soc/inc MAB		AFTER soc/inc MAB		AFTER soc/inc & fiscal MAB	
		> 5 % NTI	> 10 % NTI	> 5 % NTI	> 10 % NTI	> 5 % NTI	> 10 % NTI
# households*	4 044 468	503 953	224 043	421 509	175 194	397 414	164 595
in %	100%	12.46%	5.54%	10.42%	4.33%	9.83%	4.07%

co-payments °	ALL	BEFORE soc/inc MAB		AFTER soc/inc MAB		AFTER soc/inc & fiscal MAB	
		> 5 % NTI	> 10 % NTI	> 5 % NTI	> 10 % NTI	> 5 % NTI	> 10 % NTI
# households*	4 044 468	317 222	108 671	170 262	65 605	132 404	58 140
in %	100%	7.84%	2.69%	4.21%	1.62%	3.27%	1.44%

supplements°	ALL	BEFORE soc/inc MAB		AFTER soc/inc MAB		AFTER soc/inc & fiscal MAB	
		> 5 % NTI	> 10 % NTI	> 5 % NTI	> 10 % NTI	> 5 % NTI	> 10 % NTI
# households*	4 044 468	148 272	71 587	148 272	71 587	148 272	71 587
in %	100%	3.67%	1.77%	3.67%	1.77%	3.67%	1.77%

° >= € 250

* without NTI missing

Table 11b. The overall extreme burden for the extreme payers

treshold = 5%	BEFORE MAB	AFTER soc/income MAB	AFTER soc/income & fiscal MAB
co-payments	191 609 979	96 330 774	71 318 855
		% reduction	
		-49.7%	***-62.8%***
total OOP-payments	517 636 669	395 096 482	358 828 959
		% reduction	
		-23.7%	***-30.7%***

treshold = 10%	BEFORE MAB	AFTER soc/income MAB	AFTER soc/income & fiscal MAB
co-payments	92 248 563	60 790 112	55 022 978
		% reduction	
		-34.1%	***-40.4%***
total OOP-payments	281 646 868	214 140 201	196 807 416
		% reduction	
		-24.0%	***-30.1%***

The number of extreme payers is only a rough indication of payment problems, since it does not give any information on the size of the burden: a household with a burden of 5.01 % of its income and another household with a burden of 50% of its income both get a weight of one.

An alternative measure calculates for each household separately its "extreme burden", i.e. the amount of OOP-payments it has to pay over and above the 5% (or 10%)-limit, and then adds all these individual burdens.[eee] The effect of the MAB on these extreme burdens is shown in Table 11b. As could be expected from a ceiling mechanism, the MAB has a stronger effect with this measure.

Two questions are now essential: which population groups are mainly affected? And what health care expenses are mainly responsible for the large OOP-payments? Some relevant information is brought together in Tables 12 and 13. Table 12a shows the proportions of extreme payers in different subgroups when looking at co-payments only, Table 12b gives the same information for total OOP-payments. In each table, the first row repeats the numbers for the overall population, so that one can identify the groups at risk by comparing the numbers in the different rows with the numbers in the first row. A richer picture appears when we consider at the same time the second column in Table 13, giving the absolute amounts of OOP-payments after MAB.

The last part of Table 12 gives the number of extreme payers in the different income groups. Given our definition of extreme payers, it is straightforward that this risk is inversely related to income – and large for the smallest incomes. Note, however, that we find extreme payers also in higher income groups. By way of illustration: about 8 500 households with a NTI larger than €50 000/year have OOP-payments after MAB larger than 5% of their income (and therefore larger than the highest MAB-ceiling of €2 500). Of course, this mainly reflects the presence of large supplements. More interesting are the results for the other groups. Looking at total OOP-payments (Table 12b), we can rank them more or less in the following order of increasing vulnerability:

1. The risk of becoming an extreme payer is lower for the households living on unemployment benefits than for a randomly chosen household from the population. The risk is slightly larger for single parents, for households with a guaranteed income and for households with preferential tariff. As Table 13 shows that their average OOP-payment is smaller than that of the overall population, the increased risk mainly reflects their lower income (and therefore their increased economic vulnerability). Of course, as suggested before, for all these groups there is also the possibility of underconsumption of health care.
2. There is also an increased risk of becoming an extreme payer for the retired and for the morbidity groups identified through their pharmaceutical consumption.
3. The risk is still larger for the chronically ill (lump sum B or C, entitled to physiotherapy-E, more than 90 DDD of antibiotics), those in their first year of disability, patients in rest and nursing homes for the elderly (ROB/RVT, MRPA/MRS) and the elderly handicapped. In this group, the chronically ill patients with a lump sum B or C are worst off: 39% of them has OOP-payments larger than 5% of their income, 18% has OOP-payments larger than 10% of their NTI.
4. Households with a member with a long stay in the general hospital (or with multiple stays) or with a patient in chronic dialysis have a large risk of becoming an extreme payer. Of the latter group, 30% has OOP-payments after MAB of more than 10% of their NTI and even 64% has OOP-payments after MAB of more than 5% of their NTI.
5. Patients in psychiatric nursing homes or with a stay in a psychiatric hospital less than one year are comparable to the previous group. However, the situation is rather dramatic for the (relatively) small group of patients with a psychiatric stay of long duration.

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eee The idea is similar to the distinction between the "headcount (ratio)" and the "poverty gap" in the literature on the measurement of poverty. More advanced measures could also take into account the relative inequality in the (extreme) financial burden. We did not explore this idea further.

The number of extreme payers is of course smaller when we look at co-payments only (Table 12a).

In principle, if the coverage of the MAB in terms of co-payments were complete, its design should imply that extreme payers (>5%) are found only among the very low incomes (see Figure 1b in the introduction). As Table 12a shows, however, for some groups the financial burden of co-payments after the MAB remains considerable. This is especially true for patients with a long hospital stay and, again, psychiatric patients. Yet also for households with a member that is entitled to lump sum B or C or physiotherapy-E, for the households on guaranteed income, for the handicapped, for the elderly living in a rest or nursing home, for those at chronic dialysis and for chronic users of antibiotics, COPD-medicine or antidepressants, the risk of becoming an extreme payer (>5% NTI) is more than 10%.

Table 12a. Vulnerability of different socio-economic and morbidity groups: co-payments

using weights		(1)	(2) co-payments AFTER soc/inc & fiscal MAB	(3)	=(2) / (1)	=(3) / (1)
			> 5 % NTI	> 10 % NTI		
ALL		**4 044 468**	**132 404**	**58 140**	**3.27%**	**1.44%**
single parent hh		194 673	9 923	4 409	5.10%	2.27%
first year disability		29 170	2 356	719	8.08%	2.47%
disability		295 055	28 524	15 099	9.67%	5.12%
preferential tariff		905 806	70 801	37 009	7.82%	4.09%
guaranteed income		197 535	20 727	11 677	10.49%	5.91%
unemployed		250 695	9 901	1 287	3.95%	0.51%
early retirement		110 091	1 133	295	1.03%	0.27%
retired		1 099 495	46 028	15 599	4.19%	1.42%
lump sum B or C		44 753	7 369	2 461	16.47%	5.50%
increased child allowance		23 227	1 291	510	5.56%	2.20%
integration allowance handicap		76 155	10 859	6 920	14.26%	9.09%
help for the elderly		103 550	13 397	4 853	12.94%	4.69%
physiotherapy-E		105 587	12 912	4 326	12.23%	4.10%
long hospital stay		43 476	13 817	7 888	31.78%	18.14%
multiple hospital stay		59 862	10 080	3 921	16.84%	6.55%
psychiatric nursing home		7 873	3 528	2 669	44.82%	33.90%
psychotherapy		272 723	23 009	9 622	8.44%	3.53%
homes for the elderly		137 576	19 904	8 085	14.47%	5.88%
chronic dialysis		3 221	882	287	27.37%	8.90%
psychiatric hospital	**<= 1 y.**	29 863	7 769	3 907	26.01%	13.08%
	2 - 5 y.	4 175	2 920	2 134	69.93%	51.11%
	>= 6 y.	2 810	2 576	2 545	91.66%	90.56%
antibiotics DDD>=	**1**	1 583 280	71 250	27 283	4.50%	1.72%
	30	375 202	27 944	9 390	7.45%	2.50%
	90	43 240	5 889	1 825	13.62%	4.22%
	180	9 489	1 555	688	16.39%	7.25%
antihypertensives DDD>=	**1**	1 087 277	64 680	23 335	5.95%	2.15%
	30	1 028 138	61 930	22 099	6.02%	2.15%
	90	935 794	57 398	20 174	6.13%	2.16%
	180	806 612	50 453	17 663	6.25%	2.19%
cholesterol lowering medicine DDD>=	**1**	373 842	19 106	6 134	5.11%	1.64%
	30	372 488	18 961	6 074	5.09%	1.63%
	90	362 587	18 362	5 930	5.06%	1.64%
	180	313 277	15 817	5 053	5.05%	1.61%
COPD DDD>=	**1**	417 800	29 881	10 997	7.15%	2.63%
	30	325 271	25 250	9 184	7.76%	2.82%
	90	167 159	15 986	5 738	9.56%	3.43%
	180	108 914	11 587	4 099	10.64%	3.76%

using weights		(1)	(2) co-payments AFTER soc/inc & fiscal MAB	(3ˆ) co-payments AFTER soc/inc & fiscal MAB	=(2) / (1)	=(3) / (1)
			> 5 % NTI	> 10 % NTI		
antidepressants DDD>=	1	554 013	47 573	18 338	8.59%	3.31%
	30	464 017	41 327	15 820	8.91%	3.41%
	90	341 305	33 306	12 835	9.76%	3.76%
	180	242 424	26 006	10 191	10.73%	4.20%
antidiabetics DDD>=	1	213 794	15 694	5 732	7.34%	2.68%
	30	207 916	15 187	5 596	7.30%	2.69%
	90	181 659	13 245	4 893	7.29%	2.69%
	180	145 821	10 538	3 838	7.23%	2.63%
stomach medicine DDD>=	1	592 653	45 882	16 744	7.74%	2.83%
	30	443 062	36 669	12 780	8.28%	2.88%
	90	308 928	28 840	9 696	9.34%	3.14%
	180	208 500	20 781	6 848	9.97%	3.28%
Crohn DDD>=	1	22 509	1 446	533	6.42%	2.37%
	30	19 658	1 271	482	6.47%	2.45%
	90	15 426	1 022	399	6.62%	2.58%
	180	11 039	713	253	6.45%	2.29%
NTI] €0 - € 5 000]		325 887	54 164	50 441	16.62%	15.48%
] €5 000 - €10 000]		321 498	40 337	3 464	12.55%	1.08%
] €10 000 - €15 000]		730 359	18 921	2 099	2.59%	0.29%
] €15 000 - €20 000]		494 792	9 725	1 136	1.97%	0.23%
] €20 000 - €25 000]		412 313	4 252	468	1.03%	0.11%
] €25 000 - €30 000]		317 899	1 968	172	0.62%	0.05%
] €30 000 - €35 000]		257 792	1 416	131	0.55%	0.05%
] €35 000 - €40 000]		228 698	743	79	0.32%	0.03%
] €40 000 - €45 000]		196 331	421	74	0.21%	0.04%
] €45 000 - €50 000]		162 328	202	10	0.12%	0.01%
] €50 000 - €60 000]		230 770	167	48	0.07%	0.02%
] €60 000 - €70 000]		139 270	77	18	0.06%	0.01%
] €70 000 - €90 000]		134 535	9		0.01%	
> €90 000		91 995	3		0.00%	
equivalized NTI]€0 - €5 000]		370 022	60 919	50 949	16.46%	13.77%
] €5 000 - €10 000]		644 503	44 785	3 666	6.95%	0.57%
] €10 000 - €15 000]		988 958	17 815	2 421	1.80%	0.24%
] €15 000 - €20 000]		665 038	6 066	853	0.91%	0.13%
] €20 000 - €25 000]		497 446	1 891	171	0.38%	0.03%
] €25 000 - €30 000]		345 354	546	60	0.16%	0.02%
] €30 000 - €35 000]		209 533	229		0.11%	
] €35 000 - €40 000]		125 113	92		0.07%	
] €40 000 - €50 000]		112 114	61	20	0.05%	0.02%
] €50 000 - €70 000]		58 283				
> €70 00		28 105				

Table 12b. Vulnerability of different socio-economic and morbidity groups: total OOP-payments

using weights		(1)	(4) OOP-payments AFTER soc/inc & fiscal MAB > 5 % NTI	(5) OOP-payments AFTER soc/inc & fiscal MAB > 10 % NTI	=(4) / (1)	=(5) / (1)
ALL		**4 044 468**	**397 414**	**164 595**	**9.83%**	**4.07%**
single parent hh		194 673	23 780	10 473	12.22%	5.38%
first year disability		29 170	8 071	2 951	27.67%	10.11%
disability		295 055	57 035	29 418	19.33%	9.97%
preferential tariff		905 806	158 683	82 447	17.52%	9.10%
guaranteed income		197 535	33 825	20 653	17.12%	10.46%
unemployed		250 695	26 389	8 428	10.53%	3.36%
early retirement		110 091	8 153	2 273	7.41%	2.06%
retired		1 099 495	178 509	68 465	16.24%	6.23%
lump sum B or C		44 753	17 543	7 875	39.20%	17.60%
increased child allowance		23 227	3 227	1 117	13.89%	4.81%
integration allowance handicap		76 155	19 754	11 583	25.94%	15.21%
help for the elderly		103 550	32 785	13 958	31.66%	13.48%
physiotherapy-E		105 587	31 128	12 957	29.48%	12.27%
long hospital stay		43 476	26 345	16 101	60.60%	37.03%
multiple hospital stay		59 862	29 656	14 362	49.54%	23.99%
psychiatric nursing home		7 873	4 718	3 637	59.92%	46.20%
psychotherapy		272 723	55 592	23 048	20.38%	8.45%
homes for the elderly		137 576	44 988	21 207	32.70%	15.41%
chronic dialysis		3 221	2 067	962	64.17%	29.87%
psychiatric hospital	**<= 1 y.**	29 863	14 514	6 979	48.60%	23.37%
	2 - 5 y.	4 175	3 458	2 700	82.82%	64.66%
	>= 6 y.	2 810	2 736	2 627	97.35%	93.48%
antibiotics DDD>=	**1**	1 583 280	205 300	80 016	12.97%	5.05%
	30	375 202	73 185	28 013	19.51%	7.47%
	90	43 240	13 970	5 161	32.31%	11.94%
	180	9 489	3 327	1 403	35.07%	14.79%
antihypertensives DDD>=	**1**	1 087 277	193 948	76 138	17.84%	7.00%
	30	1 028 138	185 508	72 945	18.04%	7.09%
	90	935 794	171 991	67 410	18.38%	7.20%
	180	806 612	151 823	58 968	18.82%	7.31%
cholesterol lowering medicine DDD>=	**1**	373 842	63 900	23 485	17.09%	6.28%
	30	372 488	63 650	23 372	17.09%	6.27%
	90	362 587	61 916	22 575	17.08%	6.23%
	180	313 277	53 654	19 328	17.13%	6.17%
COPD DDD>=	**1**	417 800	75 165	28 706	17.99%	6.87%
	30	325 271	62 336	23 946	19.16%	7.36%
	90	167 159	37 441	14 419	22.40%	8.63%
	180	108 914	26 472	10 282	24.31%	9.44%
antidepressants DDD>=	**1**	554 013	116 545	48 193	21.04%	8.70%
	30	464 017	99 584	40 621	21.46%	8.75%
	90	341 305	76 868	31 159	22.52%	9.13%
	180	242 424	58 026	23 138	23.94%	9.54%
antidiabetics DDD>=	**1**	213 794	41 911	16 169	19.60%	7.56%
	30	207 916	40 711	15 728	19.58%	7.56%
	90	181 659	35 668	13 642	19.63%	7.51%
	180	145 821	28 329	10 666	19.43%	7.31%
stomach medicine DDD>=	**1**	592 653	126 138	51 676	21.28%	8.72%
	30	443 062	98 156	39 463	22.15%	8.91%
	90	308 928	74 828	29 415	24.22%	9.52%

using weights		(1)	(4) OOP-payments AFTER soc/inc & fiscal MAB > 5 % NTI	(5) OOP-payments AFTER soc/inc & fiscal MAB > 10 % NTI	=(4) / (1)	=(5) / (1)
	180	208 500	52 358	19 881	25.11%	9.54%
Crohn DDD>=	**1**	22 509	4 244	1 750	18.86%	7.77%
	30	19 658	3 672	1 472	18.68%	7.49%
	90	15 426	2 737	1 087	17.74%	7.05%
	180	11 039	1 928	662	17.46%	6.00%
NTI **] €0 - €5 000]**		325 887	65 672	63 050	20.15%	19.35%
] €5 000 - €10 000]		321 498	65 339	25 687	20.32%	7.99%
] €10 000 - €15 000]		730 359	101 244	31 705	13.86%	4.34%
] €15 000 - €20 000]		494 792	63 725	18 360	12.88%	3.71%
] €20 000 - €25 000]		412 313	35 726	10 554	8.66%	2.56%
] €25 000 - €30 000]		317 899	22 129	6 153	6.96%	1.94%
] €30 000 - €35 000]		257 792	14 427	3 608	5.60%	1.40%
] €35 000 - €40 000]		228 698	9 833	2 060	4.30%	0.90%
] €40 000 - €45 000]		196 331	6 480	1 141	3.30%	0.58%
] €45 000 - €50 000]		162 328	4 341	784	2.67%	0.48%
] €50 000 - €60 000]		230 770	4 935	964	2.14%	0.42%
] €60 000 - €70 000]		139 270	1 924	361	1.38%	0.26%
] €70 000 - €90 000]		134 535	1 276	139	0.95%	0.10%
> €90 000		91 995	363	29	0.39%	0.03%
equivalized NTI] €0 - €5 000]		370 022	76 636	65 763	20.71%	17.77%
] €5 000 - €10 000]		644 503	108 171	37 913	16.78%	5.88%
] €10 000 - €15 000]		988 958	122 109	36 732	12.35%	3.71%
] €15 000 - €20 000]		665 038	50 075	13 998	7.53%	2.10%
] €20 000 - €25 000]		497 446	21 710	5 764	4.36%	1.16%
] €25 000 - €30 000]		345 354	9 989	2 398	2.89%	0.69%
] €30 000 - €35 000]		209 533	4 606	1 137	2.20%	0.54%
] €35 000 - €40 000]		125 113	2 423	522	1.94%	0.42%
] €40 000 - €50 000]		112 114	1 207	296	1.08%	0.26%
] €50 000 - €70 000]		58 283	437	73	0.75%	0.12%
> €70 000		28 105	51		0.18%	

Table 13. Co-payments and supplements in the OOP-payments of the extreme payers

extreme payers * : OOP-payments AFTER soc/inc & fiscal MAB > 5 % of NTI - using weights		AFTER social/income & fiscal MAB		average co-payments NOT in MAB	average supplements
		average OOP-payments	average co-payments in MAB		
ALL		**1 652**	**558**	**122**	**973**
single parent hh		1 022	409	42	573
first year disability		2 133	719	81	1 334
disability		1 751	488	391	874
preferential tariff		1 278	376	210	692
guaranteed income		1 051	358	203	491
unemployed		1 231	478	49	706
early retirement		2 125	731	75	1 319
retired		1 800	615	101	1 085
lump sum B or C		1 674	637	98	943
increased child allowance		1 514	545	130	841
integration allowance handicap		2 023	443	699	885
help for the elderly		1 375	479	148	750
physiotherapy-E		1 757	654	110	997
long hospital stay		2 335	398	744	1 195
multiple hospital stay		2 017	598	163	1 260
psychiatric nursing home		4 017	257	2 698	1 062
psychotherapy		1 582	599	90	894
homes for the elderly		1 266	476	104	686
chronic dialysis		1 838	574	135	1 134
psychiatric hospital	<= 1 y.	1 348	581	72	695
	2 - 5 y.	1 979	290	946	744
	>= 6 y.	5 231	294	3 809	1 128
antibiotics DDD>=	1	1 583	583	68	933
	30	1 544	598	67	882
	90	1 530	605	77	849
	180	1 580	611	78	892
antihypertensives DDD>=	1	1 592	587	73	932
	30	1 589	588	73	930
	90	1 578	588	70	921
	180	1 573	590	69	915
cholesterol lowering medicine DDD>=	1	1 679	628	58	995
	30	1 679	626	58	996
	90	1 675	627	56	994
	180	1 678	634	53	992
COPD DDD>=	1	1 453	587	77	792
	30	1 443	588	78	778
	90	1 383	586	79	720
	180	1 357	586	81	691
antidepressants DDD>=	1	1 537	578	91	869
	30	1 531	581	94	857
	90	1 499	588	93	820
	180	1 453	585	94	775
antidiabetics DDD>=	1	1 463	587	74	802
	30	1 460	587	75	799
	90	1 449	582	74	795

extreme payers * : OOP-payments AFTER soc/inc & fiscal MAB > 5 % of NTI - using weights		AFTER social/income & fiscal MAB		average co-payments NOT in MAB	average supplements
		average OOP-payments	average co-payments in MAB		
	180	1 424	590	73	762
stomach medicine DDD>=	**1**	1 596	587	81	930
	30	1 569	592	78	901
	90	1 527	590	73	865
	180	1 478	598	69	813
Crohn DDD>=	**1**	1 706	625	77	1 006
	30	1 700	616	80	1 006
	90	1 633	609	87	939
	180	1 609	602	58	952
NTI	**] €0 - €5 000]**	873	354	164	355
	] €5 000 - €10 000]	1 100	384	179	537
	] €10 000 - €15 000]	1 303	433	106	764
	] €15 000 - €20 000]	1 709	621	82	1 009
	] €20 000 - €25 000]	2 177	728	101	1 350
	] €25 000 - €30 000]	2 507	845	75	1 588
	] €30 000 - €35 000]	2 834	1 004	89	1 742
	] €35 000 - €40 000]	3 150	984	83	2 083
	] €40 000 - €45 000]	3 454	1 012	166	2 277
	] €45 000 - €50 000]	3 916	1 100	98	2 718
	] €50 000 - €60 000]	4 485	1 114	135	3 236
	] €60 000 - €70 000]	5 089	1 158	169	3 762
	] €70 000 - €90 000]	5 520	1 276	71	4 173
	> €90 000	8 355	1 334	152	6 877
equivalized NTI	**] €0 - €5 000]**	868	366	150	353
	] €5 000 - €10 000]	1 228	426	141	662
	] €10 000 - €15 000]	1 658	555	110	995
	] €15 000 - €20 000]	2 294	792	91	1 412
	] €20 000 - €25 000]	3 003	929	100	1 974
	] €25 000 - €30 000]	3 489	1 006	95	2 388
	] €30 000 - €35 000]	4 214	1 154	65	2 995
	] €35 000 - €40 000]	4 356	1 117	92	3 147
	] €40 000 - €50 000]	5 463	1 252	142	4 071
	] €50 000 - €70 000]	6 364	1 276	43	5 045
	> €70 000	8 984	931	37	8 016

* : with households where NTI is not missing and where OOP-Payments after MAB >= €250
** if NTI = 0 then NTI = 1

Table 13 gives the division of the total OOP-payments of the extreme payers in three categories: co-payments in the MAB, co-payments not covered by the MAB and supplements. This makes it possible to sketch a more nuanced picture than was possible based on the aggregated figures in Table 11. Some interesting conclusions are:

1. For almost all the groups of extreme payers the most important component in their OOP-payments is supplements.
2. The rather extensive coverage of the MAB reveals itself in the limited importance of the column "average co-payments not in MAB". There are two exceptions to this rule. Co-payments not in the MAB are relatively large for the elderly handicapped and for patients with a long hospital stay – in both cases this is probably linked to the cost of material.[fff] They are extremely

[fff] Since 2004 some measures have been taken to protect the patients for the cost of material (see also chapter 2). We will simulate the effects of these measures in chapter 6.

large for the patients with long stays in a psychiatric nursing home or in a psychiatric hospital. This seems to be the most important remaining lacuna in the coverage of the MAB.

3. Co-payments in the MAB cannot be larger than the ceilings imposed by the regulation. These ceilings are not negligible for the weakest socioeconomic groups, however. For single parents that are extreme payers, co-payments for services that are included in the MAB, are on average almost 40% of their total OOP-payments. For the extreme payers in the lowest income groups, co-payments in the MAB are almost 50% of their total OOP-expenses.

Of course, one should remember that Table 13 gives only averages. Even if, e.g. the average for co-payments not included in the MAB is small for a specific group, this does not exclude that there are large outliers. This explains why a relatively large number of households can become extreme payer through their co-payments only (as shown in Table 12a), even when the average amount of co-payments paid is relatively limited.

4.4.2 Poverty and OOP-payments

Among policy makers and among the population at large, there is a concern that households might be pushed into poverty because of their OOP-payments for health care. One of the main purposes of the introduction of the MAB was precisely to avoid this. To analyze the effectiveness of the MAB in this respect it is necessary first to define who is poor. It has now become common practice in poverty analysis to work with a relative poverty line, defined as a percentage of the median equivalent disposable income of the country.[ggg] This is not exactly applicable in our data. However, we can implement the same philosophy in our dataset and define our own poverty lines. Since in this context one definitely has to take into account differences in household size, we propose to define four relative poverty lines: households are defined as poor if their equivalized net taxable income is less than (respectively) 30%, 40%, 50%, and 60% of the median equivalized net taxable income. This is a very primitive measure, of course, but it may give us at least a first and preliminary insight into the problem.

Table 14a-b. MAB and poverty incidence

# households	**30%**	**40%**	**50%**	**60%**
# households with NTI below poverty line (1)	349 348	431 659	585 951	846 560
# households with (income – OOP-payments before MAB) below poverty line (2)	364 809	460 179	638 791	907 195
(2) – (1)	15 461	28 521	52 840	60 635
# households with (income – OOP-payments after social/income MAB) below poverty line (3)	362 525	455 804	631 980	896 269
# households with (income – OOP-payments after social/income/fiscal MAB) below poverty line (4)	362 064	455 137	630 881	894 921
(2) – (3)	2 284	4 376	6 811	10 927
(2) – (4)	2 745	5 043	7 911	12 274
% households	**30%**	**40%**	**50%**	**60%**
% households with NTI below poverty line (1)	8.64%	10.67%	14.49%	20.93%
% households with (income – OOP-payments before MAB) below poverty line (2)	9.02%	11.38%	15.79%	22.43%
(2) – (1)	0.38%	0.71%	1.31%	1.50%
% households with (income – OOP-payments after social/income MAB) below poverty line (3)	8.96%	11.27%	15.63%	22.16%
% households with (income – OOP-payments after social/income/fiscal MAB) below poverty line (4)	8.95%	11.25%	15.60%	22.13%
(2) – (3)	0.06%	0.11%	0.17%	0.27%
(2) – (4)	0.07%	0.12%	0.20%	0.30%

The effect of OOP-payments on poverty incidence is then summarized in Tables 14a-b. The former gives the absolute numbers, the latter expresses these numbers as a share of the total number of households. In each table, the first row gives the number of poor households when we only look at net taxable income. Suppose now that one

ggg The official EU-poverty line is defined as 60% of median equivalent disposable income.

(realistically) assumes that OOP-payments for health care do not add to material welfare and should be subtracted from the income (of course, to do this, they first have to be expressed also in equivalent units). The second row then shows the number of poor households with this new income definition if there were no MAB. The third row gives an idea about the number of households that would be drawn below the poverty line by their OOP-payments for health care. The MAB lowers OOP-payments of course and therefore also their poverty inducing effect. This is illustrated in the fourth and fifth rows of the table. About 20% of the households that would fall below the poverty line because of OOP-payments for health care without MAB are kept above the poverty line because they receive MAB-reimbursements.

4.4.3 Persistency of payments over time

The social and economic effects of OOP-payments get worse for households that are repeatedly confronted with a large financial burden. It is therefore worthwhile to look at the persistency of payments over time. Although we have data for the years before 2004, changes in the composition of households lead to some difficult interpretational problems. Moreover, we only have information about the incomes of 2004. We therefore propose to focus for the analysis of persistency on the absolute amounts of OOP-payments after MAB (and not on the income shares) and to return to the level of the individuals in the original panel. Disregarding the babies born in 2003, we know for all these individuals the OOP-payments of the households in which they lived in 2004 and in 2003. This information is summarized in Table 15.

Table 15. Persistency of own payments over time

	OOP-PAYMENTS AFTER MAB 2004					
2003	**< 125**	**125 ≤ 250**	**250 ≤ 500**	**500 ≤ 750**	**> 750**	**TOTAL**
<125	3 443 156	758 804	266 632	70 776	60 317	*4 599 686*
125 ≤ 250	656 692	827 332	354 676	77 033	73 663	*1 989 396*
250 ≤ 500	226 541	313 764	420 477	102 830	88 618	*1 152 230*
500 ≤ 750	57 745	70 173	95 867	54 404	43 745	*321 934*
> 750	42 196	56 273	87 947	50 279	82 578	*319 274*
TOTAL	*4 426 330*	*2 026 346*	*1 225 601*	*355 322*	*348 922*	*8 382 520*

It is clear that there is a large degree of intertemporal correlation of OOP-payments. About 41% of the individuals live in households with OOP-expenses less than €125 both in 2003 and in 2004. About 231 000 individuals (2.8% of the population without the self-employed) are persistent extreme payers, i.e. their household has OOP-payments after MAB of more than €500 in both years. One third of the individuals that had to pay more than €500 in 2004 already had to pay more than €500 in 2003 also. Of those who had to pay more than €500 in 2003, 36% also have to pay such a large amount in 2004. This persistency of large payments over time is not surprising, but still rather worrying.

4.5 MULTIVARIATE ANALYSIS: A SUMMARY OF THE MAIN FINDINGS

Until now, we have only shown the results of bivariate analyses. We emphasized before that these results should be interpreted carefully, but that they are definitely relevant from a policy point of view, because most protective measures focus on the specific groups that were included in the analysis of sections 3 and 4. However, additional insights can be gained by bringing all these categories together in a multivariate regression analysis. Even with this multivariate analysis, care is needed. The results of these regressions should not be given a causal interpretation. They simply should be seen as a handy way to calculate average effects while controlling for confounding factors.

Table 16 shows the results of these multivariate regressions. The first column contains the results for MAB-reimbursements, the second column for co-payments after MAB and the third column for total OOP-payments after MAB. The fourth and fifth column show the results of a logit model, explaining the probability that the household belongs to the extreme payers as defined before (>5%) on the basis of co-payments only and on the basis of total OOP-payments respectively.

The age and sex-composition of the households can now be taken care of by the variables included: these give the number of individuals in the household that belong to the respective age/sex categories. As far as possible, the same procedure has been followed for all the demographic variables, but in some cases, the relevant information was not available for all household members. In that case, the variable denotes that there is at least one household member with the respective characteristic. We also control for the province in which the household is living. We only show the coefficients that are significant at the 5%-level. Since all the variables except the last one (income) are discrete, the estimates in the first three columns can be interpreted directly as money amounts. In the two last columns we give odds ratios: if these ratio is larger than one, this indicates a larger risk of being an extreme payer; if it is smaller than one, the opposite is true. The first row gives the mean of the dependent variable in the first three columns[hhh] and the proportion of extreme payers in the last two columns.

Table 16. Results of multivariate regression analysis

	(1) MAB RE-IMBURSE-MENTS coefficient estimate	(2) CO-PAYMENTS after MAB coefficient estimate	(3) OOP-PAYMENTS after MAB coefficient estimate	(4) EXTREME CO-PAYMENTS odds ratio	(5) EXTREME OOP-PAYMENTS odds ratio
dependent mean (1, 2, 3)	54	316	464	3.31	11.34
% extreme (4,5)					
adjusted R^2 (1,2,3)	0.26	0.36	0.24	81.6	79.4
% concordant pairs (4, 5)					
intercept	-46	-35	-41		
psychiatric hosp > 1 year	-151	1 833	2 075	45.7	*
psychiatric hosp < 1 year	200	129	149	4.7	4.3
homes for the elderly	65	44	82	1.8	1.8
single parent hh	26	15	19		1.2
psychotherapy	33	100	153	1.6	1.7
psychiatric nursing home	-95	1 422	1 800	5.9	6.9
antibiotics DDD>180	115	119	240	1.9	1.9
antihypertensives DDD>180	17	87	109	1.4	1.4
cholesterol lowering medicine DDD>=180	9	70	86	1.2	1.2
COPD DDD>180	76	133	132	2.1	1.8
Crohn DDD>180	36	146	183	1.8	1.7
chronic use of insuline DDD>=180	20	39	18	1.3	1.1
antidepressants DDD>180	46	111	125	1.6	1.5
stomach medicine DDD>180	50	114	151	1.7	1.7
lump sum B or C	229	58	145	1.9	1.8
unemployed	6		-10	0.8	1.1
physiotherapy-E	169	161	255	1.8	1.7
increased child allowance	27	82	117	1.3	1.4
integration allowance handicap	30	85	135	2.3	2.0
help for the elderly	31			1.8	1.1
long hosp stay	566	123	518	2.1	5.5
multiple hosp stay	327	158	555	1.4	5.1
> 6 months unemployed	4	-26	-41	2.1	1.2
guaranteed minimum			-19	1.3	1.3
disability		43		2.1	
preferential tariff	-27	-87	-104	1.9	1.1
single room	82	208	1 304	0.8	12.3

[hhh] Note that, contrary to the figures in chapter 4, here the mean is taken over all observations (including the zero ones).

	(1) MAB RE-IMBURSE-MENTS coefficient estimate	(2) CO-PAYMENTS after MAB coefficient estimate	(3) OOP-PAYMENTS after MAB coefficient estimate	(4) EXTREME CO-PAYMENTS odds ratio	(5) EXTREME OOP-PAYMENTS odds ratio
0_M	21	242	634	1.8	6.0
01_04_M	4	78	99	1.3	1.5
05_09_M	8	54	54	2.3	1.3
10_14_M	6	54	61	1.8	1.2
15_19_M	9	57	72		1.1
20_24_M	17	58	69	0.5	0.6
25_29_M	27	74	82	0.3	0.4
30_34_M	27	86	107	0.3	0.3
35_39_M	26	82	95	0.2	0.3
40_44_M	28	95	110	0.3	0.4
45_49_M	25	102	122	0.3	0.4
50_54_M	27	132	166	0.3	0.5
55_59_M	32	150	206	0.4	0.6
60_64_M	37	166	239	0.4	0.8
65_69_M	54	185	264	0.6	1.1
70_74_M	75	213	313	0.7	1.4
75_79_M	90	237	351	0.9	1.5
80_84_M	100	244	367	0.8	1.5
85_89_M	97	256	400		1.7
90_94_M	85	243	340		1.5
95+_M	63	257	358		1.9
0_V	24	230	630	3.4	5.7
01_04_V	5	64	80	1.4	1.4
05_09_V	6	42	41	1.2	1.2
10_14_V	6	52	65	1.3	1.3
15_19_V	9	73	86		1.2
20_24_V	18	103	121	0.7	0.8
25_29_V	25	128	161	0.6	0.6
30_34_V	26	144	196	0.5	0.7
35_39_V	25	147	197	0.5	0.7
40_44_V	25	149	196	0.5	0.6
45_49_V	27	153	201	0.5	0.7
50_54_V	28	168	220	0.5	0.8
55_59_V	33	166	217	0.5	0.8
60_64_V	48	174	244	0.5	0.9
65_69_V	59	183	272	0.5	
70_74_V	76	203	303	0.5	1.1
75_79_V	89	217	339	0.7	1.3
80_84_V	99	228	349	0.8	1.5
85_89_V	100	232	358	1.4	1.5
90_94_V	59	224	288		1.2
95+_V	35	209	242		
Brussels	13	37	32	1.4	1.1
Liège	13	14	53	1.2	1.2
Vlaams-Brabant		21	16		
Brabant Wallon	7	24	70		
Limburg	-6		-32	0.8	
Namur		24			0.9
Hainaut	16	28			0.9
West-Vlaanderen	-5		-15		
Oost-Vlaanderen		8	15		
Luxembourg	6	19			
Foreign/unknown		-85	-102	2.3	1.2
Total income (in 1000 EUR)	-0.4	0.5	1.2	*	*

* not included in the regression

It is useful to look first at the results for the control variables. The age pattern is exactly as could be expected and reflects the usual shape of health care expenditures. Expenditures are large for babies, then decline until age 20-25 and increase afterwards until a maximum is reached at age 85-89. For the very old, the expenditures decrease again. The regional variables suggest that both MAB-reimbursements and payments after MAB are somewhat larger in Brussels and in the French-speaking provinces. However, the effect is small and does not translate into a much larger probability of becoming an extreme payer. The most interesting control is "being hospitalized in a single room". This has a very strong effect (more than €1 300!) on the supplements to be paid – and therefore on the probability of being an extreme payer in terms of total OOP-payments. However, as explained before, it is reasonable to hypothesize that most of the patients in a single room have a supplemental insurance. The results for the variable as such therefore should be interpreted cautiously. Yet, it functions very well as a control variable: introducing it in the regressions means that we can interpret the results for the other variables as if the individuals concerned were not staying in a single room (and therefore have a much smaller probability of having a supplemental insurance).

As for the main variables, the results of the multivariate regression largely corroborate the general picture that already emerged from the bivariate analyses discussed in the previous sections. A brief description of these results therefore can be seen at the same time as a summary of the chapter:

1. Economically weak groups (such as single parent households and those living on the guaranteed minimum income) on average have only a slightly larger chance of being extreme payer. For those living on unemployment benefits and on the guaranteed minimum income, the OOP-payments after MAB are even smaller than for the representative Belgian.
2. Income has a negative effect on MAB-reimbursements and a positive effect on the absolute level of co-payments and OOP-payments after MAB. Remember from the previous sections, however, that co-payments and OOP-payments after MAB *as a fraction of income* sharply decrease with the income level of the household.
3. The results for preferential treatment may seem surprising at first sight, but they are perfectly logical. *After controlling* for all the other socio-economic and, more importantly, morbidity variables what remains is the effect of the preferential treatment itself: this is negative on MAB-reimbursements, on co-payments and on OOP-payments after MAB. Note that at the same time individuals with preferential treatment still have a (slightly) larger probability of becoming extreme payer. This is linked to the fact that their incomes are smaller.
4. MAB-reimbursements effectively target the households with large health care expenditures. They are especially large for those with a lump sum B or C or an allowance for physiotherapy-E and for those with a long stay (or multiple stays) in the hospital. At the same time, the OOP-payments after MAB also remain relatively large for these groups and they have a larger probability of becoming extreme payers.
5. Chronic users of drugs also receive larger MAB-reimbursements, but the effect is weaker than for the other groups of the chronically ill. They end up with a relatively large probability of becoming extreme payers. A similar pattern is found for the handicapped and the disabled.
6. Absolute outliers are the psychiatric patients, mainly if hospitalized or living in a psychiatric nursing home. Their OOP-payments (and co-payments) after MAB are much larger than for the other groups and they have a much larger chance of having to bear an extreme financial burden. Note that the variable "psychiatric hospitalization > 1 year" was not omitted from the last equation because it was insignificant. Quite the contrary, the odds ratio could not be estimated because an extremely large fraction of the households concerned belonged to the extreme payers (see also the figures in Table 12b).

Key points

- **Economically weak groups (such as single parent households and those living on the guaranteed minimum income or on unemployment benefits) are relatively well protected for the financial risks of health care.**
- **The pattern of co-payments at low income levels suggests that there is possibly underconsumption of health care by the poor.**
- **Income has a negative effect on MAB-reimbursements and a positive effect on the absolute level of co-payments and OOP-payments after MAB. Co-payments and OOP-payments after MAB *as a fraction of income* sharply decrease with the income level of the household.**
- **MAB-reimbursements effectively target the households with large health care expenditures. They are especially large for those with a lump sum B or C or an allowance for physiotherapy-E and for those with a long stay (or multiple stays) in the hospital. At the same time, the OOP-payments after MAB also remain relatively large for these groups and they have a larger probability of becoming extreme payers.**
- **Chronic users of drugs also receive larger MAB-reimbursements, but the effect is weaker than for the other groups of the chronically ill. They end up with a relatively large probability of becoming extreme payers. A similar pattern is found for the handicapped and the disabled.**
- **OOP-payments (and co-payments) after MAB are exceptionally large for the psychiatric patients, mainly if hospitalized or living in a psychiatric nursing home. They also have a much larger chance of having to bear an extreme financial burden.**
- **OOP-payments after MAB are strongly related to the supplements. The share of co-payments not in the MAB is relatively small.**
- **Even after the MAB, 3.3% of the households have co-payments larger than 5% of their net taxable income. Almost 10% of the household have total OOP-payments larger than 5% of their net taxable income.**
- **About 20% of the households that would fall below the poverty line because of OOP-payments for health care without MAB are kept above the poverty line because they receive MAB-reimbursements.**
- **Persistency of OOP-payments over time is a cause of concern.**

5 DOES THE MAB CHANGE CONSUMPTION BEHAVIOUR?

There is by now much evidence in the international literature that increasing co-payments has a significant (albeit sometimes small) effect on the behaviour of patients and/or providers. In general, patients seem to be willing to consume more when their OOP-payments are lower, and providers seem also to adjust their behaviour, as their reluctance of inducing consumption decreases.[iii] For Belgium, the increase of the co-payments in the mid-nineties, which led to the introduction of the social and the fiscal exemption (see chapter 2) has been analysed by Van de Voorde et al. (2001)[4] and Cockx and Brasseur (2003)[5]: both studies find that the increase in co-payments induced a decrease in the number of physician consultations, at least in the short run. A priori one might therefore also expect some influence on consumption behaviour from the introduction of the MAB, since the monetary price of medical consumption for the patients becomes zero once the co-payments ceiling is reached. The magnitude of that effect, however, is an empirical question. Indeed, in the case of the MAB, in general a household can only reach the MAB-ceiling if at least one of the household members must be (or have been) very ill. Moreover, often poorly-informed patients may not be really aware that they have reached the MAB-ceiling. In any case, the resulting ex post reimbursement of co-payments is less transparent than a directly observable decrease in co-payments to be paid at the point of service.

Answering the empirical question about the magnitude of the behavioral effect is far from easy. To some extent, the MAB has the same effects as a deductible, although in the latter case patients in principle have to pay the full cost below the ceiling, while in the case of the MAB they only have to pay the co-payment. Yet, the methodological problem of interpreting behaviour is similar. We give an overview of the scientific literature in Appendix, but we summarize the main issue here. Only patients with large medical expenditures reach the ceiling and are therefore confronted with a lower price. Therefore, this price is endogenous, i.e. it would be wrong to induce automatically from an observed negative correlation between OOP-payments and consumption that the causality runs from the price to the consumption. In fact, even if there were no direct effect of lower co-payments on medical consumption at all, we would still observe a negative relationship in the observed data. Any estimate of the price effect which does not correct for this endogeneity problem is not to be taken seriously. However, it is immediately clear that such a correction is not a trivial (and sometimes impossible) exercise. One can try to compare the consumption behaviour of different groups, some of which are entitled to MAB-reimbursements and some of which are not. But this comparison only makes sense when it is possible to control convincingly for interindividual differences in morbidity. One can also focus on the effects of variations in the regulation over time for a given set of individuals, but this does not automatically solve the endogeneity issue.

The problem is further complicated because of the dynamic aspects of the patient's decision problem – and because we may expect some heterogeneity in the reactions of different patients. Keeler et al. (1977)[11] describe three different possibilities. The first is the case of inflexible behaviour. This is the situation where the consumption behaviour is not affected by reaching the MAB-ceiling. The second possibility is so-called myopic behaviour, in which patients increase their consumption after they have exceeded the limit, because co-payments are reduced from that moment onwards. Put simply, this behaviour would lead to a different consumption pattern before and after reaching the ceiling. The third possibility is more subtle and is called rational behaviour. This occurs when patients anticipate that they will exceed the limit – and therefore increase consumption already before having reached the limit. Although consumption of medical care is fraught with uncertainty, in many cases individuals may have a general idea about the evolution of their consumption, and more specifically about the level of their co-payments included in the MAB-counter.

[iii] An overview of the evidence is given in De Graeve et al. (2006).[1]

This may especially be true for chronically ill patients, who know already in the beginning of the relevant period that they will reach the ceiling anyway. In this extreme case of rational behaviour, the moment of reaching the ceiling would have no observable effects on the consumption pattern at all. This makes it even very difficult to distinguish inflexible and rational behaviour, i.e. the cases in which the behavioural effects of the MAB are either minimal or maximal. Bakker (1997, cited in Ministerie van Volksgezondheid, Welzijn en Sport, 2001)[12], adds to these three possibilities a 'postponing' effect: patients who expect to generate high expenditures at the end of an accounting period may try to shift these to the beginning of the next accounting period because they will then enjoy '(nearly) free care' during a longer time span. Of course, the reverse can also occur: patients that have reached the MAB-ceiling, may try to shift future medical care to the current year. They could, for instance, decide to go to the dentist in December instead of in January (when the counter again started at zero).

Our data are not sufficiently rich to apply the best methods that have been proposed in the international literature to tackle these difficult issues. More specifically, the morbidity information at our disposal does not allow a fully satisfactory correction for differences in needs, and the time span of the data is too short to exploit the full potential of variations over time. In this chapter, we will therefore only be able to describe the results of some empirical exercises, which have to be interpreted cautiously. In the first section, we go into the problem of defining (and deriving from our data) the relevant moment at which the MAB-ceiling is reached. We will then in a second section describe consumption behaviour with special attention for the different possible behavioural patterns sketched before. In the third section, we analyze the effects of the inclusion in 2003 of the drugs of reimbursement category C in the MAB-counter on the consumption of such drugs. Finally, in the fourth section, we look at one aspect of provider behaviour. Focusing on nursing care, we investigate whether providers charge co-payments more frequently for patients who have exceeded the MAB-ceiling.

In addition to the methodological issues related to the identification of the behavioural effects of reaching the MAB-ceiling, there is also a difficult problem in interpreting the desirability of these behavioural changes. In fact, the literature that indicates a significantly negative effect of co-payments on consumption also finds that it is not necessarily the least efficient consumption that is cut. Suppose then that one finds a positive effect on consumption of reaching the MAB-ceiling. In some cases this may be interpreted as inefficient overconsumption from a medical point of view. At the same time, however, it is sometimes suggested (e.g. on the basis of the results from the Health Interview Survey) that in the Belgian situation with relatively large OOP-payments, poorer individuals may be forced to postpone or even forego necessary health care. The larger consumption, induced by the MAB, may then be a desirable correction and not an indication of inefficiency. Identifying medically desirable and undesirable over- and under-consumption is not possible with the data that are available to us. For a deeper analysis one would need richer information about morbidity and about qualitative features of the behavioural changes.

5.1 HOW TO DEFINE THE MOMENT OF REACHING THE MAB-CEILING?

A behavioural impact can of course only be expected for those households that exceed the MAB-ceiling. Moreover, for an effect to be observed, these households (or their providers) have to be aware of this fact. Therefore, there are different possibilities of defining the relevant "moment" of reaching the ceiling.

Let us first note, however, that we cannot identify in our data the moment of reaching the ceiling for the households that are entitled to the fiscal MAB. As described in chapter 2, the fiscal MAB was executed by the fiscal administration. The latter receives information about all co-payments paid by the fiscal household and invoiced (not necessarily realized) during the current year. These expenditures are then compared with the relevant fiscal limit (given the net taxable income in 2004). In case the limit is surpassed, the amount above the limit will be reimbursed to the household by the fiscal administration. In our data, we are not able to calculate the exact month of exceeding the limit: we only know whether the fiscal household has exceeded the limit in 2004 and

how much it has been reimbursed. We will therefore mainly focus on the social and the income MAB in this chapter. This does probably not harm the analysis very much. In fact, the behavioural effects are probably minimal in the case of the fiscal MAB, in which reimbursement through the fiscal administration only happens after two years. Myopic behaviour is definitely ruled out. Rational behaviour remains possible, however, for the chronically ill with very high expenditures and high income.

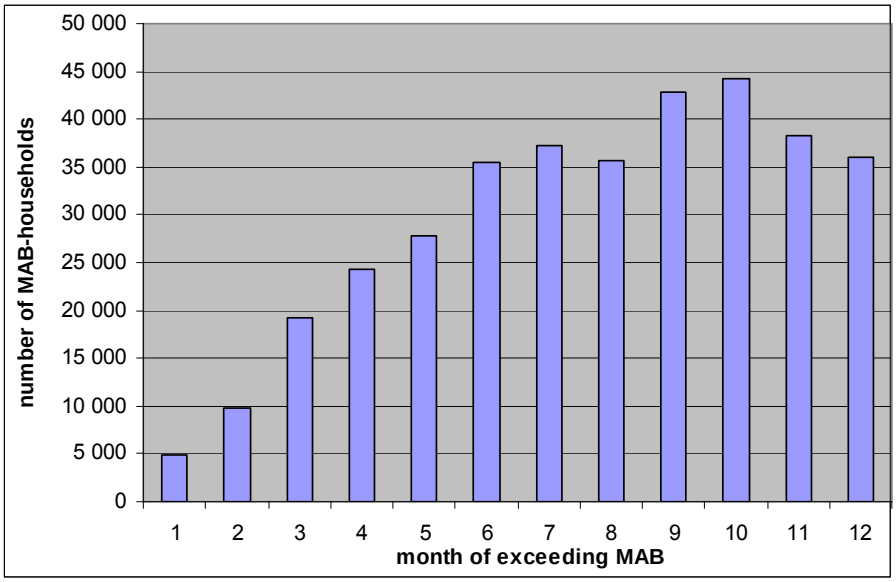
In the previous chapter we have exploited to a large extent the available data on MAB-reimbursements. A priori, the moment a household receives its first reimbursement, seems an important point of reference. However, as explained in chapter 3, MAB-reimbursements in 2004 are not necessarily linked to co-payments paid in 2004. Moreover, while the total yearly MAB-reimbursements are given in our data in a reliable way (and therefore could meaningfully be used in chapter 4), this is not true for the date of the first MAB-reimbursement (see the Technical Appendix). We will therefore focus on two other approaches to measure the moment of exceeding the ceiling.

5.1.1 Calculating the moment of exceeding the ceiling by summing co-payments

A first and straightforward method is to count the number of patients or households that exceeded the MAB-ceiling in 2004 by *summing their co-payments* generated in 2004 for items that are included in the counter of the MAB. We know which items are taken into account for calculating the limit. Furthermore, we know who is entitled to the social MAB (limit of €450 per year) or the income MAB (with a limit of €450 or €650, depending on the income level). With this procedure (and extrapolated using the weights described before), we find that 725 501 (8.29%) patients live in a MAB-household that exceeds the limit. Including their MAB-household members 355 587 (8.70%) MAB-families exceed the limit.

It is possible that these figures are a slight underestimate of the true numbers. Indeed, our dataset only includes the expenses for 2004 invoiced within a period of 18 months, while for the legal application of the social, income and child MAB, all expenditures generated during 2004 and submitted within a period of 2 years, are taken into account. However, the sickness funds report (internal communication) that in general coverage of about 97% of expenses is reached after 18 months. Moreover, we can expect that especially the households with large expenses (and therefore possibly qualifying for MAB-reimbursements) do not wait too long before handing in their bills.

Figure 21. Month of exceeding the MAB-ceiling



For our purpose of identifying behavioural changes, more important than these absolute numbers of households exceeding the MAB-ceiling, is the date of exceeding.

Since we have detailed information on the exact dates of consumption, we can compute the month of exceeding the MAB-ceiling on the basis of the dates of the delivery of care. The results are shown in Figure 21. As expected, most MAB-households exceed their limit in the second half of the year. This limits the scope of myopic adjustments.

5.1.2 Notification of the moment of exceeding by the sickness funds

It might seem unrealistic to assume (1) that patients know perfectly which items are included in the MAB-counter and (2) that they take the sum of the relevant co-payments at each moment of time. The method described in the previous subsection therefore yields only a rough approximation of the moment at which patients could start adjusting their behaviour. An alternative approximation is offered by the date at which the patients are notified by their sickness fund that they have passed the MAB-ceiling. At that moment they certainly know that they are entitled to MAB-reimbursements. In principle, these dates of notification are included in our dataset. Yet we only find 432 877 patients (4.95%) or 206 303 MAB-families (5.05%) knowing that they have exceeded the ceiling. These numbers are much smaller than the ones obtained in the previous subsection. In fact, before July 2004 the sickness funds were not obliged to fill in this variable and apparently it is therefore not recorded in our data in a reliable way. However, since the incompleteness of the data is due to differences in the recording behaviour of the sickness funds, it seems acceptable to assume that these errors are randomly distributed over the different groups of households.[jjj] We therefore still can derive useful insights from a further analysis.

Figure 22 shows in which month patients/households are notified that the limit is exceeded.[kkk] The earliest date is 22nd April, but most of the dates of notification are concentrated at the end of the year and half of the households are even notified only in 2005 that they exceeded the limit in 2004. Figure 23 shows the number of months in between the month in which the patients are notified and therefore certainly know that the ceiling is exceeded and the month in which the ceiling was exceeded, as calculated on the basis of the sum of the relevant co-payments.

Figure 23 illustrates some anomalies in the data. The value 98 indicates that the limit is exceeded in 2004 on the basis of summing relevant co-payments, while there is no value for the date by which the patient knows that the limit is exceeded. We have seen already that this is the case for more than 40% of the sample and is to a large extent due to reporting errors. Negative numbers indicate that patients first 'know' that the limit is exceeded, but only afterwards really exceeded the limit according to the expenses included in the dataset. Those observations are limited to about 0.5% of the sample. Finally, the value 99 indicates that the limit is not exceeded in 2004 on the basis of summing co-payments, while a value has been filled in for the date of knowing. This anomaly occurs in about 4% of the cases. In further analyses we included these households in the group that did not exceed the MAB-ceiling.

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jjj In fact, a more detailed analysis shows that there are no significant differences between on the one hand the households exceeding the MAB-limit and being notified and on the other hand the households exceeding the MAB-limit without being notified (at least as reported in our data). This supports our assumption that the reporting errors are randomly distributed over different groups of households.

kkk It is possible that different dates apply within the MAB-household; e.g. a date applying to a child exceeding the child MAB and a date for the social or income MAB. In that case, we took the lowest date for the whole MAB-household.

Figure 22. Month in which patients and their families know that they have exceeded the 2004 MAB-ceiling

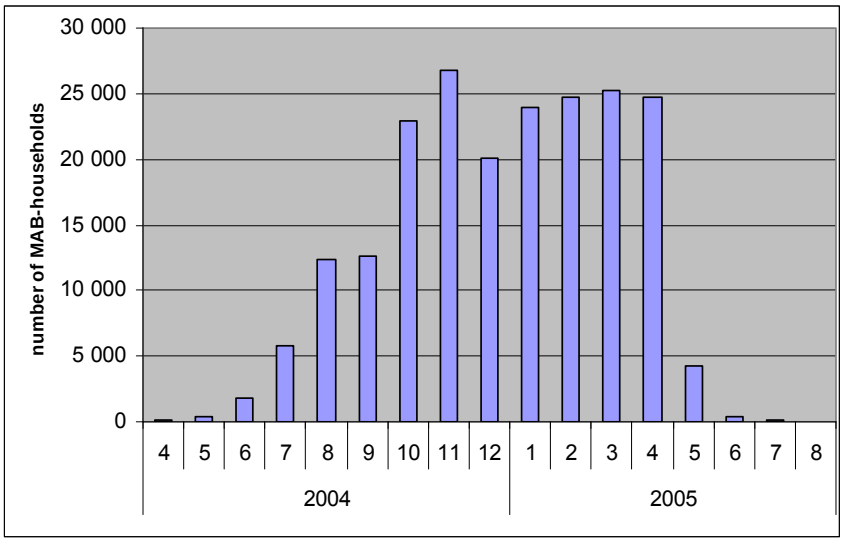
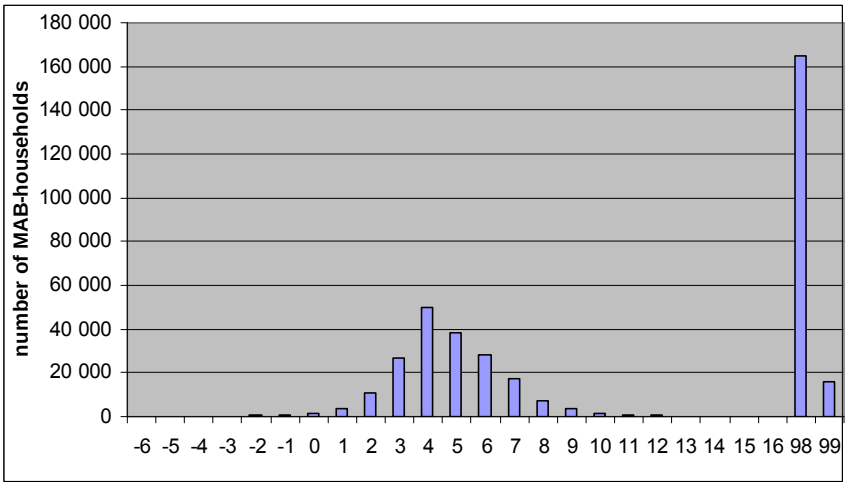


Figure 23 shows that the average delay between exceeding the ceiling and being notified by the sickness fund is between 4 and 5 months. There are different explanations for this delay. First, patients can wait to hand in their bills (with a maximum of 2 years). Second, after a hospitalisation, the hospital needs time to make up the invoice. Third, it can take some time for the sickness funds to compose the MAB-household and exchange information with the fiscal administration: after the patient hands in his bills, the sickness fund needs to calculate the total amount of co-payments paid by the patient and eventually other members of the MAB-household. Then, the sickness fund needs to check the income level of the household with the fiscal administration. Only if this process is completed and all conditions are fulfilled, the sickness fund sends a note to the patient in which it declares that the patient (and, if appropriate, his MAB-household) are entitled to MAB-reimbursements.[III]

Figure 23. Delay (number of months) between exceeding the ceiling and being notified by the sickness funds



Summarizing the information in this section, it is not obvious to define the best approximation for the moment at which households are aware that they do no longer have to pay OOP-payments for health care items included in the MAB-counter.

[III] Remember that our data pertain to the year 2004. The increased experience with administering the MAB has led to a decrease in the average delay in recent years.

On the one hand, as argued before, Figure 21 can only be a rough approximation, since it seems unrealistic to assume that the individual patients are fully aware of the amount of co-payments they have paid in the past. On the other hand, applying the date of notification is probably an exaggeration in the other direction, as it implies that patients are totally ignorant about the magnitude of their co-payments unless they are informed by their mutuality. In fact, if we favour the latter option and we apply the estimated delay of 4-5 months to the distribution sketched in Figure 21 (as is acceptable when the reporting errors are indeed random), the scope for myopic behaviour in 2004 would be extremely small indeed. In the next subsection, we will combine the information from both approaches.[mmm]

5.2 TRACING SIGNS OF MYOPIC OR RATIONAL BEHAVIOUR?

Let us now see whether there is a change in consumption after reaching the (social or income) MAB-ceilings. By way of introduction, Table 17 gives yearly spending in the different categories for different groups of households.[nnn] Not surprisingly (and almost by definition), households that exceed the MAB-ceiling during the year have larger expenditures. Those who exceed the MAB-ceiling and are notified about that within 2004 have even larger expenditures. In fact, given the delay between exceeding and notification, these are households that have reached the MAB-ceiling earlier in the year.[ooo] A simple comparison of expenditures as in Table 17 therefore does not teach us anything about possible behavioural effects.

Table 17. Average yearly household expenditures (€)

	full sample	**MAB not exceeded**	**MAB exceeded**	**exceeded, not notified**	**exceeded, notified**
N	255 497	228 390	27 107	19 478	7 629
ZIV-expenditures	2 922.04	2 190.25	10 600.06	9 962.9	12 316.19
co-payments	366.34	302.25	1 038.78	959.54	1 252.21
co-payments in MAB	337.19	276.32	975.92	898.29	1 185.01
co-payments not in MAB	29.52	25.93	67.15	61.63	82.04
supplements	146.93	113.88	493.64	487.40	510.46
OOP-payments after MAB	473.53	414.10	1 097.12	1 094.62	1 103.84

A better insight into the relevancy of the hypothesis of myopic behaviour can be gained by comparing the consumption behaviour of the households before and after they have reached the MAB-ceiling. We will discuss such an exercise in the first subsection. As described before, however, there can be an effect of the MAB on behaviour, even if we do not observe a clear difference between consumption before and after reaching the ceiling. This is possible if "rational" households anticipate that they might reach the ceiling in the course of the year. To get some idea about the relevancy of this assumption, we focus in the second subsection on the group of the chronically ill.

[mmm] As the number of patients for which the date of knowing comes before the date of exceeding on the basis of summing co-payments, is limited, we did not delete them from the sample.

[nnn] The numbers of observations in this and the following tables are unweighted. This gives a better idea about the size of the sample on which we base our conclusions. The amounts are weighted, however.

[ooo] This is not in contradiction with our finding of random reporting errors. That involved a comparison between the group of patients that had been informed (at whatever moment) and the group that had not been informed. In Table 17, however, we focus on the group that has been notified in 2004.

5.2.1 Myopic adjustment of behaviour?

In Table 18, we draw a comparison between the average monthly per capita expenditures before and after reaching the MAB-ceiling.[PPP] In the light of the discussion in the previous section, we calculated four different versions. First, we consider all the households that exceeded the MAB-ceiling through summing co-payments – "before" and "after" then refer to the moment of exceeding the ceiling. Second, we split the first sample in two groups: (1) those families that already know in 2004 that the MAB has been exceeded; and (2) those that do not know within 2004 that the MAB is exceeded. Again, "before" and "after" refer to the moment of exceeding the ceiling. Lastly, we calculate average per capita expenses before and after the month in which the MAB-household knows that it exceeded the MAB-ceiling. In each case, "before" and "after" average per capita expenditures have been calculated through summing co-payments.

Table 18. Average monthly (per capita) expenditures before and after reaching the MAB-ceiling

Variable	N	Mean (€)	95% Confidence limit	
Exceeded MAB (all)				
co-payments before	26 707	**51.58**	50.79	52.36
co-payments after	24 311	**53.15**	52.24	54.06
ZIV-expenditures before	26 707	**564.67**	551.04	578.29
ZIV-expenditures after	24 311	**523.50**	512.42	534.58
supplements before	26 707	**28.07**	26.31	29.83
supplements after	24 311	**23.86**	22.36	25.36
Exceeded MAB + knowing in 2004				
co-payments before	7 459	**67.95**	66.07	69.82
co-payments after	7 549	**55.68**	54.13	57.23
ZIV-expenditures before	7 459	**675.12**	647.21	703.03
ZIV-expenditures after	7 549	**543.16**	524.75	561.57
supplements before	7 459	**36.25**	31.72	40.79
supplements after	7 549	**18.68**	16.86	20.51
Exceeded MAB + not knowing				
co-payments before	19 248	**45.60**	44.80	46.39
co-payments after	16 762	**52.08**	50.97	53.18
ZIV-expenditures before	19 248	**524.34**	508.85	539.83
ZIV-expenditures after	16 762	**515.14**	501.43	528.86
supplements before	19 248	**25.08**	23.34	26.83
supplements after	16 762	**26.05**	24.06	28.05
Exceeded MAB + knowing in 2004; means before/after being notified				
co-payments before being notified	7 627	**69.08**	67.47	70.70
co-payments after being notified	6 134	**51.18**	49.25	53.11
ZIV-expenditures before being notified	7 627	**650.89**	630.56	671.23
ZIV-expenditures after being notified	6 134	**493.52**	470.28	516.76
supplements before being notified	7 627	**31.79**	29.34	34.24
supplements after being notified	6 134	**16.54**	13.30	19.77

The picture that comes out of the Table is clear. Co-payments after having reached the ceiling are significantly higher for only one subgroup, namely those that exceeded the MAB-ceiling but are not notified within 2004.

PPP We show per capita expenditures, because it turns out that households exceeding the MAB are larger on average. The conclusions do not change when using total household expenditures. The expenditures made in the month of exceeding the MAB are not counted in the calculations, as we do not know the exact date of exceeding. The "before" and "after" expenditures cannot be calculated if the moment of exceeding (or being notified) is January or December. Leaving out these months does not change the results.

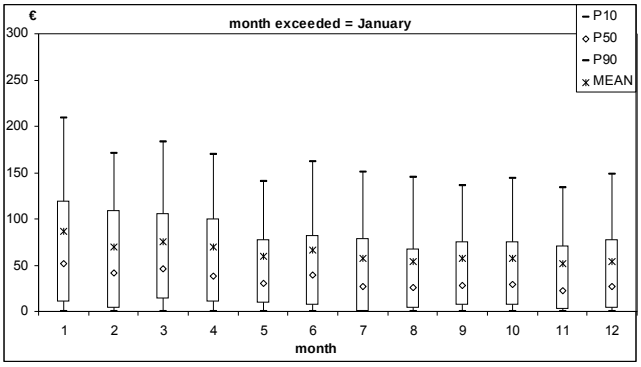
In most cases per capita expenses per month (whether ZIV-reimbursements, supplements or co-payments) decrease significantly after exceeding the MAB-ceiling. This can easily be explained: many households exceed the MAB-ceiling when they are confronted with a high cost-episode of illness (e.g. leading to a hospitalisation). This explanation immediately implies that it would be dangerous to conclude from Table 18 that there is no myopic behaviour at all. A more sophisticated approach should indeed take into account explicitly these different periods of illness. Yet, more cautiously, the least one can say is that the data suggest that the behavioural effect of reaching the MAB-ceiling, if it exists, is not very strong.

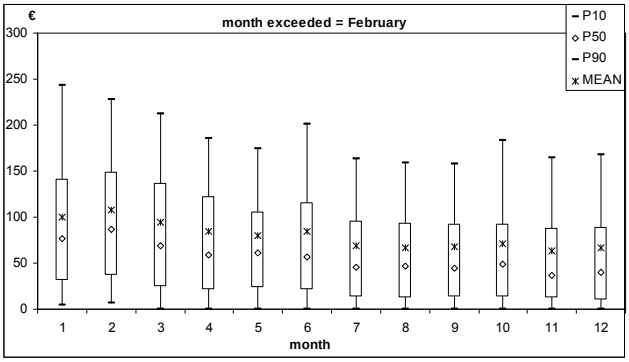
While we cannot distinguish different episodes of illness in our data, we can further refine our analysis by calculating the expenditures in different months. To make the data comparable, we only focus on the largest groups of households, i.e. those with a (social or income) MAB-ceiling of €450. Figure 24 shows average co-payments per month in the ambulatory sector, differentiated according to the month in which the MAB-ceiling is exceeded. Figure 25 gives analogous results for the co-payments related to a hospitalization.[qqq]

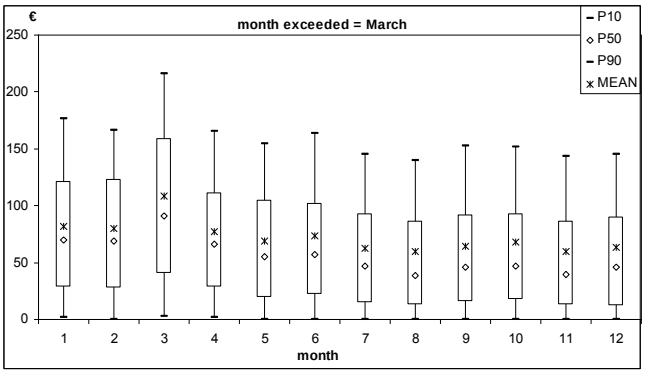
The results in these Figures largely corroborate the cautious conclusions that could already be derived from Table 17. Co-payments are high in the month of exceeding the MAB-ceiling. This is probably due to a high-cost episode of illness. In fact, the effect is stronger for co-payments related to hospitalization than for ambulatory co-payments. However, there is hardly any indication that expenditures increase, i.e. that consumption behaviour changes, after having reached the MAB-ceiling. In fact there seems to be a natural pattern of declining monthly co-payments after the expenditure peak and the MAB-ceiling have been reached. This is especially clear for the co-payments related to a hospitalization. A similar pattern emerges when we differentiate expenditures on the basis of the month of being notified and take into account the delay that was described in the previous subsection (these results are not shown, but are available on request) – there is a peak in co-payments about four or five months before the household is notified, but there is no evidence for an increase in average co-payments after having been notified (or after having exceeded the MAB-ceiling). If myopic behaviour is present at all, it seems in any case rather weak and does not show up in the average overall expenditures.

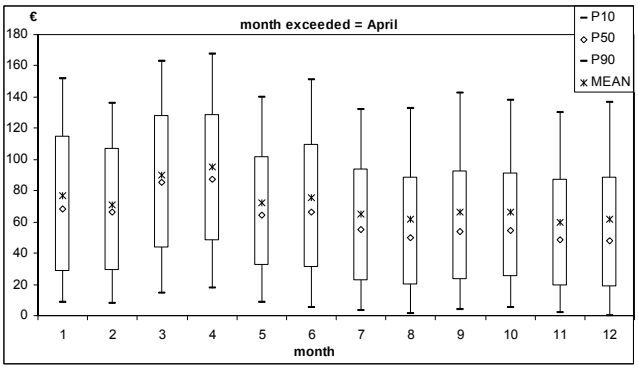
qqq The general picture of the results does not change when taking ZIV-expenditures instead of co-payments.

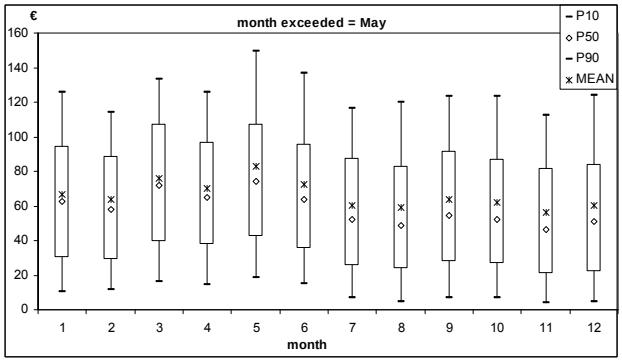
Figure 24. Average monthly co-payments in the ambulatory sector (differentiated according to month of exceeding MAB-ceiling)

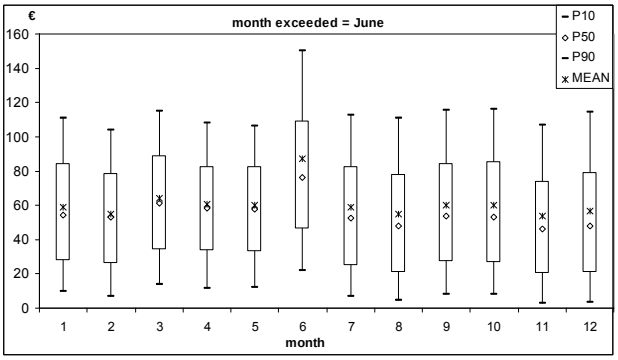


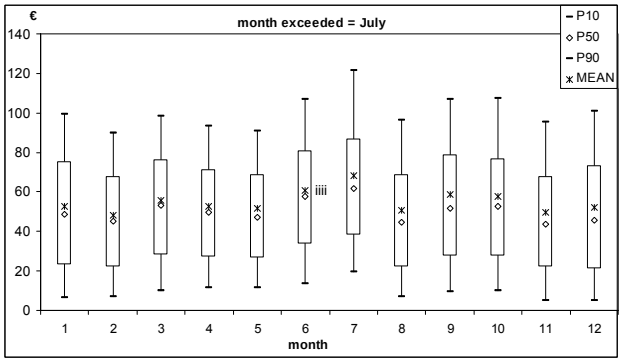


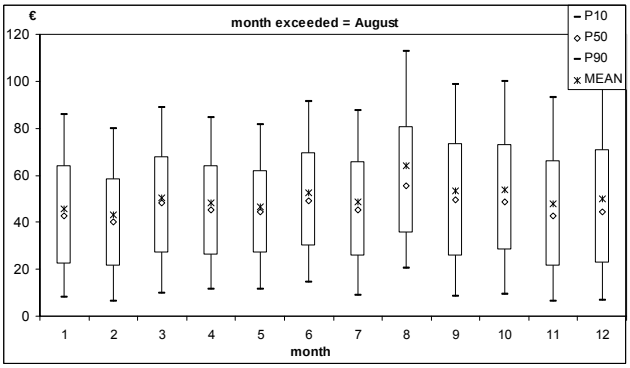












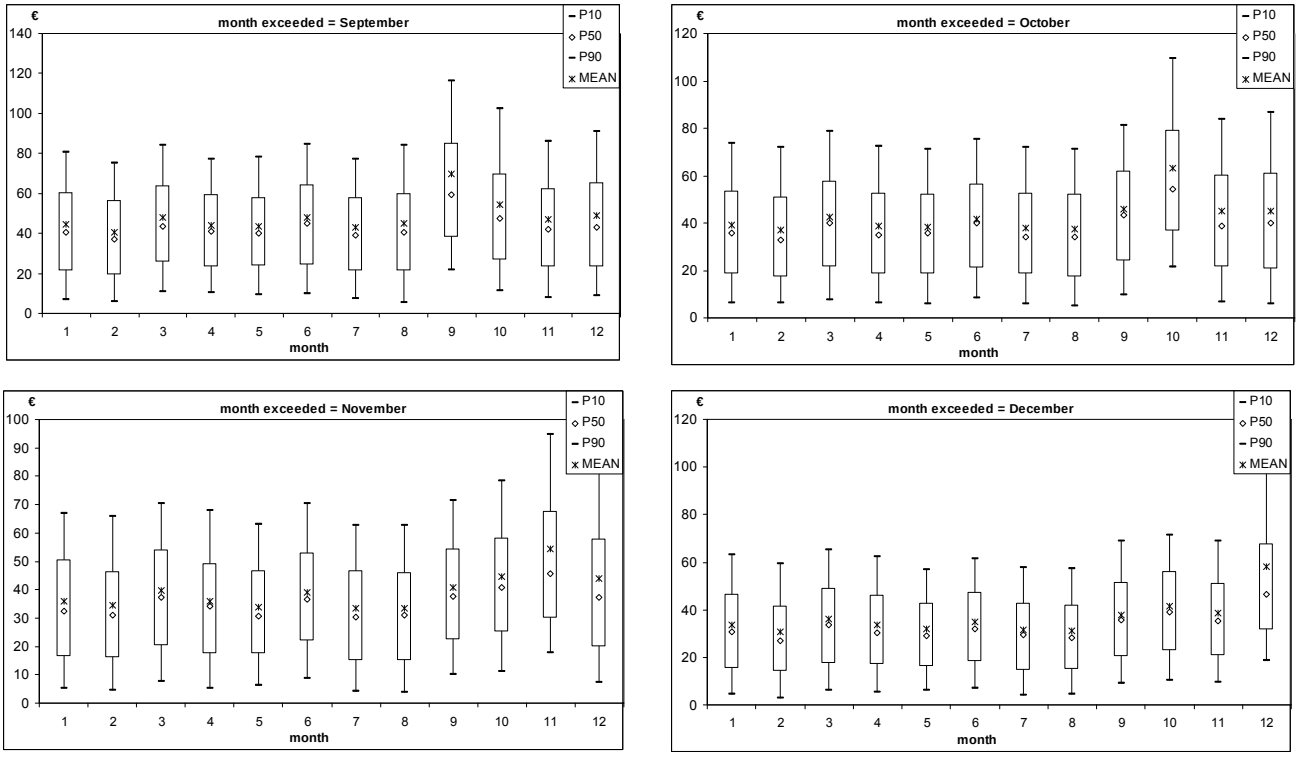
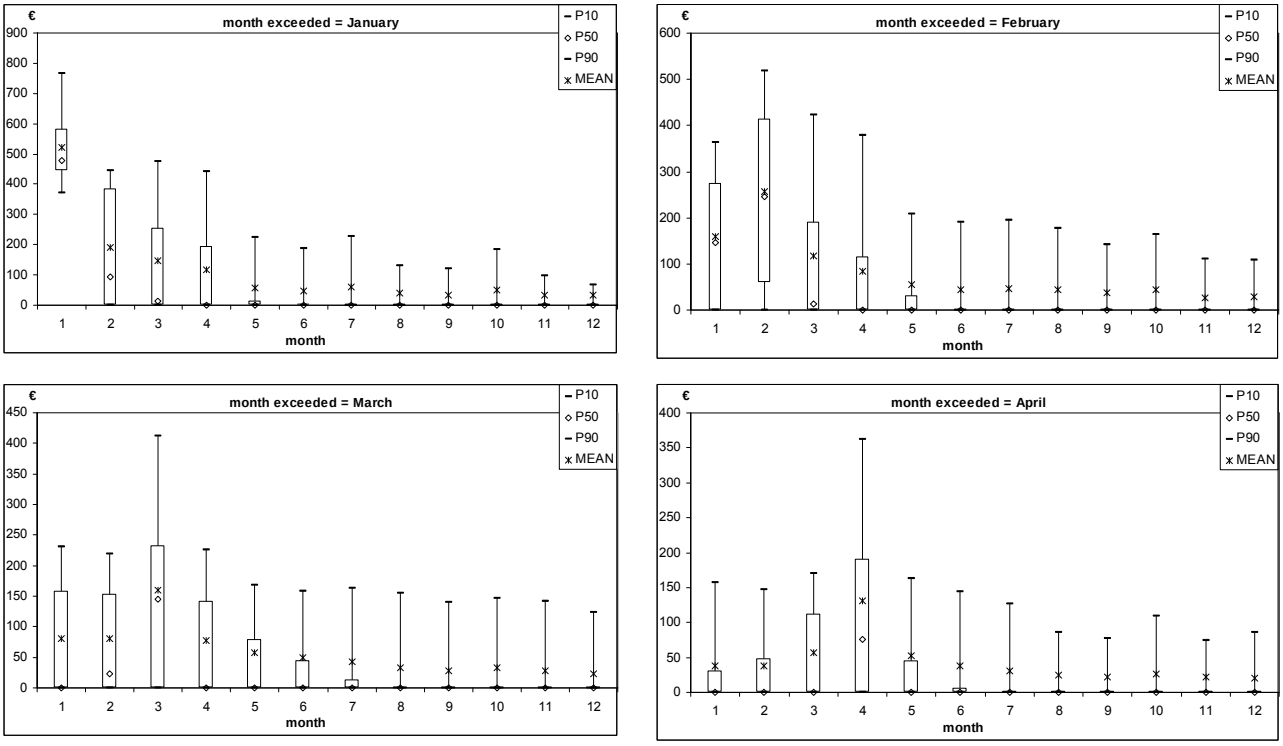
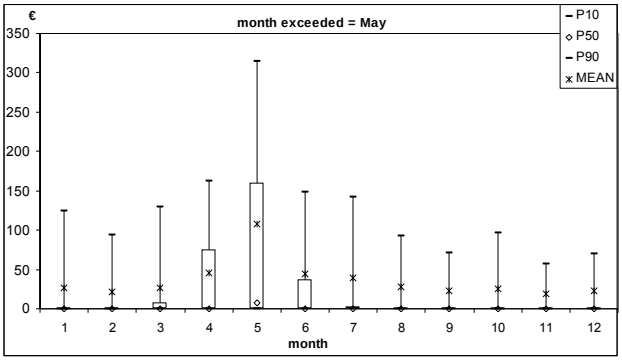
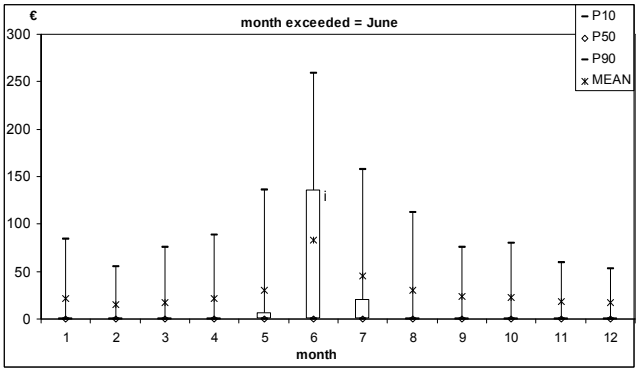
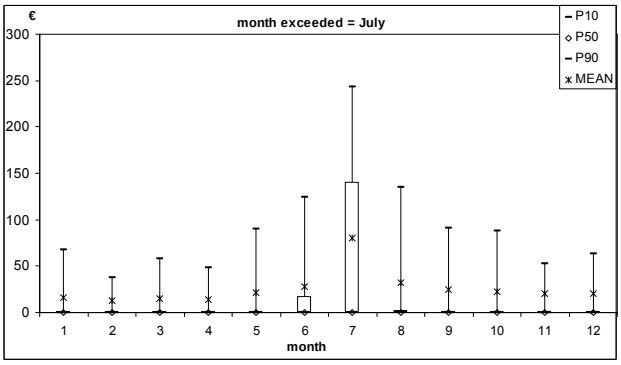


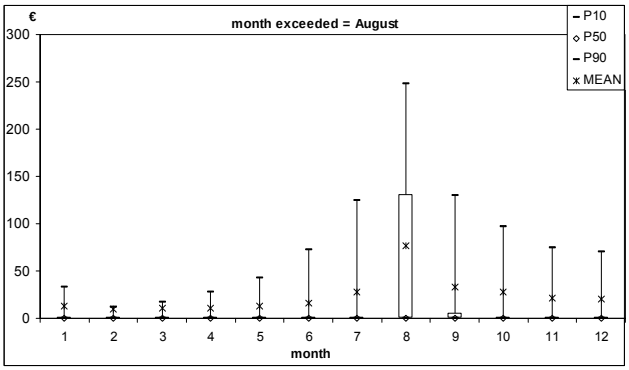
Figure 25. Average monthly co-payments for hospitalisation (differentiated according to month of exceeding MAB-ceiling)

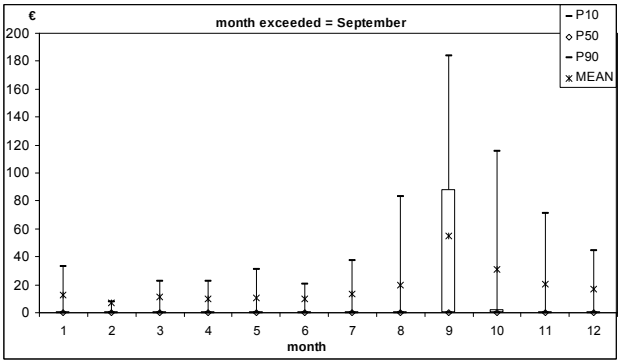


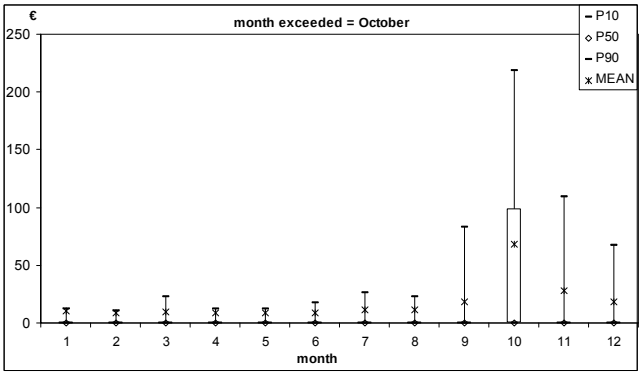


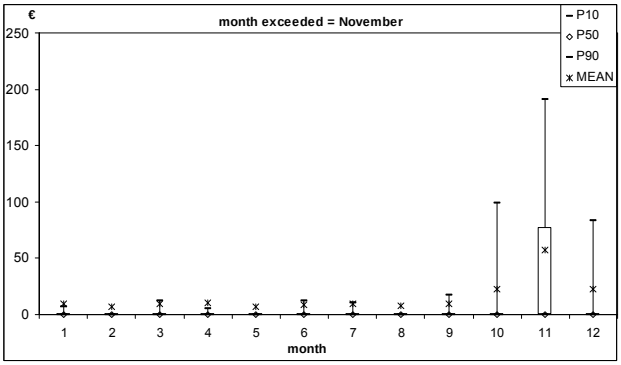


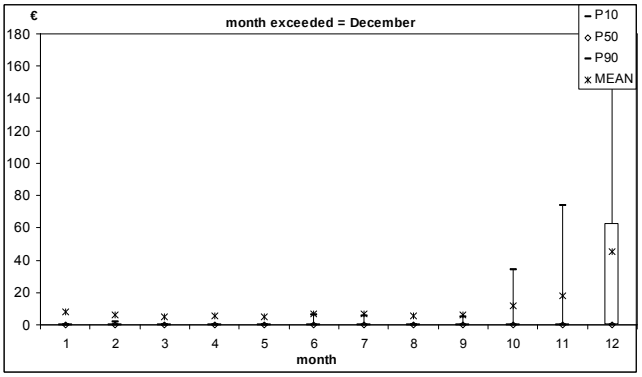












As a side-remark, it is also instructive to look at Figures 24 and 25 to see whether the hypothesis of postponing is supported by the data. If households adjust their behaviour so as to enjoy the advantages of zero co-payments for a longer period, this should show up in a relative decrease of expenditures at the end of the year and a relative increase in expenditures at the beginning of the year. There is no evidence that this phenomenon is present in our data.

5.2.2 Rational behaviour of the chronically ill?

As described in the introduction to this chapter, it is possible that the MAB has behavioural effects which do not show up as an increase in expenditures after having reached the MAB-ceiling. Households may anticipate that they will reach the ceiling and therefore already rationally adjust their behaviour before. At first sight, this seems to require an unrealistic degree of rational calculation by severely ill patients. This is certainly true if exceeding the MAB-ceiling is caused by a (possibly largely unexpected) high cost-episode of illness, as seems to be the case for many households. However, there are situations where this rational behaviour does not require a large degree of rationality. Consider the situation of the chronically ill, who know already in the beginning of the year that they will without doubt exceed the MAB-ceiling in the course of the year. For them, OOP-payments (at least for co-payments included in the MAB-counter) are effectively limited to the ceiling, and they can realistically be assumed to be aware of the fact that increasing consumption will not lead to an increase in OOP-payments. It seems very well possible that this will be reflected in their consumption behaviour (while this behavioural effect would not show up in the average figures shown in the previous subsection). Moreover, an analogous reasoning can also hold for the providers, who may also change their behaviour if they know that the patient will not have to bear any co-payments.

To get a feeling for this phenomenon we look at individuals that live in a household that exceeded the MAB-ceiling both in 2003 and in 2004 – under the reasonable assumption that these are chronically ill. As before we define "exceeding the MAB-ceiling" by summing the relevant co-payments at the level of the MAB-household (which may in some cases be different in both years). Table 19 shows the relevant (weighted) numbers: it turns out that 4.73 % of the sample individuals live in a MAB-household that exceeds the (social or income) MAB-ceiling both in 2003 and in 2004.[rrr]

Table 19. Number of individuals exceeding the MAB-ceiling

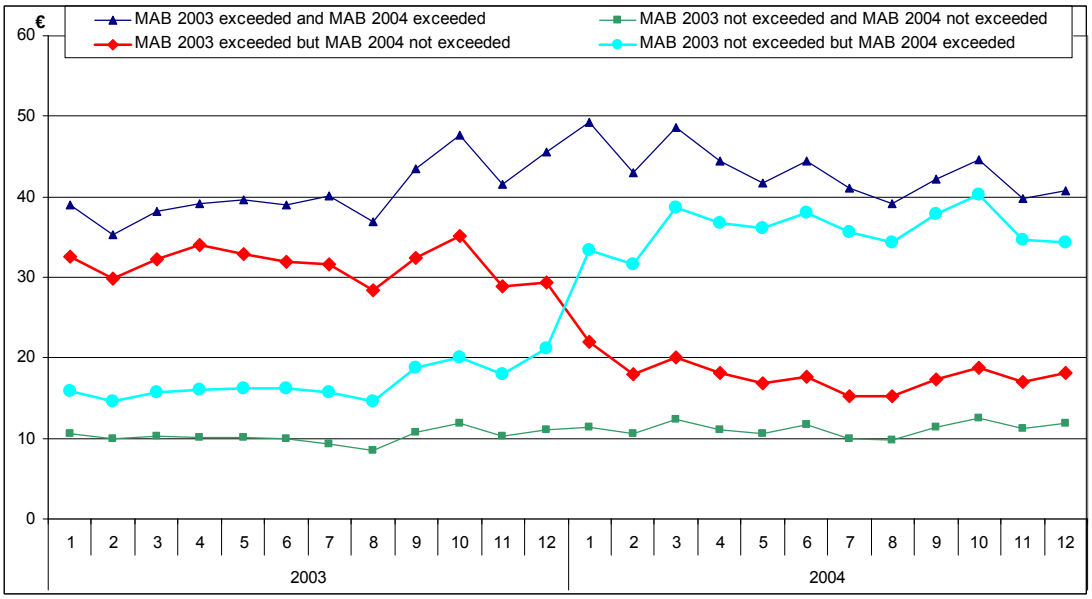
Weighted number of sample individuals		**exceeded MAB 2004**		
		NO	YES	Total
exceeded MAB 2003	NO	74 31 804	331 552	7 763 356
	YES	316 388	401 207	717 595
	Total	7 748 192	732 758	8 480 951
In percentages		**exceeded MAB 2004**		
		NO	YES	Total
exceeded MAB 2003	NO	87.63	3.91	91.54
	YES	3.73	4.73	8.46
	Total	91.36	8.64	100

A first insight into their consumption behaviour is given by Figure 26, giving the development of average monthly co-payments for the four subgroups described in Table 19. Co-payments are of course much larger for individuals that exceeded the MAB-ceiling than for the individuals that do not. Somewhat more intriguing is the comparison between the co-payments of the individuals that exceeded the MAB-ceiling for both years and the co-payments of the individuals that exceeded the MAB-ceiling only for one year *in the year they exceeded the ceiling*. Again, the former are larger.

This might suggest some rational behaviour. However, it may also simply be due to the fact that these individuals are more ill.

[rrr] As we do not have income information for 2003, we are not able to check whether the fiscal MAB is exceeded in both years.

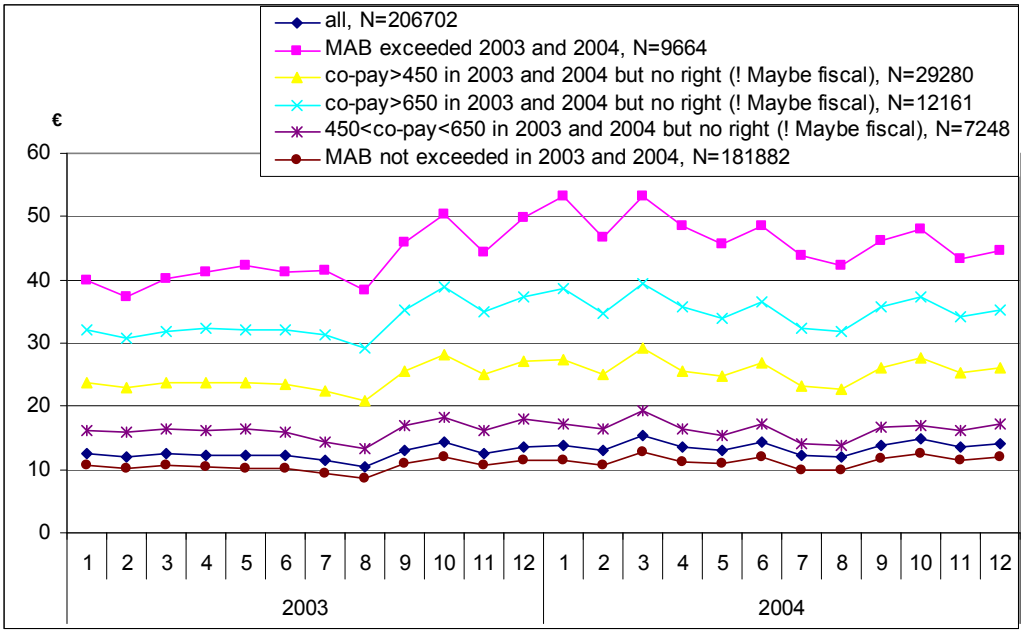
Figure 26. Evolution of individual co-payments over 2003 and 2004



In order to correct for morbidity differences as well as possible, we make another comparison. We focus on the individuals that exceeded the MAB-ceiling both in 2003 and in 2004, but we distinguish between those that are entitled to MAB-reimbursements and those that are not. The underlying idea is that the sum of co-payments paid is a reasonable approximation for morbidity. Since individuals with preferential treatment have to pay lower co-payments at the same level of health care consumption, their inclusion would bias this interpretation. Moreover, they all are entitled to the social MAB as soon as they exceed the ceiling of €450. We therefore omit them from the sample. Figure 27 shows the evolution of co-payments over 2003 and 2004 for different groups of individuals that have no right to preferential treatment. It is striking that co-payments are larger for those that exceed the MAB-ceiling in both years – and even larger than for those that have co-payments larger than €650 in both years. Of course, taking into account the sum of co-payments certainly is not a perfect way of controlling for morbidity – but, despite this qualification, it seems fair to say that the hypothesis of rational behaviour is not rejected.

We can cautiously conclude that the presence of the MAB possibly leads to larger health care expenditures for the chronically ill. However, it certainly is impossible to draw firm conclusions without a more detailed analysis. We cannot say at this stage whether the effect is due to patient or to provider behaviour. Moreover, this is perhaps also a good moment to repeat the warning given already in the introduction to this chapter. If it were true that the chronically ill adjust their consumption behaviour because of the presence of the MAB, this is as such not an indication of overconsumption. It is equally well possible that the MAB-protection avoids underconsumption for economic reasons by the chronically ill. After all, this has always been one of its proclaimed objectives. To evaluate these behavioural effects from a social point of view, more information on the health situation of the chronically ill would be needed.

Figure 27. Evolution of co-payments over 2003 and 2004 for different subgroups (without preferential treatment)



5.3 THE EFFECT OF INCLUDING DRUGS OF TYPE C IN THE MAB (2003)

As described in chapter 2, drugs of reimbursement type C are included in the MAB since January 1, 2003. This implies that, once the MAB was exceeded in 2003 for a given household, the members of that household got full reimbursement for this type of drugs, while this was not the case in 2002. The question then arises whether it is possible to detect any effect of that change on the consumption of drugs of type C. More specifically: did the consumption of this type of drugs increase in 2003 as a consequence of their inclusion in the MAB-counter?

Our dataset does contain detailed information on the consumption of drugs for all individuals in the original sample. Since we also know in which month these expenditures occurred, we can link them to the information about drug prices. For each drug and each month, we have the public price and the official tariff (on which reimbursement is based). From the official prices we can calculate ZIV-reimbursements and official co-payments. For drugs of type C, 50% is reimbursed and the other 50% has to be paid out-of-pocket as a co-payment (see section 2.1). These co-payments are limited to a certain ceiling depending on the insurance status of the patient and the year[sss]. As explained in section 2.5.3, the difference between the public price and the official price is the 'supplement' that the patient has to pay when he buys an expensive drug instead of a cheap one. However, we are in a grey zone here, as these "supplements" are nevertheless included in the MAB-counter. For the analysis in this chapter, we will therefore include these "supplements" in our definition of co-payments.

As explained before, the behavioural effects of the MAB have to be interpreted in the first place as price effects. It is therefore useful to have an idea about the general development of the prices for type C-drugs. This information is summarized in Table 20. The first column gives the quantity of packages sold. The two last columns give the range of price changes for individual drugs. It turns out that from 2002 to 2003 there was not one drug for which the official price increased – and the maximum increase in the co-payments (including the difference between the public price and the reimbursement tariff) was 14%.

[sss] In 2002 the ceiling was €9.79 for those with preferential treatment and €16.24 for those without preferential treatment. In 2003: €9.9 and €16.5 respectively and in 2004: €10 and €16.7 respectively.

The second column gives the (quantity-weighted) mean of the price changes for the different individual drugs. The official tariff decreased by about 7%, the co-payments increased by about 1%. In the period 2003-2004, some official tariffs increased drastically (more than doubled). The overall index (both for the official prices and for the co-payments) decreased by about 3.5%, however.[ttt]

Table 20. Price evolution for drugs type C

From 2002 to 2003

	N	Mean	Std Dev	Minimum	Maximum
ZIV-expenditures (preferential)	23 580	0.929	0.063	0.669	1
ZIV-expenditures (non-preferential)	23 580	0.928	0.062	0.669	1
co-payments (preferential)	23 580	1.009	0.073	0.673	1.140
co-payments (non-preferential)	23 580	1.009	0.073	0.673	1.140

From 2003 to 2004

	N	Mean	Std Dev	Minimum	Maximum
ZIV-expenditures (preferential)	32 478	0.966	0.037	0.952	2.197
ZIV-expenditures (non-preferential)	32 478	0.966	0.040	0.940	2.416
co-payments (preferential)	32 478	0.966	0.020	0.952	1.010
co-payments (non-preferential)	32 478	0.966	0.021	0.952	1.012

We will now first look in more detail at the evolution of average expenditures for drugs type C in the period 2002-2004. Making a distinction between different subgroups will allow us to draw some conclusions about the presence (or not) of a behavioural effect of the MAB. In a second subsection we will focus on the price effect at the individual level.

5.3.1 Evolution of average expenditures for drugs type C in the period 2002-2004

Figure 28a shows the development of the ZIV-expenditures for drugs type C in the period 2002-2004, Figure 28b shows the development of co-payments. We make a distinction between individuals that are entitled or not to preferential treatment, and between individuals that exceeded the MAB-ceiling in that year or not. For each year, the mean is taken over all individuals that are in the relevant group *for that year*. Therefore the individual composition of, e.g., the group of those exceeding the MAB-ceiling, differs from year to year. It is not surprising that those who exceed the ceiling (whether or not they are entitled to preferential treatment) have larger expenditures in each year. Again, as before, this is because they are sicker. For our purposes, however, we are more interested in the development of the expenditures over time.

[ttt] The fact that the price index from 2003 to 2004 is identical in all four columns of the table is due to rounding off. The actual numbers differ slightly.

Figure 28a. Development of average ZIV-expenditures for drugs type C

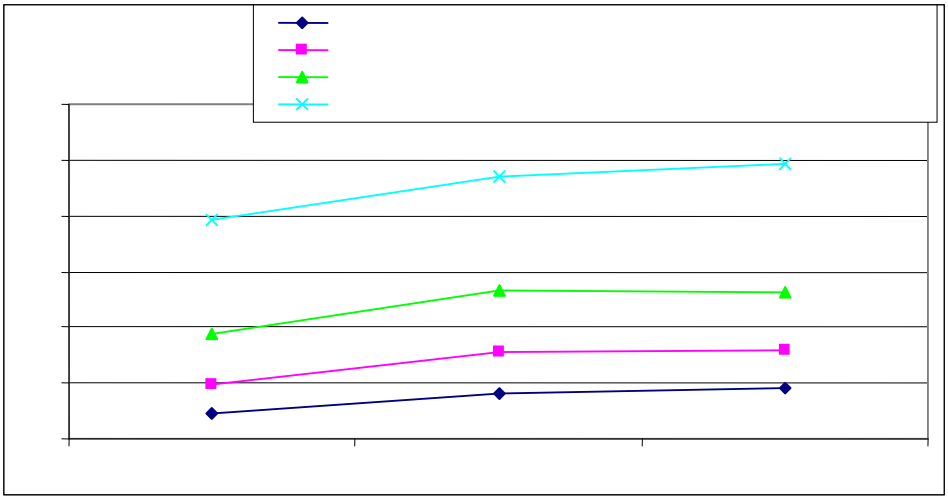
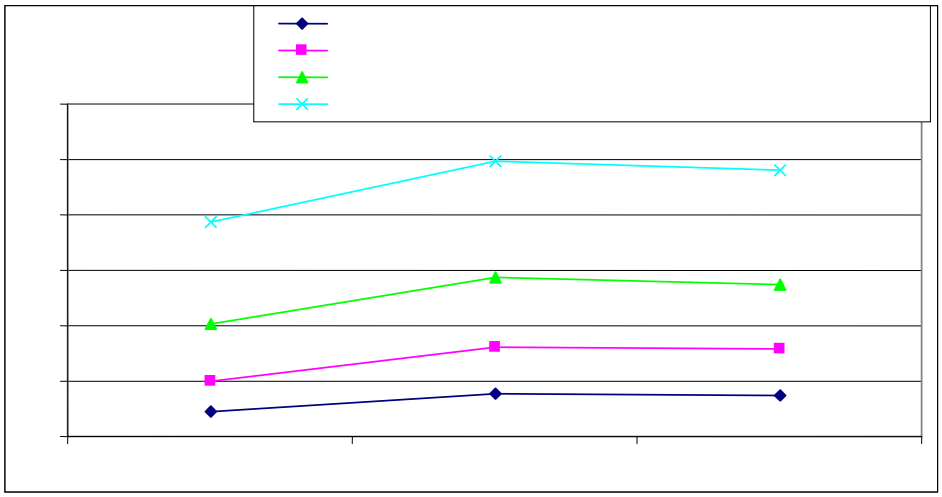


Figure 28b. Development of average co-payments for drugs type C



There is a striking difference in the development of expenditures for type C-drugs from 2002 to 2003 and from 2003 to 2004. While they increase in the first period (and slightly more so for the co-payments, probably because of the price effect illustrated in Table 20), there is more or less a status quo in the second. It would be wrong, however, to ascribe this development to the inclusion in 2003 of type C-drugs in the MAB. Indeed, the pattern is similar for patients who do not exceed the MAB and for those who do. The former group can be seen as a kind of control group, indicating the trend that would have occurred if the inclusion into the MAB had not taken place. The figure then clearly shows that the growth of expenditures is most probably not due to the inclusion in the MAB-counter. [uuu]

Figure 28 shows the development of simple averages, i.e. including those who do not have any consumption of type C-drugs at all. This development reflects a mixture of two effects: first, the change in the number of patients that consume drugs of type C; and second, the change in the average expenditures for those who do consume a positive amount. Additional insights can be obtained by distinguishing these two effects. Figure 29 gives the development of the ZIV-expenditures where the sample is now restricted to those with positive expenditures.

[uuu] The representation in Figure 28 may seem to suggest a stronger increase for patients that exceed the MAB-limit than for the others. The picture is misleading, however: the proportional increase (the growth rate) is not larger for the former than for the latter.

Comparing it with Figure 28a, the results are strikingly different: average (positive) ZIV-reimbursements do no longer increase from 2002 to 2003 – they decrease and more strongly so for the patients who exceeded the MAB-ceiling. Note that this decrease in ZIV-expenditures might be explained by a shift towards more generic medicines.

Figure 29. Development of average ZIV-expenditures for drugs type C (only for individuals with positive expenditures)

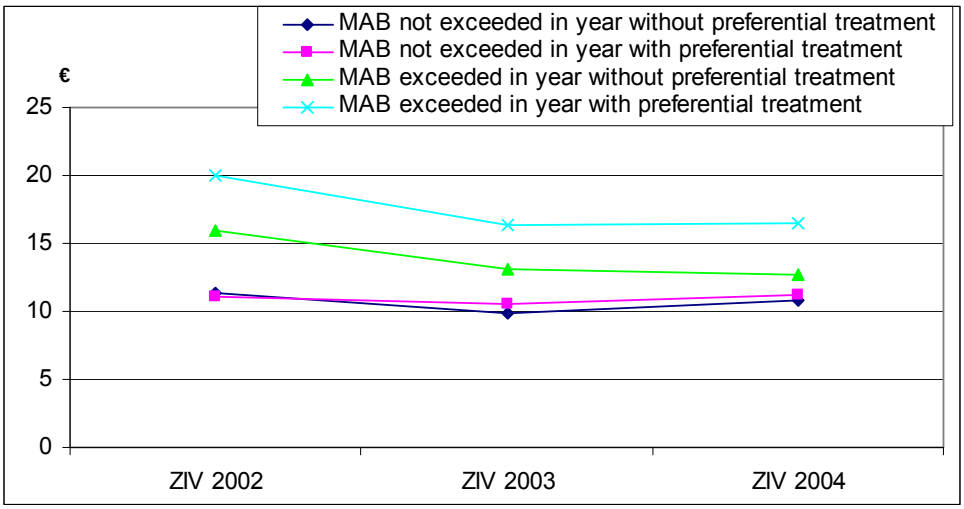


Table 21 and Figures 30-31 give more detailed information on the development of co-payments for individuals with positive expenditures. We distinguish between those with and without preferential treatment. As in the previous section, we try to identify morbidity from MAB-effects by considering separately those who exceed the MAB-ceilings of €450 and €650, without however being entitled to MAB-reimbursements. This only makes sense in the group without preferential treatment. Again, the results are clear: the growth rate of co-payments for drugs type C is negative from 2002 to 2003 (this may also partly be due to the shift towards generics). There is only one (weak) indication that inclusion in the MAB might lead to increased consumption: the decrease of co-payments from 2002 to 2003 is larger for individuals without preferential treatment and exceeding the MAB-ceiling if they are not entitled to MAB-reimbursements. A deeper analysis with richer data could perhaps be interesting here, but as such this can hardly be seen as convincing evidence for a behavioural effect of the MAB.

Table 21. Development of co-payments for drugs type C (only for individuals with positive expenditures)

no preferential treatment	2002	2003	growth rate 02-03	2004
all	12.04	10.12	-15,99%	9.72
MAB exceeded in year	17.03	14.21	-16,56%	13.30
>MAB450 but no right	15.27	12.16	-20,41%	11.15
>MAB650 but no right	18.37	14.13	-23,09%	12.38
>MAB450 and <MAB650 but no right	11.84	10.02	-15,36%	9.66
MAB not exceeded	11.03	9.38	-14,88%	9.39

preferential treatment	2002	2003	growth rate 02-03	2004
all	13.81	12.95	-6.24%	12.84
MAB exceeded in year	19.80	17.24	-12,95%	16.11
MAB not exceeded	11.36	11.06	-2.64%	11.18

The positive growth of average expenditures in Figures 28a-b and the negative growth of (positive) average expenditures in Figures 29-31 can easily be reconciled if the number of patients with positive expenditures increases. This was already suggested by the first column in Table 20 and it is confirmed by Table 22. The number of individuals with positive expenditures for drugs of type C increases strongly between 2002 and 2003. More importantly for our purposes, however, there is (again) no indication that this growth rate in the period 2002-2003 is larger for those who are entitled to MAB-reimbursements than for those who are not.

Figure 30. Development of co-payments for drugs type C (for individuals with positive expenditures and without preferential treatment)

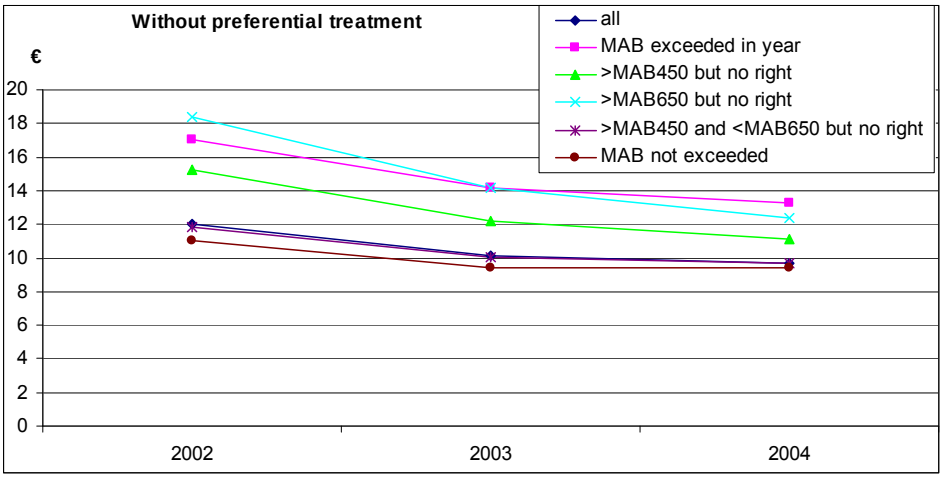


Figure 31. Development of co-payments for drugs type C (for individuals with positive expenditures and with preferential treatment)

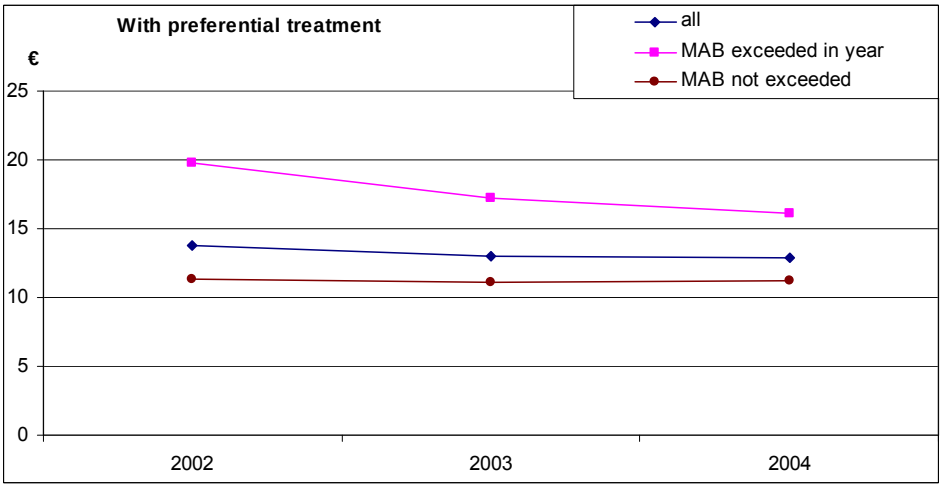


Table 22. Growth rates of the number of individuals with positive expenditures for drugs type C

	% 02-03	% 03-04
MAB not exceeded (no preferential treatment)	+ 94.14%	+ 0.84%
MAB not exceeded (preferential treatment)	+ 60.34%	- 4.28%
MAB exceeded (no preferential treatment)	+ 77.34%	- 0.10%
MAB exceeded (preferential treatment)	+ 76.65%	+ 18.43%

5.3.2 Analysis at the individual level

Until now, we largely focused on the changes in mean expenditures. To estimate behavioural consequences, it is of course preferable to analyze expenditures at the individual level. In fact, the effects of including drugs of type C in the MAB-counter, can in principle be analyzed with a similar regression technique as the one proposed by Contoyannis et al. (2005)[13] and summarized in the appendix. They explain the change in expenditures by individual i as a function of the change in that person's personalized price, where the latter is defined as the proportion of OOP-payments in the total price of one additional euro of drug consumption. For individuals that have exceeded the MAB-ceiling this marginal personalized price becomes zero. They propose an instrumental variables technique to control for the endogeneity of this personalized price. It is obvious that for the application of this idea, we have to restrict our sample to those individuals that have positive expenditures of drugs of type C, both in 2002 and in 2003. In fact, by focusing on the change (and not the level) of expenditures for a given individual, we largely control for the specific (morbidity) characteristics of the individuals.

Figure 32. Relationship between the change of expenditures for drugs type C and the change in personalized price

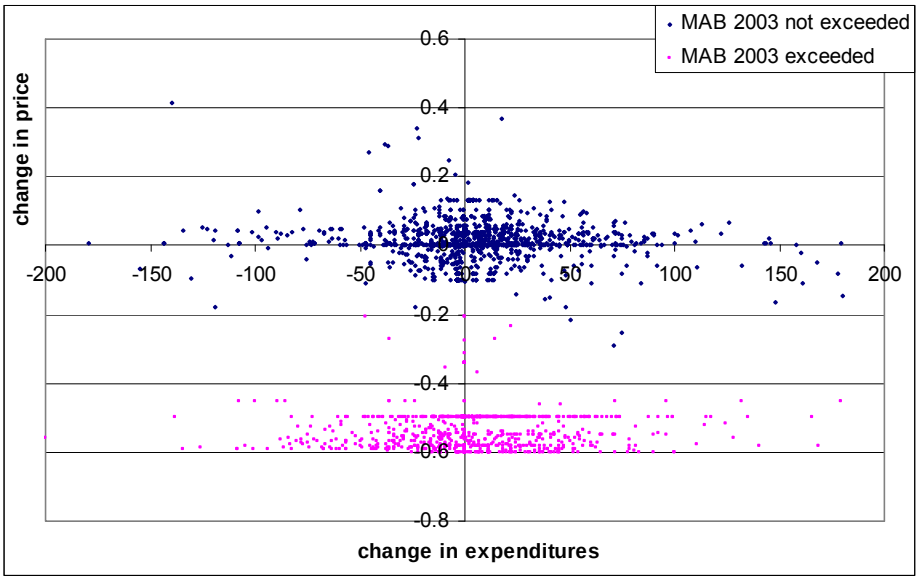


Figure 32 shows the bivariate relationship between the dependent variable (the change in expenditures for drugs type C) and the independent variable (the change in the personalized marginal price). The endogeneity of the latter is neglected in the construction of the figure. The pink dots refer to individuals that exceed the MAB-ceiling in 2003, the blue dots refer to individuals that do not exceed the ceiling. The figure shows two remarkable features. First, there is a clear clustering of the observations. The pink dots (for individuals that exceed the MAB-ceiling) are clustered around a negative value for the price change of about -0.5 – this is not surprising, since co-payments for type C-drugs are about half the official price. The blue dots are clustered around a value of zero. In fact, the remaining variation reflects changes in the composition of drugs consumption. Second, and most remarkably, the distribution of the changes in expenditures is very similar for the pink and the blue dots. Overall, there does not seem to be any relationship between the change in price and the change in consumption, i.e. the fact of exceeding the MAB does not influence consumption. Even if we do not correct for the endogeneity of this price, which may lead to a misleading overestimation of the price effect, no price effect at all is found.

It is not surprising then that regression analysis yields an estimated equation with highly unstable values for the coefficients and which can explain only a very limited part of the variance (less than 1%).

We therefore do not show these results, which only corroborate the findings of Figure 32. It would have been highly surprising, indeed, if introducing additional explanatory variables (as we did) would have changed the basic insight that shows up so clearly in the figure: the change in the marginal personalized price of drugs of type C, due to the fact of exceeding the MAB-ceiling, does not have a detectable influence on the change in expenditures for type C-drugs.

5.4 EFFECTS ON PROVIDER BEHAVIOUR? CO-PAYMENTS FOR NURSING CARE

Reaching the MAB-ceiling may not only have an effect on patient behaviour. It can also influence the behaviour of providers. In fact, as noted before, the two effects cannot easily be distinguished in the analysis of consumption levels, which will be influenced both by patient and provider decisions. For some services, however, such as physiotherapy and home nursing care, it is common practice that providers do not raise the co-payments. At the same time these co-payments, if they are charged, are included in the MAB-counter. One might therefore a priori expect that providers will be more likely to charge co-payments from patients that exceeded the MAB-ceiling (or for which they may be sure that they will exceed the MAB-ceiling in the course of the year). Since these co-payments are then reimbursed, this provider behaviour does increase the public health care expenditures. In this section we will see whether this behaviour exists for the case of nursing care.

For nursing care, there is a difference in co-payments for patients with and without preferential treatment. They have to pay 0% and 25% respectively, with the exception of travel costs where a co-payment rate of 25% applies for everyone.[vvv] The relevant fees and co-payments are given in Table 23, where the distinction is shown between the fees for three categories of patients (lump sums A-C), that are distinguished on the basis of the severity of their needs. The co-payment share for patients with preferential treatment is minimal: it is fixed at €0.2.

Table 23. Fees and co-payments for nursing care: regulation

			preferential treatment			no preferential treatment		
description	**code**	**Fee (€)**	**reimbursement**	**co-payment**	**% co-payment**	**reimbursement**	**co-payment**	**% co-payment**
Nursing care during week days								
Lump sum A	425272	14.32	14.12	0.20	1.40	10.74	3.58	25.00
Lump sum B	425294	27.21	27.01	0.20	0.74	20.41	6.80	24.99
Lump sum C	425316	37.22	37.02	0.20	0.54	27.92	9.30	24.99
Nursing care on holidays or during weekends								
Lump sum A	425670	21.08	20.88	0.20	0.95	15.81	5.27	25.00
Lump sum B	425692	40.40	40.20	0.20	0.50	30.30	10.10	25.00
Lump sum C	425714	55.44	55.24	0.20	0.36	41.58	13.86	25.00
Nursing care in nurse office or in residence invalids								
Lump sum A	426075	13.50	13.50	0.00	0.00	10.13	3.37	24.96
Lump sum B	426090	26.38	26.38	0.00	0.00	19.79	6.59	24.98
Lump sum C	426112	36.40	36.40	0.00	0.00	27.30	9.10	25.00

Table 24 shows that there is indeed variation in provider behaviour. We focus only on the individuals that have positive ZIV-expenditures for 2004, i.e. that have obtained a positive amount of nursing care.[www] The second column gives the proportion of these patients that have had to pay co-payments for nursing care in the course of 2004. This happens only to a minority, but the phenomenon is not negligible. The third column gives the average of the co-payments to be paid for nursing care.

While the amounts may seem rather small, they must be read in the perspective of the small numbers of patients that are charged co-payments. As the last column (with the

[vvv] Another exception is care for palliative patients, which is reimbursed for everyone.

[www] The data in Table 24 (and Table 25) are at the level of the individual patient, and not at the level of the household.

maxima in the sample) shows, the amounts to be paid may become considerable for some patients.[xxx]

Table 24. Co-payments paid for nursing care (for patients with positive ZIV-reimbursements)

	% patients that have to pay a co-payment	Mean co-payment (€)	Maximum co-payments (€)
No preferential treatment			
Lump sum A	17.48%	52.13	1 497.87
Lump sum B	16.58%	125.29	2 855.10
Lump sum C	18.28%	146.84	3 909.96
Lump sum A + B + C	17.60%	110.69	3 909.96
Preferential treatment			
Lump sum A	6.81%	2.83	1 049.76
Lump sum B	7.10%	1.94	1 386.60
Lump sum C	9.01%	11.33	2 614.60
Lump sum A + B + C	7.54%	4.31	2 614.60

A closer look at the data (not shown in the Table) shows that patients that are charged co-payments, are nearly always charged the official rate. It is therefore sometimes better to focus on the discrete choice of whether or not to raise co-payments, rather than on the resulting amounts. Moreover, since the number of observations is limited, and since Table 24 suggests that provider decisions with respect to raising co-payments do not differ drastically between the different lump sums, we will pool them for the rest of the analysis.

As in the second section, we again can distinguish between the hypotheses of inflexible, myopic and rational behaviour, now from the point of view of the providers. To see whether there is myopic behaviour, we show in Table 25 average monthly co-payments and ZIV-expenditures before and after exceeding the MAB-ceiling. As in Table 18, we compare the results for the various possible interpretations of "exceeding the MAB-ceiling". In all cases, there is indeed (as hypothesized) an increase in the monthly co-payments after the MAB-ceiling has been reached. In fact, more strikingly, the increase in the average co-payments after the MAB-ceiling has been reached, is proportionally larger than the increase in the ZIV-expenditures. This seems to suggest some myopic adjustment of the providers, i.e. an increased tendency to charge co-payments for patients that have reached the MAB-ceiling. However, the effect is small and statistically insignificant.

Table 25. Average monthly expenditures for nursing care before and after reaching the MAB-ceiling

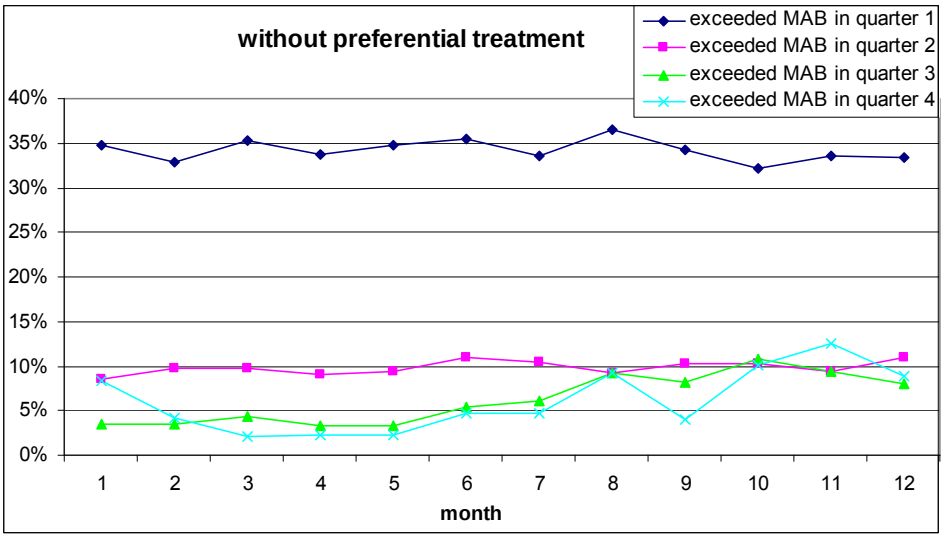
Variable	N	Mean (€)	95% Confidence limit	
Exceeded MAB (all)				
co-payments before	2 080	**3.60**	2.56	4.65
co-payments after	1 995	**5.11**	3.91	6.32
ZIV-expenditures before	2 080	**353.60**	336.76	370.45
ZIV-expenditures after	1 995	**368.65**	351.37	385.93
Exceeded MAB + knowing in 2004				
co-payments before	647	**7.67**	4.99	10.34
co-payments after	668	**9.19**	6.55	11.83
ZIV-expenditures before	647	**374.50**	342.89	405.10
ZIV-expenditures after	668	**379.46**	349.41	409.51
Exceeded MAB + not knowing				
co-payments before	1 433	**1.76**	0.85	2.66
co-payments after	1 327	**3.05**	1.83	4.27

[xxx] The large maximum amounts for patients on preferential treatment may seem surprising in the light of the regulation (Table 23). However, they refer to individuals that became entitled to preferential treatment in the course of 2004 and therefore represent mainly co-payments of these individuals before they got their preferential status.

ZIV-expenditures before	1 433	**344.09**	323.92	364.25
ZIV-expenditures after	1 327	**363.17**	342.03	384.31
Exceeded MAB + knowing in 2004; means before/after being notified				
co-payments before being notified	672	**9.25**	6.51	12.00
co-payments after being notified	582	**7.88**	5.20	10.56
ZIV-expenditures before being notified	672	**373.31**	345.03	401.58
ZIV-expenditures after being notified	582	**374.22**	339.81	408.63

A better insight can be obtained by looking at Figure 33, which shows the fraction of patients without preferential treatment that are charged co-payments for the nursing care they receive, differentiated according to the moment of reaching the MAB-ceiling.[yyy] Because of the small number of observations, we group the observations by quarter. There is a slight indication of myopic behaviour for patients exceeding the MAB-ceiling in the third or fourth quarter. However, the most striking finding is that patients reaching their MAB-ceiling in the first quarter (and to a much smaller extent in the second quarter) are charged co-payments much more often than patients reaching their MAB-ceiling later in the year – and this uniformly over the whole year. Note that the endogeneity problem (i.e. that reaching the MAB-ceiling necessarily is linked to having larger expenditures) is much less important here: not only is nursing care only a fraction of total health care expenditures, more importantly we are analysing here a discrete provider decision to charge co-payments or not. In this setting, the suggestion is indeed very strong that providers are inclined to charge co-payments more often if they can be confident that the co-payments will not have to be paid out of the pocket of the patients. This seems to be another instance of "rational" behaviour. In fact, Figure 33 throws another light on the results of Table 25. Since patients that have exceeded the MAB early in the year are overrepresented for the calculation of co-payments after having reached the MAB-ceiling, part of the seemingly "myopic" effect which was suggested by Table 25, is in fact due to the "rational" behaviour shown in Figure 33.

Figure 33. Number of individuals paying co-payments for nursing care (differentiated according to the moment of exceeding the MAB-ceiling)



yyy The pattern is similar for patients with preferential treatment, but given the small amounts involved, this figure is less interesting.

5.5 CONCLUSION

In this chapter we have investigated whether we can discover in our data any evidence for the possible presence of behavioural changes induced by the MAB. This is not an easy question to investigate: behavioural changes may be subtle and we have to tackle difficult issues of endogeneity. Therefore, we can only cautiously formulate the following conclusions:

1. We did not find evidence for what is called in the literature myopic behaviour, i.e. changes in behaviour which are induced by reaching the MAB-ceiling. In fact, this is not very surprising given that the MAB-ceiling is often reached late in the year and patients are poorly informed (and with a long delay) that they indeed have reached it.
2. There are some indications of rational, i.e. anticipating, behaviour. Expenditures of the chronically ill who know already in the beginning of the year that they will reach the MAB-ceiling seem to be somewhat larger than expenditures of other individuals with a comparable morbidity status. More research is needed here, both to confirm our empirical findings and to investigate whether the hypothesized expenditure changes are justified or unjustified from a medical point of view.
3. We also found suggestions of rational behaviour from the perspective of the providers. In the case of nursing care there seems to be an increased tendency to charge co-payments for patients that may be sure to exceed the MAB-ceiling during the year.
4. We did not find any evidence that the inclusion in 2003 of drugs of type C into the MAB-counter has led to an increased consumption of these drugs for individuals above the MAB-ceiling.

It seems fair to say that the behavioural effects of the MAB are probably rather weak. It is important, however, to interpret this finding carefully in terms of costs. A shift from co-payments paid by the patients to co-payments paid by the insurance system will always lead to an increase in ZIV-expenditures. Any extension of the coverage of the MAB will therefore be costly. These cost increases due to different measures will be analysed in more detail in the next chapter. In this chapter we tried to answer a different question: does the MAB change consumption behaviour such that there is an increase in the costs over and above the mechanical effect? The evidence suggests that this additional effect most probably does exist, but is rather weak.

Our conclusion may seem a bit surprising in the light of the findings in the international literature about the effects of OOP-payments. It can, however, partly be explained by the specific features of the Belgian MAB. Indeed, co-payments are only reimbursed *ex post* for patients with large expenditures and they often are poorly informed about the fact that they (together with the other members of their household) have reached the ceiling.

Key points

- **Evaluating the behavioural effects of reaching the MAB-ceiling raises difficult issues of endogeneity. Even if there were no direct effect of co-payments on medical consumption, one would still observe a negative relationship in reality. With our data, we can only draw provisional conclusions.**
- **The data do not allow us to distinguish between expenditures that are justified or unjustified from a medical point of view.**
- **In general, the behavioural effects of the MAB seem rather weak.**
- **We did not find evidence for myopic behaviour, i.e. changes in behaviour which are induced by reaching the MAB-ceiling.**
- **There are some indications of anticipating behaviour. Expenditures of the chronically ill who know already in the beginning of the year that they will reach the MAB-ceiling seem to be somewhat larger than expenditures of other individuals with a comparable morbidity status. This conclusion must be interpreted cautiously, however, as the available morbidity information is limited.**
- **The data suggest that there is some anticipating behaviour by the providers. In the case of nursing care, we observe an increased tendency to charge co-payments for patients that may be sure to exceed the MAB-ceiling during the year.**
- **We did not find evidence that the inclusion in 2003 of drugs of type C into the MAB-counter has led to an increased consumption of these drugs.**

6 IMPROVING THE SYSTEM? THE EFFECTS OF THE POLICY MEASURES SINCE 2004

The analysis in chapter 4 has given a first and broad overview of the operation of the MAB in 2004. Since there have been some important regulatory changes since 2004 (as described in chapter 2), the description of the real data from 2004 is not fully applicable to the present situation. Moreover, and more importantly, while the use of individual data allowed us to describe in some detail the effects of the MAB on various subgroups, such a descriptive analysis remains like a snapshot of reality at a given moment in time. It is therefore not well suited for analysing the effects of changes in the regulation, neither of the introduction of specific policy measures nor of changes in the broad design features of the system. From a policy perspective, it is exactly this kind of analysis of the effects of policy changes which is the most relevant. In this chapter we use the technique of microsimulation to explore in more detail the effects of the specific policy measures taken since 2004 and we analyse some other potential changes.

The most obvious approach to evaluating a policy is by comparing the (real-world) situation before and after the policy change. Such an ex post approach comes too late for a policy maker at the moment that a new policy measure is considered. Moreover, changes over time are not only caused by the specific policy measure – there are all kinds of confounding factors (changes in the demographic composition of the population; economic changes; changes in morbidity, including short-term epidemics; appearance of new treatments) for which one should control if one wants to calculate the effects of the policy measure on its own. Simulation methods, which by construction give an ex ante evaluation controlling for all other changes in the environment, then offer a welcome addition to ex post evaluation techniques.

Policy evaluation, including simulation, can be situated at different levels. Many policy analyses focus on the aggregate (or macro) level: they calculate overall costs and average effects – possibly complemented with a description of the impact on specific "types" of individuals or households (e.g. a cancer patient, living on its own with the minimum income). Yet analyses at an aggregate level do not give much information on the distributional effects of the policy. This is a crucial limitation for the analysis of an institution like the MAB, which is in the first place meant to be a protection mechanism for the economically weak and the chronically ill, i.e. which has an explicit distributional purpose. Analysis of "type" cases is often interesting and useful, but it may at the same time be rather misleading. The "type" households are not necessarily representative of the population and by focusing on types, one runs the danger of neglecting the overall picture, including some unexpected side-effects of the policy. The microsimulation approach tries to remedy both these shortcomings: it calculates effects not at the aggregate level but at the level of the individual micro-units (households or individuals), but it does so for a representative sample of the population and therefore yields a complete picture of the effects of the policy.

The basic idea of microsimulation, as applied to the MAB, is easy to understand. When evaluating a policy measure, one compares for all households in a representative sample their situation before and after the change. The situation before the change will in our case be similar to the situation for 2004, as sketched in chapter 4: for all households in our sample we know their OOP-payments before and after MAB. When implementing the situation after the introduction of a new policy measure, we simulate for each individual household separately their new OOP-payments before and after MAB. In simulating the new situation, the following steps are taken:

1. OOP-payments before MAB are based on the consumption of specific health care services by the household. We have this detailed information in our sample. In a so-called static simulation one assumes that the consumption behaviour of the households is not affected by the policy change. OOP-payments before MAB must then still be adjusted if the policy implies a change in the co-payments to be paid or in the (regulation of) supplements. The introduction of the OMNIO-status is an example of such a change. If behavioural reactions on the policy change are considered to be important, one has to resort to dynamic simulation. In that case

one first adjusts the medical consumption of the household, before applying the vector of co-payments and supplements. Note that both in static and in dynamic simulation the effects of confounding factors is controlled for. Chapter 5 has shown that the behavioural effects of the MAB most probably are not very strong – and moreover, that it is very difficult to estimate them precisely. We will therefore limit ourselves in this chapter to static microsimulation. This is in any case an extremely useful benchmark for any policy analysis.

2. In calculating OOP-payments after MAB, one again takes two steps. First, one calculates for each household the MAB-counter by adding all the co-payments which are included in the MAB. This counter will be different before and after the policy change if the latter involves a change in the MAB-coverage. Second, one compares the calculated MAB-counter with the ceiling for the household. Again, that ceiling may be different before and after the policy.
3. Evaluation of the policy change can then be based on a comparison of the situation before and after the change for all households in the sample. Of course, by aggregating, one can estimate all useful global measures (including the overall budgetary cost of the measure). Since one has detailed information about the effects on all individual households, however, one can also describe the distributional effects in great detail (or focus on the impact on specific target groups).

A more formal description may help to see clearly the specific features of the method. Suppose we want to compare situation 0 (the status quo before a policy change) with situation 1 (the situation after the policy change). We work with a large and representative sample of N households. For all these households we have detailed socio-economic and income information. In addition we have information for all households about their medical consumption in the status-quo situation 0 at a disaggregated level. If there are *k* categories of care, medical consumption of household *i* in situation 0, i.e. before the policy change, can be written as $(x^0_{1i}, x^0_{2i}, \ldots, x^0_{ki})$. Their OOP-payments in situation 0 will now depend on:

(a) the co-payments related to the various categories of medical care. We will represent these by $(t^0_1, t^0_2, \ldots, t^0_k)$;

(b) the supplements related to the various categories $(s^0_1, s^0_2, \ldots, s^0_k)$;

(c) the working of the MAB. The MAB-regulation can be summarized by a list of the health care items included in the counter $(d^0_1, d^0_2, \ldots, d^0_k)$, where we say that $d^0_j = 1$ if health care item *j* is included in the MAB-counter in situation 0 and $d^0_j = 0$ otherwise. Moreover, the MAB-regulation will define for each household *i* a ceiling c^0_i.

The OOP-payments before MAB of household *i* in situation 0 can then be written as the sum of co-payments and supplements: $\square_j (t^0_j + s^0_j).\ x^0_{ji}$. Its co-payments included in the MAB-counter are given by $C^0_i = \square_j\ t^0_j\ .\ d^0_j\ .\ x^0_{ji}$. Therefore, its OOP-payments after MAB (in which we are most interested) can be computed as:

- if $C^0_i \leq c^0_i$, then $OOP^0_i = \Sigma_j\ (t^0_j + s^0_j).\ x^0_{ji}$. The MAB does not have any effect on the household.
- if $C^0_i > c^0_i$, then $OOP^0_i = c^0_i + \Sigma_j\ [(t^0_j\ (1-d^0_j) + s^0_j).\ x^0_{ji}\ ]$, and the MAB-reimbursements are $[\Sigma_j\ t^0_j\ .\ d^0_j\ .\ x^0_{ji} - c^0_i]$.

Let us now introduce a policy change bringing us in situation 1. The policy change can be one of the following measures, or a combination of these: (a) changing the level of co-payments, in which case the vector $(t^1_1, t^1_2, \ldots, t^1_k)$ will be different from $(t^0_1, t^0_2, \ldots, t^0_k)$; (b) regulating the supplements, i.e. changing the vector $(s^0_1, s^0_2, \ldots, s^0_k)$ into $(s^1_1, s^1_2, \ldots, s^1_k)$; (c) changing the regulation so that a different ceiling c^1_i applies to household *i*; (d) changing the coverage of the MAB from $(d^0_1, d^0_2, \ldots, d^0_k)$ to $(d^1_1, d^1_2, \ldots, d^1_k)$. We can now distinguish two possible approaches:

a. in a static simulation, one assumes that the consumption behaviour of the households is not affected by the policy. One then goes through the same calculations as described before by applying the co-payments, supplements, MAB-coverage and ceilings in situation 1 to the medical care consumption (x01i,x02i ,…,x0ki).

b. in a dynamic simulation, one first adjusts the medical care consumption, i.e. using estimated behavioural reactions, one calculates for each household separately a new medical care consumption vector (x11i ,x12i ,…,x1ki). One then applies the co-payments, supplements, MAB-coverage and ceilings in situation 1 to this new vector. As noted before, we will not apply dynamic simulation techniques in this chapter.

There is still one crucial element missing in our description of the technique. Until now we assumed that the observed sample is perfectly coherent with the MAB-regulation – that the data are constructed as in our description of situation 0. This is definitely not true in practice, however. As has been mentioned in the previous chapters, the snapshot of reality that is given by our database for 2004, contains some incoherencies (due to errors in the data), reflects changes in the composition of the households that have occurred within our observation period, is to some extent confused by the distinction between realized and invoiced expenditures, and takes up the effects of the specific transition measures that were implemented when integrating the fiscal MAB. It is impossible to introduce a specific policy measure in a coherent way into such "confused" picture. The first step is therefore to construct a baseline situation, which is coherent with the MAB-regulation in the status quo situation. The baseline model has to simulate reality – for each individual and household - as closely as possible. In section 6.1, we will describe the different steps that were taken to construct the baseline situation (situation 0 in the notation introduced before). We will then run the measures taken between 2004 and 2007 through the model. The results are described in section 6.2. Finally, section 6.3 shows the effects of two measures planned for 2008: the integration of the safety margin of implants and a MAB for the chronically ill.

6.1 SETTING UP THE BASELINE SITUATION

As our data do not perfectly represent the cost and coverage of the MAB for the year 2004, we first have to construct a baseline situation fitting the regulation as well as possible. The different steps taken to set up this baseline are described in section 6.1.1. Section 6.1.2 compares this constructed baseline situation with the raw data used for the descriptive analysis in chapter 4.

6.1.1 The base case policy: principles

The regulation of the MAB in force in the year 2004 was extensively described in chapter 2. The overview of the database and data adjustments in chapter 3 pointed out that the available data do not always reflect the MAB-regulation. We briefly repeat the characteristics of the MAB-regulation in 2004, compare them with the way they are incorporated in the data and in case of deviation, describe the process of proceeding from the data to the 'simulation of the regulation'.

6.1.1.1 Reimbursements

The right to the social MAB applies to de facto households and their co-payments are reimbursed once the global amount of co-payments reaches a ceiling of €450 during a civil year. However, not all sickness fund reimbursements in the data are related to co-payments incurred in 2004. Co-payments paid at the end of the year t may be reimbursed by the sickness fund in the beginning of the year t+1. Consequently, part of the MAB-reimbursements realized in 2004, relate to co-payments made in 2003 and part of co-payments incurred in 2004 are reimbursed in 2005.

Households entitled to the social MAB can also be reimbursed by the fiscal administration for the difference between co-payments invoiced in 2004 (and not already reimbursed) and the relevant MAB-ceiling at the level of the fiscal household. Co-payments invoiced in 2004 refer to co-payments realized in 2002, 2003 or 2004.

To take account of the particularities of the MAB-regulation in 2004, we calculated MAB-reimbursements for de facto households entitled to the social MAB as follows:

1. Reimbursements from the sickness fund equal the sum of realized co-payments covered by the MAB minus the MAB-ceiling of €450. Reimbursements (in the data) from the sickness fund to de facto households

who have a total amount of realized co-payments less than €450, are put equal to zero.

2. Reimbursements from the fiscal administration equal the sum of invoiced co-payments covered by the MAB minus reimbursements from the sickness fund for the social MAB minus the relevant MAB-ceiling (€450 to €2500) for the fiscal household. The reimbursements for the de facto household equal the sum of the reimbursements for the fiscal households belonging to the de facto household.

In 2004, the mechanism of the income MAB was only applicable to the low and modest incomes. When a de facto household, not entitled to the social MAB, approached €450 of co-payments in 2004, the sickness fund administrating the household file submitted a request to the fiscal administration to check if this de facto household could benefit from one of the two income MAB levels.

In case of a low income household, the sickness fund started to reimburse co-payments as soon as the ceiling of €450 was reached. Only when the ceiling of €450 was reached at the very end of the year or when the answer of the fiscal administration came too late, low income households were reimbursed according to the rules of the fiscal MAB. For de facto households with co-payments below €450 or with positive reimbursements from the sickness fund in case of co-payments above €450, MAB-reimbursements were calculated as follows:

1. Reimbursements from the sickness fund equal the sum of realized co-payments covered by the MAB minus the MAB-ceiling of €450. Reimbursements in the data from the sickness fund to de facto households with a total amount of co-payments realized in 2004 less than €450 are put equal to zero.
2. Reimbursements from the fiscal administration equal the sum of invoiced co-payments covered by the MAB minus reimbursements from the sickness fund minus the relevant MAB-ceiling (€450 to €2500) for the fiscal household. The reimbursements for the de facto household equal the sum of the reimbursements for the fiscal households belonging to the de facto household.

The same procedure was applied for modest income households, comparing the sum of co-payments covered by the MAB and realized in 2004 with the MAB-ceiling of €650.

The fiscal MAB was applied to all other households. They were reimbursed exclusively via the channel of the fiscal administration by comparing the sum of invoiced co-payments covered by the MAB with the MAB-ceiling according to the NTI of the fiscal household(s) belonging to the de facto household.

1. Reimbursements in the data from the fiscal administration to fiscal households with a total amount of co-payments less than the relevant MAB-ceiling are put equal to zero.
2. Reimbursements from the fiscal administration equal the sum of invoiced co-payments covered by the MAB of the fiscal household(s) within the de facto household minus the relevant MAB-ceiling. In case of more than one fiscal household within the de facto low income household, reimbursements are added up to the level of the de facto household.
3. In case of one fiscal household belonging to different de facto households, reimbursements of the fiscal household are allocated to the appropriate de facto household.

Since the child MAB is an individual right not transferable to other household members, reimbursements were first calculated at the level of the entitled child. However, as soon as a child eligible for increased child allowance (child MAB_450) and belonging to a household entitled to the social MAB or the low income MAB, reaches the MAB-ceiling of €450, all household members get their co-payments reimbursed. If a child entitled to child MAB_450 belongs to a household of the modest or fiscal MAB, all co-payments of the child above €450 are reimbursed immediately and the €450 count in the MAB-counter of the household.

The same reasoning can be applied for all other children (child MAB_650). Since in our data only four (unweighted) households entitled to the modest income MAB had a child eligible for the child MAB_450, we did not prioritize the individual right of the child in the simulations. The budgetary cost of the child MAB is slightly underestimated in all simulations since we eliminated households consisting of only one child (<19 years of age) who is head of the MAB-household. These 'de facto households' have a very specific profile: their income information is not available or relevant, all households are single households, all households are assigned to the fiscal MAB since they are not entitled to the social MAB and there is no means test. In our (weighted) sample about 42 000 children are head of a MAB-household with MAB-reimbursements amounting to €126 000.

All reimbursements for the child MAB are executed by the sickness funds and were calculated as follows:

1. Reimbursements for children belonging to a de facto household entitled to the social MAB or income MAB are put equal to zero since the MAB-ceiling of the de facto household (€450 or €650) is smaller than or equal to the MAB-ceiling of the child.
2. Reimbursements for children belonging to a de facto household entitled to the fiscal MAB equal the sum of realized co-payments covered by the MAB minus the MAB-ceiling of €450 for children entitled to increased child allowance (child MAB_450) or of €650 for all other children (child MAB_650).

6.1.1.2 Co-payments

The way the 'sum of co-payments covered by the MAB in 2004' is calculated, differs between the three subsystems. For de facto households entitled to the social MAB and to the income MAB, the relevant co-payments are co-payments realized in 2004. For households whose co-payments are reimbursed by the fiscal administration, the relevant co-payments are co-payments invoiced in 2004. Since the latter information was only available for the individuals in the original sample (including the oversampled elderly), for the additional de facto household members we took the sum of co-payments realized between January and October 2004 as an approximation for invoiced co-payments. Although the limit of October is somewhat arbitrary, on average one year of invoiced co-payments coincides roughly with 10 months of realized co-payments (internal communication of the sickness funds). For the individuals in the original sample we were able to validate this approach since invoiced and realized data were available. Both for the individuals in the representative sample and for the oversampled elderly, 10 months of realized co-payments and one year of invoiced co-payments make up respectively 83% and 88% of 12 months of realized co-payments. For the additional household members 10 months of realized co-payments also make up 83% of 12 months of realized co-payments. Using this latter variable underestimates by about 5% invoiced co-payments in 2004 for the additional household members. To respect possible differences in timing of realized and invoiced co-payments of different health care items (e.g. ambulatory versus hospital care), it was decided not to raise the percentage from 83% tot 88%.

6.1.1.3 MAB-ceiling

The MAB-ceiling for a de facto household depends on the subsystem of the MAB applicable to the household and is to a large extent related to the net taxable income (NTI). The relation between the NTI and the MAB-ceiling is described in section 2.4. It may occur that more than one MAB-ceiling is applicable within a de facto household. In some cases this is due to inconsistencies in the data, in other cases this reflects the MAB-regulation. We applied the following procedure to assign one or more MAB-ceilings to the de facto household.

Since de facto households entitled to the social MAB or the low income MAB enjoy the lowest MAB-ceiling of €450, we assigned to all members of these two categories of households a ceiling of €450. De facto households entitled to the modest income MAB, were given a ceiling of €650.

For all de facto households with an intervention from the fiscal administration, including households entitled to the social or income MAB, we based the MAB-ceiling of the fiscal household(s) within the de facto household on the NTI of the fiscal household(s). In case of more than one ceiling, the sum of co-payments covered by the MAB was compared with the relevant ceiling for the fiscal household and the results were aggregated to the level of the de facto household.

6.1.2 The base case policy: results

The data adjustments performed to achieve the base case policy of the year 2004 have an effect on some key variables of the MAB. Table 26 shows the assignment of de facto households to the different subsystems. Just as in the descriptive analysis of chapter 4, the assignment of households to the social, income or fiscal MAB was based on the information available in the IMA-data.[zzz] This means that households entitled to the social MAB but who also receive reimbursements from the fiscal administration are assigned to the subsystem of the social MAB and not to the fiscal MAB. To assign households to the different subcategories within the fiscal MAB, we additionally applied the MAB-regulation as described above. In Table 26, the sum of the de facto households belonging to the different subcategories within the fiscal MAB exceeds the total number of de facto households entitled to the fiscal MAB. This results from the fact that one de facto household can consist of several fiscal households. We assigned a de facto household to a subcategory of the fiscal MAB as soon as one fiscal household belonged to this subcategory. The number of households with a child entitled to the MAB for children is given separately. They can be part of one of the above categories of the fiscal MAB.

Table 26 : Base case policy in 2004: number of de facto households by subsystem of the MAB

Subsystem of the MAB	**Households according to MAB-ceiling (weighted N) Base case policy**
Total	3 925 014
▪ 450 (social MAB)	894 452
▪ 450 (income MAB)	68 020
▪ 650 (income MAB)	148 742
Total fiscal MAB	2 813 800
▪ 450 (fiscal MAB)	837 409
▪ 650 (fiscal MAB)	851 341
▪ 1000 (fiscal MAB)	660 412
▪ 1400 (fiscal MAB)	369 940
▪ 1800 (fiscal MAB)	452 544
▪ 2500 (fiscal MAB)	358 183
Child MAB	4 653

Table 27 compares some key variables between the descriptive analysis of chapter 4 and the baseline situation. All results are weighted. The numbers in the second column are calculated in exactly the same way as in the descriptive analysis of chapter 4, but for a different sample of households. Households consisting of only one child (<19 years) that is head of the MAB-household, were withdrawn from the analysis. In addition, some households were removed from the database because of incomplete or lacking income information (see section 3.2 and the Technical Appendix). Hence the results in columns 2 and 3 in Table 27 and all subsequent tables in chapter 6 are based on 3 925 014 (weighted) de facto households, unless otherwise mentioned.

[zzz] Contrary to Tables 27 and 28, Table 26 does not contain the corresponding numbers of the descriptive analysis in chapter 4. The main reason is that fiscal households were defined in an inadequate way in the raw data (see section 3.2), which made it necessary to correct the data used in the descriptive analysis in chapter 4 in the same way as was done for the base case policy. Therefore, the comparison is not informative.

The first part of Table 27 gives the budgetary cost of the MAB. The total amount of MAB-reimbursements in the raw data compares well with the amounts in the base case policy for the social and the income MAB. Translating the regulation into force in 2004 to the data produces however a substantial difference for the fiscal MAB. Indeed, while the fiscal MAB should take into account co-payments invoiced in 2004, the actual practice of most sickness funds was different. To have a maximum amount of co-payments reimbursed for their members, most sickness funds transferred co-payments invoiced until June or even August 2005 to the fiscal administration. As the baseline situation strictly reflects the MAB-regulation, co-payments invoiced in 2005 were not included. Since the base case policy will be used as the reference for all subsequent simulations, we should keep in mind this difference between regulation and actual practice.

In the second part of Table 27 the number of households with positive MAB-reimbursements is shown. Reimbursements for the child-MAB are added to the reimbursements for the social, income or fiscal MAB according to the de facto household to which the child belongs. In line with the amount of MAB-reimbursements, the number of households with positive MAB-reimbursements is comparable between the descriptive analysis of chapter 4 and the base case policy for de facto households entitled to the social and income MAB but diverges substantially for households entitled to the fiscal MAB. Mean and median reimbursements as well as reimbursements for the right tail of the distribution (P90) are of comparable magnitude in the descriptive analysis and the base case policy. Also the OOP-payments and co-payments after the MAB and the number of extreme payers are very similar in both approaches.

Table 27 : Base case policy in 2004: results for the general population

	Descriptive analysis chapter 4	**Base case policy**
MAB-reimbursements (€)		
Social MAB		
• For sickness fund	64 969 821	65 959 584
• For fiscal administration	2 014 861	2 202 062
Income MAB 450		
• For sickness fund	33 184 934	33 326 447
• For fiscal administration	755 140	1 229 758
Income MAB 650		
• For sickness fund	57 098 448	58 389 168
• For fiscal administration	2 788 970	3 272 611
Fiscal MAB		
• For sickness fund	5 375 759	0
• For fiscal administration	48 813 200	37 870 688
Child MAB	1 496 072	1 193 348
Total	216 497 205	203 443 666
Households with positive MAB-reimbursements (N)		
Total	489 641	443 318
• Social MAB	174 083	175 213
• Income MAB	180 629	172 275
• Fiscal MAB	134 929	95 830
MAB-reimbursements (€)		
• Mean	442	459
• P50	265	281
• P90	1 045	1 072
OOP- payments after MAB (€)		
• Mean	474	477
• P50	278	279
• P90	1 030	1 036

Co- payments after MAB (€)		
• Mean	323	326
• P50	250	251
• P90	668	669
Number of extreme payers after MAB		
• OOP>5% NTI (N - %)	385 574 (9.82%)	391 670 (9.98%)
• OOP>10% NTI (N - %)	154 021 (3.92%)	155 465 (3.96%)
• Co-pay>5% NTI (N - %)	121 457 (3.09%)	133 001 (3.39%)
• Co-pay>10% NTI (N - %)	49 401 (1.26%)	50 668 (1.29%)

Table 28 presents how OOP-payments and reimbursements are spread over subgroups according to income, socio-economic status and morbidity. Since we could not show the results for all the subgroups analysed in chapter 4, we selected some of the most interesting ones. In general, the results for the base case policy are in line with those of the descriptive analysis of chapter 4. In the base case policy the percentage of households with positive MAB-reimbursements is lower than in the raw data. The opposite holds for the percentage of extreme payers of OOP-payments and co-payments. The largest differences are found for subgroups consisting of a small number of households. For two relatively larger groups, namely single parent households and households with at least one member who had a long hospital stay, the differences are also rather large. A closer look at the two groups shows that the differences can be explained by reimbursements in the raw data by the sickness funds and/or by the fiscal administration for an amount substantially larger than the sum of co-payments. There is no apparent explanation why this is the case for these two groups and to a much lesser extent for the other groups.

All in all, the aggregate results and the profile of the groups at risk are very similar in our base case and in the descriptive analysis of chapter 4. The base case therefore is a relevant point of departure for our simulations, both to estimate the overall costs and the distributional effects of the policy measures.

Table 28 : Base case policy in 2004: results for specific subgroups

	N (weighted)	Descriptive analysis chapter 4	Base case policy
€5.000 < NTI ≤ €10.000	13 102		
• OOP-payments after MAB	320 057		
- Mean (in €)		321	326
- P90 (in €)		672	682
• Co-payments after MAB			
- Mean (in €)		203	208
- P90 (in €)		450	457
• % extreme payers (OOP > 5% NTI)		20.26%	20.67%
• % extreme payers (co-pay > 5% NTI)		12.48%	13.33%
• % with positive MAB-reimbursements		12.03%	11.13%
€30.000 < NTI ≤ €35.000	17 862		
• OOP-payments after MAB	257 035		
- Mean (in €)		532	538
- P90 (in €)		1 168	1 182
• Co-payments after MAB			
- Mean (in €)		373	380
- P90 (in €)		780	790
• % extreme payers (OOP > 5% NTI)		5.60%	5.90%
• % extreme payers (co-pay > 5% NTI)		0.55%	1.11%
• % with positive MAB-reimbursements		8.60%	7.44%
€70.000 < NTI ≤ €90.000	11 642		
• OOP-payments after MAB	134 230	635	634

- Mean (in €)		1 367	1 364
- P90 (in €)			
• Co-payments after MAB		439	437
- Mean (in €)		856	853
- P90 (in €)		0.95%	0.97%
• % extreme payers (OOP > 5% NTI)		0.01%	0.02%
• % extreme payers (co-pay > 5% NTI)		3.77%	3.66%
• % with positive MAB-reimbursements			
Unemployed	12 558		
• OOP-payments after MAB	249 242		
- Mean (in €)		309	313
- P90 (in €)		667	677
• Co-payments after MAB			
- Mean (in €)		216	220
- P90 (in €)		494	502
• % extreme payers (OOP > 5% NTI)		10.45%	10.90%
• % extreme payers (co-pay > 5% NTI)		3.81%	4.62%
• % with positive MAB-reimbursements		12.33%	10.65%
Single parent hh	12 096		
• OOP-payments after MAB	189 375		
- Mean (in €)		325	327
- P90 (in €)		638	648
• Co-payments after MAB			
- Mean (in €)		229	232
- P90 (in €)		465	474
• % extreme payers (OOP > 5% NTI)		11.92%	12.33%
• % extreme payers (co-pay > 5% NTI)		4.60%	5.15%
• % with positive MAB-reimbursements		9.88%	7.83%
Guaranteed income	11 487		
• OOP-payments after MAB	193 928		
- Mean (in €)			
- P90 (in €)		315	316
• Co-payments after MAB		675	670
- Mean (in €)			
- P90 (in €)		209	210
• % extreme payers (OOP > 5% NTI)		468	463
• % extreme payers (co-pay > 5% NTI)		17.23%	17.32%
• % with positive MAB-reimbursements		10.52%	10.83%
		12.90%	12.11%
Preferential tariff	54 912		
• OOP-payments after MAB	885 660		
- Mean (in €)			
- P90 (in €)		419	418
• Co-payments after MAB		860	844
- Mean (in €)			
- P90 (in €)		263	263
• % extreme payers (OOP > 5% NTI)		498	479
• % extreme payers (co-pay > 5% NTI)		17.70%	17.56%
• % with positive MAB-reimbursements		7.87%	7.79%
		18.93%	19.03%
Lump sum B or C	3 556		
• OOP-payments after MAB	43 832		
- Mean (in €)		1 014	1 000
- P90 (in €)		2 046	2 021
• Co-payments after MAB			
- Mean (in €)		580	566
- P90 (in €)		973	1 028
• % extreme payers (OOP > 5% NTI)		39.16%	39.03%

• % extreme payers (co-pay > 5% NTI)		15.93%	17.26%
• % with positive MAB-reimbursements		64.71%	63.96%
Integration allowance handicap	5 094		
• OOP-payments after MAB	75 637		
- Mean (in €)			
- P90 (in €)		825	824
• Co-payments after MAB		1 573	1 598
- Mean (in €)			
- P90 (in €)		545	543
• % extreme payers (OOP > 5% NTI)		736	703
• % extreme payers (co-pay > 5% NTI)		26.05%	25.84%
• % with positive MAB-reimbursements		14.12%	13.93%
		39.23%	39.17%
Long hosp stay	2 530		
• OOP-payments after MAB	43 222		
- Mean (in €)		1 680	1 825
- P90 (in €)		4 142	4 488
• Co-payments after MAB			
- Mean (in €)		889	1 035
- P90 (in €)		1 883	2 101
• % extreme payers (OOP > 5% NTI)		60.63%	64.69%
• % extreme payers (co-pay > 5% NTI)		31.36%	43.69%
• % with positive MAB-reimbursements		70.09%	67.42%
Psychiatric nursing home	262		
• OOP-payments after MAB	7 863		
- Mean (in €)			
- P90 (in €)		2 533	2 548
• Co-payments after MAB		9 240	9 329
- Mean (in €)			
- P90 (in €)		1 877	1 893
• % extreme payers (OOP > 5% NTI)		8 312	8 356
• % extreme payers (co-pay > 5% NTI)		60.00%	61.17%
• % with positive MAB-reimbursements		44.88%	45.28%
		30.04%	24.38%
Chronic dialysis	213		
• OOP-payments after MAB	3 221		
- Mean (in €)			
- P90 (in €)		1 494	1 538
• Co-payments after MAB		2 578	2 743
- Mean (in €)			
- P90 (in €)		685	728
• % extreme payers (OOP > 5% NTI)		1 110	1 288
• % extreme payers (co-pay > 5% NTI)		64.17%	65.56%
• % with positive MAB-reimbursements		27.04%	28.92%
		73.57%	69.95%
Psychiatric hospital (2-5 y and >=6y)	263		
• OOP-payments after MAB	6 985		
- Mean (in €)			
- P90 (in €)		3 119	3 245
• Co-payments after MAB		6 809	6 755
- Mean (in €)			
- P90 (in €)		2 289	2 415
• % extreme payers (OOP > 5% NTI)		4 897	4 896
• % extreme payers (co-pay > 5% NTI)		88.67%	93.56%
• % with positive MAB-reimbursements		78.67%	87.98%
		45.98%	41.95%

6.2 THE MAB BETWEEN 2004 AND 2008

In this section we introduce in chronological order the most important measures taken between 2004 and 2008 (for an overview, see section 2.5.1). Obviously, only those measures for which the data can be adapted will be run through the model. The starting point of our analysis is the base case policy described in section 6.1. The effects of the different policy measures are cumulative, in that the starting point of each simulation is the result of the previous one. Table 29 gives an overview of the main steps in the argument and summarizes already the results for the budgetary cost (the total MAB-reimbursements) and for the numbers of extreme payers. The interpretation of the different columns will be given as we proceed.

Table 29. Overview of the simulated changes 2004-2008

	Total MAB reimbursements	Number of households with			
		OOP>5%	OOP>10%	co-payments>5%	co-payments>10%
Base case	€203 443 666	391 670	155 465	133 001	50 668
Integration of the fiscal MAB into the income MAB (2005)	€214 160 478 (+5.3%)	377 392 (-3.6%)	152 522 (-1.9%)	111 081 (-16.5%)	50 123 (-0.9%)
Changing the definition of de facto households (2006)	€202 774 854 (-5.3%)	379 074 (+0.4%)	152 753 (+0.2%)	111 267 (+0.2%)	50 123 (+0%)
Integration of the delivery margin (2006)	€218 036 109 (+7.5%)	369 758 (-2.5%)	148 237 (-3.0%)	103 315 (-7.1%)	49 292 (-1.7%)
Introduction OMNIO (2007) including decrease co-payments	€196 764 343 (-9.8%) *€255 689 772* *(+17.3%)*	344 611 (-6.8%)	140 460 (-5.2%)	82 885 (-19.8%)	42 759 (-13.3%)
Integration of the safety margin (2008)	€204 914 343 (+4.1%)	339 025 (-1.6%)	137 701 (-2.0%)	81 236 (-2.0%)	42 072 (-1.6%)
Total percentage change including decrease co-payments	+0.7% *(+29.7%)*	-13.4%	-11.4%	-38.9%	-17.0%

Further in the section, we will give also information on the distributional effects of the measures. For the first two policy changes we will show a table with all the details that were given in Table 28. For the more recent measures, we will sketch the distributional effects in a simplified way, by focusing on the characteristics of the gainers.

6.2.1 Integration of the fiscal MAB into the income MAB

One of the most far-reaching regulatory changes since 2004 concerns the integration of the fiscal MAB into the income MAB on January 1, 2005. At the same time the highest MAB-ceiling of €2 500 was abolished. Starting from the simulation of the base case policy, the following steps were completed to simulate this policy measure.

1. All reimbursements by the fiscal administration were put equal to zero.
2. Reimbursements by the sickness funds for de facto households entitled to the social MAB were left unchanged.
3. For all other de facto households:
   - The MAB-ceiling was calculated on the basis of the NTI of the de facto household. Of course, the MAB-ceiling of €2 500 was abolished.
   - Co-payments covered by the MAB were defined as realized co-payments.
   - Reimbursements were put equal to the difference between the relevant MAB-ceiling and the sum of co-payments covered by the MAB in case of co-payments above the ceiling.
   - To take account of the child-MAB, the same procedure was applied as in section 6.1.1.1.

A specific problem arises because, as described in the previous chapters, the income MAB for year T is executed on the basis of the NTI of year T-3 (except when a declaration on honour demonstrated fundamental changes in income between year T-3 and year T). We do not have observations on the NTI of 2001, however. In a first subsection we compare different approaches to this problem. In a second subsection we interpret the results for our favourite option.

6.2.1.1 Which income should be taken into account for the income MAB?

Table 30 summarizes the main results for four possible hypotheses with respect to the incomes taken into account for the income MAB. Of course, there is no longer any reference to the fiscal MAB in this table.

1. The second column of Table 30 shows the results if we simply determine the MAB-reimbursements on the basis of the NTI of the year 2004.
2. For the calculation of the third column, the NTI of 2004 was corrected for the evolution of the NTI per inhabitant between 2001 and 2004 (10.94%).aaaa This simple proportional correction lowers the NTI of all households, and therefore necessarily makes the MAB more generous. The shares of the households with lower ceilings indeed increase considerably. Of course, this proportional correction does not take account of changes in the relative income position of households, i.e. households moving from the social MAB to the income MAB and vice versa, or households with a change in NTI which is substantially different from the general income evolution. Moreover, in case of a serious drop of NTI people can have their MAB-ceiling based on the NTI of 2004, if they submit a declaration on honour.
3. For households with low and modest incomes and reimbursed by the sickness funds in 2004, our dataset contains additional information. Indeed, since we know that the sickness fund has reimbursed co-payments according to a ceiling of €450 or €650, we know the relevant income bracket of the household as applied in 2004: either its income bracket for 2001 or its income of 2004 if the reimbursements were based on a declaration on

aaaa From http://www.statbel.fgov.be/figures/d321_nl.asp, tabel "Fiscale inkomens – België en gewesten (1998-2004)".

honour. Column four shows the results when applying the NTI of 2004, except for households entitled to the low and modest income MAB and reimbursed by the sickness funds, for which we use the specific information available. Compared to the second column, this also makes the MAB more generous, but the impact is much smaller than the impact of the general adjustment in the third column.

4. The results in the last column combine the two steps taken before. They are based on the deflated NTI for all households, except for households entitled to the low and modest income MAB and reimbursed by the sickness funds, where the information from the IMA-dataset is used (ceiling of €450 or €650).

Comparing the different columns in Table 30 gives interesting insights into the consequences of using incomes from year T-3 to determine the MAB-reimbursements in year T. We will come back to this point in our general discussion of the design of the MAB in the next chapter. At this stage we only have to decide which of the four simulations is the most realistic one. We opted for the combined simulation in the last column of Table 30. To give an overall description of the evolution over time (neglecting the possibility of declarations on honour), the proportional adjustment seems a good approximation. Declarations on honour and ad hoc changes in incomes can be expected in the first place for low and modest incomes, and are probably well captured by our data for the income MAB in 2004. We will therefore analyse the effects of the integration of the fiscal MAB into the income MAB on the basis of this combined approach and all consequent simulations will have this simulation as their starting point.

6.2.1.2 Budgetary cost and distributional effect of the integration of the fiscal MAB into the income MAB

Table 30 shows that total MAB-reimbursements after the integration of the fiscal MAB become about €214 million, an increase of 5.3% compared to the base case (see Table 29). In fact, the number of households with positive MAB-reimbursements strongly increases: while in the base case 268 105 households were reimbursed through the income and the fiscal MAB, this number increases to 310 460 after the integration. Table 30 shows that this increase is mainly caused by the income adjustment (compare the second and the last column). As a result, the number of extreme payers goes down considerably, mainly when we focus on co-payments at the 5%-threshold (Table 29).

More detailed distributional results are shown in Table 31. The second column repeats the results for the base case, the third column shows the effects of the integration of the fiscal MAB.[bbbb] As could perhaps be expected from a very general measure, the distributional effects of the integration of the fiscal MAB into the income MAB do not differ very much between the different groups. There are minimal effects on the results of de facto households entitled to the social MAB or to the low and modest income MAB (and reimbursed by the sickness fund in 2004): nothing changed for the former, while for the latter already in the base case policy the reimbursement was largely executed by the sickness fund on the basis of the incomes of 2001. For households entitled to the fiscal MAB in the base case policy the rules changed more substantially. To summarize: the relevant income is no longer the income of 2004 but of 2001, the relevant co-payments are realized instead of invoiced co-payments and the de facto household replaces the fiscal household. The effects of these changes seem to be the strongest for (not surprisingly) the middle incomes (NTI between €30 000 and €35 000), the unemployed and the single parent households and especially for some groups of chronically ill (the households entitled to the lump sum B or C, and the household with a member in chronic dialysis).

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bbbb The fourth column will be explained in the next subsection.

Table 30 : Integration of the fiscal MAB into the income MAB: results for the general population

	Integration of fiscal MAB- income 2004	Integration of fiscal MAB- income 2004 deflated	Integration of fiscal MAB- income 2004 except for low and modest incomes	Integration of fiscal MAB- income 2004 deflated except for low and modest incomes
Households according to MAB-ceiling (weighted N)				
• Social MAB	894 452	894 452	894 452	894 452
• Income MAB 450	516 662	665 363	534 930	654 238
• Income MAB 650	637 383	681 730	655 183	708 773
• Income MAB 1000	489 125	472 549	461 573	462 346
• Income MAB 1400	341 051	347 482	336 331	344 030
• Income MAB 1800	1 046 340	863 437	1 042 545	861 175
Total	3 925 014	3 925 014	3 925 014	3 925 014
MAB-reimbursements (€)				
• Social MAB	65 959 584	65 959 584	65 959 584	65 959 584
• Income MAB 450	33 489 652	53 138 363	42 013 210	45 296 110
• Income MAB 650	62 161 962	65 711 172	68 573 352	75 729 398
• Income MAB 1000	20 160 594	17 884 523	15 074 151	16 630 074
• Income MAB 1400	5 454 677	5 000 817	5 089 671	4 714 957
• Income MAB 1800	6 481 991	5 095 311	6 192 233	4 843 121
• Child MAB	1 100 034	1 025 378	1 033 593	987 233
Total	194 808 494	213 815 147	203 935 794	214 160 478
Households with positive MAB-reimbursements (N)				
Total	436 767	479 853	456 785	485 580
• Social MAB	175 120	175 119	175 120	175 120
• Income MAB	261 647	304 733	281 665	310 460
MAB-reimbursements (€)				
• Mean	446	446	446	441
• P50	270	271	272	267
• P90	1 068	1 067	1 063	1 054
OOP-payments after MAB (€)				
• Mean	479	474	477	474
• P50	280	280	280	280
• P90	1 048	1 029	1 036	1 027

Co-payments after MAB (€)				
• Mean	328	323	326	323
• P50	252	252	252	252
• P90	672	663	666	663
Number of extreme payers after MAB				
• OOP>5% NTI (N - %)	390 304 (9.94%)	374 650 (9.55%)	384 523 (9.80%)	377 392 (9.62%)
• OOP>10% NTI (N - %)	154 115 (3.93%)	151 818 (3.87%)	153 638 (3.91%)	152 522 (3.89%)
• Co-pay>5% NTI (N - %)	112 183 (2.86%)	107 376 (2.74%)	113 054 (2.88%)	111 081 (2.83%)
• Co-pay>10% NTI (N - %)	49 864 (1.27%)	49 787 (1.27%)	50 165 (1.28%)	50 123 (1.28%)

Table 31 : The MAB between 2004 and 2007: results for specific subgroups

	Base case policy	Integration of fiscal MAB-income 2004 deflated except for low and modest incomes	Change in entitlement to the social MAB
€5.000 < NTI ≤ €10.000			
• OOP-payments after MAB			
- Mean (in €)	326	325	325
- P90 (in €)	682	675	675
• Co-payments after MAB			
- Mean (in €)	208	207	207
- P90 (in €)	457	456	456
• % extreme payers (OOP > 5% NTI)	20.67%	20.70%	20.70%
• % extreme payers (co-pay > 5% NTI)	13.33%	13.21%	13.21%
• % with positive MAB-reimbursements	11.13%	11.83%	11.83%
€30.000 < NTI ≤ €35.000			
• OOP-payments after MAB			
- Mean (in €)	538	530	535
- P90 (in €)	1 182	1 158	1 174
• Co-payments after MAB			
- Mean (in €)	380	371	376
- P90 (in €)	790	809	822
• % extreme payers (OOP > 5% NTI)	5.90%	5.34%	5.46%
• % extreme payers (co-pay > 5% NTI)	1.11%	0.16%	0.17%
• % with positive MAB-reimbursements	7.44%	8.66%	7.51%
€70.000 < NTI ≤ €90.000	634	636	643
• OOP-payments after MAB	1 364	1 373	1 395
- Mean (in €)			
- P90 (in €)	437	439	447
• Co-payments after MAB	853	865	886

- Mean (in €)	0.97%	0.95%	0.97%
- P90 (in €)	0.02%	0.01%	0.01%
• % extreme payers (OOP > 5% NTI)	3.66%	3.23%	1.91%
• % extreme payers (co-pay > 5% NTI)			
• % with positive MAB-reimbursements			
Unemployed			
• OOP-payments after MAB			
- Mean (in €)	313	308	310
- P90 (in €)	677	665	672
• Co-payments after MAB			
- Mean (in €)			
- P90 (in €)	220	216	217
• % extreme payers (OOP > 5% NTI)	502	480	483
• % extreme payers (co-pay > 5% NTI)	10.90%	10.31%	10.34%
• % with positive MAB-reimbursements	4.62%	3.41%	3.42%
	10.65%	12.76%	12.57%
Single parent hh			
• OOP-payments after MAB			
- Mean (in €)	327	325	325
- P90 (in €)	648	637	637
• Co-payments after MAB			
- Mean (in €)	232	230	230
- P90 (in €)	474	463	463
• % extreme payers (OOP > 5% NTI)	12.33%	11.87%	11.88%
• % extreme payers (co-pay > 5% NTI)	5.15%	4.29%	4.29%
• % with positive MAB-reimbursements	7.83%	9.88%	9.83%
Guaranteed income			
• OOP-payments after MAB			
- Mean (in €)	316	317	324
- P90 (in €)	670	670	694
• Co-payments after MAB			
- Mean (in €)	210	211	218
- P90 (in €)	463	463	467
• % extreme payers (OOP > 5% NTI)	17.32%	17.37%	17.46%
• % extreme payers (co-pay > 5% NTI)	10.83%	10.88%	10.89%
• % with positive MAB-reimbursements	12.11%	12.42%	11.23%
Preferential tariff			
• OOP-payments after MAB			
- Mean (in €)	418	421	433
- P90 (in €)	844	848	906
• Co-payments after MAB			
- Mean (in €)	263	265	277

- P90 (in €)	479	481	504
• % extreme payers (OOP > 5% NTI)			
• % extreme payers (co-pay > 5% NTI)	17.56%	17.70%	17.88%
• % with positive MAB-reimbursements	7.79%	7.93%	7.95%
	19.03%	19.06%	16.67%
Lump sum B or C			
• OOP-payments after MAB			
- Mean (in €)	1 000	995	1 026
- P90 (in €)	2 021	1 907	1 954
• Co-payments after MAB			
- Mean (in €)	566	561	592
- P90 (in €)	1 028	977	1 020
• % extreme payers (OOP > 5% NTI)	39.03%	36.78%	37.24%
• % extreme payers (co-pay > 5% NTI)	17.26%	13.66%	13.72%
• % with positive MAB-reimbursements	63.96%	65.11%	62.00%
Integration allowance handicap			
• OOP-payments after MAB			
- Mean (in €)	824	823	859
- P90 (in €)	1 598	1 568	1 698
• Co-payments after MAB			
- Mean (in €)	543	542	578
- P90 (in €)	703	689	881
• % extreme payers (OOP > 5% NTI)	25.84%	25.58%	26.27%
• % extreme payers (co-pay > 5% NTI)	13.93%	13.60%	13.72%
• % with positive MAB-reimbursements	39.17%	39.64%	33.47%
Long hospital stay			
• OOP-payments after MAB			
- Mean (in €)	1 825	1 810	1 828
- P90 (in €)	4 488	4 418	4 421
• Co-payments after MAB			
- Mean (in €)	1 035	1 020	1 038
- P90 (in €)	2 101	1 938	1 954
• % extreme payers (OOP > 5% NTI)	64.69%	63.60%	64.07%
• % extreme payers (co-pay > 5% NTI)	43.69%	41.01%	41.34%
• % with positive MAB-reimbursements	67.42%	68.21%	66.98%
Psychiatric nursing home			
• OOP-payments after MAB			
- Mean (in €)	2 548	2 543	2 545
- P90 (in €)	9 329	9 329	9 329
• Co-payments after MAB			
- Mean (in €)	1 893	1 887	1 889
- P90 (in €)	8 356	8 356	8 356

• % extreme payers (OOP > 5% NTI)	61.17%	61.56%	61.56%
• % extreme payers (co-pay > 5% NTI)	45.28%	44.48%	44.48%
• % with positive MAB-reimbursements	24.38%	24.77%	24.53%
Chronic dialysis			
• OOP-payments after MAB			
- Mean (in €)	1 538	1 510	1 521
- P90 (in €)	2 743	2 665	2 741
• Co-payments after MAB			
- Mean (in €)	728	700	711
- P90 (in €)	1 288	1 176	1 178
• % extreme payers (OOP > 5% NTI)	65.56%	64.35%	64.35%
• % extreme payers (co-pay > 5% NTI)	28.92%	24.64%	24.64%
• % with positive MAB-reimbursements	69.95%	71.28%	70.59%
Psychiatric hospital (2-5 y and >=6y)			
• OOP-payments after MAB			
- Mean (in €)	3 245	3 246	3 255
- P90 (in €)	6 755	6 755	6 755
• Co-payments after MAB			
- Mean (in €)	2 415	2 416	2 425
- P90 (in €)	4 896	4 896	4 896
• % extreme payers (OOP > 5% NTI)	93.56%	93.87%	93.87%
• % extreme payers (co-pay > 5% NTI)	87.98%	87.69%	88.33%
• % with positive MAB-reimbursements	41.95%	41.92%	40.58%

6.2.2 Changes in definition of de facto households

In 2006 two measures were taken resulting in a change of household definition. First, individuals living in an organized community (such as convents) were no longer considered as one household but as forming separate households. Second, more importantly, the right to the social MAB was restricted to the individual entitled to the preferential tariff, his/her partner and their dependents.

6.2.2.1 Individuals living in an organized community

Individuals living in an organized community are not directly identifiable in the data. We briefly describe the adjustments performed to take account of this change in household definition:

1. For de facto households consisting of five or more sickness fund household heads[cccc], with the number of sickness fund household heads equal to the number of de facto household members, without dependents and with average age above 70 years old, all household members were considered as separate households. The relevant NTI, the sum of co-payments, the entitlement to the social or income MAB and the corresponding MAB-ceiling were then adapted for all these separate households.
2. For all other de facto households, no changes were made.

With these adjustments, the household definition changed for 1 163 households in the sample. Extrapolating to the Belgian level, 4 622 households were concerned. Their MAB-reimbursements decreased from €1 119 606 to €151 649. Given the very limited number of households affected, and since we know very well the characteristics of the persons concerned, it is not meaningful to show the distributional effects in detail.[dddd]

When introducing this new household definition into our sample, the number and the characteristics of de facto households change. This necessitates a reinterpretation of our weighting coefficients (see chapter 3). Since the number of households concerned is really minimal, we wanted to avoid this complication and we did not include in the subsequent simulations the effects brought about by changing the household definition for individuals living in an organized community.

6.2.2.2 Entitlement to the social MAB

In 2006, the right to the social MAB was restricted to the individual entitled to the preferential tariff, his/her partner and their dependents. Starting from the simulation with the fiscal MAB integrated into the income MAB (last column of Table 30 and third column of Table 31), the following adjustments were made for households entitled to the social MAB:

1. For all household members without an individual right to the social MAB and without being the partner or dependent of the individual entitled to the preferential tariff, we changed the entitlement from the social to the income MAB.

The composition of some de facto households is very complex. The selection of dependents, whether children or a partner, could easily be performed on the basis of a variable in the database indicating all sickness fund household members. On the contrary, our selection of non-dependent partners is only an approximation of reality. We applied the following rule:

- For married couples or couples legally living together in a de facto household entitled to the social MAB, with the same number of dependents, with an age difference less than 25 years and with one of the two partners not entitled to the preferential tariff, the entitlement to the social MAB was granted to both partners.

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cccc We have explained in chapter 2 the notion of a "sickness fund household".

dddd As we described in the Technical Appendix, the number of household members of de facto households containing 15 members or more was put equal to 14. Consequently, the effect of this measure is somewhat underestimated in the simulation.

- For couples not legally living together ("niet wettelijk samenwonend") no changes were made since it was not possible to define them in a reliable way.

1. For household members entitled to the social MAB, reimbursements equal the sum of co-payments minus the MAB-ceiling of €450.
2. For household members entitled to the income MAB, reimbursements equal the sum of their co-payments plus the MAB-ceiling of €450 of the household members reimbursed by the social MAB, minus their relevant MAB-ceiling (from €450 to €1 800).

Table 32 : Change in entitlement to the social MAB: results for the general population

	Change in entitlement to the social MAB
MAB-reimbursements (€)	
• Social MAB	39 542 756
• Income MAB 450	54 606 527
• Income MAB 650	79 617 572
• Income MAB 1000	17 568 567
• Income MAB 1400	5 002 719
• Income MAB 1800	5 449 579
• Child MAB	987 233
Total	202 774 954
Households with positive MAB-reimbursements (N)	
Total	463 099
MAB-reimbursements (€)	
• Mean	438
• P50	264
• P90	1 050
OOP- payments after MAB (€)	
• Mean	477
• P50	280
• P90	1 037
Co-payments after MAB (€)	
• Mean	326
• P50	252
• P90	669
Number of extreme payers after MAB	
• OOP>5% NTI (N - %)	379 074 (9.66%)
• OOP>10% NTI (N - %)	152 753 (3.89%)
• Co-pay>5% NTI (N - %)	111 267 (2.83%)
• Co-pay>10% NTI (N - %)	50 123 (1.28%)

The consequences of this measure turn out to be substantial. Of the 894 452 de facto households entitled to the social MAB, 167 292 households were affected in that one or more of their members were no longer entitled to the social MAB and had to resort to the income MAB. More details are given in Table 32, which can be compared to the last column in Table 30 (see also Table 29). The number of households with positive MAB-reimbursements decreases from 485 580 to 463 099 (-4.6%), the total budgetary cost of the MAB decreases from about €214 million to about €203 million (-5.3%). While MAB-reimbursements from the income MAB increase by 10.2%, the total cost of the social MAB decreases by not less than 40.1%.

Mean and median reimbursements as well as reimbursements for the P90 slightly decrease, but the changes are minimal. Also the number of extreme payers hardly changes (see the summary in Table 29). In fact, compared to the huge cost saving, these effects are very small.

More details are shown in the last column of Table 31. The measure does not change anything for the lowest income groups, for the unemployed and for the single parent households. Almost by construction, stronger effects are found for those with preferential tariff, although even here, the number of extreme payers is hardly affected. The same pattern (decrease in number of households with positive MAB-reimbursements but minimal changes for the number of extreme payers) is found for households entitled to a guaranteed income or to an integration allowance for handicapped, and for households with a chronically ill member (lump sum B or C, long hospital stay and chronic dialysis). Quite remarkable is the strong decrease in the number of households with positive MAB-reimbursements at very high income levels. Everything taken together, our results strongly suggest that the restriction on the entitlement to the social MAB has led to a considerable cost saving with hardly any negative consequences from the point of view of social protection.

6.2.3 Integration of the delivery margin of implants

For reimbursable implants, hospitals can charge a delivery margin of 10% of the sales price including VAT, with a maximum of €148.74. Since January 1, 2006 this delivery margin is no longer defined as a supplement but as a co-payment and the co-payment is included in the MAB-counters. This change could easily be simulated in our data. The consequences are again substantial.

Extrapolated to the Belgian population, 325 230 households (or 8.3% of the total) has one or more members who paid a delivery margin in 2004 for a total amount of about €25 000 000. Taking up the delivery margin in the MAB-counters made almost half of these households reach their MAB-ceiling and reduce their OOP-payments. Total MAB-reimbursements increased by about €15 261 155 to a total amount of €218 036 109. This substantial increase in the budgetary cost (+7.5%) induces a significant reduction in the number of extreme payers (see Table 29).

In total the integration of the delivery margin into the MAB improves the financial situation of more than 161 000 households. Table 33 compares the characteristics of these 'gainers' with those of the total population. Mean NTI is more than 30% lower for the gainers. Households with a replacement income from unemployment insurance and without any wage income, as well as single parent households are underrepresented. The measure has been relatively more beneficial for households entitled to the preferential tariff and (not surprisingly) for households with a chronically ill, an integration allowance for the handicapped or a long stay in the general hospital. Since the delivery margin was treated as a supplement before the change, the effects on extreme payers in terms of OOP are especially striking: not less than 75% of the gainers were extreme payers -OOP>5% of NTI- before the change – and one third of the gainers were extreme payers -OOP>10%. A policy targeting supplements on the implants, turns out to be an effective way of targeting extreme payers in the population.

Table 33 : Integration of the delivery margin of implants: portrait of gainers

	General population	Gainers
Number of gainers	Not applicable	161 023
Mean gain in €	Not applicable	95
P90 gain in €	Not applicable	184
Mean NTI in €	29 427	20 324
Mean household size	2.21	2.02
% single parent hh	4.82	2.07
% guaranteed income	4.94	5.35
% preferential tariff	22.56	35.85
% lump sum B or C	1.12	4.51
% integration allowance handicap	1.93	4.62

% long stay hospital	1.10	5.12
% psychiatric nursing home	0.20	0.33
% chronic dialysis	0.08	0.91
% psychiatric hospital (2-5 y and =>6 y)	0.18	0.20
% unemployed	6.35	5.64
% extreme payers before integration of delivery margin		
• OOP>5% NTI	9.72	74.21
• OOP>10% NTI	3.90	33.03
• Co-pay>5% NTI	2.87	13.76
• Co-pay>10% NTI	1.28	4.32
Reduction in extreme payers		
• OOP>5% NTI		9 316
• OOP>10% NTI		4 516
• Co-pay>5% NTI		7 952
• Co-pay>10% NTI		831

6.2.4 Extension of preferential treatment

On July 1st 2007 the right to the preferential tariff (described in chapter 2) was extended in two ways. First, for individuals entitled to the preferential tariff and hence to the social MAB, also the non-dependent partner could benefit from reduced co-payments. Second, the OMNIO-statute extended the right to the preferential tariff to all low-income households.

6.2.4.1 Extension of preferential treatment for non-dependent partners

The extension of the preferential tariff to non-dependent partners involves the same persons as the changes in the entitlement to the social MAB, described in section 6.2.2.2. We could therefore simulate its effects in an analogous way. This policy measure affected 8 516 de facto households. Since the effects of the measure for these households is the same as the effect of granting the OMNIO-statute, we integrated them in the results of the following subsection.

6.2.4.2 OMNIO-statute

The extension of the preferential tariff to low-income households is based on the gross taxable income (GTI) of the de facto household. The GTI for OMNIO is calculated in the same way as the GTI for the existing system of preferential treatment (including labour income, replacement incomes, property income, and all other Belgian and foreign income), except that it is based on the GTI of the year T-1. To evaluate the effects of introducing OMNIO, we again performed an incremental simulation, starting from the situation after the integration of the delivery margin (and after the extension of the preferential tariff to the non-dependent partner). The following steps were then taken:

1. We computed the gross taxable income at the level of the de facto household.[eeee]
2. We compared this GTI with the income limits applicable to the system of preferential treatment in 2004: €12 795.81 for a single, increased by €2 368.85 per extra household member. In case of a GTI<limit, the right to the preferential tariff is assigned to all household members not yet entitled to the preferential tariff.
3. For all individuals additionally entitled to the preferential tariff because of the extension to non-dependent partners (section 6.2.4.1) or because of the introduction of the OMNIO-statute, co-payments applicable in the preferential scheme are calculated[ffff] and a change in entitlement from the income to the social MAB is introduced.

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eeee The GTI was calculated in the same way as was done by RIZIV/INAMI to estimate the budgetary impact of the introduction of the OMNIO-statute.

ffff A detailed description of the different steps to go from co-payments without to co-payments with preferential treatment is given in the Technical Appendix.

4. The OMNIO-statute also provides better protection against hospital supplements (e.g. room supplements in a two-person room). This reduction of the supplements was not taken into account in the simulation.

The OMNIO-statute is only granted after an active intervention of the potentially entitled persons. They have to provide to their sickness fund the necessary information about the GTI of all household members, possibly with a declaration on honour. At this moment, the take-up is yet far from complete. However, it is impossible to impute in an accurate way the available information about selective non-take-up in the simulation exercise. It seems reasonable to assume that those with relatively large health care expenditures were the first to take up their right. Moreover, it is to be expected that the take-up will increase over time, as the knowledge about the new possibility spreads and the statute becomes more common. We have therefore simulated a situation with complete take-up.

Under these assumptions, the extension of the preferential tariff to low-income households affects 434 960 households or 11.1% of all de facto households.[gggg] Their total amount of co-payments decreases from €107 654 798 to €48 729 369. The difference, €58 925 429, is the cost for RIZIV/INAMI directly related to the increase in reimbursements because of the preferential tariff. At the same time, the reduced co-payments in the preferential tariff scheme also lead to lower MAB-reimbursements, since the same consumption involves reaching the MAB-limit later in the year. Hence, due to the extension of the preferential tariff in 2007, total MAB-reimbursements decreased by €21 271 766. The net cost of the introduction of OMNIO then becomes €37 653 663, i.e. an increase of 17.3% (see Table 29, in which we distinguish the cost for the MAB and the total cost for the health care budget). The introduction of OMNIO is clearly an expensive measure, but it also leads to a considerable decrease in the number of extreme payers (see Table 29 and the bottom part of Table 34). As could be expected, its main effects are on the remaining co-payments, while the effects on total OOP-payments are relatively more limited.

Let us look in more detail at the profile of the gainers (Table 34).[hhhh] In total, about 369 000 households gain. This number is smaller than the number of 434 960 households affected, because OMNIO does not change anything for those households that reached already the MAB-ceiling before. Of course, the mean and median NTI of the gainers is substantially lower than the corresponding figures for the overall population. OMNIO is targeting the low incomes by definition. This can also be seen from the strong overrepresentation among the gainers of single parent households, households with a guaranteed income and households living exclusively from unemployment benefits. It is at the same time remarkable that all groups of the chronically ill are underrepresented among the gainers – and that OMNIO is targeting not very effectively the extreme payers (compare with the results in Table 33 for the integration of the delivery margin).

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gggg Including the 8 516 de facto households whose situation changed because of the extension of the preferential tariff to non-dependent partners on July 1st 2007. This number of 434 960 households can be compared to the number of 148 000 individuals that have actually registered for the OMNIO-statute in April 2008 (information from RIZIV/INAMI).

hhhh The results for the variable "preferential treatment" are omitted from the Table, because they are not meaningful here.

Table 34 : Extension of the preferential treatment in 2007: portrait of gainers

	General population	Gainers
Number of gainers	Not applicable	368 888
Mean gain in €	Not applicable	104
P90 gain in €	Not applicable	234
Mean NTI in €	29 427	9 942
Median NTI in €	22 335	10 202
Mean household size	2.21	2.18
% single parent hh	4.82	22.79
% guaranteed income	4.94	6.21
% lump sum B or C	1.12	0.65
% integration allowance handicap	1.93	1.00
% long stay hospital	1.10	0.71
% psychiatric nursing home	0.20	0.12
% chronic dialysis	0.08	0.03
% psychiatric hospital (2-5 y and =>6 y)	0.18	0.15
% unemployed	6.35	31.97
% extreme payers before extension of preferential treatment in 2007		
• OOP>5% NTI	9.72	15.16
• OOP>10% NTI	3.90	6.42
• Co-pay>5% NTI	2.87	8.03
• Co-pay>10% NTI	1.28	3.00
Reduction in extreme payers		
• OOP>5% NTI		25 147
• OOP>10% NTI		7 777
• Co-pay>5% NTI		20 430
• Co-pay>10% NTI		6 533

6.3 THE MAB IN 2008

The health care budget for the year 2008 includes two major extensions of the MAB: the integration of the safety margin of implants and medical devices and a MAB for the chronically ill. We will simulate both measures separately (and not one after the other), in both cases starting from the situation after the introduction of the OMNIO-statute (section 6.2.4.2).

6.3.1 Integration of the safety margin of implants and medical devices

Some implants of articles 35 and 35bis of the nomenclature have a safety margin. This safety margin is a percentage of the reimbursement tariff and equals the maximum amount of supplements to be charged by hospitals. Hospitals are free to charge this supplement. If the cost of an implant or medical device with a safety margin exceeds the sum of the reimbursement tariff and the safety margin, it is no longer eligible for reimbursement by RIZIV/INAMI. Column 3 in Table AX.2 in the Technical Appendix gives a list of nomenclature codes referring to implants and medical devices with a safety margin in 2004.

To simulate the budgetary cost for RIZIV/INAMI and the distributional effects of integrating the safety margin into the MAB-counters, we added the amount of the safety margin to the MAB-counters. Since the detailed information at the level of the nomenclature codes was only available for the original sample (including the oversampled elderly) and not for the additional household members, the effects of this policy measure are underestimated in the simulation. Indeed, if an additional household member had an implant or a medical device with a safety margin in 2004, the amount of this supplement is not included in the MAB-counter of the de facto household.

In 2004, 49 875 de facto households (1.3% of all de facto households) paid a supplement related to (part of) the legal safety margin.

The total cost for these supplement amounted to about €9 912 000. Part of this amount was paid by households who did not reach their MAB-limit after the integration of the safety margin into the MAB-counters. About €8 150 000 was paid by households who reached their MAB-limit after the integration. Hence more than 80% of the increase in the MAB-counters resulted in increased reimbursements by RIZIV/INAMI. This increased the total cost of the MAB by about 4.1% (see Table 29). Introducing the safety margin into the MAB reduces further the number of extreme payers (see Table 29).

What is the profile of these gainers? Comparing Table 35 to Table 33 shows that the profile of the gainers from introducing the safety margin is (not surprisingly) very similar to the profile of gainers from introducing the delivery margin.[iiii] This measure is targeting the chronically ill – and is very effective in targeting extreme payers (mainly in terms of OOP-payments). Although the number of gainers is more limited than in the case of the delivery margin, the mean gain is much larger. For about 3 900 households (P90) the gain is more than €466.

Table 35 : Integration of the safety margin of implants in 2008: portrait of gainers

	General population	Gainers
Number of gainers	Not applicable	39 404
Mean gain in €	Not applicable	207
P90 gain in €	Not applicable	466
Mean NTI in €	29 427	19 955
Median NTI in €	22 335	15 445
Mean household size	2.21	1.74
% single parent hh	4.82	0.16
% guaranteed income	4.94	7.47
% preferential tariff	32.70	50.61
% lump sum B or C	1.12	4.78
% integration allowance handicap	1.93	4.95
% long stay hospital	1.10	4.41
% psychiatric nursing home	0.20	0.05
% chronic dialysis	0.08	0.43
% psychiatric hospital (2-5 y and =>6 y)	0.18	0.25
% unemployed	6.35	2.37
% extreme payers before integration of safety margin		
• OOP>5% NTI (N - %)	9.72	76.08
• OOP>10% NTI (N - %)	3.90	31.09
• Co-pay>5% NTI (N - %)	2.87	8.33
• Co-pay>10% NTI (N - %)	1.28	3.43
Reduction in extreme payers		
• OOP>5% NTI		5 586
• OOP>10% NTI		2 759
• Co-pay>5% NTI		1 649
• Co-pay>10% NTI		687

Since 2004 the number of implants and medical devices with a safety margin has increased substantially. To obtain a more accurate assessment of the budgetary cost of the integration of the safety margin in 2008, a further update of the results is necessary. As this update is not immediately relevant for this project, we have included it in the Appendix.

[iiii] Remember that our simulations are performed in an incremental way: the effects of introducing the safety margin are evaluated after taking into account the introduction of the delivery margin and of the OMNIO-statute.

6.3.2 A MAB for the chronically ill

The RIZIV/INAMI budget for health for the year 2008 includes an amount of €10 million for a MAB for the chronically ill. This raises two questions: how to define the group of chronically ill who are entitled to special protection? How to incorporate such special protection in the MAB-regulation? Since the development of a commonly accepted definition of chronic illness is beyond the scope of this report, we explored different possibilities. We first sketch five possible selection criteria for defining the group of the chronically ill, we then describe in some details three specific designs of the MAB for the chronically ill, and we finally show the results of our simulations.

6.3.2.1 Selection of the chronically ill

All our selections of chronically ill contain patients entitled to the lump sum for chronic illness, but the concrete specification differs. As was described in section 2.1.2, patients are entitled to this lump sum, if they belong to a category of dependent persons during the current calendar year, and if their total amount of co-payments exceeds a certain threshold during two consecutive years. The chronically ill has to be in one of the following situations:

1. Entitled to lump sum B or C for home care as determined according to Katz scale, during at least three months, approved by the advisory doctor of the sickness fund.
2. Entitled to at least six months of physiotherapy, approved by the advisory doctor of the sickness fund (previously known as "category E").
3. Entitled to an invalidity allowance for a person considered as with a person at charge because of his need for assistance.
4. Entitled to an integration allowance for handicapped persons or to an assistance allowance for handicapped persons.
5. Entitled to an allowance for assistance for the elderly.
6. Entitled to preferential treatment because of need for assistance.
7. Being admitted in a hospital for at least 120 days or at least 6 times during the current and previous calendar year.
8. Entitled to increased child allowance.

The first selection includes all patients entitled to the lump sum for chronic illness because they belong to a category of dependent persons. Since the second condition of a minimum amount of co-payments is not imposed, they did not necessarily receive the lump sum. Patients who received a lump sum for incontinence material were also included.

The second group is the same as the first one, but patients entitled to the lump sum for chronic illness because of 2, 7 or 8 were excluded. These patients can be considered to be less care-dependent.[14,jjjj]

The third group contains all patients entitled to the lump sum for chronic illness because of 1, 3, 4, 5 and 6 and with a total amount of co-payments exceeding a certain threshold during two consecutive years and patients who received a lump sum for incontinence material.

While these first three groups are nested in one another (the selection criteria getting more stringent from the first to the third group), our last two definitions introduce a new group of patients: patients in psychiatric nursing homes, patients with a long stay

(> 1y) in a psychiatric hospital and elderly residents in rest and nursing homes or in day care centres entitled to lump sum B or C.

The fourth definition adds these patients to the second group. The fifth definition adds them to the third group.

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jjjj See also the proposal of Royal Decree of the Minister of Social Affairs, approved by the Council of Ministers on April 25th 2008, to increase the lump sum for categories 1, 3, 4, 5 and 6.

Since the detailed information at the level of the nomenclature codes was only available for the original sample (including the oversampled elderly) and not for the additional household members, the effects of setting up a MAB for the chronically ill are underestimated in the simulations. Only the selection of patients entitled to the lump sum for chronic illness without imposing the second condition of a minimum amount of co-payments, and the selection of patients in psychiatric nursing homes could be done for all MAB-household members.

6.3.2.2 *Three possible designs of a MAB for the chronically ill*

Let us now briefly introduce three possible approaches for introducing a special protection for the chronically ill. In each case we analyse the effects of the new system theoretically for a household with one chronically ill person. She has co-payments C and the co-payments of all the other household members amount to R. The original MAB-ceiling for the household is D. Hence, if C+R > D in the original situation, MAB-reimbursements in that situation are TB^0 = C+R-D. If C+R < D in the original situation, the household does not receive any reimbursements, i.e. TB^0 = 0.

SIMULATION 1: AN INDIVIDUAL CEILING OF €200

As explained in previous sections, the current MAB aims at reducing co-payments at the level of the de facto household in relation to the income of that household. Only the MAB for children is an individual right irrespective of income. The legislator introduced the MAB for children as a supplementary protection for children confronted with high health care expenses. One possible way of increasing the financial protection of chronically ill patients is to introduce an individual right to the MAB analogous to the MAB for children, irrespective of their household or income situation. In our simulation, we assumed that co-payments of chronically ill patients are reimbursed after a ceiling of €200 is reached. The €200 to be paid by the chronically ill patient is taken into account in the MAB-counter used for computing the social or income MAB-reimbursements of the other household members.

The consequences of this system are shown in Table 36. If C < 200, nothing changes of course, since the co-payments of the chronically ill patient do not go above the individual ceiling. If C > 200, however, direct reimbursements for the chronically ill TB_C = C-200. The ceiling of €200 is taken into account to calculate MAB-reimbursements at the household level: if 200+R > D, MAB-reimbursements at the household level TB_H = 200+R-D. However, if 200+R < D, there are no additional reimbursements at the household level (TB_H = 0). In all cases total reimbursements TB (= TB_C+TB_H) have to be compared with TB^0 to see whether there is a gain or not. Table 36 shows that households in this simulation can only gain if the chronically ill has co-payments larger than the individual ceiling and if R < D-200, i.e. if the other household members do not have large co-payments relative to the MAB-ceiling.

Table 36: Effects of an individual ceiling

		C+R > D TB^0 = C+R-D	**C+R < D** TB^0 = 0
C < 200		**no effect**	**no effect**
C > 200 TB_C = C-200	**200+R > D**	TB_H = 200+R-D TB = C+R-D **no effect**	**impossible**
	200+R < D	TB_H = 0 TB = C-200 **gain = TB-TB^0** **= D-200-R**	TB_H = 0 TB = C-200 **gain = TB-TB^0** **= C-200**

SIMULATION 2: A REDUCED CEILING FOR HOUSEHOLDS WITH A CHRONICALLY ILL PATIENT (- €250)

A second way of introducing special protection for the chronically ill consists of reducing the MAB-ceilings for all households with at least one chronically ill patient, e.g. by €250. A fixed reduction of the MAB-ceiling for all households with a chronically ill patient irrespective of the income group gives up the currently applied principle that co-payments for all households should be in a range between about 3-4.5% of NTI (see Figure 1b). The consequences of this scheme are shown in Table 37. All households with a chronically ill person gain in this case, except those for which total co-payments at the household level are smaller than the original ceiling minus €250: their reimbursements are zero both before and after the change. Households that had already MAB-reimbursements before the introduction of the new system will see their reimbursements increase by €250. In addition there are some households whose co-payments did not exceed the original ceiling, but do exceed the new lower ceiling. Their gain will be smaller than €250 (lower right cell in Table 37).

Table 37: Effects of a reduced household ceiling

	C+R > D TB^0 = C+R-D	**C+R < D** TB^0 = 0
C+R < D-250	TB_H = C+R-D+250 **gain = TB-TB^0 = 250**	**no effect**
C+R > D-250	TB_H = C+R-D+250 **gain = TB-TB^0 = 250**	TB = C+R-D+250 **gain = C+R-D+250**

SIMULATION 3: EXEMPTION FROM CO-PAYMENTS FOR CHRONICALLY ILL PATIENTS (UP TO €200)

The central idea of a third alternative for a MAB for the chronically ill is that their co-payments are reimbursed immediately after consumption up to a certain limit, e.g. €200. After reaching the limit, the individual right disappears and the social or income MAB applies to the de facto household of the chronically ill patient. The MAB-counters of the de facto household include the co-payments above €200 of the chronically ill patient and all co-payments covered by the MAB of the other household members.

The effects of this more complicated system are shown in Table 38. Depending on whether C is smaller or larger than €200, the "exemption" (interpreted as a reimbursement for the chronically ill person TB_C) will be either C or 200. If C < 200, the household has a right to additional MAB-reimbursements TB_H if R > D. In this case, however, it cannot gain. However, it will gain if R < D. Therefore there will be an increase in MAB reimbursements for households with a chronically ill person with low expenditures (< €200) and with relatively low expenditures for the other household members (R < D). If C > 200, the difference (C-200) is included in the MAB-counter at the household level. The household will (not) receive additional MAB-reimbursements if R+C-200 > (<) D. Again, there will be gains only in the latter case, i.e. if R (co-payments of the other members) are not too large, i.e. if R < D+200-C.) The gain can never be larger than the individual ceiling €200.

Table 38: Effects of an individual exemption

		C+R > D TB^0 = C+R-D	**C+R < D** TB^0 = 0
C < 200 TB_C = C	**R > D**	TB_H = R-D TB = C+R-D **no effect**	**impossible**
	R < D	TB_H = 0 TB = C **gain = TB-TB^0** **= D-R**	TB_H = 0 TB = C **gain = TB-TB^0** **= C**
C > 200 TB_C = 200	**R+C-200 > D**	TB_H = R+C-200-D TB = C+R-D **no effect**	**impossible**
	R+C-200 < D	TB_H = 0 TB = 200 **gain = TB-TB^0** **= 200-C-R+D**	TB_H = 0 TB = 200 **gain = TB-TB^0** **= 200**

6.3.2.3 Simulation results

Let us now turn to the simulation results. Starting from the simulation described in section 6.2.4.2 (extension of preferential tariff for OMNIO-statute), the implementation of the three systems for the five possible definitions of the chronically ill is relatively straightforward.

The budgetary cost of the different possibilities is summarized in Table 39. Not surprisingly, these costs differ a lot for the different selections of chronically ill. In each of the three simulations, there is a sharp decrease in the budgetary impact of the measure when we go from group 1 to group 3. Enlargement of the definition of chronically ill patients to residential elderly (lump sum B or C) and psychiatric patients increases the budgetary cost (compare definitions 2 and 4, and definitions 3 and 5 respectively). Except for the first selection, the budgetary costs are roughly similar between simulations 1 and 2. Simulation 3 (with the individual exemption), however, is much more expensive for each of the definitions of the chronically ill.

Table 39 : Budgetary cost of the different systems

	Simulation 1: individual ceiling	**Simulation 2: reduced household ceiling**	**Simulation 3: individual exemption**
Group 1: Lump sum chronically ill (entitled) and incontinence material	57 046 987	47 025 204	82 139 569
Group 2: Selection lump sum chronically ill (entitled) and incontinence material	24 121 960	27 538 314	49 272 555
Group 3: Selection lump sum chronically ill (paid) and incontinence material	10 947 864	10 732 293	16 284 259
Group 4: Selection lump sum chronically ill (entitled), incontinence material, psych and homes for elderly	33 806 610	34 764 249	63 004 682
Group 5: Selection lump sum chronically ill (paid), incontinence material, psych and homes for elderly	22 524 631	20 096 408	35 338 182

The distributive effects of the different versions are shown in Tables 40-42. These tables take up the same groups that were shown in the other policy simulations, but add the pharmaceutical groups. The results are well in line with what could be expected on the basis of the theoretical analysis of the Tables 36-38. We summarize some of the main insights:

1. The gainers in the first system (with the individual ceiling) have on average considerably larger incomes than the gainers in the other two systems. This is confirmed by the relatively smaller share of weak socio-economic groups (single parent households, unemployed, preferential tariff, guaranteed income).
2. The picture is different for the indicators of chronic illness: the chronically ill (lump sum B or C, long stay in a hospital, chronic dialysis, pharmaceutical groups) are more strongly represented among the gainers in the first two systems than in the third system.
3. The results at P90 confirm the theoretical analysis in section 6.3.2.2. The maximal gain is €250 in system 2. For system 3 we find that the gain at P90 is €400.kkkk The gains can be considerably larger in system 1, however.
4. Systems 1 and 2 are much better than system 3 in targeting the households that were extreme payers in the original MAB.
5. Despite its worse targeting properties, the ex post reduction in the number of extreme payers is the largest with system 3. Indeed, system 3 being much more expensive than the others, the overall number of gainers is much larger. More revealing is the comparison of systems 1 and 2: despite the similar budgetary cost of the two systems, the reduction of the number of extreme payers is larger with system 2.

kkkk Remember that we considered a household with only one chronically ill person in our theoretical example – that is why we found a maximal gain of €200 there. The P90-gain of €400 in Table 42 occurs when there are two chronically ill persons (entitled to the individual exemption) in the same household. The gain can even be larger if the number of chronically ill persons in the household further increases.

Table 40 : A MAB for the chronically ill - An individual ceiling of €200: portrait of gainers

	General population	Gainers				
		Lump sum chronically ill (entitled) and incontinence material	Selection lump sum chronically ill (entitled) and incontinence material	Selection lump sum chronically ill (paid) and incontinence material	Selection lump sum chronically ill (entitled), incontinence material, psych and homes for elderly	Selection lump sum chronically ill (paid), incontinence material, psych and homes for elderly
Number of gainers	Not applicable	214 651	113 845	43 629	153 729	96 224
Mean gain in €	Not applicable	266	212	251	220	234
P90 gain in €	Not applicable	540	412	450	450	450
Mean NTI in €	29 427	23 073	18 937	18 824	17 872	16 125
Median NTI in €	22 335	15 983	13 575	13 571	13 268	12 387
Mean household size	2.21	1.93	1.77	1.63	1.60	1.36
% single parent hh	4.82	1.47	0.38	0.17	0.32	0.13
% guaranteed income	4.94	7.67	10.32	9.38	9.16	8.60
% preferential tariff	32.70	57.88	73.28	69.66	68.59	66.37
% lump sum B or C	1.12	14.42	26.63	34.67	19.79	16.51
% integration allowance handicap	1.93	15.35	28.13	19.40	20.88	12.06
% long stay hospital	1.10	16.61	8.87	9.54	11.87	14.68
% psychiatric nursing home	0.20	1.13	0.64	1.02	2.42	3.85
% chronic dialysis	0.08	0.92	0.78	1.17	0.68	0.76
% psychiatric hospital (2-5 y and =>6 y)	0.18	2.81	1.41	0.72	4.10	6.54
% unemployed	6.35	3.72	3.07	2.68	2.45	1.64
% Antibiotics DDD >=90	1.09	4.54	5.36	7.52	5.32	6.53
% Antihypertensives DDD >=90	23.74	45.97	54.74	64.69	54.33	58.17
% Cholesterol lowering medicine DDD >=90	9.20	13.17	13.37	14.90	11.26	9.58
% COPD DDD >=90	4.23	10.94	11.84	16.86	10.80	11.96
% Antidepressants DDD >=90	8.64	25.45	29.72	39.93	33.22	41.14
% Antidiabetics DDD >=90	4.61	10.97	13.92	17.68	13.25	14.31
% Stomach medicine DDD >=90	7.83	21.54	25.51	34.76	26.02	30.54
% Crohn DDD >=90	0.39	0.89	0.70	1.17	0.61	0.72
% extreme payers before MAB for the						

chronically ill						
• OOP>5% NTI	9.72	40.55	40.94	46.68	43.09	48.14
• OOP>10% NTI	3.90	19.30	19.49	20.00	21.25	24.24
• Co-pay>5% NTI	2.87	17.37	18.69	21.55	20.67	24.64
• Co-pay>10% NTI	1.28	8.43	9.03	7.89	10.61	12.48
Reduction in extreme payers (N - %)	Not applicable					
• OOP>5% NTI		28 028	15 767	7 822	22 208	15 989
• OOP>10% NTI		9 896	6 010	2 713	8 500	6 090
• Co-pay>5% NTI		23 525	14 765	7 413	20 314	14 927
• Co-pay>10% NTI		8 833	5 971	2 334	8 251	5 551

Table 41: A MAB for the chronically ill - A reduced ceiling for households with a chronically ill patient (- €250): portrait of gainers

	General population	Gainers				
		Lump sum chronically ill (entitled) and incontinence material	Selection lump sum chronically ill (entitled) and incontinence material	Selection lump sum chronically ill (paid) and incontinence material	Selection lump sum chronically ill (entitled), incontinence material, psych and homes for elderly	Selection lump sum chronically ill (paid), incontinence material, psych and homes for elderly
Number of gainers	Not applicable	229 732	139 067	48 024	176 795	99 847
Mean gain in €	Not applicable	205	198	223	197	201
P90 gain in €	Not applicable	250	250	250	250	250
Mean NTI in €	29 427	19 004	17 970	18 056	17 024	15 384
Median NTI in €	22 335	15 022	14 146	13 739	13 598	12 448
Mean household size	2.21	1.99	1.94	1.70	1.77	1.44
% single parent hh	4.82	2.07	0.44	0.18	0.40	0.18
% guaranteed income	4.94	9.01	10.86	9.53	9.87	9.04
% preferential tariff	32.70	68.18	78.95	72.37	74.96	70.51
% lump sum B or C	1.12	15.69	25.92	36.29	20.39	18.35
% integration allowance handicap	1.93	19.57	32.33	19.69	25.43	12.93
% long stay hospital	1.10	16.06	8.67	9.75	11.44	15.06
% psychiatric nursing home	0.20	1.10	0.57	0.95	2.11	3.72
% chronic dialysis	0.08	0.89	0.77	1.29	0.71	0.86
% psychiatric hospital (2-5 y and =>6 y)	0.18	2.69	1.26	0.67	3.66	6.49

% unemployed	6.35	4.85	3.96	2.83	3.29	1.88
% Antibiotics DDD >=90	1.09	4.81	5.23	7.71	5.23	6.66
% Antihypertensives DDD >=90	23.74	48.73	54.49	64.34	54.12	58.10
% Cholesterol lowering medicine DDD >=90	9.20	14.41	14.54	15.07	12.58	10.02
% COPD DDD >=90	4.23	11.92	11.98	17.18	11.17	12.43
% Antidepressants DDD >=90	8.64	26.31	28.32	39.74	31.40	40.56
% Antidiabetics DDD >=90	4.61	11.99	14.13	18.24	13.56	14.90
% Stomach medicine DDD >=90	7.83	22.72	25.08	34.57	25.62	30.53
% Crohn DDD >=90	0.39	0.81	0.67	1.10	0.60	0.71
% extreme payers before MAB for the chronically ill						
• OOP>5% NTI	9.72	43.83	40.70	47.91	43.40	50.50
• OOP>10% NTI	3.90	20.73	18.98	20.56	21.03	25.38
• Co-pay>5% NTI	2.87	17.50	16.94	20.68	19.35	24.85
• Co-pay>10% NTI	1.28	8.54	8.26	7.62	9.94	12.61
Reduction in extreme payers (N - %)	Not applicable					
• OOP>5% NTI		33 074	20 523	8 889	26 659	17 012
• OOP>10% NTI		11 627	7 390	3 033	9 765	6 378
• Co-pay>5% NTI		27 071	17 282	8 024	22 912	15 787
• Co-pay>10% NTI		10 855	7 357	2 611	9 681	5 988

Table 42: A MAB for the chronically ill - Exemption from co-payments for chronically ill patients (up to €200): portrait of gainers

	General population	Gainers				
		Lump sum chronically ill (entitled) and incontinence material	Selection lump sum chronically ill (entitled) and incontinence material	Selection lump sum chronically ill (paid) and incontinence material	Selection lump sum chronically ill (entitled), incontinence material, psych and homes for elderly	Selection lump sum chronically ill (paid), incontinence material, psych and homes for elderly
Number of gainers	Not applicable	323 634	198 310	50 383	254 026	134 484
Mean gain in €	Not applicable	254	248	323	248	263
P90 gain in €	Not applicable	400	400	400	400	400
Mean NTI in €	29 427	20 970	17 559	17 882	16 530	14 135
Median NTI in €	22 335	14 399	12 761	13 306	12 334	11 504
Mean household size	2.21	2.07	1.86	1.68	1.71	1.35

% single parent hh	4.82	2.48	0.55	0.30	0.48	0.20
% guaranteed income	4.94	9.71	12.21	9.98	11.05	10.30
% preferential tariff	32.70	71.91	83.64	75.60	79.82	75.60
% lump sum B or C	1.12	12.26	19.99	36.85	15.61	14.54
% integration allowance handicap	1.93	22.08	35.97	19.89	28.08	12.14
% long stay hospital	1.10	11.89	6.03	8.80	8.12	11.59
% psychiatric nursing home	0.20	1.35	1.21	0.80	2.93	5.51
% chronic dialysis	0.08	0.60	0.49	1.08	0.45	0.57
% psychiatric hospital (2-5 y and =>6 y)	0.18	2.01	0.97	0.64	2.68	5.06
% unemployed	6.35	4.41	3.83	2.78	3.16	1.52
% Antibiotics DDD >=90	1.09	3.55	3.98	7.24	4.01	5.39
% Antihypertensives DDD >=90	23.74	39.72	46.05	60.86	45.59	49.29
% Cholesterol lowering medicine DDD >=90	9.20	11.17	11.47	13.95	9.74	7.36
% COPD DDD >=90	4.23	8.65	8.84	15.66	8.08	9.04
% Antidepressants DDD >=90	8.64	20.26	22.45	36.60	25.05	33.41
% Antidiabetics DDD >=90	4.61	9.54	11.49	16.57	11.07	12.35
% Stomach medicine DDD >=90	7.83	17.27	19.60	32.15	19.98	24.66
% Crohn DDD >=90	0.39	0.71	0.62	0.97	0.53	0.50
% extreme payers before MAB for the chronically ill						
• OOP>5% NTI	9.72	29.72	28.72	43.35	30.59	38.57
• OOP>10% NTI	3.90	14.61	14.03	19.08	15.55	20.55
• Co-pay>5% NTI	2.87	12.50	12.27	19.47	14.06	19.65
• Co-pay>10% NTI	1.28	6.42	6.31	7.29	7.64	10.67
Reduction in extreme payers (N - %)	Not applicable					
• OOP>5% NTI		44 815	28 734	11 634	37 525	23 857
• OOP>10% NTI		18 693	12 143	4 735	16 269	10 664
• Co-pay>5% NTI		30 753	19 755	8 816	26 516	18 145
• Co-pay>10% NTI		13 633	9 043	3 149	12 114	7 525

6.4 CONCLUSION

In this chapter we have described the effects of the most important policy changes that have been introduced in the period 2004-2007. We also simulated two policy measures that are planned for 2008. If we include in the costs the decrease in the co-payments as a consequence of the introduction of OMNIO, all these measures have increased the budgetary cost of the social protection by about 30%. At the same time there has also been a significant decrease in the number of extreme payers. Compared to the base case, the number of households with OOP-payments larger than 5% of their NTI has decreased by 13%. The number of households with co-payments larger than 5% of NTI has even decreased by almost 40%.

The microsimulation results suggest that the integration of the safety margin and the delivery margin in the MAB-counter are effectively targeting extreme payers. The restrictions on social MAB-entitlements imposed in 2006 have led to a significant budgetary saving with minimal effects on the level of social protection. The integration of the fiscal MAB into the income MAB and the introduction of the OMNIO-statute have had a strongly negative effect on the number of extreme payers (mainly in terms of co-payments), but mainly the latter measure has had at the same time a considerable budgetary cost. Moreover, our estimate of the OMNIO-effect is an upper boundary of the real effect, as we (unrealistically) have assumed that there was complete take-up. In the next chapter we will compare the effectiveness of these measures to the effectiveness of some other (hypothetical) changes in the design of the MAB and of the system of preferential treatment.

Our simulation results sketch a rich picture of the effects of the various measures. However, one should not forget the limitations of our exercise. First, we restricted ourselves to static simulation, i.e. we did not take into account possible behavioural effects induced by the policy measures. Second, more importantly, all our results are derived with the consumption pattern and the prices for 2004 fixed. In the period 2004-2008, there have certainly been changes in health care expenditures, most importantly with respect to pharmaceutical consumption. One should therefore be very cautious with the interpretation of the exact numbers of households affected and the exact amount of budgetary cost estimated.[IIII] All our results should be seen in comparison to the base case. However, precisely because we simulate the different measures with a fixed reference point, it is instructive to compare the effects of the various measures. Rather than the absolute amounts, it is this relative comparison which matters. We will proceed with such comparative analysis in the following chapter.

[IIII] That is exactly why we had to introduce some additional ad hoc-assumptions to evaluate the budgetary cost of the integration of the safety margin in 2008.

Key points

- **We use microsimulation modelling to evaluate the budgetary and distributional consequences of the most important changes in the MAB-regulation since 2004.**
- **The changes in the MAB-regulation (including OMNIO) since 2004 have increased the budgetary cost of the social protection by about 30%. They have led to a 40%-decrease in the number of households with total co-payments larger than 5% of the net taxable income.**
- **The integration of the safety margin and the delivery margin in the MAB-counter have effectively targeted extreme payers.**
- **The restrictions on social MAB-entitlements imposed in 2006 have led to a significant budgetary saving with minimal effects on the level of social protection.**
- **The introduction of OMNIO had a significant budgetary cost but decreased the number of extreme payers.**
- **Whatever its specific design, the cost of a MAB for the chronically ill is about five times larger with the broadest definition of chronic illness than with the most restrictive definition.**
- **Designing the MAB for the chronically ill as an individual exemption is by far the most expensive. It does not yield better results in terms of social protection.**

7 THE MAB AND THE STRUCTURE OF SOCIAL PROTECTION

One can evaluate a system of social protection such as the MAB at different levels. At one extreme, one can broadly accept its present design and analyse specific features and reform proposals. This is the perspective taken in the descriptive analysis of chapter 4 and in the simulation of the most important recent policy changes in chapter 6. At the other extreme, one can question the whole architecture of the overall system of social protection and of income (re)distribution and evaluate the health insurance system within such a broader perspective. In between these two extremes is an approach that does raise questions about broad design features, without, however, questioning the whole system of social protection. In this chapter, we will follow the latter approach. We will describe the consequences of different possible directions of reform, while accepting two basic restrictions:

1. The whole issue of social protection for extreme co-payments does only arise when one accepts the existence of co-payments in the first place. The idea of co-payments is that they may counterbalance the consumption-inducing effect of the fee-for-service system – and, more generally, that they may contribute to increasing the awareness of the population that health care is not costless from the point of view of society. Doing away with the co-payments would also make a system like the MAB superfluous. However, this would undoubtedly require at the same time other basic changes in the Belgian system of health care provision. We will not explore the possibility nor the desirability of such a drastic change. Instead, we will consider the design of social protection within a health insurance system with (largely) fee-for-service remuneration of the providers and relatively large out-of-pocket payments. We will therefore accept for the sake of the argument that co-payments may be socially acceptable, if they do not impose a too large burden on household income.
2. Social protection for co-payments immediately raises the broader issue of poverty in general. OOP-payments for health care are only one of the many interrelated causes of the economic vulnerability of the weaker groups in society. This immediately suggests that one should aim at a coherent policy with respect to the welfare distribution and the fight against social exclusion, in which different policy domains (such as taxation, education, housing and health) are integrated. In this chapter, we will not consider the design of such an encompassing redistribution policy, but we will focus on the affordability of health care expenses on its own. In fact, this is perhaps not a sufficient but definitely a necessary condition for avoiding poverty. Moreover, it is the only realistic objective that can be pursued through the system of health insurance. One should not use the latter to fill the lacunae in other domains of social policy. This means that we will follow the basic inspiration that was underlying the MAB from the beginning (see the introduction and especially Figure 1b) and take the rest of the social insurance and redistribution policy as given.

Accepting these two restrictions does not mean that they are beyond discussion. In fact, as we will see, even when thinking more specifically about the design of the MAB, we will still necessarily be confronted with these broader issues. However, the point is that we want to focus on the design of a social protection mechanism in the context of a health insurance system with co-payments. As we will see, even this restricted perspective offers already much room for diverging opinions. The design of a social protection mechanism like the MAB requires taking a position on difficult trade-offs between conflicting ethical values within administrative and political constraints. We will first describe in general terms the most crucial ethical choices. We will then give a general overview of the relevant economic, administrative and political constraints.

Finally, we will use our microsimulation results to illustrate some specific implications for the design of the MAB. As in the previous chapter, we will assume in our simulations the absence of behavioural effects.

7.1 ETHICAL CHOICES

Let us first focus on the ethical (or social) values that could underlie the social protection in health care – and link them to the challenge of social protection in general. In this section, we will not refer to any feasibility constraints. Although these are crucial to understand and evaluate specific policies, they will only be introduced in the next section.

7.1.1 Coverage of the MAB

A first set of basic ethical issues relates to the boundaries of individual responsibility. Indeed, all redistributive government policies, aiming at changing the spontaneous outcomes of market forces, implicitly or explicitly start from the idea that individuals should be compensated (in one way or another) for those features of their situation for which they cannot be held individually responsible. Social responsibility begins where individual responsibility ends. This general statement covers a whole range of opinions, depending on where one exactly draws the line between social and individual responsibility. If one holds individuals responsible for almost all the features of their situation (including their innate capacities, their socio-economic background, their effort level), one may consider the spontaneous market outcomes as just (almost by definition) – government intervention is then undesirable. If, on the other hand, one takes the position that individuals can hardly be held responsible for anything, one ends up in a purely egalitarian framework. This broad discussion about the boundaries of individual responsibility has immediate implications for the design of the MAB. Why does society want to introduce social protection for health care expenses, and not for other private expenditures? The main reason is that we consider these health care expenses to be largely imposed on individuals: one does not choose to "consume" health care in the same way as one decides to buy a television set. In line with what has been said before, another way to phrase this is to say that persons cannot be held individually responsible for their health care expenses. Compensation is needed, precisely because and in so far as persons are not individually responsible. While this basic intuition is shared by the large majority of the Belgian population, differences in opinion appear when it comes to defining the exact boundaries of individual responsibility. What are necessary health care expenses? One can approach this question from two angles[mmmm]:

1. First, one has to define what are "health care" expenses – and therefore which items reflect needs for which individuals should be compensated. As a logical starting point, one could say that all items included in the compulsory cover have been evaluated by society as reflecting needs, and that all corresponding co-payments therefore ideally should be integrated in the MAB-counter. More difficult issues arise with respect to other OOP-payments. What about supplements? One could argue that individuals should be compensated if they have to pay supplements for medically necessary treatment, but that compensation is not necessary if the supplements relate to "luxury" expenditures, reflecting subjective tastes rather than health care needs. Different opinions co-exist, however, about how to distinguish medically necessary from luxury consumption. What about non-medical expenditures related to chronic illness? Where to draw the demarcation line between unavoidable and avoidable expenditures? And what about the accomodation expenses for long-term stays in nursing homes or in

[mmmm] These two approaches can also be found in the philosophical literature on responsibility and compensation. As an example, Fleurbaey (1995)[15] distinguishes between on the one hand responsibility defined on the basis of the outcomes (one is individually responsible for outcomes in the private sphere, but not for outcomes in the public domain, such as employment, education and health), and on the other hand responsibility defined on the basis of personal characteristics and decisions (one is individually responsible when the outcomes follow from one's own choices).

psychiatric institutions? Are these accomodation expenses a simple substitute for expenses which would have to be made anyway (even by someone who is not ill), or do they really represent additional costs for which compensation is desirable?

2. Second, one has to define what level of health care expenses is necessary. If one considers all health care expenses (as defined before) as necessary and unavoidable, all OOP-payments for these items should ideally be fully compensated. There would then be no need for co-payments and hence no need for a MAB. However, co-payments can be justified in the responsibility view of justice if one takes the position that there is a grey zone between necessary and avoidable health care expenditures, and that it is not unfair that individuals partly take up their own responsibility. This argumentation of partial responsibility is strengthened if one is concerned about what could be called inefficient overconsumption. In an ideal world in which the regulator could identify such inefficient overconsumption, it would certainly be part of individual responsibility and have to be paid for by the individual him/herself. Of course, in the real world the regulator cannot easily identify what is medically necessary consumption. Co-payments are then a blunt way of introducing incentives to mitigate overconsumption. Both the "grey zone"-argument and the "co-payments as imperfect incentive"-argument make us deviate from the principle that zero OOP-payments are the ideal reference point. However, simply allowing for proportional OOP-payments would lead to extremely inequitable outcomes for those seriously ill individuals with unavoidable large health care expenditures and who do not overconsume. A concern for these worst-off individuals then requires the introduction of ceilings on OOP-payments.nnnn More generally, the introduction of ceilings is a natural way of defining an equilibrium between individual and social responsibility: it respects the idea of partial responsibility, while avoiding disastrous consequences for the weakest individuals. This way of putting the problem suggests that setting the level of the MAB-ceilings is again an ethical choice, that is intrinsically linked to the demarcation of individual versus social responsibility.

A special case arises when the regulator has the possibility to distinguish between efficient and inefficient forms of consumption and introduces financial incentives to stimulate the former. The policy with respect to generic drugs, described in section 2.5.3, is a good example. A harsh view on individual responsibility would imply that patients who choose themselves the original brand drugs are fully responsible for the larger expenditures. Yet individuals may take their decisions on the basis of wrong or incomplete information, and we know that the socio-economically weaker groups have also a larger chance of being poorly informed. A more compassionate view would then accept here also the principle of partial responsibility. As described before, this view has been implemented in the Belgian regulation, in which the "supplementary payments" for brand drugs are included in the MAB-counter.

One can also approach the issue of ceilings from the point of view of rational optimal insurance, i.e. without referring to distributive concerns. In insurance terms, the MAB is basically a stop-loss arrangement. Already in 1970, Arrow has shown that an optimal insurance policy from the point of view of a risk-averse individual would involve full insurance above a deductible.[oooo] Such stop-loss arrangements play an important role in many insurance contracts.

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nnnn References to the Rawlsian "maximin"-idea (basically stating that inequalities are acceptable in so far as they are to the advantage of the worst-off in society) were prominently present in the policy documents at the time the MAB was introduced. It is not clear, however, how the Rawlsian theory about the justice of the basic institutions of society can be accomodated in a narrower perspective, focusing on the health care sector in isolation.

oooo Arrow's so-called "theorem of the deductible"[16] has later been shown to hold under much more general conditions than the one that were needed for the original proof – see, e.g., Gollier and Schlesinger (1996).[17]

To give an example, a MAB-type feature (a stop-loss of co-payments as a fraction of income) was present in most experimental conditions of the authoritative Rand-study (see, e.g. Manning et al., 1987[18]; Manning and Marquis, 1996[19]).

7.1.2 Thresholds and ceilings

Suppose now that one accepts the idea of partial responsibility leading to the introduction of ceilings, and that one has reached consensus about the items that have to be included in the MAB-counter. A second set of basic ethical issues then arises about how to define the desirable degree of redistribution. How to think about the equitable level of MAB-ceilings and income-thresholds?

1. The basic idea of a MAB-ceiling is to put an upper limit on the individual burden imposed by those health care expenses for which individuals cannot be held responsible. To make this idea operational, one must define a concept of "burden" that can be meaningfully compared across individuals. If one computed this burden in monetary terms, one would not at all take into account interindividual differences which make this monetary cost easier or more difficult to bear. Presumably, what we should ultimately be interested in, are the welfare (and not the income) consequences of health care expenditures. Here also, different choices can be made:
    - Individuals live together in households. Since a de facto household can be seen as an economic unit in which expenditures and incomes are pooled (at least to a large extent), it seems natural to express the welfare burden of OOP-payments for health care at that level. This is the option taken in the Belgian MAB. However, one could in principle also define the right to social protection at the level of the individual. This would be in line with the trend observed in many income replacement schemes in Europe. The MAB for children and the proposals with respect to the chronically ill (described in the previous chapter) go in that direction.
    - Whether one works at the level of the household or at the level of the individual, equal expenditures in money terms will have different welfare implications for the rich and for the poor. An easy and natural way of correcting for these income differences is to express the burden of OOP-payments as a fraction of disposable income. This is in line with the dominant tradition in the measurement of inequality, stating that proportional income changes do not change inequality. From a broader perspective, however, it is only a shortcut for a more elaborate approach which would look carefully at the exact relationship between income and welfare losses.
    - Things get further complicated, because households (and individuals) differ in many more dimensions than income. Consumption needs may also depend on the geographical location of the household (leading to price differences or to differences in the availability of collective goods), on the presence of household members with special needs (e.g. handicapped children), on the labour market status (e.g. one working parent with children may have it more difficult to organize his/her life efficiently than a couple with children). Ideally, such factors should also be taken into account in the definition of relative burdens.
2. If one has reached agreement about how to measure the burden of OOP-payments in welfare terms, there still remains the question of how to set the ceilings on these burdens. Two questions can be distinguished here. Should the ceilings be differentiated for different households (or individuals)? And what should be the average ceiling level?
    - Differentiated ceilings (in terms of welfare burden) would imply that the social protection mechanism in health care leads to some redistribution of welfare. In that case, it is designed so as to make up for the shortcomings in other domains of the welfare state. We have argued in the beginning of this chapter that it may be suboptimal to ascribe such ambitious objectives to a system like the MAB – and that in any case its

redistributive potential is very limited. If one wants to limit the objectives of the MAB to social protection in the health care domain, the most natural objective is to impose an equal burden on all households (or individuals). Equal proportional burdens leave the initial welfare inequality intact.

- How large should that equal burden be? If we express it in terms of income shares, should the ceiling be put at 1%, 5%, 10% of income? From a purely ethical perspective, this choice should be based on the evaluation of the desirable degree of "partial" responsibility. Increasing the level of the ceiling increases (decreases) the weight given to individual (social) responsibility. In a compassionate approach with a special concern for the worst-off, the ceiling should at least be low enough to avoid that individuals (or households) enter poverty because of health care needs that are beyond their control.

One could try to interpret the specific structure of the Belgian MAB in the light of the ethical choices sketched in this section. It accepts the idea of co-payments and of partial responsibility. It defines the burden of co-payments as a fraction of income at the household level. It puts the ceiling on these burdens at a level of about 4% (see Figure 1b). Such an interpretation in terms of ethical choices would be one-sided, however. Actual decisions are also influenced by administrative and political constraints. Even if everyone agreed about the basic ethical starting points (which is evidently not realistic), there would still be scope for different decisions, depending on differences in the assessment of the more or less binding nature of these constraints. In some circumstances, the constraints may even impose the decisions.

7.2 ECONOMIC, POLITICAL AND ADMINISTRATIVE CONSTRAINTS

We distinguish the economic, political and administrative feasibility of social protection.

7.2.1 Economic feasibility

Lowering the ceilings in the MAB or extending its coverage, *ceteris paribus* increases the relative cost of health care for the government and therefore puts an additional burden on the health care budget. To a large extent the size of the government budget is an ethical (or political) decision: yet, in a context of growing international competition, one should be aware of the economic consequences of financing this budget through social security contributions and general taxation. Opinions differ as to the magnitude of these effects, but in actual political reality budgetary considerations will always be an important element in the evaluation of social policies. Remember that budgetary pressures forced the increase of co-payments in the nineties that on its turn let to the social and fiscal exemptions (the precursor of the MAB).

In addition to the "mechanical" effect of MAB-extensions, i.e. the simple sum of the amount of health care payments that is transferred from the individual patients to the government budget, there may also be a behavioural effect. If the MAB led to a significant increase in inefficient overconsumption of health care, this would undermine the economic feasibility of further extensions. A careful investigation of these behavioural effects is therefore crucial. As we have seen in chapter 5, however, until now the research (on the basis of the available data) has not produced evidence of strong behavioural effects.

7.2.2 Political feasibility

Since there is obviously no general consensus about ethically desirable and economically feasible changes in the system of social protection, it is evident that political compromises will have to be sought. In this respect it is essential not to lose sight of the overall degree of acceptance of the compulsory system of health insurance. A compulsory system with a broad coverage will only be politically viable in the long run, if it gets sufficient support from middle and higher income groups. Introducing too much selectivity in the system (to the advantage of the lower income groups) may undermine the insurance component of the system for higher income groups –

or, alternatively, increase for them the cost of the system to such an extent that they start preferring private market alternatives.

This danger should perhaps not be exaggerated for the MAB. As we have seen in chapter 4, it is not very selective in terms of the level of MAB-reimbursements. Moreover, independent of any distributive considerations, stop-loss arrangements are an important element in optimal insurance arrangements. However, the issue of selectivity should certainly be taken into account when considering the definition of the burden as a fraction of income, and the determination of the level of the MAB-ceilings. Apart from (but related to) the MAB, the system of preferential treatment (now further extended through the introduction of the OMNIO-status) is clearly a selective element in the setup of the Belgian system.

7.2.3 Administrative feasibility

In an ideal world, a system like the MAB should take into account the various features of the economic situation of households (or individuals) that influence the welfare burden related to OOP-payments for health care. This requires the use of an adequate income concept for measuring the economic power of households. Moreover, needs are determined by a host of household characteristics, in addition to household size and composition. In many cases we do not have sufficient scientific knowledge about the exact link between welfare and these characteristics. In other cases the necessary data are not available, or available only with a delay. And even if the data are available, it is difficult to take all useful information into account, if one wants to keep the system feasible from an administrative point of view. Here also, compromises have to be made.

The description of the actual regulation with respect to the MAB in the previous chapters has offered enough illustrations of the difficulties involved in translating theoretically clear principles into real world applications. A striking example is the complexity of existing household structures - another one is the challenge of coordinating the information available at the Ministry of Finance and the information available at the sickness funds. Moreover, policy makers have to respect (at least to some extent) individual rights that have been acquired in the past. Hence, the necessity of sometimes complicated transition measures. The administrative complexity of the MAB and its (relative) intransparency increase the difficulties (and the costs) of implementing it. They may also threaten the legitimacy of the system in the eyes of the population.

With these considerations in mind, we can now look in more detail at some specific design features of the MAB. The most important issues will be illustrated with additional (static) microsimulation results. The different simulations together give an idea about the space of future policy choices. Contrary to the previous chapter, the different simulations should not be read incrementally: each time we start again from the situation after the introduction of OMNIO and after the integration of the safety margin in the MAB (which has been decided), but without any additional measure for the chronically ill. Table 43 gives a brief overview of the different simulations performed and some key results. It will be further explained as we proceed.

Table 43. Overview of hypothetical policy simulations

	budgetary cost (new ceilings)	N gainers (average gain/ P90 gain)	N losers (average loss/ P90 loss)	change N extreme payers (OOP > 10% NTI)	change N extreme payers (co-pay>5% NTI)
Extending the coverage					
Protection of psychiatric patients	€26 645 888	8 368 (3 184 / 7 683)	0	- 2 579	- 3 827
Including all co-payments in the MAB-counter	€53 326 023	424 360 (126 / 160)	0	- 7 497	- 22 504
Including all supplements in the MAB-counter	€430 928 001	/	/	/	/
Including all supplements in the MAB-counter – budget-neutral	€1 498 252 (1 395, 2 015, 3 100, 4 340, 5 580)	81 988 (1 575 / 4 017)	387 854 (-329 / -762)	+ 20 958	/
Thresholds and ceilings					
One absolute ceiling – budget-neutral	€85 294 (760)	206 508 (298 / 640)	385 847 (-159 / -310)	+ 13 458	+ 72 688
Indexing the MAB-ceilings	- €8 725 263 (465, 671, 1 033,1 446,1 859)	0	445 085 (-20 / -33)	+ 1 239	+ 3 862
Abolishing the social MAB	- €12 433 406	0	52 591 (-236 / -522)	+ 584	+ 658
Introduction extra ceiling of €250	€20 203 047	146 661 (138 / 200)	0	- 7 466	- 29 803
Abolishing the social MAB + introduction extra ceiling of €250 – NET EFFECTS	€7 769 641	146 661 (138 / 200)	52 591 (-236 / -522)	- 6 882	- 29 145
Redefining the income concept					
Equivalent incomes: OECD-scale – budget neutral	€92 765 (599, 865, 1 330, 1 862, 2 394)	246 882 (149 / 401)	279 127 (-132 / -215)	+ 6 500	+ 37 995
Equivalent incomes: fixed deductions – budget neutral	- €12 213 (488, 705, 1 085, 1 519, 1 913)	113 561 (173 / 295)	372 053 (- 53 / -85)	+ 1 104	+ 7 398
Gross incomes instead of net incomes – budget neutral	€1 150 147 (378, 546, 840, 1 176, 1 513)	380 102 (84 / 104)	140 770 (- 212 / - 522)	- 492	+ 10 680
Abolishing system of preferential treatment – budget neutral	€1 113 926 (300, 433, 667, 933, 1 200)	719 406 (164 / 262)	947 132 (- 123 / - 219)	+ 25 968	+ 51 584
For comparison					
Reducing the ceiling for households with a chronically ill patient – broad definition	€47 025 204	229 732 (205 / 250)	0	- 11 627	- 27 071

7.3 WHAT TO INCLUDE? CO-PAYMENTS AND SUPPLEMENTS

As described in the previous chapters, the coverage of the MAB has gradually been extended over time. In chapter 6 we described the effects of the most recent extensions and proposals. When we confront these developments with the descriptive analysis in chapter 4, two important questions remain: the protection of psychiatric patients and the treatment of supplements. We will now consider these two questions. We will also look at the intermediate approach of introducing all co-payments in the MAB-counters.

7.3.1 Protection of psychiatric patients

When we consider co-payments only, the most important lacuna of the present MAB is with respect to psychiatric patients, mainly if they are hospitalized or living in a psychiatric nursing home (see chapter 4, e.g. Table 13). These patients not only have large absolute remaining OOP-payments after MAB, they often also experience a loss of income. In our first simulation we therefore included in the MAB-counter all the co-payments related to stays in a psychiatric hospital or in a psychiatric nursing home.[PPPP] The total increase of co-payments included in the MAB-counter through this change is €27 853 251 - the total increase in MAB-reimbursements (and hence the budgetary cost) turns out to be €26 645 888 (see the first row in Table 44b). Therefore more than 96% of the increase in the MAB-counters is translated as a budgetary cost, i.e. affects patients above the MAB-ceilings. In fact, this immediately raises the question whether it would not be more efficient (and administratively simpler) to lower the co-payments of psychiatric services, instead of including them in the MAB.

The distributional effects of including all the co-payments for psychiatric patients in the MAB-counter are summarized in the third column of Table 44a. Since this simulation is directed at a well-specified group of patients, we focus on the non-morbidity related characteristics. The number of gainers in this simulation is rather limited, but the average gains are very large (compare to the other simulations in Table 43). Almost all the gainers are low income patients (with the lowest MAB-ceiling), that were extreme payers before the change. This measure is very effectively targeted at high-risk patients. It therefore also leads to a reduction in the number of extreme payers: the absolute number of households involved is rather small, but it is a relatively large fraction of the gainers.

PPPP As described in chapter 3, the available data only contain information about stays in a psychiatric hospital for the individuals in the original sample, and not for the household members. Our simulation therefore underestimates the budgetary cost and the number of households concerned.

Table 44a. Protection of psychiatric patients: distributional effects

	General population	Gainers (all co-payments included)	Gainers (all co-payments included, except the larger co-payments for singles)
Number of gainers	Not applicable	8 368	8 204
Mean gain in €	Not applicable	3 184	2 197
P90 gain in €	Not applicable	7 683	7 683
Mean NTI in €	29 427	11 293	11 277
Median NTI in €	22 335	9 083	9 083
Mean household size	2.21	1.32	1.32
% extreme payers before extension of the MAB			
• OOP>5% NTI	9.72	96.47	96.40
• OOP>10% NTI	3.90	85.69	86.91
• Co-pay>5% NTI	2.87	92.60	92.96
• Co-pay>10% NTI	1.28	79.93	81.04
Change in extreme payers (N)			
• OOP>5% NTI	Not applicable	-1 765	-504
• OOP>10% NTI		-2 579	-1 242
• Co-pay>5% NTI		-3 827	-1 759
• Co-pay>10% NTI		-4 682	-2 547
MAB-ceiling (%)			
• 450	36.92	88.89	88.91
• 650	19.19	5.33	5.44
• 1000	12.35	1.92	1.96
• 1400	9.09	0.96	0.98
• 1800	22.45	2.90	2.71

Despite the effective targeting properties, improving the protection of the psychiatric patients is a relatively expensive measure. Apart from OMNIO, which is a special case, none of the MAB-extensions from the period 2004-2007 had an equally large budgetary cost (compare the cost increase of €26 645 888 with the results in Table 29). Moreover, as shown, the additional costs are heavily concentrated on a small group of patients. These budgetary considerations probably contribute to explaining the past decisions about psychiatric patients. One way to restrict the budgetary cost would be to focus, perhaps in a first stage, on subgroups of psychiatric patients. The definition of such relevant subgroups is not straightforward, however, since we need a convincing ethical justification for the differential treatment. Some possibilities are shown in Table 44b. It is striking that in each case, again almost all the co-payments included in the MAB-counter lead to MAB-reimbursements.

Table 44b. Budgetary cost of improving the social protection for psychiatric patients

	Increase of co-payments included in the MAB-counter	Increase of MAB-reimbursements
All co-payments included	€27 853 251	€26 645 888
Co-payments in psychiatric nursing homes	€12 837 799	€12 242 703
Co-payments if hospitalized (>1y)	€15 015 452	€14 370 490
Co-payments if hospitalized for 1-5 years + psychiatric nursing homes	€18 255 854	€17 385 453
Co-payments if hospitalized (>5y) + psychiatric nursing homes	€22 435 196	€21 503 138
All co-payments included (except the larger co-payments for singles)	€19 219 538	€18 027 277

There are also the ethical considerations, related to the treatment of the accomodation expenses. In fact, about 82.8% of the gainers are single-member households.[qqqq] If one argues that their accomodation expenses are not "necessary health care expenses", they should not be taken up in the MAB. If on the other hand one takes the position that it is not a free choice to stay in a psychiatric nursing home, then these co-payments should be included. The comparison with the accomodation expenses for rest and nursing homes for the elderly may be instructive here: are psychiatric stays different?[rrrr]

One way to approach the issue is to exploit the distinction that is already made in the present regulation, by which psychiatric patients without dependent persons, pay larger co-payments. If one accepts the idea that these larger co-payments are related to accomodation expenses, one could argue in favour of taking up in the MAB-counter the lower co-payments for all patients, i.e. not including the "additional" increase for patients without dependents. As Table 44b shows, this approach would indeed lead to a lower (but still significant) budgetary cost. The distributional effects are shown in the fourth column of Table 44a. The gainers of this simulation almost coincide with the gainers of including all co-payments, but the mean gain is of course smaller. Most striking is the smaller effect on the number of extreme payers: apparently some of the extreme payers among the psychiatric patients are indeed singles who become extreme payers because of their increased co-payments. As described before, it depends on the ethical position taken whether this must be seen as problematic.

7.3.2 Extending the coverage to all co-payments

As we argued before, inclusion of a given treatment into the coverage of the compulsory health insurance system, suggests that it is considered by society as reflecting needs, rather than subjective tastes. It therefore seems natural to include all co-payments related to these treatments in the MAB-counters. Compared to the situation with the safety margin excluded, the budgetary cost of this operation would amount to €53 326 023 (see Table 43). Note that the co-payments related to psychiatric stays (analysed in the previous simulation) cover almost 50% of this amount – a result which is not surprising in the light of the descriptive analysis of chapter 4. The other main component of the budgetary cost are the co-payments for drugs of type Cs and Cx.

Given the nature of these additional co-payments included, it is not surprising that the distributional effects of this further extension of the MAB are very different from the ones in the previous subsection. As Table 45 shows, we now have a very large number of gainers (424 360) with a small average gain (€126) – even the P90-gain is only €160. The gainers are concentrated in the lower income groups and among the chronically ill – but much less so than in the previous simulation.

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qqqq Because of the data limitations described before, this is probably a slight overestimate.

rrrr Additional considerations arise with respect to the possibility of substitution between outpatient and inpatient care. Reimbursing accomodation expenses might shift patients from the former to the latter.

Table 45. Extending the MAB-coverage to all co-payments: distributional effects

	General population	Gainers
Number of gainers	Not applicable	424 360
Mean gain in €	Not applicable	126
P90 gain in €	Not applicable	160
Mean NTI in €	29 427	20 052
Median NTI in €	22 335	17 193
Mean household size	2.21	2.02
% single parent hh	4.82	1.79
% guaranteed income	4.94	5.36
% preferential tariff	32.70	41.28
% lump sum B or C	1.12	5.92
% integration allowance handicap	1.93	6.33
% long stay hospital	1.10	6.94
% psychiatric nursing home	0.20	0.74
% chronic dialysis	0.08	0.56
% psychiatric hospital (2-5 y and =>6 y)	0.18	1.54
% unemployed	6.35	4.38
% Antibiotics DDD >=90	1.09	4.45
% Antihypertensives DDD >=90	23.74	56.45
% Cholesterol lowering medicine DDD >=90	9.20	22.23
% COPD DDD >=90	4.23	13.49
% Antidepressants DDD >=90	8.64	24.58
% Antidiabetics DDD >=90	4.61	12.54
% Stomach medicine DDD >=90	7.83	24.73
% Crohn DDD >=90	0.39	0.96
% extreme payers before extension of the MAB		
• OOP>5% NTI	9.72	44.41
• OOP>10% NTI	3.90	17.80
• Co-pay>5% NTI	2.87	12.23
• Co-pay>10% NTI	1.28	5.00
Change in extreme payers (N)	Not applicable	
• OOP>5% NTI		-20 134
• OOP>10% NTI		-7 497
• Co-pay>5% NTI		-22 504
• Co-pay>10% NTI		-6 796
MAB-ceiling (%)		
• 450	36.92	49.43
• 650	19.19	35.98
• 1000	12.35	8.46
• 1400	9.09	2.76
• 1800	22.45	3.37

It is instructive to compare the results of this simulation with some of the proposals for a MAB for the chronically ill, as described in the previous chapter. Let us pick as a point of reference the proposal to reduce the ceiling for households with a chronically ill patient by €250 with the most extensive definition of chronic illness. The budgetary cost of this proposal is comparable to the one analysed in this section. To make the comparison easier, we repeat in the bottom row of Table 43 the key results for that simulation. A more detailed analysis is possible on the basis of Tables 41 and 45. The results are striking.

Compared to the straightforward inclusion of all co-payments in the counter, focusing on the chronically ill reduces the number of gainers and increases the average gain. It also has a stronger impact on the number of extreme payers. Simply including all co-payments in the counter is less well targeted on the weaker groups, both in socio-economic and in morbidity terms. Remember, however, that the small group of psychiatric patients is not well protected through the MAB for the chronically ill, and is a subgroup of the gainers of the policy change evaluated in this section.

7.3.3 Extending the coverage to all supplements

The descriptive analysis of chapter 4 has convincingly shown the importance of the supplements in overall OOP-payments. By design, the MAB does not protect against these supplements. In fact, as we suggested, it is an open question whether and how such a protection should be set up. To answer this question, we have to specify an ethical position on individual responsibility and on the distinction between necessary and luxury expenses. Moreover, this position may depend on the evaluation of the availability of supplemental insurance. Is it acceptable to argue that taking up supplemental insurance is a free choice, and that persons who decide not to take up supplemental insurance therefore should themselves bear the consequences of this decision? Or is it more acceptable to state that the striking socio-economic inequality in the take-up of supplemental insurance[l] shows that this is not a free choice, or at least a choice which is heavily conditioned by one's social environment and economic possibilities? With supplemental insurance, there is the additional specific problem of the possible double coverage, i.e. the situation that co-payments are reimbursed both through the MAB and through the supplemental insurance scheme. Since our database does not contain any information on the availability of supplemental insurance, we cannot give a convincing answer to these questions. Yet the sensitivity analysis in Figure 19 of chapter 4 suggested two provisional conclusions: first, correcting for supplemental insurance would make an important difference; second, even after the correction, supplements will remain most probably an important component of OOP-payments.

A full treatment of the issue of supplements is not possible with the available data and would also go far beyond the topic of this project. However, we can still raise the question: given the present regulation of supplements and after the inclusion of the safety and delivery margin in the MAB (the important effects of which have been described in the previous chapter), can the MAB-protection be further extended to the supplements? To get at least a very rough idea of the budgetary impact of the supplements, we ran a simulation in which all supplements and all co-payments are included in the MAB-counter. It is not necessary to describe the gainers of this change: this is simply the mirror image of the detailed description of OOP-payments after MAB, that was given in chapter 4. However, it is revealing that the budgetary impact of this measure is really huge. Including all supplements and co-payments would raise the cost of the MAB to no less than €635 842 153, i.e. a multiplication by 3.1. Such an extension is obviously not realistic, but it gives a good idea about the scope of the problem.

Additional insights about this scope are obtained by a simulation, in which the supplements are included into the MAB-counter in a budget-neutral way. This implies that the ceilings (as a percentage of NTI) are increased to keep the total reimbursements the same.[ssss] Multiplying them by 3.1 yields a new schedule of ceilings (1 395, 2 015, 3 100, 4 340, 5 580) which is approximately budget-neutral. The distributional effects of including all OOP-payments and adjusting the ceilings are given in Table 46. Of course, in this case there are both gainers and losers.

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ssss In all our budget-neutral simulations we adjust the MAB-ceilings upwards and we keep the income thresholds constant. This means that we change the "overall" generosity of the system, without changing its selectivity. This seemed to us the most interesting (and possibly even most realistic) procedure. Yet it is of course only one among an infinity of possibilities to realize budget-neutrality. An alternative would have been to keep the MAB-ceilings, but to adjust the income brackets downwards – this would push larger groups of households in the higher income brackets, and would be comparatively beneficial for the largest incomes (for whom the ceiling would not change).

Table 46. A MAB covering all co-payments and supplements: portrait of gainers and losers

	General population	Gainers	Losers
Number of gainers/losers	Not applicable	81 988	387 854
Mean gain/loss in €	Not applicable	1 575	-329
P90 gain/loss in €	Not applicable	4 017	-762
Mean NTI in €	29 427	20 277	20 198
Median NTI in €	22 335	15 906	17 416
Mean household size	2.21	1.90	2.02
% single parent hh	4.82	3.44	1.83
% guaranteed income	4.94	6.51	4.85
% preferential tariff	32.70	50.83	38.01
% lump sum B or C	1.12	5.53	5.80
% integration allowance handicap	1.93	7.70	5.60
% long stay hospital	1.10	15.97	4.90
% psychiatric nursing home	0.20	3.20	0.41
% chronic dialysis	0.08	0.70	0.45
% psychiatric hospital (2-5 y and =>6 y)	0.18	5.70	0.36
% unemployed	6.35	5.42	4.67
% Antibiotics DDD >=90	1.09	3.20	4.15
% Antihypertensives DDD >=90	23.74	41.84	53.98
% Cholesterol lowering medicine DDD >=90	9.20	15.21	21.59
% COPD DDD >=90	4.23	7.33	12.86
% Antidepressants DDD >=90	8.64	17.84	23.98
% Antidiabetics DDD >=90	4.61	7.73	12.15
% Stomach medicine DDD >=90	7.83	17.82	23.32
% Crohn DDD >=90	0.39	0.68	0.91
% extreme payers before extension of the MAB			
• OOP>5% NTI	9.72	97.59	36.84
• OOP>10% NTI	3.90	87.49	7.19
• Co-pay>5% NTI	2.87	20.83	9.16
• Co-pay>10% NTI	1.28	12.58	3.13
Change in extreme payers (N)			
• OOP>5% NTI		-2 434	114 511
• OOP>10% NTI		-19 556	40 514
• OOP>15% NTI		-32 420	3 802
MAB-ceiling (%)			
• 450	36.92	55.08	47.93
• 650	19.19	27.46	37.65
• 1000	12.35	8.78	8.43
• 1400	9.09	3.19	2.68
• 1800	22.45	5.49	3.31

The results clearly illustrate the existence of extremely large supplements for a relatively small fraction of the population. The number of gainers is much smaller than the number of losers and, in line with this result, the average gain of the gainers is much larger than the average loss of the losers. Not surprisingly, the gainers are heavily concentrated among patients with a stay in a (psychiatric or general) hospital. Perhaps more surprisingly: compared to the general population, the chronically ill are overrepresented in the group of losers. This simulation really induces a redistribution from "extreme payers" to what could be called "extreme extreme payers".

The gainers are found almost exclusively among households that were extreme payers in terms of OOP before the policy change.

The number of extreme payers with OOP (after MAB)>5% NTI and with OOP (after MAB)>10% NTI increases when including all supplements and co-payments in the MAB-counter, while there is a strong decrease in the number of extreme payers with OOP (after MAB) > 15% NTI.

One should interpret these results cautiously, since we did not correct for the presence of supplemental insurance. Yet they show in a striking way the presence of extremely large supplements for a relatively limited number of households. From the point of view of social protection, this is a cause of concern. If one wants the MAB to play a role in this protection, two questions are essential. First, to keep the budgetary cost under control, it is essential to distinguish various kinds of supplements in order to decide which of them really correspond to necessary and unavoidable health care expenses. An obvious possibility would be the inclusion of pharmaceutical products into the MAB-counter. Remember from the previous chapter that the integration in the MAB of the delivery and the safety margin of implants had rather favourable consequences. Second, one has to consider the question how the MAB does (or, better, should) interact with supplemental insurance. More complete data are needed to analyse this second issue.

7.4 THRESHOLDS AND CEILINGS

The most obvious design questions in the MAB-regulation arise of course with respect to the definition of the thresholds and ceilings. These questions relate directly to the (re)distributive nature of the MAB (or, formulated differently, its selectivity). We illustrate the issue with four different simulations (see Table 43).

7.4.1 An absolute ceiling?

The present MAB-regulation imposes a ceiling on co-payments to be paid which is more or less a constant fraction of income at all income levels (see Figure 1b). If one accepts that the welfare burden is meaningfully defined in terms of income shares, then the MAB is inequality-neutral. It does not lead to a more equal distribution of the burden – and hence OOP-payments after MAB remain highly regressive (see Figure 15b in chapter 4), but it is not very selective either. However, if one focuses instead on the absolute amounts of co-payments to be paid, the MAB-ceilings look quite selective: the difference between the largest one and the smallest is not less than €1 350. How important is the choice to define the ceilings as a percentage of NTI?

To get a better understanding of this issue, we ran a simulation with one absolute ceiling – the same for all households, independent of their income or social status. We fix the level of that absolute ceiling at €760 so as to keep the total budgetary cost of the MAB more or less the same. The distributional effects of this change are shown in Table 47. Not surprisingly, there are more losers than gainers, and the losers are (by design) concentrated in the lower income groups. Yet, the size of the effect remains striking: the median income of the gainers is €42 497, more than 2.6 times the median income of the losers (which is only €16 113). Large households are overrepresented among the gainers. [tttt] Compared to the general population, the different categories of the chronically ill are overrepresented among the gainers – but to a much lesser degree than among the losers. The effect on the increase in the number of extreme payers is especially striking. Of course, since we define extreme payers on the basis of the share in NTI of co-payments, respectively OOP-payments, their number has to increase by construction. But the size of the effect is remarkable. Substituting an absolute ceiling for the system of relative ceilings would increase by 72 688 the number of households with co-payments larger than 5% of their NTI.

[tttt] We will return to the issue of correcting for household size later in this chapter.

Table 47. Introducing one absolute ceiling: gainers and losers

	General population	Gainers	Losers
Number of gainers/losers	Not applicable	206 508	385 847
Mean gain/loss in €	Not applicable	298	-159
P90 gain/loss in €	Not applicable	640	-310
Mean NTI in €	29 427	50 299	17 074
Median NTI in €	22 335	42 497	16 113
Mean household size	2.21	3.08	1.88
% single parent hh	4.82	0.38	1.93
% guaranteed income	4.94	0.80	5.46
% preferential tariff	32.70	6.14	43.32
% lump sum B or C	1.12	2.78	5.95
% integration allowance handicap	1.93	2.47	5.89
% long stay hospital	1.10	2.70	6.40
% psychiatric nursing home	0.20	0.05	0.47
% chronic dialysis	0.08	0.21	0.50
% psychiatric hospital (>1 y)	0.18	0.11	0.16
% unemployed	6.35	1.35	4.96
% Antibiotics DDD >=90	1.09	2.31	4.25
% Antihypertensives DDD >=90	23.74	33.45	54.92
% Cholesterol lowering medicine DDD >=90	9.20	15.25	21.59
% COPD DDD >=90	4.23	7.30	12.76
% Antidepressants DDD >=90	8.64	15.55	24.09
% Antidiabetics DDD >=90	4.61	6.53	12.26
% Stomach medicine DDD >=90	7.83	14.87	23.66
% Crohn DDD >=90	0.39	0.98	0.88
% extreme payers before absolute ceiling			
• OOP>5% NTI	9.72	22.21	44.96
• OOP>10% NTI	3.90	5.74	18.15
• Co-pay>5% NTI	2.87	0.69	11.73
• Co-pay>10% NTI	1.28	0.10	4.38
Change in extreme payers (N)	Not applicable		
• OOP>5% NTI		-12 539	61 313
• OOP>10% NTI		-2 170	15 628
• Co-pay>5% NTI		-684	73 372
• Co-pay>10% NTI		-11	5 691

7.4.2 Indexing the ceilings?

Since 2002, the MAB-ceilings have not been indexed, while the relevant income thresholds have. In fact, if the MAB-ceilings had been indexed in line with NTI, this would have led to the following ceilings:

2002	2004	2008
450	465	505
650	671	730
1 000	1 033	1 123
1 400	1 446	1 572
1 800	1 859	2 021

The non-indexation of the absolute values of the ceilings implies that the ceiling as a % of NTI has decreased over time (from about 3.5-5% to about 3-4.5%).

The MAB therefore has become more generous.[uuuu]

[uuuu] Note that the income thresholds are indexed, but not adjusted for the overall increase in real incomes. Not adjusting the thresholds for the general welfare increase has two consequences: (a) it lowers the generosity of the MAB (interpreted in terms of the MAB-ceiling as a % of income); (b) it pushes more

To see the consequences of this non-indexation, we ran a simulation with our 2004 data under the assumption that the MAB-ceilings would have been indexed compared to 2002, i.e. we analysed the implications of introducing the indexed ceilings for 2004 described above. This is an increase of the ceilings by about 3.3%.

Although this may seem a minimal change, its budgetary consequences are not negligible: indexing the ceilings would have led to budgetary savings of €8 725 263 in 2004. This is comparable to the cost of integrating the safety margin (see Table 29). Table 48 shows a more detailed portrait of the losers of this measure. Of course, all households with positive MAB-reimbursements lose because of this change – but for the large majority of losers the losses are small, since they are simply given by the change in the ceilings. The only exception are households which were just above the non-indexed ceilings and now fall just below the indexed ceiling. This is the case for 21 470 households, i.e. 4.8% of the losers. Some of these become extreme payers because of the shift. The numbers of households involved are rather small, however.

Table 48. Indexation of the MAB-ceilings: portrait of the losers

	General population	Losers
Number of losers	Not applicable	445 085
Mean loss in €	Not applicable	-20
P90 loss in €	Not applicable	-33
Mean NTI in €	29 427	20 140
Median NTI in €	22 335	17 337
Mean household size	2.21	2.00
% single parent hh	4.82	1.74
% guaranteed income	4.94	4.93
% preferential tariff	32.70	38.98
% lump sum B or C	1.12	6.02
% integration allowance handicap	1.93	5.68
% long stay hospital	1.10	6.46
% psychiatric nursing home	0.20	0.43
% chronic dialysis	0.08	0.51
% psychiatric hospital (2-5 y and =>6 y)	0.18	0.65
% unemployed	6.35	4.60
% Antibiotics DDD >=90	1.09	4.14
% Antihypertensives DDD >=90	23.74	53.59
% Cholesterol lowering medicine DDD >=90	9.20	21.17
% COPD DDD >=90	4.23	12.42
% Antidepressants DDD >=90	8.64	23.70
% Antidiabetics DDD >=90	4.61	11.82
% Stomach medicine DDD >=90	7.83	23.22
% Crohn DDD >=90	0.39	0.91
% extreme payers before indexation of the MAB-ceilings		
• OOP>5% NTI	9.72	44.70
• OOP>10% NTI	3.90	17.55
• Co-pay>5% NTI	2.87	10.41
• Co-pay>10% NTI	1.28	3.83
Change in extreme payers (N)		
• OOP>5% NTI	Not applicable	7 371
• OOP>10% NTI		1 239
• Co-pay >5% NTI		3 862
• Co-pay >10% NTI		290
MAB-ceiling (%)		
• 450	36.92	48.60

households into the higher income brackets. Remember that in the highest income bracket, the ceiling as a percentage of NTI declines.

• 650	19.19	36.92
• 1000	12.35	8.53
• 1400	9.09	2.66
• 1800	22.45	3.29

7.4.3 Abolishment of the social MAB

We described in chapter 2 how the MAB grew out of the social and fiscal exemptions, that were introduced in the nineties of the previous century. More specifically, the social MAB was the direct successor of the social exemption. At the time it was introduced, the use of income information was not yet possible and the entitlement to preferential treatment was (rightly) seen as a good signal of social vulnerability. Since then, however, with the introduction of, first, the income MAB for low and modest incomes, and, then, the integration of the fiscal MAB into the income MAB, using the information about NTI has become a more common procedure. It is then a natural question to ask whether the social MAB is still needed. Is the entitlement of a household to preferential tariff a sufficient reason to ascribe it the €450-ceiling, even if its NTI would put it in higher income brackets? The question gets even more relevant in the light of the experience with the restriction of the entitlement to the social MAB, introduced in 2006 and described in section 6.2.2.2 (previous chapter): we have shown that this restriction led to significant budgetary savings without strongly negative consequences from the point of view of social protection.

To simulate the abolishment of the social MAB, we put all the de facto households entitled to the social MAB into one of the categories of the income MAB on the basis of their deflated (2001) income.[vvvv] Entitlements to preferential treatment and OMNIO are determined on the basis of gross income, corrected for household size. The MAB-entitlements are determined on the basis of uncorrected NTI, and the lowest income threshold in the MAB (in terms of NTI) is lower than the OMNIO-threshold (in terms of gross income) for a single. Therefore the abolishment of the social MAB will move mainly relatively large households without labour income in higher income brackets. Our simulation results shows that this would be the case for 52 682 households.

The budgetary saving, induced by this change, is €12 433 406 – very comparable to the saving realized in 2006 by the redefinition of de facto households. In fact, the distributional effects of the measure (described in the third column of Table 49) are also similar. As expected, the losers are predominantly large households (mean household size is 3.07). Their mean NTI is comparable to that of the overall population. Of course, social categories giving right to preferential treatment are overrepresented among the losers, but the same is not true for other indicators of social vulnerability (e.g. single-parent households are strongly underrepresented). There are relatively more households with large health care expenditures among the losers than there are in the general population, but the number of extreme payers is rather limited. And abolishing the social MAB only leads to a minimal increase in the number of extreme payers.

All this does not automatically mean that the abolishment of the social MAB has only advantages. More specifically, integrating all households with preferential treatment (and OMNIO) in the income MAB would lead to an increase in the administrative cost of the system, since the sickness funds would have to contact the fiscal administration for all these households. This can lead to some delay in MAB-reimbursements. We return to some other implications in the next subsection.

[vvvv] To make this simulation coherent with the following one, we did the same for all households that received in 2004 reimbursements through the income MAB for low and modest incomes, i.e. we put all these households in the relevant income brackets on the basis of their deflated incomes.

Table 49. Distributional effects of abolishing the social MAB and introducing a €250-ceiling

	General population	Losers (abolishment social MAB)	Gainers (€250-ceiling)
Number of gainers/losers	Not applicable	52 682	146 661
Mean gain/loss in €	Not applicable	-236	138
P90 gain/loss in €	Not applicable	-521	200
Mean NTI in €	29 427	29 703	7 211
Median NTI in €	22 335	24 746	8 757
Mean household size	2.21	3.07	1.45
% single parent hh	4.82	0.15	5.16
% guaranteed income	4.94	11.14	19.25
% preferential tariff	32.70	94.90	97.95
% lump sum B or C	1.12	11.41	5.12
% integration allowance handicap	1.93	16.80	8.08
% long stay hospital	1.10	8.43	9.74
% psychiatric nursing home	0.20	0.18	1.72
% chronic dialysis	0.08	0.50	0.52
% psychiatric hospital (> 1y)	0.18	0.54	3.14
% unemployed	6.35	9.74	7.97
% Antibiotics DDD >=90	1.09	3.79	4.52
% Antihypertensives DDD >=90	23.74	44.10	51.49
% Cholesterol lowering medicine DDD >=90	9.20	16.26	16.24
% COPD DDD >=90	4.23	11.13	13.12
% Antidepressants DDD >=90	8.64	21.42	28.31
% Antidiabetics DDD >=90	4.61	11.73	12.32
% Stomach medicine DDD >=90	7.83	20.56	24.45
% Crohn DDD >=90	0.39	0.59	0.81
% extreme payers before extra ceiling			
• OOP>5% NTI	9.72	18.42	71.94
• OOP>10% NTI	3.90	5.77	40.59
• Co-pay>5% NTI	2.87	1.94	43.43
• Co-pay>10% NTI	1.28	0.68	23.55
Change in extreme payers (N)			
• OOP>5% NTI		4 364	-26 571
• OOP>10% NTI		584	-7 466
• Co-pay >5% NTI		666	-29 803
• Co-pay >10% NTI		26	-7 734

7.4.4 Improving the protection for the poor: a MAB-ceiling of €250

The present definition of the MAB-ceilings implies an upper bound on the burden of co-payments as a share of NTI (see Figure 1b). The same Figure 1b shows that there is one surprising exception, however. Co-payments as a share of income grow rapidly with income in the lowest income bracket (with a MAB-ceiling of €450). For a household at the minimum income level, the ceiling of €450 corresponds to 5.7% of income, much larger than the 3-4% range at other income levels. This is a worrying feature in a social protection system with special concern for the weakest groups in society. It is therefore interesting to see what would be the consequences of introducing an additional lower MAB-ceiling for the lowest incomes. In the next simulation we introduce an additional €250-ceiling for incomes below €10 000. To do so, we started from the simulation with the social MAB abolished.

The budgetary cost of introducing the €250-ceiling is considerable: €20 203 047. We show its distributional effects in the last column of Table 49.

In fact, there is no overlap between the losers of abolishing the social MAB and the gainers of introducing the €250-ceiling. The latter are by design low income households that originally were subject to the €450-ceiling, the losers of abolishing the social MAB are by design households ending up in income brackets with a MAB-ceiling larger than €450. Table 49 therefore also can be interpreted as giving the distributional effects of a joint policy measure of abolishing the social MAB and introducing the €250-ceiling.

Focusing first on the last column, i.e. on the introduction of the €250-ceiling, the distributional effects are striking. In total 146 661 households gain – these are (by design) low income households with a mean NTI of €7 211.[wwww] Mean household size is small and all socially vulnerable groups are overrepresented. Moreover, the same is true for all indicators of chronic illness. In fact, except for the indicators which are directly linked to preferential treatment, all groups of the chronically ill are more strongly represented among the gainers of the introduction of the lower ceiling than among the losers of abolishing the social MAB. A very large fraction of the gainers were extreme payers before the introduction of the new ceiling – and the policy measure leads to a sharp decrease in the number of extreme payers. Moreover, it is good to remember that the descriptive analysis in chapter 4 led to the suggestion that some of these low income-households are characterized by a relative underconsumption of health care. If the introduction of a lower ceiling leads to an increase in the health care expenditures of the poor, this increase would of course have to be added to our estimate of the budgetary cost.

The net effects of a combined policy (abolishing the social MAB and at the same time introducing the €250-ceiling) are summarized in Table 43: there is a significant decrease in the number of extreme payers for a relatively minor budgetary cost (€7 769 641, i.e. +3.8%). It seems safe to conclude that the introduction of a low €250-ceiling for the lowest incomes would improve the level of social protection – while abolishing the social MAB could generate budgetary savings without severe social consequences

Yet, this conclusion has to be interpreted cautiously. First, we have described in chapter 3 and in chapter 6 that our information about the low-income households may not always be fully reliable. The absolute numbers in Table 49 are therefore probably to be taken with a grain of salt. More generally, since many low income households do not have to make a declaration, the information about their incomes is also incomplete at the level of the fiscal administration itself. Second, introducing a €250-ceiling will further increase the administrative burden of the MAB, since the sickness funds would already have to contact the fiscal administration as soon as a household has accumulated co-payments of about €250. Finally, the concentration of all this information about incomes in the hands of the sickness funds might be seen by the population as unacceptable and therefore undermine to some extent the perceived legitimacy of the MAB. It could therefore be worthwhile to investigate in the future other possible protection measures for the very poor (who moreover may be heavily indebted). One could even think about a ceiling of €0, i.e. a complete exemption from paying co-payments, for patients that are being taken care of by social assistance (OCMW/CPAS).

7.5 REDEFINING THE INCOME CONCEPT

As described in the previous chapters, entitlements to MAB-reimbursements for year T are determined on the basis of the uncorrected net taxable income of the year T-3. In this section we explore the effects of these different design choices. In a first subsection, we describe the consequences of using delayed income information. The effects of correcting incomes for differences in household size are analysed in the second subsection and finally we simulate the effects of substituting gross for net incomes. Note that the correction for household size and the use of gross instead of net incomes are the main differences between the MAB-regulation and the OMNIO-system.

[wwww] In the reference period 2001, the minimum income for a single person-household was €6 602.69.

7.5.1 The consequences of using delayed income information

The consequences of using delayed income information could already be seen in Table 30 of the previous chapter, which we used to analyse the integration of the fiscal MAB into the income MAB. We have argued there that the last column of Table 30 gives the most realistic description of reality, and we have used the results in that column to evaluate the effects of the integration of the fiscal MAB into the income MAB. The other columns can be seen as hypothetical simulations, throwing some light on the consequences of using income information from year T-3. Since we will work further on the basis of this Table 30, the reference situation in this subsection is the one of 2004, without the implementation of the later policy changes.

1. In the second column the MAB-reimbursements of year T (in our case, 2004) are determined on the basis of the NTI of that same year 2004. We take this column now as a reference point, describing the hypothetical situation in which the income of year T would be taken into account.
2. In a normal period of income growth, the use of income information from year T-3 instead of year T, will make the MAB more generous. The logic of this change is very similar to the logic that is induced by the non-indexation of the ceilings, analysed in subsection 7.4.2 of this chapter. The magnitude of the ("income growth") effect can be seen in the third column, which is obtained by deflating all the incomes with the average growth rate of the NTI between 2001 and 2004. While this is only a rough approximation, comparing column three with the reference column two gives a good overall idea about the increase in the generosity of the MAB induced by the use of incomes of the year T-3: there is a move of households into income brackets with smaller ceilings. As a consequence, total MAB-reimbursements increase with 9.7%. The number of extreme payers (>5% of NTI) decreases by about 4%, both in terms of co-payments and in terms of total OOP-payments.
3. More importantly, individual household incomes do not all follow the average income growth. The crucial question then becomes how inequitable is the use of information from year T-3 for those households who experienced an income change differing substantially from the mean. Since we do not have information about the true incomes of 2001, we cannot draw a complete picture of the consequences of these individual income changes. However, we have interesting information about those households that were reimbursed by the sickness funds in 2004 through the low and modest income MAB (ceilings of €450 and €650 respectively), since these real decisions in 2004 were based either on the income of 2001, or on a declaration on honour. Taking these real decisions into account leads to the results in the fourth column. Here, we keep the income of 2004 for all households except for those that received reimbursements for the low and modest income MAB. For the latter, we use the real information on reimbursements. Comparing the second and the fourth column in Table 30 now gives us a good idea about what would have been the changes for these households if decisions had been taken on the basis of the NTI of 2004 (the latter situation is the one of the first column).

We know already from Table 30 that the use of the incomes of 2001 led to an increase in the budgetary cost of the MAB by 4.7% (€9 127 300) and that the net impact on the number of extreme payers is limited. However, the fact that there is a (slight) increase of the number of extreme payers in terms of co-payments may be a cause of concern. More detailed information on the distributional consequences of using delayed income information is shown in Table 50. In total 52 107 households are affected.[xxxx] If one had used the incomes of 2004 instead of those of 2001, 7 182 households would see their MAB-reimbursements increase, 44 925 households would see them decrease.

[xxxx] Since 1 154 045 households are entitled to the MAB for low and modest incomes on the basis of their NTI of 2004 (see the second column in Table 30), the share of households affected is only 4.5%.

We define the former (smaller) group as the losers under the present system – they would gain if one had used their 2004-income, because it is lower than their income in 2001. The latter (larger) group are the gainers in the present situation: their income has increased in the period 2001-2004. The large difference in the mean NTI of the losers and the gainers is therefore not surprising, but it still is worrying. Using the income information of 2004, the lowest MAB-ceiling would hold for 95% of the losers in the present system, while those who benefit from the present system with delayed income information would be shifted into higher categories. Overall, we see that the use of delayed income information hits households that have experienced a serious income decrease between year T-3 and year T – and benefits (not surprisingly) higher income households with relatively large medical expenditures (look at the results for pharmaceutical consumption). The possibility of a declaration on honour does not seem sufficient to compensate for the possibility of strong income decreases, at least for a minority of households.

Table 50. Use of delayed income information: portrait of gainers and losers

	General population	Losers	Gainers
Number of gainers/losers	Not applicable	7 182	44 925
Mean gain/loss in €	Not applicable	190	-234
P90 gain/loss in €	Not applicable	200	-350
Mean NTI in €	29 427	10 504	22 246
Median NTI in €	22 335	11 692	22 072
Mean household size	2.21	1.90	2.08
% single parent hh	4.82	9.76	3.66
% guaranteed income	4.94	1.49	0.32
% preferential tariff[yyyy]	32.70	69.17	4.85
% lump sum B or C	1.12	6.19	2.97
% integration allowance handicap	1.93	0.88	1.51
% long stay hospital	1.10	5.71	3.31
% psychiatric nursing home	0.20	0.00	0.14
% chronic dialysis	0.08	0.28	0.21
% psychiatric hospital (2-5 y and =>6 y)	0.18	0.58	0.07
% unemployed	6.35	7.13	3.18
% Antibiotics DDD >=90	1.09	4.91	3.42
% Antihypertensives DDD >=90	23.74	29.56	49.72
% Cholesterol lowering medicine DDD >=90	9.20	8.92	20.42
% COPD DDD >=90	4.23	9.06	10.82
% Antidepressants DDD >=90	8.64	22.88	21.81
% Antidiabetics DDD >=90	4.61	6.36	10.35
% Stomach medicine DDD >=90	7.83	15.69	21.39
% Crohn DDD >=90	0.39	0.71	1.10
MAB-ceiling (%)			
• 450	36.92	95.00	0.00
• 650	19.19	3.72	43.74
• 1000	12.35	0.74	44.62
• 1400	9.09	0.54	6.69
• 1800	22.45	0.00	4.95

[yyyy] Although this simulation is based on the situation before the introduction of OMNIO we give the % of households with preferential tariff after OMNIO: this gives an indication of the income position of the household. In fact, households with preferential treatment before OMNIO, are hardly affected by the simulation of Table 50, because they were entitled to the social MAB – and not to the income MAB for low and modest incomes.

7.5.2 Redefining the household correction?

As described in the previous chapters, the MAB-ceilings are related to the net taxable income of the household. This means that there is no explicit correction for household size. One possible argument in favour of this decision could be that child allowances are not taxable (and hence not included in NTI), and that in addition the income tax system also corrects for household size. Yet, one could of course also argue that these corrections are not sufficient, and that one should take into account household size explicitly in the calculation of MAB-entitlements. On the other hand, it is also possible to defend almost the opposite position that the MAB should be redefined as an entitlement to reimbursements at the level of the individual (instead of the household). A complete treatment of this topic is far beyond the boundaries of this project. However, a first feeling for the issue can be obtained by some simple simulations in which MAB-entitlements are based on equivalized instead of actual incomes. We first apply the OECD-equivalence scale and then a system of fixed deductions per additional household member.

7.5.2.1 A MAB with equivalent incomes: implementing the OECD-scale

The OECD scale was already introduced in chapter 3: it gives a weight of 1 to the first adult, a weight of 0.5 to additional adults and a weight of 0.3 to the children. Equivalent incomes are then calculated by dividing NTI by this scale. The distribution of these equivalent incomes was shown in chapter 3. In section 4.3.3., we have seen that the MAB seems to be more selective in terms of equivalized incomes than in terms of uncorrected incomes. On the other hand, despite this stronger selectivity, OOP-payments after MAB remain more regressive in terms of equivalized incomes than in terms of uncorrected incomes. Sharper conclusions can be obtained with a simulation in which we base the MAB on these equivalized incomes.

If we simply keep the thresholds and the ceilings as they are, but we work with equivalized instead of uncorrected NTI, the budgetary cost of the MAB would increase by 46% (to €297 533 073). This does not allow a very meaningful comparison, however. We therefore turned to a budget-neutral simulation in which the MAB-ceilings were multiplied by a factor 1.33 to become (599, 865, 1 330, 1 862, 2 394). The summary of Table 43 shows that this change would affect not less than 526 009 households: about 47% of these would gain, while 53% would lose.[zzzz] More striking is the effect on the numbers of extreme payers: these would increase significantly, whatever the definition. The reason for this result is easily understood: performing a budget-neutral change leads to an increase in the lower MAB-ceilings. If smaller households are more concentrated at the lower end of the distribution of equivalized incomes, this increase in the ceilings will have a stronger effect on them.

The more detailed information on the gainers and losers, shown in Table 51, confirms this general intuition. As expected, the gainers are mainly larger households with larger NTI. The losers are small, low-income households: 80.71% of them were in the lowest income bracket before the change. While there are extreme payers among the gainers, they are much more strongly represented among the losers. Compared to the general population, the chronically ill are overrepresented both among the gainers and among the losers – but more strongly in the group of losers.[aaaaa]

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zzzz These percentages are in terms of households. Since the average household size is larger for the gainers, there are more individual gainers than individual losers.

aaaaa Remember that we can only identify the chronically ill in our original sample, not among the additional household members. This underestimation will have more severe effects for larger households. Hence, the statements about the presence of chronically ill among the gainers and among the losers have to be interpreted cautiously.

Table 51. A MAB with equivalent incomes (OECD scale): gainers and losers

	General population	Gainers	Losers
Number of gainers/losers	Not applicable	246 882	279 127
Mean gain/loss in €	Not applicable	149	-132
P90 gain/loss in €	Not applicable	401	-215
Mean NTI in €	29 427	29 165	17 018
Median NTI in €	22 335	25 282	14 217
Mean household size	2.21	2.90	1.71
% single parent hh	4.82	0.98	2.03
% guaranteed income	4.94	0.89	7.34
% preferential tariff	32.70	6.81	58.22
% lump sum B or C	1.12	3.54	6.84
% integration allowance handicap	1.93	3.03	6.99
% long stay hospital	1.10	2.76	8.17
% psychiatric nursing home	0.20	0.07	0.63
% chronic dialysis	0.08	0.31	0.56
% psychiatric hospital (> 1y)	0.18	0.07	0.99
% unemployed	6.35	3.31	4.84
% Antibiotics DDD >=90	1.09	2.53	4.76
% Antihypertensives DDD >=90	23.74	40.90	56.74
% Cholesterol lowering medicine DDD >=90	9.20	19.22	20.17
% COPD DDD >=90	4.23	9.47	13.17
% Antidepressants DDD >=90	8.64	15.50	27.11
% Antidiabetics DDD >=90	4.61	8.62	12.73
% Stomach medicine DDD >=90	7.83	16.78	25.41
% Crohn DDD >=90	0.39	0.87	0.88
% extreme payers before equivalent income – OECD-scale			
• OOP>5% NTI	9.72	30.27	48.91
• OOP>10% NTI	3.90	8.54	21.23
• Co-pay>5% NTI	2.87	1.10	15.23
• Co-pay>10% NTI	1.28	0.14	5.99
Change in extreme payers (N)			
• OOP>5% NTI		12 423	-37 046
• OOP>10% NTI		1 885	-8 385
• Co-pay>5% NTI		948	-38 943
• Co-pay>10% NTI		32	-2 476
MAB-ceiling (%)			
• 450	36.92	0.00	80.71
• 650	19.19	48.63	13.66
• 1000	12.35	24.20	2.24
• 1400	9.09	12.94	0.81
• 1800	22.45	14.23	2.57

7.5.2.2 A MAB with equivalent incomes: fixed deductions per household member

While the use of proportional adjustments for household size (like the OECD-scale) is the most common procedure, there is no reason why one could not adjust incomes by subtracting a fixed amount per household member. The former approach assumes, e.g., that the cost of a child increases with income, the latter approach takes the (perhaps normative) position that the cost of a child is the same at all income levels. An analogous approach has been adopted in the Belgian regulation with respect to OMNIO, in which a "basic income threshold" is fixed and then a given amount is added for each additional household member. We therefore ran a simulation which is in line with that regulation.

The OMNIO-status is granted to singles with a gross income less than €12 795.81. For each household member an amount of €2 368.85 is added. This is 18.51% of the original amount. Translating this approach into the MAB-regulation (which is in terms of net incomes), we apply the same rate of 18.51% to the income threshold (€14 178.07) at the lowest MAB-ceiling of €450 (since this is the income situation which is comparable to the OMNIO-threshold in the eyes of the regulator). This gives a fixed amount of €2 624.74, which we then subtract from the NTI for each household member. We then calculate for all households these corrected values of NTI. Applying them in the MAB leads to an increase of the budgetary cost by 11.3% - much less than the effect of introducing the OECD-scale. Adjusting again the ceilings to yield a budget-neutral solution gives (488, 705, 1 085, 1 519, 1 953).

Table 52. A MAB with equivalent incomes (absolute amounts): gainers and losers

	General population	Gainers	Losers
Number of gainers/losers	Not applicable	113 561	372 053
Mean gain/loss in €	Not applicable	173	-53
P90 gain/loss in €	Not applicable	295	-85
Mean NTI in €	29 427	23 556	19 428
Median NTI in €	22 335	21 675	15 785
Mean household size	2.21	2.92	1.86
% single parent hh	4.82	2.36	1.69
% guaranteed income	4.94	0.83	5.76
% preferential tariff	32.70	5.15	45.63
% lump sum B or C	1.12	2.92	6.42
% integration allowance handicap	1.93	3.05	6.07
% long stay hospital	1.10	2.47	7.08
% psychiatric nursing home	0.20	0.06	0.50
% chronic dialysis	0.08	0.26	0.55
% psychiatric hospital (2-5 y and =>6 y)	0.18	0.04	0.77
% unemployed	6.35	3.31	4.81
% Antibiotics DDD >=90	1.09	2.37	4.31
% Antihypertensives DDD >=90	23.74	38.89	55.79
% Cholesterol lowering medicine DDD >=90	9.20	18.24	21.50
% COPD DDD >=90	4.23	9.36	12.72
% Antidepressants DDD >=90	8.64	13.82	25.14
% Antidiabetics DDD >=90	4.61	7.70	12.45
% Stomach medicine DDD >=90	7.83	15.16	24.41
% Crohn DDD >=90	0.39	0.88	0.89
% extreme payers before subtracting absolute amount			
• OOP>5% NTI	9.72	33.14	44.97
• OOP>10% NTI	3.90	8.61	18.72
• Co-pay>5% NTI	2.87	1.54	11.68
• Co-pay>10% NTI	1.28	0.08	4.55
Change in extreme payers (N)			
• OOP>5% NTI		-11 141	14 220
• OOP>10% NTI		-1 596	2 700
• Co-pay>5% NTI		-1 118	8 516
• Co-pay>10% NTI		0	753
MAB-ceiling (%)			
• 450	36.92	0.00	60.47
• 650	19.19	55.01	27.86
• 1000	12.35	31.81	6.34
• 1400	9.09	10.03	1.85
• 1800	22.45	3.15	3.48

The distributional effects of this change are shown in Table 52. Overall, the effects of deducting the fixed amount are less outspoken than those in Table 51 – this has probably more to do with the size than with the form of the change. Still, the number of losers is larger than in Table 51, while the number of gainers is smaller. Average losses are therefore also smaller and average gains are somewhat larger. The latter effect, however, is not found at P90. The more detailed distributional picture is very similar in both simulations. Here also, the gainers are mainly larger households with larger NTI, while the losers are small, low-income households. Not only socio-economically weak groups, also the different groups of the chronically ill are more strongly represented among the losers than among the gainers. Again, the net effect is an increase in the number of extreme payers.

Both our simulations suggest that simply using equivalized instead of uncorrected NTI in the MAB-regulation does not seem advisable. This does not at all mean that the present system is perfectly coherent in its treatment of household size. In principle the most adequate approach would probably be to base the MAB-entitlements on (a kind of) equivalized disposable income after tax (and including child allowances). Open questions remain with respect to the treatment of tax credits and tax deductions for items which are independent of household size (such as gifts and pension savings). This debate again can be linked to the content to be given to the notion of individual responsibility. In any case, we could not simulate such more complicated systems with our data. What the simple exercises in this section do suggest, however, is that, if the move to equivalent incomes is linked to an increase of the MAB-ceilings (to keep the change budget-neutral), special attention should be given to the poor small households. Remember that the introduction of a new €250-ceiling could in this regard have very positive effects.

7.5.3 Substituting gross for net incomes

The OMNIO-status is granted on the basis of gross incomes – the MAB works with net taxable income. At first sight there is no obvious reason for that distinction, which adds to the administrative complexity of the system of social protection. Does the distinction matter? We simulated a MAB, based on gross incomes. To do so we calculated for each household the gross income in the same way as was done for the OMNIO-simulation in section 6.2.4.2. These gross incomes were deflated to their 2001-values using the same rate that was used to deflate the NTI (see previous chapter). Since gross incomes are larger than net incomes, we can lower the MAB-ceilings in a budget-neutral way: the new ceilings are (378, 546, 840, 1 176, 1 513). The social MAB was kept and, as before, the lowest ceiling (in this case €378) was applied for this social MAB.

Lowering the ceilings has obvious distributional effects. In addition, the substitution of gross for net incomes will mainly benefit the households with non-active persons. Since the difference between gross and net incomes boils down to professional costs, the two income concepts essentially coincide for non-active persons. The overall distributional effects of the substitution of gross for net incomes are shown in Table 53. There are many more gainers than losers – therefore the mean gain is much smaller than the mean loss (and the same is true for the P90-values). Overall, the gainers are smaller households with a smaller NTI. Weak socio-economic groups are overrepresented among the gainers, and the same is true for most indicators of chronic illness and pharmaceutical consumption. Moreover, extreme payers are more strongly represented among the gainers than among the losers. All these results are not surprising: on average, the difference between gross and net taxable income is smaller (or nil) for the smallest incomes. These households therefore benefit most from the lowering of the ceilings. However, at the same time, the picture for the number of extreme payers is mixed. After the change there are less extreme payers with OOP or co-payments>10% of NTI, but there are more extreme payers with OOP and (especially) co-payments larger than 5% of NTI. This can be explained by the fact that average (and P90) losses are relatively large.

While the lack of coherence between the income concepts used in the MAB and in OMNIO is clearly unfortunate, the desirable harmonization has to be introduced cautiously. A deeper analysis is needed to determine the income concept that is the most adequate for comparing the relative welfare position of active and non-active, large and small households.

Table 53: Substituting gross for net incomes: gainers and losers

	General population	Gainers	Losers
Number of gainers/losers	Not applicable	380 102	144 770
Mean gain/loss in €	Not applicable	84	-212
P90 gain/loss in €	Not applicable	104	-522
Mean NTI in €	29 427	19 372	22 079
Median NTI in €	22 335	15 013	21 260
Mean household size	2.21	1.90	2.22
% single parent hh	4.82	2.38	0.79
% guaranteed income	4.94	6.60	1.79
% preferential tariff	32.70	50.33	16.51
% lump sum B or C	1.12	5.83	4.94
% integration allowance handicap	1.93	5.92	4.42
% long stay hospital	1.10	7.00	3.02
% psychiatric nursing home	0.20	0.59	0.12
% chronic dialysis	0.08	0.54	0.35
% psychiatric hospital (>1y)	0.18	0.79	0.09
% unemployed	6.35	4.98	3.99
% Antibiotics DDD >=90	1.09	4.28	3.04
% Antihypertensives DDD >=90	23.74	53.07	53.12
% Cholesterol lowering medicine DDD >=90	9.20	19.35	25.06
% COPD DDD >=90	4.23	12.53	11.26
% Antidepressants DDD >=90	8.64	25.08	18.53
% Antidiabetics DDD >=90	4.61	11.81	11.39
% Stomach medicine DDD >=90	7.83	23.78	20.72
% Crohn DDD >=90	0.39	0.95	0.83
% extreme payers before GTI			
OOP>5% NTI	9.72	46.47	32.54
OOP>10% NTI	3.90	18.89	11.00
Co-pay>5% NTI	2.87	13.84	1.42
Co-pay>10% NTI	1.28	5.66	0.29
Change in extreme payers (N)			
• OOP>5% NTI		-24 243	28 069
• OOP>10% NTI		-4 578	4 068
• Co-pay>5% NTI		-15 867	26 547
• Co-pay>10% NTI		-2 106	104
MAB-ceiling (%)			
• 450	36.92	59.60	31.71
• 650	19.19	24.31	49.97
• 1000	12.35	7.33	14.38
• 1400	9.09	2.57	3.94
• 1800	22.45	6.19	0.00

7.6 PREFERENTIAL TREATMENT, OMNIO AND THE MAB

We have seen in chapter 6 that the introduction of OMNIO led to a decrease in the number of extreme payers, but at the same time to huge budgetary costs. This suggests the question what would have been the consequences if one had used the additional budgetary means, that were now devoted to OMNIO, to an alternative policy consisting in lowering the MAB-ceilings for everybody. A comparison of the results in the Tables 29 and 43 suggests that the introduction of the MAB-ceiling of €250 for very low incomes is a cheaper measure, leading to a sharper decrease in the number of extreme payers. However, this finding has to be interpreted with caution, since our simulation introduced the lower MAB-ceiling in a system with the OMNIO-status already in place.

There is a question of principle here. If one has a fully worked out MAB-system with a coherent and income-dependent definition of maximum ceilings, is it then still necessary to keep the system of preferential treatment? There are three possible arguments in favour of such a system. First, if we are concerned about the behavioural effects of co-payments and we want to confront the trade-off between overconsumption and better insurance coverage, it can make sense to have larger co-payments for those households which have a stronger inclination to "over"consume (i.e. for which there is a more serious moral hazard problem). If low-income households and households in well-specified social categories show weaker behavioural reactions (as is suggested by empirical research for Belgium, e.g. Van de Voorde et al., 2001[4]), lower co-payments for them can be justified. Second, if income information is not fully reliable, the use of additional information about social status could improve the targeting in the social protection system. It is to be noted that this second argument becomes less relevant if we move into the direction of a purely or largely income-driven system of preferential treatment, such as OMNIO. Third, stop-loss arrangements such as the MAB only offer reimbursements ex post. Preferential treatment and OMNIO lower the personal prices to be paid at the point of service.

To better understand the implications of this choice, we ran a simulation in which we abolished the system of preferential tariffs (including OMNIO) and used the resulting budgetary means to lower the MAB-ceilings. Abolishing the system of preferential treatment affects 1 283 628 households. In total it would shift €305 744 055 of co-payments from RIZIV/INAMI to the patients. If we use these "savings" for the public system to make the MAB more generous (in a budget-neutral way), the budgetary room for the MAB increases to €510 658 207. Adapting the ceilings to generate about this outcome results in (300, 433, 667, 933, 1 200). This decrease is less than what might be expected at first sight. The reason is, of course, that increasing the co-payments for the individuals with preferential treatment means that more of them will reach the MAB-ceiling and, moreover, that the necessary reimbursements above the ceiling will also be larger. In fact, if we keep the ceilings as they are and we simply calculate the additional MAB-reimbursements after the abolishment of the system of preferential treatment, we get an increase of these reimbursements by €153 566 549 (i.e. about 75% of the cost of the MAB in the reference situation).

It is easy to see in principle who will be the gainers and who will be the losers of this drastic policy change. Let us first consider those households that were not entitled to preferential treatment. For them nothing changes if their co-payments are smaller than the new (and hence also the old) ceiling. They will only gain from the reform if they have MAB-reimbursements after the change. Some of them, who did not get reimbursements before the change, will now have MAB-reimbursements because of the lowering of the ceilings. Those that had already MAB-reimbursements before will see their reimbursements increase as a result of the lower ceilings. The situation is more complicated for the households who had preferential treatment before the change. First, there will be a loss for all households which have expenditures for items, for which there was a preferential tariff and that are not included in the MAB-counter. Second, disregarding the co-payments not included in the MAB-counter, there is an interplay between the increase in the co-payments due to the abolishment of the preferential tariff and the lowering of the ceilings. All households that had before the change co-payments larger than the new ceiling will gain. This includes the households that had already MAB-reimbursements before the change. Those households that were entitled to preferential treatment but did not reach the new MAB-ceiling before the change will lose.

A more detailed distributional picture is shown in Table 54. The number of losers is larger than the number of gainers but the average (and P90) loss is smaller than the average (and P90) gain. All losers were entitled to the preferential tariff before the change. On average, the losers have a much lower income and belong to socio-economically weaker groups. On the other hand, the picture is opposite for the indicators of chronic illness: most of the groups of the chronically ill are overrepresented among the gainers – and this is certainly true if we look at the shares of extreme payers (before the change).

Yet, in total the net effect on the number of extreme payers is positive, mainly when we define them in terms of co-payments (see also the summary in Table 43). This means that many households that had preferential treatment become extreme payers because of its abolishment.

Table 54. Abolishing the system of preferential tariffs: gainers and losers

	General population	Gainers	Losers
Number of gainers/losers	Not applicable	719 406	947 132
Mean gain/loss in €	Not applicable	164	-123
P90 gain/loss in €	Not applicable	262	-219
Mean NTI in €	29 427	22 048	11 815
Median NTI in €	22 335	18 444	10 439
Mean household size	2.21	2.07	1.88
% single parent hh	4.82	1.85	11.82
% guaranteed income	4.94	4.80	14.20
% preferential tariff	32.70	33.90	99.99
% lump sum B or C	1.12	4.25	1.15
% integration allowance handicap	1.93	4.61	4.92
% long stay hospital	1.10	3.23	1.81
% psychiatric nursing home	0.20	0.35	0.51
% chronic dialysis	0.08	0.35	0.06
% psychiatric hospital (>1y)	0.18	0.16	0.61
% unemployed	6.35	4.04	17.69
% Antibiotics DDD >=90	1.09	3.39	0.97
% Antihypertensives DDD >=90	23.74	50.44	25.34
% Cholesterol lowering medicine DDD >=90	9.20	20.49	8.15
% COPD DDD >=90	4.23	10.82	3.94
% Antidepressants DDD >=90	8.64	20.98	8.86
% Antidiabetics DDD >=90	4.61	10.84	5.33
% Stomach medicine DDD >=90	7.83	20.84	7.51
% Crohn DDD >=90	0.39	0.91	0.27
% extreme payers before abolishment of preferential status and OMNIO			
• OOP>5% NTI	9.72	32.61	8.32
• OOP>10% NTI	3.90	11.87	5.13
• Co-pay>5% NTI	2.87	6.90	3.39
• Co-pay>10% NTI	1.28	2.95	2.19
Change in extreme payers (N)			
• OOP>5% NTI		-62 125	69 289
• OOP>10% NTI		-12 168	38 136
• Co-pay>5% NTI		-23 734	75 318
• Co-pay>10% NTI		-3 098	40 016
MAB-ceiling (%)			
• 450	36.92	43.51	90.88
• 650	19.19	35.39	4.70
• 1000	12.35	10.82	1.65
• 1400	9.09	4.26	1.02
• 1800	22.45	6.01	1.75

The conclusion of this exercise is then rather easy to draw. Abolishing the system of preferential tariffs (and OMNIO) and using the resulting savings to lower the MAB-ceilings makes the overall system of social protection less selective in terms of socio-economic status (and income), but gives better protection to the chronically ill at higher income levels. However, when we define the burden of OOP-payments as a share of NTI, many low-income households suffer from the increase in co-payments.

If one wants to decrease the selectivity and increase the overall coherency of the system by abolishing the system of preferential treatment, special attention is needed for the households with very low incomes. One possibility would be the introduction of a new, lower MAB-ceiling.[bbbbb]

7.7 CONCLUSION

Designing a social protection mechanism is not a purely descriptive or scientific question. It requires taking position on crucial social and ethical issues. In this chapter we have used the technique of microsimulation to illustrate the importance of these ethical choices for the basic design features of the MAB. Let us draw together the main strands of the argument.

First, one has to define in a coherent way what are the necessary health care expenditures for which individuals should not be held responsible. A priori it seems sensible that at least all co-payments should be covered, as they correspond to health care items for which society has decided that they should be included in the compulsory insurance system. It turns out, however, that including all remaining co-payments in the MAB would be rather expensive. Half of this cost relates to psychiatric patients, for which very large OOP-payments are concentrated among a relatively small number of households. If we accept that it is not a free choice to be in a psychiatric hospital or nursing home, then this is the first group for which extension of the coverage is desirable. More difficult questions arise with respect to the supplements: the budgetary cost of simply including them in the MAB is prohibitive. Including them in a budget neutral way would lead to a concentration of the social protection on a relatively small group of patients with very large OOP-payments. An adequate social protection mechanism for the supplements should (a) be explicit about what are necessary and what are rather luxury expenses; (b) be careful about the interaction with the system of supplemental insurance.

Second, one has to define the "burden of OOP-payments" in a coherent way. The present regulation implements the principle that the ceiling on co-payments as a share of NTI should be about the same for everybody. The thresholds are then defined in terms of NTI, without any further correction for household size. We simulated the effects of correcting the thresholds for household size. It turns out that such a change with a concomitant budget-neutral increase in the ceilings can lead to serious problems for small low-income households.

Third, one has to take a position about the desirable degree of selectivity in the system. The idea of a constant (relative) ceiling as a share of NTI implies an absolute ceiling that is increasing with income. We have shown that removing this "selectivity" by introducing one absolute ceiling for everybody, would put a large burden on the low incomes. On the other hand, we have also shown that the introduction of an extra ceiling of €250 for households with a NTI smaller than €10 000 could really improve the outcomes of the MAB. Moreover, in principle, this change can almost fully be financed by abolishing the social MAB. However, if one were to consider changes in that direction, one has to be cautious about the resulting increase in the administrative costs. Indeed, the sickness funds would have to collect income information for all households as soon as the sum of co-payments approaches €250.

Fourth, the system of preferential treatment (and OMNIO) introduces a sharp element of selectivity in the Belgian system. This raises a question of principle. If one has a MAB-system with an income-dependent definition of maximum ceilings, is it then still necessary to keep the system of preferential treatment? It turns out that abolishing the system of preferential treatment and lowering the MAB-ceilings would indeed improve the protection of the chronically ill at higher income levels. At the same time, however, it could bring many low income-households into payment problems.

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bbbbb The €250-ceiling, that has been simulated in section 7.4.4 would become about €165 if we apply to it the same ratio as for the other ceilings in this section. However, introducing an additional lower ceiling in a budget-neutral way would require an increase in all the ceilings.

The problem is sharpened by the move from lower prices at the point of service to a system of reimbursement ex post. If one wants to go for a social protection system without preferential treatment, it has to be designed carefully.

Fifth, the design of the MAB does not only depend on ethical issues. Administrative constraints also have played a role. They explain why income information from year T-3 is used to determine the MAB-entitlements in year T. As a consequence, a minority of households that experience an income decrease between T-3 and T do not receive MAB-reimbursements, although they would be entitled on the basis of their actual income.

The limitations of the exercises in this chapter have already been mentioned before. The self-employed were excluded from our simulations. Moreover, given our use of a reference simulation calibrated on 2004-data, absolute numbers of households and absolute amounts for the budgetary costs and for gains and losses must be taken with a grain of salt. However, the comparisons between the different policy options are instructive and useful. We used the microsimulation technique in this chapter to calculate the effects of different basic design choices – and we mainly focused on these choices in isolation. It is obvious that additional policy insights can be gained by formulating combined policies – e.g. abolishing preferential treatment while at the same time introducing the additional ceiling for (very) low incomes, or the MAB for the chronically ill. Further refinements are also possible: one could, e.g., simulate the effects of including some parts of the supplements (e.g. pharmaceutical products) in the MAB-counter, or the effects of more specific protection measures for psychiatric patients. There is an infinity of possibilities. Microsimulation techniques offer a flexible tool to calculate both the budgetary and the distributional effects of such policy proposals.

Key points

- **The desirable coverage of a social protection system in health insurance depends on the ethical position taken with respect to the boundaries of individual versus social responsibility.**
- **A stop-loss arrangement is an essential feature in many insurance systems. Ideas about an equitable distribution will influence the definition of the burden of health care payments and the level of ceilings and thresholds.**
- **Improving the protection of psychiatric patients would lead to an increase of the budgetary cost of the MAB by about 13%. The individual gains for psychiatric patients would be considerable.**
- **Since very large supplements are concentrated in a small group of the patients, the budgetary cost of an adequate stop-loss protection system for all the supplements would be prohibitive. However, one might consider the inclusion into the MAB-counter of specific categories of supplements.**
- **Differentiating the MAB-ceilings as a function of income definitely improves the results in terms of social protection.**
- **Indexing the MAB-ceilings could lead to non-negligible budgetary savings without huge social consequences. The same is true for the abolishment of the social MAB. However, the latter change would lead to an increase in the administrative cost of the system, since the sickness funds would have to collect income information for all the households that in the present situation receive reimbursements through the social MAB.**
- **It is worthwhile considering the introduction of an additional lower MAB-ceiling (e.g. of €250) for the lowest incomes. Such an additional ceiling would lead to a significant decrease in the number of extreme payers. Here also one must be aware of the resulting increase in the administrative costs.**
- **Basing MAB-entitlements for year T on the incomes of year T-3 has negative effects on the situation of a (limited) number of low income-households. Apparently, the possibility of a declaration on honour is not sufficient to compensate for this shortcoming.**
- **Basing MAB-entitlements on equivalent incomes and at the same time increasing the MAB-ceilings to make the reform budget-neutral, could lead to severe problems for small households with low incomes. Introducing household size in a more coherent way therefore requires a careful reconsideration of the whole design of the MAB, including the level of ceilings and income thresholds.**
- **Substituting gross for net incomes is on average beneficial for lower income households and for the chronically ill. However, as losses may be considerable, it would lead to an increase in the number of extreme payers.**
- **Abolishing the system of preferential treatment and lowering the MAB-ceilings in a budget neutral way would make the system less selective in terms of socio-economic status and would give better protection to the chronically ill with middle and larger incomes. However, it leads to severe payment problems for the low income households.**

8 GENERAL CONCLUSION

As soon as one accepts the presence of co-payments in principle, the question arises how to design a system of social protection for patients with large out-of-pocket payments. Such a system should be sufficiently targeted to protect the weakest groups in society, both in terms of income and in terms of health care costs. On the other hand, it should not be too selective in terms of income, because that would alienate the higher income groups, whose support is needed if we want to keep a compulsory health insurance system with an extensive coverage.

In principle, the MAB is an elegant and flexible system of social protection. The stop-loss feature is in line with insurance theory. Varying its design features offers scope for implementing different ethical and political positions. Historically, it has grown out of the social and fiscal exemption from the nineties and its incremental introduction has resulted in an administratively rather complex machinery. Simplification of the MAB (while respecting to some extent the existing rights) would therefore be an improvement. As an example, it is not coherent to have the income thresholds of the MAB defined in terms of uncorrected net taxable income, while the income threshold for OMNIO is defined in terms of gross income, corrected for household size. This administrative complexity does not only have consequences for the sickness funds that have to execute the system. To some extent it may even be seen as a direct threat to the social effectiveness of the protection measures, as patients (or their representatives) also may get off the track in the different regulations. The latter problem is especially relevant if, as in OMNIO, patients have to take action in order to become entitled to some social advantages.

The moral hazard problem related to health insurance is well known. This is exactly the main reason to have co-payments. The feasibility of the MAB (and of possible further extensions) therefore depends to some extent on its behavioural effects. Does an increase in the generosity of the MAB induce overconsumption of health care? The available data do not allow to draw definitive conclusions but we do not seem to observe a change in behaviour (neither from patients nor from providers) as a result of reaching the MAB-ceiling. We found some effect, however, in that providers charge co-payments more often if they can be confident that their patients will reach the MAB-ceiling in the course of the year.

From the point of view of ex post social protection, our work has pointed out some important remaining lacunae. First, despite the existence of the MAB, there remains a considerable number of households with relatively large OOP-payments. A better protection of the chronically ill is therefore needed. Of course, by design, the MAB implies a special protection for households with large health care expenditures, since it is based on the sum of co-payments. However, its coverage does not include non-medical costs nor supplements. Moreover, since the MAB only looks at expenditures for one year, it does not take into account the persistency of large OOP-payments over time. In defining the chronically ill, it is important to take into account these features explicitly.

Second, a specific issue arises with respect to the protection of psychiatric patients. Co-payments related to long stays in a psychiatric hospital or in a psychiatric nursing home are not included in the MAB-counter. This is no problem, if one sees them as accomodation expenses, which would have to be paid anyhow. However, if one accepts that a stay in a psychiatric hospital does not reflect a free choice from the patient, social protection is justified. The budgetary cost of this additional protection is considerable and it affects only a limited number of patients. This shows at the same time, of course, that the individual OOP-payments are now very large for these patients.

Third, there remains a significant number of extreme payers with low incomes. There are also some indications of underconsumption of health care by these groups. A relatively straightforward way of improving the social protection offered by the MAB would be the introduction of an additional lower MAB-ceiling (e.g. €250) for very low income-groups.

This measure could in principle be combined with the abolishment of the social MAB, which would yield a considerable budgetary saving without significantly lowering the level of social protection. However, both the introduction of an additional lower MAB-ceiling and the abolishment of the social MAB would lead to an increase in the administrative cost of the system. Things could become easier if preferential treatment and OMNIO were granted on the basis of the same income concept. Yet even then it would remain true that the information about the low and very low incomes is incomplete, even at the level of the fiscal administration. Additional research is needed for evaluating and improving the social protection for the weakest groups in society. This research should go beyond the use of administrative data and include the collection of specific information, possibly using also qualitative survey techniques.

Fourth, supplements are a significant part of total OOP-payments. The budgetary cost of including them in the MAB is prohibitive. At the same time, however, the integration of the safety and the delivery margin for implants have shown that well designed measures can result in a significant improvement in the social protection. It certainly is necessary to think carefully about how the MAB and supplemental insurance have to be geared to one another. Formulating specific policy conclusions in this regard is impossible without better information on the availability, the take-up and the coverage of supplemental insurance.

For this research project we could for the first time combine data about health care expenditures and incomes for a representative sample of the population. Such data are needed for evaluating ex post the existing system of social protection and for predicting ex ante the likely consequences of changes in its design. All our results are based on data for 2004 – and in the meantime patterns of health care consumption have changed. For steering the design of the MAB and, more generally, for improving our system of social protection, it would be extremely important to repeat at regular times a similar merging of income data with data about health care expenditures. It would even be better if explicit morbidity information could also be integrated in this dataset. While creating such a dataset at regular times does not create any technical difficulties, it would offer an extremely valuable (even indispensable) source of information for future policy analyses. It would also make possible the refinement of the microsimulation model. Such a model is an invaluable tool for evaluating the budgetary and distributional effects of specific policy measures.

9 REFERENCES

1. De Graeve D, Lecluyse A, Schokkaert E, Van Ourti T, Van de Voorde C. Eigen betalingen in de Belgische gezondheidszorg. De impact van supplementen. Brussel: Federaal Kenniscentrum voor de Gezondheidszorg (KCE); 2006. KCE reports 50
2. Schokkaert E, Van de Voorde C. Health care reform in Belgium. Health Econ. 2005;14(Suppl 1):S25-39.
3. Corens D. Health system review: Belgium. Health systems in Transition. 2007;9(2):1-172.
4. Van de Voorde C, Van Doorslaer E, Schokkaert E. Effects of cost sharing on physician utilization under favourable conditions for supplier-induced demand. Health Econ. 2001;10(5):457-71.
5. Cockx B, Brasseur C. The demand for physician services. Evidence from a natural experiment. J Health Econ. 2003;22(6):881-913.
6. Cornelis K. Het referentieterugbetalingssysteem voor de geneesmiddelen: echt goedkoper voor de patiënt? LCM; september 2006. Themadossier nr. 8
7. Diels J, Hutsebaut L, Goethals H, Proesmans H, Sumkay F. Naar een prijsbewust(er) geneesmiddelenvoorschrift. Generische geneesmiddelen in een ruimer kader. LCM; 2004.
8. Boutsen M, De Gauquier K, Hendrickx A, Guillaume J, Lange B. Impact financier sur le patient du remboursement de référence. UNMS; juli 2003.
9. Cornelis K. De invloed van de genomen maatregelen in de sector van de ambulante terugbetaalbare farmaceutische specialiteiten, op de evolutie van de uitgaven en volumes. LCM; november 2007. CM-informatie 230
10. Schokkaert E, De Graeve D, Van Camp G, Van Ourti T, Van de Voorde C. Maximumfactuur en kleine risico's: verdeling van de eigen bijdragen voor gezondheidszorg in België. Belgisch Tijdschrift voor Sociale Zekerheid. 2004;2:221-46.
11. Keeler E, Newhouse J, Phelps C. Deductibles and the Demand for Medical Care Services: The Theory of a Consumer Facing a Variable Price Schedule under Uncertainty. Econometrica. 1977;45(3):641-55.
12. Eigen betalingen in perspectief. Beschrijving van de theorie achter eigen betalingen en de praktijk in België en Frankrijk. In: Ministerie van Volksgezondheid, Welzijn en Sport. p. 116.
13. Contoyannis P, Hurley J, Grootendorst P, Jeon SH, Tamblyn R. Estimating the price elasticity of expenditure for prescription drugs in the presence of non-linear price schedules: an illustration from Quebec, Canada. Health Econ. 2005;14(9):909-23.
14. Avalosse H, Mertens R, Vancorenland S. Het zorgforfait: luxe of noodzaak? Samenvatting van de resultaten van de enquête bij gerechtigden van het zorgforfait. LCM; 2006. CM-informatie 226
15. Fleurbaey M. Equal opportunity or equal social outcome? Economics and Philosophy. 1995;11:25-55.
16. Arrow K. Essays in the theory of risk bearing. Amsterdam: North-Holland; 1970.
17. Gollier C, Schlesinger H. Arrow's theorem on the optimality of deductibles: a stochastic dominance approach. Economic Theory. 1996;7:359-63.
18. Manning WG, Newhouse JP, Duan N, Keeler EB, Leibowitz A, Marquis MS. Health insurance and the demand for medical care: evidence from a randomized experiment. Am Econ Rev. 1987;77(3):251-77.
19. Manning WG, Marquis MS. Health insurance: the tradeoff between risk pooling and moral hazard. J Health Econ. 1996;15(5):609-39.

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