

The effects and feasibility of indications of long-term care in the prior year as risk adjustors in the Dutch risk equalization model

Thesis

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8th of June 2026

Word count: 13,249 (Chapter 1-5, including tables and figures)

Acknowledgement

I am grateful to the Dutch Ministry of Health, Welfare, and Sports and the Association of Health Insurers for access to (anonymized) claims data. In addition, I would like to thank CBS (Central Bureau for Statistics) for providing access to its secure research environment, where essential analyses were performed.

In particular, I would like to thank my supervisor dr. Richard van Kleef for the valuable guidance and constructive feedback throughout the whole master thesis process. I would also like to thank my fellow students who participated in the same thesis group for their valuable insights and discussions.

AI-statement

In this thesis, ChatGPT (OpenAI, 2026) is used for specific goals. First, it is used to help with grammar, spelling, and text translation. For example, rewriting sentences to develop a more academic style and translating from Dutch text to English sentences. Second, it is used to generate a single graph (Figure 3), because no existing graph that captured all the information was available. Lastly, it is used to generate complex code examples for the Stata syntax.

Abstract

The aim of this study is to assess the possibilities and effects of incorporating long-term care indications (Wlz-indications) in the prior year into the Dutch risk equalization model, which aims to compensate insurers for predictable losses or profits based on predictable healthcare costs. The Dutch risk equalization model is widely regarded as one of the most sophisticated ones, but it is not perfect yet. Certain subgroups are still systematically under- or overcompensated, which potentially creates financial incentives for insurers to risk select. Therefore, it is important to investigate whether an additional risk adjustor, based on Wlz-indications, can improve the risk equalization model.

By performing quantitative analyses on microdata, that covers the entire Dutch population of 2023 and information on the Wlz-indications in the prior year, the potential relationship between Wlz-indications and Zvw-care costs can be assessed. The analysis consists of four steps: a descriptive analysis, a determination of the relationship between Wlz-indications and Zvw-care costs before and after risk equalization, and an examination of the extent to which Wlz-indications meet certain risk adjustor criteria.

Findings show that the population with a Wlz-indication in the prior year is generally overcompensated, particularly in the mental care model and also substantially in the somatic care model. However, substantial differences are observed between subpopulations within the population with a Wlz-indication in the prior year, indicating that the current model does not completely compensate for variation in Zvw-care spending between these subgroups.

This study concludes that Wlz-indications contain relevant predictive power for Zvw-care costs and, to a certain extent, satisfy the risk adjustor criteria for potential inclusion. However, before incorporating Wlz-indications in the prior year as risk adjustors into the model, additional research is needed. Future research should primarily focus on the relationship between Wlz-indications and already incorporated risk adjustors, since the predictive power remains modest. Also, a stability test over multiple years is needed to assess the reliability of the findings of this study.

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1. Problem analysis and research questions

The primary goal of the healthcare system in the Netherlands is to provide affordable, accessible, and high-quality care (Rijksoverheid, 2025). To enable this, the Dutch healthcare system has a regulated health insurance market in which competition among insurers plays a central and crucial role. Enrollment in basic health insurance is mandatory for all Dutch citizens and covers costs made under the Health Insurance Act (Zvw). To prevent incentives for risk selection and quality skimping, a risk equalization model is applied. In a nutshell, risk equalization means that insurers pay a contribution for enrollees with expected spending below the average premium and, at the same time, receive a contribution for enrollees with expected spending above the average premium (Van Kleef et al., 2018). The Dutch risk equalization model is internationally regarded as one of the most sophisticated risk equalization models (Van Kleef et al., 2019).

The risk equalization model includes a range of different (health) variables, based on health indicators that are based on information from the prior year (Van Kleef et al., 2023). Nevertheless, the current model is not yet perfect. After many improvements of the model over the past three decades, there are still (groups of) enrollees that are under- or overcompensated. An imperfect risk equalization model may result in risk selection, which leads to problems for efficiency and fairness (Glazer & McGuire, 2000). For example, people with specific chronic conditions are still systematically undercompensated (Oskam et al., 2024). Consequently, insurers might experience fewer incentives to organize the best care for people with these conditions. This study aims to assess whether the risk equalization model can be improved by including additional risk adjustors based on indications for long-term care. In the Netherlands, patients under the Long-term Care Act (Wlz)¹ receive high-intensity care for a longer period of time (Rijksoverheid, 2023). By investigating the potential effects and feasibility of indications of long-term care in the prior year as risk adjustors, this thesis provides insights into the extent to which such risk adjustors could improve the Dutch risk equalization model.

Although Wlz-care is financed through the regional care offices, separately from the Zvw, it is probable that there is a relationship between the use of care under both system laws. Individuals, especially the elderly, with a Wlz-indication are likely to have a high disease burden and may suffer from chronic health conditions (Kiyoshige et al., 2018). Chronic health conditions might be strongly related to high healthcare expenditures (Chang et al., 2023), such

¹ In thesis 'Zvw' refers to the Health Insurance Act and 'Wlz' to the Long-term Care Act.

as Zvw-care costs. However, it is currently unknown to what extent the Wlz-indications predict Zvw-care costs before and after risk equalization, partly because of specific characteristics of these risk adjustors. There has been no prior research on the added value of this risk adjustor in terms of the predictability of Zvw-care costs, and on the extent to which this risk adjustor is suitable for use in the risk equalization model. By assessing these two matters, the Dutch risk equalization model can be improved, which is relevant at both the national and international level. Internationally, the Dutch model is often cited by other countries, which may benefit from including long-term care indicators in their risk equalization systems as well.

Whilst exploring the feasibility of including risk adjustors based on Wlz-indications in the prior year into the Dutch risk equalization system, it is also important to determine the extent to which this risk adjustor can improve the model. Hence, the research question of this quantitative study is:

What are the possibilities and effects of improving the Dutch risk equalization system with risk adjustors based on prior year indications for the need for long-term care”?

Long-term care in this context indicates care financed through the Wlz. Indications for long-term care are similar to Wlz-indications, which is the term used in this thesis.

The study aims to answer this question based on the following sub-questions.

1. What are the characteristics of people with a Wlz-indication in the prior year in terms of age, socioeconomic status, and health?
2. To what extent is a Wlz-indication in the prior year predictive of healthcare spending under the Health Insurance Act before risk equalization?
3. To what extent is a Wlz-indication in the prior year predictive of healthcare spending under the Health Insurance Act after risk equalization?
4. To what extent does a Wlz-indication in the prior year fulfill the criteria for risk adjustors that are included in the Dutch risk equalization model?

The contribution of this thesis is twofold. First, it will show the under- or overcompensation of subgroups defined by Wlz-indications. This will indicate whether and to what extent insurers have incentives to select against or in favor of these subgroups. In case of selection against these subgroups, this may threaten access to healthcare for these enrollees. Second, this thesis

will show whether Wlz-indications can be used as risk adjustors in the Dutch risk equalization model. The results of this study can contribute to advice on whether to include Wlz-indications in the Dutch risk equalization model.

The outline of this thesis is as follows. Chapter two provides a theoretical framework on the main concepts of regulated competition, risk selection, and risk equalization. Those embed the context of the Dutch health insurance system, which is essential when investigating potential risk adjustors. In addition, more information on the Wlz and its background is provided. Also, a theoretical background on the evaluation measures used in the analyses is given. Chapter three concerns the research methods, in which different steps of the analysis are discussed. Chapter four presents the results of the analyses, which answer the sub-questions. Lastly, chapter five discusses the strengths, weaknesses, and contributions of this study. Also, implications for further research are given. To conclude, the research question is answered.

2. Theoretical framework

This theoretical framework discusses the theoretical concepts relevant to the research questions. The concepts primarily include the risk equalization (model) and the Wlz. In addition, the criteria for risk adjusters are described. The chapter also discusses commonly used evaluation measures and closes with the relation between somatic and long-term care.

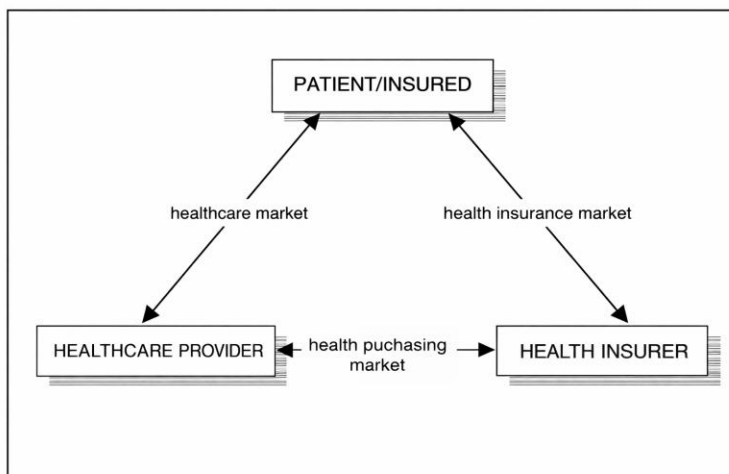
2.1 Dutch health insurance system

2.1.1 Institutional context

The Dutch healthcare system currently consists of four system laws: the Health Insurance Act (Zvw), the Long-term Care Act (Wlz), the Social Support Act, and the Youth Act (Ministerie van Volksgezondheid, Welzijn en Sport, 2016). The Zvw and Wlz are central to this thesis and their institutional and financial context will be discussed in this section and in section 2.3.

In 2006, the Zvw was introduced, which replaced the previous sickness funds and private system. With the Zvw three managed markets and several important actors were introduced, as shown in Figure 1. Since the introduction of the Zvw, the government has primarily supervised the market rather than exercising direct control. For this thesis, the health insurance market is particularly relevant.

Figure 1: The three managed markets and important actors in the Dutch healthcare sector.



Source: Kamerstuk Tweede Kamer der Staten-Generaal, 2005, 30186 nr. 3

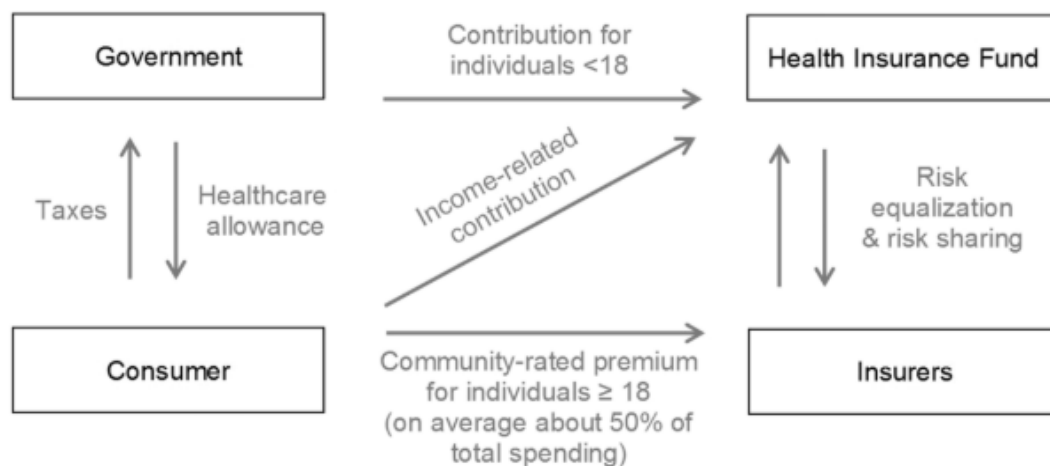
Under the Zvw, introduced in 2006, all residents of the Netherlands are legally obliged to purchase basic health insurance from private health insurers (Van de Ven & Schut, 2009). The introduction of the Zvw led to price competition among these health insurers, who became the prudent buyers of healthcare on behalf of their enrollees. The health insurance market can be characterized as a regulated competitive market in which, since 2023, twenty insurers compete on price and quality (NZa, 2025). These insurers differ in size, focus, and the health plans they offer. The health insurance market is regulated by the government to ensure that enrollees have access to affordable healthcare and therefore protect public health (Schäfer et al., 2010).

Each individual of the Dutch population has an annual choice among these private insurers. Insurers are free to selectively contract healthcare providers (Ministerie van Algemene Zaken, 2023). Enrollees can choose between several insurers, health plans and the level of the voluntary deductible (Van Kleef et al., 2018). The basic health insurance package covers essential basic healthcare, such as GP care and dental care for children up to 18 years (Ministerie van Algemene Zaken, 2026). However, healthcare such as physiotherapy, alternative medicine, and orthodontics is not included in the basic health insurance package, but can be covered through supplementary health insurance plans. The minimum level of the voluntary deductible is currently 385 euros. Consumers can opt for a higher voluntary deductible in exchange for a discount on their premium (Van Winssen et al., 2016).

2.1.2 Financial context

In the Netherlands, all individuals aged 18 years and older pay a premium to their insurers. These premiums cover approximately 50% of total healthcare expenditures. The remaining 50% is financed through government contributions for individuals under the age of 18 (who do not pay a premium to their insurer) and through income-related contributions paid by consumers. Individuals who are unable to pay the premium may receive an income-related healthcare subsidy. The government contributions are collected in the Health Insurance Fund. This fund is used to compensate insurers for enrollees with lower or higher expected healthcare costs (Van Kleef et al., 2018). Figure 2 illustrates the financial streams within the Zvw.

Figure 2: Financing scheme of the Health Insurance Act (Zvw).



Source: Van Kleef et al. (2018)

The Dutch healthcare system is based on the principle of solidarity, which means that everyone contributes to healthcare through premiums and taxes. In return, everyone is entitled to the same healthcare. In practice, this means that healthy individuals contribute financially to the healthcare costs of sick individuals through the Health Insurance Fund. Moreover, healthy individuals can rely on the same system if they become ill at another point in life (Ministerie van Volksgezondheid, Welzijn en Sport, 2025). The distribution of funds from the Health Insurance Fund to insurers is determined through the risk equalization model, which is further discussed in section 2.2.

2.1.3 Regulation

The introduction of the Zvw in 2006 established compulsory health insurance for the entire Dutch population and introduced managed competition among private insurers (Schäfer et al., 2016). An important aspect of the regulation under the Zvw is the standard basic health insurance package, which is determined annually by the Dutch government and consists of necessary healthcare to which every citizen is entitled (Rijksoverheid, 2026). In addition, insurers have a duty to accept all applicants and are not allowed to differentiate premiums based on individual risk characteristics (Kamerstuk, 29689, nr. 917, 2018). However, the combination of the ban on premium differentiation and mandatory acceptance creates incentives for insurers to engage in risk selection (Van Winssen et al., 2017), which emphasizes the importance of the risk equalization model.

2.2 Risk equalization

2.2.1 Goal of risk equalization

The Health Insurance Fund distributes the money to all health insurers and compensates them with predictable costs for their enrollees. Therefore, incentives for insurers to engage in risk selection are reduced. Risk selection can be defined as actions to attract profitable healthy individuals, while discouraging unprofitable unhealthy individuals from enrolling (Van Kleeef et al., 2024). Risk selection reduces efficiency and limits freedom of choice for individuals with high expected costs (Van de Ven et al., 2016). Examples of risk selection include marketing strategies targeting healthy individuals, designing insurance packages less attractive to chronically ill individuals, or selectively contracting healthcare providers that are frequently used by enrollees with high expected costs (Gruber & McKnight, 2016). All in order to deter high-risk individuals.

Risk selection has three major detrimental effects. First, it may reduce the quality of healthcare, since insurers can make health plans less attractive for high-risk enrollees and may avoid contracting high-quality healthcare providers. Furthermore, insurers have fewer financial incentives to invest actively in quality. Second, risk selection can undermine solidarity between individuals. Differences in premiums may increasingly reflect differences in health status and efficiency, because low- and high-risk individuals choose different health plans. Third, risk selection may reduce efficiency, as insurers may prioritize investments in risk selection over investments in improving the efficiency of healthcare (Van Kleeef et al., 2013). To prevent these adverse effects, the risk equalization model is introduced.

2.2.2 Risk Equalization model

The Dutch risk equalization model consists of three separate models: somatic care, mental care, and the mandatory deductible model (Eijkenaar et al., 2018). The thesis focuses on all three models. The Dutch model is highly sophisticated and includes numerous variables, such as demographic, socioeconomic, and morbidity-related variables (Van Kleeef et al., 2023). Nevertheless, the model does not yet account for all possible variables, which means that incentives for risk selection still remain (Van Kleeef et al., 2013).

In 2026, the somatic risk equalization model included the criteria presented in Table 1. Several criteria, such as age and gender, are also used in the mental care model and the model for the mandatory deductible. Table 1 presents the abbreviations, a short description, and the

number of classes in each model. More detailed information about the specific classes and their characteristics can be found in the *Regeling risicoverevening 2026* (Koninkrijk der Nederlanden, 2025).

Many criteria are divided into categories and included in the model as dummy variables. Each category has a payment weight representing the additional expected healthcare costs (Van Kleef et al., 2018). These costs and compensations are estimated ex-ante in year t-1 (Zorginstituut Nederland, 2025). The equalization contribution is based on the predicted costs for the somatic care, the predicted costs for mental care, and the predicted costs for the mandatory deductible.

Table 1: Risk adjustor criteria ex ante risk equalization for the risk equalization model of 2026.

Risk adjustors	Short description	Number of classes per model		
		Somatic care model	Mental care model	Mandatory deductible model
Age and gender	Based on age and gender.	42	30	30
PCG	Pharmacy-based Cost Groups based on use of prescription drugs in the prior year.	50+1	9+1	-
DCG	Diagnosis Cost Group based on hospital treatments in the prior year.	26+1	16+1	-
SOI	Source of Income in interaction with age based on the income in the prior year.	44+1	28+1	28+1
Region	Clustering of ZIP codes based on regional characteristics.	10	10	10
SES	Socioeconomic Status in interaction with age based on total house-hold income in the prior year.	12	8	-
PPA	Persons Per Address and yes/ no utilization of long-term care, in interaction with age (partly based on Wlz-care use).	18+1	18	-
MHC	Multiple years of High Cost based on predictable high costs in three prior years.	8+1	7+1	1+1
PDG	Physiotherapy Diagnoses Groups based on diagnoses information of chronic conditions information in the prior year.	4+1	-	-
MHCC	Multiple year Home Care based on the sum of cost of nursing care in three prior years.	9+1	-	-
HSM	Historical Somatic Morbidity based on somatic morbidity in t-3.	1+1	-	-
IDM	Indication Delivery and Maternities based on pregnancy/ delivery in the current/ prior year.	3+1	-	-
HHC	Historical High Costs based on need for care-devices in the three prior years.	6+1	-	-
MCH	Missing Cost History based on the absence/ presence of health insurance in t-1 in interaction with age.	6	-	-
SEI	Social Economical Indicator based on yes/ no seasonal worker or person who resides abroad.	3	3	3

Note. The +1 represents the base-case, which is the class for enrollees without score in any class of the criteria. PCG and DCG in the mental care model are based on psychological conditions. The risk adjustor region for the mental care model is based on the mental care region, which differs from the region for the somatic model. MHC in the mental care model is based on multiple years of high mental care costs based on predictable high cost in five prior years. Source: Staatscourant, Koninkrijk der Nederlanden (2025).

The current model does not include Wlz-indications assigned by the CIZ as a separate risk adjustor. Although Wlz-care is not financed through the Zvw, it can potentially predict costs made under the Zvw. However, several existing risk adjustors already contain information based on the Wlz. The main example is the criterion ‘PPA’, which includes four classes related to Wlz-facilities. The classes included in PPA distinguish between residential care and intra- or extramural treatment. Therefore, it is likely that there is a correlation between the PPA classes and Wlz-indications assigned by the CIZ in terms of predictive power of the Zvw-care costs.

Another example is the criterion ‘SES in interaction with age’. The enrollees are in four categories, based on total income per address in year t . Individuals residing in a Wlz-facility or who use extramural Wlz are in the category ‘very low income’.

Furthermore, under the ‘MHC’ criterion, which indicates people with three times the somatic costs, individuals with a Wlz-indication are by definition classified as $MHC=0$. This means that they belong to the group with costs below the 70th percentile in all subsequent years: year $t-3$, year $t-2$, and year $t-1$, regardless of their past healthcare costs. The same applies to the ‘MHCC’ criterion, where Wlz-care users are automatically assigned to $MHCC=0$.

Each year, an evaluation is conducted of the previous year's risk equalization model performance (Van Kleef & Van Vliet, 2025). The focus of the evaluation is to adjust the model each year (Van Kleef et al., 2018). Including Wlz-indications as risk adjustors may improve the predictive power of the risk equalization model and thereby reduce incentives for risk selection. This thesis aims to investigate the potential incorporation of Wlz-indications assigned by the CIZ as risk adjustors.

2.2.3 Criteria risk adjustors

Before incorporating potential new risk adjustors into the risk equalization mode, such as Wlz-indications, they must be assessed according to certain criteria. These criteria can be grouped into three categories: appropriateness of incentives, fairness, and feasibility (Ellis et al., 2018). There may be relations between these criteria or they may be in conflict. So, when incorporating adjustments in the risk-equalization model, trade-offs must be made between these criteria.

The first criterion is the appropriateness of incentives, which concerns the extent to which financial incentives for risk selection are reduced. Risk adjustors should have sufficient

predictive power in order to reduce financial incentives for risk selection. In addition, they should encourage efficient behavior and should not be subject to manipulation or fraud.

Secondly, fairness relates to the value judgements regarding which risk factors should or should not be compensated. Fairness also implies that the level of compensation should increase with the severity of sickness, so that sicker individuals should receive higher compensation than healthier individuals. This principle is closely related to the concept of solidarity.

Thirdly, feasibility refers to the availability of valid, reliable, and recent data. The data collection should take place close to the time the information is used for payment. Feasibility relates to the acceptability, validity, and reliability of risk adjusters. Acceptability means that the use of particular risk adjusters should not violate privacy protection laws and clinical credibility. Validity tests whether the risk adjusters predict the need for healthcare services. Risk adjusters should identify predictable (chronic) conditions rather than acute health episodes. Lastly, reliability implies that there should be no measurement errors in the data used for the specific risk adjusters (Van Veen, 2016).

2.2.4 Quantitative evaluation measures

As discussed previously, it is concluded that there is still an under- and overcompensation for specific subgroups (Oskam et al., 2023). This emphasizes the need for further improvements to the risk equalization model. Further improvements can be evaluated according to the under- or overcompensation method or by using R-squared as a quantitative evaluation measure.

2.2.4.1 Measurers of selection incentives

The under- or overcompensation of specific patient groups shows whether insurers have incentives to select in favor or against certain subgroups. Under- or overcompensation for a specific subgroup is determined by calculating the difference between the predicted average costs for a specific subgroup and their actual average costs. If the predicted average costs exceed the actual average costs, there is overcompensation, which results in a predictable profit. Conversely, if the predicted average costs are lower than the actual average costs, there is undercompensation, which results in a predictable loss. The magnitude of under- or overcompensation reflects the strength of the incentives for risk selection.

Previous research has shown that certain high-risk groups are still systematically under- or overcompensated, indicating that the currently incorporated risk adjusters are not yet sufficient (Van Kleef et al., 2016).

The annual evaluation, performed by the scientific platform WPR for risk equalization, presents results in terms of the ‘functioning of equalization’ and ‘power’. It shows that the model of 2024 compensates 97% of the predictable profits and losses that would have occurred without risk equalization for subgroups with long-term conditions. Furthermore, the models of 2024 and 2025 compensate a large share of predictable high and low healthcare costs for subgroups with specific risk profiles. Nevertheless, several groups with chronic conditions remain substantially under- or overcompensated (Van Kleef & Van Vliet, 2025).

2.2.4.2 Statistical measures

Over time, several risk adjustors have been added to the risk equalization model to improve its predictive power. Van Veen et al. (2015) reviewed several studies evaluating the model. In addition to this review, it can be concluded that in most studies, R-squared is the most commonly used statistical measure for evaluating potential risk adjustors (Van Kleef et al., 2013).

To determine the predictive value of (potential) risk adjustors, many empirical studies have applied the R-squared, such as in Oskam et al. (2023) and Van Kleef et al. (2013). R-squared measures the proportion of variance in the dependent variable that can be explained by the independent variable(s) in a model. The values range from 0 to 1, where a higher value indicates better predictive power of the independent variable (Van de Ven & Van Kleef, 2024). Although the R-squared provides insight into the predictive power, it cannot be concluded whether the model compensates sufficiently for predictable variation in healthcare expenses. Therefore, it is also essential to also assess the performance of the model by examining the under- or overcompensation among specific subgroups (Van Kleef et al., 2013).

As discussed earlier, under- or overcompensation can lead to financial incentives for risk selection. To enable the analysis of the under- or overcompensation, data on the entire Dutch population is necessary. For this thesis, data on the subpopulation of individuals with a Wlz-indication in the prior year are particularly relevant. The data are collected by CBS and will be used in the analysis, which is further explained in the following chapter on research methods.

2.3 Wlz

2.3.1 Institutional context

Not all healthcare provided in the Netherlands is covered under the Zvw. Long-term care, for example, is covered under the Long-term Care Act (Wlz). In 2015, the long-term care system was reformed in order to provide more efficient care. From 2015 onwards, so-called ‘regional care offices’ are legally obliged to provide and purchase long-term care, as well as for the arrangements of personal contributions (Ministerie van Volksgezondheid, Welzijn en Sport, 2026).

Regional care offices are responsible for organizing Wlz-care for insureds in their region and for contracting long-term care providers. The care is delivered either at home, in a care facility, or through a personal budget in which enrollees are in charge of the provision of their care. This reform of the long-term care provision replaced the previous public long-term care insurance system. Since then, concerns have been raised about unintended incentive problems, that may result in poor coordination, inefficiency, and quality skimping. Nevertheless, the Wlz is still in use as of the reform of 2015 (Alders & Schut, 2019).

The regional care offices organize long-term care in collaboration with local facilities and key national organizations. An important central organization is the Centrum Indicatiestelling Zorg (CIZ), which assesses whether an individual meets the requirements for long-term care and determines the required intensity of care (Centrum Indicatiestelling Zorg, 2025). CIZ is an independent organization that assesses each Wlz-indication according to a consistent set of steps: 1) the application, 2) assessment of health situation, 3) assessment of permanent supervision, 4) assessment of the duration of the care need, 5) determination of exceptions based on the previous criteria, and finally 6) the assessment of the Wlz-indication (Centrum Indicatiestelling Zorg, 2026).

The Wlz primarily covers care for individuals who require 24-hour care per day. This care can be provided in either a care facility or at home (Ministerie van Volksgezondheid, Welzijn en Sport, 2026). The Wlz-population can be divided into several Dominant Basis (DB) categories, including somatic disorder, psychiatric disorder, intellectual disability, psychogeriatric disorder, physical disability, and sensory disability (Ministerie van Volksgezondheid, Welzijn en Sport, 2025). Table 2 presents the number of individuals with a Wlz-indication in 2024 by age and gender. In total, there were 376,425 individuals (2.1% of

the total Dutch population in 2024) with a Wlz-indication (Centraal Bureau voor de Statistiek, 2026).

Table 2: Number of people with a Wlz indication in 2024 per age category per gender.

Age	Men	Women	Total
Below the age of 18	6,860	4,005	10,865
18-65 years	86,855	58,775	145,630
65-80 years	34,175	37,385	71,560
80 years or older	44,405	103,965	148,370
Total	172,295	204,130	376,425

Source: Monitor Langdurige Zorg, Ministerie van Volksgezondheid, Welzijn en Sport (2026).

The number of individuals with a Wlz-indication varies over time, depending on policy changes and developments in the health status of the population. The largest group consists of individuals with a mental disability. However, there are a few striking trends in the composition of the population with a Wlz-indication. The group with a psychogeriatric disorder is growing the fastest and the proportion of elderly individuals who are admitted to a psychogeriatric disorder is also increasing. In contrast, the population with a somatic disorder decreased after 2015, but started to increase again in 2021. Furthermore, the population with a psychiatric disorder has increased due to policy changes. For example, there was an increase after 2020, because several mental care living facilities opened that year (Ministerie van Volksgezondheid, Welzijn en Sport, 2026).

In addition to the dominant basis categories of the indication, individuals can also be classified according to the intensity of the indication, which is called ‘zorg-zwaarte-pakket (ZZP)’ or ‘care-profile’. In further sections, ZZP will be referred to as Intensity Level (IL). There are several categories: nursing and caregiving, intellectual disability, lightly intellectual disability, physical disability, sensory disability, and mental healthcare. Each category contains several classes to meet the specific needs of the different subgroups (Ministerie van Volksgezondheid, Welzijn en Sport, 2026).

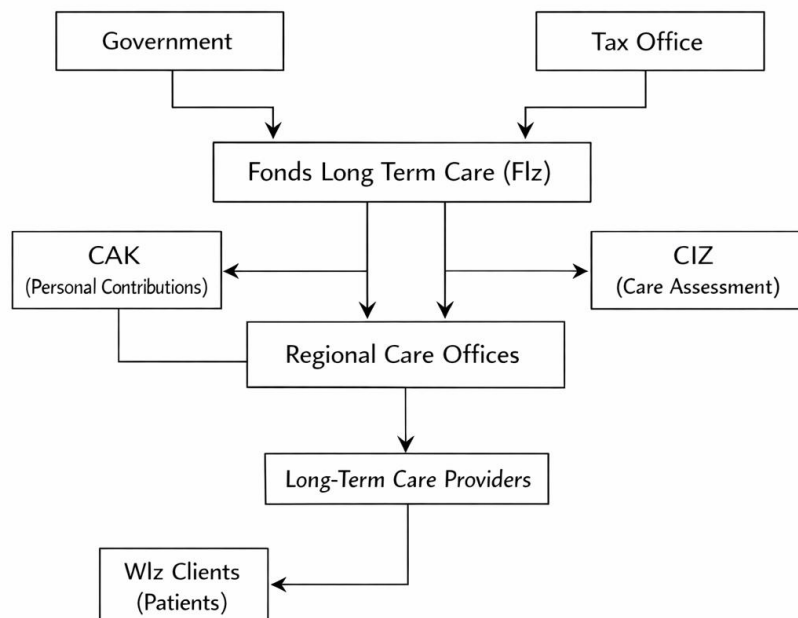
2.3.2 Financial context

In contrast to the Zvw, the Wlz is a tax-financed public insurance and is funded via Fonds Long Term Care (Flz). The Flz itself is funded by the national tax office, which levies Wlz-premium

as a percentage of the income of the population. Since 2019, the Flz has also received a contribution from the government (Ministerie van Financiën, 2020).

In addition, every patient is required to pay a personal contribution, which is determined by the CAK based on the type of care received and the individual's financial situation (CAK, 2026). Regional care offices are responsible for the provision of Wlz-care and bear full financial responsibility for its expenses. In addition, they receive a fixed budget from the government. The institutional and financial context is summarized in Figure 3.

Figure 3: Financial and institutional context of the Wlz.



Source: AI-generated by ChatGPT based on the prompt of the text of sections 2.3.1 and 2.3.2. (OpenAI, 2026)

Wlz-indications predict long-term care expenses and possibly also expenses incurred under the Zvw, which is vital for risk equalization. Over time, several types of care have shifted from the Wlz to the Zvw. This emphasizes the relationship between these two system laws and possibly the predictable power of the Wlz-indication. However, the possibilities and effects of using Wlz-indications as risk adjusters in the risk equalization model have not yet been investigated.

2.3.3 Relation between somatic healthcare and long-term care

Somatic care mainly addresses curing and treating (chronic) physical and mental diseases, whereas long-term care is focused on managing and treating chronic conditions (Ministerie van Volksgezondheid, Welzijn en Sport, 2026). Nevertheless, research has shown that, especially

aging patients with somatic complaints or undergoing treatments, often require long-term care in addition to somatic care (Medved et al., 2020).

In the Netherlands, there are several links between somatic care and long-term care. For example, patients in intramural long-term care facilities also receive somatic care, provided by medical specialists. Furthermore, the relation between somatic care and long-term care is becoming increasingly visible. Due to improved somatic care, people are living longer, but often with chronic conditions and limitations, which are addressed by the Long-term Care Act (Van der Gaag et al., 2014). This emphasizes the potential relationship between the use of Zvw-care and Wlz-care.

3. Research methods

The empirical analysis concerns a quantitative simulation on microdata from the Dutch population. In section 3.1, the relevant information on the data for this study is provided. Section 3.2 contains a detailed description of the data analysis, focusing on the different analytical steps. Lastly, section 3.3 discusses how validity and reliability apply to this study.

3.1 Data

The micro-dataset used for this analysis is already stored by the Central Bureau for Statistics (CBS) and is accessible for analysis in their virtual working space. The dataset contains information on an individual level for all enrollees with mandatory basic health insurance in 2023. It includes information on care expenses of 2023 on an individual level, which are made representative for 2026, all equalization characteristics, and risk factors ($N = 18$ million). The data is collected through various sources, including registration services for social benefits, tax collectors, and insurers (Centraal Bureau voor de Statistiek, 2026). The dataset is used to perform several calculations, including the predicted expenses for each enrollee according to the Dutch risk equalization model of 2026.

In addition to the first dataset, a second dataset contains information on Wlz-indications from the prior year. The data contains all the valid Wlz-indications for all individuals provided by the CIZ for the relevant year (Centraal Bureau voor de Statistiek, 2026). In other words, this dataset includes all individuals with a Wlz-indication in the prior year. For each individual, the dataset contains information on 1) the type of indication (referred to as the Dominant Basis) and 2) the intensity of the care package (referred to as the Intensity Level). The Dominant Basis (DB) indicates the primary reason why an individual is unable to perform certain activities independently and therefore qualifies for Wlz-care. In cases where multiple conditions are present, the CIZ determines the most dominant condition. In the dataset, this variable is referred to as *WLZDOMGROND*. The Intensity Level (IL) indicates the type and amount of care that an individual is entitled to receive within the Wlz-indication. These levels are identified per sector and care profile. In the dataset, this variable is referred to as *WLZZZP*. For more detailed information on the classes, see Appendix 2.

By connecting the two datasets, a relevant basic dataset is formed. The datasets in the CBS environment contain an identification number, which allows for a connection between

datasets on an individual level. This results in a dataset containing all information on healthcare expenses on an individual level for individuals with a Wlz-indication, derived from the second dataset. The process of linking the datasets and selecting the relevant and potentially interesting risk adjusters is performed by the thesis supervisor.

The variables in the final dataset concern general characteristics, such as age, gender, socioeconomic status, and persons per address. In addition, it includes variables related to predicted and actual healthcare costs. Several Wlz-variables are included, such as the presence of a Wlz-indication, the Dominant Basis, and the Intensity Level of the Wlz-indication. Appendix 1 provides an overview of all variables, along with a short description.

The risk adjustor 'seasonal workers' (SEI) is not included in the analysis, since the dataset does not include information on this variable. As a result, the population is representative of the Dutch population with mandatory basic health insurance, excluding non-residents. Many variables and classes in the dataset take the form of a dummy variable, where a value of 1 indicates inclusion in a specific category and a value of 0 indicates non-inclusion. The dataset enables both a descriptive analysis of the population and an assessment of the predictive power of Wlz-indications for Zvw-care costs.

3.2 Data analysis

The data analysis aims to answer the research question concerning the possibilities and effects of improving the Dutch risk equalization system by incorporating risk adjusters based on prior-year indications of the need for long-term care. The analysis includes four different steps. The first three steps are performed within the secured CBS microdata environment using Stata. Sections 3.2.1 to 3.2.4 describe these steps in more detail, which are linked to the secondary research questions.

3.2.1 Step 1: Descriptive analysis of the group with a Wlz-indication in the prior year

The first step involves linking the two datasets at the individual level. This enables a descriptive analysis of individuals with a Wlz-indication in the prior year. All relevant variables, except the cost variables, are included in this first part of the analysis.

The descriptive statistics are computed for both the entire population and the population with a Wlz-indication in the prior year. The averages from these populations are compared.

Furthermore, the analysis aims to identify the overlap between individuals with a Wlz-indication and individuals classified in PPA classes based on Wlz-care use. This indicates the potential added value of incorporating Wlz-indications into the risk equalization model.

3.2.2 Step 2: Determination average costs before risk equalization

The second step contains a determination of the average costs. Before analyzing the costs, the proportion of the population in each Dominant Basis and Intensity Level class is calculated, along with the corresponding number of observations. This provides a clear overview of the composition of the population with a Wlz-indication in the prior year.

In addition, before analyzing the costs, dummy variables are created for all Dominant Basis and Intensity Level classes for the Wlz indication in the prior year. For each class, the dummy variable equals 1 if an individual belongs to that class and 0 if otherwise. These dummy variables are subsequently used in the following analyses and regression analyses to distinguish between different subpopulations.

The average Zvw-care costs in 2023 are then calculated for the population with a Wlz-indication in 2022 and compared with the average Zvw-care costs of the entire population. Similar analyses are performed separately for the three models (somatic costs, mental care costs, and mandatory deductible costs). Within these analyses, costs are further disaggregated according to the Dominant Basis or Intensity Level of the indication for both the total modal and each separate model.

The determination of the average costs is relevant, because the average Zvw-care costs for the population with a Wlz-indication may differ substantially from the average Zvw-care costs of the total population. These differences may explain parts of the potential relation between the costs and the presence of a Wlz-indication.

In addition, the predictive power of the Wlz-indication in the prior year on the Zvw-care costs is assessed. The analysis contains a regression in which Y represents the total Zvw-care costs *before risk equalization* and X-variables are based on the Wlz-indication in the prior year, Dominant Basis or Intensity Level of the indication (see Equation 1). In this regression, and the following regression analyses, the Y-variables are based on the costs of 2023, which are made representative for 2026. Additional regression analyses are performed in which Y represents the somatic costs, mental care costs, or mandatory deductible costs and X-variables are based on Wlz-indication in the prior year, Dominant Basis, or Intensity Level of the indication.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + e \quad (\text{Equation 1})$$

By determining R-squared for the whole model and the models separately, the predictive power for the costs can be assessed. R-squared measures the proportion of variance in the costs that can be explained by the X-variables. R-squared is calculated using the formula in Stata as presented in Equation 2.

$$R^2 = 1 - (\sum_i (Y_i - \hat{Y}_i)^2) / (\sum_i (Y_i - \bar{Y})^2) \quad (\text{Equation 2})$$

3.2.3 Step 3: Determination average costs after risk equalization & predictive power

The third step starts with determining the extent of under- or overcompensation of the entire population, the population with a Wlz-indication, and subpopulations. This is determined by a calculation of the Zvw-care costs after risk equalization (Y_{res}), defined by Zvw-care costs minus predicted Zvw-care costs according to the risk equalization model of 2026 (see Equation 3).

$$Y_{res} = (Zvw_costs) - (predicted\ Zvw_costs\ RE\ model\ of\ 2026) \quad (\text{Equation 3})$$

A positive value of Y_{res} indicates undercompensation, implying a predictable loss for insurers. Conversely, a negative value indicates overcompensation, implying a predictable profit for insurers. In the Results and Discussion sections of the thesis, undercompensation will be presented as a negative value and overcompensation will be presented as a positive value to simplify interpretation.

Additional residual costs are manually constructed within the dataset for specifically the somatic care, mental care, and mandatory deductible model. These constructed variables are calculated in the same way as presented in Equation 3, but are focused on the specific sub-models.

The final part of the third step assesses the predictive power of Wlz-indications in the prior year for Zvw-care costs after risk equalization. The analysis contains a regression in which Y are the Zvw-care costs after risk equalization and X-variables are based on the Wlz-indication in the prior year, Dominant Basis, or Intensity Level of the indication (see Equation 4).

$$Y_{res} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + e \quad (\text{Equation 4})$$

This step provides an indication of the predictive power for Zvw-care costs after risk equalization and is measured as the R-squared of the model. R-squared indicates how much of the variation in Zvw-care costs can be explained by the Wlz-variables. Additional regression analyses are performed in which Y-variables are based on the somatic care costs after risk equalization, mental care costs after risk equalization, or mandatory deductible costs after risk equalization. X-variables are based on Wlz-indication in the prior year, Dominant Basis, or Intensity Level of the indication.

For steps 1, 2, and 3 the syntax is initially developed using a sample drawn from the entire dataset in order to make the process more efficient. However, all results presented in the Results chapter are based on the entire dataset (N = 17,737,376), thereby representing the whole population.

Furthermore, throughout the analyses, the supervisor annualized spending and weighted individuals with the fraction of the year they were insured. For example, a person who had insurance for only 3 months with healthcare costs of 1,000 euros, the supervisor annualized spending to 4,000 euros [1,000 / (3/12)] and included a weight of 0.25 (3/12). This way, mean healthcare costs, mean age, mean under- and overcompensation, et cetera, can be interpreted as the mean of these variables per insured year.

3.2.4 Step 4: Applying risk adjusters criteria

To assess whether Wlz-indications can potentially be incorporated into the risk equalization model, it must align with the risk adjusters criteria. This exploratory qualitative-focused

analysis is conducted outside of Stata and examines the extent to which Wlz-indications meet the following criteria as risk adjustors: appropriateness of incentives, fairness, and feasibility (Ellis et al., 2018).

3.3 Validity & reliability

Quantitative research needs to be assessed according to validity and reliability to ensure the quality of the study. Validity refers to the extent to which the study measures what it intends to measure. Reliability refers to the consistency and reproducibility of the results (Heale & Twycross, 2015).

In this study, specific aspects of validity are relevant: construct validity, internal, and external validity. First, construct validity concerns the extent to which a measuring instrument measures what it is intended to measure (Strauss & Smith, 2008). By using Wlz-indications officially assigned by the CIZ, construct validity is strengthened, because Wlz-indications are based on standardized criteria. In addition, the data on healthcare costs are derived from administrative sources, instead of being based on surveys or other data collection methods (Centraal Bureau voor de Statistiek, 2026). When using administrative sources, there is limited space for subjective interpretation. It is important to note, that the data collection is outside the scope of this study, but construct validity still applies to this prior phase of data collection. A potential limitation, in terms of construct validity, is that Wlz-indications do not directly measure health status, but the need for long-term care. Therefore, the study focuses on whether Wlz-indications provide additional predictive power for healthcare costs compared to the current risk equalization model.

Second, internal validity refers to the extent to which the effects of other variables on the relationship found in the study are limited (Druckman et al., 2012). In this study, no causal relationship is investigated, so threats to causality are less relevant. However, internal validity still applies, since the estimated predictive power should still accurately reflect the association between the Wlz-indications and the healthcare costs. A potentially related point is that some predictive power might already be incorporated into current risk adjustors, such as the PPA criteria. This may be assessed by performing analyses both before and after risk equalization.

Third, external validity concerns whether conclusions are generalizable or specific to a particular time and context (Druckman et al., 2012). A major strength of this study is the use of data covering the entire Dutch population. In contrast to studies that work with samples, the results of this study are representative of the Dutch population. This results in high external

validity of the findings of this study, which is relevant, as they may have implications for the Dutch risk equalization model. Although the results may also offer insights for other countries, caution is required when generalizing them, as each country must apply them within the context of its own risk equalization model. In addition, the analyses focus on only one year of costs and indications, providing no insight into the stability of the findings of this study.

Reliability refers to the consistency and quality of the data (Heale & Twycross, 2015). The reliability of the study is strengthened, because the data used in this study are registered and stored through standardized procedures by official (semi) governmental organizations. Also, the analyses are performed in a secure CBS environment, which protects the data. In addition, the variables in the dataset are based on administrative registrations rather than on self-reported information. Therefore, the data is less affected by subjective interpretation (Fortin et al., 2017). By using Stata syntax, the analyses are replicable for similar datasets from other years. This improves the replicability of the research and therefore its reliability (Yin, 2017).

Lastly, the privacy of the population is protected in the dataset, as it uses an anonymized identification number (RIN), which prevents specific values from being traced back to a single individual. Furthermore, the analyses are based on aggregated averages and only results based on at least ten observations are reported. These measures contribute to both the reliability of the results and the protection of individual privacy.

4. Results

In this results section, the findings of the analysis are presented. The data analysis contains four steps, used to present the results in this chapter. First, a descriptive analysis shows several characteristics of the population with a Wlz-indication in the prior year. Second, the average healthcare costs and predictive power of Wlz-indications for Zvw-care costs before risk equalization are determined. Third, the levels of under- and overcompensation and the predictive power of Wlz-indications for Zvw-care costs after risk equalization are determined. Lastly, the potential new risk adjustors are assessed according to several risk adjustor criteria.

4.1 Step 1: Descriptive results for people with a Wlz-indication in the prior year

The first step of the analysis provides a description of the population with a Wlz-indication in the prior year and compares it to the whole population. The weighted averages are calculated for a range of relevant variables for the population with a Wlz-indication in the prior year and the whole population. In 2023, 370,330 individuals had a Wlz-indication in the prior year, representing 2.1% of the whole population. The complete dataset (whole population) consists of 17,737,376 individuals. Table 4 presents the descriptive statistics for several variables for both populations.

The results show that people with a Wlz-indication in the prior year differ substantially from the whole population. First, the population with a Wlz-indication in the prior year is considerably older, with an average age of 62.8 years compared to 42.3 years in the total population. Second, individuals with a Wlz-indication in the prior year are more frequently classified in morbidity-based risk adjustors, such as DCG, PCG, MPC, and HHC.

The differences are also observed in socioeconomic status. Where 96.5% of the population with a Wlz-indication in the prior year is classified as having very low socioeconomic status, while only 21.8% of the entire population falls within this category.

Furthermore, most individuals with a Wlz-indication in the prior year are classified into PPA classes related to living in a Wlz-facility either with or without treatment (staying), while these PPA classes are almost absent in the whole population.

Table 4: Descriptive statistics and comparison between the population with a Wlz-indication in the prior year and the whole population in 2023.

	Population with a Wlz-indication in the prior year	Whole population
Average age	62.8	42.3
% of people that are in at least 1 Diagnose Cost Group (DCG)	26.9	11.9
% of people that are in at least 1 Pharmacy Costs Group (PCG)	45.5	26.9
% of people that have multiple years of pharmacy costs MFC (MPC)	62.6	30.6
% of people that have historical need of care devices (HHK/ HCC)	39.1	8.3
% of people that are in very low socioeconomic status	96.5	21.8
% of people that are in low socioeconomic status	1.6	19.6
% of people that are in middle socioeconomic status	1.1	29.4
% of people that are in high socioeconomic status	0.8	29.3
% of people that are in PPA class Wlz-facility with treatment (staying)	45.6	0.9
% of people that are in PPA class Wlz-facility without treatment, extramural Wlz (staying)	43.1	0.9
% of people that are in PPA class Wlz-facility with treatment (incoming)	0.4	0.1
% of people that are in PPA class Wlz-facility without treatment, extramural Wlz (incoming)	1.0	0.2
% of people that are in PPA class one-person household	2.6	13.7
% of people that are in PPA class other	4.2	65.5
% of people that are in PPA class 70 years and older	3.2	18.7

Note. The number of observations equals all the people in the dataset. The mean of the relevant variables is weighted for the fraction of the year that individuals had insurance in 2023. All presented results are weighted in the analysis.

From the first step of the analyses, it can be concluded that individuals with a Wlz-indication in the prior year are, on average, older and have worse health than the average individuals in the entire population. So, in terms of descriptive results, these populations differ substantially.

4.2 Step 2: Determination average costs before risk equalization

The second step consists of determining the average costs before risk equalization, which are presented for the whole population and the total population with a Wlz-indication in the prior year (Table 5A), but also per Dominant Basis (Table 5B), and per Intensity Level class (Table 5C). In all tables, there is a disaggregation per model. Each table also presents the proportion of people as part of the total population with a Wlz-indication in the prior year.

Table 5A shows that the population with a Wlz-indication in the prior year has substantially higher Zvw-care costs compared to the whole population. The average Zvw-care costs for the population with a Wlz-indication in the prior year (6,197 euros) are more than twice as high as those of the whole population (2,956 euros). The difference may be driven by higher average somatic and mental care costs. In contrast, the difference in average mandatory deductible costs is smaller. These findings indicate that individuals with a Wlz-indication may have greater (somatic and mental) healthcare needs compared to the entire population.

Table 5A: Average Zvw-care costs in euros per person per year for the whole population and the population with a Wlz-indication in the prior year before risk equalization.

	Average Zvw-care costs	Average Somatic care costs	Average Mental care costs	Average Mandatory deductible costs
Whole population	2,956	2,834	316	194
Population with Wlz-indication in the prior year	6,197	5,392	1,068	263

Note. Whole population and population with a Wlz-indication in the prior year show the average costs for all classes of Dominant Basis/ Intensity Level. The mean of the relevant variables is weighted for the fraction of the year that individuals had insurance in 2023. All presented results are weighted in the analysis.

Table 5B presents average costs per Dominant Basis. There is considerable variation in costs across the different DB-classes. Individuals with a psychological condition (DB3) or physical disability (DB4) have the highest average total Zvw-care costs. In contrast, individuals with a psychogeriatric condition (DB2) or mental disability (DB5) have lower average Zvw-care costs. The results also show that the average Zvw-care costs are mainly driven by the somatic care costs, except for individuals with a psychological condition (DB3), where the average mental care costs are relatively high. The mandatory deductible costs vary less across the DB-classes.

In terms of prevalence, psychogeriatric (DB2) and mental disabilities (DB5) together represent more than half of the total population with a Wlz-indication in the prior year. Sensorial disabilities (DB6) and unknown (DB9) have relatively high average Zvw-care costs, but together only represent 1.6% of the total population with a Wlz-indication in the prior year. Consequently, conclusions regarding these classes should be interpreted with caution.

Table 5B: Average Zvw-care costs in euros per person per year per Dominant Basis (DB) of the population with a Wlz-indication in the prior year before risk equalization.

Dominant Basis (DB)	% of the population with a Wlz-indication in the prior year which are in that specific subclass	Average Zvw-care costs	Average Somatic care costs	Average Mental care costs	Average Mandatory deductible costs
DB 1: Somatic condition	16.8	9,333	9,419	237	323
DB 2: Psychogeriatric condition	27.6	3,014	3,096	139	221
DB 3: Psychological condition	9.6	12,666	4,953	8,036	323
DB 4: Physical disability	9.3	11,718	11,518	453	316
DB 5: Mental disability	25.2	3,898	3,648	485	235
DB 6: Sensorial disability	1.0	6,127	5,825	576	275
DB 9: Unknown	0.6	12,239	12,090	487	337

Note. DB 7 and DB 8 are not included in this table, since there is no individual in the dataset in that class. The mean of the relevant variables is weighted for the fraction of the year that individuals had insurance in 2023. All presented results are weighted in the analysis.

Table 5C shows that Zvw-care costs also differ substantially across IL-classes. The subpopulation within FunctionCare has the highest average Zvw-care costs, mainly due to high average somatic costs, but only represents 0.4% of the population with a Wlz-indication in the prior year. High average Zvw-care costs are also observed for subpopulations PartnerStay, PhysicallyDisabled, MentalCare, and StronglyBehavioralDisabled in comparison to other IL-classes.

Similar to the results from Table 5B, some classes are mainly associated with high average somatic care costs, while others are mainly associated with high average mental care costs. The NursingCare and MentallyDisabled classes account for the largest share of the population with a Wlz-indication in the prior year, with comparable average Zvw-care costs and somatic care costs. As shown in Table 5B, differences in average mandatory deductible costs across IL-classes remain modest.

Table 5C: Average Zvw-care costs in euros per person per year per Intensity Level (IL) of the population with a Wlz-indication in the prior year before risk equalization.

Intensity Level (IL)	% of the population with a Wlz-indication in the prior year which are in that specific subclass	Average Zvw-care costs	Average Somatic care costs	Average Mental care costs	Average Mandatory deductible costs
FunctionCare	0.4	28,773	28,450	701	378
NursingAndCare	46.9	4,998	5,096	161	259
SlightlyMentallyDisabled	0.5	3,479	1,628	2,056	204
StronglyBehavioralDisabled	0.1	11,473	4,234	7,501	262
MentallyDisabled	34.6	3,896	3,683	449	235
PhysicallyDisabled	4.6	12,851	12,495	685	329
SensorialDisabled	0.9	5,492	5,251	508	267
MentalCare	8.6	12,831	4,876	8,283	328
PartnerStay	0.5	13,892	14,077	184	370

Note. The mean of the relevant variables is weighted for the fraction of the year that individuals had insurance in 2023. All presented results are weighted in the analysis.

To assess the predictive power of Wlz-related X-variables, several regression analyses were performed. Table 6 shows the results of regression analysis on the costs before risk equalization in R-squared values.

The results indicate that having a Wlz-indication in the prior year explains a limited proportion of the variance in healthcare costs. The R-squared values are relatively low. Nevertheless, the explanatory power generally increases when more detailed Wlz-information is used as the X-variable. In most cases, X-variables based on the Dominant Basis have a higher

explanatory power across all costs. For mental care costs, the Dominant Basis and the Intensity Level as X-variables have relatively higher R-squared values, indicating that these variables are more predictive of mental care costs.

Although the R-squared values remain low, the results suggest that more detailed Wlz-indications as X-variables explain more variance in healthcare costs. However, an exception concerns the total Zvw-care costs and somatic care costs, where Intensity Level has lower R-squared values than the Wlz-indication in the prior year variable. The expectation would be that, the R-squared for Intensity Level would be higher than the R-squared for Wlz-indication in the prior year, because of the additional X-variables.

Table 6: R-squared values of several linear regressions before risk equalization.

	X = Wlz-indication in the prior year	X = Dominant Basis (DB)	X = Intensity Level (IL)
R-squared in case y = total Zvw-costs before risk equalization	0.0018	0.0041	0.0014
R-squared in case y = somatic costs before risk equalization	0.0013	0.0030	0.0010
R-squared in case y = mental care costs before risk equalization	0.0009	0.0087	0.0083
R-squared in case y = mandatory deductible costs before risk equalization	0.0030	0.0042	0.0033

Note. For each column, the set of X-variables differs. For Wlz-indication in the prior year: X = 1 dummy variable based on yes/ no Wlz-indication in the prior year. For Dominant Basis: X = 9 dummy variables based on specific dominant bases of the Wlz-indications in the prior year. For Intensity Level: X = 9 dummy variables based on the intensity level of the Wlz-indications in the prior year.

In summary, despite the low R-squared values presented in Table 6, the results from Table 5 suggest there is a relationship between a Wlz-indication in the prior year and Zvw-care costs before risk equalization. In particular, this relationship is observed for both somatic and mental care costs.

4.3 Step 3: Determination average costs after risk equalization & predictive power

In step three, the level of under- or overcompensation is determined. Tables 7A, 7B, and 7C present the mean financial results, in which undercompensation is indicated by a negative value and overcompensation is indicated by a positive value. Undercompensation results in

predictable losses for insurers, whereas overcompensation results in predictable profits for insurers.

Table 7A compares the average financial results of the whole population and the population with a Wlz-indication in the prior year. The population with a Wlz-indication in the prior year shows a general overcompensation, mainly driven by the mental care model. The level of undercompensation for the mandatory deductible model is relatively low compared to the other two models. The calculation of under- or overcompensation for the total model is based on the under- or overcompensation of the somatic care, mental care, and mandatory deductible model.

Table 7A: Mean financial result in euros per person per year for the whole population and the population with a Wlz-indication in the prior year after risk equalization.

	Under/ over compensation total model	Under/ over compensation somatic model	Under/over compensation mental care model	Under/ over compensation mandatory deductible model
Whole population	0	0	0	0
Population with Wlz-indication in the prior year	+518	+145	+388	-15

Note. The mean of the relevant variables is weighted for the fraction of the year that individuals had insurance in 2023. All presented results are weighted in the analysis. The under- or overcompensation for the whole population is '0', because all under- and overcompensations mathematically cancel each other out the ex-ante closed system.

Table 7B demonstrates variation in under- or overcompensation across the DB-classes. Individuals with somatic conditions (DB1), physical disabilities (DB4), or sensorial disabilities (DB6) are generally undercompensated in the total model, while individuals with mental disabilities (DB5), psychogeriatric conditions (DB2), or psychological conditions (DB3) are generally overcompensated. In terms of proportion, DB2 and DB5 represent almost half of the population with a Wlz-indication in the prior year.

The results show that all DB-classes are overcompensated in the mental care model. Whereas in the somatic care model, only three DB-classes are overcompensated. For the mandatory deductible model, the under- or overcompensation differs per DB-class, but are mainly overcompensated.

Table 7B: Mean financial result in euros per person per year for each Dominant Basis of the population with a Wlz-indication in the prior year after risk equalization for each model.

Dominant Basis (DB)	Under/ over compensation total model	Under/ over compensation somatic model	Under/over compensation mental care model	Under/ over compensation mandatory deductible model
DB 1: Somatic condition	-52	-209	+161	-4
DB 2: Psychogeriatric condition	+822	+547	+343	-68
DB 3: Psychological condition	+872	-131	+974	+29
DB 4: Physical disability	-603	-822	+217	+1
DB 5: Mental disability	+776	+342	+429	+5
DB 6: Sensorial disability	-286	-425	+136	+3
DB 9: Unknown	+272	+177	+69	+26

Note. The mean of the relevant variables is weighted for the fraction of the year that individuals had insurance in 2023. All presented results are weighted in the analysis.

Table 7C also highlights the variation in the mean financial results across IL-classes. Most IL-classes are overcompensated in the total model, especially FunctionCare, MentalCare, and PartnerStay. In contrast, the PhysicallyDisabled class is substantially undercompensated.

The two largest classes of the population with a Wlz-indication in the prior year, NursingAndCare, and MentallyDisabled, are relatively limited overcompensated compared to other IL-classes. Similar to the results from Table 7B, all the IL-classes in the mental care model are overcompensated. However, in the somatic care model, four IL-classes are overcompensated, which is one more class compared to the results from Table 7B. In general, almost all IL-classes are overcompensated in the mandatory deductible model.

Table 7C: Mean financial result in euros per person per year for each Intensity Level of the population with a Wlz-indication in the prior year after risk equalization for each model.

Intensity Level (IL)	Under/ over compensation total model	Under/ over compensation somatic model	Under/over compensation mental care model	Under/ over compensation mandatory deductible model
FunctionCare	+1,524	+1,310	+181	+33
NursingAndCare	+530	+298	+277	-45
SlightlyMentallyDisabled	+97	+3	+73	+20
StronglyBehavioraLDisabled	+654	-1,211	+1,844	+21
MentallyDisabled	+769	+336	+428	+5
PhysicallyDisabled	-1,163	-1,435	+255	+18
SensorialDisabled	+45	-176	+219	+2
MentalCare	+1,010	-142	+1,122	+30
PartnerStay	+866	+751	+87	+28

Note. The mean of the relevant variables is weighted for the fraction of the year that individuals had insurance in 2023. All presented results are weighted in the analysis.

To assess the predictive power, Table 8 presents the results of the regression analysis of the costs after risk equalization. The results are presented as R-squared and indicate the predictive power of the different Wlz-related X-variables. Compared to the regression results before risk equalization from Table 6, the R-squared values are lower and closer to zero.

For total Zvw-care costs and somatic care costs after risk equalization, using more detailed X-variables, such as Dominant Basis or Intensity Level, results in limited additional explanatory power. For the mental care costs and mandatory deductible costs after risk equalization, the results show that more detailed X-variables result in higher R-squared values, indicating greater predictive power.

Table 8: R-squared values of several linear regressions after risk equalization.

	X = Wlz-indication in the prior year	X = Dominant Basis (DB)	X = Intensity Level (IL)
R-squared in case y = total Zvw-costs after risk equalization	0.0001	0.0001	0.0000
R-squared in case y = somatic costs after risk equalization	0.0000	0.0001	0.0000
R-squared in case y = mental care costs after risk equalization	0.0003	0.0004	0.0004
R-squared in case y = mandatory deductible costs after risk equalization	0.0003	0.0018	0.0020

Note. For each column, the set of X-variables differs. For Wlz-indication in the prior year: X = 1 dummy variable based on yes/ no Wlz-indication in the prior year. For Dominant Basis: X = 9 dummy variables based on specific dominant bases of the Wlz-indications in the prior year. For Intensity Level: X = 9 dummy variables based on the intensity level of the Wlz-indications in the prior year.

In summary, despite the low R-squared values from Table 8, the results from Table 7 suggest a relationship between a Wlz-indication in the prior year and Zvw-care costs after risk equalization. Notably, this relationship holds both somatic and mental care costs.

4.4 Step 4: Applying risk adjustors criteria

When incorporating new risk adjustors in the risk-equalization model, the adjustor should meet certain criteria. In this study, three criteria are assessed: appropriateness of incentives, fairness, and feasibility.

The criterion for appropriate incentives is already explored in step 3 by determining the predictive power of the model through the (additional) predictive power of the added adjustors. In general, incorporating improved risk adjustors increase the predictive power of the model, thereby reducing financial incentives for insurers to attract predictably profitable subpopulations and deter predictably unprofitable subpopulations. In addition, risk adjustors based on Wlz-indications in the prior year are unlikely to negatively affect incentives for efficiency or create opportunities for manipulation or gaming, since Wlz-indications are assigned by an independent organization, namely CIZ. Insurers have little to no influence on this organization and therefore cannot easily manipulate these indicators to obtain higher compensation payments through their enrollees.

The criterion of fairness concerns the value judgements regarding which health risk should or should not be compensated within the risk equalization model. Individuals with a

Wlz-indication generally face high and persistent care needs. The compensation to the insurers would increase with the intensity of the care required. This contributes to more accurate compensation for insurers that cover disproportionate shares of people with a Wlz-indication. CIZ is an independent organization that assesses Wlz-indications according to a structured set of criteria based on each individual's (health) status. By including additional risk adjustors that predict Zvw-care costs, such as Wlz-indication based risk adjustors, the compensation to insurers for individuals with these high and persistent care needs becomes more accurate.

Feasibility relates to the availability of valid and reliable data. Wlz-indication data is centrally collected for the entire Dutch population by the CIZ (Centraal Bureau voor de Statistiek, 2026), which supports the feasibility of implementation of Wlz-indication based risk adjustors. Nevertheless, practical issues may arise when Wlz-indications start or end during a calendar year, which should be adequately addressed in the model. In general, the use of Wlz-indications does not raise major privacy concerns, since the variable only captures whether an individual has a Wlz-indication and not detailed medical background information. Furthermore, measurement error is unlikely to occur, because CIZ assesses each Wlz-indication according to a consistent set of steps. Potential inaccuracies in the assessment process of the Wlz-indication by the CIZ fall outside the scope of this research.

The overall exploratory assessment of Wlz-indications as risk adjustors according to the risk adjustor criteria is summarized in Table 9.

Table 9: Does the Wlz-indication in the prior year as a risk adjustor meet the risk adjustor criteria?

Criteria risk adjustors	Alignment with risk adjustor criteria
Appropriateness of incentives	+
Fairness	+
Feasibility	+

Note. A + indicates that the specific criteria is met, while a - indicates that the specific criteria is not met.

5. Discussion and conclusion

In this section, the secondary research questions are answered and linked to prior research and literature. In addition, the strengths and limitations of the study are discussed, along with recommendations for future research. Subsequently, several policy implications are considered. The chapter closes by summarizing the study and answering the main research question.

5.1 Answers to secondary research questions

The first sub-question of the study is: *what are the characteristics of people with a Wlz-indication in terms of age, socioeconomic status, and health?* The results show that the population with a Wlz-indication in the prior year differs substantially compared to the entire Dutch population. On average, the population with a Wlz-indication has a higher age, compared to the whole population. The percentage of individuals within the Wlz-population that are in at least one DCG or PCG is higher than for the whole population. This may be explained by the extent to which individuals with a Wlz-indication use Zvw-care. Furthermore, the majority of individuals with a Wlz-indication have a low socioeconomic status. Regarding the PPA classes, most individuals with a Wlz-indication are classified in PPA classes associated with residence in a Wlz-facility and either receiving intra- or extramural treatment. Overall, the findings demonstrate that individuals with a Wlz-indication are a high-risk population with continuous healthcare needs.

The second sub-question of the study is: *to what extent are Wlz-indications predictive of healthcare spending under the Health Insurance Act before risk equalization?* The results indicate that individuals with a Wlz-indication may have greater (somatic and mental) healthcare needs compared to the entire population, because of higher average costs. The difference is driven by both somatic and mental care costs, but the exact impact of the separate models on the total Zvw-care costs differs per subpopulation. In terms of somatic care costs, there are specifically high costs among the classes: somatic condition (DB1), physical disability (DB4), FunctionCare, and PhysicallyDisabled. For mental care costs, the highest costs are among individuals in the classes: psychological condition (DB3), MentalCare, and StronglyBehavioralDisabled. The findings suggest that by identifying the subpopulations, variation in healthcare costs can be explained in greater detail. The differences are less clearly

observed when only the total population with a Wlz-indication is compared to the entire population.

The regression analyses results show that the overall explanatory power of Wlz-related variables remains modest. It is also shown that more detailed X-variables, such as all DB or IL classes, generally explain a larger share of the variation in healthcare costs in comparison to only the Wlz-indication.

However, despite the low R-squared values, the results indicate a relationship between a Wlz-indication in the prior year and Zvw-care costs. This also holds for somatic and mental care costs.

The third sub-question of the study is: *to what extent are Wlz-indications predictive of healthcare spending under the Health Insurance Act after risk equalization?* The results show that the population with a Wlz-indication in the prior year is generally overcompensated in the total, somatic, and mental care model. However, these overall results mask important differences among the Wlz-subpopulations. For example, individuals with physical disabilities (DB4) are generally undercompensated, whereas individuals with psychogeriatric conditions (DB2) or psychological conditions (DB3) are generally overcompensated. Similar variation is observed among the IL-classes. These results generally indicate that the current risk equalization model performs unevenly across the subpopulations and may insufficiently capture the care needs of individuals with a Wlz-indication in the prior year.

At first, the observed overcompensation might appear counterintuitive, since intuitively it can be expected that individuals with a Wlz-indication, given their extensive care needs, would tend to be undercompensated. However, a possible explanation might be that individuals increasingly receive Wlz-care once the Wlz-indication is assigned, resulting in reduced Zvw-care use and therefore reduced Zvw-care costs.

In terms of the predictive power, the R-squared values from the regression analysis show that Wlz-related variables explain substantially more of the variance in healthcare costs before risk equalization than after risk equalization. This outcome can be explained by the fact that the current risk equalization model already captures a large part of the predictable variation in care costs through already incorporated risk adjusters, including age, PCG, DCG, SES, and PPA. As a result, the remaining explanatory power of Wlz-indications and related variables after risk equalization is limited, which is reflected in the lower R-squared values.

However, despite the low R-squared values derived from the regression analyses, there are substantial under- and overcompensations of the subpopulations. These under- and overcompensations can be prevented by incorporating these subpopulations as risk classes into

the risk equalization model, in order to prevent undesirable financial incentives for insurers to engage in risk selection.

The fourth sub-question of the study is: *to what extent do Wlz-indications fulfill the criteria for risk adjustors that are included in the Dutch risk equalization model?* The assessment of the criteria shows that Wlz-indications, as risk adjustors, meet all three criteria to a considerable extent. First, in case of appropriateness of incentives, the Wlz-indications contribute to an improvement of predictive power of the model and therefore reduce financial incentives for insurers to risk select. In addition, insurers have limited opportunities to manipulate this risk adjustor, since the indications are assigned by an independent institution (CIZ). Second, in regard to fairness, the compensation within the model aligns with the concept of solidarity. The insurers receive higher payments for enrollees with more intensive care needs. Third, in terms of feasibility, the data is available, reliable, and collected annually, enabling the potential implementation of this risk adjustor. However, this thesis contains an exploratory analysis, but more thorough analyses are needed to further assess these criteria and potentially incorporate this additional risk adjustor.

The findings of this study are consistent with existing literature on risk equalization models and emphasize that additional risk adjustors can improve the predictive power of the model in terms of healthcare costs. Similar to previous study results, additional risk adjustors may improve the predictive power for specific subgroups, while the overall increase in predictive power remains limited, because much of the variance is already captured by the incorporated risk adjustors. At the same time, this study contributes to existing literature, since Wlz-indications have not been evaluated as a potential risk adjustor for the Dutch risk equalization model before. In addition, by disaggregating the results to Dominant Basis and Intensity Level, a more detailed insight is provided into how Wlz-indications relate to healthcare costs.

5.2 Strengths, limitations and recommendations for further research

A major strength of this study is the use of real-world data from the entire Dutch population with a basic health insurance in 2023, combined with the dataset on Wlz-indications. These datasets enable a calculation of the under- and overcompensation and predictive power of Wlz-related variables. However, the analysis is limited to the year 2023, which restricts the generalizability of the findings. The observed results may be specific to 2023 and therefore not reflect structural patterns. Future research should therefore contain stability analyses across

multiple years of data to assess the consistency of the findings of this study. Applying the same analytical steps to several years of data would provide insight into the robustness of the results and strengthen the evidence for potential policy changes.

A second strength of this study is that it follows the current practice of the Dutch risk equalization system by using information from the previous year, in this case, Wlz-indications from the prior year. This ensures consistency with the already incorporated risk adjustors, which are also generally based on prior year information. However, Wlz-indications differ from other risk adjustors, because they are assigned by an independent organization instead of being based on historical claims data and costs of all insured individuals. As a result, insurers have no influence on the assignment of Wlz-indications and therefore have no incentives for higher compensation through additional care provision in that specific year. In addition, it might be of interest to use Wlz-information from the current year to assess whether this improves the predictive power. Future research should therefore compare the predictive power of prior-year and current-year Wlz-indications and assess how this might influence the performance of the risk equalization model.

A third strength is the use of two complementary evaluation methods. By combining the under- and overcompensation method and the R-squared method, the study provides a broader assessment of the potential added value of Wlz-indications as risk adjustors. At the same time, the results indicate that there is still heterogeneity within the population with a Wlz-indication. Although the analyses partly account for this heterogeneity by using predetermined classes, such as Dominant Basis and Intensity Level, individuals with a Wlz-indication may still differ in terms of duration of indication and actual use of Wlz-care. Future research should therefore further investigate heterogeneity within the population with a Wlz-indication by exploring alternative classifications, such as temporary versus permanent Wlz-indications, the level of actual use of Wlz-care, and combinations of Dominant Basis and Intensity Levels classes.

A fourth strength of this study is the combination of quantitative microdata analyses in combination with a qualitative assessment of the risk adjustor criteria. This mixed methods study includes an analysis of the predictive power of Wlz-indications in the prior year, the relationship between Wlz-indications in the prior year and Zvw-care costs, but also an assessment of the extent to which Wlz-indications in the prior year meet the risk adjustor criteria. Nevertheless, the qualitative assessment remains relatively limited and is primarily an exploratory evaluation. Future research should further investigate this, by performing more in-

depth qualitative analyses to gain more knowledge on the possibilities of incorporating Wlz-indications in the prior year as risk adjusters into the Dutch risk equalization model.

Another limitation of the study is that the analysis excludes individuals who are seasonal workers (SEI-criteria), which may qualify for long-term care. Their exclusion may endanger the completeness of the findings. Future research should therefore investigate if exclusion of this group affects the findings of this study.

An additional important aspect is that the observed overcompensation of certain subpopulations cannot be fully explained within the scope of this study. A possible explanation might be the transition of patients from the Zvw to the Wlz. Further research on the effect of this transition would be valuable, since there is a high probability that individuals use less Zvw-care once they receive a Wlz-indication. This influences the average Zvw-care costs for those individuals and therefore influences the level of compensation received or paid by insurers for these individuals.

Finally, this study demonstrates that Wlz-indications contain information that is related to already incorporated risk adjusters, such as the PPA classes. However, it remains unclear whether risk adjusters based on Wlz-indications in the prior year substitute the incorporated PPA classes or if they are complementary. Future research should therefore investigate the overlap and incremental predictive power of Wlz-indications in relation to the already incorporated risk adjusters. Such analyses determine whether risk adjusters based on Wlz-indications should supplement, replace, or be combined with the existing PPA classes within the Dutch risk equalization model.

5.3 Policy implications

The findings of this study might have several implications for both the functioning of the health insurance market and the development of the risk equalization model itself.

The first implication concerns the observed under- and overcompensation of individuals with a Wlz-indication in the prior year. Findings show that the average compensation for the Wlz-population differs from the one of the entire population. In addition, there is variation across the Dominant Basis and Intensity Level classes. Although insurers are not able to directly select individuals based on a Wlz-indication, they can indirectly attract or discourage these groups through selective contracting or specific marketing strategies. Insurers may have incentives to attract groups that are structurally overcompensated, because they are profitable for the insurers. The findings suggest that these incentives differ across the Wlz sub-

populations, which is a relevant finding related to maintaining a level playing field for insurers. If some insurers have relatively more enrollees who are undercompensated than other insurers, differences in financial outcomes may arise. This may result in competition between insurers, which is mainly based on risk composition instead of efficiency and quality performance. This phenomenon emphasizes the importance of reducing under- or overcompensation in order to ensure efficiency and high-quality care.

Secondly, the results show that Wlz-indications do have predictive power for Zvw-care costs. Wlz-indications satisfy the important risk adjustor criteria, as far as this analysis shows. However, the additional predictive power of Wlz-indications is limited after risk equalization. This finding suggests that much of the predictive power is already captured in the currently included risk adjustors, such as age, PCG, DCG, SES, and PPA classes. So, introducing Wlz-indications as a separate risk adjustor may increase the complexity of the model, while the improvements of the model remain modest. Therefore, policy may concern how under- or overcompensation for these specific Wlz sub-populations should be eliminated without increasing the complexity of the model too much.

Overall, the findings suggest that the Wlz-indications should not be directly incorporated into the risk equalization model as a new risk adjustor, because more research is needed. Future policy may focus on how to incorporate Wlz-indications as risk adjustors to reduce predictable profits or losses, while maintaining a level playing field for insurers.

Finally, the insights from this study are based on Dutch data, but the findings may also be relevant to other countries, which may face similar challenges in designing their risk equalization model. By spreading and exchanging these findings at the policy level, it could contribute to greater knowledge on the relationship between long-term care indications and healthcare costs.

5.4 Conclusion

This section answers the main research questions of this study, which is: *What are the possibilities and effects of improving the Dutch risk equalization system with risk adjustors based on “indications of the need for long-term care”?* Based on the results of this study, it can be concluded that the population with a Wlz-indication in the prior year is generally overcompensated in the current risk equalization model, although substantial differences exist between specific subpopulations. The findings suggest that the current model does not fully compensate for variation in healthcare spending between these subgroups, which may lead to

wrong financial incentives for insurers. To minimize these under- and overcompensations, Wlz-related risk adjustors may be included in the model. The results show that Wlz-related risk adjustors minimally improve the overall predictive power of the risk equalization model. Nevertheless, these additional risk adjustors may still contribute to reducing persistent overcompensation of the population with a Wlz-indication in the prior year, since the results indicate a substantial relationship between a Wlz-indication in the prior year and Zvw-care costs.

Improving the accuracy of compensation for predictable differences in healthcare costs contributes to both reducing incentives for risk selection and maintaining a level playing field for insurers. By incorporating additional risk adjustors in the risk equalization model, compensation becomes more accurate and therefore reduces predictable profits or losses for specific subpopulations. However, it remains important to investigate whether Wlz-indications provide information that is additional to the already incorporated risk adjustors or whether they should replace these risk adjustors that already capture parts of the predictive power.

In conclusion, by addressing and correcting structural overcompensation of certain populations, such as the population with a Wlz-indication in the prior year, the model is continuously improving. Nevertheless, additional future research is needed to successfully incorporate Wlz-indications as risk adjutors.

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7. Appendices

Appendix 1: All variables in the micro-dataset

<i>Parameter name</i>	<i>Description and English abbreviation.</i>
gew	Part of the year the person was insured.
rin	Identification number
age	Age in 2023
kost_som	Costs somatic care 2023
ydak_som	Predicted costs for somatic care 2023 according to somatic model.
kost_er	Costs under mandatory deductible 2023.
ydak_er	Predicted costs under mandatory deductible 2023.
kost_ggz	Costs GGZ (mental care) 2023.
ydak_ggz	Predicted costs GGZ (mental care) 2023.
mfk	Indicated by multiple years of pharmacy costs (MPC)
pflkg	Indicated by psychological pharmacy cost group (PCG).
pdkg	Indicated by psychological diagnose cost group (DCG).
pmhk	Indicated by multiple high GGZ costs (MHC).
flkg	Indicated by somatic pharmacy cost group (PCG).
dkg	Indicated by somatic diagnose cost group (DCG).
mhk	Indicated by multiple high somatic costs (MHC).
fdg	Indicated by physiotherapy diagnose group (PDG).
mvv	Indicated by multiple home care costs (MHCC).
hhk	Indicated by historical need of care devices (HCC).
ses_zeerlaag/ ses_laag/ ses_midden/ ses_hoog	SES classes: very low/ low/ middle/ high. (SES very low/ low/ middle/ high)
ppa_ref	PPA class 70 years and older.
ppa_wlz_mb_b	PPA class Wlz-facility with treatment, staying.
ppa_wlz_zb_b	PPA class Wlz-facility without treatment/ extramural Wlz,

	staying.
ppa_wlz_mb_i	PPA class Wlz-facility with treatment, incoming.
ppa_wlz_zb_i	PPA class Wlz-facility without treatment/ extramural Wlz, incoming.
ppa_eenp	PPA class one-person household.
ppa_overig	PPA class other.
kost_zvw	Total Costs Zvw 2023.
ydak_zvw	Total Predicted Costs Zvw 2023 according to risk equalization model 2026.
res_zvw	Equalization result 2023 with application of equalization model of 2026.
ind_ciz	Wlz-indication provided by CIZ in 2023.
WLZZZP	Intensity of the Wlz-indication (IL).
WLZDOMGROND	Dominant basis of the Wlz-indication (DB).

Source: IndicatieWlztab Centraal Bureau voor de Statistiek, 2026

Appendix 2: Classes Dominant Basis and Intensity Level

Dominant Basis of the Wlz-indication

Value WLZDOMGROND	Category	Created variable name
1	Somatic condition	DB1
2	Psychogeriatric condition	DB2
3	Psychological condition	DB3
4	Physical disability	DB4
5	Mental disability	DB5
6	Sensorial disability	DB6
7	Psychosocial problem	DB7
9	Unknown	DB9

Note: Dominant Basis 8 does not exist.

Source: IndicatieWlztab Centraal Bureau voor de Statistiek, 2026

Intensity Level of the Wlz-indication

Value WLZZP	Category	Created variable name
000, 001, 002, 003, 004, 005, 006, 007	Function care without stay/ short stay	FunctionCare
191, 750, 751, 752, 753, 754, 755, 756, 757, 759	Care intensity 1-9 for Nursing and Care	NursingAndCare
780, 781, 782, 783, 784	Care intensity 1-5 for slightly Mentally disabled	SlightlyMentallyDisabled
790	Care intensity Strongly Behavioral disorder light	StronglyBehavioralDisorder
800, 802, 804, 806, 808, 810, 812, 814	Care intensity 1-8 for Mentally disabled	MentallyDisabled
820, 822, 824, 826, 828, 830, 832	Care intensity 1-7 for Physically disabled	PhysicallyDisabled
840, 842, 844, 846, 848, 850, 852, 854, 856	Care intensity 1-5 Sensorial disabled (visual) & 1-4 Sensory disabled (auditive)	SensorialDisabled
760, 762, 764, 766, 768, 770, 772 860, 862, 864, 866, 868, 870, 880, 882, 884, 886, 888	Care intensity 1B-7B, 1C-6C, 1W- 5W for Mental Care	MentalCare
999	Partner stay	PartnerStay

Source: IndicatieWlzt tab Centraal Bureau voor de Statistiek, 2026