

## Brief Framing

The research conducted aims to estimate probability of a student having poor financial wellbeing by utilizing logistic regression, using buy-now pay-later user (BNPL) vs non-user as the dependent variable.

## Background and Context

In recent years, usage of BNPL has hit historic records, with 1-in-5 UK adults having used the services within the recent year, as per May 2024, indicating a significant and fast increase from 17% in 2022 (FCA 2024). Furthermore, research identifies primary demographic of BNPL users being under 40, with a significant portion of that being under 24s (M&PS 2023). Although BNPL use is not inherently indicative of anything sinister, explaining the rise of BNPL and the main market demographic is the first step in understanding the potential rising risk exposure for increasingly financially unstable young adults. With 15% of students disclosing they were experiencing major financial difficulties (ONS 2022) it is important to develop the literature and knowledge of understanding on how students may be exposing themselves to the risk of developing poor budgeting habits, cyclical debt (Benedict Guttman-Kenney 2023) and consequential deteriorating wellbeing. Moreover, this research will contribute to this understanding, by advancing beyond descriptive prior research and introducing a classification approach to predict BNPL usage, given financial wellbeing.

## Literature Review and Research Gap

Firstly, it is crucial to address the ways in which BNPL services influence spending habits. Ashby et al (2025) investigates the role in instalments in directing habits, comparing habits across a variety of different instalment plans (different size of first instalments and over-all division of sum). Importantly, Ashby identified the way in which instalments alter perceived spending and 'pain of payment' through the numerosity effect. Research from the MaPS (2023) similarly touches on this idea of cash flow smoothing as a habit altering mechanism however also identifies ease of access, underestimation of liability and decreasing financial resilience as other mechanisms. Vitaly, MaPS's research identified some of the risks introduced when spending through BNPL increases, primarily overextension and debt accumulation. Lastly, Richardson et al 2013 looks to provide foundational insight on correlation between poor financial and emotional wellbeing, proposing the mechanisms of stress and changes to health behaviours to compensate as probable causes, however, lacks conclusive evidence to bridge the gap between correlation and causation. Significantly, while existing research identifies a strong pipeline in which BNPL influences spending and consequential emotional wellbeing, research into non-behavioural mechanisms is much less extensive, particularly for more targeted demographics such as students. Consequently, the papers discussed prove generalised and may often prove unrepresentative of specific demographics. In closing, methodological approaches of classification remain largely unexplored, leaving room for improvement in exploring predictive power as opposed to description and correlation.

## 1 Research Aims & Conceptual Framework

Primarily, this research aims to demonstrate practical application of the theory previously discussed within a targeted demographic by illustrating the capability to utilise logistic regression on survey data to predict probability of financial service use given financial wellbeing scores. Additionally, to encourage informed decision-making among public readers the research must present impactful results in a compelling but honest nature. Lastly, by providing model performance metrics this research will prove informative for future classification-based research.

## 2 Data Context

Surveying will run from February to March 2026, continuing longer, if necessary, until either minimum 200 responses has been received, or rate of response falls drastically. Contents of the survey will involve individual level data about: financial and emotional well-being as well as usage of buy-now pay-later services. Fundamentally, assessment of both forms of wellbeing draws from FCA and MaPS frameworks to provide accurate measures on potentially ambiguous topics. On one hand, this is demonstrated

within financial questioning by adopting common measures such as ability to meet bills and self-assessed financial confidence. On the other hand, comparability measures have been applied across both forms of wellbeing with all questions following a likened 1-5 scale, to allow for anonymity and an averaged financial wellbeing score to pass into logistic regression.

### 3 Analytical Rationale

Firstly, logistic regression proves appropriate in allowing the research problem at hand to be condensed into a binary classification issue, producing probabilistic outcomes, ideal for interpretation and comparability among models. During analytics various summary statistics will be generated such as correlation, variance and skew to develop the understanding of the distribution of the dataset produced and consequently any potential bias. Lastly, to validate results train-test splitting and k-fold cross validation will occur with accuracy, ROC/AUC and Pseudo  $R^2$  responsible for evaluation.

### 4 Limitations

First and foremost, research design raises two key concerns. To begin, the issue of generalisation is present, due to limited sample size and consequently reliability of the model to accurately represent wider public, particularly less represented demographics, is at question. Alternatively, despite mitigation attempts, reliance on self-reported data introduces risk for reduced integrity of data. Furthermore, due to the nature of both the research and logistic regression, this research lacks the capacity to unite correlation and causation.

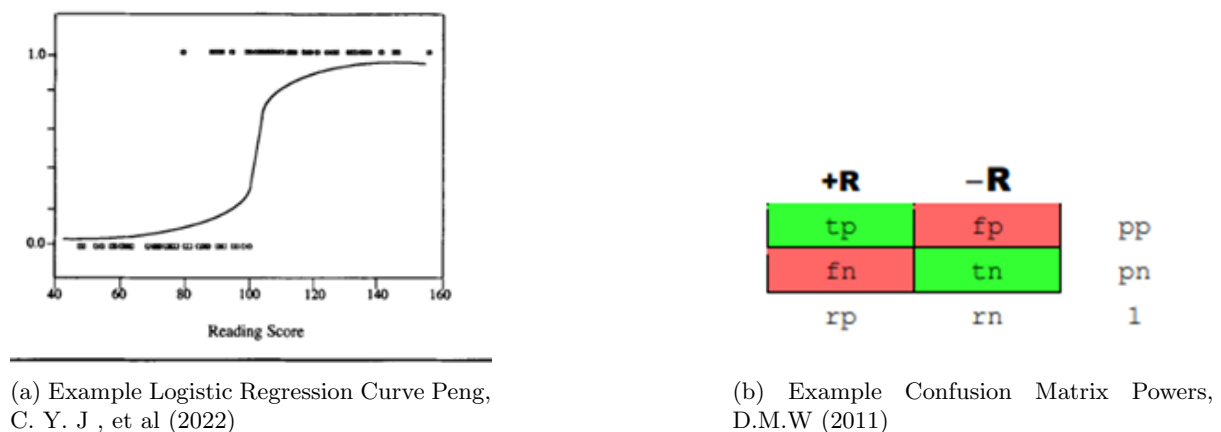


Figure 1: Example Visualisations (Side-by-Side)

### Bibliography (Harvard Style)

1. Money and Pensions Service (2023). *Buy Now, Pay Later: A review of the market, risks and trends*.
2. Richardson, T., Elliott, P. and Roberts, R. (2013). The relationship between personal unsecured debt and mental and physical health: A systematic review and meta-analysis. *Clinical Psychology Review*.
3. Comerton-Forde, C., Ip, E., Ribar, D. C., Ross, J., Salamanca, N. and Tsiaplias, S. (n.d.). Using Survey and Banking Data to Measure Financial Wellbeing. Available at: <https://www.sciencedirect.com/science/article/pii/S2214635023000023>
4. Peng, C. Y. J., Lee, K. L. and Ingersoll, G. M. (2002). An Introduction to Logistic Regression Analysis and Reporting. *The Journal of Educational Research*, 96(1), pp.3–14.
5. Powers, D.M.W. (2011). Evaluation: From Precision, Recall and F-Measure to ROC, Informedness, Markedness and Correlation. *Journal of Machine Learning Technologies*, 2(1), pp.37–63.