

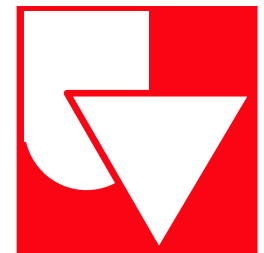
A SMITHIAN ANALYSIS OF THE COLOMBIAN ECONOMIC GROWTH

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A Smithian Analysis of the Colombian Economic Growth

Based on his analysis of the first industrial revolution, Adam Smith (1776) stated that the division of labour and the extent of the market are both key determinants of economic development.



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DIVISION OF LABOUR (Productive Diversification)



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“The greatest improvement in the productive powers of labour, and the greater part of the skill, dexterity, and judgement with which it is anywhere directed, or applied, seem to have been the effects of the division of labour” (Smith 1776, I, I [1910, I, 4]).



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TECHNICAL DIVISION OF LABOUR
(The pin factory)

SOCIAL DIVISION OF LABOUR



PRODUCTIVITY

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“The division of labour (...) so far as it can be introduced, occasions, in every art, a proportionable increase in the productive powers of labour. The separation of different trades and employments from one another seems to have taken place in consequence of this advantage. This separation, too, is generally carried furthest in those countries which enjoy the highest degree of industry and improvement; what is the work of one man in a rude state of society being generally that of several in an improved one” (Smith, 1776, I, I [1910, I, 5-6]).



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EXTENT OF THE MARKET

(Purchasing Power or Effective Demand)

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“As it is the power of exchanging that gives occasion to the division of labour, so the extent of this division must always be limited by the extent of that power, or, in other words, by the extent of the market. When the market is very small, no person can have any encouragement to dedicate himself entirely to one employment (...). There are some sorts of industry, even of the lowest kind, which can be carried out on nowhere but in a great town” (Smith 1776, I, III [1910, I, 15]).

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“No society can surely be flourishing and happy, of which the far greater part of the members are poor and miserable” (Smith 1776, I, VIII [1910, I, 70]).

Short- and long-run effects of effective demand

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The Importance of Productive Diversification and Effective Demand for Economic Development

Smith (1776), Young (1928), Leontief (1943), Rosentein-Rodan (1943), Nurkse (1953), Prebisch (1951), Hirschman (1958), Fajnzilber (1983), Chenery (1975, 1986), Currie (1981, 1993), Romer (1987, 1990), Murphy-Shleifer-Vishny (1989a y 1989b), CEPAL (1990, 2010), Landes (1998), Hausman (2006), Rodrik (2007), United Nations (2007), etc.



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INSTITUTIONAL CONDITIONS

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Smith proposed that markets do not work without a functional institutional context. He claimed that the government duties for the general well-being of individuals and the best operation of firms are the following: 1) the protection of citizens from violence, 2) the administration of justice, and 3) the provision of public works and public institutions of social interest.



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PROPERTY RIGHTS

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“Commerce and manufactures can seldom flourish long in any state which does not enjoy a regular administration of justice, in which the people do not feel themselves secure in the possession of their property, in which the faith of contracts is not supported by law, and in which the authority of the state is not supposed to be regularly employed in enforcing the payment of debts from all those who are able to pay. Commerce and manufactures, in short, can seldom flourish in any state in which there is not a certain degree of confidence in the justice of government” (Smith 1776, V, III [1910, II, 392-393]).



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THE COLOMBIAN ECONOMY



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**The importance of the domestic market
and the population purchasing power**



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INEQUALITY



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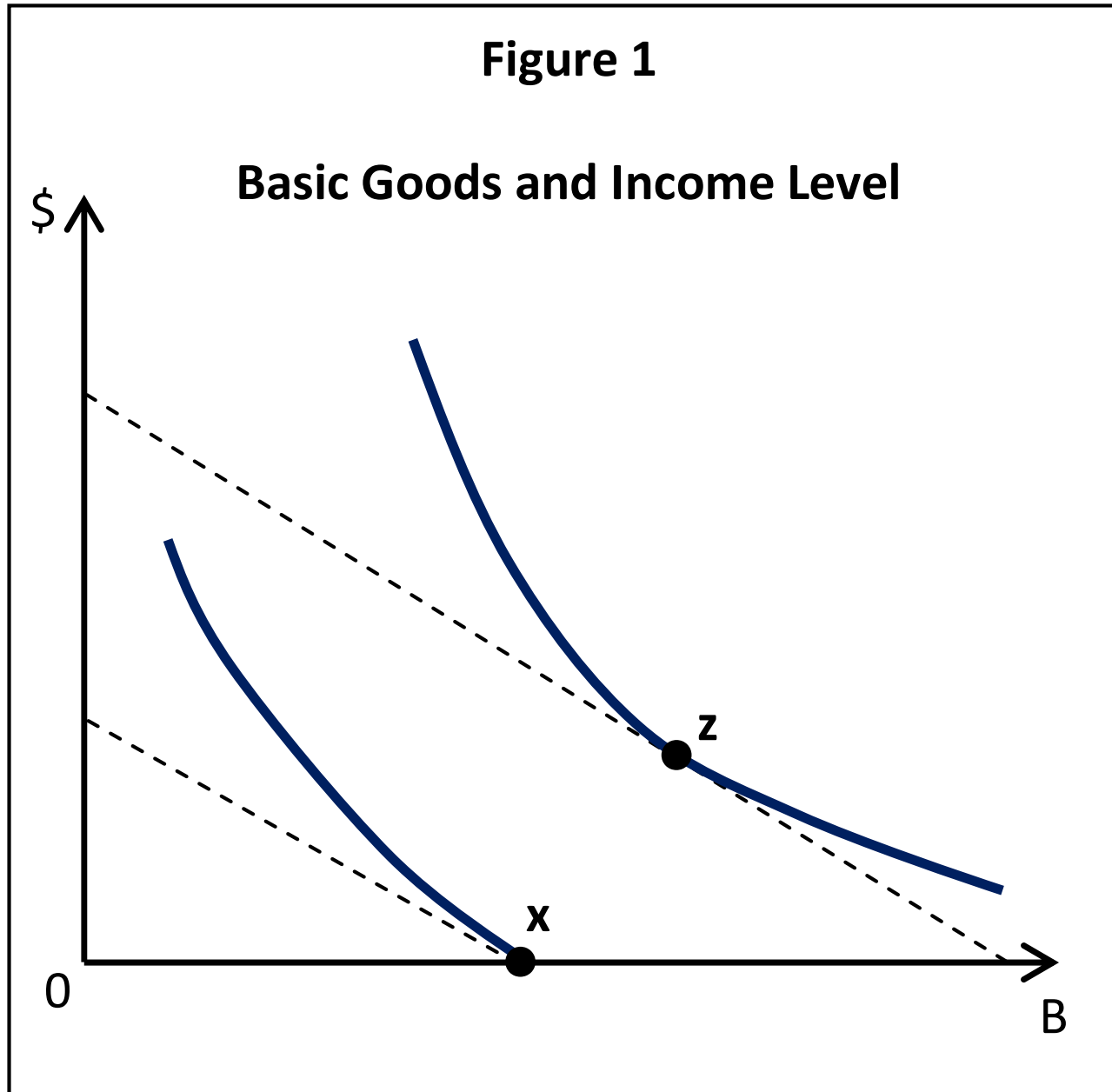
- **Income Gini: fluctuates around 56%
between 2003 and 2010 (MESEP, 2012)**
- **Poverty index: 30,6%
(47% in rural areas) (DANE, 2014)**
- **55% of the urban working population earns the
minimum wage or less; the next 19% earns on
average 1,3 minimum wages (DANE, 2014)**



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- **Land concentration gini indices range from 0,80 to 0,89 between 1960 and 2009 (IGAC, 2012)**
- **0,21% of shareholders owns 79,9% shares of the Colombian stock market (Bonilla and González, 2006)**
- **Low performance in the PISA tests**

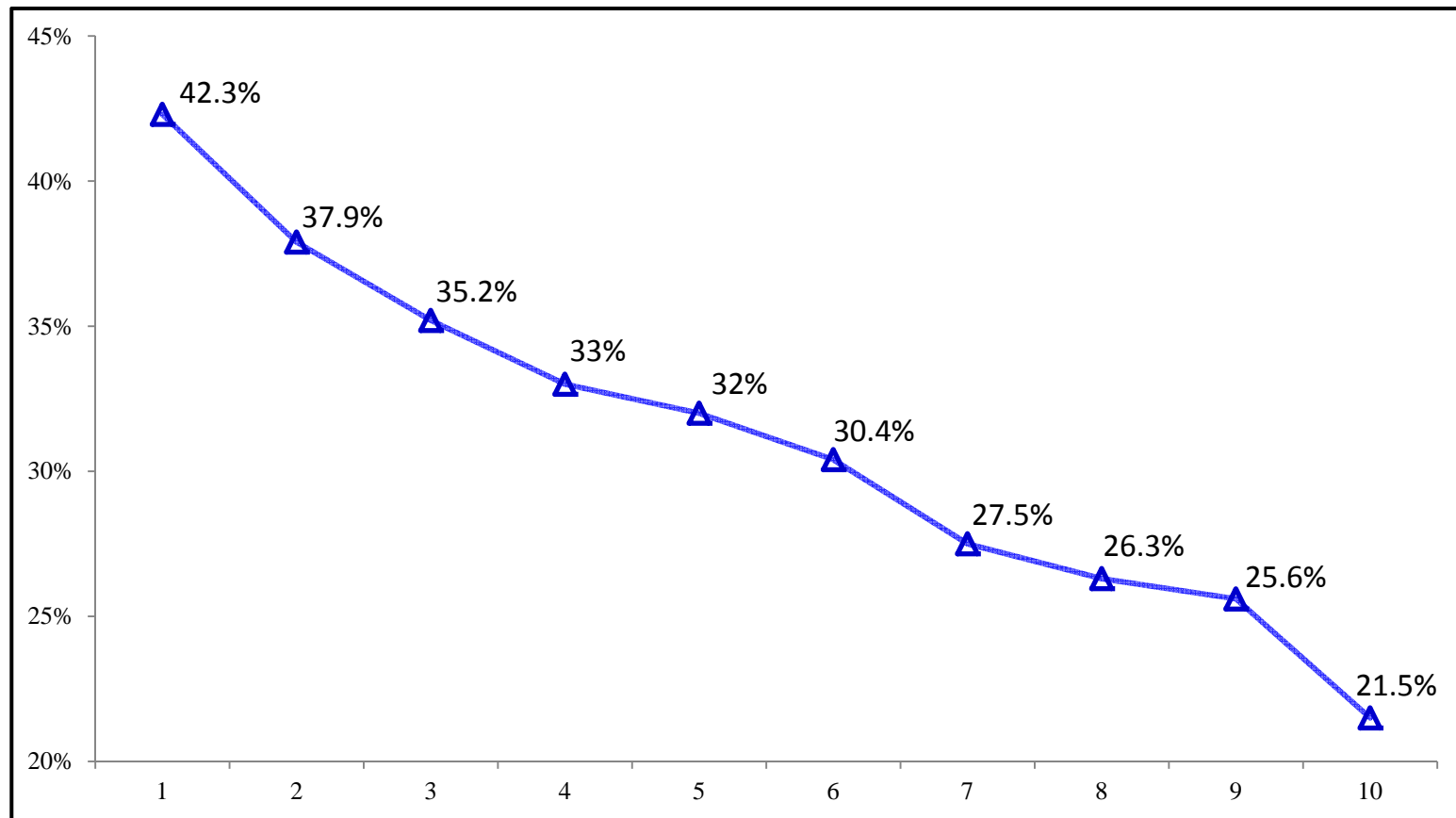
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Figure 2

Relative Expenditure on Housing and Ancillary Services by Income Deciles Colombia 24 Cities



Source: ENIG 2006-2007 (DANE).

The population of the 24 major Colombian cities spends on average 27% of their income on housing and ancillary services (water, electricity, gas and other fuels), 21.4% is spent on accommodation.

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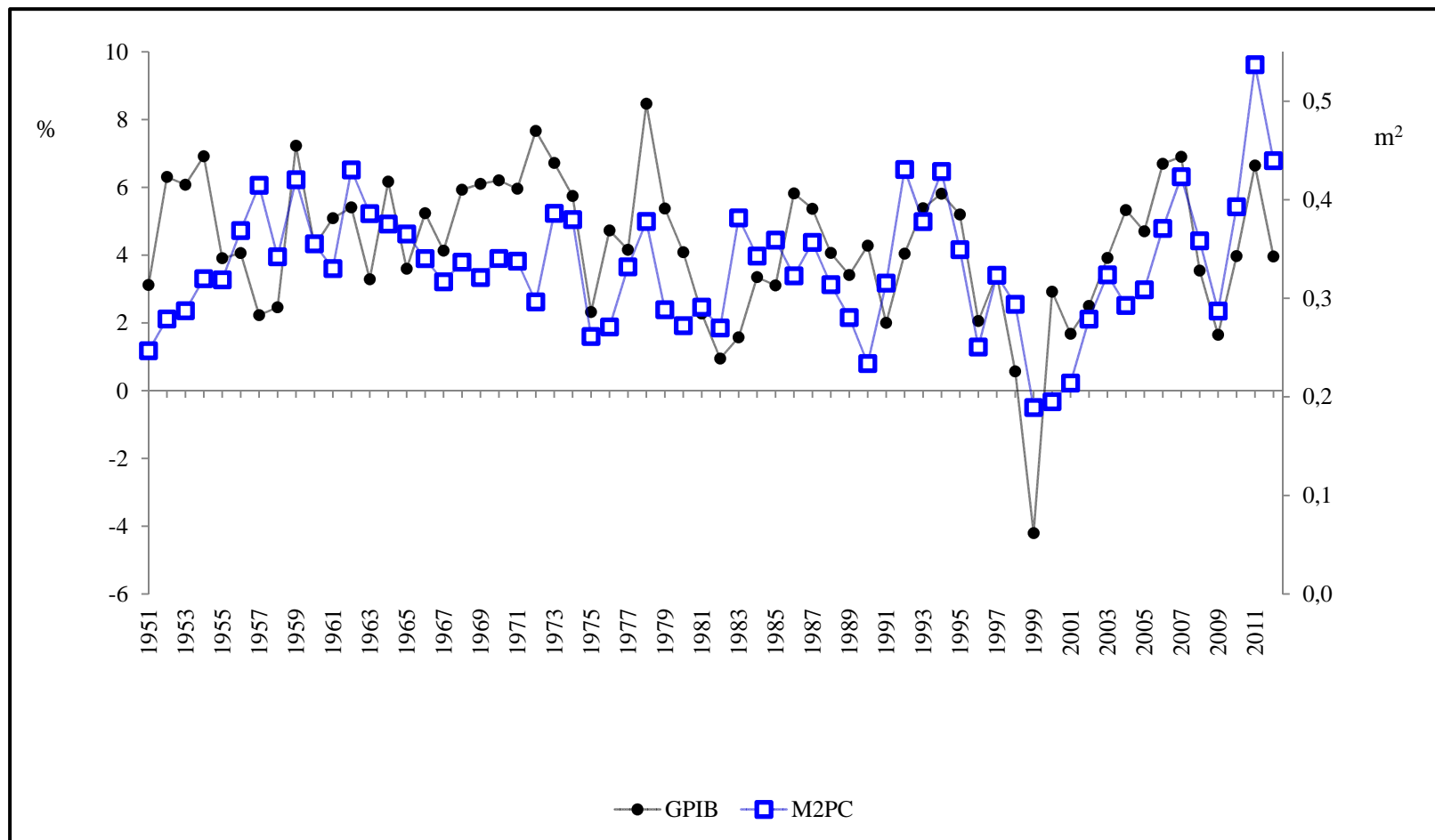
**Survey on urban construction licenses
(ELIC, DANE).**

**Information is available almost continuously from
1948 up today**

**→ M2PC: Annual licensed square meters for
lodging construction per urban inhabitant**

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Figure 3
Economic Growth Rate and New Housing Supply per Urban Inhabitant
Colombia 1951-2012



Source: Own processing, DANE and CEPAL.



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TIME SERIES ANALYSIS: Growth Regressions

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| Table 1 Linear Economic Growth Regressions (GPIB) Colombia 1955–2012 | | | | Table 2 Interactive Economic Growth Regressions (GPIB) Colombia 1955–2012 | | | |
|--|-------------------|--------------------|--------------------|---|-------------------|--------------------|--------------------|
| Variable\ Regression | (1) | (2) | (3) | Variable\ Regression | (4) | (5) | (6) |
| C | 25.02 (16.77) | 0.85 (1.76) | -0.38 (1.57) | C | 3.58 (4.75) | 1.47** (0.56) | 0.79 (0.79) |
| R | -2.42** (1.19) | -2.84*** (0.95) | -2.99*** (0.73) | R | -2.73** (1.11) | -3.01*** (0.65) | -3.22*** (0.73) |
| GK | 0.50** (0.20) | 0.69*** (0.13) | 0.70*** (0.12) | GK | 0.55*** (0.20) | 0.72*** (0.14) | 0.74*** (0.13) |
| D71-79 | -0.42 (0.90) | | | D71-79 | -0.36 (0.92) | | |
| D80-90 | 0.69 (2.02) | | | D80-90 | 0.39 (1.87) | | |
| D91-00 | -2.04 (2.51) | -1.74*** (0.40) | -1.53*** (0.35) | D91-00 | -1.58 (2.18) | -1.90*** (0.43) | -1.67*** (0.37) |
| D01-12 | -1.07 (2.93) | | | D01-12 | 0.067 (2.19) | | |

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|--|-----------------------------|------------------------------|------------------------------|---|-----------------------------|------------------------------|------------------------------|
| Variable\ Regression | (1) | (2) | (3) | Variable\ Regression | (4) | (5) | (6) |
| MIN | -56.91 (47.67) | | | MIN*M2PC | -98.09 (155.75) | | |
| VIVOS | -50.73 (34.70) | | | VIVOS*M2PC | -84.94 (93.03) | | |
| AGROIND | -18.89 (41.95) | | | AGROIND*M2PC | 15.03 (108.63) | | |
| MATPRIM | 118.83** (57.32) | 100.17*** (21.85) | 109.46*** (19.03) | MATPRIM*M2PC | 387.05** (162.25) | 317.45*** (69.53) | 340.24*** (56.91) |
| BK | 71.63 (71.79) | | | BK*M2PC | 261.04 (163.35) | | |
| CONST | -68.25 (73.22) | | | CONST*M2PC | -71.49 (217.37) | | |
| TRANSP | -158.03 (97.75) | -106.75*** (21.00) | -102.97*** (18.52) | TRANSP*M2PC | -470.99* (275.33) | -347.83*** (53.47) | -334.50*** (58.58) |
| PUB | -241.14* (132.36) | -71.92*** (15.28) | -74.97*** (13.35) | PUB*M2PC | -550.39 (373.55) | -225.92*** (36.14) | -231.52*** (39.32) |
| GOB | 47.74 (58.02) | | | GOB*M2PC | 61.18 (162.11) | | |

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Table 1
Linear Economic Growth Regressions (GPIB)
Colombia 1955–2012

Table 2
Interactive Economic Growth Regressions (GPIB)
Colombia 1955–2012

| Variable\ Regression | (1) | (2) | (3) | Variable\ Regression | (4) | (5) | (6) |
|-------------------------|-------------------|-------------------|-------------------|-------------------------|------------------------|--------------------|--------------------|
| CIO | 12.90 (33.92) | | | CIO*M2PC | 49.49 (87.54) | | |
| FIN | -71.54 (57.03) | | | FIN*M2PC | -88.64 (161.62) | | |
| M2PC | 8.13 (20.93) | 7.68** (3.16) | 8.33*** (2.38) | M2PC | 20.22075 (58.05) | | |
| M2PC ² | 6.02 (24.26) | | | M2PC ² | 33.21975 (27.36211) | 18.74*** (3.27) | 16.67*** (4.67) |
| SEC | -0.40 (0.27) | | | SEC | -0.11 (0.21) | | |
| HOM | -0.014 (0.033) | | | HOM | -0.016 (0.04) | | |
| AR(3) | | -0.31** (0.13) | | AR(3) | | -0.33** (0.14) | |
| GPIB(-2) | | | 0.14** (0.06) | GPIB(-2) | | | 0.13* (0.07) |
| GPIB(-3) | | | -0.13** (0.06) | GPIB(-3) | | | -0.14** (0.07) |

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| Table 1 Linear Economic Growth Regressions (GPIB) Colombia 1955–2012 | | | | Table 2 Interactive Economic Growth Regressions (GPIB) Colombia 1955–2012 | | | |
|---|-----------------|-----------------|-----------------|--|-----------------|-----------------|-----------------|
| Variable\ Regression | (1) | (2) | (3) | Variable\ Regression | (4) | (5) | (6) |
| Obs. | 58 | 58 | 58 | Obs. | 58 | 58 | 58 |
| R² | 0.764214 | 0.734590 | 0.678238 | R² | 0.761224 | 0.747348 | 0.690847 |
| Adjusted R² | 0.626672 | 0.691258 | 0.617908 | Adjusted R² | 0.621937 | 0.706099 | 0.632881 |
| Akaike | 3.605494 | 3.275568 | | Akaike | 3.618095 | 3.226305 | |
| Schwarz | 4.387041 | 3.595292 | | Schwarz | 4.399643 | 3.546029 | |

Source: Own estimations



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TIME SERIES ANALYSIS: Fixed Capital Growth Regressions

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Table 3
Fixed capital growth regressions

| Variable\ Regression | (7) | (8) | (9) |
|-------------------------|----------------------------|----------------------------|----------------------------|
| C | 1.380940*** (0.443988) | 1.485923*** (0.288699) | 1.302668*** (0.319548) |
| R | -1.558410*** (0.294171) | -1.573289*** (0.283970) | -1.614264*** (0.455859) |
| GKF(-1) | 0.740430*** (0.036003) | 0.735786*** (0.038055) | 0.764946*** (0.055658) |
| DEV | -0.028407*** (0.006754) | -0.028559*** (0.006869) | -0.028507*** (0.006795) |
| D01-12 | 1.048755*** (0.166620) | 1.020992*** (0.142096) | 0.930363*** (0.224071) |
| HOM | 0.002198 (0.009007) | | |
| SEC | -0.195427*** (0.053341) | -0.185888*** (0.032438) | -0.163880*** (0.046155) |
| Observations | 58 | 58 | 58 |
| R ² | 0.882383 | 0.882098 | 0.881076 |
| Adjusted R ² | 0.868546 | 0.870761 | 0.869641 |
| Akaike | 2.039499 | 2.007437 | |
| Schwarz | 2.288173 | 2.220586 | |
| DW | 1.818316 | 1.808727 | 1.827752 |

Source: Own estimations

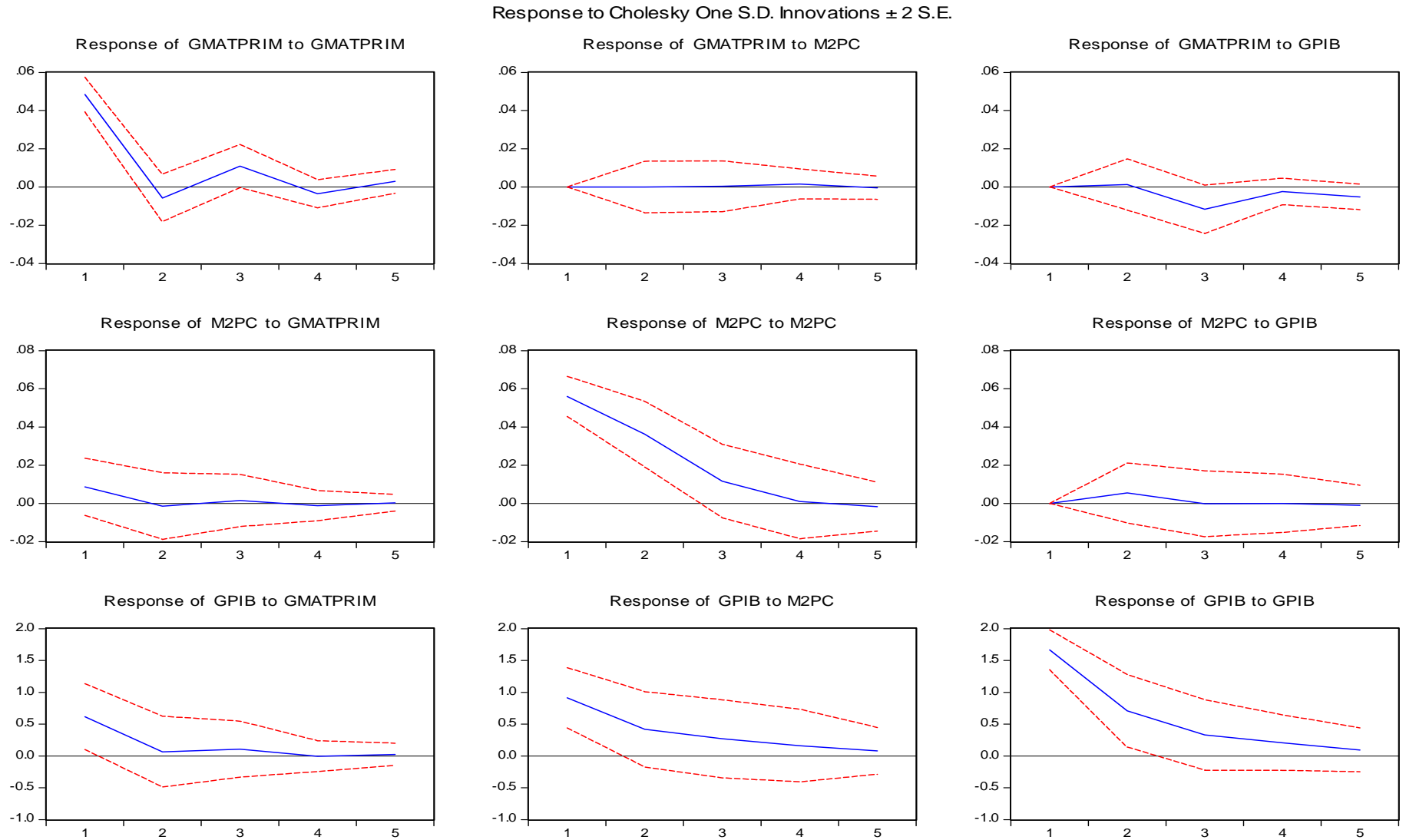


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IMPULSE-RESPONSE ANALYSIS

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Figure 5: Impulse-Response Analysis



Source: Own estimations

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- **GMATPRIM and M2PC seem to have a contemporary positive and significant impact on the economic growth rate (GPIB).**
- **GPIB seems to follow an autoregressive process of order 1: the growth rate seems to persist for one year in a significant way.**

CONCLUSIONS

The State must recover or enhance its role as provider of quality public goods.

- **Without neglecting the administration of justice and the general provision of public works and public institutions of social interest, it is essential to recover the industrial policy for increasing the productive diversification with high technological intensity.**
- **It is necessary to promote the accumulation of fixed capital and human capital.**

CONCLUSIONS

- It is necessary to recover the multimodal infrastructure of transport.
- The infrastructure of public utilities should be commensurate with the population needs and the firms demand.
- Property rights should be firmly protected.

Last but not least, the population purchasing power must be enhanced:

- Quality job creation (industrial policy)
- Income redistribution



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CONCLUSIONS

The fight against poverty does not only stem from a claim for equity and justice, but also from economic efficiency: the population purchasing power is a fundamental condition for sustained economic growth.



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Gracias