As a passionate advocate for evidence-based policymaking and a fervent believer in the power of data to drive societal change I developed an appreciation for the role of economic principles in shaping public policy during my undergraduate studies in Financial and Business Economics through modules such as Applied Economics and Policy, and International Economic Policy. However, it became increasingly evident to me that traditional economic analyses often fall short in capturing the complexity of real-world problems. This realisation ignited my interest in data science as a powerful tool to enhance our understanding of socio-economic phenomena to inform more effective policy interventions. As an aspiring professional, seeking to lay the foundation of my career in the civil service, I intend to thoroughly explore this multidisciplinary field and so am keenly drawn to the Applied Social Data Science course at LSE, eager to equip myself with the necessary skills and knowledge to become proficient in this field.

During my undergraduate study in the Quantitative Methods modules, I developed a sound understanding in calculus with respect to concavity, directional derivatives, and nonlinear programming and their importance in solving optimisation problems with resource constraints. Furthermore, I have covered matrix algebra with practical applications to real world problems that concern different sectors of the economy in aggregate through input-output analysis. Learning about these quantitative economic theories and how they translate into real-world scenarios laid the groundwork for my interest in policy analysis. Moreover, the realisation of the transformative potential of data-driven decision-making in driving socio-economic progress along with a newfound understanding of the complexity of modern-day problems that policy makers face, I now seek to deepen my analytical toolkit which is why I believe I would thrive and greatly benefit from an academically rigorous environment provided at LSE.

With regards to course specific programming skills, both inside an academic setting and outside through the Google Data Analytics Professional Certificate and Harvard’s CS50 Introduction to Programming with Python course, I have supplemented my economic understanding of quantitative methods with invaluable practical experiences. My completion of the Google Data Analytics Professional Certificate has equipped me with hands-on experience in data aggregation, cleaning, and visualisation, using SQL subqueries. It was also inevitable I came across the ggplot2 in tidyverse and discovered the ggplot() function coupled with geom, facet, and annotate functions which allowed for seamless visualisations to identify recurring trends via scatterplots, trendlines, and bar charts for imported datasets. I have used statistical packages in R for the purposes of linear regression modelling using the OLS estimator method which proved to be a versatile tool for predictive modelling and drawing causal inferences, however I would like to learn non-linear regression models to tackle the issue presented by heteroscedasticity in your machine learning module that takes a statistical learning approach. In the Financial Economics module with the use of excel functions in spreadsheets whilst analysing data entries for

opening and closing prices of stock market indexes such as the SEMDEX, Tadawul, and FTSE 100 I tested for the presence of a day of the week effect or monthly effect on stock returns. Using excel proved to be an effective and relatively straightforward tool to consolidate average returns for each day of the week and months of the year across multiple years of data entries. However, I am intrigued by the potential of machine learning to automate this process and its ability to build sophisticated analytical models that supersede the capabilities within excel. For this purpose, I would like to develop my ability to use scikit-learn and other specialised python libraries suited to the task.

I am keen to undertake this course specifically at LSE as it is one of the few institutions to offer Machine Learning in the context of statistical methods. The optional module Machine Learning and Data Mining places emphasis on using a statistical learning approach which stood out to me as this falls in an area of interest I am keen to develop by bridging the gap between computer science and statistics to orient myself when the scale of datasets becomes too large to process through conventional means. Through working with computer packages, I will not only enhance my technical skills but also develop a nuanced understanding of how machine learning can be leveraged to generate meaningful insights. With AI's mass integration into new healthcare technologies, search engine optimisation, ecommerce, and the financial industry there does appear to be scope for use in statistics and managing large datasets via machine learning seems to be the future trajectory of the discipline.

The prospect of gaining intensive training in applied data science methods, machine learning, and statistical methods, aligns seamlessly with my academic aspirations and professional interests. LSE's master programme stands out with regards to equipping future policymakers with the analytical tools necessary to navigate the complexities of contemporary problems effectively. The emphasis on practical applications and project-based learning approach in the Computer Programming module, resonates with my ambition to utilise cutting-edge methodologies in addressing societal challenges. Specifically, I aspire to leverage the programme's interdisciplinary approach to address pressing social issues whether it involves analysing demographic trends, predicting consumer behaviour, or evaluating the impact of public policies.

Moreover, the opportunity to engage with leading academics and experts in the field during my studies is invaluable. The prospect of collaborating with faculty members with steep expertise in the field is both inspiring and enriching. Through lectures, seminars, and lab sessions, I anticipate honing not only my analytical skills but also my ability to think critically and communicate complex ideas effectively such that data analysis findings can be understood by those even without technical knowledge of the subject area.

Looking ahead, I envision utilising the knowledge and skills gained through LSE's master programme to make meaningful contributions to evidence-informed policymaking. Whether in the public sector, international institutions, or the private sector, I am committed to applying data science methodologies to address pressing societal issues and drive positive change. With a firm grounding in economic theory and a proficiency in data analysis techniques, I am eager to embark on this transformative journey at LSE, where I aim to not only expand my academic horizons but also contribute to shaping a more equitable and prosperous future through informed policy interventions.