

Let's get physical!

Expanding marketing science to physical
activity behaviour

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Abstract

Despite substantial public health efforts, rates of physical inactivity remain high suggesting limited effectiveness of current efforts. There may be a need for cross-disciplinary collaborations to improve engagement in physical activity.

Public health researchers and practitioners try to understand how people allocate finite time across various activities (including physical activity). Similarly, marketers seek to understand how people spend their limited money across different products. Marketing science has identified generalizable patterns of buying behaviours (empirical generalisations/laws) that inform brand growth strategies. As physical activity is a repeat-behaviour, like buying goods and services, this thesis aims to suggest ways to promote physical activity through the application of marketing science knowledge to physical activity data.

This thesis borrows repeat-behaviour analyses and the NBD-Dirichlet model from the marketing science discipline to test the relevance of marketing's empirical generalisations (or laws) in the physical activity context. This thesis includes three studies, each of which investigates a law, to understand:

- (1) how frequency of engagement in physical activity varies;
- (2) competition for physical activity time – how physical activity competes with everyday activities, and how various physical activities compete; and
- (3) the contribution of prevalence and duration to overall physical activity time.

In the **first study**, national survey data from Australia, Singapore and the United States demonstrates that the frequency of engagement in physical activity follows a Negative Binomial Distribution - there are many non and infrequent engagers, and few frequent engagers. Therefore, to increase physical activity the distribution needs to shift such that the non-engagers start engaging, and the infrequent engagers engage more. The non-engagers offer the most potential as there are so many of them. The fit of the NBD-model to the data suggests that the frequency of engagement in the population is somewhat predictable. Finally, the NBD distribution supports the idea that physical activity exists along a continuum. Arbitrary categorisation into 'active' and 'inactive' may be misleading and individual-level frequency data (as opposed to aggregate categories of frequencies) should be analysed.

The **second study** explores how physical activity competes for time in the day. Using time-use recall data, the Duplication of Behaviour Law is tested on physical activity and found to hold – the prevalence of the competing activity determines the extent of competition between two activities (e.g. physical activity and socialising, or gym and sport). Importantly, while physical activity competes a lot with other everyday activities, there is no one key competitor – rather, many activities “steal” away time from physical activity. Conversely, certain physical activities compete with each other more than expected (e.g. team and non-team sports). Study two also investigated whether physical activity differs for population segments, based on age and gender. No major age or gender skews exist for physical activity as a whole, suggesting that promotional efforts should be relevant to and reach males and females of all ages. Yet, some specific physical activities exhibit age and gender skews (e.g. dance), thus marketing of these activities may require some targeting.

Findings from study two inform how physical activity competes, suggesting which combinations of activities should be promoted together (or separately) and to whom, in order to increase engagement.

Study three investigates how many people engage in an activity (prevalence) and their duration of engagement (loyalty). The Double Jeopardy Law describes the relationship between prevalence and loyalty. Across physical activities, the relationship between prevalence and loyalty follows the Double Jeopardy Law – smaller activities (those that comprise less of the population’s total time commitment) have fewer people engaging in them and for slightly shorter durations. Prevalence varies far more across the activities than loyalty. Thus, getting more people to engage in a new activity is more likely to increase overall physical activity, compared with trying to increase the duration of an activity.

The empirical generalisations that describe consumer behaviour can also describe physical activity behaviour. Thus, the marketing implications of these empirical generalisations may be applied to physical activity promotion. Public health promotion and sports marketers should focus on increasing the prevalence of physical activities, using strategies that appeal to and reach more of the population, especially non and light- engagers, including males and females of all ages. Further, understanding competition can guide which activities should be promoted together or separately, and to whom. This thesis shows that marketing’s empirical generalisations confirm existing insights in physical activity promotion, suggesting the potential for evidence-based marketing to inform physical activity promotion, and suggests that other marketing analyses and insights may also have value in the context of physical activity.