

# Unpacking Household Budgeting Strategies through a Transportation Lens

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## Abstract

This is where we will put our abstract.

## Plain Language Summary

This is a plain language summary

## 1 Introduction

Source: [Article Notebook](#)

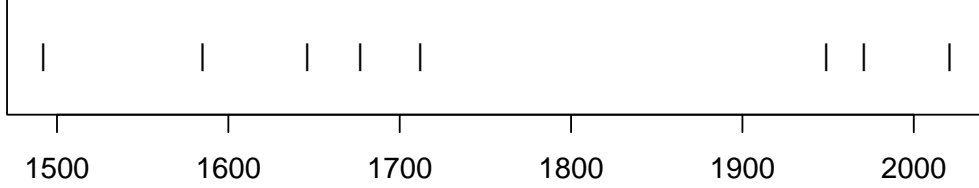


Figure 1: Timeline of recent earthquakes on La Palma

Source: [Article Notebook](#)

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Based on data up to and including 1971, eruptions on La Palma happen every 79.8 years on average.

Studies of the magma systems feeding the volcano, such as Marrero et al. (2019), have proposed that there are two main magma reservoirs feeding the Cumbre Vieja volcano; one in the mantle (30-40km depth) which charges and in turn feeds a shallower crustal reservoir (10-20km depth).

Eight eruptions have been recorded since the late 1400s (Figure 1).

Data and methods are discussed in Section 2.

Let  $x$  denote the number of eruptions in a year. Then,  $x$  can be modeled by a Poisson distribution

$$p(x) = \frac{e^{-\lambda} \lambda^x}{x!} \quad (1)$$

where  $\lambda$  is the rate of eruptions per year. Using Equation 1, the probability of an eruption in the next  $t$  years can be calculated.

Table 1: Recent historic eruptions on La Palma

| Name               | Year |
|--------------------|------|
| Current            | 2021 |
| Teneguía           | 1971 |
| Nambroque          | 1949 |
| El Charco          | 1712 |
| Volcán San Antonio | 1677 |

| Name                | Year |
|---------------------|------|
| Volcán San Martín   | 1646 |
| Tajuya near El Paso | 1585 |
| Montaña Quemada     | 1492 |

Table 1 summarises the eruptions recorded since the colonization of the islands by Europeans in the late 1400s.

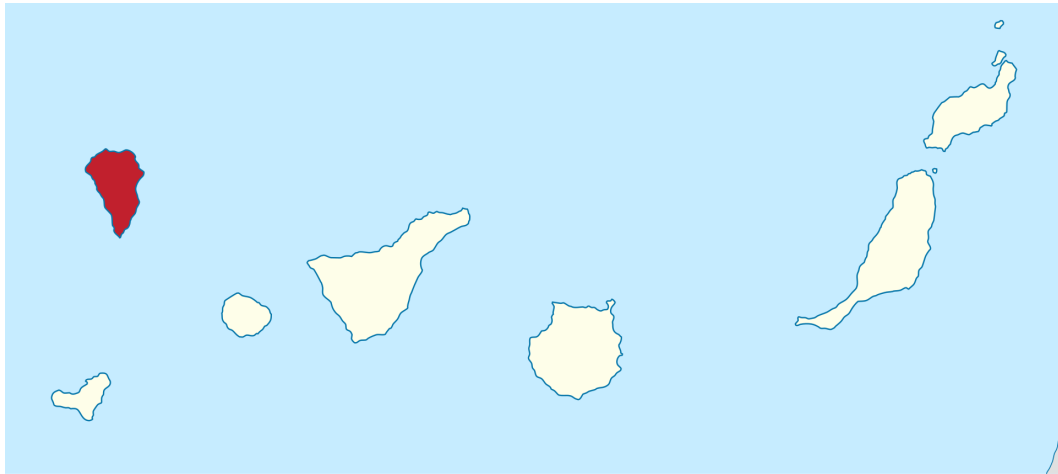


Figure 2: Map of La Palma

La Palma is one of the west most islands in the Volcanic Archipelago of the Canary Islands (Figure 2).

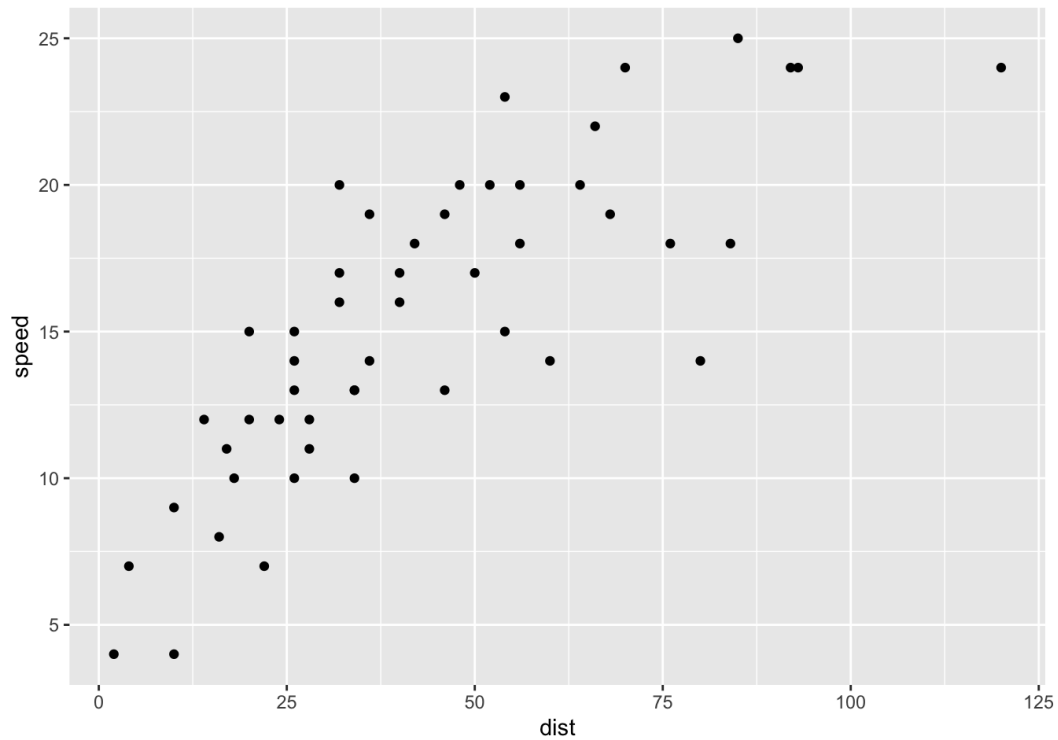


Figure 3: The test figure

Source: [Explore Earthquakes](#)

Figure 3 shows the distance and speed of cars on a graph.

As Paleti et al. (2011) said, there is something awesome about this. (Osborne et al., 2021)

## 2 Data & Methods

One more citation (Nayga, 1998)

## 3 Conclusion

## References

- Marrero, J., García, A., Berrocoso, M., Llinares, Á., Rodríguez-Losada, A., & Ortiz, R. (2019). Strategies for the development of volcanic hazard maps in monogenetic volcanic fields: The example of La Palma (Canary Islands). *Journal of Applied Volcanology*, 8. <https://doi.org/10.1186/s13617-019-0085-5>
- Nayga, R. M. (1998). A sample selection model for prepared food expenditures. *Applied Economics*, 30(3), 345–352. <https://doi.org/10.1080/000368498325868>
- Osborne, C., Wu, E., & Benson, K. (2021). *An Updated Estimation Model of the Cost of Raising Children in Texas*.
- Paleti, R., Copperman, R. B., & Bhat, C. R. (2011). An empirical analysis of children's after school out-of-home activity-location engagement patterns and time allocation. *Transportation*, 38(2), 273–303. <https://doi.org/10.1007/s11116-010-9300-2>