

# Social Influence In The Global Diffusion Of Alternative Fuel Vehicles: A Meta-Analysis

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## Social Influence and Private Vehicle Choice

Alternative fuel vehicles (AFVs) are likely needed to mitigate rising greenhouse gas emissions from transport. Private vehicle choices relate to practical as well as symbolic and social needs – all of which is influenced and shaped by culture. However, few empirical studies account for any form of social influence on vehicle choice. **By social influence, we mean influences on individual choices from the behaviour or opinions of others.**

This study provides the first meta-analysis of empirical studies which **measure the strength of social influence on consumer vehicle choice**, including AFVs. Our goal is to improve understanding of vehicle choice as a socially and culturally mediated process.

### Research questions:

- (1) Is there robust empirical evidence that social influence affects the vehicle choices of private users?
- (2) Does influence vary by social influence type, and the study design?
- (3) Does social influence vary between countries as a result of cultural differences?



conventional vehicles



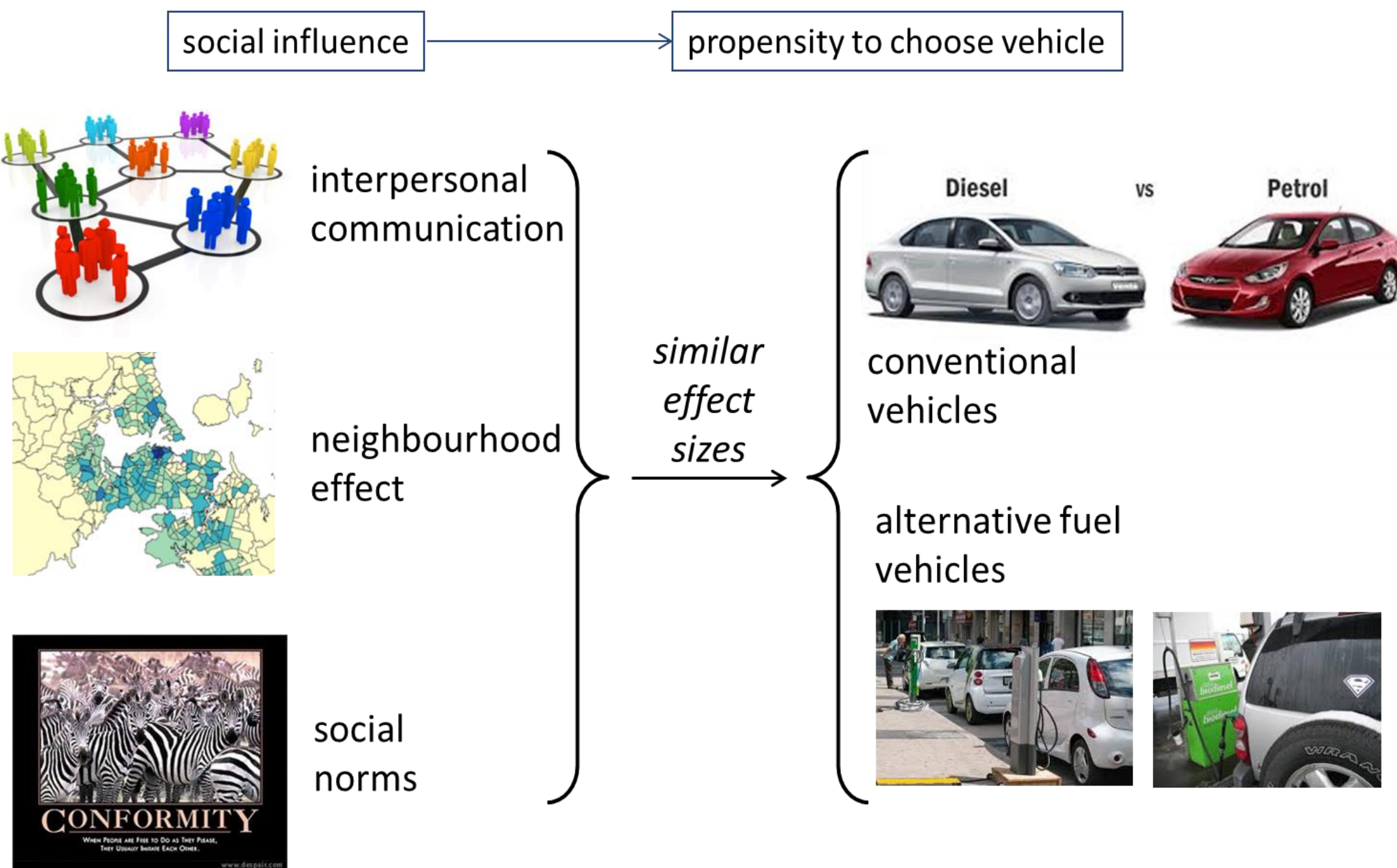
alternative fuel vehicles

## Three Types of Social Influence

Through literature, we identify three categories of social influence:

1. **Interpersonal communication**, which occurs through the exchange of information via social ties and networks, including electronic word-of-mouth (eWOM).
2. **Neighbour effect**, which occurs through observation of the behaviour of referent groups living in physical proximity, e.g. noticing a neighbour that buys an electric vehicle.
3. **Social norms**, which occurs through information gained on the rules and standards of common or approved behaviours of referent social groups (e.g. conformity, imitation).

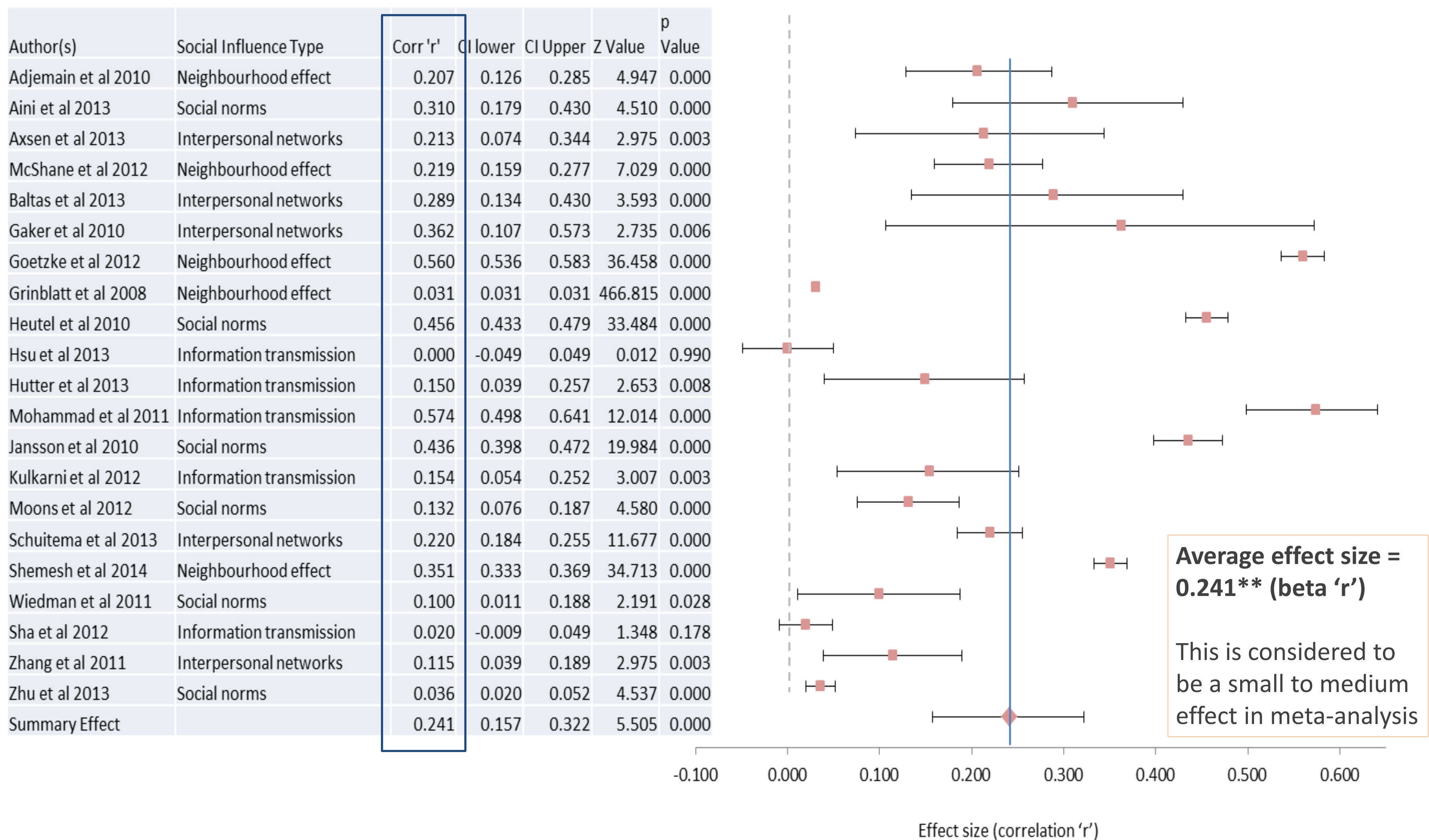
The meta-analysis shows similar social influence effects for:  
1) different **influence types** &  
2) different **vehicle types**



## Cultural Difference on Social Influence

We find robust evidence of moderate social influence effects on vehicle choices. Across the 21 studies, all individual effect sizes are positive and almost all are significant.

In the figure below we identify the effect sizes for each study, the overall effect size and accompanying statistics from the random effects model.

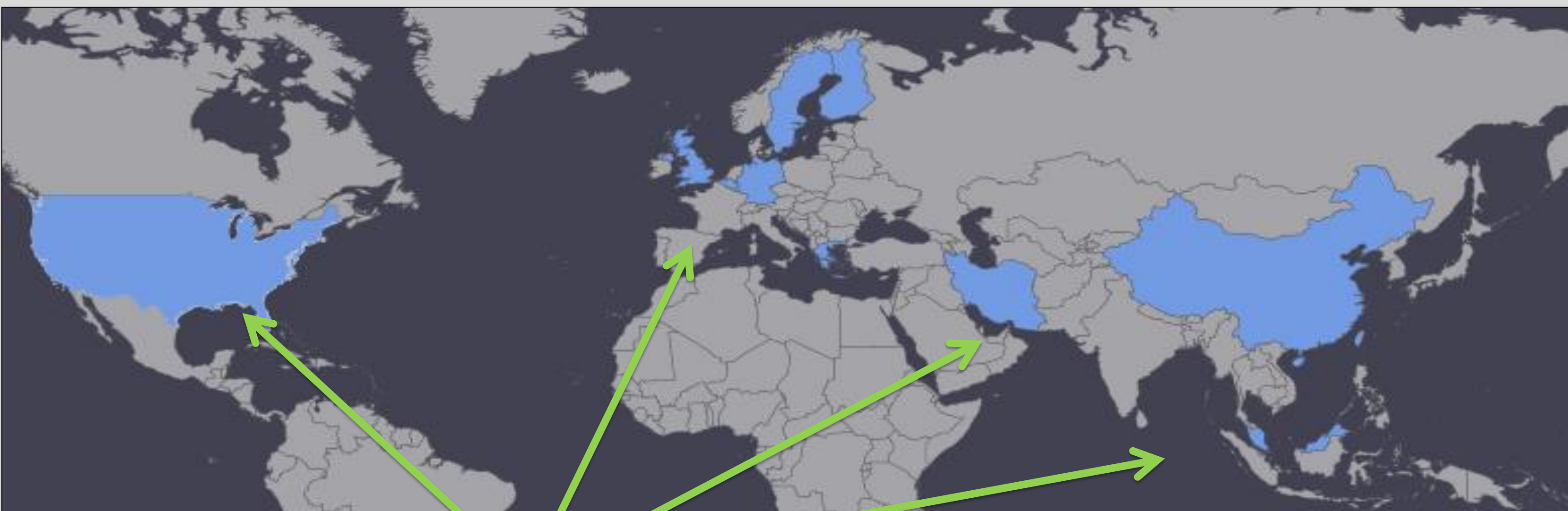


## The Meta-Analysis

A total of 21 studies from 11 different countries were included in the meta-analysis where we examine the relationship between social influence and vehicle choices. The studies spanned the period 1967 to 2014.

## Cultural Differences on Social Influence

Comparing studies from different countries allows us to explore the effect of cultural differences on social influence.

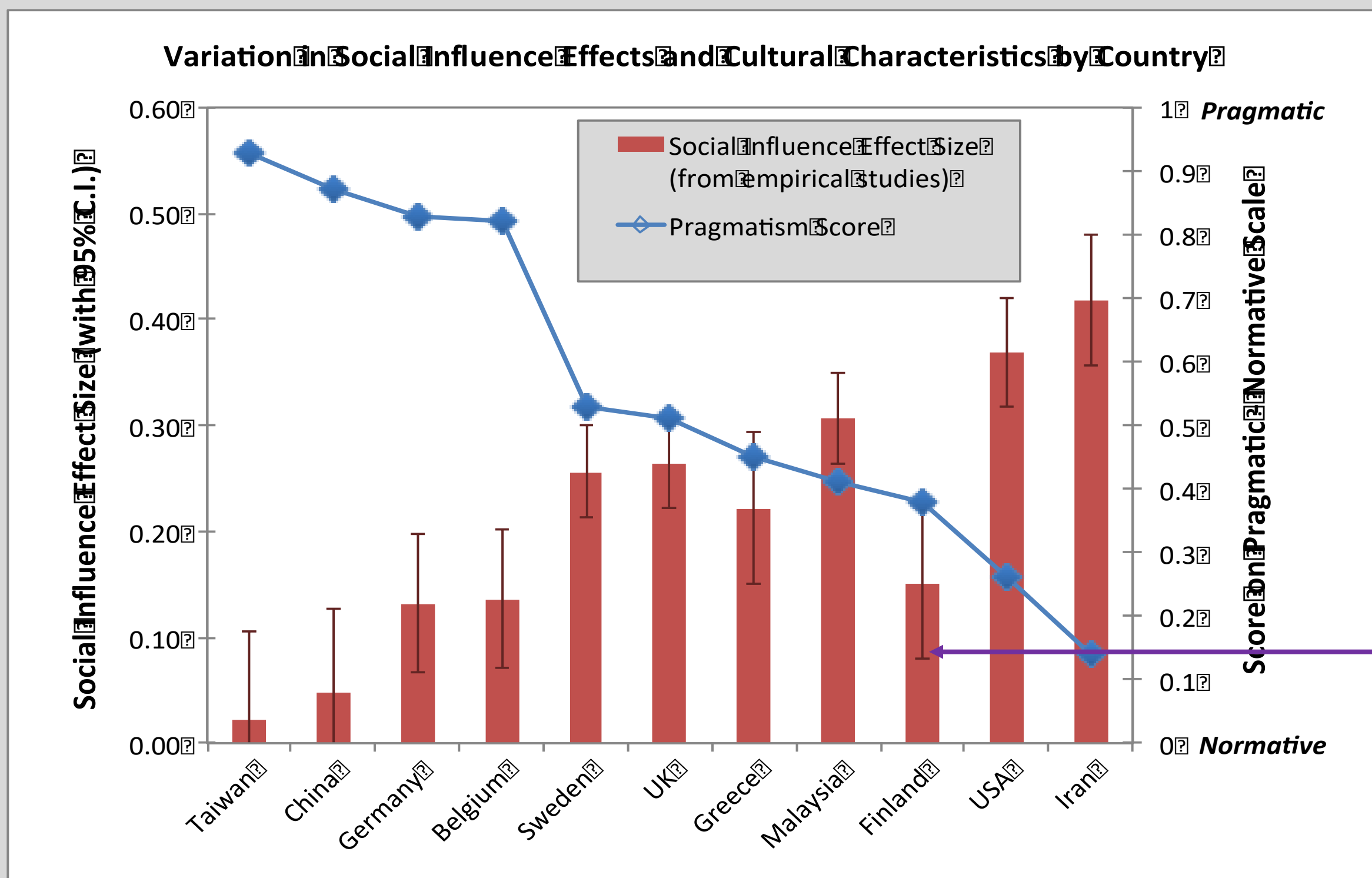


Studies based on samples from 11 different countries:  
Western cultures (7), Asian cultures (3), and the Middle East (1)

## Pragmatic-normative Cultures and Social Influence

To assess the potential moderating effects of national culture on social influence, we categorize studies based on the nation in which data were collected using two dimensions of national culture: individualism-collectivism and pragmatic-normative. For the 11 different countries represented in our sample, we assigned scores from the World Values Survey.

Country scores on the **pragmatic-normative** scale **help explain** variation in social influence effect sizes, making it a significant moderator of social influence effect size. Social influence effects are stronger in countries with higher normative scores—those that have respect for status quo and traditions. Social influence effects are weaker in countries with higher pragmatism scores—those that adapt rapidly to changing conditions. Country scores on the **individualism-collectivism** scale are not significant.

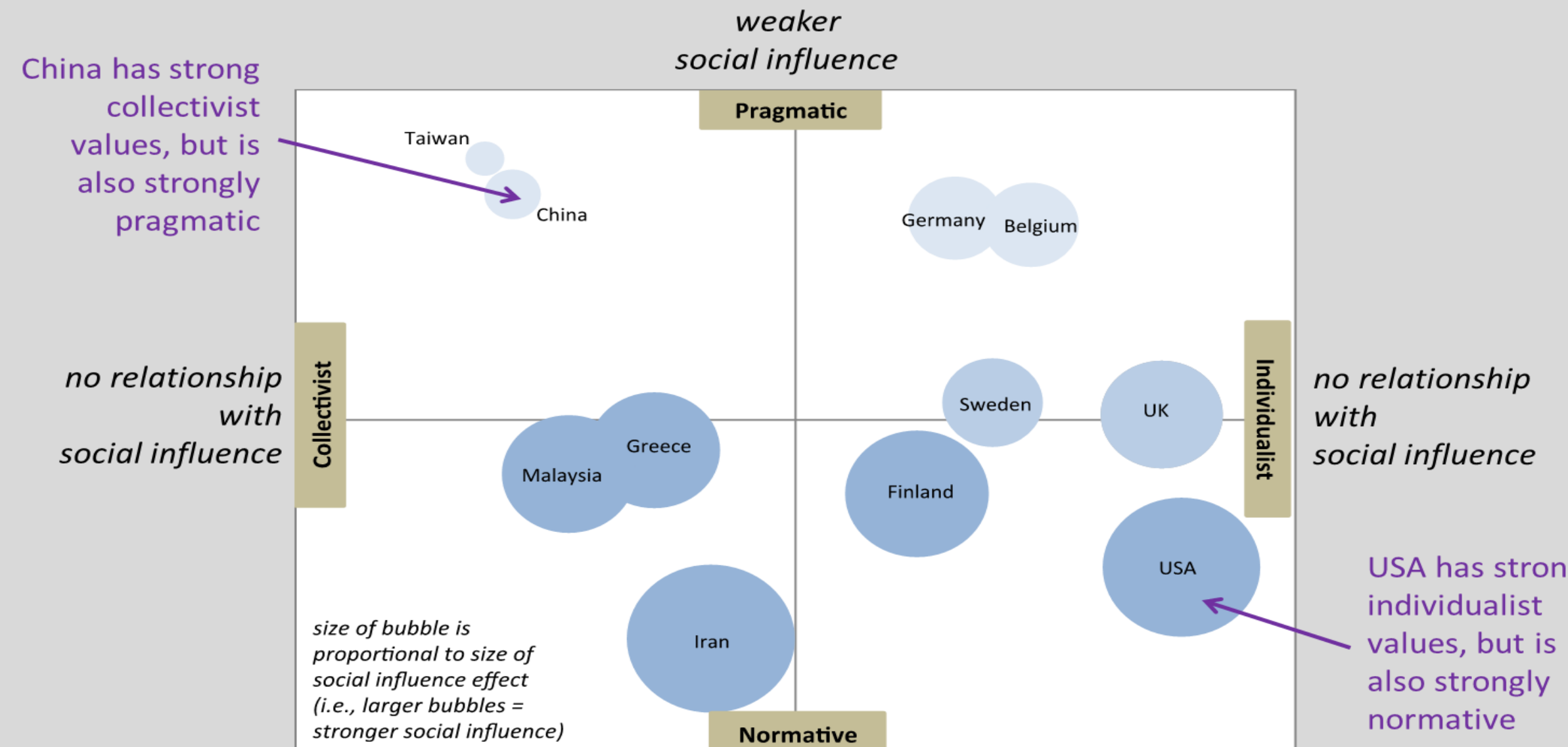


Finland has an anomalously low social influence effect size due to the particular design of the corresponding empirical study

## Social Influence and Countries

Social influence effects are **stronger in normative countries** but **not** in **collectivist countries**

Social influence effects are **stronger in the USA** (normative) and **weaker in China** (pragmatic).



## Main Conclusion

1. We find consistent evidence that social influence has at least a small to medium (positive) effect on vehicle purchase behaviour, including alternative-fuel vehicles.
2. The strength of influence does not seem to vary by type of social influence, but does vary by study design (e.g. choice model vs. OLS vs. logit).
3. Culture moderates the strength of influence, with social influence effects being stronger in countries that are highly normative (respect for Status Quo).