



Impact of inflation

The possible effect of increased inflation on the ophthalmic market

Recently SWV was asked by the general managers of two ophthalmic lenses companies what the effect of increased inflation could be on sales of ophthalmic lenses. To provide guidance SWV analysed the USA, Germany and the United Kingdom from 1969 to 2019. Economic, demographic and where available optical data was gathered. Interviews were carried out with managers working in the optical industry during that period. *By Mark Mackenzie*

The reason for not including 2021 in the period researched was that SWV saw, in certain markets, a volume impact on ophthalmic lens demand in 2021, which we believe was still due to the COVID pandemic. This in the case of the UK meant that ophthalmic lens volume sales in 2021 were lower than in 2019. This would have affected long term trend analysis. Significant inflation was taken as 4% or more per year. The reason for taking 4% was based on the fact that over a ten-year period with inflation at 4% a product which cost 1,000 in year one should cost 1,490 in year ten. This is almost a 50% increase. This we considered significant.

The main findings of our study are that:

- ▶ Most managers aged under 50, who have worked in western countries are unlikely to have experienced prolonged periods of significant inflation during their working lives.
- ▶ Significant inflation once it takes hold tends to stay around for longer than expected.
- ▶ Significant inflation did not influence the growth of the population nor the growth in the number of persons aged 45 and over (both are important drivers of ophthalmic lens demand).
- ▶ What has an impact is a decline or stagnation in Gross Domestic

Product (GDP). Consumers tended to wait longer before repurchasing a pair of spectacles. A lengthening of the repeat purchase cycle has a big impact on the volume of ophthalmic lenses sold.

- ▶ Optical retailers in the USA and in Germany showed themselves well able to manage the impact of inflation.
- ▶ There is evidence that longer periods of significant inflation combined with bouts of recession can lead to structural changes affecting the optical industry. In all three cases researched a person/s outside of the optical industry set this change in motion.

USA 1969-2019

Over this fifty-year period consumers in the USA experienced significant levels of inflation in the 1970s and 1980s. In the twenty-year period 1969-1989, fifteen years had an inflation rate of 4% or higher. Inflation peaked at 13.9% in 1980. In the thirty-year period 1989 to 2019 there were only four years of inflation at 4% or higher, two of those were 1990 and 1991. A cross check was made with two important drivers of demand for ophthalmic lenses. These are the growth of the population and the growth of the population aged 45 or older.

USA	1963-2020 Consumer Price Index for all urban consumers (US Bureau of Labor Statistics)	Population of USA <i>Source: World Bank</i>	Number of persons aged 45+
1969	35,6	202.677.000	61.086.848
1989	121,1	246.819.000	76.143.662
2019	251,7	328.330.000	136.348.415
% Annual growth between 1969 and 1989	6,3%	1,0%	1,2%
% Annual growth between 1989 and 2019	2,5%	1,0%	1,9%

Periods of significant inflation compared to periods with lower levels of inflation did not influence the growth of the population nor the growth in the number of persons aged 45 and over. Population growth was at the same level in the period 1989 to 2019, a period where inflation averaged 2.5%, as in the period 1969-1989 where inflation averaged 6.3%. A reference to immigration is we believe necessary. “Since 1970, the share and number

of immigrants (to the USA) have increased rapidly, mainly because of increased immigration from Latin America and Asia. Important shifts in U.S. immigration law were responsible for this change in flows, including the Immigration and Nationality Act of 1965 which abolished national-origin admission quotas, the creation of a formal refugee resettlement program with the Refugee Act of 1980, and the Cold War-era grant of preferential treatment to Cuban immigrants.” (Source : Migration Policy Institute). In short, although immigration receives a lot of media coverage nowadays, it is not a new event.

Obtaining optical data for a fifty-year period was challenging. SWV was founded in 2001. Over the first years, we gathered US historical data back to 1995. SOLA data was made available for the period 1991-1998. From 1986 ophthalmic lens sales in units at the manufacturers’ level were published by the OMA (Optical Manufacturers of America.) Ophthalmic lens data from 1978-1981 was provided by a former senior manager at Bausch and Lomb. More Than Meets The Eye (the history of plastic lenses) by PPG was also a valuable source of information. Some estimates on the number of persons wearing Rx glasses for the earlier years had to be made. From 2002 onwards, the task was made easier by the Vision Council, which regularly publishes figures.

The findings of SWV were:

- ▶ The repeat purchase interval, which is the period of time between the purchase of the main pair of spectacles (two ophthalmic lenses in a frame) is, in our opinion, the most important lever to affect demand for ophthalmic lenses. An increase of 0.2 years from 2.7 to 2.9 years can reduce ophthalmic lens volumes by 7%. Repeat purchase intervals can increase quite quickly. They take quite a long time to go down to former levels.
- ▶ The repeat purchase interval remained remarkably steady over a forty-year period (2.4 years in 1978 compared to 2.5 years in 2019). A lengthening of the repeat purchase cycle was seen in the period 1979 to 1983. The US Gross Domestic Product stagnated between 1979 and 1982. The repeat purchase interval lengthened again in 1990 and 1991. This was period of weak economic growth compared to previous years. The repeat purchase interval remained at a fairly high level between 2007 and 2009. This again was a period where the US GDP showed a decline, the economy was in recession.

USA	GDP AT CONSTANT 2015 US dollars <i>Source: World Bank, in billion dollars</i>	GDP growth calculation: actual year divided by previous year <i>Source: World Bank</i>	Number of persons wearing ophthalmic lenses in millions	Pairs of ophthalmic lenses sold to consumers in millions	Repeat purchase cycle in years
1978	\$6.877	5,5%	124,6	50,9	2,4
1980	\$7,076	-0,3%	128,2	47,3	2,7
1982	\$7,125	-1,8%	131,6	47,0	2,8
1989	\$9,623	3,7%	143,6	57,0	2,5
1990	\$9,805	1,9%	145,8	56,3	2,6
1991	\$9,794	-0,1%	148,5	55,4	2,7
2007	\$16,349	1,9%	197,0	73,0	2,70
2009	\$15,912	-2,5%	197,3	71,9	2,7
2019	\$19,975	2,2%	211,1	83,6	2,5

USA	Consumer Price Index for all urban consumers (US Bureau of Labor Statistics)	Calculations of equivalent buying power for eye care over time, for \$100 beginning in 1986. (US Bureau of Labor Statistics)
1986	109,6	\$100,00
1992	138,1	\$127,00
2002	177,1	\$155,50
2019	251,7	\$191,43
% Annual growth between 1986 and 1992	3,9%	4,1%
% Annual growth between 1992 and 2002	2,5%	2,0%
% Annual growth between 1986 and 2002	3,0%	2,8%

US optical retailers as mentioned above were able to manage the impact of inflation. The US Bureau of Labour Statistics publishes a table for the equivalent buying power for eye care, over time, for \$100 beginning in 1986. Selling products in stock based on the purchase price of the product can lead to cash flow problems during significant inflation. The figures below show that the annual growth of inflation between 1986 and 2002 was 3%. The annual growth of eye care prices was just below that level at 2.8%.

In the opinion of a senior retired manager in the ophthalmic lens industry, significant inflation could have had a big impact on the structure of the US ophthalmic lens market. In 1978 out of 100 ophthalmic lenses sold 93 were mineral lenses (glass lenses). Plastic lenses existed but were more expensive and scratched easily. Within the mineral market the big money bringers were mineral photochromic lenses. They accounted for 16% of unit volume. Silver was a major cost component of photochromic glass. In the 1970s the Hunt brothers tried to corner the silver market. One of the reported reasons for doing this was that the Hunt brothers wanted to protect their capital from inflation. The selling price of silver increased. Bausch & Lomb as well as American Optical (the two largest ophthalmic lens suppliers in the USA at that time) had to dramatically increase the price of photochromic glass and subsequently raised the price of clear glass because they wanted to keep the price differential between photochromic and glass the same.

The glass price increases had several effects:

- ▶ Clear glass lenses became more expensive than plastic lenses.
- ▶ The price jump slowed the demand for glass
- ▶ The price increase left a significant opportunity for plastic lens casters (Armorlite/ Essilor/SOLA).

By 1995 the share of mineral lenses had declined to 12%. The two largest ophthalmic lens suppliers in the USA were Essilor (Silor as it was known in the USA then) and SOLA.

Germany 1969-2019

For the period 1969 to 1989 data for the area of Western Germany was used. From 1991 data for unified Germany was used.

Over this fifty-year period consumers in Western Germany experienced significant levels of inflation in the 1970s and early 1980s. In the twelve-year period between 1970 to 1982, ten of those years had inflation of 4% or more. In the twenty-eight-year period 1991 to 2019 there were only two years of inflation at 4% or higher, these were 1991 and 1992. A person pursuing a course of full-time education born in 1970 would never have experienced significant inflation in their working lives before 2022. A cross check was made with two important drivers of demand for ophthalmic lenses. These are the growth of the population and the growth of the population aged 45 or older. The rate of growth of the population in both periods of time (1969-1989) and (1991-2019) was almost identical. The rate of growth of the population aged 45 and older increased.

Obtaining optical data for a fifty-year period was challenging for Germany as well. Over the first years, we gathered German historical data back to 1995. The Zentralverband der Optiker und Optometristen (ZVA) kindly sent us figures back to 1982. The Kuratorium Gutes Sehen e.V. provided data on the number of persons using eyewear back to 1970. Jörg Spangemacher (Publishers Group Ratingen) shared his optical data back to 1987.

Sales of optical products in the period 1991 to 2019 increased from € 3.6 billion to € 5.8 billion in 2019. This was a compound growth rate of 1.7% per year, the rate of inflation was the same. Hence the comment that German retailers were well able to manage the impact of inflation. Unfortunately, data on pairs of ophthalmic lenses sold to consumer is not available for the 1970s and early 1980. It would have been interesting to see, if demand for eyewear in a country with high subsidies was

GERMANY	1963-1990 Former West Germany, Cost of Living Index 1 (Source: Statistisches Bundesamt- Destatis)	Population of former West Germany and United Germany (Source: Statistisches Bundesamt- Destatis)	Number of persons aged 45+
1969	39,1	61.194.591	22.030.053
1989	83,6	62.679.035	25.698.404
1991	65,5	80.274.564	32.109.826
2019	105,3	83.166.711	42.415.023
% Annual growth between 1969 and 1989	3,9%	0,1%	0,8%
% Annual growth between 1989 and 2019	1,7%	0,1%	1,0%

* In 1990 the base on which inflation was measured was changed. This followed the reunification of East and West Germany.