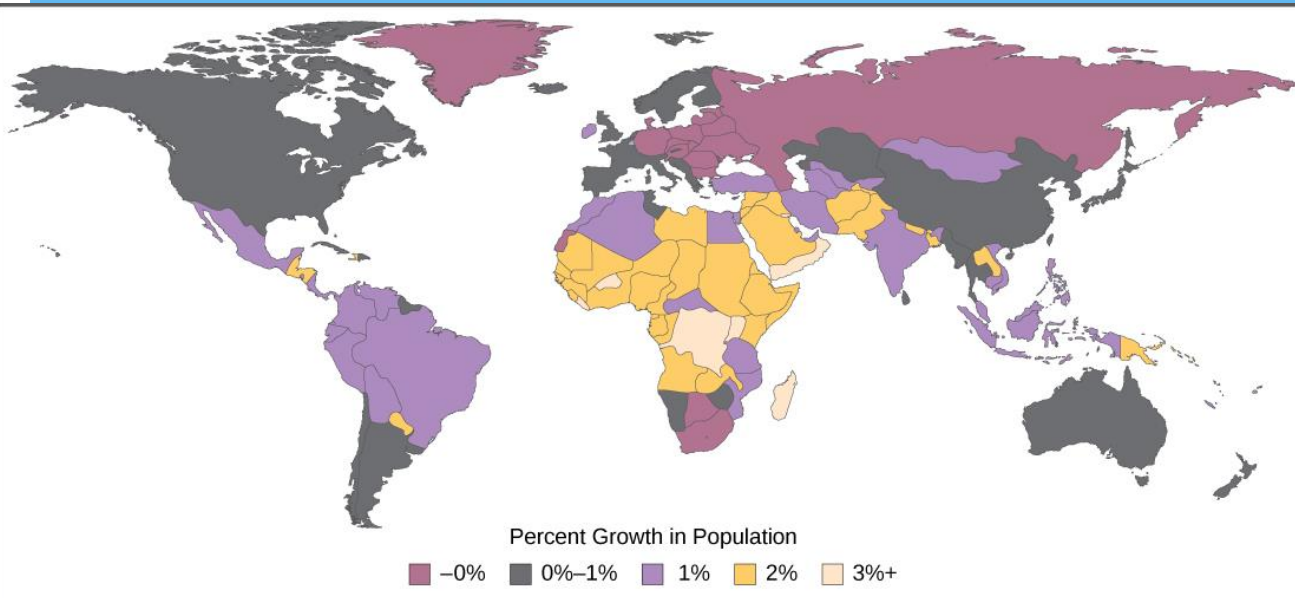


# كلية التربية – شعبة الجغرافيا – الفرقة الرابعة

مقرر: نصوص جغرافية  
Geographical Texts  
Population & Resources

الموضوع: Response Models (A)

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Response Models:

- Grigg
- Bilsborrow

## Response models:

- \* The most significant models investigating responses to population pressure in rural areas in the Developing World are those of Grigg (1980) and Bilsborrow (1987).
- \* **1- Grigg:**
- \* Grigg in his books “Population growth and agrarian change” (1980) and “The dynamics of agricultural change” (1982) has classified the **symptoms of population pressure** on cultivated land as follows:
  - \* **The subdivision of farms**, the average farm size decreased in many countries for example, South Korea, China, Egypt, Kenya, and in many parts in Latin America, and there is a negative relationship between average size of holding and population density (1980, pp. 21-2).
  - \* **Fragmentation** means the division of the farm into many plots, which causes many problems such as **wasted** land because of paths and boundaries and machinery is difficult to use economically (1980, pp. 22-3).
  - \* **An increasingly landless population**: one of the consequences of population pressure with a fixed supply of land is an increase in the number of landless (1982, p. 30).

# Small Size of Agricultural holding in Menoufia Governorate, Egypt



# Small Size of Agricultural holding near Tookh Qaliubiya, Egypt



## \* Grigg (cnt.)

- \* **Underemployment and falling real wages:** over long periods of population growth with the increase in the subdivision of farms and landless, the number of landless seeking work exceeds the demand for labour on farms, and this leads to both unemployment and to falling real wages (1982, p. 30).
- \* There are also **some other symptoms** of population pressure such as **rising land values**, rising agricultural product prices, **retardation of technology**, **low incomes**, and **poor diet** (Grigg, 1995, pp. 137-58).
- \* Grigg (1980) built his argument (following Boserup) by comparing the conditions of rural areas of the present Developing World with Western Europe in the nineteenth century (p. 237). He identified the following measures associated with land intensification:
  - \* Bringing less fertile land (under long fallow) into cultivation.
  - \* The intensive use of existing arable land through increased intensity of cropping, application of more labour inputs per hectare of land per crop season, and changes in the crop mix and crop rotations.

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- \* **Grigg (cnt.)**

- \* He argued that societies in the Developing World under population pressure respond in many different ways. The first way is a “**demographic response**”, including overseas migration, rural-urban migration and the reduction of fertility.

- \* **Overseas (international) migration** was a major factor in reducing the rate of overall population increase in parts of Western Europe. In the Developing World there is also migration from most countries, for example China, India, and from Mexico, to the United States.

- \* **Rural-urban migration.** Migration from rural to urban areas is a major phenomenon in the majority of countries in the Developing World. While migration can relieve population pressure in the rural areas, it may cause many problems in urban areas.

- \* **The reduction of fertility.** There is a decline in fertility in most Developing Countries, through the increase in the average age of marriage and the reduction in the number of births within marriage.

# Population Pressure

- Subdivision of farms.
- Fragmentation.
- An increasingly landless.
- Underemployment & falling real wages.

## Demographic Response

- Overseas migration.
- Rural-urban migration.
- The reduction of fertility.

## Production Response

- Extension of cultivated area.
- Land intensification.
- Rural industries.

Fig.30: Grigg Model.

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## \* Grigg (cnt.)

- \* The second way is a “**production response**”, including an increase in cultivated area, land intensification and the development of rural industries.
  - \* **The extension of cultivated area** has played an important role in increasing food output. However, the continued increase in the agricultural population has led to a decline in the arable area per person.
  - \* **Land intensification** including the reduction of fallow periods (most Developing Countries have moved to the multiple-cropping stage) and improving crop yields (using chemical fertilizers and selected seeds).
  - \* **Rural industries**, as the rural non-farm population increased in many Third World countries.



## Grigg (cnt.)

- \* However, Grigg discussed both overpopulation and population pressure as a similar phenomenon without making any distinction between them. He also used Western Europe in the nineteenth century as the standard when he was comparing with the Developing World. However, the situation may be deferent.
- \* In his analysis he did identify cross-continent (Africa, Latin America, and Asia); cross-region (Western Europe, South America, South Asia, and Middle East); and cross-country comparisons. However, most of this data are general indicators at the national scale, without specific case studies or any household level analysis.



# \* **Richard E. Bilborrow**

## \* 2- Richard E. Bilborrow:

- \* In his paper “Population pressure and agricultural development in developing countries: a conceptual framework and recent evidence”, Bilborrow (1987) proposed a conceptualization of responses to increases in rural population density in Developing Countries, using recent empirical evidence to illustrate these responses.



\*

- \* The variety of responses are illustrated using a wide range of recent cross-region and cross-country data from most Developing World regions: Africa, Latin America, Near East, China, and the rest of Asia.
- \* These responses include increases in arable land, land intensification, out-migration, and fertility decline.
- \* Some theories were discussed within the context of recent evidence (for example, Kingsley Davis, 1963), notably the Boserupian theory.

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## \* **Bilsborrow (cont.)**

- \* He identified many factors determining the type of response:
  - \* The existing level of living in societies.
  - \* The availability of cultivable land.
  - \* The availability of **off-farm** rural employment opportunities.
  - \* The availability of urban employment opportunities.
  - \* The potential for labour-intensive and technological change.
  - \* The existing crop structure, and its capacity for change.
  - \* The existing size of the rural population relative to the urban population.
  - \* The prevailing level of rural fertility.
  - \* The existing size of landholdings and their distribution.
- \* Given information about these factors in any country, it may be possible to predict what types of responses that are most likely (Bilsborrow, 1987, pp. 188-90).

## \* **Bilsborrow (cont.)**

- \* Bilsborrow examined rural population density as an independent variable and concluded that rising living standards in Developing Countries are more likely with slower rates of population growth, as Boserup had done.
- \* He suggested that a general theoretical approach towards the effects of increases in rural population density on the rural sector in the Developing World should be categorized as:

## \* **Bilsborrow (cont.)**

- \* **Economic response** including an increase in arable land or land intensification, as availability of arable land increased in most Third World countries with population growth.
- \* Moreover, under population pressure in many parts in the Developing World, there is a reduction in fallow periods, with farmers in Kano, Nigeria, Sefer in Senegal, and China, for example switching from shifting cultivation to permanent crop.
- \* In many parts of South Asia the farmers changed the pattern of crops and increased the crop production through using chemical fertilizers and selected seeds.
- \* In addition, the importance multiple-cropping is continuing to rise in the most densely populated countries.

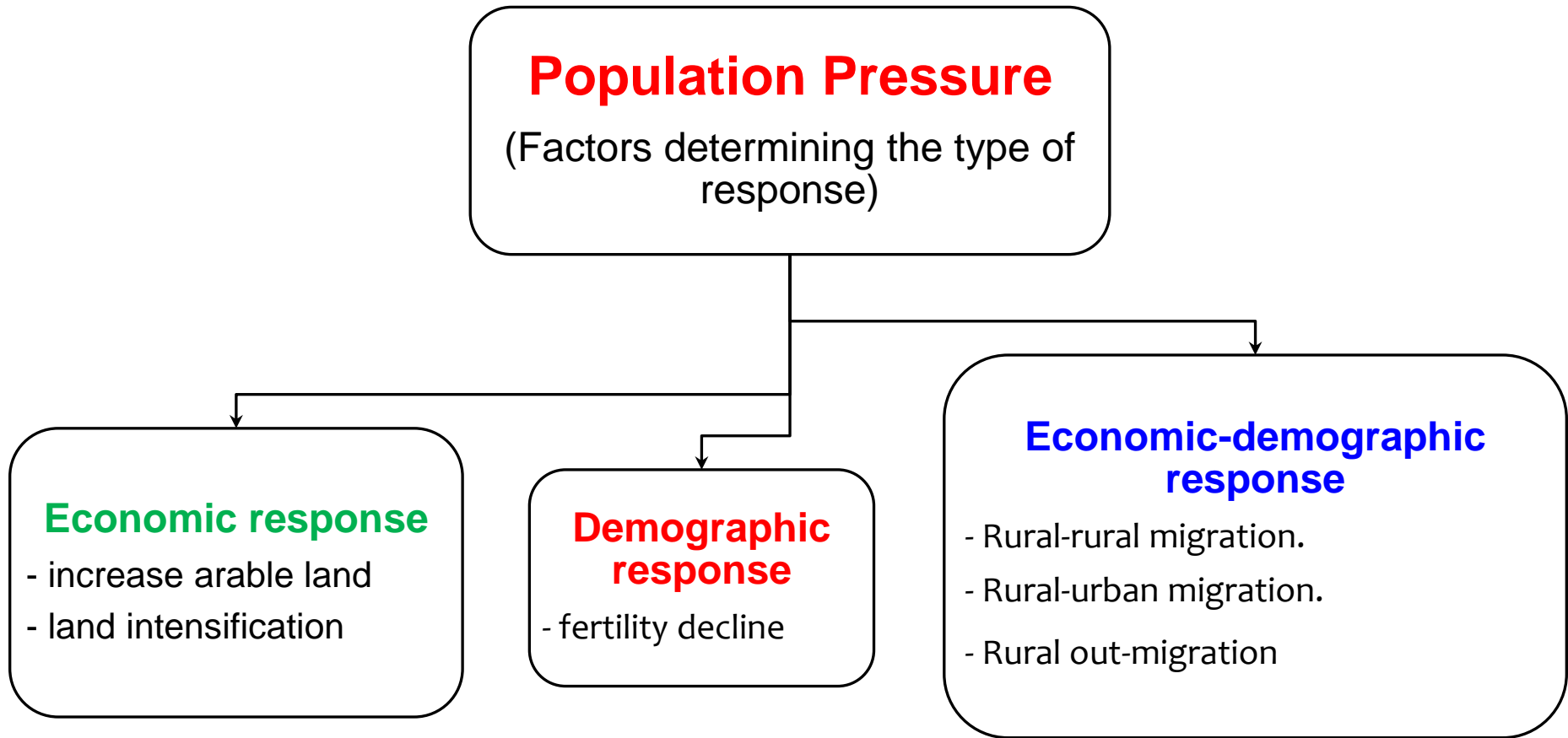


Fig. 31: Bilsborrow Model.



## \* **Bilsborrow (cont.)**

- \* **Demographic response** (fertility decline).

- \* One of the consequences of population pressure is a decline in rural fertility, which is now occurring in many Developing Countries.

- \* There is considerable evidence now available to suggest that overall fertility is declining in many Third World countries, for example in rural China, India, other Southeast Asian countries, and most Latin American countries.

- \* These declines are due to increases in the age at marriage, in celibacy, and in the use of contraception.

## \* **Bilsborrow (cont.)**

- \* **Economic-demographic response** (rural out-migration) including rural-urban migration, internal rural-rural migration, and international rural out-migration, all of which may be permanent, temporary or seasonal.
- \* All of these are positive responses to growing population pressure.
- \* **However**, in his analysis he used a range of cross-continent, cross-region, and cross-country data, and some case studies, but without any systematic household analysis. He suggested that the availability of off-farm rural employment opportunities is one of key factors determining the type of response, but he did not consider the increase of non-farm activities to be one of his identified responses to population pressure



Fig. 18: Why do people migrate?

## \* Similarities & Differences

- \* In terms of similarities and differences between Grigg and Bilsborrow we can consider the following points:
  - \* Both considered fertility as a demographic response.
  - \* Grigg used ‘overpopulation’ and ‘population pressure’ as one term, while Bilsborrow used only the term ‘population pressure’.
  - \* Grigg considered rural out-migration as a demographic response, but it is considered an economic-demographic response in Bilsborrow’s model.

## \* **Similarities & Differences (cont.)**

- \* Grigg considered increased arable land and land intensification as a production response, while it is an economic response in the Bilsborrow model.
- \* Grigg considered rural industry as a production response, but Bilsborrow did not consider it as a response.
- \* Both used cross-continent, cross-region, and cross-country comparison, but Bilsborrow used some case studies.
- \* Both did not use any household scale analysis.