Daily Life Economics (2024). “The Economic Dynamics of Expanding the Family: Fixed, Variable, and Marginal Costs”, Available at https://dailylifeecon.com/case-studies/

The Economic Dynamics of Expanding the Family: Fixed, Variable, and Marginal Costs

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Key concepts: Cost Function; Total Cost; Fixed Cost; Variable Cost; Marginal Cost.

The IA family (any similarity with the acronym Artificial Intelligence is a pure coincidence), comprised of F and C, has undergone a remarkable journey in expanding their family. This microeconomic analysis delves into the economic aspects of having their first child (A), second child (P), and third child (M). The focal points include the pronounced fixed costs associated with the introduction of the first child, the evolving relevance of fixed costs with the second child, and the resurgence of fixed costs with the arrival of the third child.

Before we start, let’s briefly remember the definitions of fixed, variable, and marginal costs. Fixed costs are expenses that remain constant regardless of the level of production or output, this means that they do not vary with the quantity of goods or services produced by a business. Variables costs are expenses that change proportionally with the level of production or output, i.e., they increase or decrease based on the number of goods and services produced by a business. Finally, marginal cost refers to the additional cost incurred by producing one more unit of a good or service. Normally, these concepts are associated with the production of goods; in this case study, we are going to see how we can also use these concepts to explain the costs associated with having children and subsequently increasing the family.

Fixed Costs and the Introduction of the First Child - A:

The initiation of parenthood with the birth of their first child, whom we shall refer to as A (for simplicity and anonymity), was marked by a notable surge in fixed costs for the IAs. Key among these was the necessity to adapt their living space to accommodate the needs of a growing family. This involved a substantial investment in a larger home, essential furniture, and a dedicated nursery setup. The fixed nature of these expenses underscored the notion that, with the first child, a family encounters a substantial upfront financial commitment. Can you give examples of fixed costs that the IA family would have had to incur with the arrival of A? You can potentially think about larger and smaller costs, such as buying a larger home, which some families may need (although we will need more information on the family to know whether this happened), buying a car seat, decorating a nursery, etc.

Evolving Dynamics with the Second Child - P:

As the IAs welcomed their second child, P, an interesting shift occurred in the economic landscape. Fixed costs, while still relevant, became less prominent in comparison to the variable costs associated with raising an additional child. We can argue that this is like the concept of economies of scale when we study the supply side in microeconomics, with the family benefiting from the reuse of baby gear and the knowledge gained from raising their first child. Variable costs, such as childcare and increased food and/or clothing expenses, took precedence over fixed costs during this stage.

If we connect the concepts of family and firm decisions, this is like the concept of the short and long run for firms (the supply side in microeconomics). In the long run, the fixed cost disappears, and all the costs are variable; although not an exact perfect match; we could say that having a second child is similar to a firm long-run situation. Following this thought, the economic concept of diminishing marginal returns manifested itself with the arrival of the second child, P. Contrary to the substantial fixed costs incurred with the first child, the marginal costs associated with the second child decreased. This phenomenon is akin to economies of scale, where the efficiency gained from experience and shared resources mitigates the incremental financial burden of expanding the family. The IA family experienced a more streamlined transition with P, leveraging existing infrastructure and knowledge. But you may not just think about this in financial terms, for example, the change in timetable or opportunity to get a whole night's sleep (or a night out), with P the IA family was already adapted to the “parenthood” situation, as this period of adaptation happened mainly with the arrival of A and it would have been much smaller or minimal with the arrival of the second child.

What do you think would happen if the IA family had a third child?

Resurgence of Fixed Costs with the Third Child - M:

The economic narrative took an intriguing turn as the IA family expanded further with the birth of their third child, M. Fixed costs experienced somewhat of a resurgence, reminiscent of the initial phase with the first child (A), but to a lesser extent. The potential need for a larger car (again, not all families may need this) and, in many cases, a bigger house to accommodate the growing family underscored the reemergence of substantial fixed expenses. The third child, M, may bring about a renewed focus on upfront financial commitments, signalling a return to higher fixed costs in the family's economic equation. We would also observe that some costs remain the same after having the first child, such as, for example, family dynamics and some elements of the timetable we mentioned with P.

The IA family's journey from the introduction of the first child (A) through the second child (P) to the arrival of the third child (M) exemplifies the intricate interplay of fixed, variable, and marginal costs in the realm of microeconomics. The case study highlights the high fixed costs associated with the first child, the evolving dynamics with the second child as variable costs take precedence, and the resurgence of some of the fixed costs with the third child. This economic exploration serves as a testament to the nuanced financial considerations that accompany the expansion of a family. But also, the case study shows that fixed, variable, and marginal costs don't just have to be concepts of the supply side of microeconomics.