



Empirical Analysis of Current Operations to Support Planning

Anna Demetriou

Historical and Operational Data Analysis
Team, Policy and Capability Department

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Our Aim

- Examine the quantitative relationships between the activities of UK and coalition forces in current operations and their effects in both the physical and cognitive domains
- Associations between these factors will enable pre-operational strategic planning based on the identification of observable effects, which has hitherto been lacking

Approach

- Collection of empirical data on a selection of factors, including:
 - activity levels of UK and coalition forces
 - civilian casualty levels
 - economic activity
 - local and international media output
 - local public opinion
 - levels of insurgent activity
- Statistical analysis undertaken to identify associations between factors

Iraq Analysis



24 October 2010
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Data gathered

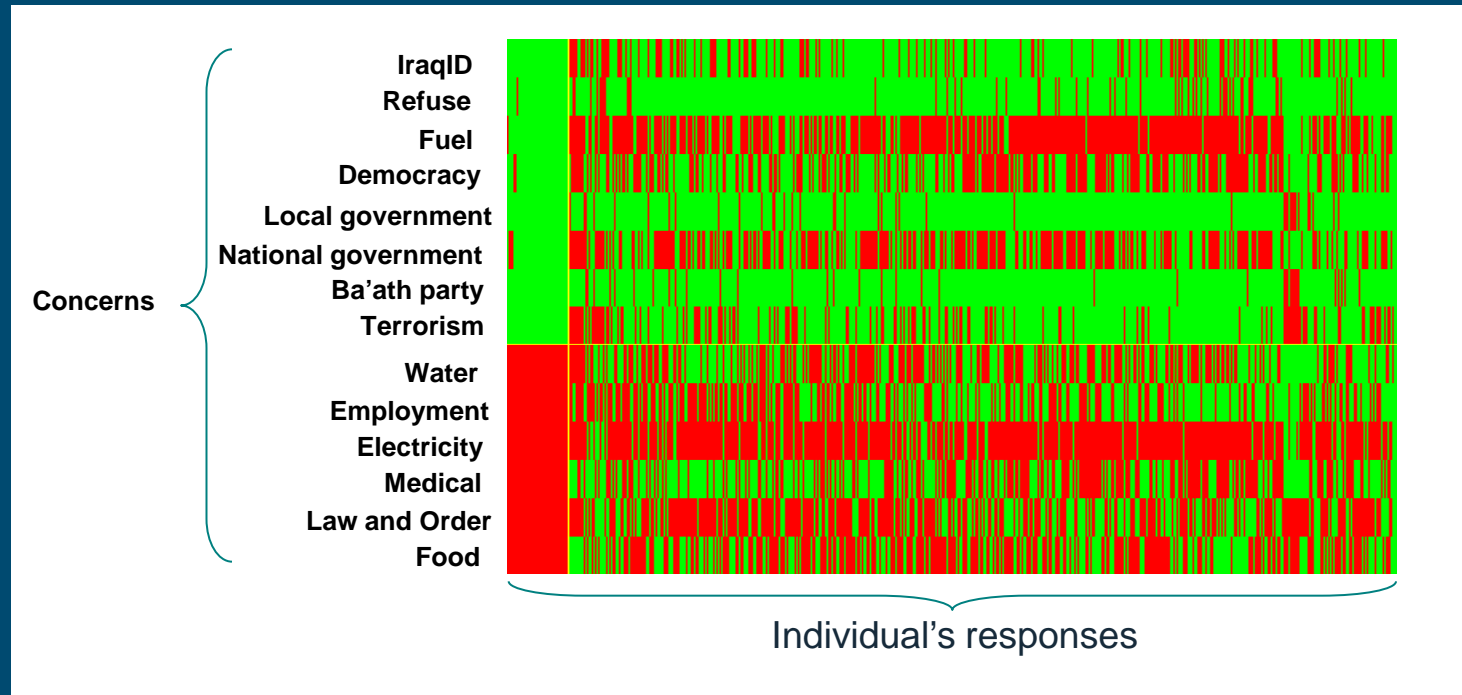
- Poll data, from various sources:
 - Public sources
 - UK and US military
 - from 2004 to 2008
- Media monitoring
- Casualty rates
- Utility data

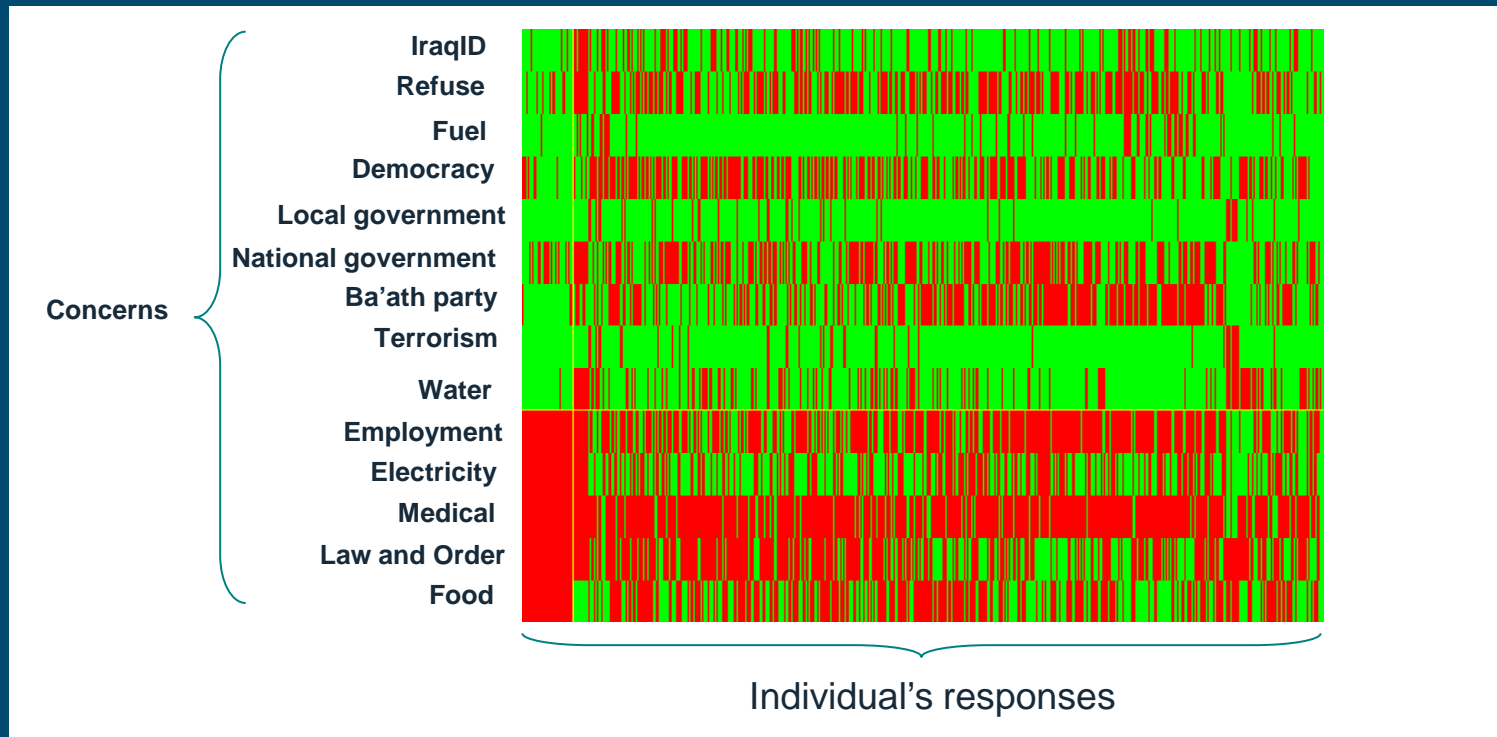
Opinion Poll Examples

- Examples of questions that we were able to utilise:
 - “Do you strongly support, somewhat support, somewhat oppose, or strongly oppose the presence of Coalition forces in Iraq?”
 - “I would like to ask you about today’s conditions in the village/neighbourhood where you live. Would you rate them as very good, quite good, quite bad, or very bad?”
 - Within this question people were asked about:
 - Electricity Supply
 - Job Availability
 - Availability of clean water
 - Availability of medical care
 - Security Situation etc.

Bi-clustering Analysis

- Bi-clustering of people according to their priorities and whether they supported or opposed attacks on the coalition



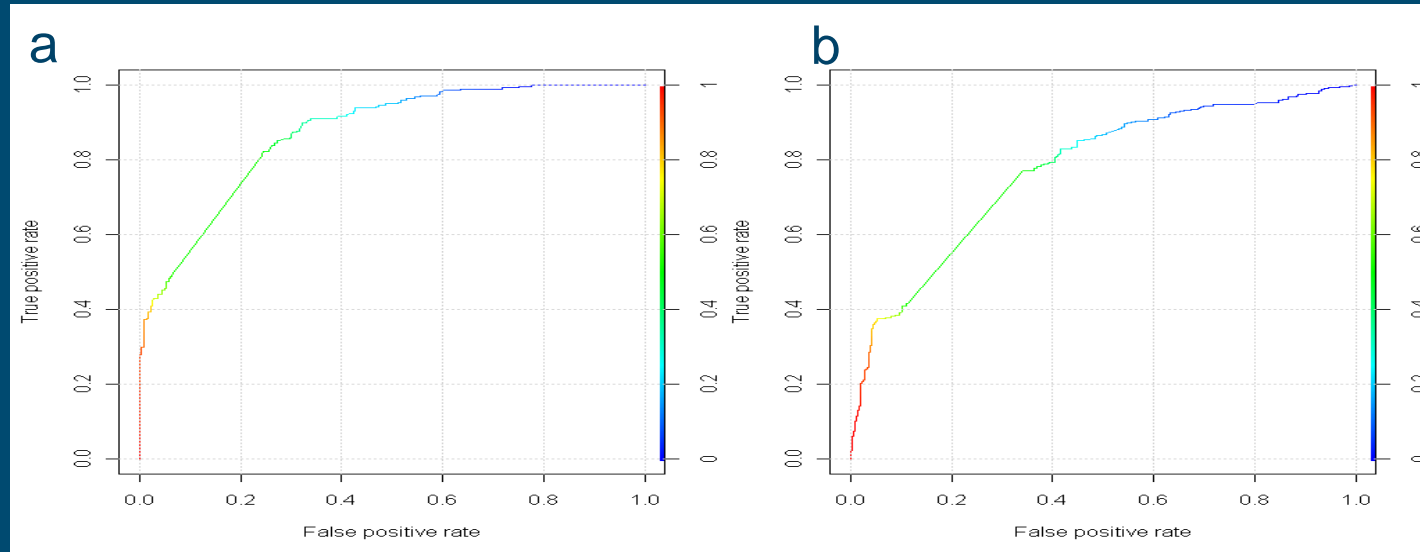


- Showed us that people who were concerned about electricity included both people who supported coalition attacks and those that did not
- Therefore electricity couldn't be used here by itself as a predictor for coalition support

Model Development

- Development of a model to predict support for coalition based on an opinion poll of people in Basra
- The factors that people were asked to rate their concerns for included:
 - Security and safety
 - Availability of jobs
 - Availability of electricity
 - Traffic and congestion
 - Availability and quality of health service
 - Corruption in society
 - Prices of goods and services
 - Availability of basic goods and services
 - The system of justice/fair trials
 - Violence by government officials or ISF
 - Democracy with directly elected representatives
 - Freedom to express personal opinions

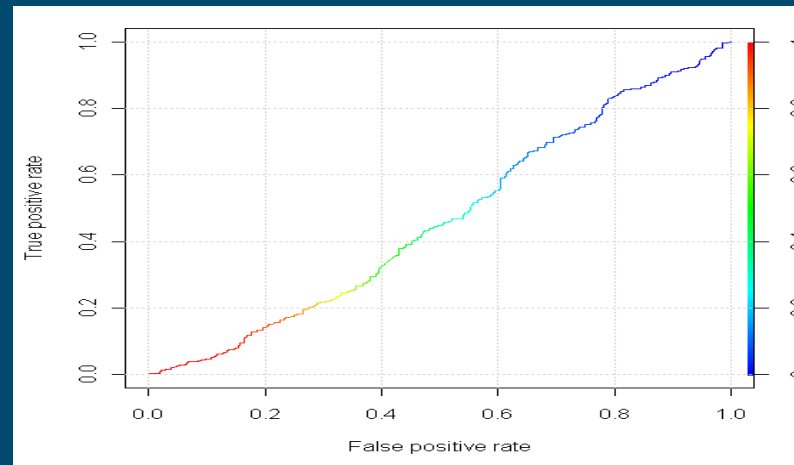
Performance of model



- Model based on training data – true positive value of 40 % and false positive of < 2 %
- Model validation using a poll from 3 months previous (same area/same number of people) – true positive of 38 % and false positive ~ 5 %

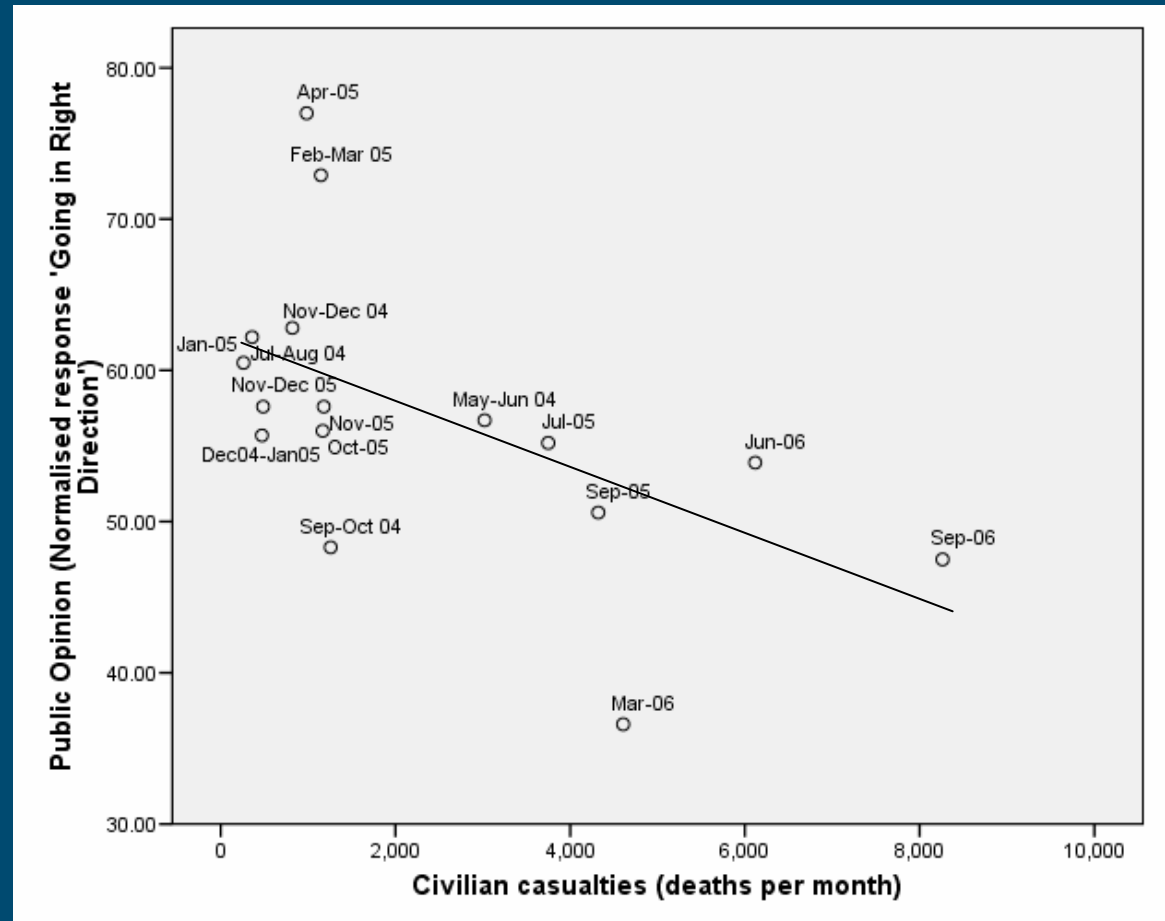
Feasibility of model

- Testing the performance of the model across the whole of Iraq
 - False positive rate \approx true positive rate
 - Therefore, model is limited to Basra and can not be used as a predictor of support for the country as a whole



Civilian casualty rate and local public opinion

- Media reported civilian deaths from violence
- Opinion poll data
- Weak correlation with outliers
 - Good correlation with the 3 outliers removed



Iraq Summary

- People's perception of the availability of electricity supply is correlated with actual electricity supplies
- People's concerns gives an indication of whether they support attacks on the coalition or not
- A model has been developed that highlights the strength and direction of associations between people from Basra's concerns and their support for attacks on the coalition
- The exact nature of the association between people's concerns and their support for the coalition is location-specific so a model derived from one area is not readily transferrable elsewhere.

Afghanistan Analysis



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Opinion Poll Examples

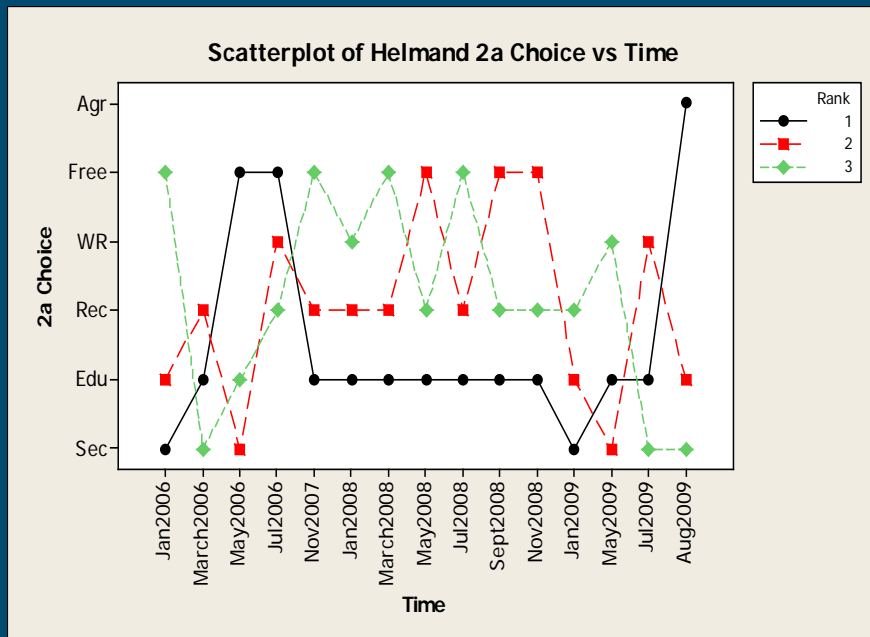
- Examples of questions that we were able to utilise:
 - “Which three aspects of life in Afghanistan are you most dissatisfied with?”
 - “How do you feel about the presence of international forces in Afghanistan?”
 - How satisfied or dissatisfied are you with the job the...
 - Government of Afghanistan is doing?
 - The ANP is doing?
 - The ANA is doing?

Key Analyses - Afghanistan

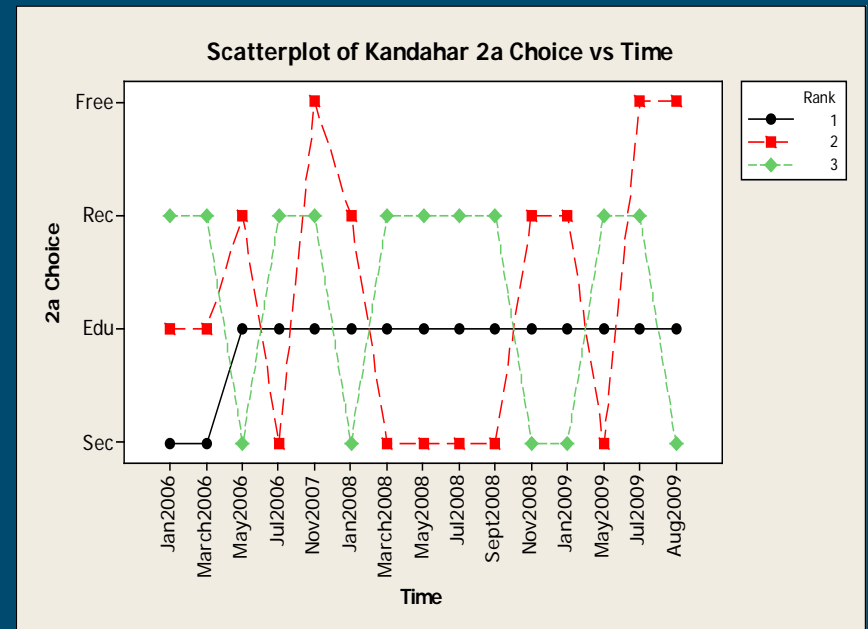
- Satisfactions
- Dissatisfactions
- Correspondence Analysis
- Perception of Overall Situation
- Perception of Coalition Forces
- Perception of GoA and ANSF
- Public Opinion & Changes over Time
- Civilian Casualties
- Bi-clustering Analysis

Satisfactions

- The primary satisfaction for both Helmand and Kandahar was **Education, Freedom, Reconstruction, Security** and **Women's Rights** also featured



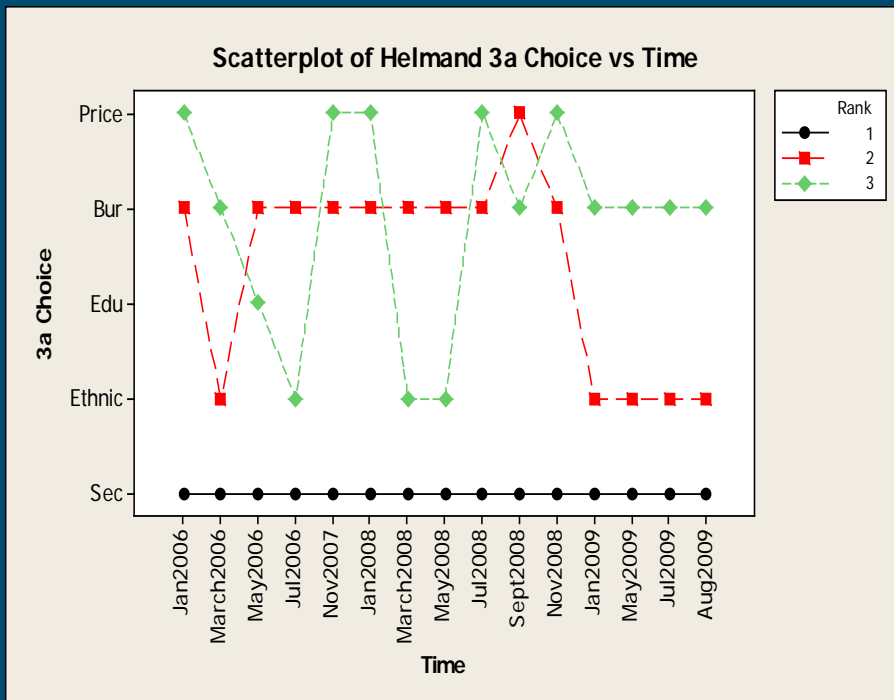
Helmand



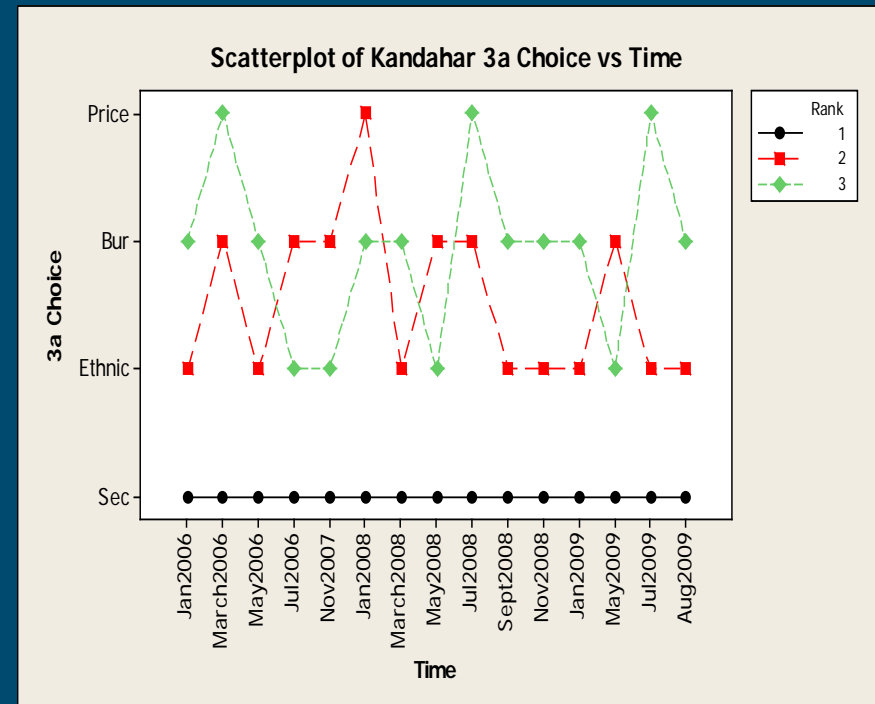
Kandahar

Analysis - Dissatisfactions

- For Helmand and Kandahar the top dissatisfactions were **Security**, **Bureaucracy**, **High Prices** and **Ethnic Problems**.



Helmand



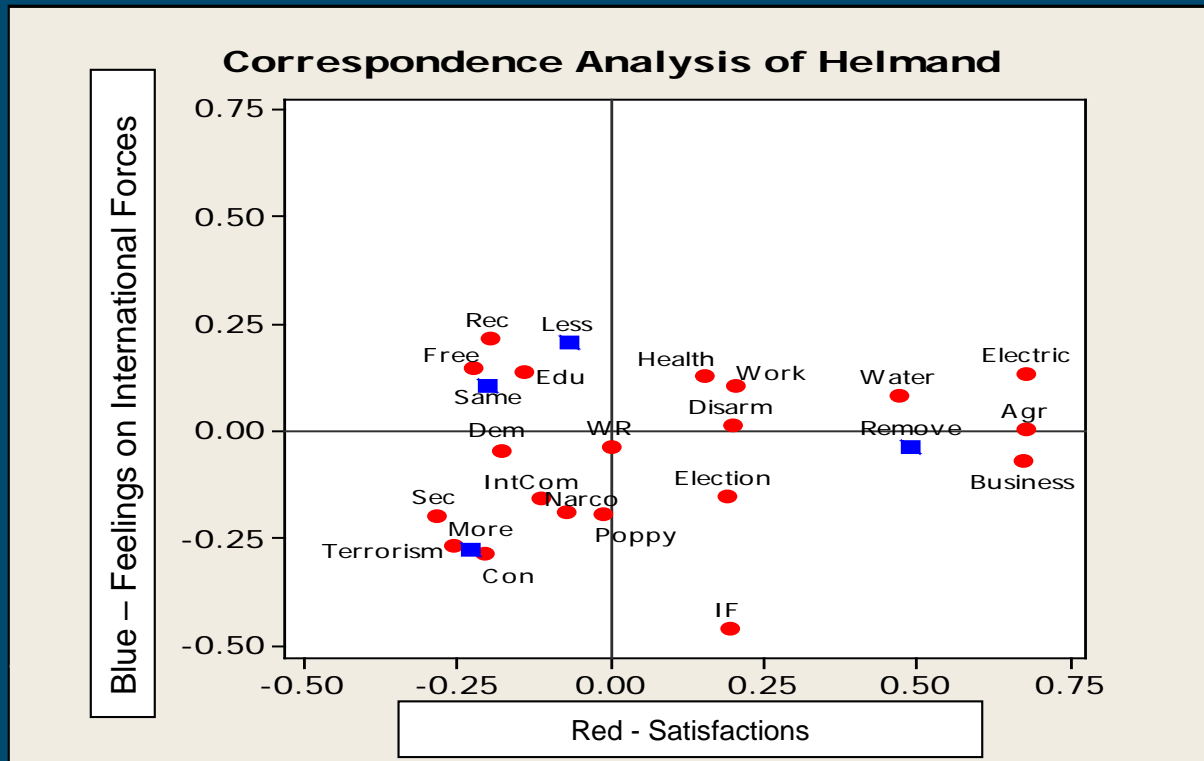
Kandahar

Correspondence Analysis

- Correspondence analysis compared answers to poll questions to determine whether any emerging trends could be identified; for example was there any relationship between:
 - The opinions on the presence of coalition forces and dissatisfactions?
 - Overall satisfaction and feelings on:
 - The international forces
 - Government of Afghanistan
 - ANP
 - ANA

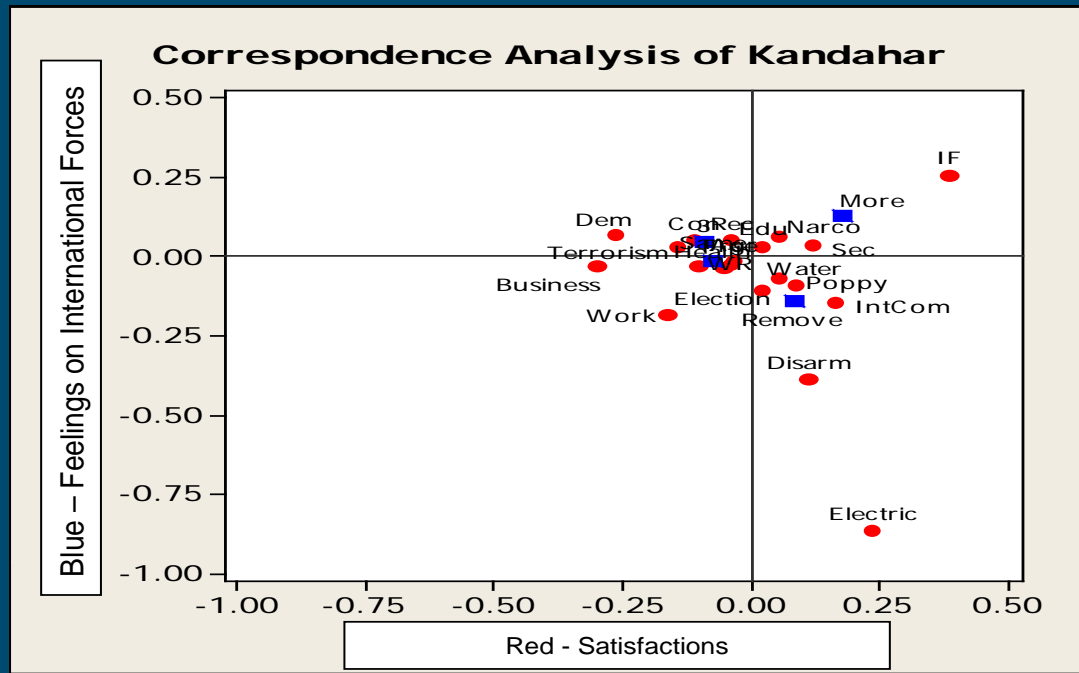
Helmand Correspondence Analysis

- Relationship between satisfactions and feelings on the presence of international forces



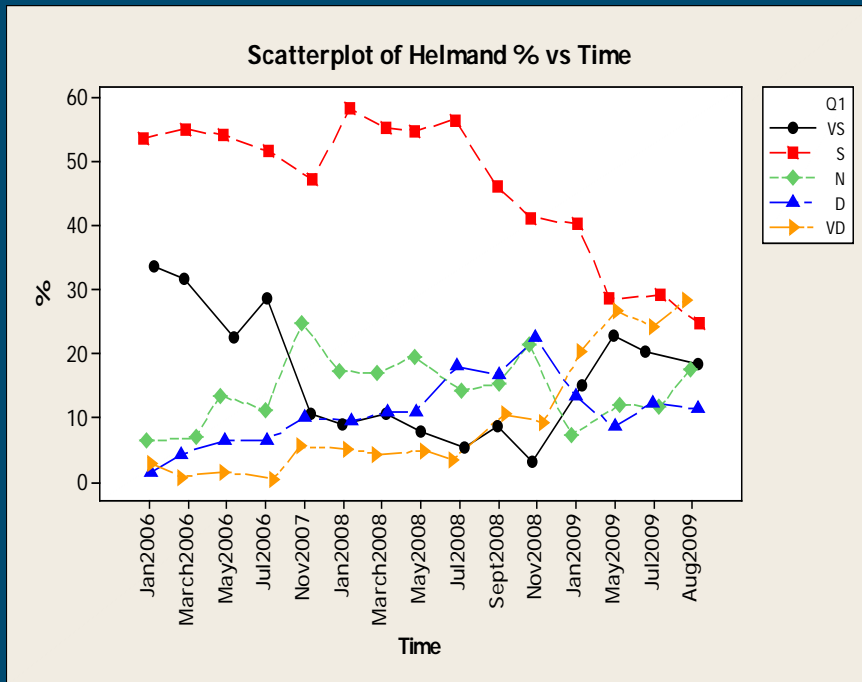
Kandahar Correspondence Analysis

- Relationship between satisfactions and feelings on the presence of international forces

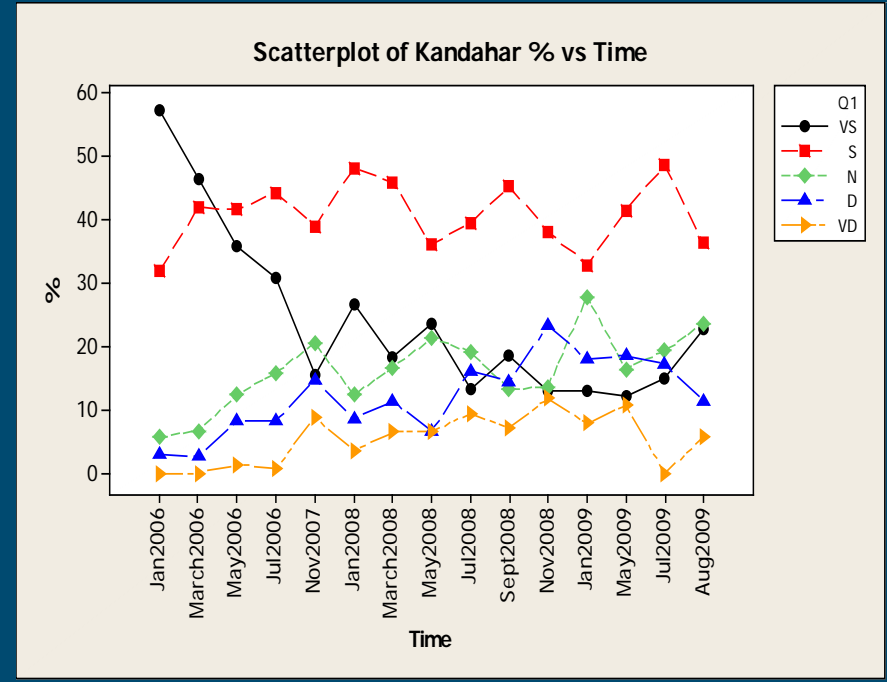


Overall Satisfaction

- How public satisfaction with overall situation changes over time



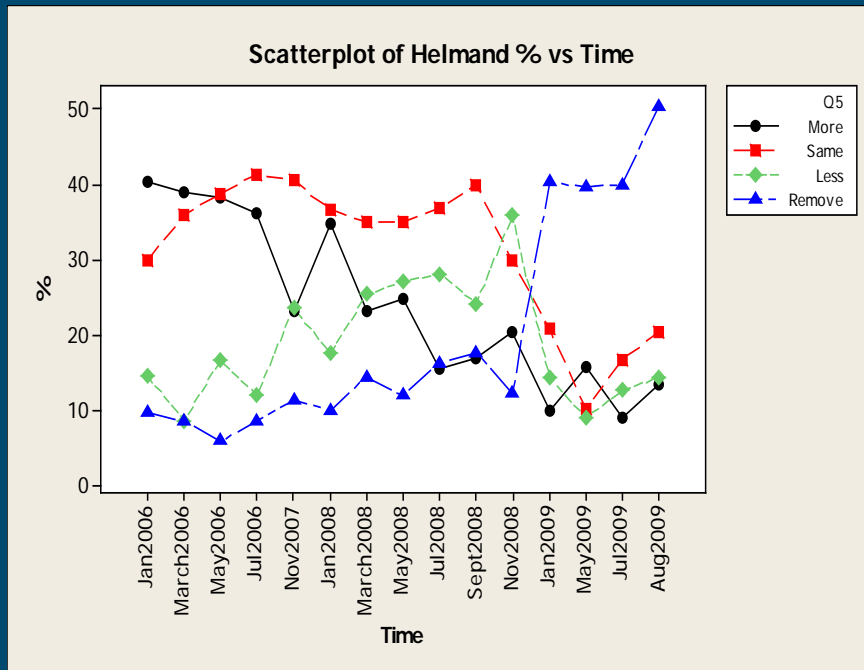
Helmand



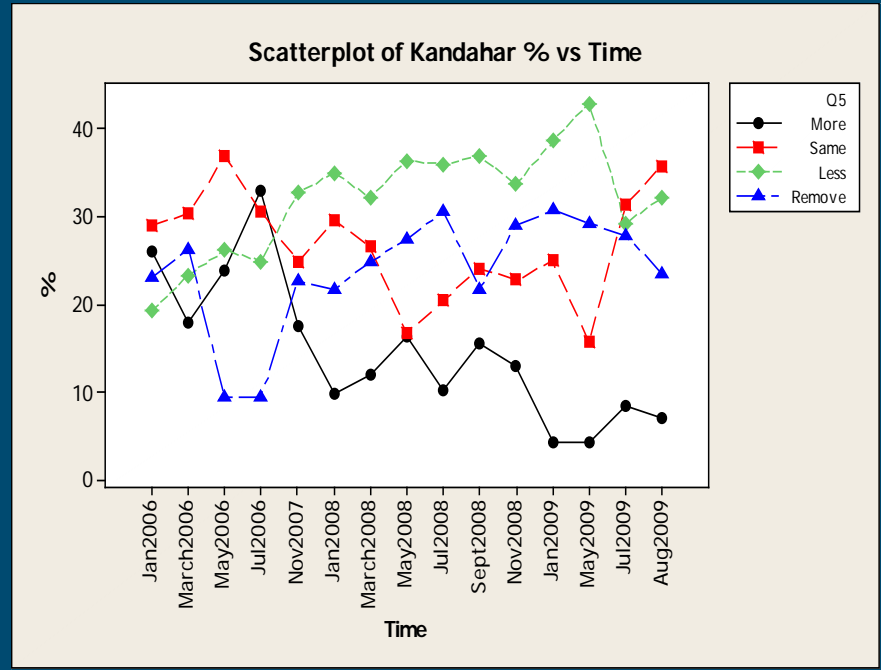
Kandahar

Feelings on International Forces

- From public opinion initially supporting the presence of coalition forces, there has been a gradual decline in those wanting more forces.



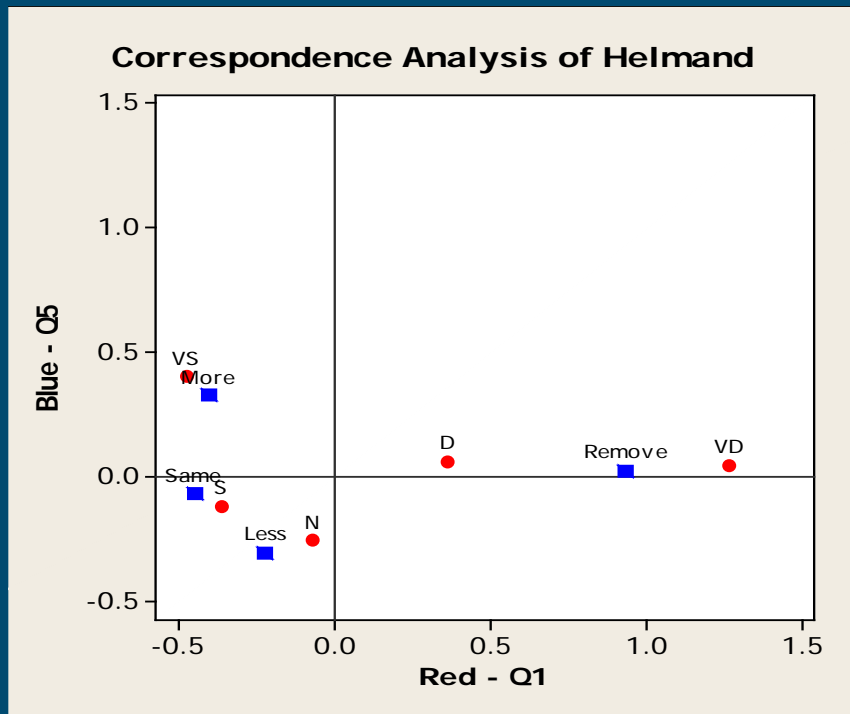
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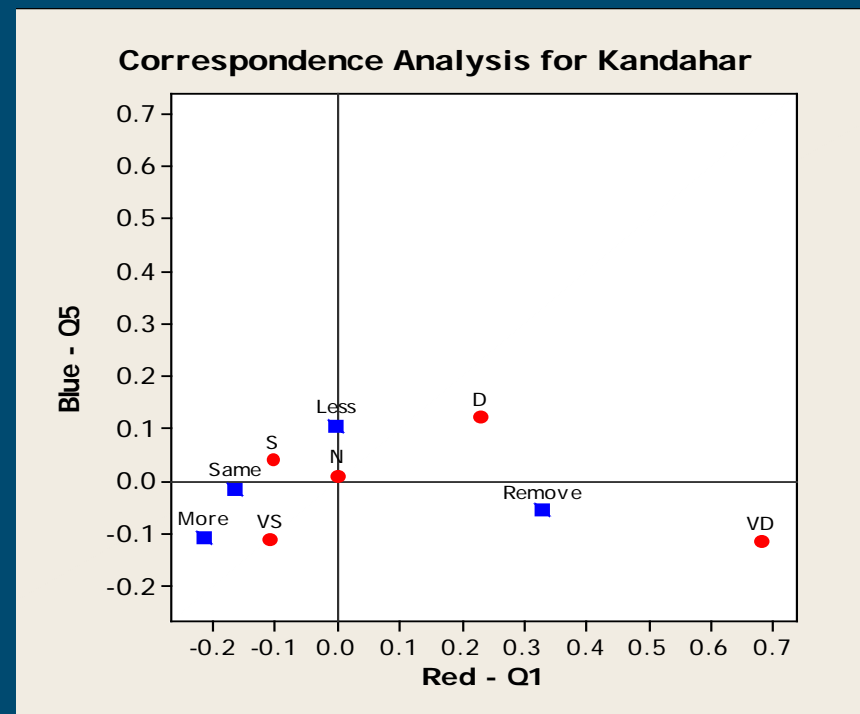
Kandahar

Further Correspondence Analysis (1)

- Investigating the relationship between feelings on international forces and overall satisfaction



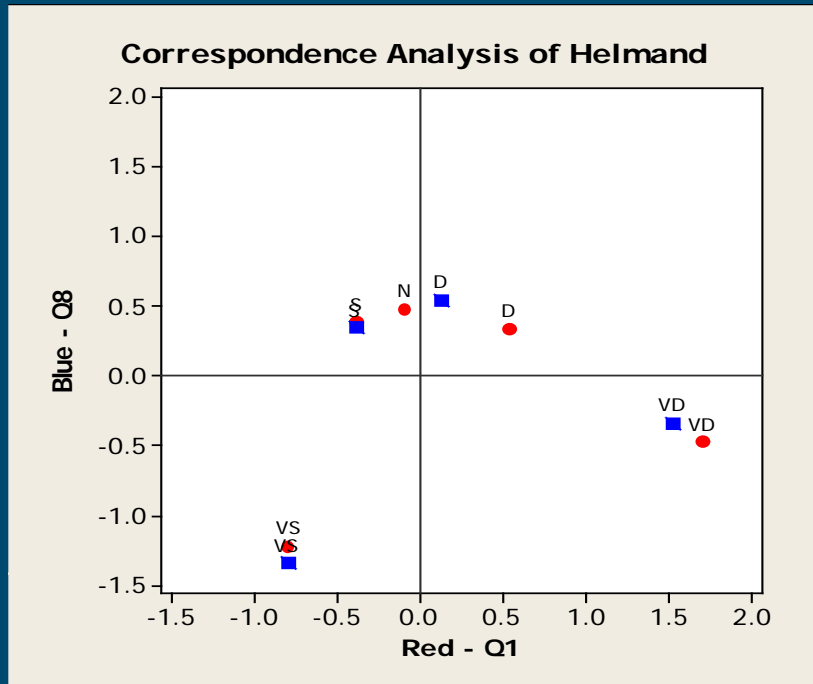
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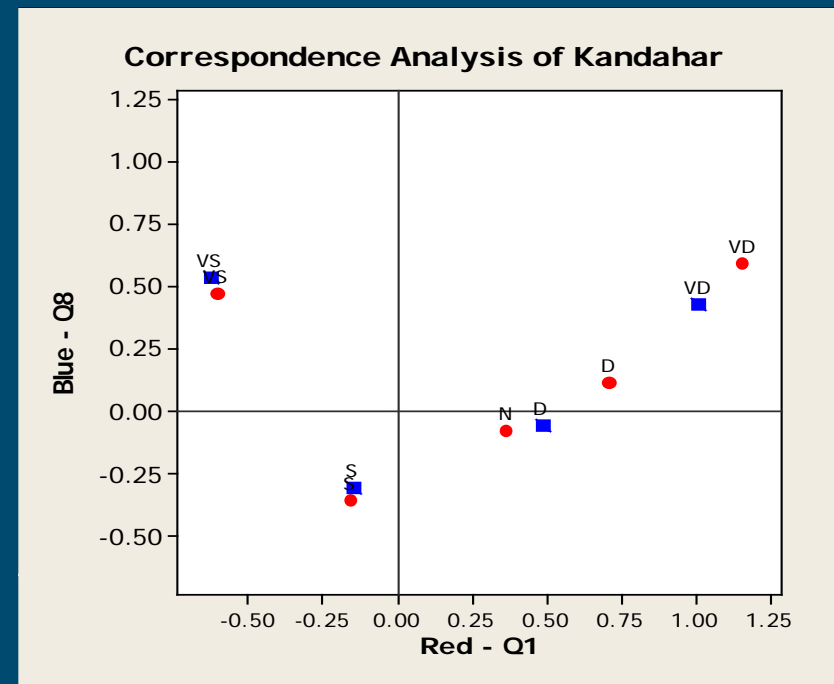
Kandahar

Further Correspondence Analysis (2)

- Investigating the relationship between feelings on the Government of Afghanistan and overall satisfaction



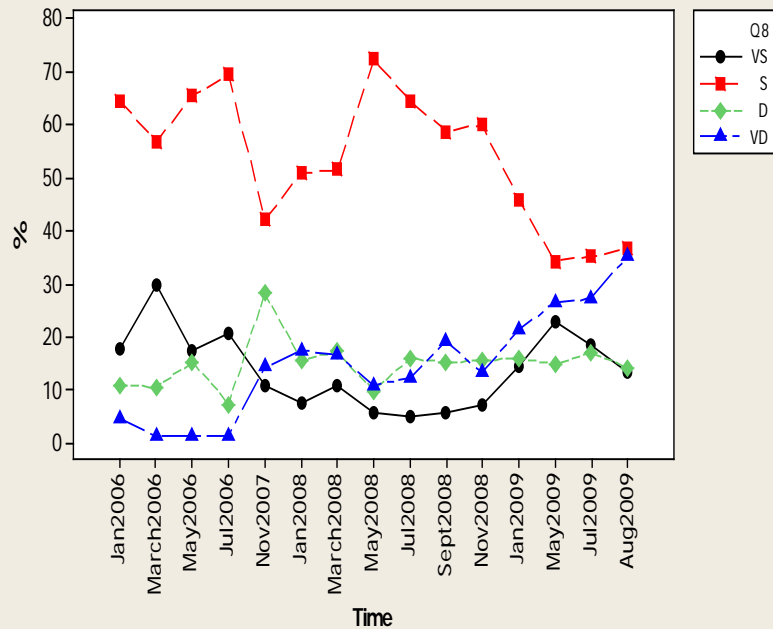
Helmand



Kandahar

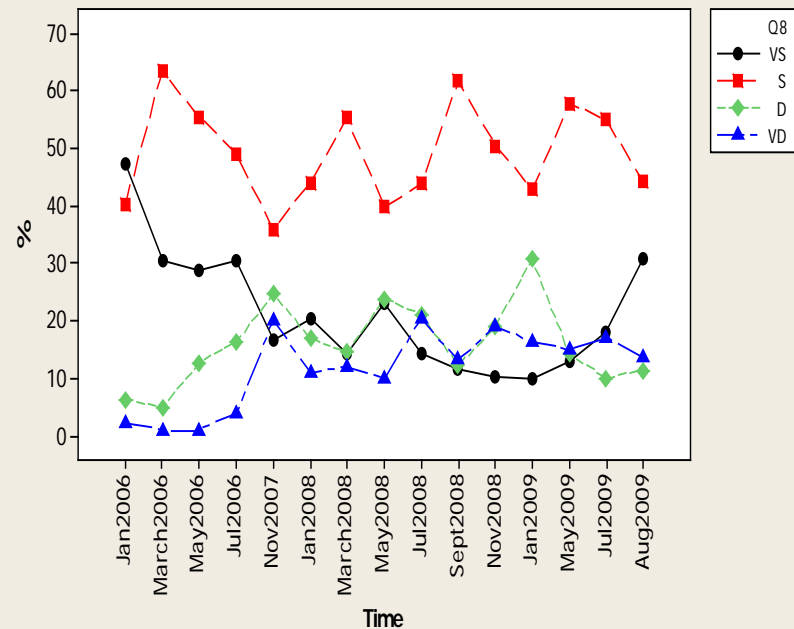
GoA Opinion Over Time

Scatterplot of Helmand % vs Time



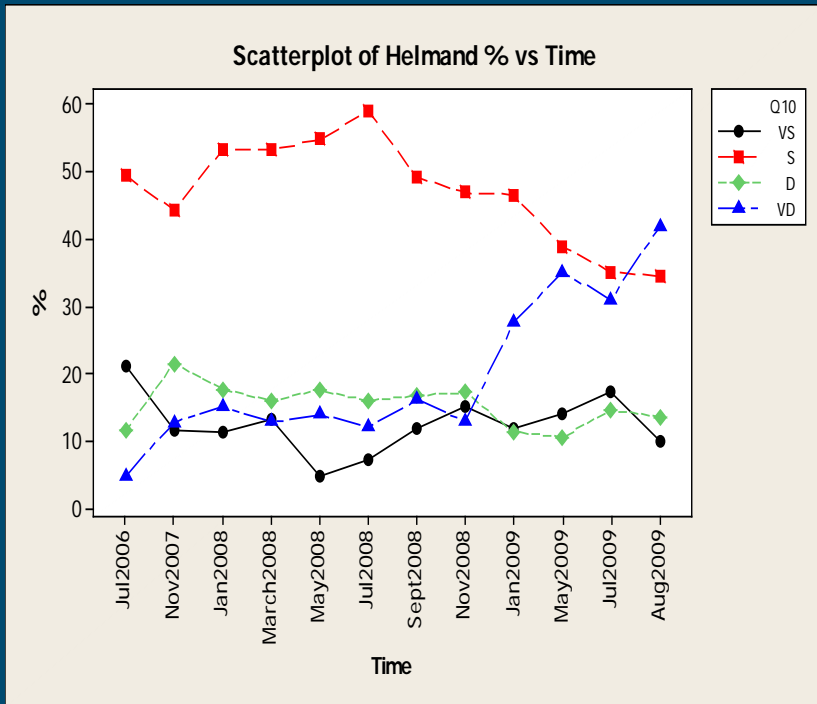
Helmand

Scatterplot of Kandahar % vs Time

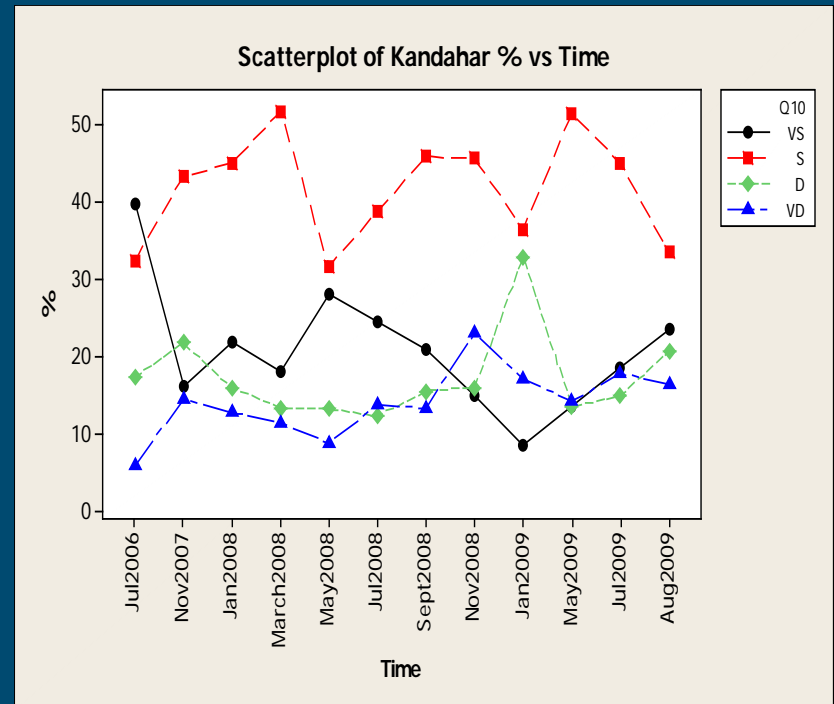


Kandahar

ANP Opinion Over Time

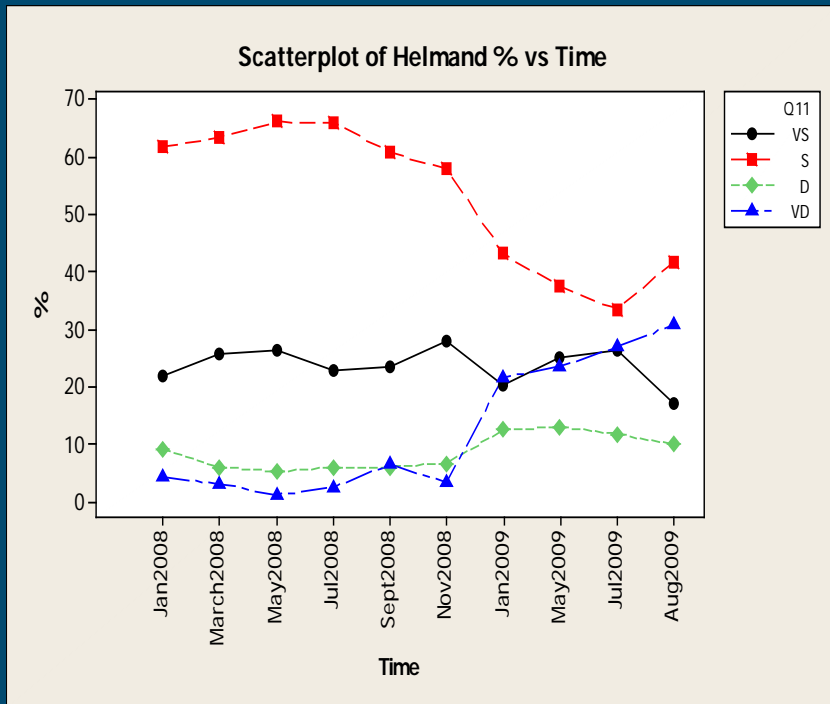


Helmand

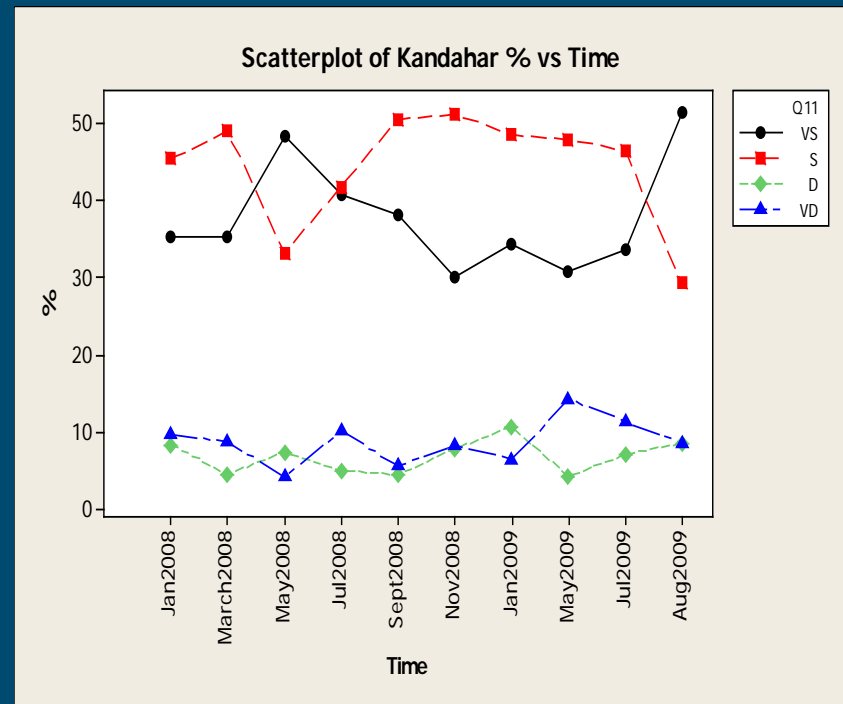


Kandahar

ANA Opinion Over Time

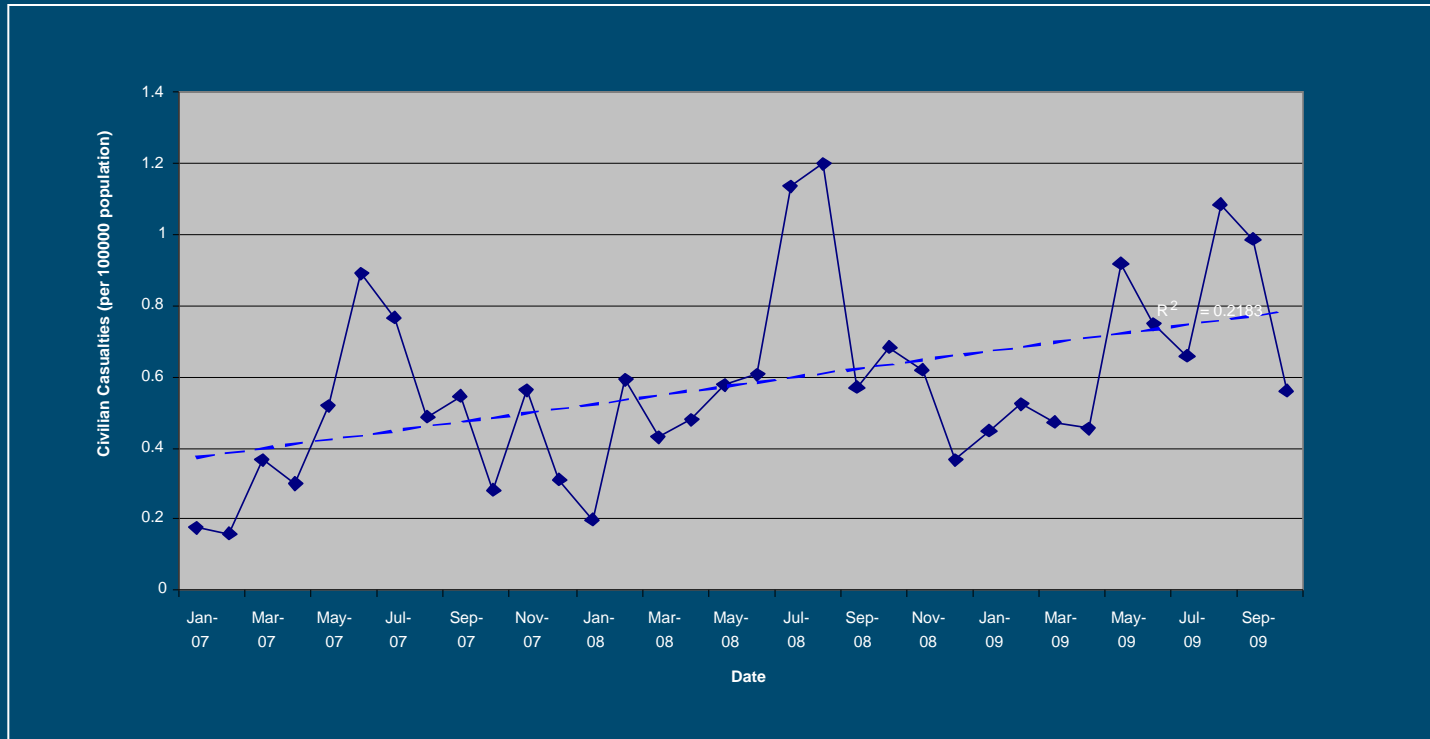


Helmand



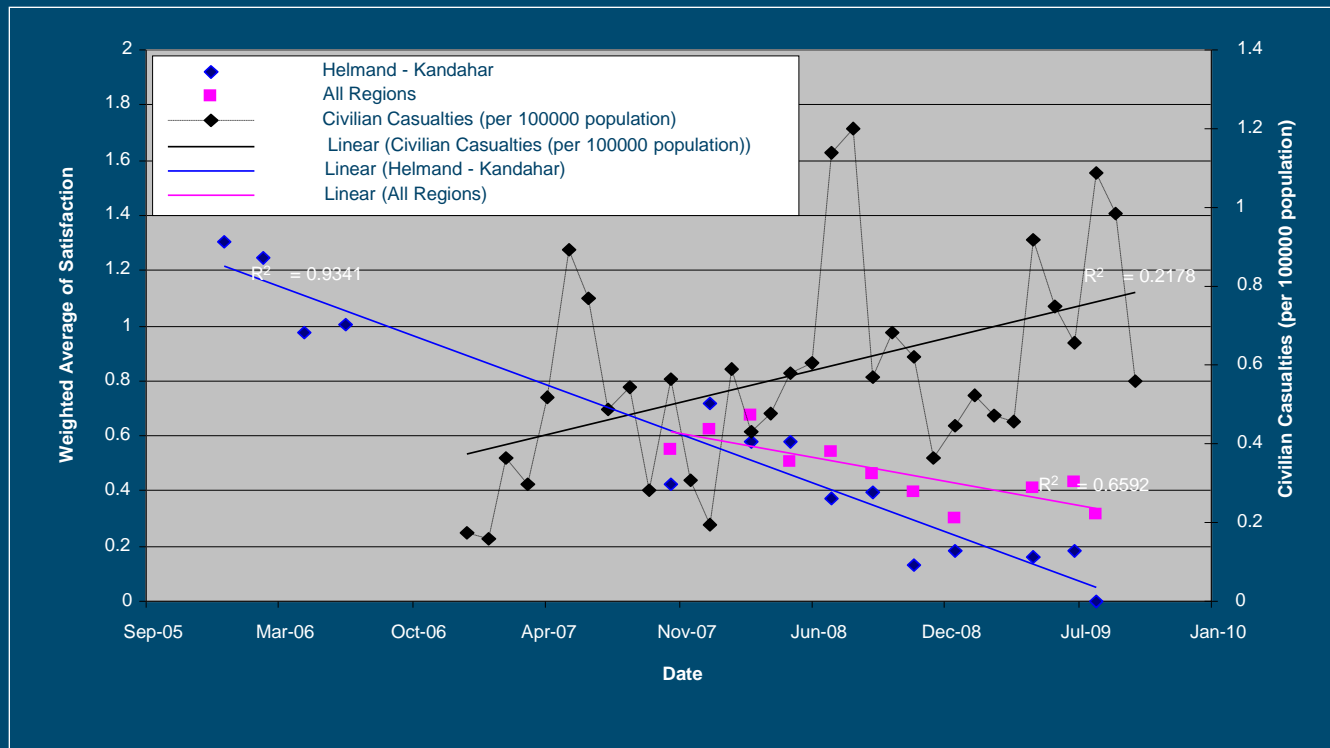
Kandahar

Civilian Casualties



Afghanistan civilian casualties over time

Civilian Casualties and Overall satisfaction



Afghanistan civilian casualties and overall satisfaction combined

Bi-clustering Analysis

- For the Iraq analysis, a statistical bi-clustering analysis was performed which clustered people according to their key concerns and sought to identify whether they supported attacks on the coalition or not.
- Similar analysis was conducted regards the Afghanistan national opinion poll survey and responses.
- However, no such clear association could be found between the top dissatisfactions in Helmand or Kandahar and where people expressed strong dissatisfaction towards the presence of coalition forces.
 - Likely because main dissatisfactions are shared by a high % of the respondents, irrespective of their feelings on coalition forces.

Conclusions

- Similar dissatisfactions were identified for Helmand and Kandahar concerning the perception of the Government of Afghanistan and the Afghan Security Forces, although Kandahar respondents expressed a more positive attitude.
- Correspondence analysis sought to determine whether a predictive model for support for the coalition / GoA / ANP / ANA based on satisfactions / dissatisfactions was feasible.
- As with Iraq analysis, regional differences emphasised the difficulty of developing a form of predictive model of cognitive effect capable of application to all demographic groups in all situations in all phases of a campaign.

Future Analysis

- We will continue the current analytical approach to examine recent operational changes as a consequence of the influx of a large US force into Helmand, along with an increased UK troop presence.
- Seek to identify any indicators of success resulting from the US-led effort, allied to the adoption of amended tactics, techniques and procedures (TTPs) on the part of coalition forces as a consequence of the McChrystal Report.
- Furthermore, empirical data will be collated regards the effectiveness of the ongoing training, mentoring and performance of the Afghan National Security Forces (ANSF) and the contribution this makes to success or failure.

Desired Outcome

- We would like to develop a basic framework that will categorise key criteria for any future campaign - potentially based upon;
 - population and culture,
 - geography,
 - political environment,
 - level of infrastructure.
- This could provide a high-level analytical tool that will serve to indicate where UK/Coalition efforts should best be focused to attain optimum likelihood of campaign success.