UNIVERSITI TEKNOLOGI MARA

A DIET PLAN FOR MALAY HOUSEHOLDS USING LINEAR PROGRAMMING

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ABSTRACT

In recent years, the global economy influences the price of commodities, foods and services throughout the world. Unstable price of fuel and increase in prices of food stretch the household expenditures. Limited amount of money to spend for food leaves individual or household with restricted choice of food to purchase, thus, limiting their potential of adopting healthy diet. A prime concern is how can the Malaysian households, especially who live in urban areas and have low or moderate income, consume healthy diet with only a small amount of money reserved for food? This necessitates the need to develop a systematic way of planning the types and quantity of food to consume daily, which contains the required nutrition and can be acquired at minimal cost. This study proposed a daily diet plan which guides the families in selecting food which meets the dietary standard listed in the Malaysian Recommended Nutrients Intake (RNI) and at minimum cost. The objectives of this study are to create a database of commonly consumed food in Malaysia with their respective nutritional contents and estimated costs, to develop a mathematical model that minimizes daily cost for food that meets the Malaysian RNI and to produce an interface which allows users to generate their healthy diet plan. Linear programming (LP) model is employed in solving this problem and producing the combinations of healthy daily meals inclusive of breakfast, lunch and dinner furnished with the estimated daily diet cost. The diet plan generated can be recommended to the public and the associated minimum cost can be used as a guideline for estimating monthly budget for food. The diet plan developed in this study can also be easily modified to be used for specific range of budgets allocated monthly for food, thus, it may also be of interest to all income groups.

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CHAPTER 1

RESEARCH OVERVIEW

1.1 Introduction

This chapter provides an overview of the study. This includes the general description of the problem, motivation to conduct the study, background of the study, the problem statement, objectives, scope and limitations, the significance of the study and the outline of the chapters included in the thesis. This chapter highlights some important facts that may be useful in understanding the contents of the following chapters.

1.2 General Description of the Study

Beginning of 2002, the world fuel price has seen an inexorable increase, as depicted in the graph shown in Figure 1.1, provided by the Development Economics Prospects Group (DECPG) Commodities Team. By 2007, the crucial crisis on global fuel price has threatened the world and jeopardized many governments and the citizens in terms of their daily activities and income distributions. The report by Ee (2008) stated that the high fuel price emits the most concern from the world because the entire world's activities depend on fuel prices.