



Savings, Private Property and Sound Money: An Austrian Perspective on the Essential Pre-requisites to Economic Growth and Development

Poupança, Propriedade Privada e Sound Money: Uma Perspectiva Austríaca sobre os Pré-requisitos Essenciais para o Crescimento e Desenvolvimento Econômico

Ahorro, Propiedad Privada y Moneda Estable: Una Perspectiva Austríaca sobre los Requisitos Previos Esenciales para el Crecimiento Económico y el Desarrollo

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Palavras-chave:

Poupança; Propriedade Privada; Sound Money; Perspectiva Austríaca.

RESUMO

O principal objetivo desse artigo é trazer uma resposta para a seguinte pergunta sobre a perspectiva de economistas que trabalham dentro da tradição mengeriana ou austríaca: quais são os pré-requisitos e as pré-condições fundamentais para que um processo de crescimento e desenvolvimento econômico aconteça? Ao longo da nossa discussão, nós destacamos três pré-requisitos importantes. Primeiramente, nós observamos as implicações da presença de preferência temporal, principalmente pelo valor que as economias têm por adotar processos de produção mais longos e produtivos e assim, aumentar a produtividade. Em segundo lugar, analisamos o problema do cálculo econômico e isolamos as importantes pré-condições institucionais que são necessárias para a alocação de bens de ordem superior: a propriedade privada em bens de ordem superior bem como o uso do dinheiro. Essas pré-condições institucionais, assim como discutimos, são, portanto, também essenciais para o processo de crescimento econômico. E, por fim, discutimos a importância de uma ordem monetária sólida por gerar crescimento econômico sustentável.

Keywords:

Savings; Private Property; Sound Money; Austrian Perspective.

ABSTRACT

The overarching goal of this paper is to provide an answer to the following question from the perspective of economists working within the Mengerian or Austrian tradition: What are the essential pre-requisites and pre-conditions for a process of economic growth and development to take place? In course of our discussion, we focus on three important pre-requisites. First, we look at the implications of the presence of time preference, especially for the importance that savings have for adopting longer and more productive production processes and boosting productivity. Second, we analyze the problem of economic calculation and isolate the important institutional pre-conditions that are necessary for the allocation of higher order goods: private property in higher order goods and the use of money. These institutional pre-conditions, as we discuss, are thus also essential for the process of economic growth. And finally, we discuss the importance of a sound monetary order for generating sustainable economic growth.

Palabras clave:

Ahorro; Propiedad Privada; Moneda Estable; Perspectiva Austríaca.

RESUMEN

El objetivo general de este artículo es proporcionar una respuesta a la siguiente pregunta desde la perspectiva de los economistas que trabajan dentro de la tradición Mengeriana o Austríaca: ¿Cuáles son los requisitos previos y condiciones esenciales para un proceso de crecimiento y desarrollo económico? En el transcurso de nuestra discusión, nos concentramos en tres pre-requisitos importantes. En primer lugar, observamos las implicaciones de la presencia de la preferencia temporal, especialmente por la importancia que las economías tienen para adoptar procesos de producción más largos y productivos y aumentar la productividad. En segundo lugar, analizamos el problema del cálculo económico y aislamos las importantes condiciones institucionales que son necesarias para la asignación de bienes de orden superior: la propiedad privada en bienes de orden superior y el uso del dinero. Estas condiciones institucionales, como discutimos, son, por lo tanto, también esenciales para el proceso de crecimiento económico. Y, finalmente, discutimos la importancia de un orden monetario estable para generar crecimiento económico sostenible.

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INTRODUCTION

The economic historian, David Landes, begins his book *The Wealth and Poverty of Nations* ([LANDES, 1998^a](#)) with a discussion of the circumstances surrounding the death of Nathan Rothschild, the German banker and businessman ([LANDES, 1998^b, p.16-18](#)). In June of 1836, Rothschild, then “probably the richest man in the world, at least in liquid assets” ([LANDES, 1998^c, p.17](#)), travelled from London to Frankfurt to attend his son’s wedding. Along with his baggage and belongings, he also carried a painful inflammation on his lower back on his journey across the Atlantic, diagnosed by some doctors as a boil, and by others, as an abscess.

While in Frankfurt, the inflammation grew ever more painful. The leading doctors on both sides of the Atlantic were summoned, but to no avail. All their attempts to open and clean the boil produced no results, and Rothschild died soon after on the 28th of July, 1836. The current consensus, according to Landes, is that he probably died “of staphylococcus or streptococcus septicemia,” an infection of the bloodstream caused by one of the strains of the streptococcus bacterium; a condition that, today, can be treated by antibiotics that are widely available. Thus, as Landes notes, “the man who could buy anything died, of a routine infection easily cured today for anyone who could find his way to a doctor or a hospital, even a pharmacy” ([LANDES, 1998^d, p.18](#)).

Since the death of Rothschild, as Landes goes on to observe, there has been a significant improvement in average life expectancy in many parts of the world. Most of this increase, he argues, can be attributed, not just to the improvements in medical knowledge and medical equipment, but also to the increase in the quantity and variety of foodstuffs available and the resulting improvement in the levels of nutrition, and to the significant improvement in the access to goods like clean running water, washable cotton undergarments, and soap, all of which help ensure greater cleanliness. In fact, the production of these goods, at least in the Western world, increased so rapidly in the decades immediately succeeding Rothschild’s death that, according to Landes, the “commoners of the late nineteenth and early twentieth century often lived cleaner than kings and queens of a century earlier” ([LANDES, 1998, p. 18-19](#)).

What Landes is essentially describing is a process of economic growth; a process where, over a period of time, there is a significant improvement in the quantity and the quality of the consumer goods available to the members of an economy. Such process of growth is, moreover, usually accompanied by a broader process of economic development; the improved flow of consumer goods results not just in the gratification of the more “material” or “basic” wants, but it also enables the satisfaction of the “ideal” or “higher” wants. In a more prosperous and

developed economy, individuals, in addition to gratifying the wants of hunger, thirst, clothing, shelter, etc., also have the means to satisfy their scholarly, artistic and religious needs.

What, however, are the main pre-conditions and pre-requisites that must be in place for such a process to occur? On what foundations can the edifice of growth and the accompanying process of economic development be raised? This article attempts to tackle these questions, and does so from an Austrian perspective. Specifically, it aims to discuss and analyze what we consider to be the three most important pre-requisites of economic growth that have been emphasized by theorists working within this tradition of economic thought as it has developed from Menger's seminal *Principles of Economics* ([MENGER, 2007^a](#)). In the process, we hope to show that all three of them follow from certain theoretical premises that are fundamental to this school of thought.

In providing such an overview of the theory of growth and development from an explicitly Austrian perspective, we hope to accomplish three important objectives: First, we hope to provide a brief, but nevertheless, detailed summary of important theoretical propositions that form the core of the theory of growth within this tradition and hope that such an overview will serve as a gateway or a starting-point to those who wish to explore these ideas in greater depth. Second, we hope that such an overview will stimulate more research into exploring the theoretical aspects of the theory of growth from this perspective and further applications of it to help understand the experience of developing countries around the globe¹. And lastly, our goal is to further more detailed theoretical analysis and criticism, from an Austrian perspective, of the mainstream growth models that have served as the foundation of development policy in the post-WWII era.²

The three sections that follow each, focus on one important pre-requisite. Section II takes a closer look at the implications of the presence of time preference, especially on the importance of savings for adopting longer and more productive production processes and improving productivity and generating economic growth. Section III, by delving deeper into the subject of economic calculation, presents an analysis of the institutional conditions required for such progressive lengthening of the production structure, namely, private property in the goods of all orders and the use of money, or a universal medium of exchange. Section IV, meanwhile, argues that it is not just the use of money, but the presence of a sound monetary order that is required for generating sustainable economic growth. The final section presents a conclusion to the paper.

¹ See the references provided in footnote 18 for some attempts to apply these theoretical insights to explain the experiences of some developing economies. Some of the works of Easterly ([2001](#); [2006](#); [2014](#)) and [Coyne \(2013\)](#) and the important collection of essays on development planning edited by [Boettke \(1994\)](#) also apply some Austrian insights to critically analyze development policy. But, as some of the articles in this symposium suggest, there is a lot more work that is left to be done in this regard.

² For a brief attempt to do so, see Manish and Powell (2014)

1 Time Preference, Saving and Economic Development

1.1 The Praxeological Foundations of Time Preference³

Human action involves a purposeful reaction to one's environment: in acting, an individual seeks to transform the momentary conditions that define his (or her) existence and aims to bring about an alternate state of affairs. The driving force behind such an endeavor is the attempt to attain gratification; to satisfy a want that, but for the efforts of the actor, would remain unfulfilled. At a given moment, an individual peers into the future and perceives that he will be burdened by an unfulfilled desire. Spurred by a vision of how he can remove this perceived lack, he strives to bring about a state of the world where he can fulfill this desire.

Such an attempt to gratify a desire requires the individual to intervene in the course of events. In actively doing so, he necessarily engages in an exchange: of two states of satisfaction that he cannot attain at the same time, he deems one to be of greater importance to his well-being and ascribes more value to it, while setting the other aside. In acting today to bring about this state of satisfaction in the future, he renounces the option of trying to bring about an alternate state of satisfaction that he values less.

Now, in making such judgments of value the actor chooses between two future states of satisfaction that he cannot pursue at the same time. However, in addition to such value judgments, action also involves time preference. In striving to bring about a particular state of satisfaction, an actor reveals that he prefers to attain this satisfaction in the nearer as compared to the more distant future⁴. On his momentary scale of values, the satisfaction obtained by gratifying this unfulfilled want in the nearer future is deemed to be of greater importance to his well-being, and is valued more than the identical satisfaction he would have attained by gratifying this want in the more distant future⁵.

Consider, to begin with, the case of action with respect to first order goods. Robinson Crusoe, stranded on an island, finds himself in possession of a fish and decides to use its services to satiate the pangs of hunger that are gnawing at him. This act, on his part, necessarily implies

3 For a detailed analysis of the praxeological aspects of time preference see [Mises \(1998^a, p. 476- 487\)](#). See [Rothbard \(2009a^a: p.13-17\)](#) for a briefer exposition.

4 This proposition has had a prominent place in the Austrian theory of value right from its inception in Menger's *Principles of Economics*, where he notes that "all experience teaches that a present enjoyment or one in the near future usually appears more important to men than one of equal intensity at a more remote time in the future" ([MENGER, 2007^b, p. 153-154](#)).

5 As Mises notes: "If any role at all is played by the time element in human life, there cannot be any question of equal valuation of nearer and remoter periods of equal length. Such an equal valuation would mean that people do not care whether success is attained sooner or later. It would be tantamount to a complete elimination of the time element from the process of valuation" ([MISES, 1998^b, p. 480](#)).

that he prefers to attain the satisfaction obtained from satiating his hunger sooner rather than later. Given the existence of this want and the fact that it will remain unfulfilled without some action on his part, and given that he possesses the means to gratify it, he attaches greater value to satisfying it in the nearer as compared to the more distant future.

Turning now to the case of action with respect to higher order goods, consider again the case of Crusoe. Although currently free of the pangs of hunger, he expects this want to re-emerge soon and decides to act now to be ready to satisfy it. Wading into the ocean, he catches some fish with his hands, ensuring that he has the necessary consumer goods when he feels hungry again. Here again, Crusoe, in choosing to act now and devote some of his labor-time to the production of fish, demonstrates that he prefers the satisfaction derived from satiating his hunger sooner rather than later, and that he, therefore, attributes more value to the fish available in the nearer future as compared to having same amount of fish in the more distant future.

1.2 Time Preference, Saving, and the Lengthening of the Period of Production

The existence of time preference has some very important implications for the theory of saving and for the Austrian theory of growth and development. To analyze them in greater detail, let us revisit Crusoe, and consider a more complex scenario. Assume that Crusoe looks into the future and perceives the emergence of wants both in the near and in the more distant future; since these wants will go unfulfilled without some action on his part, he has room to extend his period of provision⁶. Given these wants that he expects to emerge in the near and more distant future, Crusoe is considering how to allocate some units of his labor-time. The technical knowledge at his disposal maps out the production processes in which he can utilize these hours of his labor. These processes differ in the period of production involved: some of them yield consumer goods in the nearer future and thus have a shorter period of production, whereas others, since they only yield consumer goods in the more distant future, are characterized by a longer period of production.⁷

Now, some of these longer processes are more physically productive: they either produce a consumer good that cannot be produced by a shorter process or they yield more per unit of the labor-time expended of a consumer good that can also be produced by a shorter

6 Rothbard defines the period of provision as “the length of future time for which each actor plans to satisfy his wants.” He goes on to note that this period is subjective and “differs from actor to actor in accordance with his choice. Some people live from day to day, taking no heed of later periods of time; others plan not only for the duration of their own lives, but for their children as well” ([Rothbard 2009a^b: 17](#)). With regards to this concept, Mises makes the following important point: “Every choice implies also a choice of a period of provision. In making up his mind how to employ the various means available for the removal of uneasiness, man also determines implicitly the period of provision” ([MISES, 1998^c, p. 478](#)).

7 For a detailed analysis of the implications of time preference for the allocation of higher order goods in a Crusoe setting see [Rothbard \(2009a^c, p. 47-64\)](#). See also the discussion in [Bohm Bawerk \(1959^a, p. 102-105\)](#) and [Mises \(1998^d, p.487-490\)](#).

process. Moreover, in addition to being more physically productive, these processes also bring Crusoe more satisfaction per unit of the labor-time used. Thus, the necessary conditions exist for Crusoe to lengthen his period of production and to fulfill wants that lie in the more distant future, thereby also lengthening his period of provision⁸.

Embarking on one of these longer and more productive processes, however, it would leave some wants in the nearer future unfulfilled. If the units of labor are devoted to a process with a relatively long period of production, the wants that would have been satisfied by a shorter process will now go unfulfilled; as would the wants that emerge during the additional time consumed by the longer process.

Given these conditions, it is clear how Crusoe would act in a world without time preference: he would always allocate the units of labor to a more productive process with a relatively longer period of production; and amongst these, he would choose the one that has the longest period of production and is most productive. Moreover, Crusoe would do the same with every unit of labor at his disposal whenever these conditions present themselves. In such a world, Crusoe is always ready to save the entire stock of consumer goods at hand, both now and in the future⁹. Thus, there is nothing that constrains him from giving up the satisfaction that embarking on the longest known production process entails. In short, there is nothing that constrains him from choosing to lengthen his period of production and thereby also his period of provision.

It follows that, given these conditions, there would be no room for Crusoe to improve the quantity and the quality of the flow of consumer goods at his disposal by transferring some units of his labor-time from a shorter, but less productive process to a longer and more productive process. He would, in other words, always be operating at the “technological frontier” of his rudimentary economy. Thus, without some improvement in his technical knowledge, without him learning of some new and more productive production process, there would be no room for economic growth.

In a world with time preference, however, Crusoe acts very differently. In such a world, where Crusoe sees disutility in waiting for satisfaction, some of his labor services would be devoted to production processes that are relatively short and less productive. Due to the presence

8 Both the shorter and longer production processes will, in most cases, involve more than one step or stage, with each step consisting of the production of a capital good. Some of the shorter processes known to Crusoe, however, might be extremely simple and might consist of only one step, with no production of capital goods involved. The capital goods themselves, it follows, are merely instrumental in nature; they constitute, in the words of Rothbard, the “intermediate way stations on the road to the eventual attainment of the consumers’ goods into which they are transformed” ([ROTHBARD, 2009a^d, p. 58](#)).

9 As Mises observes: “He who consumes a nonperishable good instead of postponing consumption for an indefinite later moment thereby reveals a higher valuation of present satisfaction as compared with later satisfaction. If he were not to prefer satisfaction in a nearer period of the future to that in a remoter period, he would never consume and so satisfy wants. He would always accumulate, he would never consume and enjoy. He would not consume today, but he would not consume tomorrow either, as the morrow would confront him with the same alternative” ([MISES, 1998, p. 481](#)).

of time preference, Crusoe does not automatically save all the consumer goods at his disposal. Instead, he chooses to utilize some or all the units of the first order goods in his possession to satisfy wants in the present. His saving thus restricted, he does not have the means at hand to satisfy the wants that would go unfulfilled if he were to transfer his labor services from a shorter to a longer process, even though some of them offer him greater satisfaction than the wants he chooses to satisfy in the present. As a result, the greater satisfaction in the more distant future that comes with adopting a longer process is valued less than the lower satisfaction provided by the shorter process. Thus, it is time preference that stops Crusoe from lengthening the period of production, and thereby his period of provision, although doing so would yield him more satisfaction per unit of the means expended.

It follows that, in a world with time preference, there is always room for Crusoe to improve the quantity and the quality of the consumer goods at his disposal by increasing his savings, for this allows him to release some of his labor services for use in longer and more productive production processes¹⁰. To save more, however, Crusoe would have to lower his rate of time preference and would have to attach a smaller discount to satisfaction achieved in the more distant future. This would allow him to set aside some of the consumer goods that he is currently using to satisfy wants in the present to satisfy wants in the future that offer greater satisfaction and that would go unfulfilled if some of his labor services were transferred from shorter to longer production processes. Having the means at hand to cover some of these wants would then allow him to release some of his labor-time that is currently locked into shorter production processes for use in longer and more productive processes.¹¹

1.3 Some Important Implications for the Process of Economic Development

Several implications of high importance for the theory of economic growth and development follow from the discussion above. The first and the most fundamental of these is that

10 Both this proposition and the one earlier regarding the restriction imposed by the existence of time preference on saving and, as a result, economic growth, were advanced by Menger in his *Principles* and have since formed the nucleus of the Austrian theory of growth and development. Thus, regarding the second proposition, Menger notes that while “the more extensive employment of goods of higher order for the satisfaction of human needs brings about a continuous expansion in the quantities of available consumer goods, this extension is only possible if the provident activities of men are extended to ever more distant time periods” ([MENGER, 2007^c, p. 152-153](#)). He goes on to observe that “among civilized peoples, a considerable proportion of the members of society is occupied with the production of goods that will contribute only after years, and only after decades, to the direct satisfaction of human needs” ([MENGER, 2007^d, p. 153](#)). But he also notes that there is “an important restraint upon economic progress” due to the fact that “the most anxious care of men is always directed to assuring themselves the consumption goods necessary for the maintenance of their lives and well-being in the present or immediate future, but their anxiety diminishes as the time period over which it is extended becomes longer” ([MENGER, 2007, p. 153](#)).

11 As Mises notes: “People eager to embark upon processes with a longer period of production must first accumulate, by means of saving, that quantity of consumers’ goods which is needed to satisfy, during the waiting time, all those wants the satisfaction of which they consider more urgent than the increment in well-being expected from the more time-consuming process” ([MISES, 1998, p. 488](#)).

it is saving and not technological improvement that is the ultimate driving force of economic growth and development. Technical change and the discovery of new and more productive ways of producing consumer goods is no doubt of crucial importance for increasing the size and the quality of the flow of consumer goods that emerges, over a given period, from the production structure of an economy. Nevertheless, with a given state of technical knowledge, there is always room to achieve economic growth by increasing the amount of consumer goods saved, thereby freeing up higher order goods currently being used in shorter processes for use in longer and more productive processes. It follows, therefore, that the ultimate motor of economic progress is more saving. This remains true as long as there are unfulfilled wants that will emerge in the near and the more distant future, as long as the available technical knowledge contains shorter and less productive techniques and longer and more productive ones, and as long as the existence of time preference ensures that some of the existing stock of first order goods is consumed.

This point, in turn, gives us some insights that are relevant for both the developing as well as the relatively more developed economies. Let us first consider the case of the latter. It follows from what has been said above that even in the more developed economies there is room to achieve economic growth through saving and releasing higher order goods for use in production processes with a longer period of production. For, even if one were to make the extreme assumption that there can be no further improvement in the knowledge of the techniques of production, the existence of time preference ensures that some of the available higher order goods will always be used in less productive production processes that are adopted purely because of the disutility that is attached to waiting¹². It is impossible, in other words, for an economy, no matter how developed, to hit the “technological frontier,” where all the available higher order goods have been released for use in the longer and more productive processes; for, this would imply that the entire flow of consumer goods is saved, which is incompatible with the presence of time preference.

Turning our attention to the case of developing economies, let us assume that there are now two individuals stranded on two separate islands. On one island resides “poor Crusoe,” with an economy that is relatively less developed: the bulk of his labor-time and other scarce higher order goods are utilized in processes characterized by relatively short periods of production. At the

12 Mises makes the important observation that this possibility is implied in the very existence of scarcity. The existence of scarcity, according to him, implies “that there must always be an unused technological opportunity to improve the state of well-being by a lengthening of the period of production in some branches of industry, regardless of whether or not the state of technological knowledge has changed” ([MISES, 1998, p. 526](#)). He goes on to note that “as long as means are scarce,” and as long as “the praxeological correlations of ends and means still exist,” then there are “by logical necessity unsatisfied wants with regard both to nearer and to remoter periods of the future.” This, in turn, implies that “there are always goods the procurement of which we must forego because the way that leads to their production is too long and would prevent us from satisfying more urgent needs” ([MISES, 1998, p. 526](#)). On this point and its implications regarding the impossibility for an economy to hit its “technological frontier”, see [Mises \(1998, p. 525-526\)](#) and Rothbard (2009, p. 537-542).

moment when he uses the services of these goods, the consumer goods that will be produced lie pretty close at hand. The result of adopting these shorter processes is that his standard of living is relatively low, and the stream of consumer goods that his rudimentary economy delivers to him in any given period is relatively meager and of rather poor quality.

On a separate island resides “rich Crusoe.” He has the same technical knowledge as poor Crusoe. Nevertheless, the bulk of the higher order goods in his economy are, in any given period, utilized in production processes characterized by longer periods of production. The consumer goods that the services of these goods yield lie relatively far away in the future. As a result, his economy delivers to him a flow of consumer goods that is far richer in both quantity and quality as compared to that of poor Crusoe’s.

Now, the economy of poor Crusoe resembles a developing economy, whereas that of rich Crusoe is closer to one that is more developed¹³. Based on the analysis above, what can be said about the steps that poor Crusoe will need to take to transform his economy so that it more closely resembles that of rich Crusoe? What, in other words, can be said regarding the steps that developing economies will need to take to catch up with their more developed counterparts?

The answer, of course, lies in more saving. Poor Crusoe must tighten his belt, despite the relatively meager flow of consumer goods in his economy. He must, in other words, lower his rate of time preference and consume less and save more, thereby releasing higher order goods to be used in processes with longer periods of production. For, what separates his economy from the more developed one of rich Crusoe’s is a vast temporal gulf. At the current moment, with his allocation of the available higher order goods and the corresponding characteristics of his production and capital structure, poor Crusoe essentially lies very far away in time from the conditions that define rich Crusoe’s existence. And the only way to bridge this temporal gulf is to gradually, step by step, lengthen the period of production and therefore the period of provision that is implied in his actions.¹⁴

13 For a historical examination of this point, and for an analysis of the different length of the production processes adopted in a developing as compared to a developed country, see the seminal article by [Sudha Shenoy \(2007\)](#), especially pages 204-207. Also see [Shenoy \(2010^a, p.7-10\)](#) for a detailed analysis of the flow of consumer goods and the production and capital structure of early modern England, including a study of the various stages and steps involved in the production of the consumer goods that were available at the time.

14 On these points, see Mises’ discussion ([MISES, 1998, p. 493-499](#)). Mises also makes the very important point that international trade in capital goods and the flow of these goods from the developed to the developing countries can greatly reduce this burden of saving and waiting that the latter must bear in order to transfer higher order goods progressively to processes with a longer period of production. This follows from the fact that the possession of capital goods is “tantamount to being nearer to the goal aimed at. An increment in capital goods available makes it possible to attain temporally remoter ends without being forced to restrict consumption” ([MISES, 1998, p. 494](#)). Moreover, he also notes that this is precisely what occurred during the 19th and the first few decades of the 20th century, as the nexus of trade expanded to gradually envelop most of the world. As he notes, the “nations of Eastern Europe, Asia, and Africa have been able, thanks to the foreign capital imported, to reap the fruits of modern industry at an earlier date. They were to some extent relieved from the necessity of restricting their consumption in order to accumulate a sufficient stock of capital goods” ([MISES, 1998, p. 495](#)).

In this process he is aided by the fact that each step in this process makes it easier to take the next. With an unchanged scale of wants and an unchanged rate of time preference, each step in the direction of a lengthening of the period of production increases the amount of savings, thereby creating the pre-conditions that are necessary for taking the next step in this process. For, given an unchanged scale of wants, the increased flow of consumer goods will be utilized to satisfy wants in the present that are ranked progressively lower on poor Crusoe's scale of values. And given an unchanged rate of time preference, poor Crusoe will thus be more inclined to set aside a want in the present or the nearer future in favor of an unfulfilled want in the more distant future that will need fulfilling if higher order goods are re-allocated from a process with a shorter period of production to one characterized by a longer period of production.

Moreover, the increased productivity that results from each step, and the larger flow of consumer goods that it entails, makes it easier to embark on production processes with progressively longer periods of production. The larger flow of consumer goods, and, *ceteris paribus*, the greater ability to save that comes along with this, allows Crusoe to progressively provide for potentially unfulfilled wants that lie in the more distant future, enabling him to release higher order goods for use in more productive production processes with longer periods of production.

2 THE PROBLEM OF ECONOMIC CALCULATION AND THE INSTITUTIONAL PRE-REQUISITES FOR GROWTH AND DEVELOPMENT

2.1 Calculation, the Allocation of Producer Goods and the Lengthening of the Period of Production in a Socialist Economy¹⁵

Viewed in its greatest generality, human action involves the use of only ordinal numbers and leaves no room for the use of cardinal numbers. In making value judgments between alternate states of future satisfaction, an actor engages in ranking and choosing. There is no measurement of satisfaction or utility involved, and there is no measurement of the value of the means of different orders. The only use of numbers, therefore, is that involved in assigning ranks to the possible modes of conduct.¹⁶

¹⁵ For a detailed analysis of the possibility of economic calculation and the process of allocating higher order goods in a socialist economy, see, along with Mises' classic article on the subject (MISES, [1990](#); [1962^a, p.111-145](#); [1998](#), p.238-269/722-748).

¹⁶ This proposition, which is integral to Mises' argument regarding the impossibility of calculation in a socialist economy, is discussed in [Mises \(1998, p. 119-120/ 201-206\)](#). Also see his discussion in [Mises \(1953^a, p. 38-49\)](#).

We live in a world where the means of production at the disposal of an individual are neither perfectly specific nor perfectly non-specific. Instead, some of them are perfectly specific whereas most are relatively non-specific, with some being capable of use in more production processes than others. As a result, in acting with respect to higher order goods in such a world, the actor must necessarily differentiate between and classify the available higher order goods into different groups or classes. This, in turn, throws up the need to allocate these higher order goods between various production processes.

In this process of allocation, the actor necessarily makes use of technical knowledge; his decisions are based on and are guided by his understanding of how to combine a complementary group of inputs and transform them into an output. This technical knowledge, however, only provides the actor with the knowledge of the various paths of conduct that are open to him in any given situation. It provides him with a list of all the available production possibilities but does not assist him any further with the decision of which path of action to follow amongst the ones that are available.¹⁷

Now, action with respect to higher order goods is possible as long as the actor, based on his momentary estimations and appraisements, can ascertain that using some units of a higher order good to pursue an end actually improves his well-being; that doing so does not involve giving up wants that offer greater satisfaction for those that offer less satisfaction. Such a mental estimate, however, is only possible under very simple conditions: in a world where only a few consumer goods can be produced, where each good can be produced in only a few ways, and where all the production processes are relatively simple and do not involve many steps.

Consider, for instance, the case of Crusoe, who is deciding whether to use some of his labor to produce fish. He will, of course, have no problem in isolating the expected satisfaction that the fish will offer him in the future. Assume, however, that he knows of only two other consumer goods that he can produce with his labor: meat and coconuts, each with a production process that requires one, or at most, a couple of steps.

In these simple conditions, Crusoe will have little trouble in surveying the various production possibilities and identifying the amounts of meat and coconuts that he must forego in using some labor to produce fish. Once he has these estimates, he can, of course, appraise the satisfaction that the meat and the coconuts will yield him in the future and can draw up a scale of values where he ranks the three consumer goods one against the other. He will then embark on

17 “[...] the mere information conveyed by technology would suffice for the performance of calculation,” Mises notes, “only if all means of production – both material and human – could be perfectly substituted for one another according to definite ratios, or if they were all absolutely specific” ([MISES, 1998, p. 207](#)). He then goes on to observe that “Technology operates with countable and measurable quantities of external things and effects; it knows causal relations between them, but it is foreign to their relevance to human wants and desires” ([MISES, 1998, p. 208](#)).

the production of fish if he values it more than the meat and the coconuts foregone; and he will ensure that the labor he uses in producing the fish is withdrawn from the production of the consumer good that he values least.

Let us now consider the actions of a central planner who presides over a modern, complex economy. Although this economy is characterized by specialization and the division of labor, the planner is in a similar position to Crusoe with respect to the higher order goods at his disposal. Since all the means of production are now collectively owned, and since there is no exchange possible with respect to them, he is the one who must decide how each unit of every higher order good is utilized.

Now, the planner, like Crusoe, is considering the use of some labor to produce fish. In the more complex conditions in which he finds himself, he will know of many ways to combine the labor with other higher order goods to produce fish. Assume that he can estimate the future satisfaction that the fish produced by any of the methods will yield. Trying to estimate the consumer goods that he will have to give up in using any method, however, throws up a host of problems that were missing in the simple conditions that characterized Crusoe's rudimentary economy.

Consider, to begin with, the labor services required by any one method. Labor, in the complex economy that the planner presides over, can be used in a multitude of production processes. Some of these processes yield consumer goods directly, whereas others produce capital goods that must be combined, often multiple times, with other higher order goods before a consumer good appears. Let us assume that the planner is blessed with an immense amount of technical knowledge: he has at his fingertips the knowledge of all these processes that use some labor.

Withdrawing the labor from any one process, however, throws up further possibilities for the planner to consider. Assume, for instance, that he withdraws some labor from the production of another consumer good to produce the fish. He could then sacrifice units of this good or replace them by shifting inputs from the production of other goods. This, in turn, can be done in many ways. Or, assume that the planner considers taking some labor away from the production of a capital good to produce the fish. This, again, makes him confront certain questions: how should he re-allocate the remaining units of the capital good? Or should he, instead, decide to produce more of it and withdraw inputs from some other process to do so?

Now, let us assume that the planner can make value judgments between any two bundles of consumer goods, effectively making these decisions on behalf of the members in the economy. Moreover, we can also assume that the planner has the knowledge to work his way

through all the technical twists and turns thrown up by the decision to withdraw some labor from another process¹⁸. All this technical knowledge, however, only presents him with various production possibilities. It does not, in any way, help him establish a list of the consumer goods that he would have to forego by withdrawing labor from the different production processes and place them on a momentary scale of values, ranked against the fish that he wants to produce.

Thus, he has no way of ascertaining whether the withdrawal of labor from an alternate process to produce the fish actually adds to his future well-being; no way of determining whether, in this process, he gives up wants that he ranks higher on his momentary scale of values for wants that he values less. Unable to make such judgments of value, the planner will be unable to act with the labor services at his disposal. Moreover, he will find himself in a similar situation with the other non-specific producer goods in his economy. In short, he will be unable to act with the higher order goods at his disposal.

This insight has significant implications for the theory of economic growth. Assume, now, that the planner wants to improve the quantity and quality of the consumer goods in his economy and is ready to save more and release some producer goods for use in processes with a longer period of production. We can assume that the planner can summarily decide to increase savings and can also decide which consumer goods should be saved. He makes these decisions based on his personal scale of values, and on behalf of the consumers in his economy.

As before, let us focus on the case of transferring labor from a shorter to a longer process. The planner has a certain production process in mind that requires some labor. He can estimate the period of production involved. Assume, moreover, that he can also estimate the physical productivity of the labor he wants to devote to this process and can thus appraise the future satisfaction that it will yield¹⁹. He is ready and willing to transfer labor services to it from some shorter process.

But, as discussed above, the planner will have no way of estimating the consumer goods that he will have to give up by withdrawing the needed labor services from some alternate process. In fact, he will also not be able to estimate whether the withdrawal of the labor from another process will entail sacrificing consumer goods in the nearer or the more distant future.

¹⁸ These artificial and unrealistic assumptions regarding the knowledge of the means at hand, the various ways to combine these means to produce different outputs, and the assumption that the planner can make value judgments on behalf of the members of the socialist economy are all made to show that the problem of engaging in economic calculation and its implications for the allocation of higher order goods in such an institutional setting are not contingent on these points. For a more detailed analysis of these assumptions and for their justification, see [Mises \(1998, p. 692-693\)](#).

¹⁹ This, of course, is an unrealistic assumption. In the complex conditions governing the planner's actions, he will have to combine the labor services with a host of other complimentary higher order goods to produce the consumer good. Given this, it will be impossible for him to ascertain the physical productivity of these units of labor that he currently has at his disposal, and would thus be unable to estimate the satisfaction yielded by these units. As Mises notes, "Without the aid of monetary calculation men could not even learn whether – apart from the length of the period of production – a definite process promises a higher productivity than another" ([MISES, 1998, p. 488](#)).

Thus, as before, he will be unable to tell if the use of the labor in this production process actually adds to his well-being. Moreover, he will not even be able to ascertain if such a withdrawal of labor actually involves a lengthening of the period of production and the period of provision. He may, very well, end up not only sacrificing the satisfaction of more valuable wants for those of less value, but may actually exchange satisfaction in the more distant future for that in the nearer future. It follows, therefore, that a socialist economy will lack the necessary institutional preconditions for achieving economic growth by saving and releasing producer goods for use in longer and more productive processes.²⁰

2.2 Private Property and the Use of Money: The Institutional Pre-requisites for Development

These problems, however, disappear within the sphere of a market economy, where the available higher order goods are privately owned²¹ and have money prices. Here production decisions are made, not by a central planning committee, but by entrepreneurs in their private capacity. Consider one such entrepreneur, contemplating whether to produce a product and of which method to use. He casts his eyes into the future and appraises the value scales of his potential customers, thereby forming an estimate of the money price of the product and the revenues that he can expect from any chosen method. He then turns to the input side of the problem and appraises what he will have to pay to pry the services of the producer goods away from the hands of other competing entrepreneurs. These appraisements allow him to form an estimate of the costs involved with a given method.

Since money is the universal medium of exchange and is traded against all other goods in a market economy, the entrepreneur can make value judgments with respect to sums of money. Thus, given his estimates of the revenues and costs associated with the various production processes, he can calculate the prospective profitability of each and choose to embark on the one that promises the highest future rate of profit. Depending on the accuracy of his appraisements,

20 This conclusion, strictly considered, applies, in an age of an expensive international division of labor, to a world-embracing socialist economy where the planners succeed in stamping out all private property in the means of production. Such an economy, however, has never actually existed in history. All that certain states have been able to do is to try and create, with different degrees of success, socialist economies within a single country. Such economies, such as the erstwhile Soviet Union, China and India prior to their liberalization, and most recently Venezuela, have been characterized, not by a theoretically pure socialist economy, but by pockets of central planning and calculational chaos in a world of market-determined prices both in the black markets and informal economies within these countries and in the world economy at large. In such conditions, these economies have been able to generate economic growth as measured by aggregates such as GDP, at least over certain periods. Closer analysis has revealed, however, that this growth in output has gone hand-in-hand with stagnant or even retrogressing living standards. For such analyses for the Soviet Union, see Boettke (2001; 2010) and Nutter (1962), and for the case of socialist India see B.R. Shenoy (1963; 1966), Sudha Shenoy (1971) and Manish (2011; 2013).

21 The existence of private property in both first and higher order goods, of course, presupposes that a legal system of defining and protecting those rights exists. Indeed, without such a system there will be no incentive for individuals to save and invest. The implications that follow from the Austrian theory of growth and the gradual extension of the division of labor for the emergence of such institutions are beyond the scope of this paper. For more on this, however, see footnote 26 below.

things may or may not go exactly according to plan. He may, for example, find that he has either underestimated or overestimated the prices of certain inputs. He may, thus, need to make alterations to his plan of production, which he can make from moment to moment as he enters the various factor markets.

Note that the entrepreneur, while making these production decisions, does not have to worry about which processes the inputs that he acquires have been withdrawn from. Nor does he have to worry about the consumer goods that are ultimately sacrificed due to the withdrawal of these inputs from alternate processes. This burden now rests on the shoulders of other entrepreneurs; on the shoulders of those who compete with him for the services of these inputs in the factor markets and on the shoulders of those entrepreneurs who, across the length and breadth of the economy, might have to alter their decision making because of his decision to acquire and use certain inputs in his production process.

But since each entrepreneur, in every stage of production, makes these decisions while appraising the future valuations of his customers, they are all effectively made in light of, and are connected to, the decisions that consumers are expected to make in the markets for consumer goods in the future. Thus, consider an entrepreneur who successfully bids for a factor and uses its services in a profitable venture: he succeeds in withdrawing these services from production processes that, in light of his expectations and those of other entrepreneurs, yield consumer goods that lie lower on the momentary value scales of consumers in the future. He then uses them in a production process that, prospectively, produces consumer goods that are ranked higher.

Thus, a market economy is characterized by an intellectual division of labor, where no one individual or entity is in charge of allocating the available higher order goods; and where, during the process of resource allocation, there is no need for either one mind or a group of minds to draw up a momentary scale of values and attempt to estimate if the consumer goods yielded by a production process are more valuable than those that are given up²². Instead, in a market economy, each entrepreneur, at a given moment, focuses on a single step of the resource allocation process, and the allocation patterns of the available higher order goods result from millions of such specific decisions made by entrepreneurs. Nevertheless, a connection is established between each entrepreneurial decision and the prospective valuations of the consumers and each unit of every higher order good is allocated, prospectively, to satisfy the highest values wants of the consumers.²³

22 "In societies based on the division of labor, the distribution of property rights effects a kind of mental division of labor, without which neither economy nor systematic production would be possible" ([MISES, 1962^b, p. 117-118](#)).

23 For a detailed and insightful elaboration of this point, see [Bohm Bawerk \(1959^b, p. 248-256\)](#) and [Mises \(1998, p. 328-335\)](#).

This coordination between the decisions of the entrepreneurs and those of the consumers is key to understanding why a money-using market economy provides the necessary institutional preconditions for the process of economic growth. Individuals, in their roles as consumers and savers, make decisions regarding the length of their respective periods of provision. They make decisions regarding consumption and saving and thus determine how much is available to invest for the future. These decisions, reflective of their subjective rates of time preference, underlie the prevailing rate of interest. An increase in the amount of savings, for example, all else held equal, reduces the rate of interest, and vice versa.

The entrepreneurs, while making their production decisions, must decide between methods of production of varying length. Some of them produce the desired product sooner, whereas for other processes a longer period lies between the use of the services of a factor and the appearance of the product. Moreover, some of these longer processes are physically more productive and yield a larger amount of revenue, albeit in the more distant future. In deciding between these production processes of varying length the entrepreneurs are constrained by the prevailing rate of interest. Longer and more productive processes are, owing to the existence of a positive interest rate, set aside in favor of shorter and less productive processes²⁴. Thus, there is a connection established between the decisions of consumers and savers regarding the length of the period of provision and the length of the period of production of various production processes.²⁵

When individuals in their role as consumers and savers decide to increase their savings, the subsequent fall in the interest rate allows the entrepreneurs to pursue production projects with longer periods of production. Other things, including entrepreneurial expectations, held equal, some higher order goods are now withdrawn from shorter production processes and reallocated to those with a longer period of production. Once these processes are completed, there is an increase in both the quantity and the quality of the flow of consumer goods in the economy.²⁶

24 The intellectual division of labor that permeates a market economy also carries over into the inter-temporal allocation of the available higher order goods. In such an economy, rarely does one entrepreneur or does one group of entrepreneurs oversee the production of a consumer good from start to finish. Instead, the final consumer good is the result of the decisions made by several entrepreneurs, each producing capital goods in the numerous stages of production that precede the production of the consumer goods. Thus, the falling interest rate allows certain entrepreneurs to embark on longer production processes for the specific products that they are producing; processes that, thus far, had been deemed less profitable and hence unfeasible due to the higher interest rate. If the products produced by these entrepreneurs happen to be capital goods, then the actual completion of the overall production process and the creation of the consumer goods results from the production decisions of the other entrepreneurs who are producing products in the lower stages of production.

25 For a detailed analysis of how this process of inter-temporal coordination plays out in a market economy, see, especially [Mises \(1998, p. 476-534\)](#) and Rothbard (2009, p. 319-452). Also see the discussion in [Hayek \(2008a\)](#) and (2008b, p. 223-252) and [Garrison \(2001^a, p. 57-83\)](#).

26 The intellectual division of labor that characterizes resource allocation in a market economy implies that the system of division of labor based on private property and contractual relations, in general, and the inter-temporal production and capital structure, in

3 SOUND MONEY, THE FALSIFICATION OF ECONOMIC CALCULATION AND SUSTAINABLE ECONOMIC GROWTH

A sustainable process of economic growth requires not just the existence of private property in the means of production and the use of money. In addition, it also requires the presence of sound money; the existence of a monetary order or system that does not lead to the falsification of the economic calculations of entrepreneurs. Thus, the criteria that distinguish money that is sound from money that is unsound, when adopting this perspective, all follow from the requirements that are necessary to ensure sound economic calculation.

It follows that the soundness of money, in this perspective, does not lie in the stability of its purchasing power as measured by a price index. Now, the primary function of a price index, however constructed, is to measure the amount of inflation or deflation that has occurred over a period of time as a result of the decisions of individuals in an economy. Such an average of prices, however, it does not feature in the economic calculations of entrepreneurs and thus does not directly influence the pattern of resource allocation. The entrepreneurs in a market economy, in their calculations, are focused on appraising the prices of the product that they wish to produce and the prices of the inputs that they may use to produce it. They are focused, in other words, on a small subset of prices that can influence the outcome of the specific set of actions that they are considering²⁷. This, of course, is nothing but a reflection of the intellectual division of labor that the possibility of using money prices in calculation facilitates in a market economy.

Regarding this small subset of prices, of course, there can be no question of establishing any kind of stability. Such stability, in fact, would only be possible in the imaginary and unrealizable conditions of the evenly rotating economy. In the real, dynamic world of action, changes in the prices that enter into the calculations of entrepreneurs are the norm, and stability the exception²⁸. For, such a world is characterized by ceaseless change, which has two distinct sources: the changes in prices that result from past actions of market participants as they adjust to prevailing conditions, either in the markets that the entrepreneurs wish to enter or markets that are

particular, emerge in a step-by-step manner; both are, to quote Adam Ferguson's famous phrase, the "result of human action, but not the execution of any human design" (FERGUSON, 1782). It follows, therefore, that the institutional structures that are necessary for such a gradual extension of the division of labor, especially the required legal framework, also emerge in a similar step-by-step fashion. Such insights regarding the nature of these social formations permeate the works of Menger, Mises and Hayek, and are collected and analyzed in detail in [Shenoy \(2010^b\)](#). In this work, Shenoy also draws out the implications of these insights for the historical analysis of economic growth and development.

27 Thus, as [Hulsmann \(2008, p. 77\)](#) notes: "The quantitative statement of the index [the price index] reflects just an average of very different concrete situations. But it is concrete circumstances, not some average, that count for human decision-making."

28 See [Mises \(1998, p. 213-229\)](#) for a discussion of this point and for a critical analysis of the idea that the purchasing power of money, when conceived in this way, can ever be stabilized in the real world.

closely related to these, and changes that result from exogenous changes in the market conditions, either in consumer preferences, technical knowledge and the stocks of labor and land.

Instead of stability, the overarching criterion for establishing the soundness of money is a lack of distortion in the calculations of entrepreneurs. Given the inherent non-neutrality of money, such distortions or falsifications of economic calculation can result from increases in the money supply, and during the step-by-step process by which this new money ripples through the economy. A significant feature of this process is that the prices of different goods do not all rise simultaneously and to the same extent²⁹. It is precisely this fact that accounts for the non-neutrality of the process and also what falsifies the calculations of entrepreneurs.

These problems are most acute when the new money enters the economy through the credit or loan market. Its first effect is to push the interest rate down artificially: the rate goes down without any increase in savings and without any desire, on the part of individuals in their roles as consumers and savers, to lengthen their periods of provision. Holding all else, including their expectations constant, entrepreneurs respond to this lower interest rate by choosing to adopt some of the longer and more productive processes that they had set “aside when the interest rate was higher. Thus, there emerges a disconnect between the decisions of the entrepreneurs to lengthen the period of production of the projects they embark on and the decisions of consumers regarding the length of their periods of provision. When coordinated, the entrepreneurs choose to lengthen the former because consumers choose to lengthen the latter, with this fact reflected in the falling interest rate. But when the interest rate is artificially reduced due to monetary expansion, the period of production of projects are lengthened even though consumers choose not to lengthen or may even choose to shorten their periods of provision.

This inter-temporal dis-coordination, it is vital to note, results from the falsification of entrepreneurial calculations caused by the fact that the interest rate falls before there are any changes to the prices of the inputs and outputs that enter these calculations. Guided by these distorted calculations, entrepreneurs transfer producer goods from shorter to longer and more productive processes without the needed increase in savings that makes such a re-allocation sustainable. They behave like Crusoe would, if he were to decide to re-allocate some of his labor from shorter to longer processes without, at the same time, deciding to save more and have the means at hand to provide for those wants that now go unfulfilled during the longer period of production but that are more valuable to him than the wants that are satisfied by the longer process. Thus, instead of embarking on a process of sustainable growth, these decisions of the

29 For a detailed analysis of the inherent non-neutrality of money and the step-by-step nature of the process of monetary expansion, see [Mises \(1953^b, p. 131-145\)](#).

entrepreneurs give rise to an artificial boom: the higher order goods that are moved into the longer processes now constitute malinvested resources, and these investments, sooner or later, are revealed to be erroneous. When this occurs, the boom turns into a bust, and there is no improvement in the quantity or quality of the flow of consumer goods in the economy.³⁰

Moreover, the boom actually renders the economy poorer in the long run; the malinvested resources not only fail to bring about an improvement in the flow of consumer goods, but the entire process actually reduces the consumption possibilities available to consumers. This is a result of the capital consumption that accompanies the boom, which is another result of the falsification of economic calculation.³¹

What, then, must be done to ensure that the monetary order in an economy is one that is sound and does not falsify the economic calculations of entrepreneurs? The overarching objective, in this regard, must be to minimize all economically unnecessary expansions in the money supply. The best means to achieve this end would be the complete removal of political interventions into the monetary order; to completely free the entire monetary order: the production of both money and money substitutes should be left entirely to the private sector.³² Failing this, the goal must be to render the entire banking system entirely free from political intervention, ensuring that at least the production of money substitutes is in the hands of private entrepreneurs.

CONCLUSION

The overarching goal of this paper has been to provide an answer to the following question from the perspective of economists working within the Mengerian tradition: What are the essential pre-requisites and pre-conditions for a process of economic growth and development to take place? In course of our discussion, we focused on three important pre-requisites. First, we looked at some implications of the presence of time preference, especially for the importance that savings have for the lengthening of the period of production of production projects and for boosting productivity. Second, we analyzed the problem of economic calculation and isolated the important institutional pre-conditions that are required for the allocation of higher order goods: private property in higher order goods and the use of money. These institutional pre-conditions, as we discussed, are thus also essential for the process of transferring producer goods from shorter and

30 The artificial lowering of interest rates due to monetary expansion, as Mises notes, “falsifies the businessman’s calculation...The result of such calculations is therefore misleading. They make some projects appear profitable and realizable which a correct calculation, based on an interest rate not manipulated by credit expansion, would have shown as unrealizable” ([MISES, 1998, p. 55](#)). For a detailed exposition of the Austrian theory of the business cycle see [Mises \(1998, p. 535-583\)](#), [Hayek \(2008b, p. 252-282\)](#) and [Garrison \(2001b, p. 57-83\)](#).

31 See [Mises \(1998, p. 544-545/561-562\)](#) for an analysis of the capital consumption inherent in the boom and bust process.

32 For more on this, see [White \(1992\)](#) and [Mises \(1998, p. 431-445\)](#).

less productive processes to longer and more productive processes. And finally, we discussed the importance of a sound monetary order for generating sustainable economic growth.

Due to restrictions of space, we have been unable to explore some key insights within this theoretical tradition that are relevant to the theory of growth and development. Most importantly, we have not discussed the implications that various government interventions into a market economy have for economic growth. As emphasized in the works of [Mises \(1998, p. 712-857\)](#), [Hutt \(1973; 1974; 1977; 1980\)](#) and [Rothbard \(2009b\)](#), many interventions that aim to interfere with production activities in a market economy and guide them along different lines, in addition to mis-allocating resources and reducing the welfare of consumers, also result in the consumption of capital and in a reduction in the quantity and quality of the flow of consumer goods. Thus, such interventions, which are popular in the developing world because they are viewed to be growth enhancing, not only lead to a change in the composition of goods produced, to the detriment of consumer satisfaction, but also lead to a reduction in the size of this flow and to a fall in living standards. An analysis of these lines of thought, although they lie outside the scope of this paper, are essential to provide a complete picture of the insights that the Austrian perspective has to offer for the subjects of growth and development.

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